Electric Actuated Sanitary Butterfly Valve

2 Way Stainless Steel, Full Port
1 to 4 inch Tri-Clamp– Explosion Proof

SERIES
5801
5802
5803
5804

Features

- All materials comply with FDA, USDA, and 3-A requirements
- Highly polished internals and end caps with 32 Ra finish
- Forged ASTM 316L stainless steel valve body and end caps
- Tri-Clamp ends for hygienic connections
- Valve body machining and chamfering done by a single CNC process for precise fit
- 316L mirror finish disc/stem for minimal flow resistance
- Bi-directional flow
- Single piece forged & machined stem/disc
- 100% tested with full traceability of all valve components
- Rugged aluminum Type 4X weatherproof enclosure
- Heavy duty motor with overload protection
- Thermostatically controlled anti-condensation heater
- Manual override with end of travel mechanical stops
- Two auxiliary limit switches included with on-off units
- EPS - Electronic Positioning System models available
- Actuators CSA Listed per UL429 and CSA C22.2 and Explosion ratings per Approvals section
- Electrical interface: Two 1/2" NPT threaded ports with temporary plugs. Remove and replace with corresponding explosion proof cable connectors, pipe or plugs (Not Included)

Applications

Sanitary butterfly valves are used to control the flow of water, oils, air, certain caustics, and other media compatible with the materials of construction for general service and where an expanded temperature range or higher pressure is required. Actuators designed for 70% duty cycle.

Operation

On-Off electric actuated valve uses power-to-open and power-to-close, stays in the last known position with loss of power. On receipt of a continuous voltage signal, the motor runs and via a rugged all metal gear system rotates the disc 90°. The motor is automatically stopped by internal cams striking limit switches. On receipt of a reversing continuous signal, the motor turns in the opposite direction reversing the valve position. Valves with EPS-Electronic Positioning System provide 0-100% control of flow via a 4-20mA input control signal.

Construction

Valve Body	ASTM 316L stainless steel
Disc/ Stem	316L stainless steel
Disc Seat/ Liner	EPDM
Gear Drive	Heavy duty alloy steel/aluminium bronze, self locking
Actuator Enclosure	Anti-corrosive durable painted aluminum alloy, Type 4X/ IP67
Visual Valve Position Indicator	High strength glass lens
Fasteners	Stainless Steel
Auxiliary Limit Switches	2 x SPDT (5A/125VAC), on-off actuators only

Description

Explosion Proof direct mount sanitary butterfly valves are designed for commercial and industrial applications. 316L stainless steel valve body for excellent corrosion resistance. Single piece 316L disc/stem with disc polished to mirror finish to minimize flow turbulence. Sanitary tri-clamp ends for quick, sanitary connections and easy cleaning. Rugged Type 4X explosion proof electric actuator includes a manual override, valve position confirmation switches (on-off models), over-torque protection. EPS positioner models allow positioning of the ball with a 4-20mA input control signal.

Approvals– Actuators

ANTI EXPLOSION GRADE

The anti-explosion grade of these actuators is

- ♦ Class 1, Division 1, Groups C & D T5
- ♦ Ex db IIC T5 Gb Class 1 Zone 1
- ♦ AEx db IIC T5 Gb

Where:
Class I – Hazard Class
Division I/ Zone 1 – Area Classification
db – Explosion Proof Type
II – Electrical Equipment design for explosive atmospheres (except colliery)
C – Magnitude of the explosion
T5 - Highest allowed surface temperature of the actuator (+55C)
Gb – Protection Grade
The grades of combustible gas, steam and temperature group are listed in CSA 22.2 No 60079-0-2019, CSA 22.2 No 60079-1-2016, CSA 22.2 No 30-M1986(R2016), CSA 22.2 No 145-11(R2015), ANSI/UL 60079-2:2020, ANSI/UL 1203-2013, ANSI/UL 674 Fifth Edition. It is the user's responsibility to ensure compatibility with the applicable regulations.
CE– EN 60204-1:2006

Standards– Valves

- Construction:
  - ANSI B16/B2/B18
  - FDA 21 CFR 177.1550
  - ANSI B16.34
- Pressure Testing:
  - API 598
- Marking
  - MSS-SP-25
- CE: PED 2014/68/UE

Construction Features

Auxiliary Limit Switches (2) for confirming valve position, on-off versions

Heavy duty integral motor design significantly reduces physical size of actuator

Rugged durable painted aluminum Type 4X/ IP67 weatherproof enclosure.

