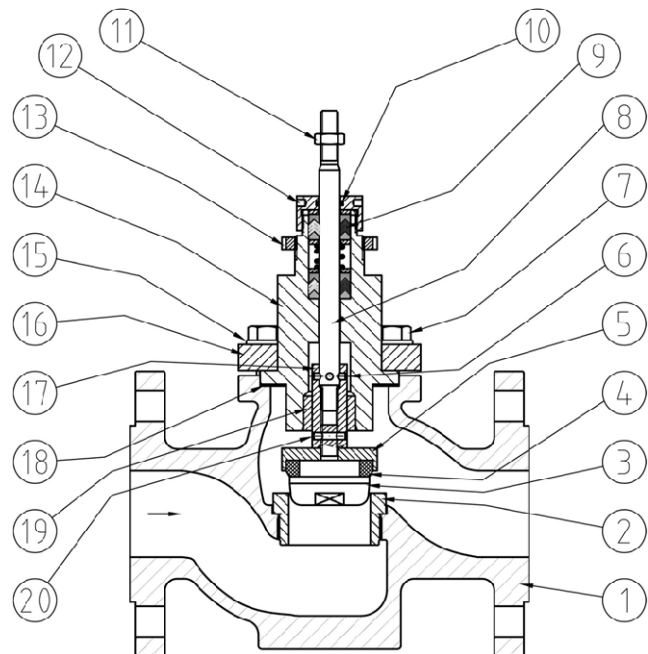


Pneumatic Control Valve - Model C1

BASIC INFORMATION

| | | | |
|---------------------|---|----------------------------|------------------------------------|
| Type | Globe body, top entry, single seated, two ways, direct or reverse action, multi spring pneumatic actuator. The modular concept of valve and a wide range of different trims available, allows a lot of combinations | Kv | 3.5 – 115 [m ³ /h] |
| Operation | Pneumatic actuator provide modulating control or on/off service. Actuator can be changed to direct or reverse actuation on line quickly. | Cv | 4.0 – 134 [gpm] |
| Model | C1 | Temperature | -10 to 200 [°C] -14 to 392 [°F] |
| Connections | Flanged (DIN - ANSI) or Threaded (BSP - NPT) | Inlet max. pressure | 50 [barg] up to DN15 (1/2") |
| Ends | RF – RF, NPT, BSP | Outlet pressure | 50 [barg] |
| Ratings | PN25 - PN40 (150# - 300#) | | |
| Sizes | DN15 to DN100 [mm] (1/2" to 4") | | |
| Suitable for | Liquids, compressed air, neutral gases and steam | | |

