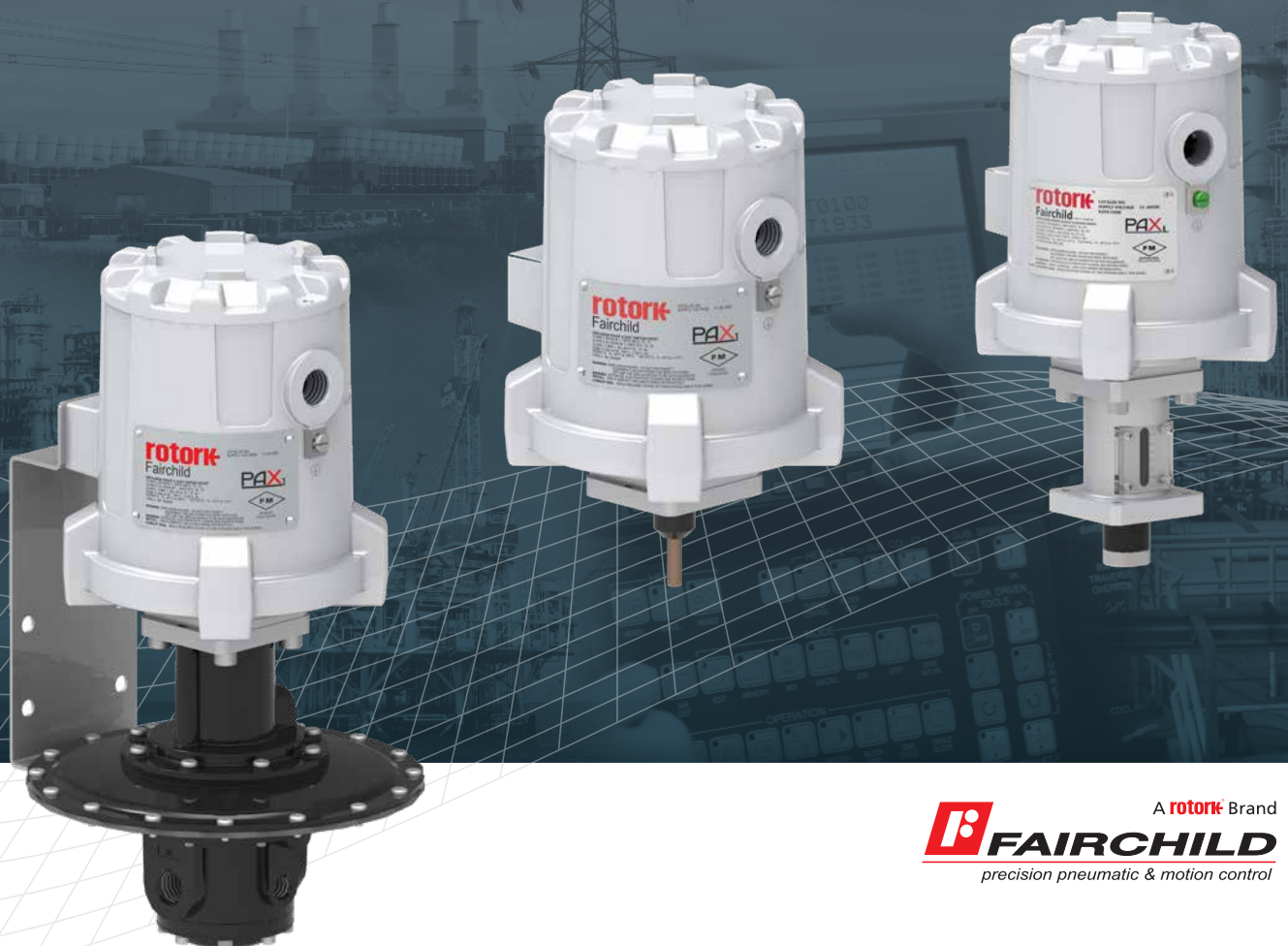


rotork®

Keeping the World Flowing
for Future Generations

PAX Range

Linear Actuators & Motorised Regulators



A **rotork** Brand
FAIRCHILD
precision pneumatic & motion control



Reliability in critical flow control applications



› **Reliable operation** when it matters

Assured reliability for critical applications and environments. Whether used 24/7 or infrequently, Rotork products will operate reliably and efficiently when called upon.

› **Quality-driven** global manufacturing

Products designed with 60 years of industry and application knowledge.

Research and development across all our facilities ensures cutting edge products are available for every application.

› **Customer-focused service** worldwide support

Solving customer challenges and developing new solutions. From initial enquiry through to product installation, long-term after-sales care and Client Support Programmes (CSP).

› **Low cost** of ownership

Long-term reliability prolongs service life.

Rotork helps to reduce long term cost of ownership and provides greater efficiency to process and plant.

PAX Range

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Comprehensive product range serving multiple industries

Improved efficiency, assured safety and environmental protection.

Rotork products and services are used throughout industry inclusive of Power, Oil & Gas, Water & Wastewater, HVAC, Marine, Mining, Pulp & Paper, Food & Beverage, Pharmaceutical and Chemical industries around the world.

Market leader technical innovator

The recognised market leader for 60 years.

Our customers have relied upon Rotork for innovative solutions to safely manage the flow of liquids, gases and powders.

Global presence local service

Global company with local support.

Manufacturing sites, service centres, sales offices and *Centres of Excellence* throughout the world provide unrivalled customer services and fast delivery.

Corporate social responsibility

A responsible business leads to being the best business.

We are socially, ethically, environmentally responsible and committed to embedding CSR across all our processes and ways of working.

PAX Range Linear Electric Actuators

Rotork Fairchild PAX range actuators can be supplied alone or combined with a time proven Fairchild pressure regulator, enabling remote control of pneumatic instrument pressure.

PAX_i has a rotating linear output rod to control spring return pressure regulators.

PAX_L has a non-rotating linear output rod optimised for automation of small valves, pumps and other devices.

Operation

Low voltage DC powered PAX range actuators are designed for operation in remote explosionproof locations. Thrust output up to 2,890 N (650 lbf) enables actuation of most regulators, small valves and pumps.

Commissioning is performed using integral UP, DOWN and SET push buttons contained within the top enclosure. Manual operation during power loss is possible using an 8 mm (⁵/₁₆") Allen (hex.) key.

PAX range actuators facilitate open loop control using two optically isolated switch inputs (up and down) to move the actuator thrust rod. Movement is permitted until one of the stroke limits is reached.

PAX range actuators include two fully adjustable SPDT limit switches (High and Low), triggered when the thrust rod reaches one of the set stroke positions. The limit relays are magnetically latched so the switch state is maintained when power is disconnected. An important design feature for typical solar applications that isolate power to conserve energy.

Intermediate position control is available using an isolated 4-20 mA analogue input option or the Modbus RTU network option. Signal is proportional to position across the set stroke. PAX range actuators will lock in place during a loss of signal or loss of power condition.

PAX range actuators can also include an optional 4-20 mA analogue feedback output, proportional to position. Analogue feedback is compatible with pulse control and analogue control configurations. Power is required to enable the analogue feedback output.



