

## Model 10 Pneumatic Precision Regulator



The Model 10 is designed for applications that require high capacity and accurate process control. A supply valve which is balanced by utilizing a rolling diaphragm, insures a constant output pressure even during wide supply pressure variations. Stability of regulated pressure is maintained under varying flow conditions through the use of an aspirator tube which adjusts the supply valve in accordance with the flow velocity.

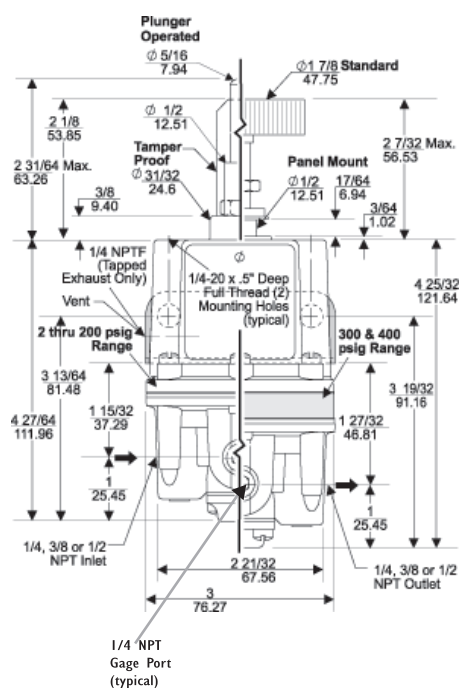
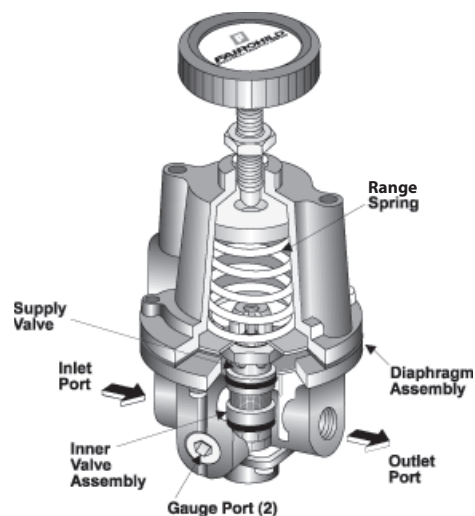
### Features

- Control sensitivity of 1/8" water column allows use in precision processes.
- Pressure balanced supply valve prevents supply pressure changes from affecting the setpoint.
- Optional check valve permits Backflow of downstream pressure when supply is opened to atmosphere.
- 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.
- Canadian Registration Number (CRN) certification for all territories and provinces.
- NO Yellow Metals available for harsh media.

### Operating Principles

The Model 10 Series regulator uses mechanical feedback force balance principals to control the movement of the Valve Assembly that controls the output pressure. When the regulator is adjusted for a specific set point, the downward force of the Range Spring moves the Diaphragm Assembly downward. The Supply Valve opens and allows air to pass to the Outlet Port. As the set point is reached, the downward force exerted by the Range Spring is balanced by the force of the downstream pressure that acts on the Diaphragm Assembly. The resultant force moves the Supply Valve upward to reduce the flow of air to the Outlet Port.

Outlet pressure is maintained as a result of balance between forces acting on the top and bottom of the Diaphragm Assembly.



### Options

#### Low Bleed (B)

Option that reduces the bleed rate below that of a standard unit and can be used when bleed or consumption is an issue. A reduction in sensitivity will result from the lower bleed rate.

#### Low Flow (L)

Option that increases the bleed rate above that of a standard unit to improve response in low flow applications.

#### Check Valve (C)

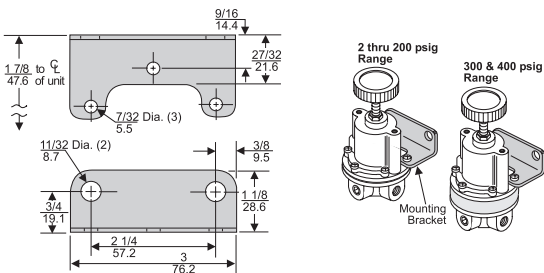
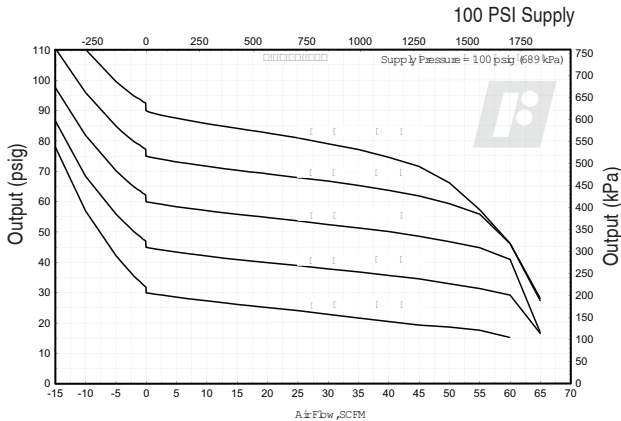
Internal check valve that permits rapid Backflow of downstream pressure through the supply line when supply pressure is removed.

#### Non-Relieving (N)

Option that includes no relief function or continuous bleed. Units with this feature must operate with a continuous downstream flow to regulate properly and prevent the output from equalizing with supply line pressure.

**Technical Information**

**Fairchild Model 10262**



Mounting Bracket: 09921 (sold separately)  
14523 (sold separately)

**Model 10 Regulator Kits & Accessories**

Mounting Bracket Kit ..... 09921 (Zinc Plated Steel)  
14523 (316 Stainless Steel)

**Specifications**

**Supply Pressure**

500 psig, [35.0 BAR], (3500 kPa) Maximum

**Flow Capacity**

40 SCFM (68 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply and 20 psig, [1.5 BAR], (150 kPa) setpoint

**Exhaust Capacity**

5.5 SCFM (9.35 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint

**Supply Pressure Effect**

Less than 0.1 psig, [.007 BAR], (.7 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure

**Sensitivity**

1/8 in Water Column [0.31 mBAR (0.031 kPa)]

**Ambient Temperature**

-40°F to +200°F, (-40°C to 93.3°C)

**Hazardous Locations**

Acceptable for use in Zones 1 and 2 for gas atmosphere; Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

**Materials of Construction**

Body and Housing ..... Aluminum  
Diaphragms ..... Buna N on Dacron (Std. unit only)  
Trim ..... Brass, Zinc Plated Steel

**Catalog Information**

**Catalog Number** 102

**Pressure Range**

psig	[BAR]	(kPa)	
0-2	[0-0.15]	(0-15)	1
0-10	[0-0.70]	(0-70)	2
0-20	[0-1.5]	(0-150)	0
.5-30	[0.03-2]	(3-200)	3
1-60	[0.1-4]	(10-400)	4
2-150	[0.1-10]	(15-1000)	6
3-200	[0.2-14]	(20-1400)	7
5-300	[0.3-21]	(35-2100)	8
5-400	[0.3-28]	(35-2800)	9

**Pipe Size**

1/4" NPT .....	2
3/8" NPT .....	3
1/2" NPT .....	4

**Options**

- Silicone Elastomers <sup>1</sup>
- Low Bleed
- Check Valve <sup>2</sup>
- Tapped Exhaust
- BSPP (Parallel) <sup>3</sup>
- Fluorocarbon Elastomers
- Low Flow
- Non-Relieving
- Panel Mount <sup>4</sup>
- Plunger Operated <sup>5</sup>
- Screwdriver Adjust
- Tamper Proof
- BSPT (Tapered)
- No Yellow Metals <sup>6</sup>

	A	B	C	E	H	J	L	N	P	R	S	T	U	Y
A	-	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N
B	Y	-	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y
C	Y	Y	-	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N
E	Y	Y	Y	-	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
H	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	N	Y
J	N	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	Y
L	Y	N	Y	Y	Y	Y	-	N	Y	Y	Y	Y	Y	Y
N	Y	N	N	Y	Y	Y	N	-	Y	Y	Y	Y	Y	Y
P	Y	Y	Y	Y	Y	Y	Y	Y	-	N	Y	N	Y	Y
R	Y	Y	Y	N	Y	Y	Y	N	-	N	N	Y	N	N
S	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	-	N	Y	Y
T	Y	Y	Y	Y	Y	Y	Y	N	N	N	-	Y	Y	Y
U	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	-	Y
Y	N	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	-

Option Compatibility Chart: "Y" in Box = Compatible options

<sup>1</sup> Maximum Supply Pressure - 75 psig, [5.0 BAR], (500 kPa)  
<sup>2</sup> Maximum Supply Pressure - 250 psig, [17.0 BAR], (1700 kPa)  
<sup>3</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.  
<sup>4</sup> Panel Mount available for ranges 1, 2, 0, 3, 4 and 6 only.  
<sup>5</sup> See Table 1 for Push Rod Travel and Thrust.  
<sup>6</sup> Must Include the J Option

**Table 1. Plunger Operated Regulator Parameters**

Range	Push Rod Travel (inches)	Push Rod Thrust (pounds)
0-2 psig	.560 ± 10%	6.28 ± 10%
0-10 psig	.668 ± 10%	31.4 ± 10%
0-20 psig	.668 ± 10%	62.8 ± 10%
.5-30 psig	.673 ± 10%	94.2 ± 10%
1-60 psig	.698 ± 10%	188.4 ± 10%
2-150 psig	.589 ± 10%	471.0 ± 10%
5-300 psig	.589 ± 10%	471.0 ± 10%
3-200 psig	.418 ± 10%	628.0 ± 10%
5-400 psig	.418 ± 10%	628.0 ± 10%

## Model 30 Midget Precision Regulator



The Model 30 is designed for applications that require high capacity and in a compact size for accurate process control. A supply valve which is balanced by utilizing a rolling diaphragm, insures a constant output pressure even during wide supply pressure variations. Stability of regulated pressure is maintained under varying flow conditions through the use of an aspirator tube which adjusts the supply valve in accordance with the flow velocity.

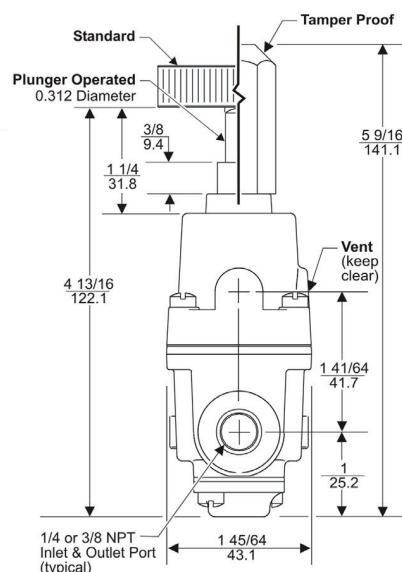
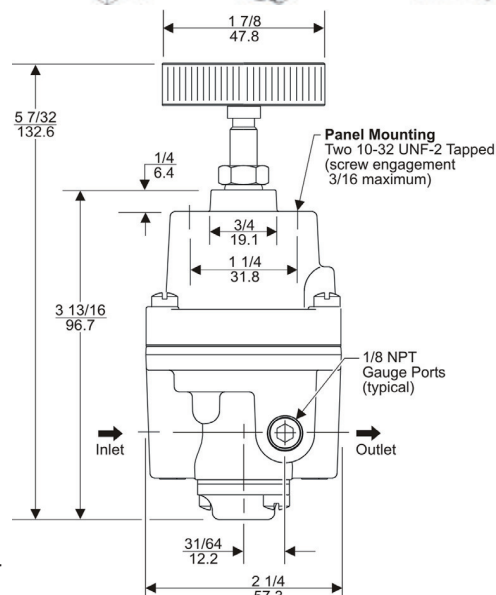
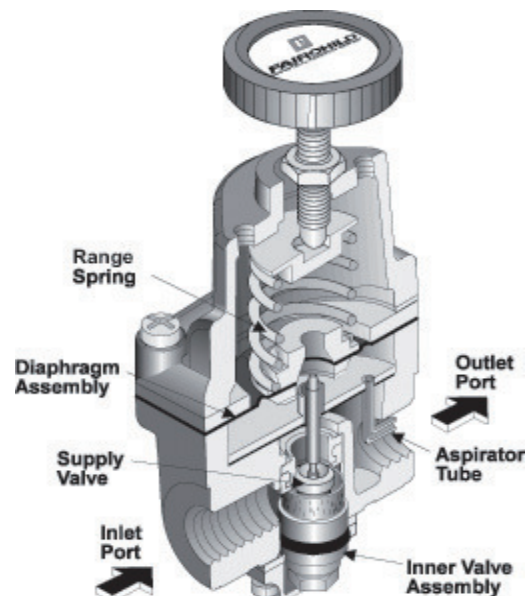
### Features

- Control sensitivity of 1/4" water column variation allows use in precision applications.
- Pressure Balanced Supply Valve lets the regulator remain unaffected by supply pressure changes.
- Flow of up to 40 SCFM with 100 psig supply allows use in applications with high flow requirements.
- An aspirator tube compensates downstream pressure droop under flow conditions.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 30 without removing it from the line.
- Canadian Registration Number (CRN) Certification for all territories and provinces.

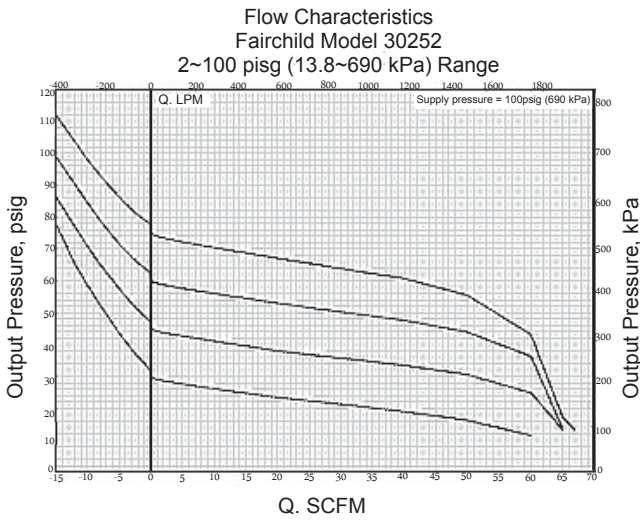
### Operating Principles

The Model 30 Regulator uses the force balance principal to control the movement of the valve assembly which in turn controls the output pressure. When the regulator is adjusted for a specific set point, the downward force of the Range Spring causes the Diaphragm Assembly to move downward. The Supply Valve opens and allows air to pass to the Outlet Port. As the set point is reached, the downward force exerted by the Range spring is balanced by the upward force of the downstream pressure acting on the bottom of the Diaphragm Assembly. The resultant force moves the supply Valve upward to reduce the flow of air to the Outlet Port.

Outlet pressure is maintained as a result of balance between forces acting on the top and bottom of the Diaphragm Assembly.



**Technical Information**



**Specifications**

**Supply Pressure**

250 psig, [17.0 BAR], (1700 kPa) Maximum

**Flow Capacity**

40 SCFM (68 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply and 20 psig, [1.5 BAR], (150 kPa) setpoint

**Exhaust Capacity**

2.0 SCFM (3.4 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint

**Supply Pressure Effect**

Less than 0.2 psig, [.014 BAR], (.14 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure

**Sensitivity**

1/4" (.63cm) Water Column

**Ambient Temperature**

-40°F to +200°F, (-40°C to 93.3°C)

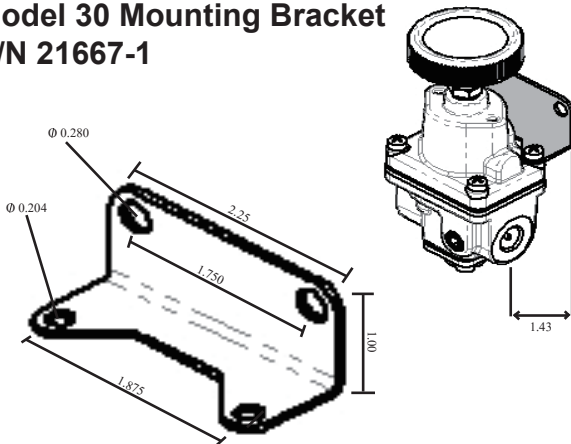
**Hazardous Locations**

Acceptable for use in Zones 1 and 2 for gas atmosphere:  
Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

**Materials of Construction**

Body and Housing ..... Aluminum  
Diaphragms ..... Nitrile on Dacron  
Trim ..... Brass

**Model 30 Mounting Bracket  
P/N 21667-1**



**Catalog Information**

**Catalog Number**

3 0 2

**Pressure Range**

psig	[BAR]	(kPa)	
0-2	[0-0.1]	(0-15) .....	1
0-10	[0-0.7]	(0-70) .....	2
0.5-30	[0.03-2]	(3-200) .....	3
1-60	[0.1-4]	(10-400) .....	4
2-100	[0.1-7]	(15-700) .....	5

**Pipe Size**

1/4" NPT .....	2
3/8" NPT .....	3

**Options**

- Silicone Elastomers <sup>1</sup>
- Low Bleed
- BSPP (Parallel) <sup>2</sup>
- Fluorocarbon \*Elastomers
- Low Flow
- Mounting Bracket
- Non-Relieving
- Plunger Operated <sup>3</sup>
- Screwdriver Adjust
- Tamper Proof
- BSPT (Tapered)

	A	B	H	J	L	M	N	R	S	T	U
A	-	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
B	Y	-	Y	Y	N	Y	N	N	Y	Y	Y
H	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	N
J	N	Y	Y	-	Y	Y	Y	Y	Y	Y	Y
L	Y	N	Y	Y	-	Y	N	Y	Y	Y	Y
M	Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y
N	Y	N	Y	Y	N	Y	-	Y	Y	Y	Y
R	Y	Y	Y	Y	Y	Y	Y	-	Y	N	Y
S	Y	Y	Y	Y	Y	Y	Y	N	-	N	Y
T	Y	Y	Y	Y	Y	Y	Y	N	N	-	Y
U	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	-

Option Compatibility Chart: "Y" in Box = Compatible options

<sup>1</sup> Maximum Supply Pressure - 75 psig, [5.0 BAR], (500 kPa)

<sup>2</sup> BSPP Threads in Inlet & Outlet Ports Only, Others BSPT.