VALVE PARTS

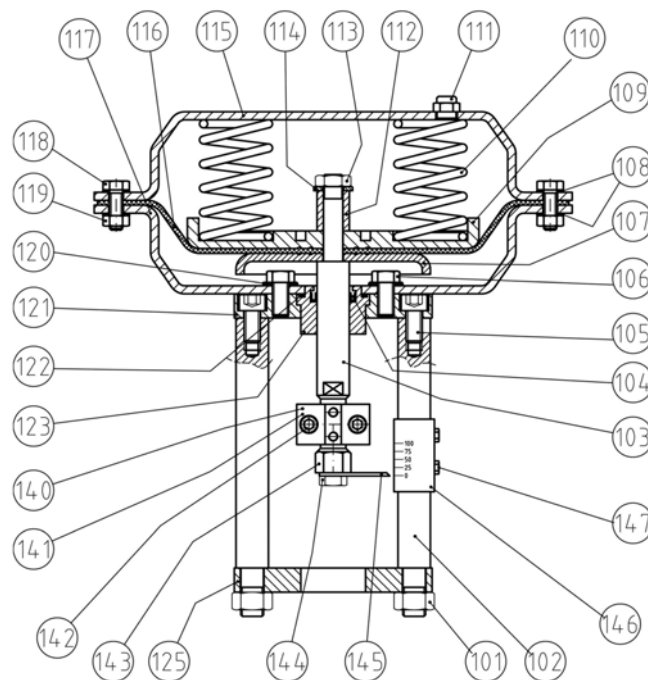


MATERIALS

| REF. | PART | MATERIAL | |
|------|-----------------|--|--|
| | | ANSI / ASTM | DIN / EN |
| 1 | Body | Ductile iron (A536) Bronze (RG10) C. S. (A216WCB) S.S. (AISI 316) | Ductile iron (1693) Bronze (1705) C. S. (1.0619) S. S. (1.4408) |
| 2 | Seat | S. S. (AISI 316L) | S. S. (1.4404) |
| 3 | Guide | S. S. (AISI 316L) | S. S. (1.4404) |
| 4 | Seal | PTFE (D-792) + Graphite | PTFE (53749) + Graphite |
| 5 | Support seal | S. S. (AISI 316L) | S. S. (1.4404) |
| 6 | Block pin | S. S. (AISI 304) | S.S (1.4301) |
| 7 | Bolts | C.S. (AISI 1045) | C.S. (1.1191) |
| 8 | Stem | S. S. (AISI 316L) | S. S. (1.4404) |
| 9 | Packing group | (See stem sealing table) | |
| 10 | O-ring | FKM (D 1418) | FPM (1629) |
| 11 | Blocking nut | S. S. (AISI 304) | S.S (1.4301) |
| 12 | Packing cap nut | S. S. (AISI 316L) | S. S. (1.4404) |
| 13 | Clamping nut | C.S. (AISI 1045) | C.S. (1.1191) |
| 14 | Bonnet cover | (See bonnet table) | |
| 15 | Washer | S. S. (AISI 304) | S.S (1.4301) |
| 16 | Bonne cover | C.S. (AISI 1045) | C.S. (1.1191) |
| 17 | Plug stem | S. S. (AISI 316L) | S. S. (1.4404) |
| 18 | Gasket | Graphite | |
| 19 | Guide | S. S. (AISI 304) | S.S (1.4301) |
| 20 | Block pin | S. S. (AISI 304) | S.S (1.4301) |

Recommended spare parts

ACTUATOR PARTS



MATERIALS

| REF. | PART | MATERIAL | |
|------|-----------------------|-----------------------------------|----------------------------------|
| | | ANSI / ASTM | DIN |
| 101 | Body | C.S. (AISI 1045) | C.S. (1.1191) |
| 102 | Pillar | C.S. (AISI 1045) | C.S. (1.1191) |
| 103 | Pillar support | C.S. (AISI 1045) | C.S. (1.1191) |
| 104 | Gasket | NBR (D-1418) | NBR (1629) |
| 105 | Bolt | C.S. (AISI 1045) | C.S. (1.1191) |
| 106 | Bolt | C.S. (AISI 1045) | C.S. (1.1191) |
| 107 | Lower diaphragm plate | C.S. (AISI 1045) | C.S. (1.1191) |
| 108 | Washer | C.S. (AISI 1045) | C.S. (1.1191) |
| 109 | Spring guide plate | Aluminum | |
| 110 | Springs | Steel (SAE 9255) | Steel (1.5026) |
| 111 | Drain plug | Brass S.S. (AISI 316) | Brass S.S. (14408) |
| 112 | Guide | C.S. (AISI 1045) | C.S. (1.1191) |
| 113 | Nut | C.S. (AISI 1045) | C.S. (1.1191) |
| 114 | Washer | C.S. (AISI 1045) | C.S. (1.1191) |
| 115 | Upper actuator case | C.S. (AISI 1045) | C.S. (1.1191) |
| 116 | Diaphragm | EPDM (D-1418) + Reinforced fabric | EPDM (1629) + Reinforced fabric |
| 117 | Lower actuator case | C.S. ((A1011) painted in Epoxy) | C.S. ((1.0335) painted in Epoxy) |
| 118 | Screws | C.S. (AISI 1045) | C.S. (1.1191) |
| 120 | Guide | S. S. (AISI 304) | S.S (1.4301) |
| 121 | Block pin | S. S. (AISI 304) | S.S (1.4301) |
| 122 | O-ring | NBR (D-1418) | NBR (1629) |
| 123 | Actuator stem guide | Brass | |
| 124 | - | - | |
| 125 | Mounting support | C.S. (AISI 1045) | C.S. (1.1191) |
| 140 | Connector A | C.S. (AISI 1045) | C.S. (1.1191) |
| 141 | Connector B | C.S. (AISI 1045) | C.S. (1.1191) |
| 142 | Bolt (x2) | C.S. (AISI 1045) | C.S. (1.1191) |
| 143 | Connector stem | S.S. (AISI 316) | S. S. (1.4408) |
| 144 | Nut | S. S. (AISI 304) | S.S (1.4301) |
| 145 | Valve stem connector | C.S. (AISI 1045) | C.S. (1.1191) |
| 146 | Stroke indicator | S. S. (AISI 304) | S.S (1.4301) |
| 147 | Bolt | C.S. (AISI 1045) | C.S. (1.1191) |