Applications

- Pump stroke control
- Damper systems
- Test equipment
- Automation of mechanical spring loaded pressure regulators

Actuator Features and Benefits

- Linear stroke is 25 mm (1")
- Max force is 2,890 N (650 lbf)
- Max linear speed is 60 mm (2.36") / minute
- Temperature ranges:
 - 40 to +80 °C (-40 to +176 °F) – intermittent duty
 - 40 to +65 °C (-40 to +149 °F) – continuous duty
- Less than 1 Watt power consumption during standby, ideal for installations in isolated locations
- Optional analogue control and feedback
- User defined stroke limits

Approval and Environmental Ratings



Hazardous Area

- FM
- CSA
- ATEX

Ingress Protection

- IP66
- IP68 (7 metres for 72 hours)
- Type 4X
- Type 6P

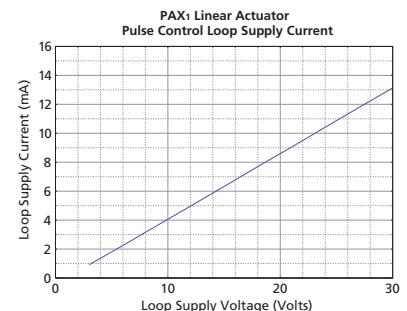
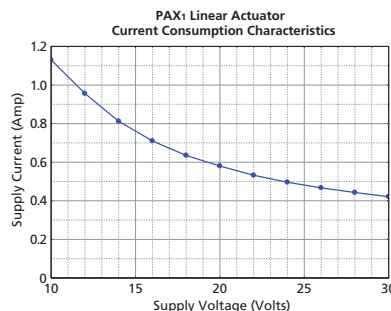
Product Specifications – PAX₁ and PAX_L

		
	PAX₁	PAX_L
Electrical Supply	11-30 VDC (12-24 VDC nominal)	11-30 VDC (12-24 VDC nominal)
Control Methods	Analogue Control 4-20 mA	Analogue Control 4-20 mA
	Pulse Control Switch closure (2) UP & DN, 4-30 VDC loop isolated from supply	Pulse Control Switch closure (2) UP & DN, 4-30 VDC loop isolated from supply
	Modbus Comm. 2-wire RS-485 network for direct communication to a PLC or DCS using Modbus RTU protocol	Modbus Comm. 2-wire RS-485 network for direct communication to a PLC or DCS using Modbus RTU protocol
Thrust Rod Style	Linear rotating rod - push action No coupling connection	Linear non-rotating rod - push and pull action M8 x 1.25 mm female thread coupling
Maximum Stroke	25 mm (1")	25 mm (1")
Mounting Interface	ISO 5211 - F05/F07	ISO 5211 - F07
Accuracy	0.5% of Maximum Stroke	0.5% of Maximum Stroke
Maximum Force	2,890 N (650 lbf)	2,890 N (650 lbf)
Maximum Linear Speed	60 mm (2.36") / min* *at lower supply voltages, slower motor speed may be required to reach maximum force	60 mm (2.36") / min* *at lower supply voltages, slower motor speed may be required to reach maximum force
Operating Temperature Rating	-40 to +80 °C (-40 to +176 °F) intermittent duty -40 to +70 °C (-40 to +158 °F) continuous duty	-40 to +80 °C (-40 to +176 °F) intermittent duty -40 to +70 °C (-40 to +158 °F) continuous duty
Analogue Feedback	4-20 mA, isolated from supply	4-20 mA, isolated from supply
EMC Testing	Testing per IEC/EN 61326-1	Testing per IEC/EN 61326-1
Hazardous Area Ratings	<p>FM Approval Class I Div I Groups ABCD T6...T5 Class II, III Div I Groups EFG T6...T5 Class 1, Zone 1, AEx db IIC, T6...T5 Gb Zone 21, AEx tb IIIC T85°C...100°C Db T6[T85°C]: Ta = -40 to +65 °C (-40 to +149 °F) T5[T100°C]: Ta = -40 to +70 °C (-40 to +158 °F) Type 4X/6P, IP 66/68*</p> <p>CSA Approval Class I Div I Groups BCD T6...T5 Class II, III Div I Groups EFG T6...T5 Ex db IIC, T6...T5 Gb Ex tb IIIC T85°C...100°C Db T6[T85°C]: Ta = -40 to +65 °C (-40 to +149 °F) T5[T100°C]: Ta = -40 to +70 °C (-40 to +158 °F) IP 66/68*</p> <p>ATEX / IECEx Approval Ex db IIC, T6...T5 Gb Ex tb IIIC T85°C...100°C Db Ex II 2GD T6[T85°C]: Ta = -40 to +65 °C (-40 to +149*deg°F) T5[T100°C]: Ta = -40 to +70 °C (-40 to +158*deg°F) IP 66/68* *IP68 - 7 metres (23 feet) for 72 hours</p>	<p>FM Approval Class I Div I Groups ABCD T6...T5 Class II, III Div I Groups EFG T6...T5 Class 1, Zone 1, AEx db IIC, T6...T5 Gb Zone 21, AEx tb IIIC T85°C...100°C Db T6[T85°C]: Ta = -40 to +65 °C (-40 to +149 °F) T5[T100°C]: Ta = -40 to +70 °C (-40 to +158 °F) Type 4X/6P, IP 66/68*</p> <p>CSA Approval Class I Div I Groups BCD T6...T5 Class II, III Div I Groups EFG T6...T5 Ex db IIC, T6...T5 Gb Ex tb IIIC T85°C...100°C Db T6[T85°C]: Ta = -40 to +65 °C (-40 to +149 °F) T5[T100°C]: Ta = -40 to +70 °C (-40 to +158 °F) IP 66</p> <p>ATEX / IECEx Approval Ex db IIC, T6...T5 Gb Ex tb IIIC T85°C...100°C Db Ex II 2GD T6[T85°C]: Ta = -40 to +65 °C (-40 to +149*deg°F) T5[T100°C]: Ta = -40 to +70 °C (-40 to +158*deg°F) IP 66</p>