<sup>3</sup> Refer to Table 1 for Push Rod Travel and Thrust

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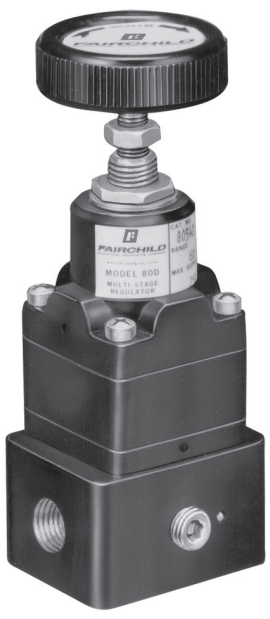
**Table 1. Plunger Operated Regulator Parameters**

Range	Push Rod Travel (inches)	Push Rod Thrust (pounds)
0-2 psig	.244 ± 10%	3.2 ± 10%
0-10 psig	.344 ± 10%	15.7 ± 10%
0-30 psig	.333 ± 10%	47.0 ± 10%
0-60 psig	.395 ± 10%	94.0 ± 10%
0-100 psig	.354 ± 10%	157.0 ± 10%

**Installation**

For installations instructions, refer to the *Fairchild Model 30 Midget Precision Regulator Instruction, Operation and Maintenance Instructions, IS-10000030.*

# Model 80D Multi-Stage Pressure Regulator

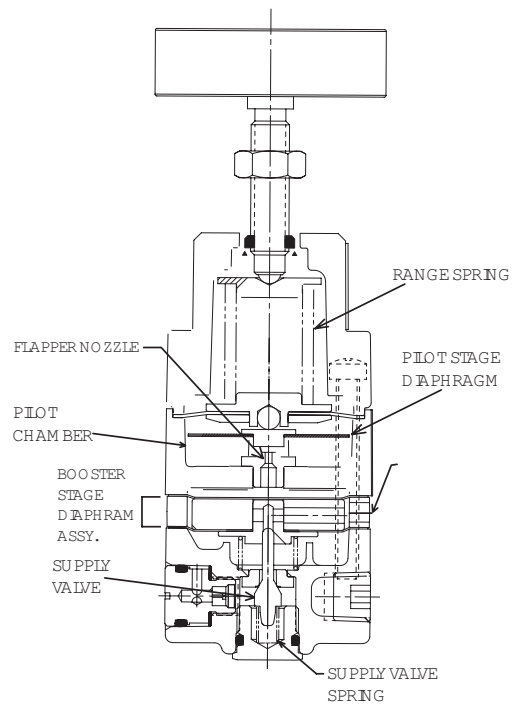


## Features

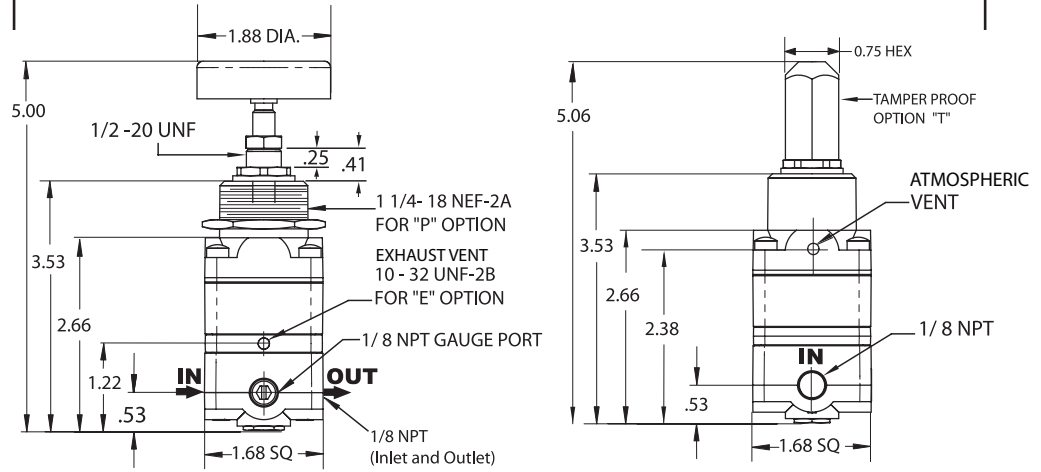
- Force balance and 2 stage pilot control to minimize droop.
- Excellent frequency response to eliminate output pressure excursions.
- Compact size for installation where space is limited.
- Sapphire Orifice provides precise control of pilot control air flow.
- Low air consumption for efficient operation.
- Available in 1/8", 1/4" and 3/8" NPT port sizes.

## Operating Principles

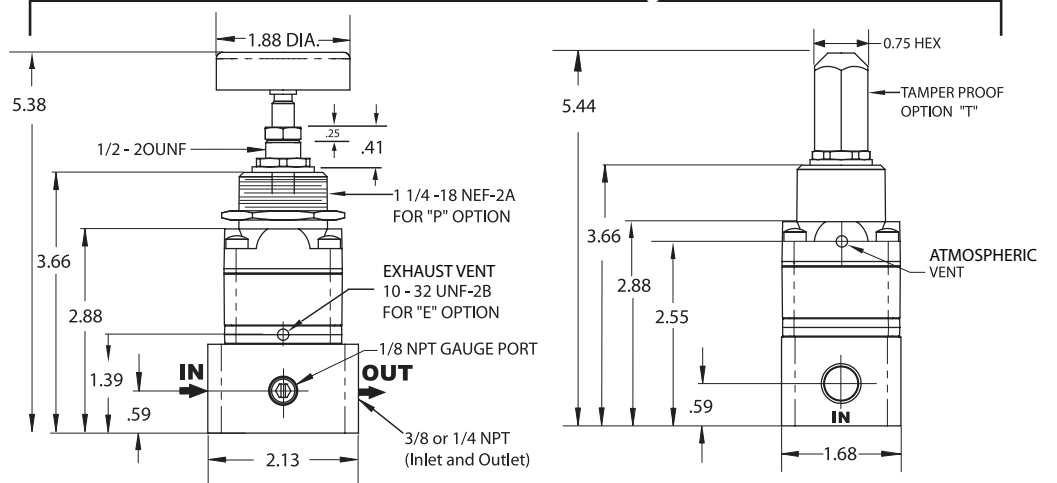
The Model 80D is a precision two-stage device that incorporates a force balance design with pilot control. This compact, high quality unit combines the flow capacity of a process regulator with the precision of an instrument regulator.



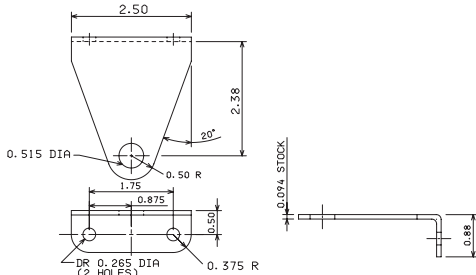
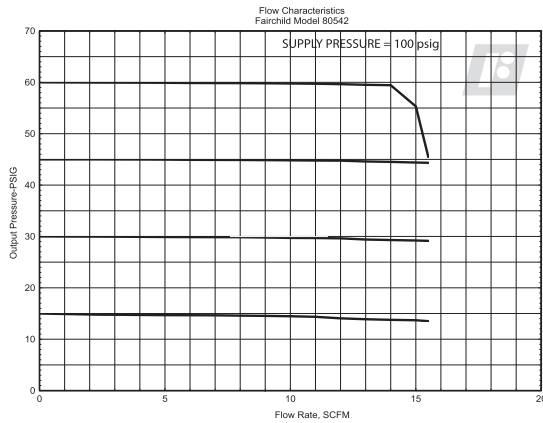
**FIGURE 1 1/8" NPT Regulator**



**FIGURE 2 1/4" & 3/8" NPT Regulator**



## Technical Information



## Model 80D Regulator Kits & Accessories

Mounting Bracket Kit ..... 11989 (sold separately)

## Specifications

### Flow Capacity

14 SCFM (23.8 m<sup>3</sup>/HR) (100 psig, [7.0 BAR], (700 kPa) supply: 20 psig, [1.5 BAR], (150 kPa) setpoint)

### Exhaust Capacity

2.5 SCFM (4.25 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig setpoint

### Pressure Change under Flow Conditions

Less than 0.1 psig, [.007 BAR], (.7 kPa) from dead end service to 10 SCFM (17 m<sup>3</sup>/HR) (set pressure 10 psig, [0.7 BAR], (70 kPa) supply pressure 100 psig, [7.0 BAR], (700 kPa)

### Air Consumption

Less than .1 SCFM (.17 m<sup>3</sup>/HR)

### Sensitivity

Less than 0.1" (.254 cm) Water Column

### Maximum Supply Pressure

150 psig, [10.0 BAR], (1000 kPa) for 20 psig, [1.5 BAR], (150 kPa) range  
250 psig, [17.0 BAR], (1700 kPa) for 60 - 100 psig, [4.0 - 7.0 BAR], (400 - 700 kPa) ranges

### Effect of Supply Pressure Variation

Less than .2 psig, [.0014 BAR], (1.4 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure

### Ambient Temperature Limits

-40°F to +200°F, (-40°C to +93.3°C)

### Materials of Construction

Trim ..... Zinc Plated Steel  
Body ..... Aluminum  
Diaphragms ..... Nitrile and Dacron  
Orifice ..... Sapphire

## Catalog Information

Catalog Number **8 0 5**

### Pressure Range

psig	[BAR]	(kPa)	
0-20	[0-1.5]	(0-150).....	3
1-60	[0.07-4]	(7-400).....	4
1-100	[0.07-7]	(7-700).....	5

### Pipe Size

1/8" NPT <sup>1</sup> .....	1
1/4" NPT <sup>2</sup> .....	2
3/8" NPT <sup>2</sup> .....	3

<sup>1</sup> FIGURE 1 on Pg. 40 Shows 1/8" port body style

<sup>2</sup> FIGURE 2 on Pg. 40 shows 1/4 and 3/8" port body style

### Options

Tapped Exhaust .....	E
Bonnet Mounting .....	P
Adjustment Screw .....	S
Tamper Proof .....	T
BSPT (Tapered) .....	U

## Service Information

A service kit is available for the Model 80D. Refer to the *Fairchild Model 80D Pressure Regulator Installation, Operation and Maintenance Instructions*, IS-1000080D.

## Model 81 Multi-Stage Pressure Regulator



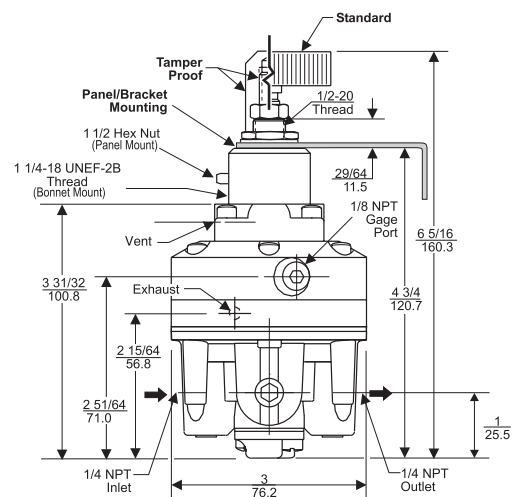
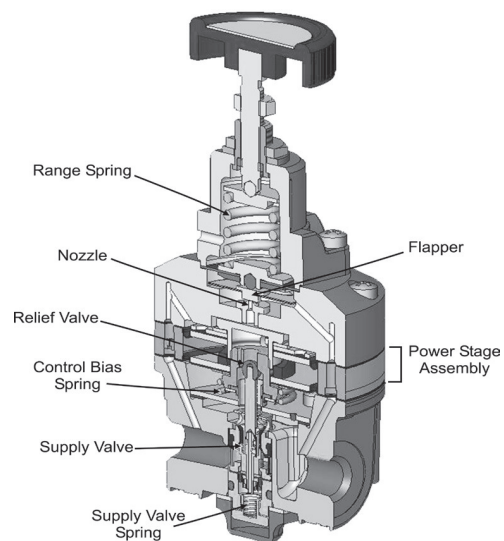
### Features

- Outstanding sensitivity
- Droop or boost virtually eliminated
- Fast response
- Minimal effect for supply pressure change
- High forward flow capacity
- High exhaust capacity
- Small physical size, saves space
- Sapphire orifice
- Permits use in instrumentation and control applications
- Provides constant output pressure over large flow range
- Eliminates output pressure excursions
- Reduces time to exhaust

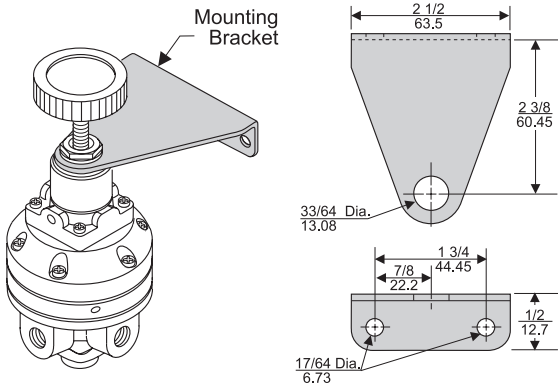
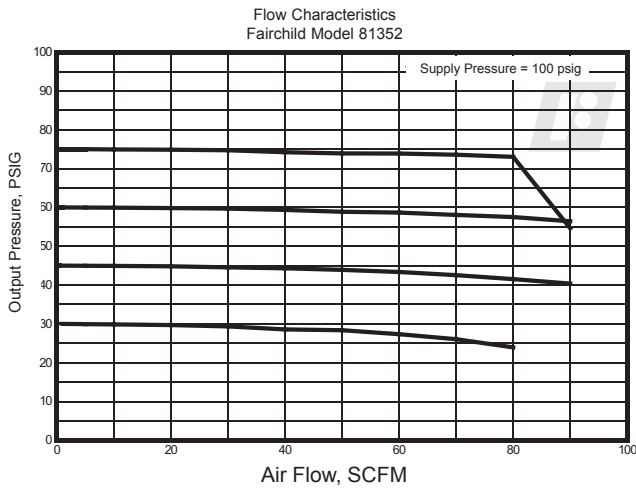
### Operating Principles

This Model 81 is a precision two-stage regulator that combines a pilot control system with a basic force balance system to provide accurate output pressure regulation.

It is recommended for use in both highly sensitive instrumentation and control circuits and in equipment requiring high flow with precise control.



## Technical Information



Mounting Bracket: 11989

## Model 81 Regulator Kits & Accessories

Mounting Bracket Kit ..... 11989 (sold separately)

## Catalog Information

Catalog Number 814 -

### Pressure Ranges

psig	[BAR]	(kPa)	
0-2	[0-0.15]	(0-15)	1
0-5	[0-0.35]	(0-35)	2
0-20	[0-1.5]	(0-150)	3
0.5-60	[0.035-4]	(3.5-400)	4
0.5-100	[0.035-7]	(3.5-700)	5

### Pipe Size

1/4" NPT. ....  2

### Options

Tapped Exhaust .....  E  
 Bonnet Mounting .....  P  
 Tamper Proof .....  T  
 BSPT (Tapered) .....  U

## Service Information

A service kit is available for the Model 81. Refer to the *Installation, Operation and Maintenance Instructions*, IS-10000081.