Recommended spare parts

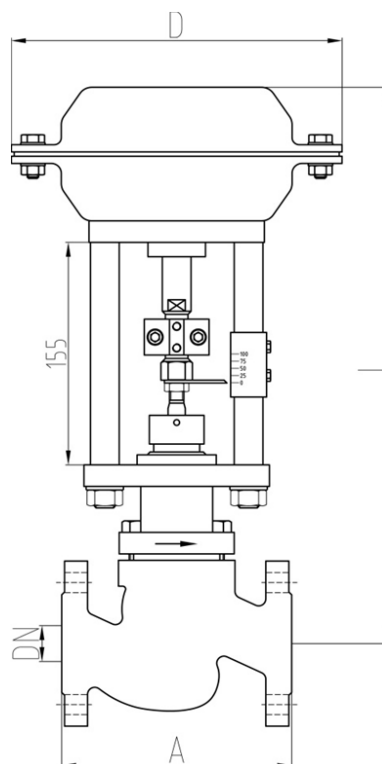
STANDARD CONFIGURATIONS VALVE

| | | | | | | | | | |
|-----------|-----|----|----|------|----|----|----|----|-----|
| DN [mm] | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
| Kv [m3/h] | 3,5 | 5 | 9 | 13,5 | 22 | 32 | 57 | 82 | 115 |

| | | | | | | | | | |
|------------|------|------|------|--------|--------|----|--------|----|-----|
| NPS [inch] | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" |
| Cv [gpm] | 4 | 5.8 | 10.4 | 15.6 | 25 | 37 | 66 | 95 | 134 |

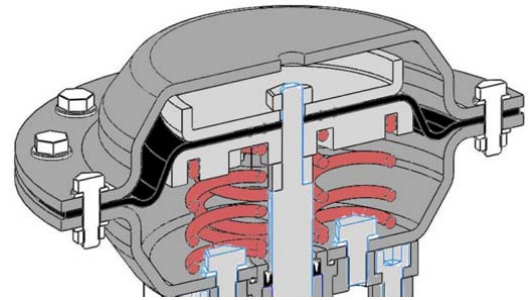
| | | | | | | | | | |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| A [mm] EN | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 |
| A [mm] ANSI 150 | o | o | 184 | - | 222 | 254 | 276 | 298.5 | 352.5 |
| A [mm] ANSI 300 | o | o | 197 | - | 235 | 267 | 292 | 317.5 | 368 |
| L (with AP295) [mm] | 345 | 345 | 411 | 411 | 436 | 436 | 470 | 470 | 470 |
| Stroke [mm] | 20 | 20 | 20 | 20 | 20 | 20 | 30 | 30 | 30 |
| Weight [Kg] | 5 | 6 | 7 | 8 | 12 | 15 | 20 | 25 | 40 |

o available by request



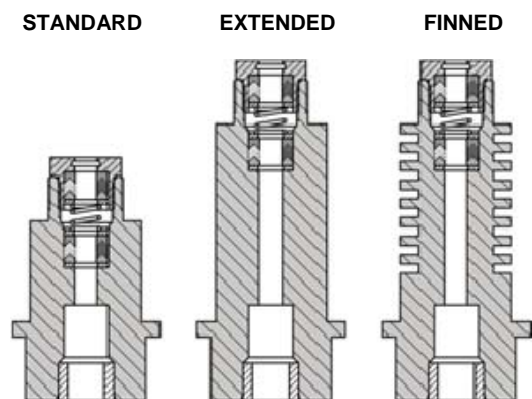
ACTUATOR DIMENSIONS AND WEIGHT

| | AP230 | AP295 | AP350 | AP430 |
|----------------------------|-------|-------|-------|-------|
| D [mm] | 230 | 295 | 350 | 430 |
| Surface [cm ²] | 150 | 300 | 450 | 700 |
| Weight [Kg] | 10 | 13 | 18 | - |