Power Supply Sizing

12 VDC system:
12 VDC, 2A power supply recommended

24 VDC system:
24 VDC, 1A power supply recommended



Ordering Information – PAX₁ and PAX_L

Model Code: PAX * * * 1 D * *

Actuation

Basic
(Push action) _____ 1
Linear Adapter
(Push and pull action) ____ L

Approval

FM _____ F
CSA _____ C
ATEX _____ E

Conduit Port Size

1/2" _____ 4
3/4" _____ 6

Conduit Port Openings

1 _____ 1

Power

12-24 VDC _____ D

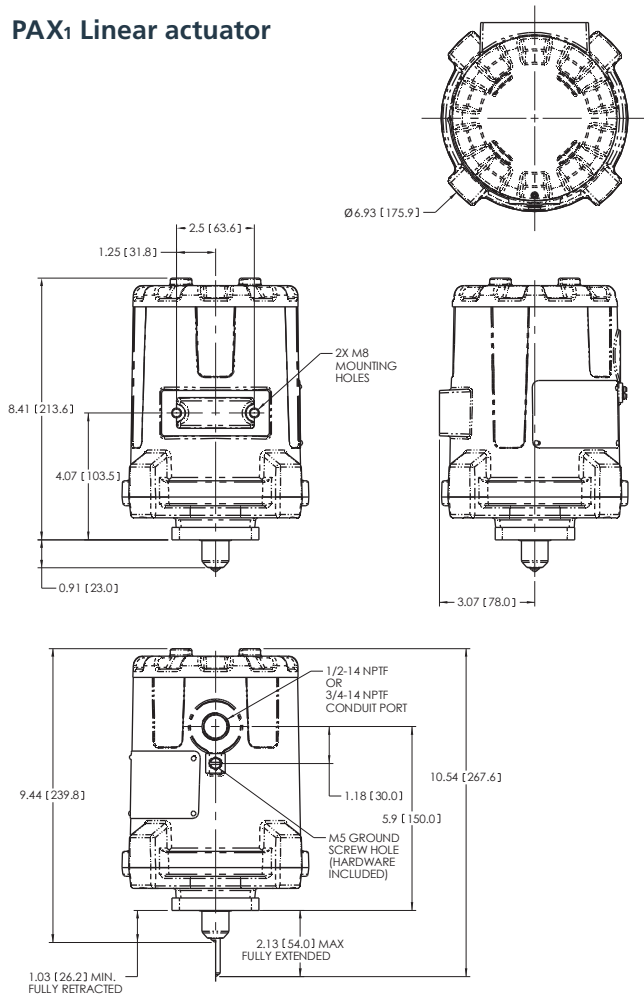
Feedback

None _____ 0
Analogue Feedback _____ 1

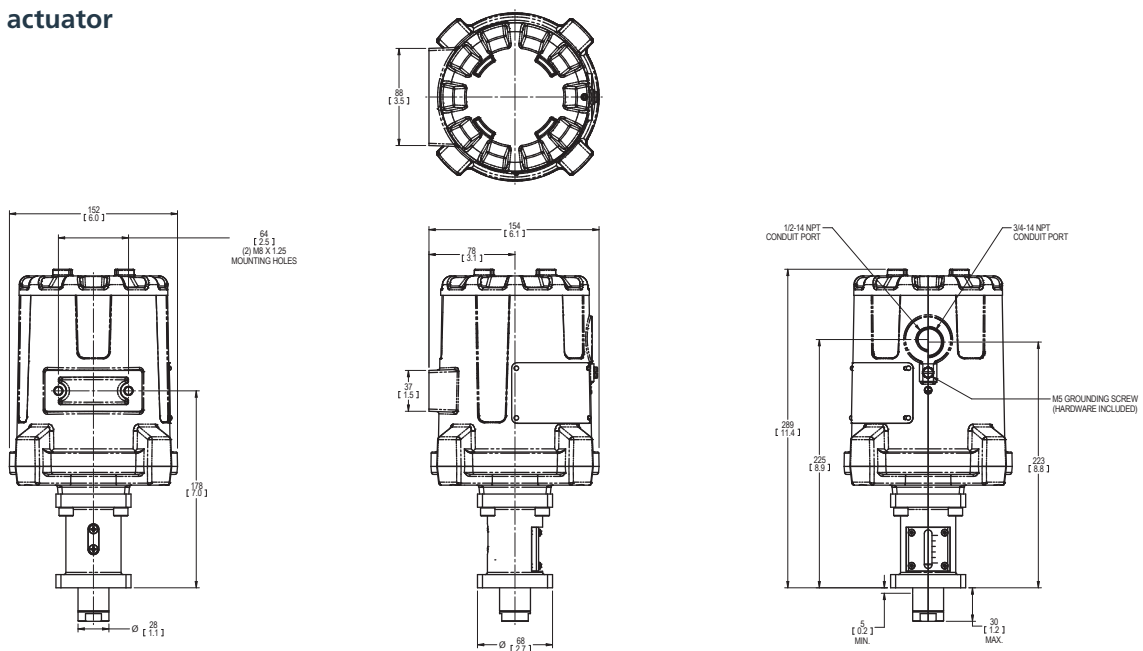
Digital Communications

None _____ 0
MODBUS Digital Communication _____ M

PAX₁ Linear actuator



PAX_L Linear actuator



PAX₁ Motorised Pressure Regulators

The Rotork Fairchild PAX₁ is optimised for controlling Fairchild precision pressure regulators. PAX₁ can control pressures up to 20,684 kPa (3,000 psig) in isolated locations and hazardous area environments. PAX₁ moves in both directions using the integral motor but avoids the requirement for a coupling by acting against or with the regulator spring. PAX₁ locks in place to maintain position during power or control signal loss.

Features and Benefits

- Pressure ranges from vacuum to 20,684 kPa (3,000 psig)
- Full range actuation speeds down to 10 secs
- Ingress Protection IP66 / IP68 / Type 4X / Type 6P
- Temperature range -40 to +80 °C (-40 to +176 °F)
- Less than 1 Watt power consumption during standby, ideal for installations in isolated locations
- Optional analogue control and feedback
- User defined stroke limits



PAX₁ installed on a solar powered remote pressure control station.

Applications

- Natural gas distribution systems
- Natural gas pipeline systems
- Pilot operated regulator systems
- Plunger lift systems

Pneumatic Pressure Regulators

Fairchild manufactures a complete line of precision pneumatic regulators including positive pressure, back pressure and vacuum models. Quality engineering and manufacturing excellence assures our pressure regulators meet all the requirements of a precision device.

Our large selection of pressure ranges and flow capacities lets you select the models that meet your needs for instrument or general industrial control applications.

While we have included our most popular models in this brochure, other pressure regulators and relays are adaptable. Contact Fairchild for your needs.








PAX₁ installed in pressure control and metering stations for natural gas distribution







PAX₁ installed as a pilot on a natural gas Control Valve

PAX₁ Motorised Pressure Regulators

	Vacuum	Low Pressure		Standard (Pneumatic) Pressure	
					
	PAX₁ with Model 16	PAX₁ with Model 11	PAX₁ with Model 4100A	PAX₁ with Model 10	PAX₁ with Model 4000A
Flow Capacity - m³/hr (SCFM) Supply = 6.9 bar (100 psi)	4 (2.5) @ Vacuum ¹ or 68 (40) Positive Flow	34 (20)	42 (25)	68 (40)	255 (150)
Exhaust Capacity - m³/hr (SCFM)	9.4 (5.5)	0.85 (0.5) ²	2.55 (1.5) ²	9.4 (5.5)	65.2 (40)
Sensitivity - cm of WC (inches of WC)	1.27 (0.5)	0.127 (0.05)	0.127 (0.05)	0.32 (0.125)	1.27 (0.5)
Supply Pressure Variation - kPa (psig) For Supply Pressure Change - kPa (psig)	<0.7 (<0.1) 689 kPa (100 psig)	<0.07 (<0.01) 689 kPa (100 psig)	<0.07 (<0.01) 689 kPa (100 psig)	<0.07 (<0.01) 689 kPa (100 psig)	<0.07 (<0.01) 689 kPa (100 psig)
Maximum Supply Pressure - kPa (psig)	1,724 (250)	1,034 (150)	1,034 (150)	3,447 (500)	1,724 (250)
Dimensions (Approx.) - mm (Inches)	Dia. 176 x 348 mm (Dia. 6.93 x 13.71")	Dia. 176 x 368 mm (Dia. 6.93 x 14.47")	Dia. 216 x 388 mm (Dia. 8.5 x 15.26")	Dia. 176 x 348 mm (Dia. 6.93 x 13.71")	Dia. 176 x 388 mm (Dia. 6.93 x 15.26")
Output Pressure Range - kPa (psig)	Vacuum - 14 (2) Vacuum - 69 (10) Vacuum - 207 (30) Vacuum - 689 (100) Vacuum - 1,034 (150)	0 - 3.4 (0.5) 0 - 14 (2) 0 - 28 (4) 0 - 41 (6) 0 - 83 (12)	0 - 4.8 (0.7) 0 - 9.7 (1.4) 0 - 21 (3) 0 - 34 (5)	0 - 14 (0 - 2) 0 - 69 (0 - 10) 7 - 138 (1 - 20) 3.4 - 207 (0.5 - 30) 7 - 414 (1 - 60) 14 - 1,034 (2 - 150) 21 - 1,379 (3 - 200) 34 - 2,068 (5 - 300) 34 - 2,758 (5 - 400)	3.4 - 69 (0.5 - 10) 3.4 - 207 (0.5 - 30) 7 - 414 (1 - 60) 14 - 1,034 (2 - 150) 34 - 1,724 (5 - 250)
Port Size	¼", ⅜", ½"	¼", ⅜", ½"	⅜", ½", ¾"	¼", ⅜", ½"	⅜", ½", ¾"
Body Material	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium

¹ - at 29 inHg of vacuum with inlet port open

² - Downstream pressure is 0.7 kPa (0.1 psig) above 7 kPa (1.0 psig) set point

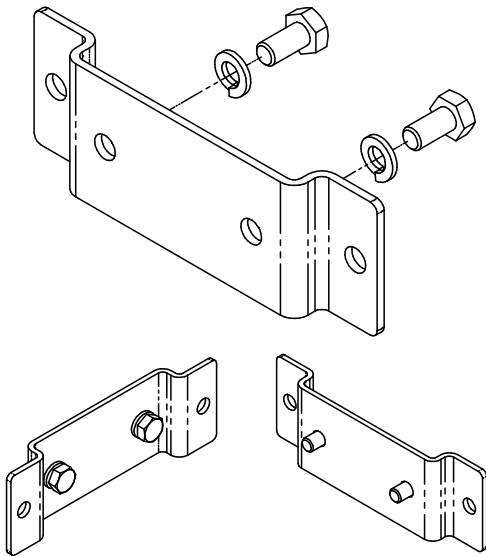
	Standard (Pneumatic) Pressure		High Pressure	
				