## Specifications

### Flow Capacity (nominal)

50 SCFM (85 m<sup>3</sup>/HR) (100 psig, [7.0 BAR], (700 kPa) supply;  
 20 psig, [1.5 BAR], (150 kPa) setpoint)

### Exhaust Capacity

5.5 SCFM (9.4 m<sup>3</sup>/HR) Downstream pressure 5 psig  
 [.35 BAR] (35 kPa) above 20 psig setpoint

### Maximum Supply Pressure

2, 5 psig, [.15, .35 BAR], (14, 35 kPa) ranges:  
 100 psig, [7.0 BAR], (700 kPa)

20, 60, 100 psig, [1.5, 4.0, 7.0 BAR], (140, 400, 700 kPa) ranges:  
 150 psig, [10.0 BAR], (1000 kPa)

### Minimum Supply Pressure

20 psig, [1.5 BAR], (150 kPa)

### Maximum Output Pressure

100 psig, [7.0 BAR], (150 kPa)

### Effect of Supply Pressure Variation

Less than .2 psig, [.13 BAR], (150 kPa) for 100 psig,  
 [7.0 BAR], (700 kPa) change

### Air Consumption

Less than 0.1 SCFM (1.7 m<sup>3</sup>/HR)

### Sensitivity

Less than 0.1" (.254 cm) Water Column

### Ambient Temperature Limit

-40°F to +200°F, (-40°C to 93°C)

### Materials of Construction

Body ..... Die Case Aluminum  
 Trim . . . Stainless Steel, Brass, Aluminum, and Plated Steel  
 Diaphragms ..... Nitrile on Dacron  
 Orifice ..... Sapphire



# Model 1000 Precision Pressure Regulator



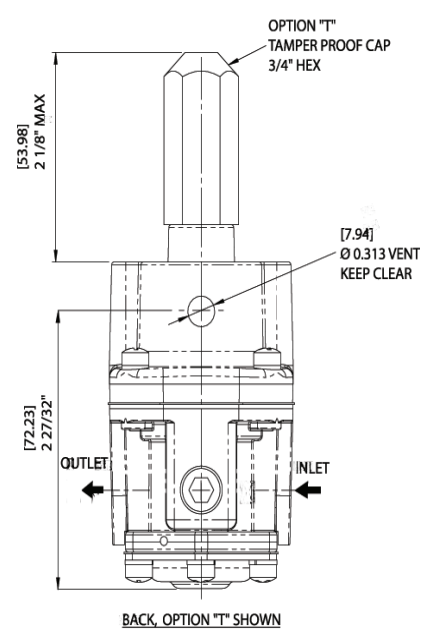
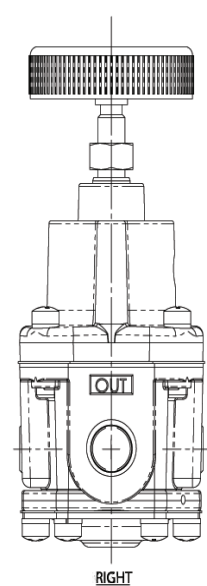
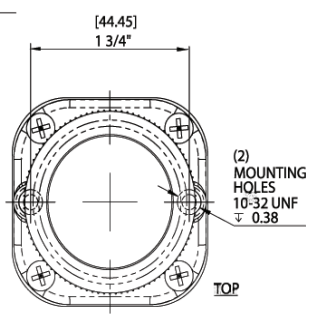
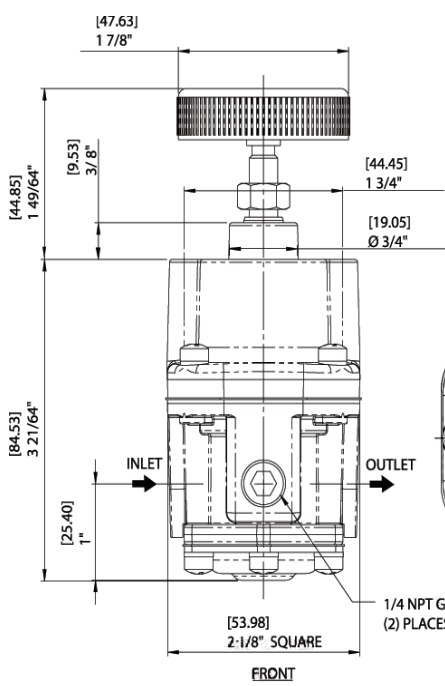
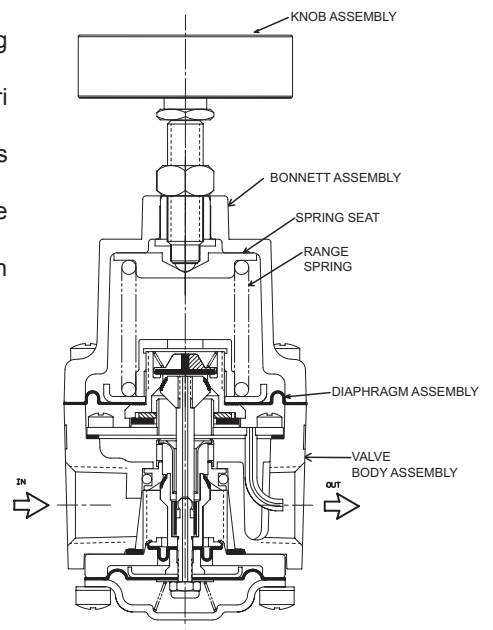
## Features

- Stable operation the eliminates hunting and buzzing.
- Flow compensation provided by venturi action of the aspirator tube.
- Soft Supply and Exhaust Valve seats minimize air consumption.
- A balanced Supply Valve minimizes the effect of supply pressure variation.
- No-Bleed design minimizes consumption of air or inert gas.
- Compact in size where space is limited.

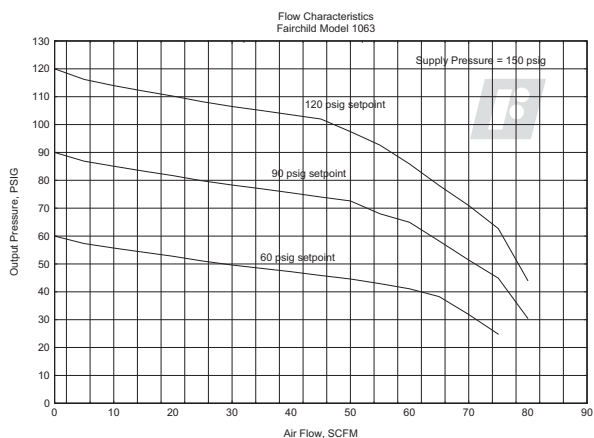
## Operating Principles

The Model 1000 Precision Pressure Regulator is designed for use in systems requiring both precision control and high forward flow and exhaust capacity. The sensitive valve motor of this high quality unit makes it virtually immune to supply pressure variations.

The combination of high flow capacity and good sensitivity make the versatile control applications, including loading of control valve and calendar roll actuators, operation of clutch and braking devices, and winding operations.



## Technical Information



## Specifications

### Flow Capacity

50 SCFM (85 m<sup>3</sup>/HR) (100 psig, [7.0 BAR], (700 kPa) supply, 20 psig, [1.5 BAR], (150 kPa) setpoint)

### Exhaust Capacity

8 SCFM (13.6 m<sup>3</sup>/HR) for downstream pressure 5 psig, [.35 BAR], (35 kPa) above set pressure

### Supply Pressure

250 psig, [17.0 BAR], (1700 kPa) Maximum

### Effect of Supply Pressure Variation

0.1 psig, [.007 BAR], (.7 kPa) per 100 psig, [7.0 BAR], (700 kPa) change

### Sensitivity

0.5" (1.27 cm) Water Column

### Ambient Temperature Limits

-40°F to +200°F, (-40°C to + 93.3°C)

### Hazardous Locations

Acceptable for use in Zones 1 and 2 for gas atmosphere;  
Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

### Materials of Construction

Body . . . . . Zinc  
Diaphragms . . . . . Buna N and Dacron  
Trim . . . Aluminum, Brass, Neoprene and Zinc Plated Steel

## Catalog Information

### Catalog Number

1 0

### Pressure Range

psig	[BAR]	(kPa)
0.5-10	[0.03-0.7]	(3-70) . . . . .
0.5-30	[0.03-2.0]	(3-200) . . . . .
1-60	[0.1-4.0]	(10-400) . . . . .
2-150	[0.15-10.0]	(15-1000) . . . . .

### Pipe Size

1/4" NPT . . . . .   
3/8" NPT . . . . .

### Options

BSPP (Parallel) . . . . .   
Tamper Proof . . . . .   
BSPT (Tapered). . . . .

### Service Kit

A Service Kit is available for the Model 1000. Refer to the *Fairchild Model 1000 Installation, Operation and Maintenance Instructions*, IS-10001000.

# Model 4000A Pneumatic Pressure Regulator



The Model 4000A Pneumatic Precision Regulator is a no bleed design regulator that precisely controls a set pressure.

## Features

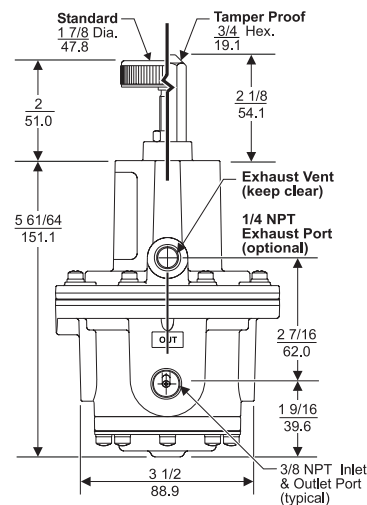
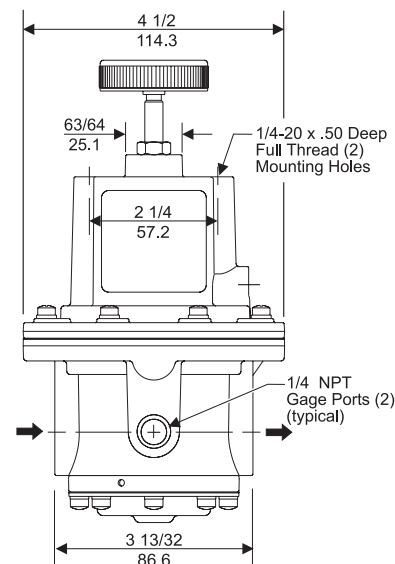
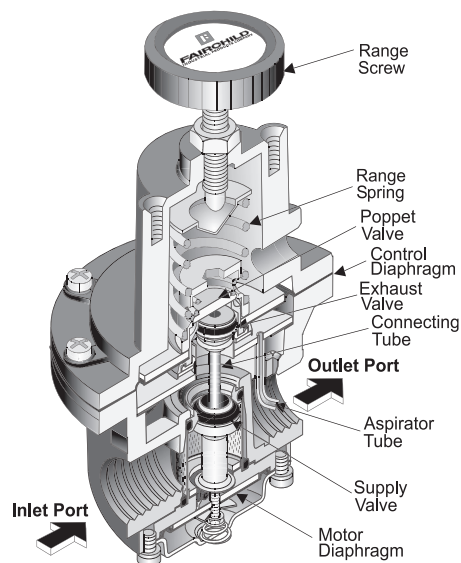
- Control sensitivity of 1/2" water column allows use in precision applications.
- Large Supply and Exhaust Valves provide high forward and exhaust flows.
- Soft Supply and Exhaust Valve seats minimize air consumption.
- A balanced Supply Valve minimizes the effect of supply pressure variation.
- An Aspirator Tube compensates downstream pressure droop under flow conditions.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 4000A without removing it from the line.
- Canadian Registration Number (CRN) certification for all territories and provinces.

## Operating Principles

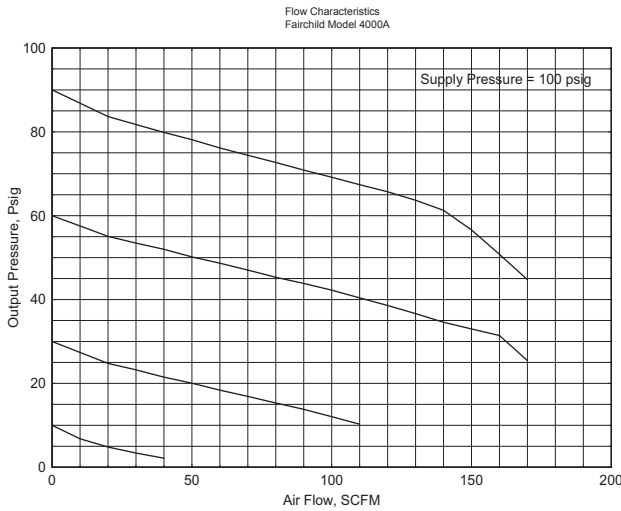
When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a downward force against the top of the Control Diaphragm. This downward force opens the Supply Valve. Output pressure flows through the Outlet Port and the Aspirator Tube to the Control Chamber where it creates an upward force on the bottom of the Control Diaphragm.

When the setpoint is reached, the force of the Range Spring that acts on the top of the Control Diaphragm balances with the force of output pressure that acts on the bottom of the Control Diaphragm and closes the Supply Valve.

When the output pressure increases above the setpoint, the Diaphragm Assembly moves upward to close the Supply Valve and open the Exhaust Valve. Because the Poppet Valve is closed, pressure flows down the Connecting Tube to the bottom of the Motor Diaphragm. This pressure keeps the Supply Valve tightly closed while in the exhaust mode. The Poppet Valve opens and output pressure exhausts through the Vent on the side of the unit until it reaches the setpoint.



## Technical Information



## Specifications

### Supply Pressure

250 psig, [17.0 BAR], (1700 kPa) Maximum

### Flow Capacity

150 SCFM (255 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply and 20 psig, [1.5 BAR], (150 kPa) setpoint

### Exhaust Capacity

40 SCFM (65 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint

### Supply Pressure Effect

Less than 0.1 psig, [.007 BAR], (0.7 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure

### Sensitivity

1/2" (1.27 cm) Water Column

### Ambient Temperature

-40°F to +200°F, (-40°C to +93°C)

### Hazardous Locations

Acceptable for use in Zones 1 and 2 for gas atmosphere; Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

### Materials of Construction

Body and Housing ..... Aluminum  
 Diaphragms ..... Nitrile on Dacron  
 Trim ..... Zinc Plated Steel, Brass

## Catalog Information

### Catalog Number

4 0     A  

### Pressure Range

psig	[BAR]	(kPa)	
0.5-10	[0.035-0.7]	(3.5-70)	2
0.5-30	[0.035-2]	(3.5-200)	3
1-60	[0.07-4]	(7-400)	4
2-150	[0.15-10]	(15-1000)	6
5-250	[0.35-17]	(35-1700)	7

### Pipe Size

3/8" NPT	3
1/2" NPT	4
3/4" NPT	6

### Options

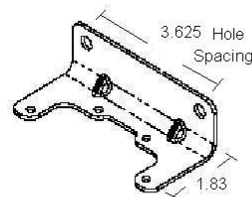
Tapped Exhaust	E
BSPP (Parallel) <sup>1</sup>	H
Tamper Proof	T
BSPT (Tapered)	U
Viton Elastomers <sup>2</sup>	J

<sup>1</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

<sup>2</sup> Viton Available on Ranges through 2-150 psig Only.

## Installation

For installations instructions, refer to the *Fairchild Model 4000A Pneumatic Precision Regulator Instruction, Operation and Maintenance Instructions, IS-1004000A*.



20555-1

**Model 4000A Mounting Bracket Kit P/**  
**N 20555-1 zinc plated (sold separately)**

## Model 100 High Flow Pressure Regulator



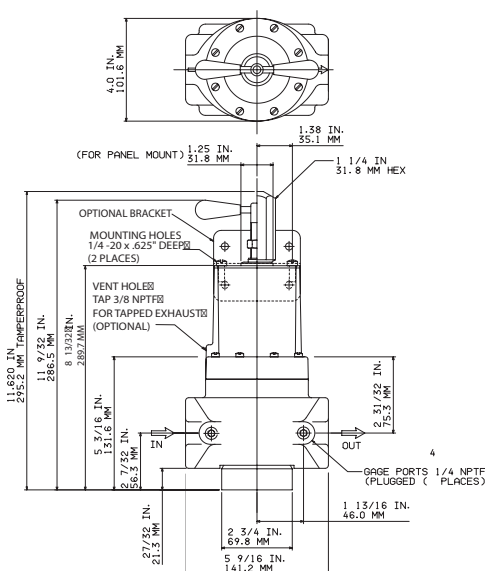
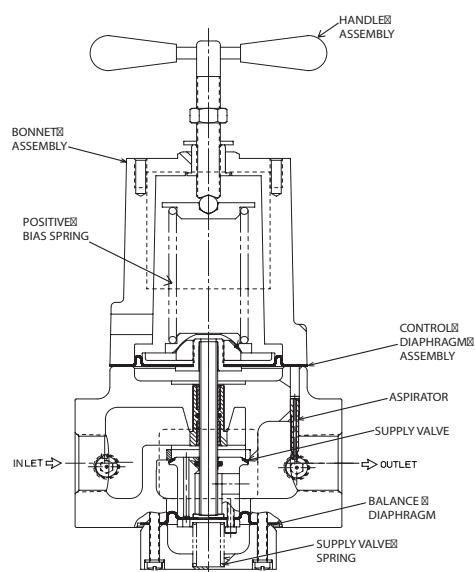
### Features

- Sensitivity of 1" (1.27 cm) of water column responds to minute changes in downstream pressure.
- Venturi-type aspirator tube to aid stability and minimize downstream pressure droop under flowing conditions.
- Balanced supply valve to minimize effect of supply pressure variation.
- Control Chamber isolates the control diaphragm to eliminate hunting and buzzing.
- Operates equally well on shop air or clean, dry instrument air.
- May be serviced and maintained without removal from line.
- Mounting Bracket available
- Canadian Registration Number (CRN) certification for all territories and provinces.