BONNET

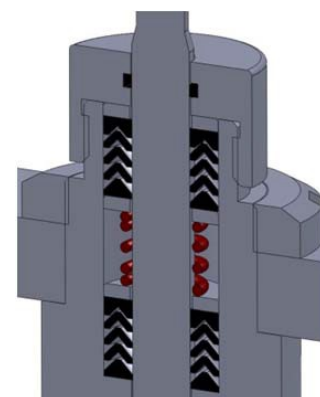
| BONNET | WORKING TEMPERATURE | MATERIAL |
|-------------|---------------------|-----------------------------------|
| Standard | -5 to + 200°C | Zinc plated steel (1.1191) |
| Finned | >+200°C | |
| Extended | <-5°C | Stainless steel Aisi 316 (1.4408) |
| Bellow seal | Consult us | |



STEM SEALING

| MATERIAL | PN | Material |
|-----------------------------------|-------|---------------|
| PTFE + GR V-Rings (spring loaded) | 50bar | Up to +200°C |
| PTFE V-Rings | 50bar | Up to +150°C |
| Graphite rings | 50bar | Up to +350°C |
| Bellow seal | 25bar | Up to +3150°C |

STANDARD DOUBLE PACKING



FLOW RATE COEFFICIENTS (K_v = Flow rate in m^3/h with 1 bar of differential pressure)

| K_v | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
|----------|----|----|----|----|----|----|----|----|-----|
| 0.1 to 2 | o | o | o | o | - | - | - | - | - |
| 3.5 | • | o | o | o | o | - | - | - | - |
| 5 | - | • | o | o | o | o | - | - | - |
| 9 | - | - | • | o | o | o | o | - | - |
| 13.5 | - | - | - | • | o | o | o | o | - |
| 22 | - | - | - | - | • | o | o | o | o |
| 32 | - | - | - | - | - | • | o | o | o |
| 57 | - | - | - | - | - | - | • | o | o |
| 82 | - | - | - | - | - | - | - | • | o |
| 115 | - | - | - | - | - | - | - | - | • |

o available by request • Standard - Not available

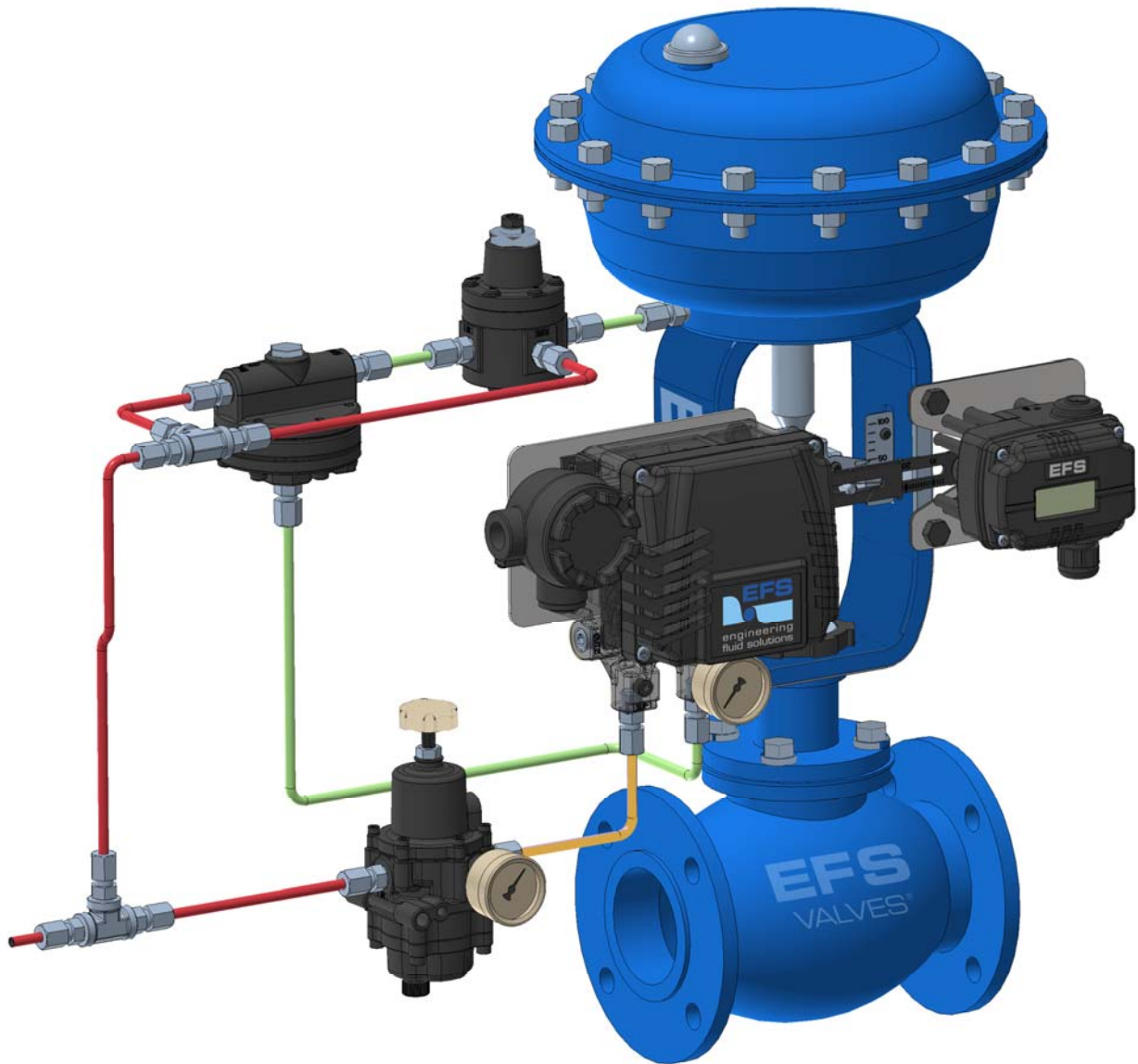
MAXIMUM ADMISSIBLE PRESSURE DROPS WHEN FLUID OPENS (bar)