	PAX₁ with Model 81	PAX₁ with Model 66	PAX₁ with Model HPD	PAX₁ with Model HPP
Flow Capacity - m³/hr (SCFM) Supply = 100 psi	85 (50)	28.9 (17)	Cv 0.06 or Cv 0.25	Cv 0.06
Exhaust Capacity - m³/hr (SCFM)	9.4 (5.5)	1.7 (1.0)	Cv 0.02	Cv 0.02
Sensitivity - cm of WC (inches of WC)	<0.254 (<0.1)	2.54 (1.0)	Not Applicable	Not Applicable
Supply Pressure Variation - kPa (psig) For Supply Pressure Change - kPa (psig)	<1.4 (<0.2) 689 (100)	<0.7 (<0.1) 172 (25)	<4 (<0.6) 689 (100)	<379 (<55) 6,895 (1,000)
Maximum Supply Pressure - kPa (psig)	1,034 (150) ³	3,447 (500)	41,369 (6,000)	41,369 (6,000)
Dimensions (Approx.) - mm (Inches)	Dia. 176 x 348 mm (Dia. 6.93 x 13.71")	Dia. 176 x 348 mm (Dia. 6.93 x 13.71")	Dia. 176 x 325 mm (Dia. 6.93 x 12.81")	Dia. 176 x 325 mm (Dia. 6.93 x 12.81")
Output Pressure Range - kPa (psig)	0 - 14 (0 - 2) ³ 0 - 34 (0 - 5) ³ 0 - 138 (0 - 20) 3.4 - 414 (0.5 - 60) 3.4 - 689 (0.5 - 100)	0 - 69 (0 - 10) 3.4 - 207 (0.5 - 30) 7 - 414 (1 - 60) 14 - 689 (2 - 100) 14 - 1,034 (2 - 150)	0 - 172 (0 - 25) 0 - 345 (0 - 50) 7 - 689 (1 - 100) 14 - 1,724 (2 - 250) 14 - 3,447 (2 - 500)	0 - 6,895 (0 - 1,000) 0 - 13,790 (0 - 2,000) 0 - 20,684 (0 - 3,000)
Port Size	¼"	¼", ⅜", ½"	¼" or SAE AS5202-4	¼" or SAE AS5202-4
Body Material	Aluminium	Stainless Steel	Stainless Steel	Stainless Steel

³ - Maximum Supply Pressure 689 kPa (100 psig)

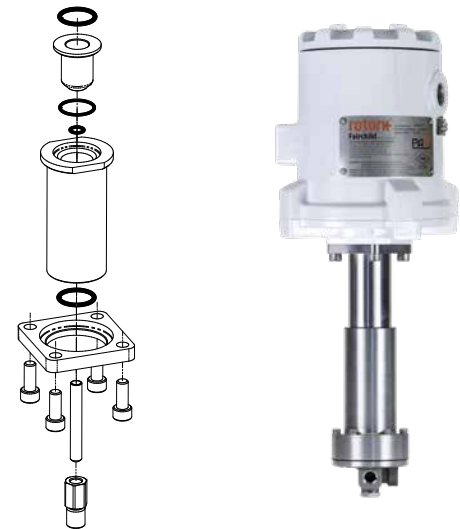
PAX Range – Adapter Kits

PAX range actuators can directly interface with a regulator or valve to provide a motorised assembly. PAX₁ is designed for pressure regulators with motorised push and spring return pull actions. PAX_L is designed for valves with motorised push and pull actions.

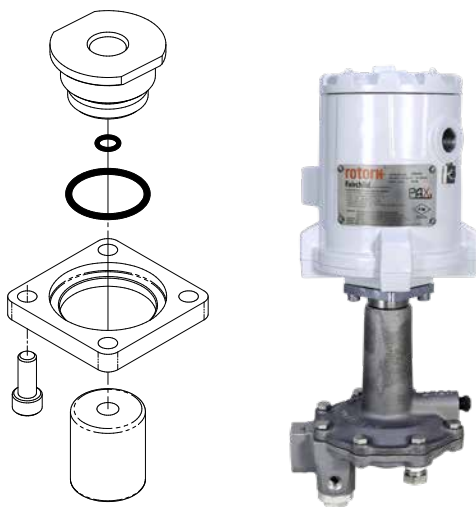
Universal PAX Mounting Kit P/N 22619-1



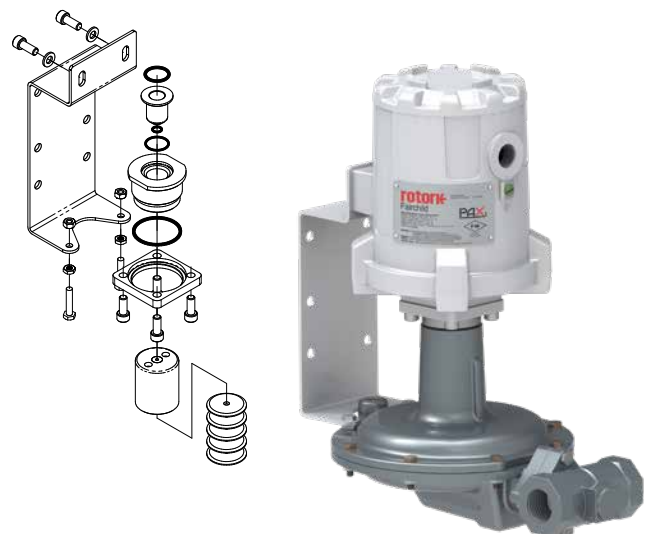
Mounting Kit for the Fisher 161EBM Regulator P/N 23043-1



Mounting Kit for the Mooney 20H and 20L Pilot Regulator P/N 22819-1



Mounting Kit for the Fisher Y600A Pilot Regulator P/N 23027-1



Model 16 Vacuum Regulator

The Model 16 is designed for systems that require system pressure control above and/or below atmospheric pressure

The regulated output pressure is precisely maintained by balancing forces acting on the top and bottom of the diaphragm assembly. The main supply valve is pressure balanced by utilising a rolling diaphragm, ensuring a constant output pressure even under a wide range of supply pressure variations. An aspirator tube automatically adjusts the supply valve in accordance with the flow demand to ensure output pressure is maintained at a constant value under varying flow conditions.



Features

- Control sensitivity of 1.27 cm (0.5") water column, allows precise pressure control
- Pressure balanced supply valve prevents supply pressure changes from affecting the setpoint
- Separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- An aspirator tube compensates downstream pressure drop under flow conditions

Specifications

Supply Pressure

- 1,724 kPa (250 psig) maximum

Positive Flow Capacity

- 65.2 m³/hr (40 SCFM) @ 689 kPa (100 psig) supply and 138 kPa (20 psig) setpoint

Vacuum Flow Capacity

- 4 m³/hr (2.5 SCFM) @ 74 cmHg (29 "Hg) vacuum with pump connected to the exhaust port
- 65.2 m³/hr (40 SCFM) @ 689 kPa (100 psig) supply connected to inlet port

Supply Pressure Effect

- <0.7 kPa (0.1 psig) for a 689 kPa (100 psig) change in supply pressure

Sensitivity

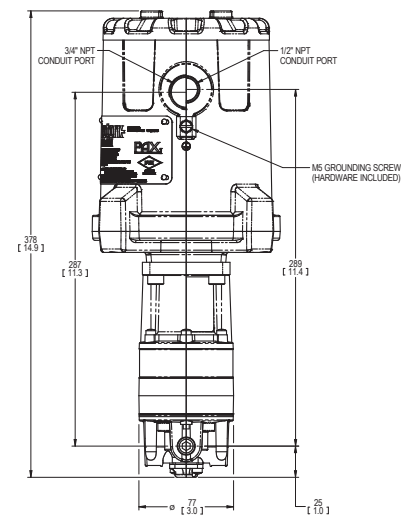
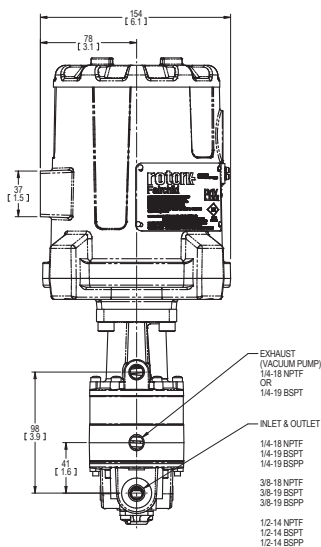
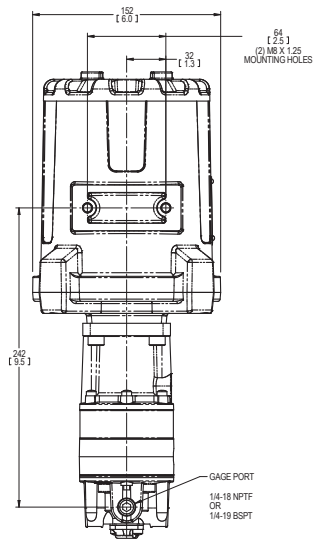
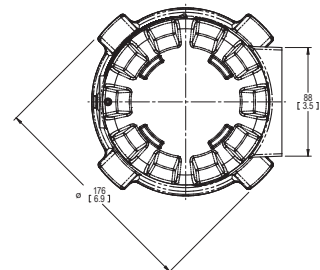
- 1.27 cm (0.5") water column