### Operating Principles

The Model 100 High Flow Pressure Regulator is designed for use in control systems requiring unusually high flow capacities. Like many of the Fairchild regulators, the compensating action of the inner valve assembly of the Model 100 allows complete stabilization of downstream pressure.

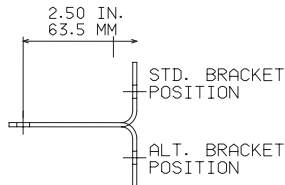
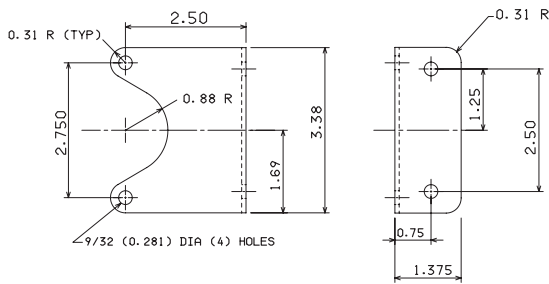
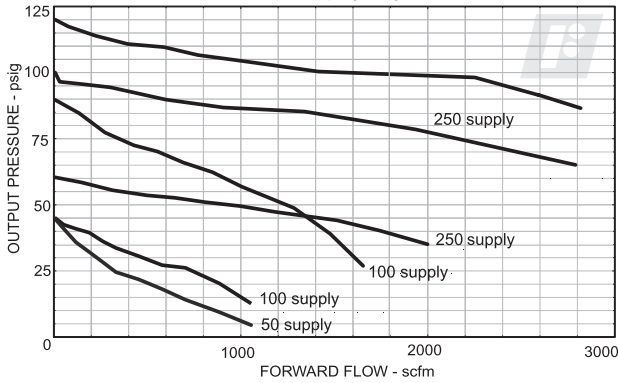
This high quality unit, which operates as efficiently on shop air as on dry instrument air, offers unusual versatility and economy. The Model 100 is capable of providing precise control of set point and good sensitivity under high flow conditions, and is the ideal choice for many demanding applications, including main header regulator control, large nip roll loading, and clutch brake operation.



**Technical Information**

**Catalog Information**

Model 100612  
Fairchild Industrial Product Company  
2 - 150 psig range



Mounting Bracket: 10308

**Model 100 Regulator Kits & Accessories**

Mounting Bracket Kit ..... 10308 (sold separately)

**Specifications**

**Maximum Supply Pressure**  
250 psig, [17.0 BAR], (1700 kPa)

**Flow Capacity**  
In excess of 1500 SCFM (2550 m<sup>3</sup>/HR) (100 psig, [7.0 BAR], (700 kPa) supply, 1 1/2" NPT Conn. 40 psig, [2.8 BAR], (280 kPa) setpoint

**Exhaust Capacity**  
44 SCFM (75 m<sup>3</sup>/HR) for downstream pressure 5 psig, [.35 BAR], (35 kPa) above 20 psig set pressure

**Supply Pressure Effect**  
Less than 0.1 psig, [.007 BAR], (.7 kPa) per 100 psig, [7.0 BAR], (700 kPa) change

**Sensitivity**  
1" (1.27 cm) Water Column

**Ambient Temperature Limit**  
-40°F to +200°F, (-40°C to +93.3°C)

**Catalog Number** 1 0 0

**Pressure Range**

psig	[BAR]	(kPa)	
0-10	[0-0.7]	(0-70)	2
0.5-30	[0.035-2]	(3.5-200)	3
1-60	[0.07-4]	(7-400)	4
2-100	[0.14-7]	(14-700)	5
2-150	[0.14-10]	(14-1000)	6

**Pipe Size**

1" NPT	08
1 1/2" NPT	12

**Options**

Tapped Exhaust	E
Non-Relieving	N
Tamper Proof	T

**Service Information**

A Service Kit is available for the Model 100. Refer to the *Fairchild Model 100 High Flow Pressure Regulator Installation, Operation and Maintenance Instructions, IS-10000100.*

**Hazardous Locations**

Acceptable for use in Zones 1 and 2 for gas atmosphere; Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

**Materials of Construction**

Body ..... Aluminum  
Trim ..... Zinc Plated Steel, Brass  
Diaphragms ..... Buna N

## Model 70B Pneumatic Subminiature Regulator

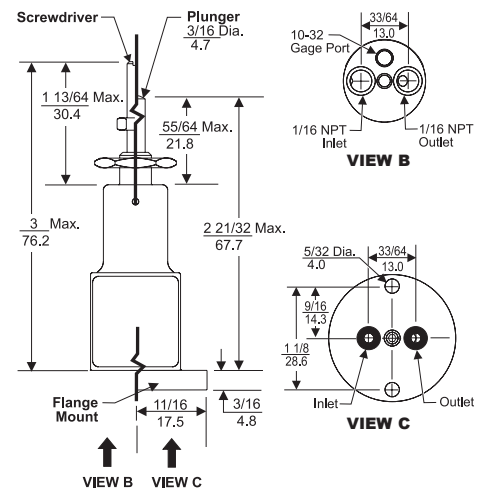
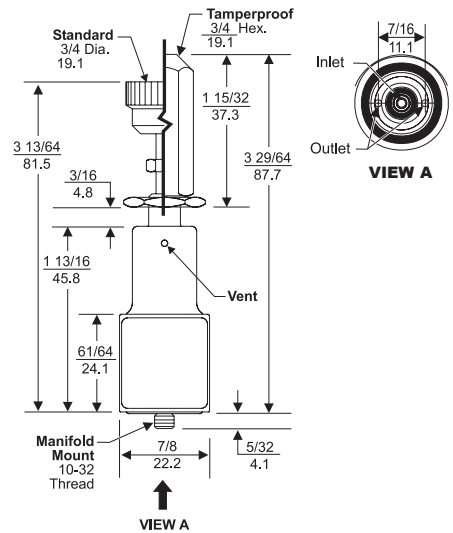
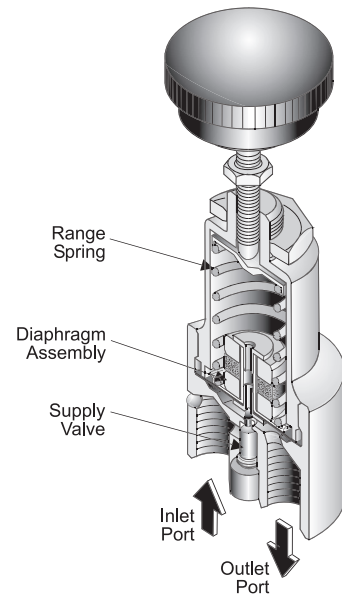


### Features

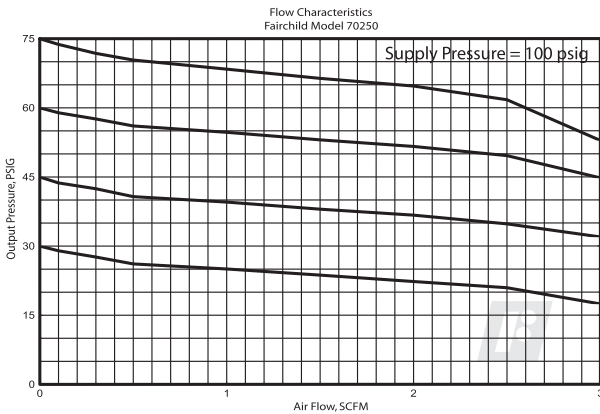
- The Model 70B controls a pressure signal for pneumatic instrumentation. This regulator is ideally suited for applications with limited space.
- Vibration damper provides low noise operation.
- Repeatability within 0.06 psig dead ended allows accurate setpoint control.
- Small size allows installation in restrictive spaces.

### Operating Principles

When the setpoint is reached, the upward force of the output pressure that acts on the bottom of the Diaphragm balances with the downward force that acts on the top of the Diaphragm. If the output pressure rises above the setpoint, the force that acts on the bottom of the Diaphragm moves the Diaphragm Assembly upward to close the Supply Valve and open the Relief Valve. Excess output pressure exhausts through the Vents in the unit until it reaches the setpoint. The Vibration Damper dampens the throttling action of the Valve.



**Technical Information**



**Specifications**

**Supply Pressure**

250 psig, [17.0 BAR], (1700 kPa) Maximum  
50 psig, [3.5 BAR], (350 kPa) Minimum

**Flow Capacity**

2.5 SCFM (4.25 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply and 30 psig, [2.0 BAR], (200 kPa) setpoint

**Exhaust Capacity**

0.28 SCFM (.48 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint

**Supply Pressure Effect**

Less than 0.05 psig, [.0035 BAR], (.35 kPa) for 5 psig [.35 BAR], (35 kPa) change in supply pressure

**Ambient Temperature**

-40° F to + 160° F, (-40° C to + 71° C)

**Materials of Construction**

Body ..... Brass  
Diaphragms ..... Fluorocarbon  
Trim ..... Zinc Plated Steel

**Catalog Information**

Catalog Number 7 0 2  0

**Pressure Range**

psig	[BAR]	(kPa)	
0-5	[0-0.35]	(0-35)	1
0-15	[0-1]	(0-100)	2
0.5-30	[0.035-2]	(3.5-200)	3
1-60	[0.07-4]	(7-400)	4
2-100	[0.15-7]	(15-700)	5

**Options**

- Flange Mounted <sup>1</sup> .....
- Manifold Mounted .....
- Non-Relieving .....
- Plunger Operated <sup>2</sup> .....
- Screwdriver Adjust .....
- Tamperproof .....
- M5 x 0.8 Threaded .....
- In/Out Ports

Table 1. Option Compatibility

	F	M	N	R	S	T	V
F	-	N	Y	Y	Y	Y	N
M	N	-	Y	Y	Y	Y	N
N	Y	Y	-	Y	Y	Y	Y
R	Y	Y	Y	-	N	N	Y
S	Y	Y	Y	N	-	Y	Y
T	Y	Y	Y	N	Y	-	Y
V	N	N	Y	Y	Y	Y	-

Option Compatibility Chart: "Y" in Box = Compatible options

<sup>1</sup> Supplied with Knob as Standard.

<sup>2</sup> Refer to Table 2 for Push Rod Travel and Thrust.

Table 2. Plunger Operated Regulator Parameters

Range	Push Rod Travel (inches)	Push Rod Thrust (pounds) @ Max. Output
0-5 psig [0-0.35 BAR] (0-35 kPa)	.31 ± 10%	1.25 ± 10%
0-15 psig [0-1 BAR] (0-100 kPa)	.34 ± 10%	3.75 ± 10%
0.5-30 psig [0.035-2 BAR] (3.5-200 kPa)	.34 ± 10%	7.50 ± 10%
1-60 psig [0.07-4 BAR] (7-400 kPa)	.34 ± 10%	15.00 ± 10%
2-100 psig [0.15-7 BAR] (15-700 kPa)	.34 ± 10%	25.00 ± 10%



# Model 72 High Performance Mini Regulator

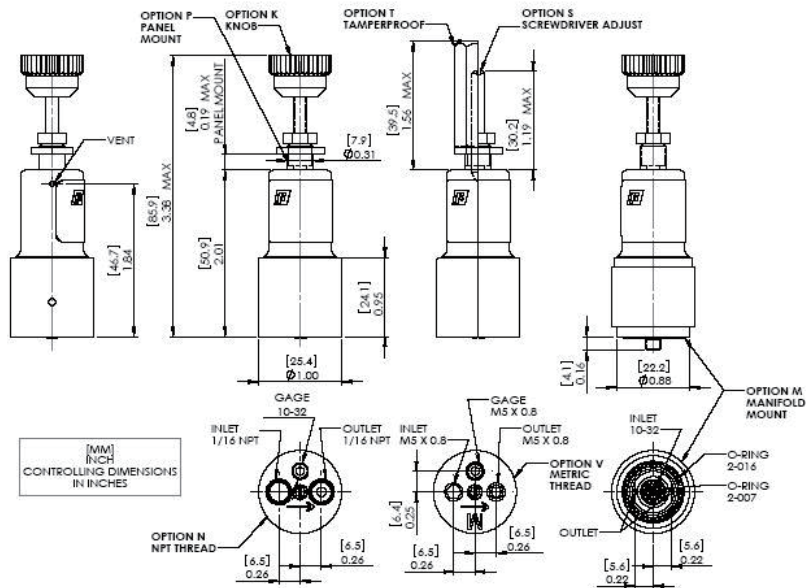
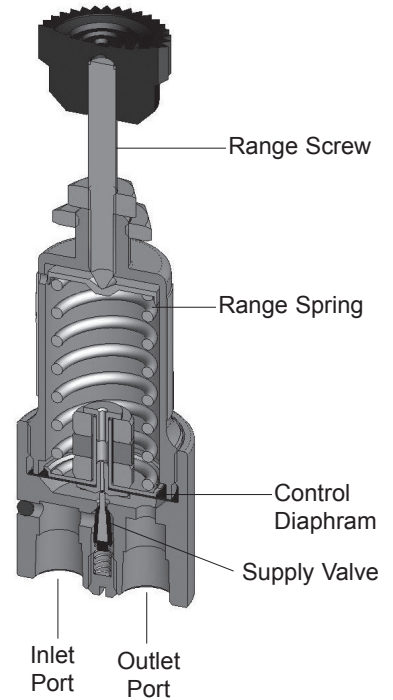


## Features

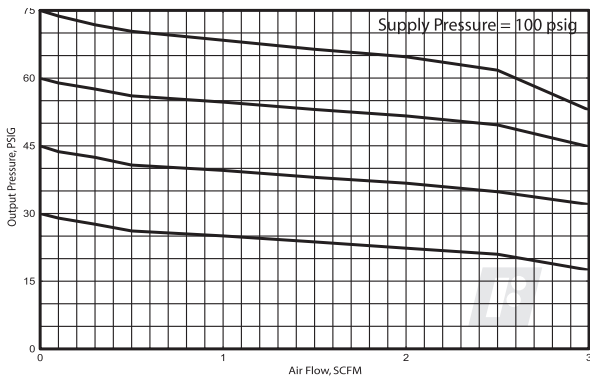
- The Model 72 controls a pressure signal for pneumatic instrumentation. This regulator is ideally suited for applications with limited space.
- Vibration damper provides low noise operation.
- Repeatability within 0.02 psig dead ended allows accurate setpoint control.
- Bubble tight supply valve allows precision control
- Small size allows installation in restrictive spaces.

## Operating Principles

When the setpoint is reached, the upward force of the output pressure that acts on the bottom of the Diaphragm balances with the downward force that acts on the top of the Diaphragm. If the output pressure rises above the setpoint, the force that acts on the bottom of the Diaphragm moves the Diaphragm Assembly upward to close the Supply Valve and open the Relief Valve. Excess output pressure exhausts through the Vents in the unit until it reaches the setpoint. The Vibration Damper dampens the throttling action of the Valve.