| ACTUATOR | SIGNAL | MINIMUM AIR SUPPLY | K_v | | | | | | | | |
|----------|---------|--------------------|---------------|-------------|-------------|----------------|--------------|--------------|--------------|--------------|----------------|
| | | | 3.5 (DN15) | 5 (DN20) | 9 (DN25) | 13.5 DN(32) | 22 DN(50) | 32 (DN50) | 57 (DN65) | 82 (DN80) | 115 (DN100) |
| AP230 | 0.2+1.0 | 1.2 | 29 | 16 | 10 | 6 | 4 | 2.5 | - | - | - |
| | 0.4+1.2 | 1.4 | 50 | 33 | 21 | 13 | 8 | 5 | - | - | - |
| | 0.4+2.5 | 2.7 | - | 50 | 43 | 26 | 16 | 10 | - | - | - |

| | | | | | | | | | | | |
|-------|---------|-----|----|----|----|----|----|----|---|---|---|
| AP295 | 0.2+1.0 | 1.2 | 50 | 38 | 24 | 15 | 9 | 6 | - | - | - |
| | 0.4+1.2 | 1.4 | 50 | 50 | 32 | 20 | 12 | 8 | - | - | - |
| | 0.4+2.0 | 2.4 | 50 | 50 | 49 | 30 | 19 | 12 | - | - | - |
| | 1.0+4.0 | 4.2 | 50 | 50 | 50 | 50 | 36 | 23 | - | - | - |

| | | | | | | | | | | | |
|-------|---------|-----|----|----|----|----|----|----|-----|---|-----|
| AP350 | 0.2+1.0 | 1.2 | 50 | 47 | 30 | 18 | 11 | 7 | 4 | 3 | 1.5 |
| | 0.4+1.2 | 1.4 | 50 | 50 | 45 | 27 | 17 | 11 | 6.5 | 4 | 2.5 |
| | 0.4+2.0 | 2.7 | 50 | 50 | 50 | 27 | 23 | 15 | 9 | 6 | 3.5 |
| | 0.2+1.0 | 1.2 | 29 | 50 | 50 | 50 | 39 | 25 | 14 | 9 | 6 |

CONTROL VALVE ACCESSORIES



POSITIONER EFS-1200L MAIN FEATURES

- Type: Pneumatic positioner
 - Motion Type: Linear
 - Acting Type: Single / Double
 - Enclosure: IP66
-
- Simple zero and span adjustment
 - Auto / Manual Switch
 - No resonance between 5-200 Hz
 - RA vs DA action and 1/2 split range setting by simple adjustment