Model 16 Vacuum Regulator

Model Code: PAX 1 * * 1 D * * - 16 2 * * * * *

Actuation	
Basic (Push Action)	1
Approval	
FM	F
CSA	C
ATEX	E
Conduit Port Size	
1/2"	4
3/4"	6
# Conduit Ports: 1 1	
Power: 12-24 VDC D	
Feedback	
None	0
Analogue Feedback	1
Digital Communication	
None	0
MODBUS RTU	M
Pressure Regulator Series: 16 16	
Revision: 2 2	
Range	
kPa	PSIG
Vacuum - 14	Vacuum - 2
Vacuum - 69	Vacuum - 10
Vacuum - 207	Vacuum - 30
Vacuum - 689	Vacuum - 100
Vacuum - 1,034	Vacuum - 150
Port Size	
1/4"	2
3/8"	3
1/2"	4
Port Thread	
BSPP†	H
NPTF	N
BSPT	U
Elastomers	
Fluorocarbon	J
Nitrile	N
Relief Valve	
Relieving, Normal M16 Bleed	R
Relieving, Increased Sensitivity	L

†BSPP @ In & Out, BSPT @ Exhaust & Gage



Model 11 Precision Low Pressure Regulator

The Model 11 is designed for applications that require moderate capacity and accurate low pressure control.

The main supply valve is pressure balanced by utilising a rolling diaphragm, ensuring a constant output pressure even during wide supply pressure variations. An aspirator tube automatically adjusts the supply valve in accordance with the flow demand to ensure output pressure is maintained at a constant value under varying flow conditions.



Features

- Large area, high sensitivity diaphragm provides control sensitivity of 0.127 cm (0.05") water column, ideal for precision applications
- Pressure balanced supply valve prevents supply pressure changes from affecting the setpoint
- Separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- An aspirator tube compensates downstream pressure droop for flow demand
- Non-relieving option available for applications requiring containment of gas

Specifications

Supply Pressure

- 1,034 kPa (150 psig) maximum

Flow Capacity

- 34 m³/hr (20 SCFM) @ 689 kPa (100 psig) supply and 7 kPa (1.0 psig) setpoint

Exhaust Capacity

- 0.85 m³/hr (0.5 SCFM) where downstream pressure is 0.7 kPa (0.1 psig) above 7 kPa (1.0 psig) setpoint

Supply Pressure Effect

- <0.07 kPa (0.01 psig) for 689 kPa (100 psig) change in supply

Sensitivity

- 0.127 cm (0.05") water column

Materials of Construction

Body and housing: Aluminum

Diaphragm: Nitrile or Fluorocarbon

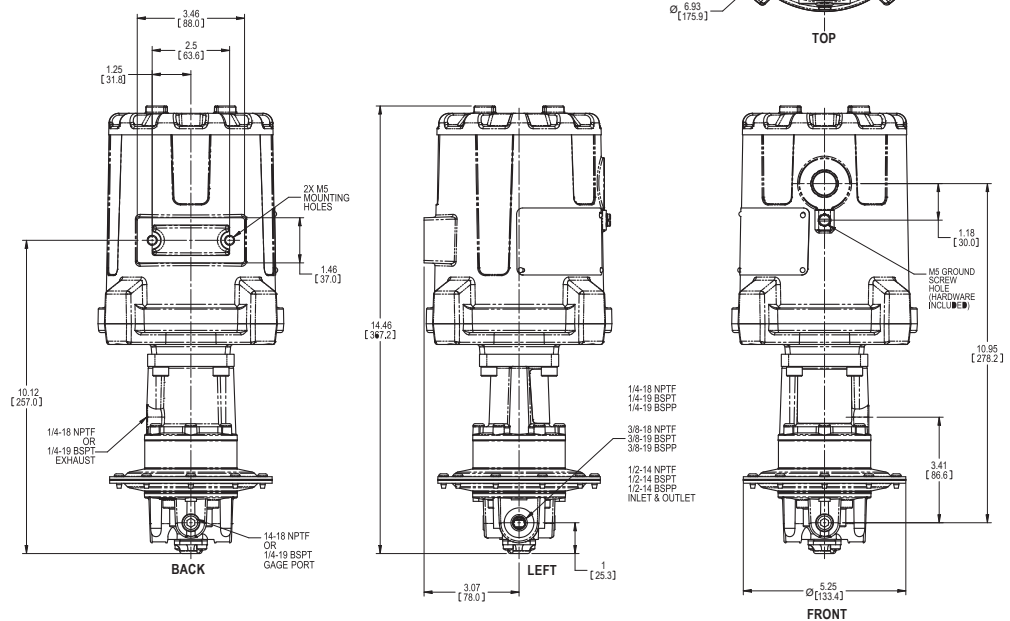
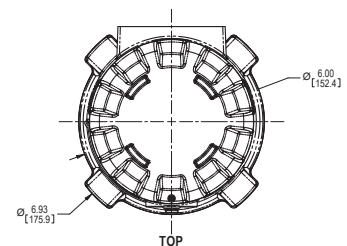
Trim: Zinc plated steel, Stainless steel

Model 11 Precision Low Pressure Regulator

Model Code: PAX 1 * * 1 D * * - 11 1 * * * * *

Actuation		
Basic (Push Action) _____		1
Approval		
FM _____	F	
CSA _____	C	
ATEX _____	E	
Conduit Port Size		
1/2" _____	4	
3/4" _____	6	
# Conduit Ports: 1 _____		1
Power: 12-24 VDC _____		D
Feedback		
None _____		0
Analogue Feedback _____		1
Digital Communication		
None _____		0
MODBUS RTU _____		M
Pressure Regulator Series: 11 _____		11
Revision: 1 _____		1
Range		
kPa	PSIG	
0 - 3.4	0 - 0.5	1
0 - 14	0 - 2	2
0 - 28	0 - 4	3
0 - 41	0 - 6	4
0 - 83	0 - 12	5
Port Size		
1/4" _____	2	
3/8" _____	3	
1/2" _____	4	
Port Thread		
BSPP+ _____	H	
NPTF _____	N	
BSPT _____	U	
Elastomers		
Fluorocarbon _____	J	
Nitrile _____	N	
Relief Valve		
Relieving, Normal Bleed _____		R
Relieving, No Bleed _____		D
Non Relieving _____		N

+BSPP @ In & Out, BSPT @ Exhaust & Gage



Model 4100A High Capacity Low Pressure Regulator

The Model 4100A is designed for applications requiring high flow capacity and accurate low pressure control.

The main supply valve is pressure balanced by utilising a rolling diaphragm, ensuring a constant output pressure even during extreme supply pressure variations. An aspirator tube automatically adjusts the supply valve in accordance with the flow demand to ensure output pressure is maintained at a constant value under varying flow conditions.



Features

- Large area, high sensitivity diaphragm provides control sensitivity of 0.13 cm (0.05") water column for precision control in low pressure applications
- Pressure balanced supply valve prevents supply pressure changes from affecting the setpoint
- Large relief valve provides high exhaust flow capacity
- Soft seat valves minimise air consumption
- Aspirator tube compensates for downstream pressure droop during flow demand

Specifications

Supply Pressure

- 1,034 kPa (150 psig) maximum

Flow Capacity

- 119 m³/hr (70 SCFM) @ 345 kPa (150 psig) supply, and 21 kPa (3 psig) setpoint

Exhaust Capacity

- 22 m³/hr (13 SCFM), where downstream pressure is 1.4 kPa (0.2 psig) above 21 kPa (3 psig) setpoint