316L forged, machined valve body

Single piece 316L disc/stem

Standard Tri-Clamp end caps for sanitary connections*

* Refer to specifications table for Tri-Clamp size

* Note: Tri-Clamp size is **NOT** determined by the OD of the end cap

High strength glass position indicator

Circular field joints for superior explosion-proof reliability

Manual Override with protective cover

Self-locking all metal gear drive, no additional brake required

EPDM valve seat meets FDA 21 CFR 177.2600

100% pressure tested

Visual Valve
Position Indicator

Pressure Rating

Pressure Rating*: 1-2", 160 PSI @ 67 °F, 3-4" 140 PSI @ 67 °F

* See P/T chart (pages 3 & 5)

Temperature Rating

Actuator Temperature Rating: -13 to 131° F (-25 to 55° C)

Valve Temperature Rating: EPDM seals: -67 to 302°F (-55 to 150°C)

* See P/T chart (pages 3 & 5)

Installation Requires-Two 1/2" NPT threaded explosion-proof connectors or pipe for electrical interface (Not included**)**

Specifications (English units)

Stock Number	Pipe Size (inch)	Tri Clamp Size	Orifice Diam.	Cv Flow Factor*	Shell Pressure	Cycle Time/ 90°	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: ON-OFF version										
580102	1	1-1/2	0.9	23.0	160	20	110 VAC, 50/60Hz	0.27	70%	B
580103	1-1/2	1-1/2	1.4	80.0	160	20	110 VAC, 50/60Hz	0.27	70%	B
580104	2	2	1.9	230.0	160	20	110 VAC, 50/60Hz	0.27	70%	B
580106	3	3	2.9	372.0	140	30	110 VAC, 50/60Hz	0.63	70%	B
580107	4	4	3.8	800.0	140	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: ON-OFF version										
580302	1	1-1/2	0.9	23.0	160	20	DC24	1.8	70%	G
580303	1-1/2	1-1/2	1.4	80.0	160	20	DC24	1.8	70%	G
580304	2	2	1.9	230.0	160	20	DC24	1.8	70%	G
580306	3	3	2.9	372.0	140	30	DC24	2.4	70%	G
580307	4	4	3.8	800.0	140	30	DC24	2.4	70%	G

Cv = The GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

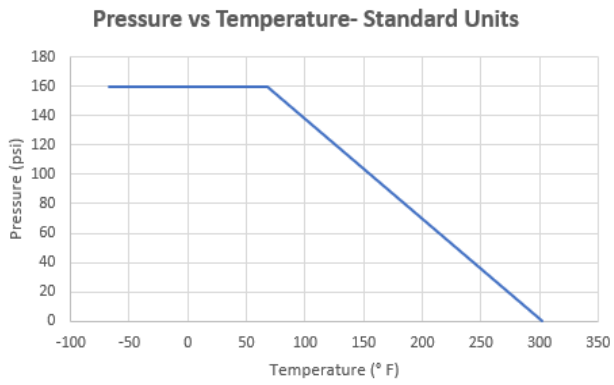
* Pressure @ -67 to 302°F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 160 PSI and 68°F

Pressure Temperature Chart

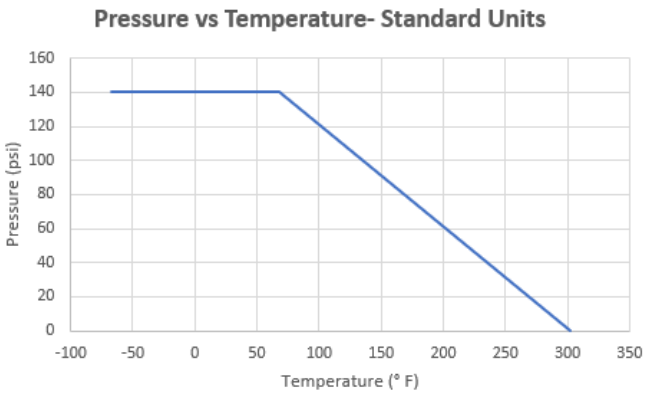
Standard Units 1-2"