**Technical Information**



**Specifications**

**Ranges**

0-5 psig [0-0.35 BAR] up to  
2-100 psig [0.15-15.7 BAR] (see p/n table)

**Consumption**

No measurable consumption (Non-Relieving unit)

**Supply Pressure**

up to 300 psi [20 BAR], (2000kPa) Max supply;  
25 psig [1.8 BAR], (1800 kPa) Min supply

**Supply Pressure Effect**

Less than 0.075 psig [.005 BAR] for 5  
psig [.35 BAR] change in supply pressure

**Flow Capacity**

2.5 SCFM (4.25 m<sup>3</sup>/hr) @ 100 psig [7 BAR]  
supply and 30 psig [2 BAR] setpoint

**Exhaust Capacity**

0.15 SCFM (0.29 m<sup>3</sup>/hr)with 5 psig [.35 BAR]  
downstream pressure

**Ambient Temperature**

-40°F to +160°F (-40°C to +71°C)

**Materials of Construction**

Body . . . . . Anodized Aluminum  
Diaphragm . . . . . Fluorocarbon  
Trim . . . . . Zinc Plated Steel

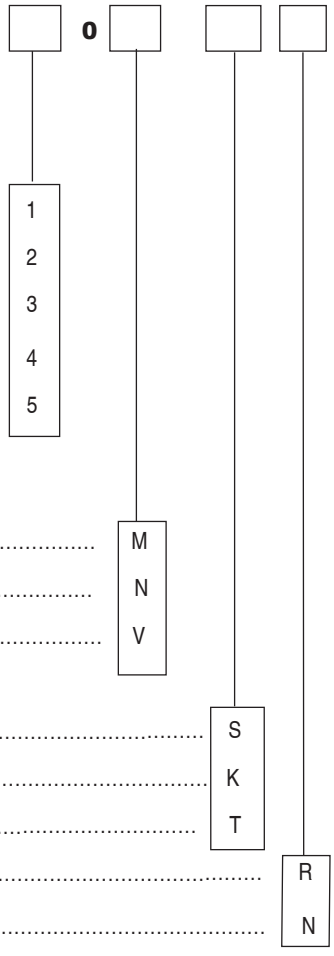
**Catalog Information**

**Catalog Number**

72 0  0

**Pressure Range**

psig	[BAR]	(kPa)
0-5	[0-0.35]	(0-35)
0-15	[0-1]	(0-100)
0.5-30	[0.035-2]	(3.5-200)
1-60	[0.07-4]	(7-400)
2-100	[0.15-7]	(15-700)



**Mounting**

ManifoldMount .....  
Bottom Port Mount .....  
M5 x 0.8 Thread ports .....

M  
N  
V

**Actuation Adjustment Means**

Screwdriver slot .....  
Knob .....  
Tamperproof .....  
Relieving .....  
Non-Relieving .....

S  
K  
T

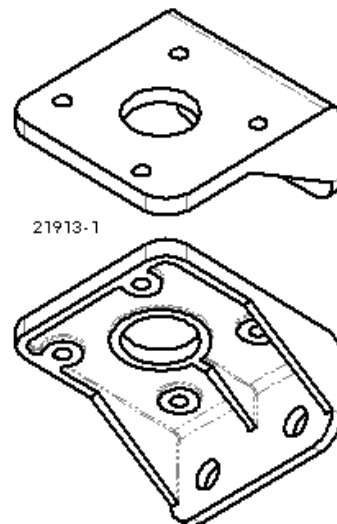
R  
N

# Model 55 Miniature Precision Regulator



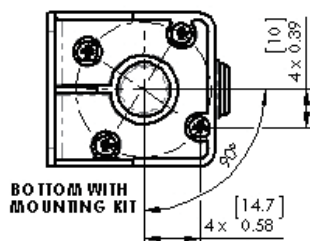
## Features

- Compact size
- Lightweight unit
- Handles high supply pressure
- High accuracy for precision control
- Polymer construction for corrosive resistance
- Venturi design compensates downstream pressure droop under flowing conditions
- Non-rising adjustment knob
- Manifold mount capability
- Separate control chamber isolates the Diaphragm from the main flow to eliminate hunting and buzzing

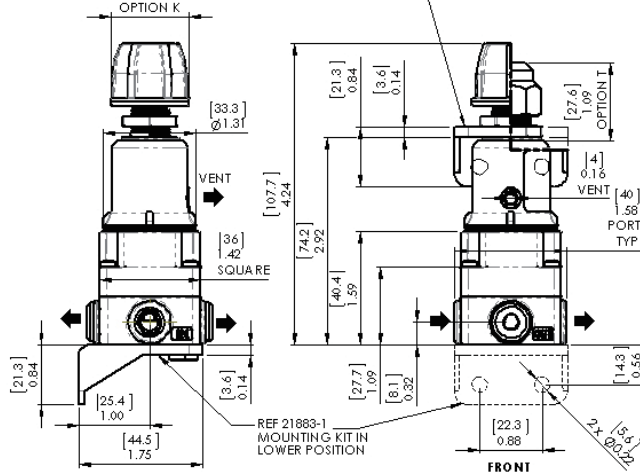
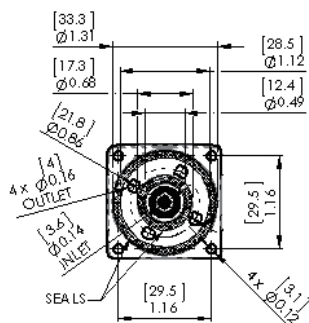
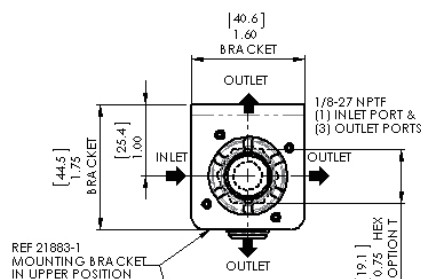


## Operating Principles

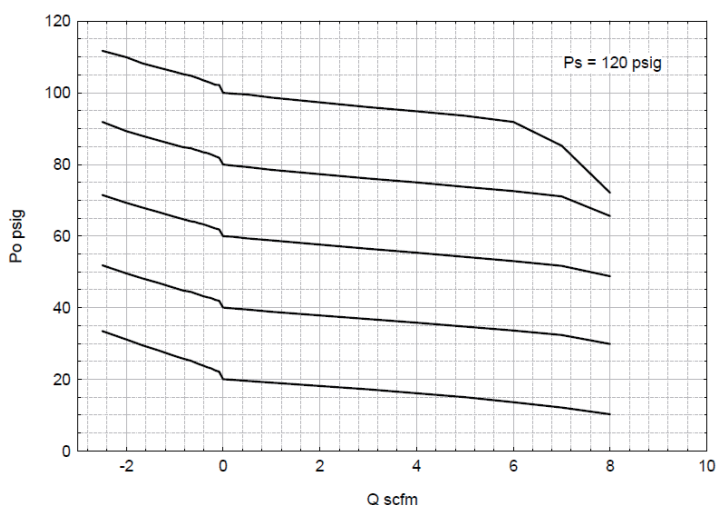
When the setpoint is reached, the upward force of the output pressure that acts on the bottom of the Diaphragm balances with the downward force that acts on the top of the Diaphragm. If the output pressure rises above the setpoint, the force that acts on the bottom of the Diaphragm moves the Diaphragm Assembly upward to close the Supply Valve and open the Relief Valve. Excess output pressure exhausts through the Vent in the unit until it reaches the setpoint.



1/8" PORTS  
OPTION 1  
NPTF OR BSPT THREAD



Model 55151 NNKRNN



## Specifications

### Flow Capacity

9 SCFM (17.0 m<sup>3</sup>/HR) @ 120 psig, [8 BAR], (800 kPa) supply

### Exhaust Capacity

2 SCFM (3.4 m<sup>3</sup>/HR) where downstream pressure is 15 psig, [1.0 BAR], (100 kPa) above set point

### Maximum Supply Pressure

150 psig, [10 BAR], (1000 kPa)

### Supply Pressure Effect

0.1 psig for 10 psig change in supply

### Ambient Temperature

0°F to +160°F, (-17.8°C to 71.1°C)

### Materials of Construction

Body and Housing.....Valox 508  
 Valve.....Stainless Steel  
 Diaphragm.....Polymer Reinforced Nitrile  
 Mounting Bracket.....Valox 508

## Ordering Information

**Catalog Number** 551

### Pressure Ranges:

0-10 psi ..... 2  
 0.5-30 psi ..... 3  
 1-60 psi ..... 4  
 2-100 psi ..... 5

### Inlet/Outlet Port Size:

Manifold Mount ..... 0  
 1/8" ..... 1

### Port Thread:

NPTF ..... N

### Elastomer

Nitrile ..... N

### Actuator

Knob ..... K

Tamper Proof ..... T

### Relief

Relieving, Normal Bleed ..... R

Non Relieving ..... N

### Gauge

Gauge ..... G

Without Gauge ..... N

### Mounting Bracket

Mounting Bracket ..... B

Without Mounting Bracket ..... N

## Installation

For installations instructions, refer to the Fairchild Model 55 Miniature Precision Regulator Instruction, Operation and Maintenance Instructions, IS-10000055.

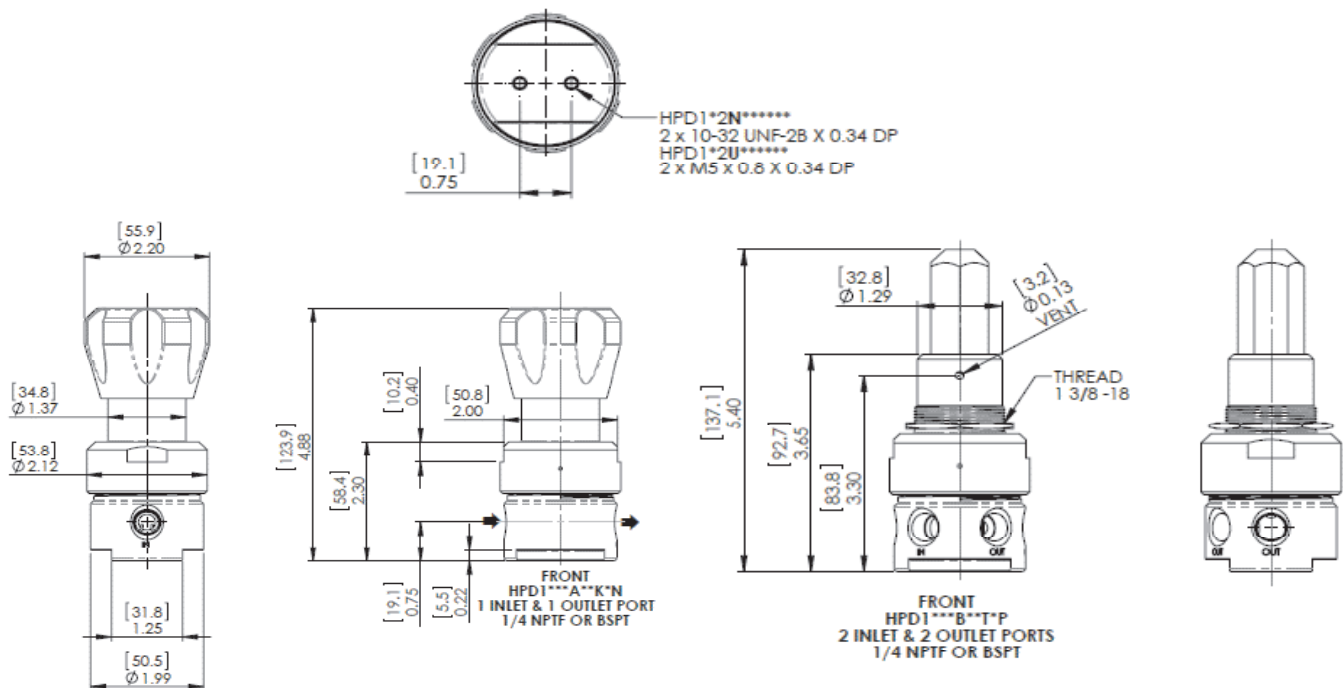


### Features

- Standard X-750 Inconel diaphragm for strength, corrosion resistance and longer life.
- Three seat material choices for a wide range of chemical compatibility, (PEEK, CTFE, and Vespel).
- High maximum supply pressure of 6000 PSIG to allow more through put of gas.
- Tamper Proof option available.
- Ambient Temperature range of -40°F to +500°F, depending on seat material.
- Panel Mounting option available.

### Operating Principles

When the regulator is adjusted for a specific set point, the downward force of the Range Spring moves the Diaphragm Assembly downward. The Supply Valve opens and allows air to pass to the Outlet Port. As the set point is reached, the downward force of the range spring is balanced by the force of the downstream pressure that acts on the diaphragm, causing the supply valve to close.



# Model HPD High Pressure Precision Regulator

**A**

High Pressure

## Technical Information

### Specifications

**Supply Valve Cv** 0.06

**Exhaust Valve Cv** 0.02

#### Maximum Supply Pressure

6000 psig, [414 BAR], (41400 kPa)

\*Consult seat material chart for maximum pressure

#### Supply Pressure Effect

0.6 psig change for 100 psig change in supply pressure

#### Ambient Temperature

-40°F to +500°F, (-40°C to 260°C)

\*Consult seat material chart for maximum temperature

#### Materials of Construction

Body and Housing.....Alloy 316L Stainless Steel

Valve.....316L Stainless Steel

Diaphragm.....Alloy X-750 Inconel

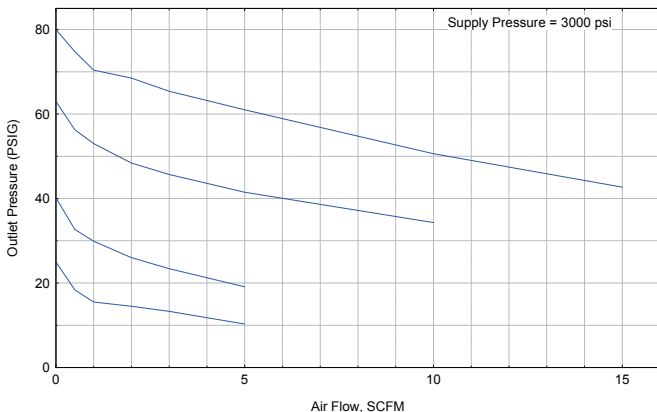
### Installation

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

### Gauges

See Page 169 for High Pressure Gauges

Flow Characteristics Chart  
HPD



## Ordering Information

**Catalog Number HPD** 1

### Pressure Ranges:

0-25 psi..... 3

0-50 psi..... 4

1-100 psi..... 5

2-250 psi..... 7

5-500 psi..... 9

### Inlet/Outlet Port Size:

1/4" ..... 2

### Port Thread:

NPTF ..... N

BSPT ..... U

### Port Configuration

2 Port (1 Inlet, 1 Outlet) ..... A

4 Port (2 Inlets, 2 Outlets) ..... B

### Body Material

316 Stainless Steel..... S

### Seat Material

PEEK ..... P

CTFE ..... T

Vespel ..... V

### Actuator

Knob ..... K

Tamper Proof ..... T

### Relief

Relieving ..... R

Non Relieving\* ..... N

### Mounting

None ..... N

Panel ..... P

\*Bubble Tight Shutoff in Most Conditions

SEAT MATERIAL	MAXIMUM TEMPERATURE*	@	MAXIMUM INLET PRESSURE
CTFE	175°F (80°C)	@	3500 PSIG (241 BAR)
PEEK	500°F (260°C)	@	3500 PSIG (241 BAR)
PEEK	175°F (80°C)	@	6000 PSIG (414 BAR)
VESPEL	500°F (260°C)	@	3500 PSIG (241 BAR)
VESPEL	175°F (80°C)	@	6000 PSIG (414 BAR)

\*Temperatures in excess of 175°F (80°C) require a tamper-proof option

# Model HPP High Pressure Precision Regulator

**A**

Model  
HPP

High Pressure

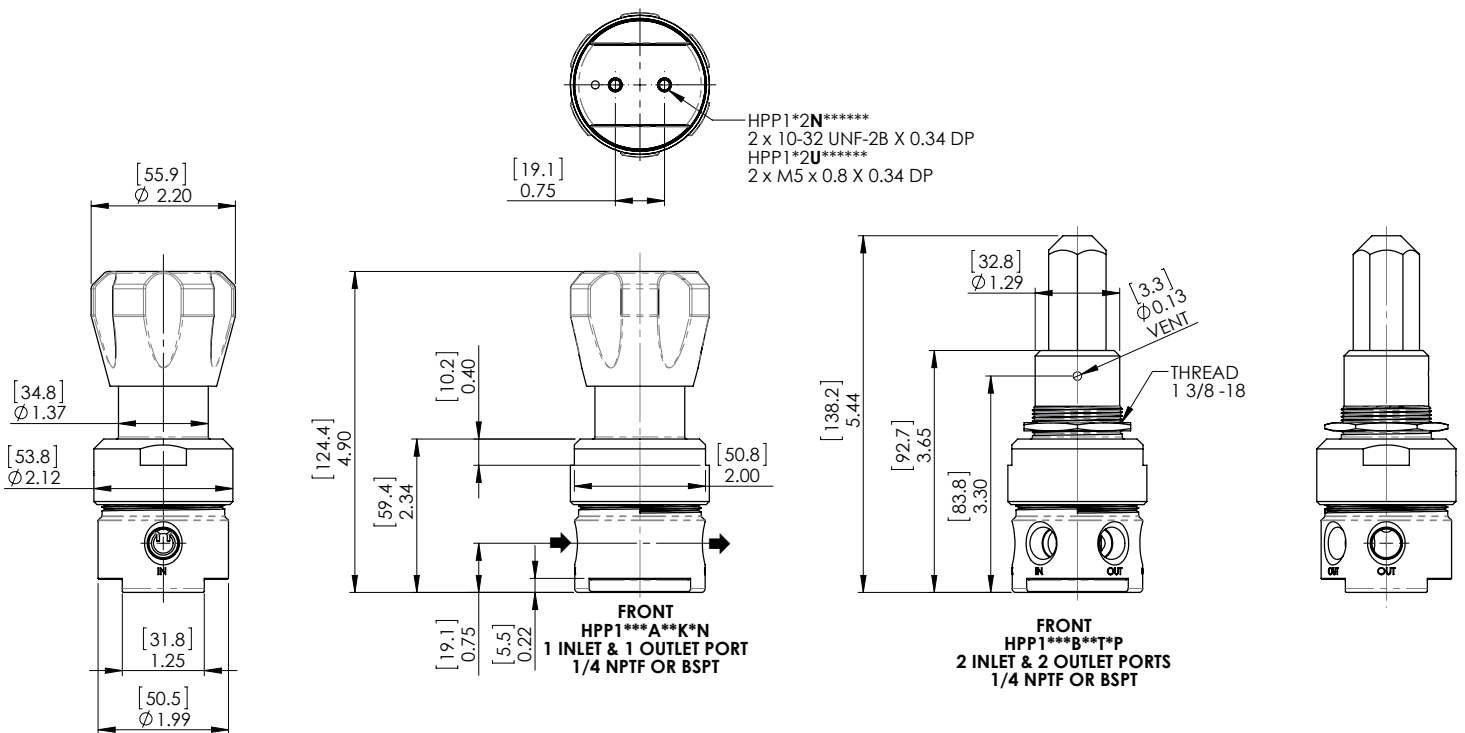


## Features

- Three seat material choices for a wide range of chemical compatibility, (PEEK, CTFE, and Vespel).
- High maximum supply pressure of 6000 PSIG to allow more through put of gas.
- Tamper Proof option available.
- Ambient Temperature range of -40°F to +500°F, depending on seat material.
- Panel Mounting option available.