Sensitivity

- 0.13 cm (0.05") water column

Supply Pressure Effect

- None detected

Materials of Construction

Body and Housing: Aluminum

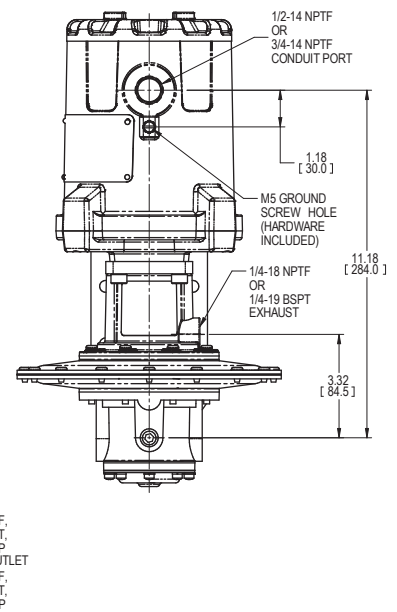
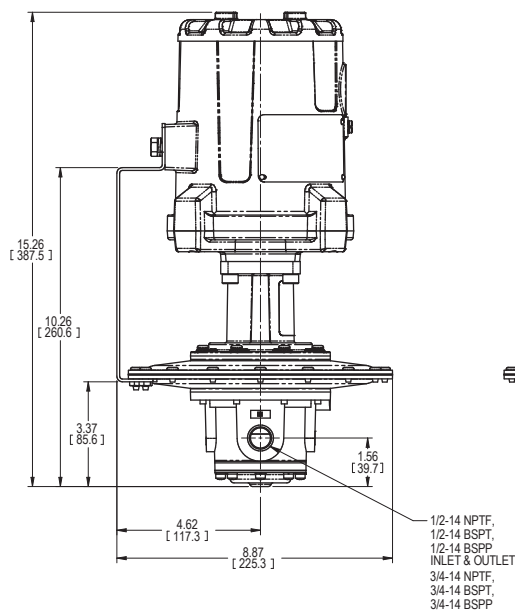
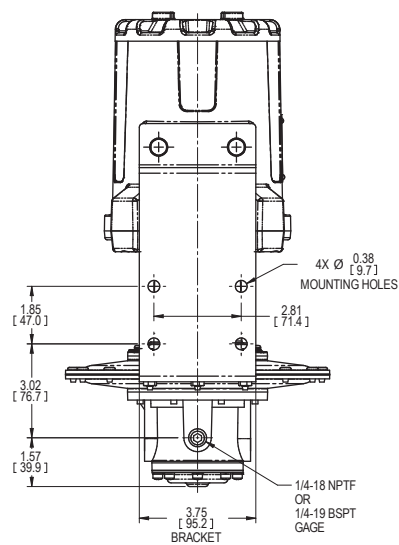
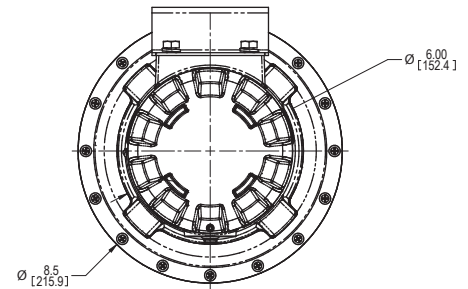
External Trim: Zinc plated steel, Stainless steel

Diaphragms and seals: Nitrile on Dacron, optional Fluorocarbon on Dacron

Model 4100A High Capacity Low Pressure Regulator

Model Code: PAX 1 * * 1 D * * - 41 * * A * * *

Actuation	
Basic (Push Action)	1
Approval	
FM	F
CSA	C
ATEX	E
Conduit Port Size	
1/2"	4
3/4"	6
# Conduit Ports: 1	
Power: 12-24 VDC	
Feedback	
None	0
Analogue Feedback	1
Digital Communication	
None	0
MODBUS RTU	M
Pressure Regulator Series: 4100A	
41	
Range	
kPa	PSIG
0-5	0-0.7
0-10	0-1.4
0-21	0-3
0-34	0-5
Port Size	
1/2"	4
3/4"	6
Revision: A	
Port Thread	
BSPP	H
NPTF	N
BSPT	U
Elastomers	
Fluorocarbon	J
Nitrile	N
Relief Valve	
Relieving, No Bleed	D



Model 10 Precision Pressure Regulator

The Model 10 is designed for applications that require moderate flow capacity and accurate pressure control.

The main supply valve is pressure balanced by utilising a rolling diaphragm, ensuring a constant output pressure even during wide supply pressure variations. An aspirator tube automatically adjusts the supply valve in accordance with the flow demand to ensure output pressure is maintained at a constant value under varying flow conditions.



Features

- Control sensitivity of 0.32 cm (0.125") water column allows use in precision processes
- Pressure balanced supply valve prevents supply pressure changes from affecting the setpoint
- Separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- An aspirator tube compensates downstream pressure drop under flow conditions
- Non-relieving option available for applications requiring containment of gas

Specifications

Supply Pressure

- 3,447 kPa (500 psig) maximum

Flow Capacity

- 68 m³/hr (40 SCFM) @ 689 kPa (100 psig) supply and 138 kPa (20 psig) setpoint

Exhaust Capacity

- 9.35 m³/hr (5.5 SCFM) where downstream pressure is 34 kPa (5 psig) above 138 kPa (20 psig) setpoint

Supply Pressure Effect

- Less than 0.7 kPa (0.1 psig) for 689 kPa (100 psig) change in supply pressure

Sensitivity

- 0.32 cm (0.125") water column

Materials of Construction

Body and housing: Aluminum

Diaphragms: Nitrile or Fluorocarbon

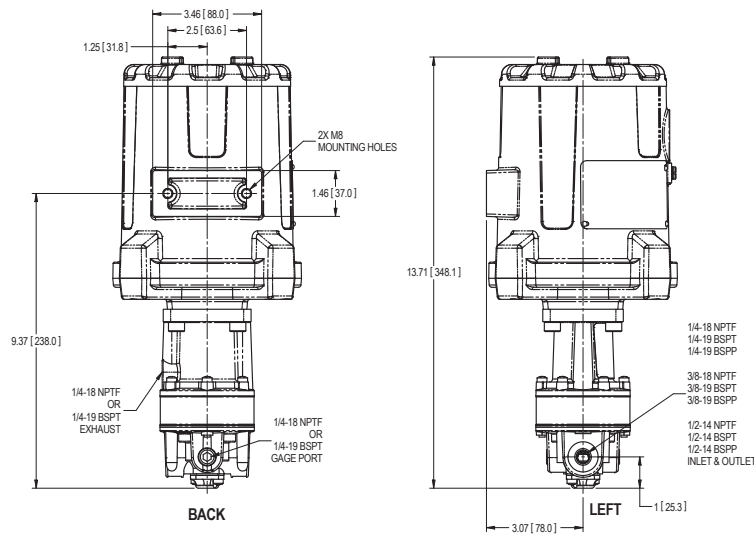
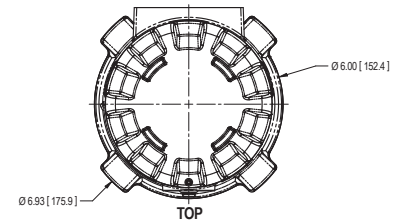
Trim: Brass, Zinc plated steel

Model 10 Precision Pressure Regulator

Model Code: PAX 1 * * 1 D * * - 10 2 * * * * *

Actuation		
Basic (Push Action) _____		1
Approval		
FM _____	F	
CSA _____	C	
ATEX _____	E	
Conduit Port Size		
1/2" _____	4	
3/4" _____	6	
# Conduit Ports: 1 _____		1
Power: 12-24 VDC _____		D
Feedback		
None _____		0
Analogue Feedback _____		1
Digital Communication		
None _____		0
MODBUS RTU _____		M
Pressure Regulator Series: 10 _____		10
Revision: 2 _____		2
Range		
kPa	PSIG	
0 - 14	0 - 2	1
0 - 69	0 - 10	2
0 - 138	0 - 20	0
3 - 207	0.5 - 30	3
7 - 414	1 - 60	4
14 - 1,034	2 - 150	6
21 - 1,379	3 - 200	7
34 - 2,068	5 - 300	8
34 - 2,758	5 - 400	9
Port Size		
1/4" _____	2	
3/8" _____	3	
1/2" _____	4	
Port Thread		
BSPP# _____	H	
NPTF _____	N	
BSPT _____	U	
Elastomers		
Fluorocarbon _____	J	
Nitrile _____	N	
Relief Valve		
Relieving, Normal Bleed _____		R
Relieving, No Bleed _____		D
Non Relieving _____		N

#BSPP @ In & Out, BSPT @ Exhaust & Gage



Model 4000A Precision Pressure Regulator

The Model 4000A is designed for applications that require high flow capacities and accurate pressure control. The intrinsic no constant bleed design minimises gas consumption.