Temp °F	-67	68	302
Pressure	160	160	0



Standard Units 3-4"

Temp °F	-67	68	302
Pressure	140	140	0



Specifications (English units)

Stock Number	Pipe Size (inch)	Tri Clamp Size	Orifice Diam.	Cv Flow Factor*	Shell Pressure	Cycle Time/ 90°	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: EPS POSITIONER 4-20mA input										
580202	1	1-1/2	0.9	23.0	160	20	110 VAC, 50/60Hz	0.27	70%	E
580203	1-1/2	1-1/2	1.4	80.0	160	20	110 VAC, 50/60Hz	0.27	70%	E
580204	2	2	1.9	230.0	160	20	110 VAC, 50/60Hz	0.27	70%	E
580206	3	3	2.9	372.0	140	30	110 VAC, 50/60Hz	0.63	70%	E
580207	4	4	3.8	800.0	140	30	110 VAC, 50/60Hz	0.63	70%	E
24 VDC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: EPS POSITIONER 4-20mA input										
580402	1	1-1/2	0.9	23.0	160	20	DC24	1.8	70%	GEY
580403	1-1/2	1-1/2	1.4	80.0	160	20	DC24	1.8	70%	GEY
580404	2	2	1.9	230.0	160	20	DC24	1.8	70%	GEY
580406	3	3	2.9	372.0	140	30	DC24	2.4	70%	GEY
580407	4	4	3.8	800.0	140	30	DC24	2.4	70%	GEY

Cv = The GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

* Pressure @ -67 to 302°F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 160 PSI and 68°F

EPS - Electronic Positioning System

Valworx electric actuators with EPS- Electronic Positioning System provide an accurate valve positioning function whereby the movement of the actuator is controlled by a 4-20mA input control signal. Any change in the control input signal results in a corresponding and proportional change in the position of the actuator (valve). The EPS module is fully potted to help protect the electronics from vibration and moisture resistance.

An internal microprocessor on the EPS circuit board continuously monitors the analog input and output signals and compares them to the physical position via a precision potentiometer feedback system, moving the actuator as required to balance the signals.

The EPS system is self-calibrating which virtually eliminates "hunting". The following functions are standard:

- Position monitoring output signal in same format as input. Ex: 4-20mA input, 4-20mA output
- Adjustable forward or reversing action.
- Sensitivity, Zero and Span adjustments
- Selectable fail mode: fail closed, fail open or stop in place (for loss of input command signal).
- Electric manual control with onboard selector switches
- Fault LED lights indicate valve jam or signal loss
- Electronic brake function

Specifications (Metric units)

Stock Number	Pipe Size (mm)	Tri Clamp Size (inch)	Orifice Diam. (mm)	Kv Flow Factor*	Shell Pressure (Bar)	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: ON-OFF version										
580102	25.4	1-1/2	22.1	19.9	11.0	20	110 VAC, 50/60Hz	0.27	70%	B
580103	38.1	1-1/2	34.8	69.2	11.0	20	110 VAC, 50/60Hz	0.27	70%	B
580104	50.8	2	47.5	199.0	11.0	20	110 VAC, 50/60Hz	0.27	70%	B
580106	76.2	3	72.9	321.8	9.7	30	110 VAC, 50/60Hz	0.63	70%	B
580107	101.6	4	97.6	692.0	9.7	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: ON-OFF version										
580302	25.4	1-1/2	22.1	19.9	11.0	20	DC24	1.8	70%	G
580303	38.1	1-1/2	34.8	69.2	11.0	20	DC24	1.8	70%	G
580304	50.8	2	47.5	199.0	11.0	20	DC24	1.8	70%	G
580306	76.2	3	72.9	321.8	9.7	30	DC24	2.4	70%	G
580307	101.6	4	97.6	692.0	9.7	30	DC24	2.4	70%	G

* Pressure range @ -55 to 150°C (reduced pressure for higher temperatures—see P/T chart)