## Operating Principles

When the regulator is adjusted for a specific set point, the downward force of the Range Spring moves the Piston Assembly downward. The Supply Valve opens and allows air to pass to the Outlet Port. As the set point is reached, the downward force of the range spring is balanced by the force of the downstream pressure acting on the piston, causing the supply valve to close.



Technical Information

Specifications

Supply Valve Cv 0.06

Exhaust Valve Cv 0.02

Maximum Supply Pressure

6000 psig, [414 BAR], (41400 kPa)

\*Consult seat material chart for maximum pressure

Supply Pressure Effect

<2 psig change for 100 psig change in supply pressure

Ambient Temperature

-40°F to +500°F, (-40°C to 260°C)

\*Consult seat material chart for maximum temperature

Materials of Construction

Body and Housing.....Alloy 316L Stainless Steel

Valve.....316L Stainless Steel

Seal.....Viton A

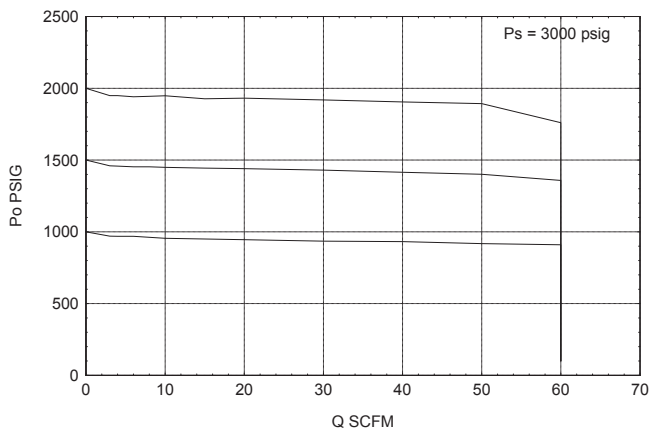
Installation

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

Gauges

See Page 169 for High Pressure Gauges

FLOW CHARACTERISTICS  
ROTORK FAIRCHILD HPP142NASTKRN



Ordering Information

Catalog Number HPP 1 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Pressure Ranges:

0-1000 psi..... 2  
0-2000 psi..... 4  
0-3000 psi..... 5

Inlet/Outlet Port Size:

1/4" ..... 2

Port Thread:

NPTF ..... N  
BSPT ..... U

Port Configuration

2 Port (1 Inlet, 1 Outlet) ..... A  
4 Port (2 Inlets, 2 Outlets) ..... B

Body Material

316 Stainless Steel..... S

Seat Material

PEEK ..... P  
CTFE ..... T  
Vespel ..... V

Actuator

Knob ..... K  
Tamper Proof ..... T

Relief

Relieving ..... R  
Non Relieving\* ..... N

Mounting

None ..... N  
Panel ..... P

\*Bubble Tight Shutoff in Most Conditions

SEAT MATERIAL	MAXIMUM TEMPERATURE*	@	MAXIMUM INLET PRESSURE
CTFE	175°F (80°C)	@	3500 PSIG (241 BAR)
PEEK	500°F (260°C)	@	3500 PSIG (241 BAR)
PEEK	175°F (80°C)	@	6000 PSIG (414 BAR)
VESPEL	500°F (260°C)	@	3500 PSIG (241 BAR)
VESPEL	175°F (80°C)	@	6000 PSIG (414 BAR)

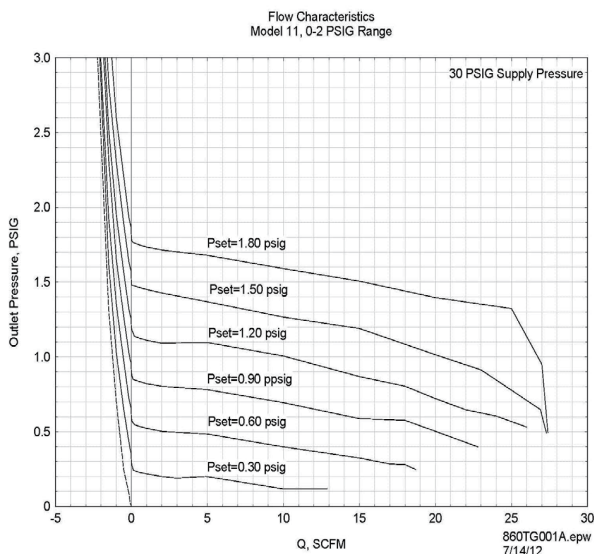
\*Temperatures in excess of 175°F (80°C) require a tamper-proof option





## Technical Information

## Catalog Information



## Specifications

### Flow Capacity

20 SCFM (34 m<sup>3</sup>/HR) @ 100 psig, [7 BAR], (700 kPa) supply and 1.0 psig setpoint

### Exhaust Capacity

0.5 SCFM (0.85 m<sup>3</sup>/HR) where downstream pressure is 0.1 psig, [0.007 BAR], (0.7 kPa) above 1.0 psig setpoint

### Maximum Supply Pressure

150 psig, [10 BAR], (1000 kPa)

### Supply Pressure Effect

<0.01 psig for 100 psig change in supply

### Sensitivity

0.05" Water Column

### Ambient Temperature

-40°F to +200°F, (-40°C to 93.3°C)

### Materials of Construction

Body and Housing.....Aluminum  
Diaphragm.....Nitrile or Fluorocarbon  
Trim.....Zinc Plated Steel, Stainless Steel

### Catalog Number

11 1                  

### Pressure Ranges:

0-0.5 psi.....1  
0-2 psi.....2  
0-4 psi.....3  
0-6 psi.....4  
0-12 psi.....5

### Inlet/Outlet Port Size:

1/4".....2  
3/8".....3  
1/2".....4

### Port Thread:

NPTF.....N  
BSPT.....U  
BSPP.....H

### Elastomer

Nitrile.....N  
Fluorocarbon.....J

### Actuator

Knob.....K  
Screw Adjust.....S  
Tamper Proof.....T

### Relief

Low Bleed.....B  
Non Relieving.....N  
Relieving, Normal Bleed.....R

### Vent

Straight.....S  
Tapped (1/4" NPT, BSPT).....E

### Mounting

Bonnet (2 X 1/4-20 UNC).....B  
Panel (1/2-20 UNF).....P

**A**

# Model M4100 Low Pressure Pneumatic Regulator

**Model M4100**

Low Pressure



## Features

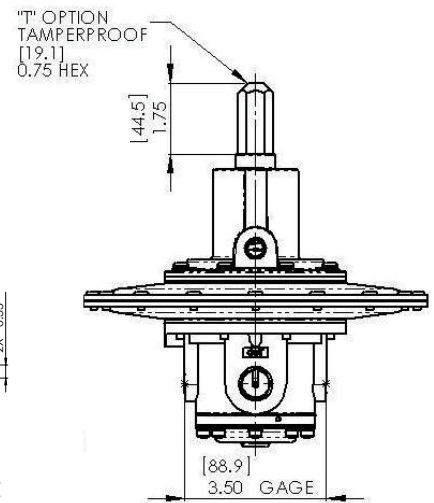
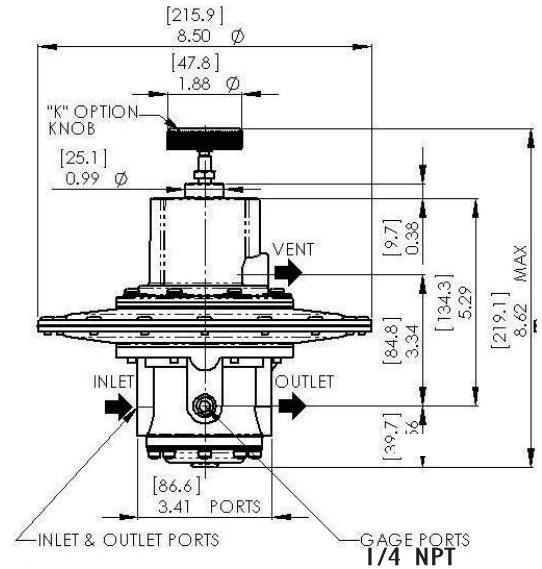
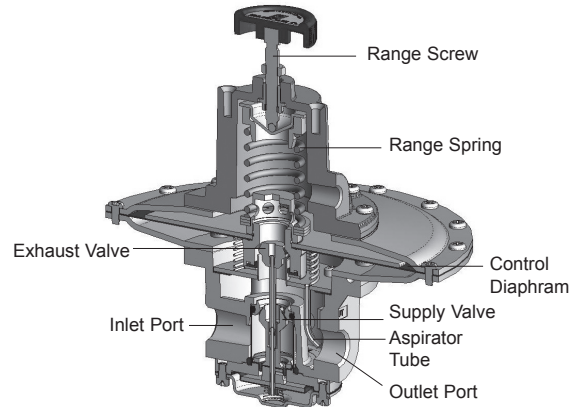
- Sensitivity of 0.05° WC for Precision Control in low pressure applications.
- Large Relief Valve provides high exhaust flows.
- Soft Valve seat minimizes air consumption.
- An Aspirator Tube compensates for downstream pressure drop under flow conditions.
- Canadian Registration Number (CRN) certification for all territories and provinces.

## Operating Principles

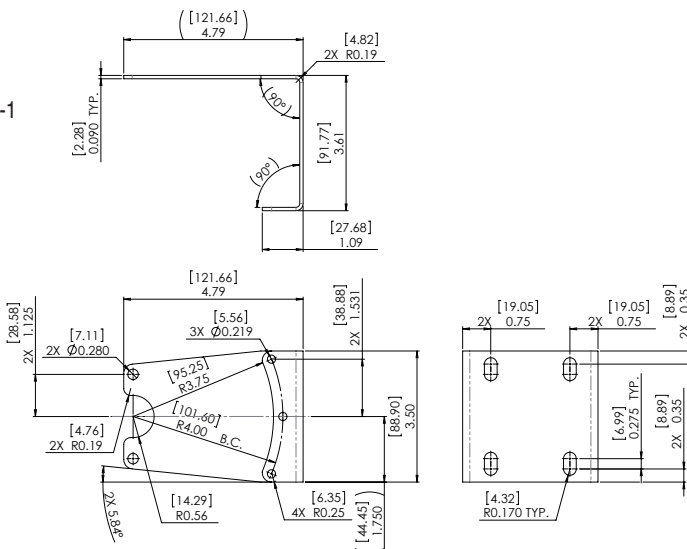
When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a downward force against the top of the Control Diaphragm. This downward force opens the Supply Valve. Output pressure flows through the Outlet Port and the Aspirator Tube to the Control Chamber where it creates an upward force on the bottom of the Control Diaphragm.

When the setpoint is reached, the force of the Range Spring that acts on the top of the Control Diaphragm balances with the force of output pressure that acts on the bottom of the Control Diaphragm and closes the Supply Valve.

When the output pressure increases above the setpoint, the Diaphragm Assembly moves upward to close the Supply Valve and open the Exhaust Valve, and output pressure exhausts through the Vent on the side of the unit until it reaches the setpoint.



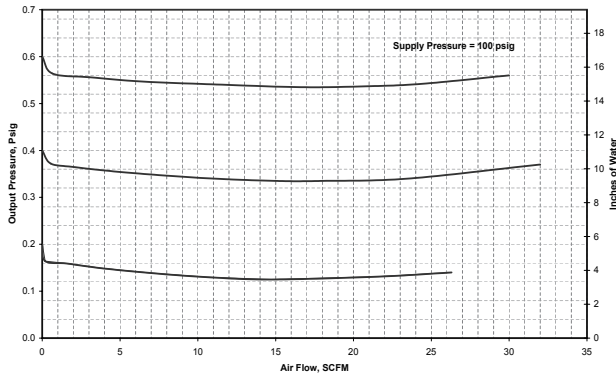
Mounting Bracket  
Part Number: 21635-1



## Technical Information

## Catalog Information

Flow Characteristics  
Fairchild Model 4114A



### Specifications

#### Supply Pressure (Psig)

20 psi to 150 psi max.

#### Output Ranges

0-0.7 psi [0-0.048 BAR]; up to 0-5.0 psi [0-0.35 BAR]

#### Consumption

None Detected

#### Sensitivity

Low as 0.05" Water Column

#### Supply Pressure Effect

None Detected

#### Ambient Temperature

-40°F to +200°F, (-40°C to +93°C)

#### Hazardous Locations

Acceptable for use in Zones 1 and 2 for gas atmosphere;  
Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

#### Materials of Construction

Body and Housing ..... Aluminum  
Trim ..... Zinc Plated Steel, Brass  
Diaphragms and seals ..... Nitrile on Dacron

Mounting Bracket Kit .....21365-1 (Sold Separately)

### Catalog Number

**41**   **A**

### Pressure Range

psig [BAR] (kPa)

0-0.7 [0-0.048] (0-4.8) . . . . . 1

0-1.4 [0-0.096] (0-9.7) . . . . . 2

0-3 [0-0.21] (0-21) . . . . . 3

0-5 [0-0.35] (0-35) . . . . . 4

### Port Size

3/8" NPT. . . . . 3

1/2" NPT. . . . . 4

3/4" NPT. . . . . 6

### Port Thread

NPT. . . . . N

BSPT. . . . . U

BSPP<sup>1</sup>. . . . . H

### Elastomer

Nitrile. . . . . N

Fluorocarbon. . . . . J

### Actuator

Knob. . . . . K

Tamper Proof. . . . . T

### Vent

Straight. . . . . S

Threaded. . . . . E

<sup>1</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

### Installation

For installations instructions, refer to the *Fairchild Model 4000A Pneumatic Precision Regulator Instruction, Operation and Maintenance Instructions, IS-1004100.*



### Features

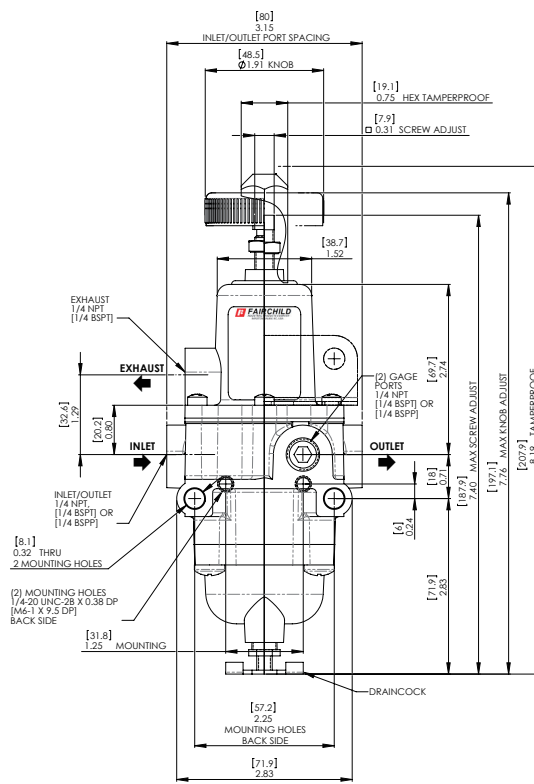
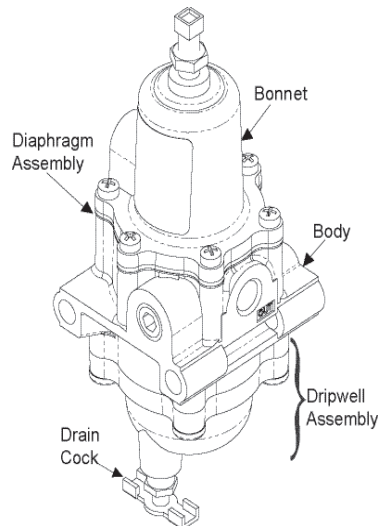
- The no-brass construction is well suited to harsh environments.
- Epoxy coated finish for superior corrosion resistance
- Non-bleed design to reduce consumption
- Integral Relief Valve
- A Gauge Port provides convenient pressure gauge mounting.
- The standard 5-micron filter minimizes internal contamination.
- The Filter Dripwell contains a Drain Plug to easily drain trapped liquids.
- Standard Tapped Exhaust
- Soft Relief Seat minimizes air loss
- Canadian Registration Number (CRN) certification for all territories and provinces.