The regulated output pressure is precisely maintained by balancing forces acting on the top and bottom of the diaphragm assembly. The main supply valve is pressure balanced by utilising a rolling diaphragm, ensuring a constant output pressure even under a wide range of supply pressure variations. An aspirator tube automatically adjusts the supply valve in accordance with the flow demand to ensure output pressure is maintained at a constant value under varying flow conditions



Features

- Control sensitivity of 1.27 cm (0.5") water column, allows precise pressure control
- Pressure balanced supply valve prevents supply pressure changes from affecting the setpoint
- Separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- An aspirator tube compensates downstream pressure droop under flow conditions

Specifications

Supply Pressure

- 1,724 kPa (250 psig) maximum

Flow Capacity

- 255 m³/hr (150 SCFM) @ 689 kPa (100 psig) supply and 138 kPa (20 psig) setpoint

Exhaust Flow Capacity

- 65.2 m³/hr (40 SCFM) where downstream pressure is 34 kPa (5 psig) above 138 kPa (20 psig) setpoint

Supply Pressure Effect

- <0.7 kPa (0.1 psig) for a 689 kPa (100 psig) change in supply pressure

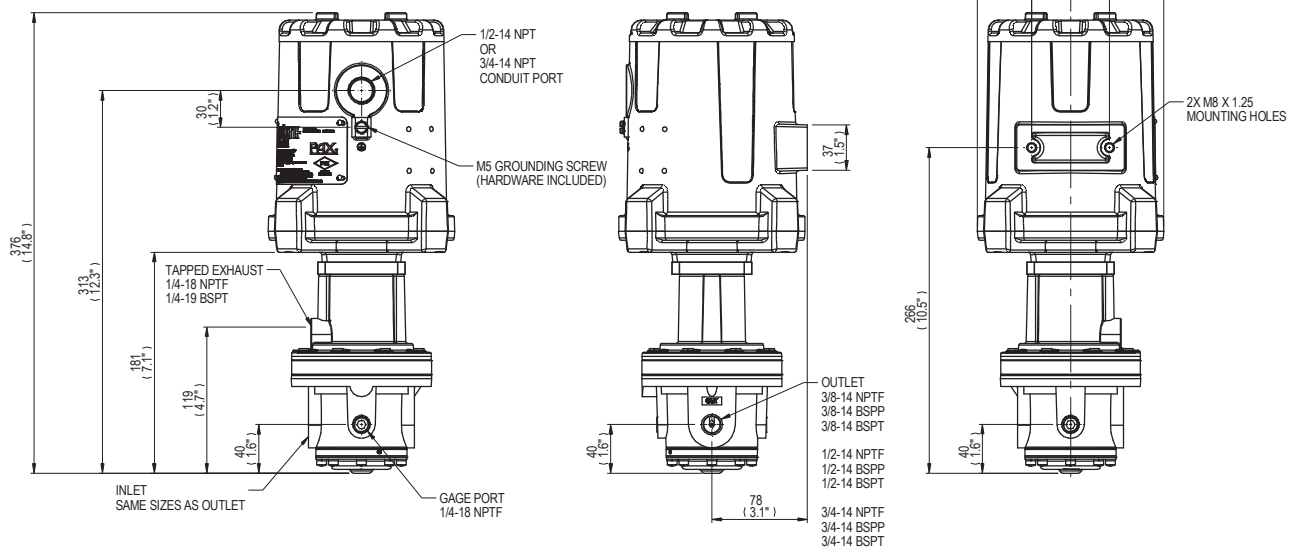
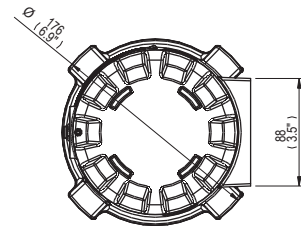
Sensitivity

- 1.27 cm (0.5") water column

Model 4000A Precision Pressure Regulator

Model Code: PAX 1 * * 1 D * * - 40 * * A * * *

Actuation	
Basic (Push Action)	1
Approval	
FM	F
CSA	C
ATEX	E
Conduit Port Size	
1/2"	4
3/4"	6
# Conduit Ports: 1 1	
Power: 12-24 VDC D	
Feedback	
None	0
Analogue Feedback	1
Digital Communication	
None	0
MODBUS RTU	M
Pressure Regulator Series: 4000A 40	
Range	
kPa	PSIG
3.4 - 69	0.5-10
3.4 - 207	0.5-30
7 - 414	1-60
14 - 1,034	2-150
34 - 1,724	5-250
Port Size	
1/2"	4
3/4"	6
Revision: A A	
Port Thread	
BSPP	H
NPTF	N
BSPT	U
Elastomers	
Fluorocarbon	J
Nitrile	N
Relief Valve	
Relieving, No Bleed	D



Model 81 Precision Two Stage Pressure Regulator

The Model 81 is designed for applications that require moderate flow capacities and very high accuracy pressure control.

The regulated output pressure is precisely maintained using two stage regulation, combining a pilot control system with a basic force balance system. The main supply valve is also pressure balanced by utilising a rolling diaphragm, ensuring a constant output pressure even under a wide range of supply pressure variations. An aspirator tube automatically adjusts the supply valve in accordance with the flow demand to ensure output pressure is maintained at a constant value under varying flow conditions.



Features

- Control sensitivity of less than 0.25 cm (0.1") of water column, allows high precision pressure control
- Pressure balanced supply valve prevents supply pressure changes from affecting the setpoint
- Separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- An aspirator tube compensates downstream pressure droop under flow conditions

Specifications

Supply Pressure

- 689 kPa (100 psig) maximum for ranges 1 and 2
- 1,034 kPa (150 psig) maximum for ranges 3 to 5

Flow Capacity

- 85 m³/hr (50 SCFM) @ 689 kPa (100 psig) supply and 138 kPa (20 psig) setpoint

Exhaust Flow Capacity

- 9.4 m³/hr (5.5 SCFM) where downstream pressure is 34 kPa (5 psig) above 138 kPa (20 psig) setpoint

Supply Pressure Effect

- <0.7 kPa (0.1 psig) for a 689 kPa (100 psig) change in supply pressure

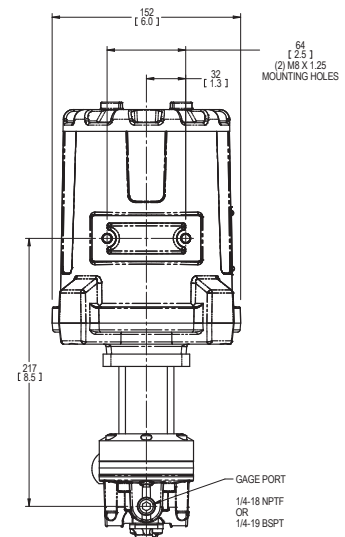
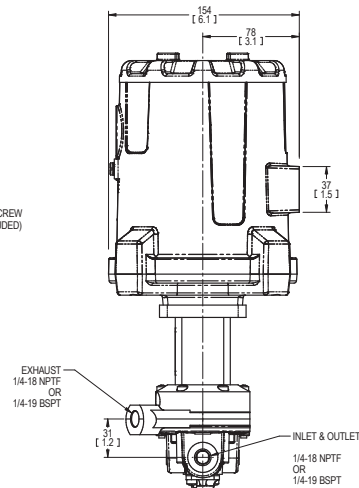
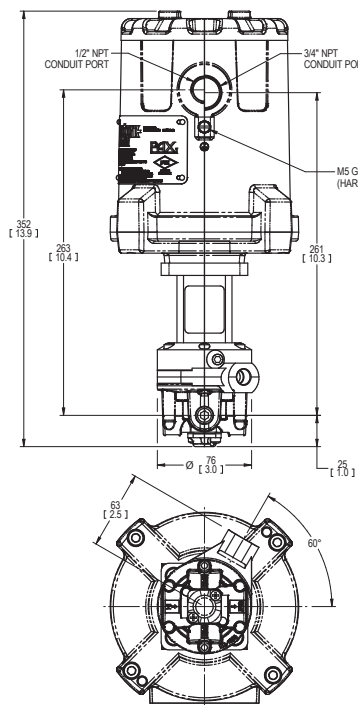
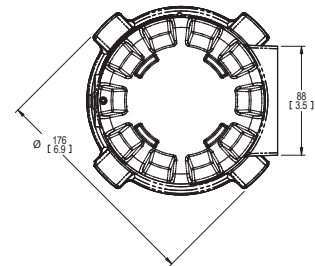
Sensitivity

- <0.25 cm (0.1") water column

Model 81 Precision Two Stage Pressure Regulator

Model Code: PAX 1 * * 1 D * * - 81 4 * 2 *

Actuation		
Basic (Push Action) _____		1
Approval		
FM _____		F
CSA _____		C
ATEX _____		E
Conduit Port Size		
1/2" _____		4
3/4" _____		6
# Conduit Ports: 1 _____		1
Power: 12-24 VDC _____		D
Feedback		
None _____		0
Analogue Feedback _____		1
Digital Communication		
None _____		0
MODBUS RTU _____		M
Pressure Regulator Series: 81 _____		81
Revision: 4 _____		4
Range		
kPa	PSIG	
0 - 14	0 - 2	1
0 - 34	0 - 5	2
0 - 138	0 - 20	3
3.4 - 414	0.5 - 60	4
3.4 - 689	0.5 - 100	5
Port Size		
1/4" _____		2
Port Thread		
NPTF _____		N
BSPT _____		U



Model 66 Stainless Steel Pressure Regulator

The Model 66 is designed for applications in corrosive material environments that require moderate flow capacities.