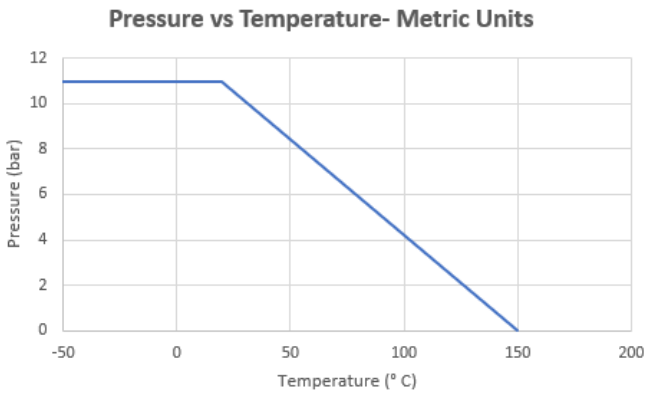
Pressure Temperature Chart

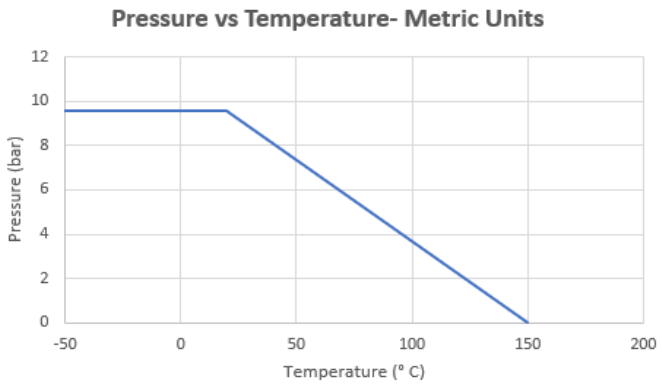
Metric Units 1-2″

Temp °C	-55	20	150
Pressure	11	11	0

Metric Units 3-4″

Temp °C	-55	20	150
Pressure	9.7	9.7	0





Specifications (Metric units)

Stock Number	Pipe Size (mm)	Tri Clamp Size (inch)	Orifice Diam. (mm)	Kv Flow Factor*	Shell Pressure (Bar)	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: EPS POSITIONER 4-20mA input										
580202	25.4	1-1/2	22.1	19.9	11.0	20	110 VAC, 50/60Hz	0.27	70%	E
580203	38.1	1-1/2	34.8	69.2	11.0	20	110 VAC, 50/60Hz	0.27	70%	E
580204	50.8	2	47.5	199.0	11.0	20	110 VAC, 50/60Hz	0.27	70%	E
580206	76.2	3	72.9	321.8	9.7	30	110 VAC, 50/60Hz	0.63	70%	E
580207	101.6	4	97.6	692.0	9.7	30	110 VAC, 50/60Hz	0.63	70%	E
24 VDC ELECTRIC ACTUATED SANITARY BUTTERFLY VALVE, TRI-CLAMP: EPS POSITIONER 4-20mA input										
580402	25.4	1-1/2	22.1	19.9	11.0	20	DC24	1.8	70%	GEY
580403	38.1	1-1/2	34.8	69.2	11.0	20	DC24	1.8	70%	GEY
580404	50.8	2	47.5	199.0	11.0	20	DC24	1.8	70%	GEY
580406	76.2	3	72.9	321.8	9.7	30	DC24	2.4	70%	GEY
580407	101.6	4	97.6	692.0	9.7	30	DC24	2.4	70%	GEY

*Pressure range @ -55 to 150°C (reduced pressure for higher temperatures—see P/T chart)

EPS - Electronic Positioning System

Valworx electric actuators with EPS- Electronic Positioning System provide an accurate valve positioning function whereby the movement of the actuator is controlled by a 4-20mA input control signal. Any change in the control input signal results in a corresponding and proportional change in the position of the actuator (valve). The EPS module is fully potted to help protect the electronics from vibration and moisture resistance.

An internal microprocessor on the EPS circuit board continuously monitors the analog input and output signals and compares them to the physical position via a precision potentiometer feedback system, moving the actuator as required to balance the signals.