### Operating Principles

When you turn the Adjustment Screw to a specific setpoint, the Spring exerts a downward force against the top of the Diaphragm Assembly. This downward force opens the Supply Valve. Output pressure flows through the Outlet Port and the passage to the Control Chamber where it creates an upward force on the bottom of the Diaphragm Assembly.

When the setpoint is reached, the force of the Spring that acts on the top of the Diaphragm Assembly balances with the force of output pressure that acts on the bottom of the Diaphragm Assembly and closes the Supply Valve.

When the output pressure increases above the setpoint, the Diaphragm Assembly moves upward to close the Supply Valve and open the Exhaust Valve. Output pressure flows through the Exhaust Valve and out of the Exhaust Vent on the side of the unit until it reaches the setpoint.

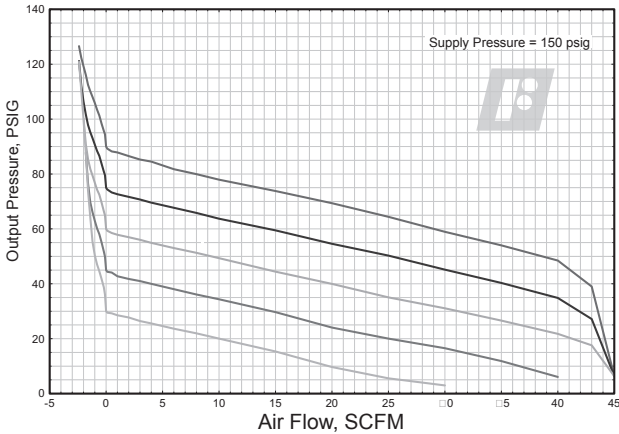


ALL OPTIONS EXCEPT P & E

Note: Pipe plug is included

**Technical Information**

Flow Characteristics  
Fairchild Model 63152



**Specifications**

**Supply Pressure**

300 psig, [20 BAR], (2000 kPa) Maximum

**Flow Capacity (SCFM)**

25 (42.5 m<sup>3</sup>/HR) @ 100 psig, [7 BAR], (700 kPa) supply and 20 psig, [1.5 BAR], (150 kPa) setpoint

**Exhaust Capacity (SCFM)**

0.8 (1.36 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint. (0.8 scfm for 120 # unit)

**Consumption**

Undetectable

**Supply Pressure Effect**

Less than 1.25 psig, [.09 BAR], (9 kPa) change for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure (1.90 psig for 120 psig Range)

**Sensitivity**

1" (2.50 cm) Water Column

**Temperature Range**

-40° F to + 180° F, (-40° C to + 82° C)

-60° F to + 180° F, (-51° C to + 82° C); for L Option

**Materials of Construction**

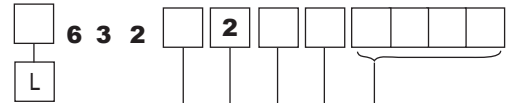
Body and Housing . . . . . Epoxy Coated Aluminum

Trim . . . . . Stainless Steel, Nickel Plated Steel,  
Zinc Plated Steel

Elastomers . . . . . Nitrile

**Catalog Information**

**Catalog Number**



Low Temp. Option

**Pressure Range**

psig	[BAR]	(kPa)
0.5-30	[0.03-2]	(3-200) . . . . .
1-60	[0.07-4]	(7-400) . . . . .
2-120	[0.14-8]	(14-800) . . . . .

**Port Size**

1/4" . . . . . 2

**Port Thread**

NPT . . . . . N  
BSPP . . . . . H  
BSPT . . . . . U

**Actuator**

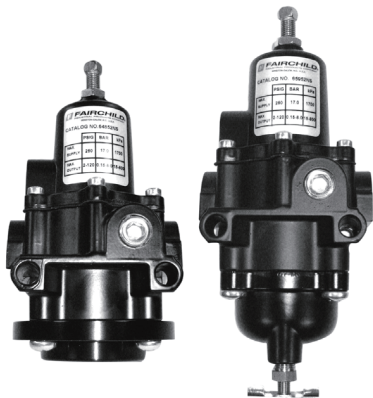
Knob . . . . . K  
Screw . . . . . S  
Tamper Proof . . . . . T

**Options**

Stainless Steel Trim/Drain . . . . . S  
Screen in Exhaust Port . . . . . M  
Quick Bleed Valve . . . . . C  
2" Pressure Gauge Option (NPT Only) . . . . . G

**Installation Instructions**

For installations instructions, refer to the *Fairchild Model 63 Pneumatic Filter Regulator Instruction, Operation and Maintenance Instructions, IS-10000063*.

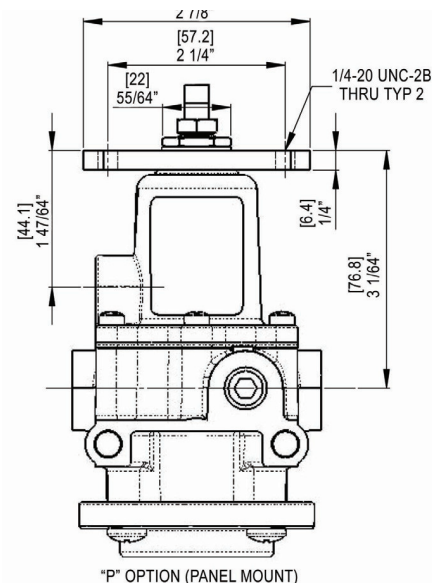


Model 64

Model 65

### Features

- The Models 64 and 65 Service Regulators are precision units used in instrumentation and general purpose applications.
- A Venturi compensates downstream pressure droop under flow conditions.
- A large Control Diaphragm area provides increased sensitivity.
- A full Flow Gage Port provides convenient pressure gage mounting.
- The Model 65 Standard 5-Micron Filter prevents particles from entering the output airstream.
- The Model 65 Filter Dripwell contains a Petcock Valve to easily drain trapped liquids.
- Canadian Registration Number (CRN) certification for all territories and provinces.



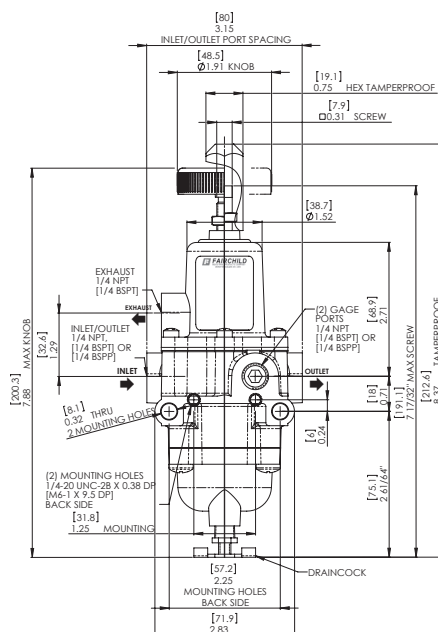
Model 64

### Operating Principles

When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a downward force against the top of the Control Diaphragm. This downward force opens the Supply Valve. Output pressure flows through the Outlet Port and the Venturi to the Control Chamber where it creates an upward force on the bottom of the Control Diaphragm.

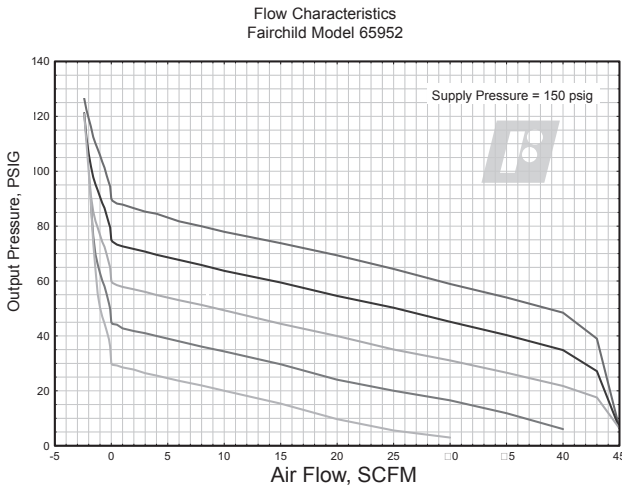
When the setpoint is reached, the force of the Range Spring that acts on the top of the Control Diaphragm balances with the force of output pressure that acts on the bottom of the Control Diaphragm and closes the Supply Valve.

When the output pressure increases above the set point, the Diaphragm Assembly moves upward to close the Supply Valve and open the Exhaust Valve. Output pressure flows through the Exhaust Valve and out of the Vent on the side of the unit until it reaches the setpoint. For more information, see cross sectional diagram.



Model 65

**Technical Information**



**Specifications**

**Supply Pressure**

300 psig, [21.0 BAR], (2100 kPa) Maximum

**Flow Capacity (SCFM)**

25 (42.5 m<sup>3</sup>/HR) @ 100 psig, [7 BAR], (700 kPa) supply and 20 psig, [1.5 BAR], (150 kPa) setpoint

**Exhaust Capacity (SCFM)**

0.8 (1.36 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint. (0.8 scfm for 120 # unit)

**Supply Pressure Effect**

Less than 1.25 psig, [.09 BAR], (9 kPa) change for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure (1.90 psig for 120 psig Range)

**Sensitivity**

1" (2.50 cm) Water Column

**Temperature Range**

-40° F to + 180° F, (-40° C to + 82° C)

-60° F to + 180° F, (-51° C to + 82° C); for L Option

**Materials of Construction**

Body and Housing . . . . . Epoxy Coated Aluminum

Trim . . . . . Zinc Plated Steel, Brass

Elastomers . . . . . Nitrile on Dacron

**Catalog Information**

**Catalog Number**



Low Temp. Option **L**

**Models**

64 . . . . . 48  
65 . . . . . 59

**Pressure Range**

psig	[BAR]	(kPa)	
0.5-30	[0.03-2]	(3-200) . . .	3
1-60	[0.10-4]	(10-400) . .	4
2-120	[0.15-8]	(15-800) . .	5

**Pipe Size**

1/4" NPT . . . . . **2**

**Port Thread**

NPT . . . . . **N**  
BSPP <sup>1</sup> . . . . . **H**  
BSPT . . . . . **U**

**Actuator**

Actuator Knob Adjust. . . . . **K**  
Screw . . . . . **S**  
Tamp Proof . . . . . **T**

**Options**

Quick Bleed . . . . . **C**  
Tapped Exhaust and Sealed Bonnet . . . . . **E**  
2" Gauge (Gage port is NPT Only) . . . . . **G**  
Screen in Exhaust . . . . . **M**  
Stainless Steel Trim . . . . . **S**  
Panel Mount . . . . . **P**

<sup>1</sup>BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

**Installation**

For installation instructions, refer to the *Fairchild Model 64, 65 Pneumatic Service Regulator Installation, Operation and Maintenance Instructions*, IS-10000064, IS-10000065.





The Model 66 Stainless Steel Regulator is designed for corrosive environments and extreme temperatures.

### Features

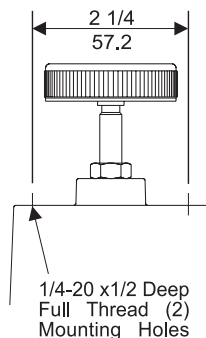
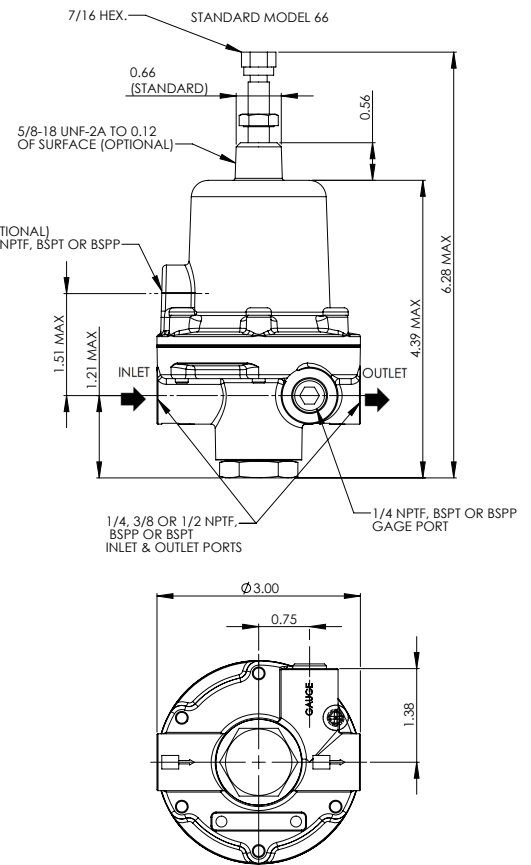
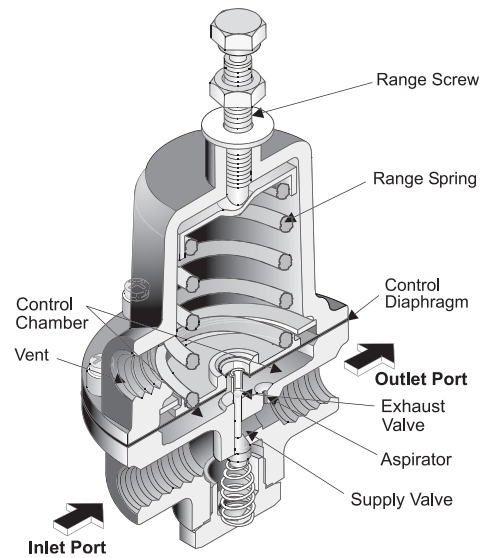
- Large Control Diaphragm area for increased sensitivity.
- Aspirator design compensates downstream pressure drop under flow conditions.
- Viton Elastomers are compatible with corrosive materials and environments.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Line or Panel Mounting provides flexibility for installation
- Canadian Registration Number (CRN) certification for all territories and provinces.

### Operating Principles

When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a downward force against the top of the Control Diaphragm. This downward force opens the Supply Valve. Output pressure flows through the Outlet Port and the Aspirator Tube to the Control Chamber where it creates an upward force on the bottom of the Control Diaphragm.

When the setpoint is reached, the force of the Range Spring that acts on the top of the Control Diaphragm balances with the force of output pressure that acts on the bottom of the Control Diaphragm and closes the Supply Valve.

When the output pressure increases above the setpoint, the Diaphragm Assembly moves upward to close the Supply Valve and open the Exhaust Valve. Output pressure exhausts through the Vent on the side of the unit until it reaches the setpoint.