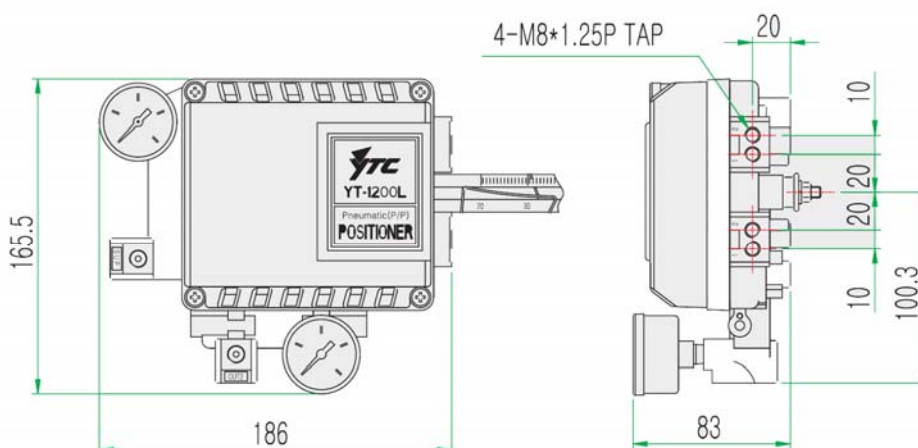


TECHNICAL SPECIFICATIONS

| Nº | Description | Features |
|----|-----------------------|--|
| 1 | Input Signal | 4 – 20 mA DC |
| 2 | Supply Pressure | 1.4 – 7 Kg/cm ² (0.14 - 0.7 MPa) |
| 3 | Stroke | 10 - 150 mm / 0 - 90° |
| 4 | Impedance | Max. 460 Ohm / DC - 20mA |
| 5 | Air Connection | PT 1/4 / NPT 1/4 |
| 6 | Gauge Connection | PT 1/8 / NPT 1/8 |
| 7 | Conduit Entry | PF(G) 1/2 (Standard) |
| 8 | Ambient Temperature | Operating range: -30 ~ 85°C Explosion: -40~60°C(T5) / -40~40°C (T6) |
| 9 | Linearity | ±0.5% F.S. |
| 10 | Hysteresis | ±0.5% F.S. |
| 11 | Sensitivity | ±0.2% F.S. |
| 12 | Air Consumption | Below 0.01 LPM (sup=1.4K) |
| 13 | Flow Capacity | 60LPM |
| 14 | Output Characteristic | Linear, Quick Open. EQ%, User Set (16 point) |
| 15 | Material | Aluminum die-casting |
| 16 | Explosion Proof Type | Ex d IIC T6 |

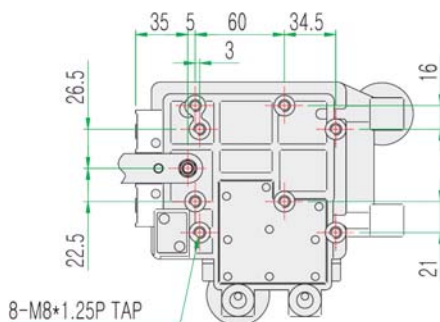
DIMENSIONS & WEIGHT

All dimensions are in [mm]



| | |
|--------|-----------------|
| Weight | 1.7 Kg (3.1lb.) |
|--------|-----------------|

BOLTS POSITION TO ATTACH THE BRACKET:



POSITIONER EFS-1000L MAIN FEATURES

- Type: Electro-Pneumatic positioner
 - Motion Type: Linear
 - Acting Type: Single / Double
 - Enclosure: IP66
-
- Simple zero and span adjustment
 - Auto / Manual Switch
 - No resonance between 5-200 Hz
 - RA vs DA action and 1/2 split range setting by simple adjustment
 - Internal feedback signal is available as an option (weather proof only)