The EPS system is self-calibrating which virtually eliminates “hunting”. The following functions are standard:

- Position monitoring output signal in same format as input. Ex: 4-20mA input, 4-20mA output
- Adjustable forward or reversing action.
- Sensitivity, Zero and Span adjustments
- Selectable fail mode: fail closed, fail open or stop in place (for loss of input command signal).
- Electric manual control with onboard selector switches
- Fault LED lights indicate valve jam or signal loss
- Electronic brake function

Electrical Wiring– On/Off

ELECTRICAL WIRING

Confirm the actuator VOLTAGE is correct, then remove the terminal box cover and connect wiring to terminal strip according to appropriate wiring diagram.

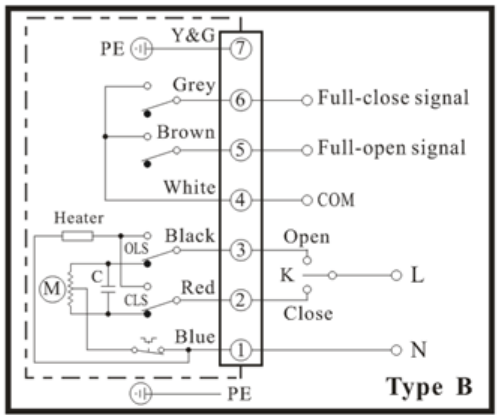
For convenience, wiring diagrams for each actuator are attached to the inside of the terminal box cover.

User/installer to supply a three way switch, control relay, PLC outputs, or other suitable switching device to control the actuator position. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel.

Power should be maintained either in the open or closed position to activate the internal heater. This heater will help prevent condensation build-up inside the actuator.

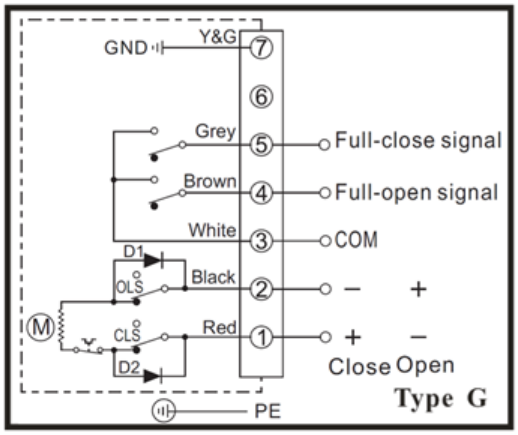
Before connecting power, confirm correct VOLTAGE is being applied. Incorrect voltage may damage actuator and void the warranty.

AC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

DC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

AC Voltage Wiring:

[User/Installer to Supply Relay or 3-way Switch (K)]

Terminal 1: Power Neutral (N)

Terminal 2: Power (L) to terminal 2 - Actuator OFF or CLOSED

Terminal 3: Power (L) to terminal 3 - Actuator ON or OPEN

Auxiliary Position Confirmation Limit Switches

Terminal 4: Common

Terminal 5: Open status confirmation signal

Terminal 6: Closed status confirmation signal

Ground PE

Terminal 7: Earth Ground

NOTES: 1. Auxiliary limit switches are rated 3A@125/250VAC, 30VDC resistive load. *2.* Actuator should have its own fused and isolated circuit. Do not wire actuators in parallel.

DC Voltage Wiring:

[User/Installer to Supply Reversing Relay or Switch]

Terminal 1: Power Positive (+) to close, power Negative (-) to open

Terminal 2: Power Negative (-) to close, power Positive (+) to open

Auxiliary Position Confirmation Limit Switches

Terminal 3: Common

Terminal 4: Open status confirmation signal

Terminal 5: Closed status confirmation signal

Ground PE

Terminal 7: Earth Ground

Electrical Wiring– EPS Positioner

Confirm the actuator VOLTAGE is correct, then remove the terminal box cover and connect wiring to terminal strip according to appropriate wiring diagram.

Wiring diagrams for each actuator are attached to the inside of the terminal box cover.

Input control signal type is 4-20mA. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel. Power to actuator should be maintained to activate the internal heater. This heater will help prevent condensation build-up inside the actuator.