The regulated output pressure is well maintained as a result of large control diaphragm, for increased sensitivity. An aspirator port automatically adjusts the supply valve in accordance with the flow demand to maintain output pressure at a constant value under varying flow conditions.



Features

- Control sensitivity of 2.54 cm (1") of water column
- Viton elastomers and stainless steel body are compatible with corrosive materials
- Separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- An aspirator design compensates downstream pressure droop under flow conditions

Specifications

Supply Pressure

- 3,447 kPa (500 psig) maximum

Flow Capacity

- 28.9 m³/hr (17 SCFM) @ 689 kPa (100 psig) supply and 138 kPa (20 psig) setpoint

Supply Pressure Effect

- <0.7 kPa (0.1 psig) for a 172 kPa (25 psig) change in supply pressure

Sensitivity

- 2.54 cm (1") water column

Materials of Construction

Body and housing: Stainless steel

Diaphragms: Viton (Fluorocarbon) with Teflon on control side

Trim: Stainless steel and Teflon

Model HPD High Pressure Regulator

The Model HPD is a diaphragm sensed low capacity high pressure regulator. A stainless steel supply valve with a polymer seat insures accurate and reliable sealing of the valve for trouble free operation.

The fatigue resistant Inconel diaphragm provides long life and leak free operation. Using metal to metal and Teflon sealing ensures the regulator does not contaminate the medium with rubber type elastomers.



Features

- Three seat material choices for a wide range of chemical compatibility (PEEK, CTFE and Vespel)
- High maximum supply pressure to allow more through put of gas

Specifications

Supply Pressure

- 41,369 kPa (6,000 psig) maximum depending on seal material
- **Supply Valve Cv** 0.06, 0.25
- **Exhaust Valve Cv** 0.02

Supply Pressure Effect

- <4 kPa (0.6 psig) change for a 689 kPa (100 psig) change in supply pressure

Materials of Construction

Body and housing: Alloy 316L stainless steel

Valve: 316L stainless steel

Seal: Teflon

Installation

Refer to the *Fairchild Model HPD Installation, Operation and Maintenance Instructions*, IS-10000HPD.

Model HPP High Pressure Regulator

The Model HPP is a piston sensed low capacity high pressure regulator. A stainless steel supply valve with a polymer seat insures accurate and reliable sealing of the valve for long life, leak free operation.



Features

- Three seat material choices for a wide range of chemical compatibility (PEEK, CTFE and Vespel)
- High maximum supply pressure to allow more through put of gas

Specifications

Maximum Supply Pressure

- 41,369 kPa (6,000 psig) maximum depending on seal material
- **Supply Valve Cv** 0.06
- **Exhaust Valve Cv** 0.02

Supply Pressure Effect

- <34 kPa (5 psig) change for 689 kPa (100 psig) change in supply pressure

Materials of Construction

Body and Housing: Alloy 316L stainless steel

Valve: 316L stainless steel

Seal: Viton A

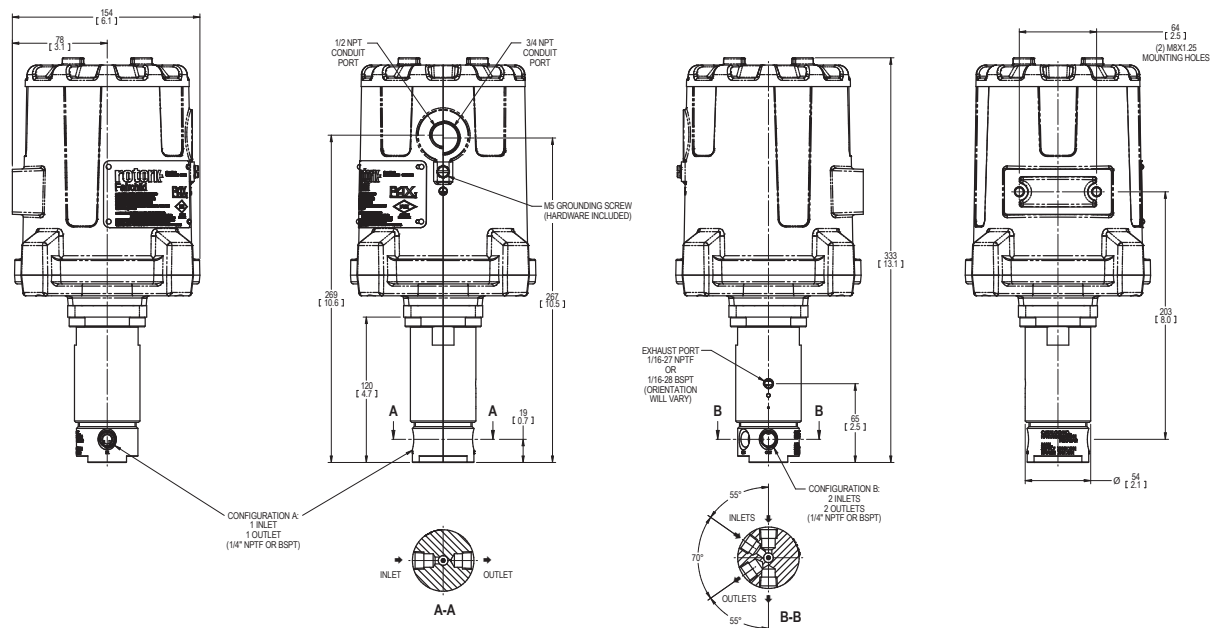
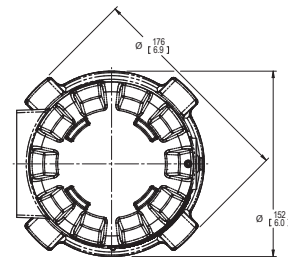
Installation

Refer to the *Fairchild Model HPP Installation, Operation and Maintenance Instructions*, IS-10000HPP.

Model HPP High Pressure Regulator

Model Code: PAX 1 * * 1 D * * - HPP 1 * 2 * * * *

Actuation			
Basic (Push Action) _____		1	
Approval			
FM _____		F	
CSA _____		C	
ATEX _____		E	
Conduit Port Size			
1/2" _____		4	
3/4" _____		6	
# Conduit Ports: 1 _____		1	
Power: 12-24 VDC _____		D	
Feedback			
None _____		0	
Analogue Feedback _____		1	
Digital Communication			
None _____		0	
MODBUS RTU _____		M	
Pressure Regulator Series: HPP _____		HPP	
Valve: 0.06 Cv _____		1	
Range			
kPa	PSIG		
0 - 6,895	0 - 1,000	2	
0 - 13,790	0 - 2,000	4	
0 - 20,684	0 - 3,000	5	
Port Size			
1/4" _____		2	
Port Thread			
NPTF _____		N	
BSPT _____		U	
Port Configuration			
2 (1 inlet, 1 outlet) _____		A	
4 (2 inlets, 2 outlets) _____		B	
Seal Material & Max Supply			
	kPa	PSIG	
PEEK	41,369	6,000	P
CTFE	24,132	3,500	T
VESPEL	41,369	6,000	V
Relief Valve			
Relieving _____		R	
Non Relieving _____		N	



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