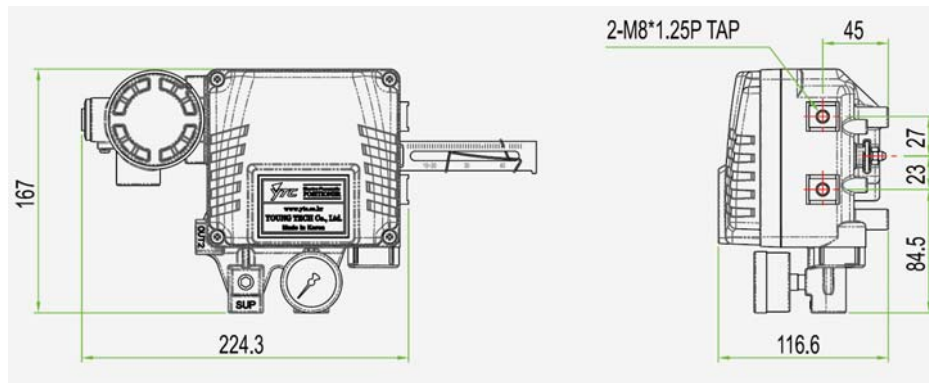
TECHNICAL SPECIFICATIONS

| Nº | Description | Features |
|----|----------------------|--|
| 1 | Input Signal | 4 – 20 mA DC |
| 2 | Impedance | 250±15 Ohm |
| 3 | Supply Pressure | 1.4 – 7 Kgf/cm ² (0.14 - 0.7 MPa) |
| 4 | Stroke | 10 - 150 mm |
| 6 | Air Connection | PT 1/4 / NPT 1/4 |
| 7 | Gauge Connection | PT 1/8 / NPT 1/8 |
| 8 | Conduit Entry | PF(G) 1/2 (Standard), NPT 1/2 (Option) Ex dmb IIB T5 (KTL) Ex dmb IIC T5 (KTL) |
| 9 | Explosion Proof Type | Ex ia IIB T6 (KTL) Ex ia IIC T6 (NEPSI) Ex dmb IIC T5/T6 (NEPSI) |
| 10 | Ambient Temperature | Operating range: -20 ~ 70°C Explosion: -20 ~ 60°C |
| 11 | Linearity | ±0.5% F.S. |
| 12 | Hysteresis | ±0.5% F.S. |
| 13 | Sensitivity | ±0.2% F.S. |
| 14 | Repeatability | 0.3% F.S. |
| 15 | Flow Capacity | 80 LPM |
| 16 | Air Consumption | 2.5 LPM (sup=1.4MPa) |
| 24 | Material | Aluminum die-casting |
| 25 | Painting | Epoxy Polyester Powder Coating |
| 26 | Color | Black |

* Tested under ambient temperature of 20°C, absolute pressure of 760 mmHg and humidity of 65%.

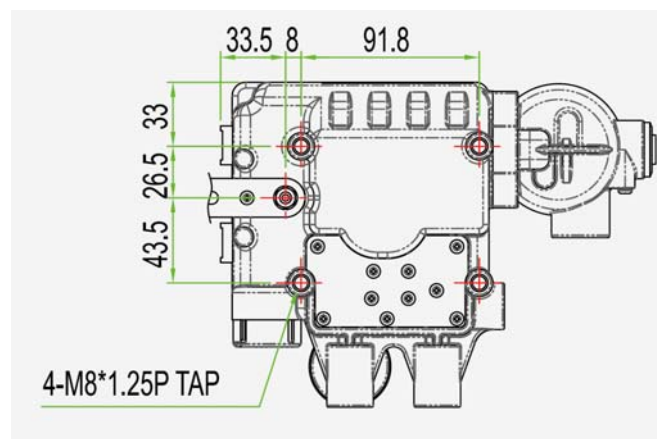
DIMENSIONS & WEIGHT

All dimensions are in [mm]



| | |
|--------|------------------|
| Weight | 3.4 Kg (7.5 lb.) |
|--------|------------------|

BOLTS POSITION TO ATTACH THE BRACKET:



POSITIONER EFS-2400L MAIN FEATURES

- Type: Electro-Pneumatic SMART positioner
- Motion Type: Linear
- Acting Type: Single / Double
- Enclosure: IP66

-
- Auto calibration
 - Auto / Manual Switch
 - PID control
 - Variable orifice
 - LCD display
 - 4 buttons for local control
 - HART communication