Before connecting power, confirm correct VOLTAGE is being applied. Incorrect voltage may damage actuator and

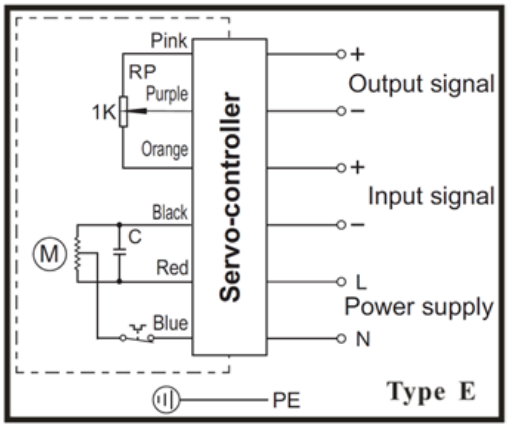
OPERATION (EPS ONLY)

Valworx 5818 series electric actuators with EPS- Electronic Positioning System provide an accurate valve positioning function whereby the movement of the actuator is controlled by a 4-20mA input control signal. Any change in the control input signal results in a corresponding and proportional change in the position of the actuator drive output..

This is achieved with a unique built in electronic positioning module. The module is fully potted to help protect the electronics from vibration and moisture.

An internal microprocessor on the EPS circuit board continuously monitors the analog input and output signals and compares them to the physical position via a precision potentiometer feedback system, moving the drive output as required to balance the signals

AC Voltage Wiring Diagram

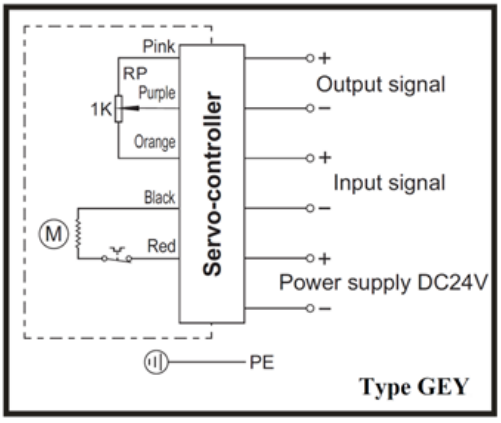


FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

AC Voltage Wiring:

1. AC power - Neutral
2. AC power - Line/Hot
3. Input control signal - Negative (-)
4. Input control signal - Positive (+)
5. Output monitoring signal - Negative (-)
6. Output monitoring signal - Positive (+)

DC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

DC Voltage Wiring:

1. DC power - Negative (-)
2. DC power - Positive (+)
3. Input control signal - Negative (-)
4. Input control signal - Positive (+)
5. Output monitoring signal - Negative (-)
6. Output monitoring signal - Positive (+)