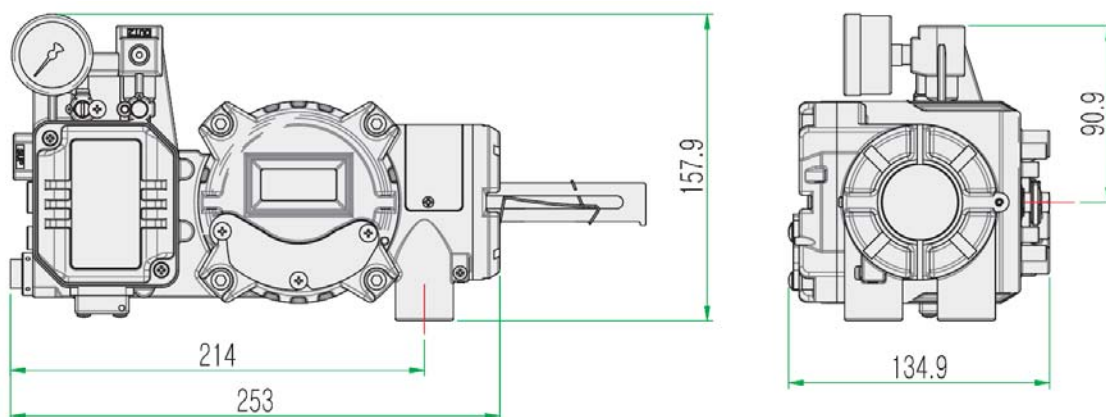


| N° | Description | Features |
|----|--------------------------|--|
| 1 | Input Signal | 4 – 20 mA DC |
| 2 | Minimum Current Signal | 3.2 mA (Standard), 3.8 (Hart included) |
| 3 | Supply Pressure | 1.4 – 7 Kg/cm ² (0.14 - 0.7 MPa) |
| 4 | Stroke | 10 - 150 mm / 60 - 90° |
| 5 | Impedance | Max. 500 Ohm / DC - 20mA |
| 6 | Air Connection | PT 1/4 / NPT 1/4 |
| 7 | Gauge Connection | PT 1/8 / NPT 1/8 |
| 8 | Conduit Entry | PF(G) 1/2 (Standard), NPT 1/2 (Option) |
| 9 | Explosion Proof Type | Ex d IIB (+H ₂) T6 (-20 ~ 60°C) |
| 10 | Ambient Temperature | Operating range: -20 ~ 80°C |
| 11 | Linearity | ±0.5% F.S. |
| 12 | Hysteresis | 0.5% F.S. |
| 13 | Sensitivity | ±0.2% F.S. |
| 14 | Repeatability | 0.3% F.S. |
| 15 | Flow Capacity | 70 LPM |
| 16 | Air Consumption | Below 2 LPM (sup.=1.4K), Below 3 LPM (sup.=7K) |
| 17 | LCD Temp. Condition | Storage: -30 ~ 85°C / Operating: -10~70°C |
| 18 | Output Characteristic | Linear, Quick Open. EQ%, User Set (16 point) |
| 19 | Vibrator Effect | 6 G |
| 20 | Humidity | 5 ~ 95% RH at 40°C |
| 21 | Communication (Option) | HART Communication (Non-DDL) |
| 22 | Feedback Signal (Option) | 4 – 20mA (DC 10 – 30 V) |
| 23 | Limit Switch (Option) | DC-24V |
| 24 | Material | Aluminum die-casting |
| 25 | Painting | Epoxy Polyester Powder Coating |
| 26 | Color | Black |

* Tested under ambient temperature of 20°C, absolute pressure of 760 mmHg and humidity of 65%.

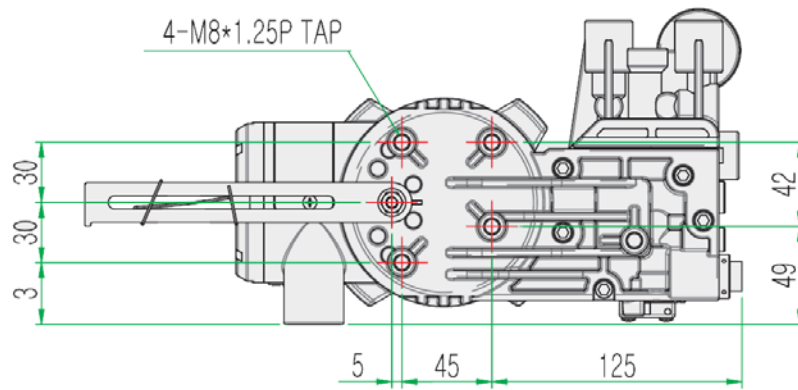
DIMENSIONS & WEIGHT

All dimensions are in [mm]



| | |
|--------|------------------|
| Weight | 3.4 Kg (7.5 lb.) |
|--------|------------------|

BOLTS POSITION TO ATTACH THE BRACKET:



ATEX approved

Disclaimer

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