EPS POSITIONER TECHNICAL DATA

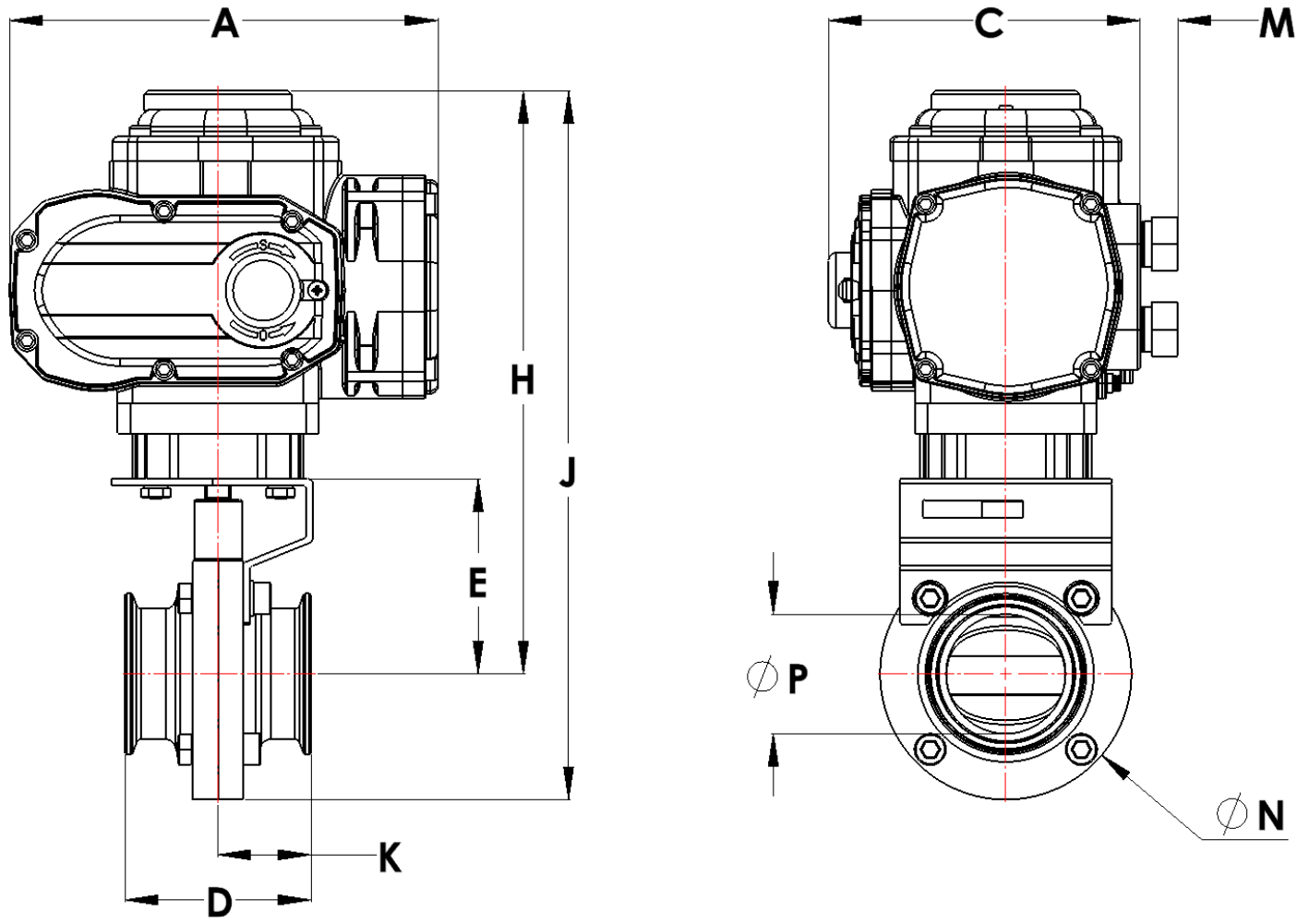
Input Signal: 4-20mA

Output Signal: 4-20mA

Deadband: 0.5% to 5.0%

NOTES: 1. Actuator should have its own fused and isolated circuit. 2. Do not wire actuators in parallel. 3. Output signal is 4-20mA. Use of the output is optional.

Dimensions:



Pipe Size		A	C	D	E	H	J	K	M	N	P	Weight
1	inch	6.7	3.9	2.8	2.8	7.4	9.0	1.4	0.6	3.1	0.9	9.2 lb
	mm	170.5	99.5	70.0	69.9	188.0	228.6	35.0	15.0	79.0	22.1	4.2 kg
1-1/2	inch	6.7	3.9	2.8	2.9	7.6	9.3	1.4	0.6	8.3	1.4	9.2 lb
	mm	170.5	99.5	70.0	74.0	193.0	236.2	35.0	15.0	85.0	34.8	4.2 kg
2	inch	6.7	3.9	2.9	3.1	7.7	9.7	1.5	0.6	3.9	1.9	10.1 lb
	mm	170.5	99.5	74.0	77.7	195.6	246.4	37.0	15.0	100.0	47.5	4.6 kg
3	inch	8.6	5.5	3.1	3.7	9.4	12.0	1.5	0.6	5.0	2.9	17.2 lb
	mm	217.5	139.0	78.0	94.5	238.8	304.8	39.0	15.0	127.0	72.9	7.8 kg
4	inch	8.6	5.5	3.5	4.3	10.2	13.2	1.8	0.6	6.1	3.8	19.2 lb
	mm	217.5	139.0	90.0	108.7	259.1	335.3	45.0	15.0	156.0	97.6	8.7 kg