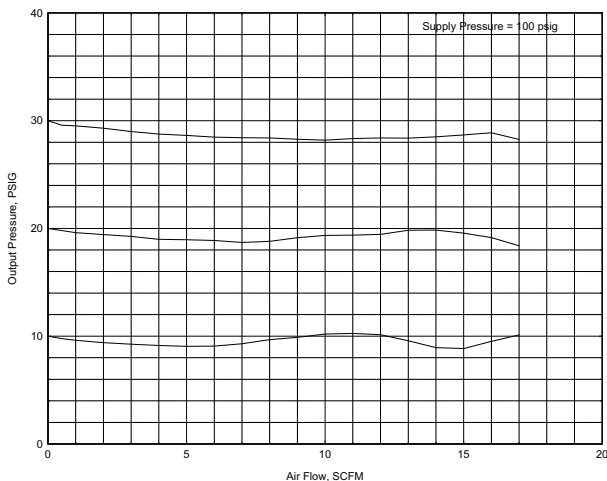
#### Detail A

NOTE: Mounting Holes used for Non-Relieving Option with Aluminum Bonnet Only

Non-Relieving (optional)

**Technical Information**

Flow Characteristics  
Fairchild Model 66232



**Specifications**

**Supply Pressure**

500 psig, [35 BAR], (3500 kPa) Maximum

**Flow Capacity**

17 SCFM (28.9 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply and 20 psig, [1.5 BAR], (150 kPa) setpoint

**Exhaust Capacity**

1 SCFM (1.7 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint

**Supply Pressure Effect**

Less than 0.1 psig, [.007 BAR], (0.7 kPa) for 25 psig, [1.7 BAR], (170 kPa) change in supply pressure

**Sensitivity**

1" (2.54 cm) Water Column

**Ambient Temperature**

-20°F to +300°F, (-28°C to 149°C)

**Aluminum Bonnet Option**

-20°F to +200°F, (-28°C to 93°C)

**Materials of Construction**

Body and Housing . . . . . Stainless Steel

Diaphragms . . . . . Viton (Fluorocarbon) with

. . . . . Teflon on control side

Trim . . . . . Stainless Steel and Teflon

**Catalog Information**

**Catalog Number** 6 6 2

**Pressure Range**

psig	[BAR]	(kPa)	
0-10	[0-0.70]	(0-70)	2
0.5-30	[0.03-2]	(3-200)	3
1-60	[0.10-4]	(10-400)	4
2-100	[0.15-7]	(15-700)	5
2-150	[0.15-10]	(15-1000)	6

**Pipe Size**

1/4" NPT	2
3/8" NPT	3
1/2" NPT	4

**Port Thread**

NPTF	N
BSPT (Tapered)	U
BSPP (Parallel)	H

**Elastomers**

Fluorocarbon	J
--------------	---

**Actuator**

Knob Adjust	K
Screw	S

**Relief**

Relieving	R
Non-Relieving	N
Non-Relieving - Aluminum Bonnet	A

**Vent**

Straight	S
Tapped Exhaust	E

**Mounting**

None	N
Panel Mounting	P

**Installation**

For installations instructions, see the *Fairchild Model 66 Stainless Steel Regulator Instruction, Operation and Maintenance Instructions, IS-10000066*.



The Model 11BP Pneumatic Precision Regulator is a regulator that precisely controls a set pressure.

### Features

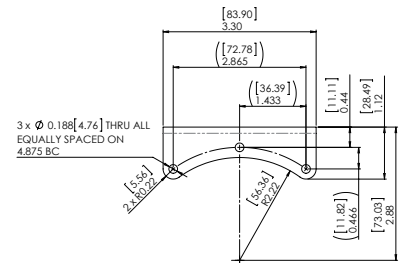
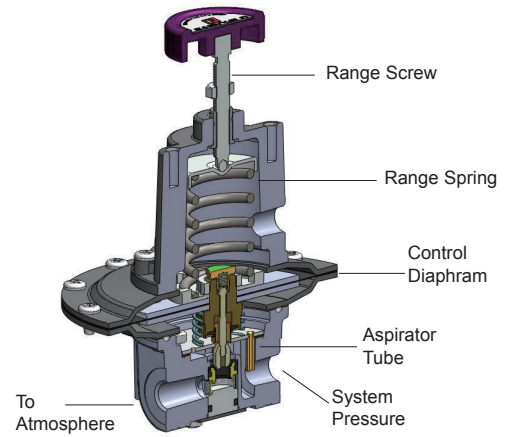
- Sensitivity of 0.05" WC for Precision Control in low pressure applications.
- An Aspirator Tube compensates upstream pressure build up under flow conditions.

### Operating Principles

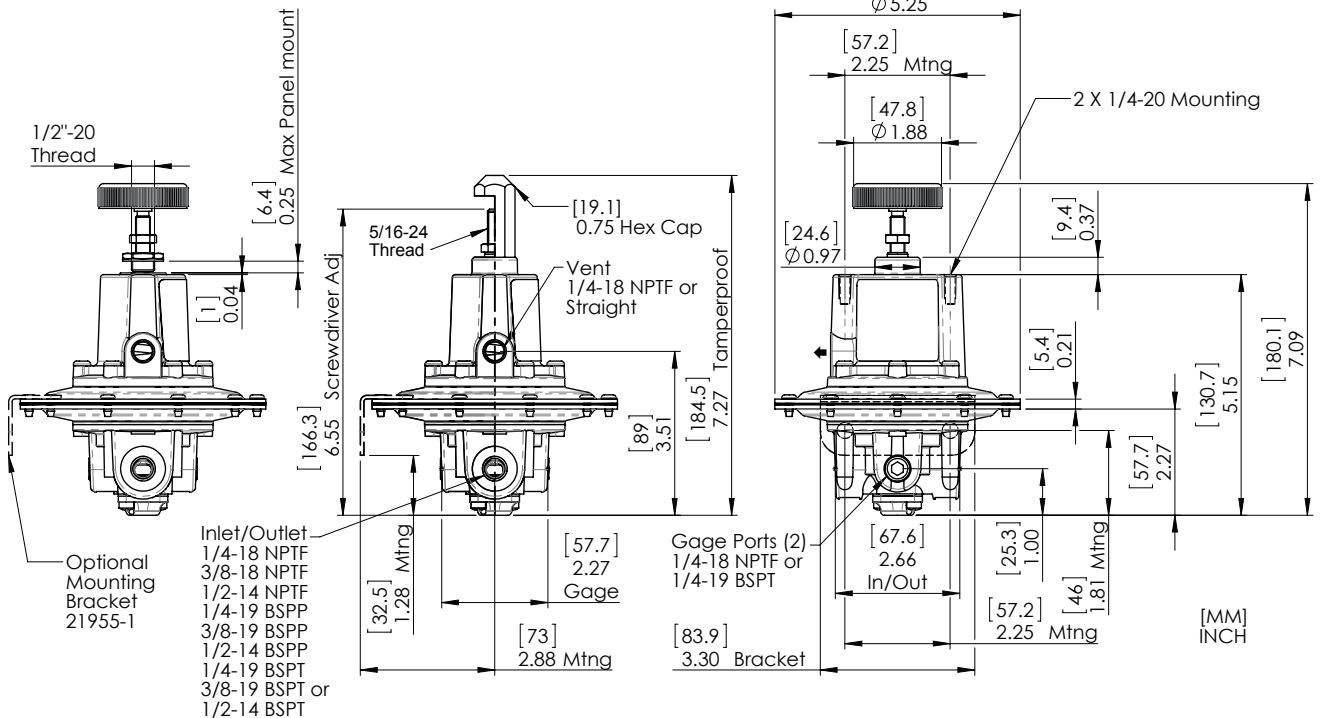
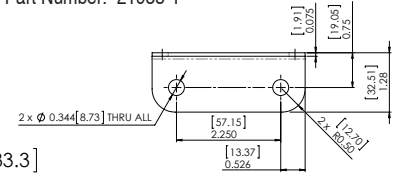
The Model 11BP Regulator uses the force balance principle to open the Relief Valve and vent system pressure when the set point is exceeded.

Upstream pressure is transmitted through the Aspirator Tube to the bottom of the Diaphragm Assembly. When you adjust the range screw for a specific set point, the Range Spring compresses and exerts a force on the top of the Diaphragm Assembly. As long as the pressure acting on the bottom of the Diaphragm Assembly produces a force less than the spring force acting on the top of the Diaphragm Assembly, the Relief Valve remains closed. When system pressure increases, the force on the bottom of the Diaphragm Assembly increases until it reaches the set point. When system pressure increases beyond the set point, the assembly moves upward, lifting the Relief Valve from its seat and vents the upstream air.

If upstream pressure decreases below the set point, the assembly moves downward closing the Relief Valve.



Mounting Bracket  
Part Number: 21955-1



Optional Mounting Bracket 21955-1

Inlet/Outlet  
1/4-18 NPTF  
3/8-18 NPTF  
1/2-14 NPTF  
1/4-19 BSPP  
3/8-19 BSPP  
1/2-14 BSPP  
1/4-19 BSPT  
3/8-19 BSPT or  
1/2-14 BSPT

# Model M11BP Low Pressure Back Pressure Pneumatic Regulator

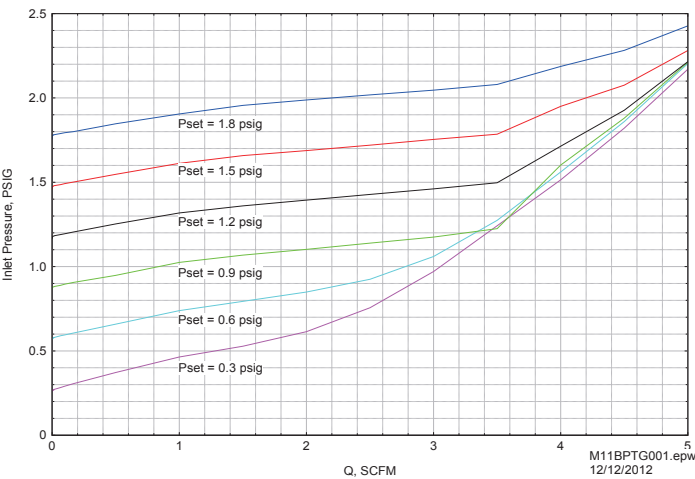
**A**

## Technical Information

## Catalog Information

Back Pressure

Flow Characteristics,  
M11BP 0-2 PSIG Range



## Specifications

### Flow Capacity

3 SCFM (5.1 m<sup>3</sup>/HR) @ 1.0 psig, [0.07 BAR], (7.0 kPa) system pressure

### Maximum System Pressure

60 psig, [4 BAR], (400 kPa)

### Sensitivity

0.05" Water Column

### Ambient Temperature

-40°F to +200°F, (-40°C to 93.3°C)

### Materials of Construction

Body and Housing.....Aluminum  
Diaphragm.....Nitrile or Fluorocarbon  
Trim.....Zinc Plated Steel, Stainless Steel

Catalog Number **11BP** **1**

### Pressure Ranges:

- 0-0.5 psi..... 1
- 0-2 psi..... 2
- 0-4 psi..... 3
- 0-6 psi..... 4
- 0-12 psi..... 5

### Inlet/Outlet Port Size:

- 1/4"..... 2
- 3/8"..... 3
- 1/2"..... 4

### Port Thread:

- NPTF..... N
- BSPT..... U
- BSPP..... H

### Elastomer

- Nitrile..... N
- Fluorocarbon..... J

### Actuator

- Knob..... K
- Screw Adjust..... S
- Tamper Proof..... T

### Vent

- Straight..... B
- Tapped (1/4" NPT, BSPT)..... P

### Mounting

- Bonnet (2 X 1/4-20 UNC)..... B
- Panel (1/2-20 UNF)..... P



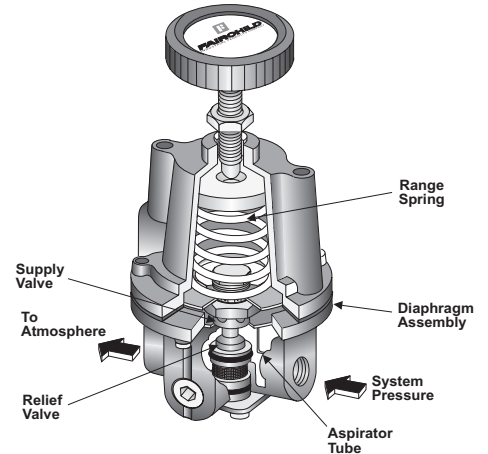
### Features

The Model 10BP is a high capacity regulator that relieves excess pressure in a pneumatic system.

The Model 10BP provides greater accuracy than relief valves over a narrow pressure range. The Model 10BP is an excellent choice for a wide range of precision applications.

The Model 10BP has the following features:

- Control sensitivity of 1/8" water column allows use in precision applications.
- A separate Control Chamber and Aspirator Tube isolate the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 10BP without removing it from the line.
- Mounting Bracket is available.
- Canadian Registration Number (CRN) certification for all territories and provinces.

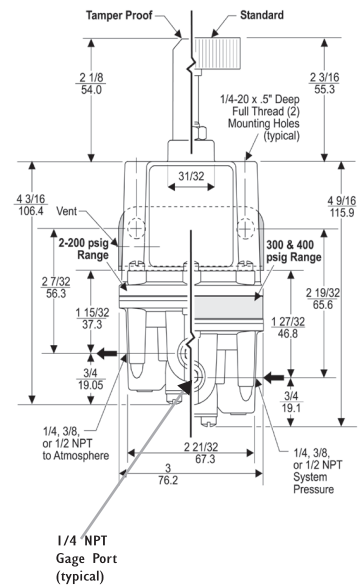


### Operating Principles

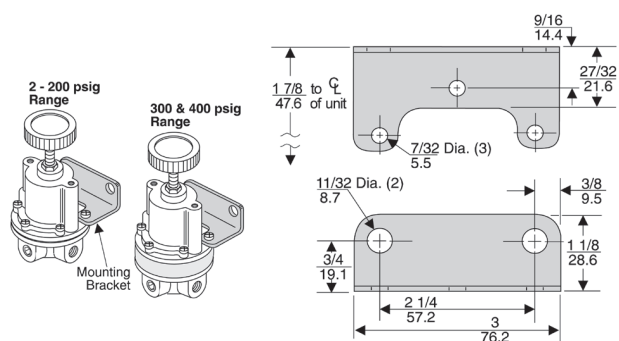
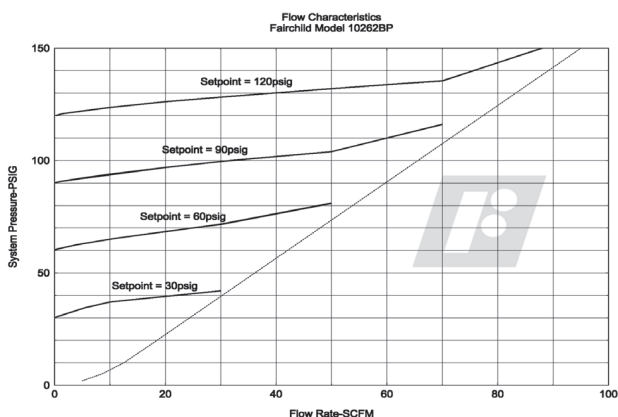
The Model 10BP Regulator uses the force balance principle to open the Relief Valve and vent system pressure when the set point is exceeded.

Upstream pressure is transmitted through the Aspirator Tube to the bottom of the Diaphragm Assembly. When you adjust the range screw for a specific set point, the Range Spring compresses and exerts a force on the top of the Diaphragm Assembly. As long as the pressure acting on the bottom of the Diaphragm Assembly produces a force less than the spring force acting on the top of the Diaphragm Assembly, the Relief Valve remains closed. When system pressure increases, the force on the bottom of the Diaphragm Assembly increases until it reaches the set point. When system pressure increases beyond the set point, the assembly moves upward, lifting the Relief Valve from its seat and vents the upstream air.

If upstream pressure decreases below the set point, the assembly moves downward closing the Relief Valve.



### Technical Information



### Model 10BP Regulator Kits & Accessories

Mounting Bracket Kit .....09921 (Sold separately).....

### Specifications

Set Point Range	System Pressure (Maximum)
2-200 psig [0.15-14 BAR] (15-1400 kPa)	300 psig [21.0 BAR] (2100 kPa)

300-400 psig [21-28 BAR] (2100-2800 kPa)	500 psig [35.0 BAR] (3500 kPa)
--	--------------------------------------

#### Flow Capacity (SCFM)

40 (68 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) system pressure

#### Sensitivity

Less than 1/8" (.32 cm) Water Column

#### Ambient Temperature

-40° F to +200° F, (-40° C to +93° C)

#### Materials of Construction

Body and Housing .....Aluminum  
 Trim .....Zinc Plated Steel, Brass  
 Nozzle.....Nitrile on Dacron

### Catalog Information

Catalog Number 1 0 2 [ ] [ ] BP [ ]

#### Pressure Range

psig	[BAR]	(kPa)
0-2	[0-0.15]	(0-15)
0-10	[0-0.7]	(0-70)
0-20	[0-1.5]	(0-150)
.5-30	[0.03-2.0]	(3-200)
1-60	[0.1-4.0]	(10-400)
2-150	[0.15-10.0]	(15-1000)
3-200	[0.2-14.0]	(20-1400)
5-300	[0.35-21.0]	(35-2100)
5-400	[0.35-28.0]	(35-2800)

- 1
- 2
- 0
- 3
- 4
- 6
- 7
- 8
- 9

#### Pipe Size

1/4" NPT .....	2
3/8" NPT .....	3
1/2" NPT .....	4

#### Options

Silicone Elastomers .....	A
BSPP (Parallel) <sup>1</sup> .....	H
Fluorocarbon (Viton) Elastomers .....	J
Screwdriver Adjust. ....	S
Tamper Proof .....	T
BSPT (Tapered) .....	U
No Yellow Metals <sup>2</sup> .....	Y

<sup>1</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

<sup>2</sup> Must Include the J Option.

### Installation

For installation instructions, refer to the *Fairchild Model 10BP Pneumatic Precision Back Pressure Regulator Installation, Operation and Maintenance Instructions, IS-100010BP.*

# A Model 30BP Midget Precision Back Pressure Regulator

Model 30BP

Back Pressure



## Features

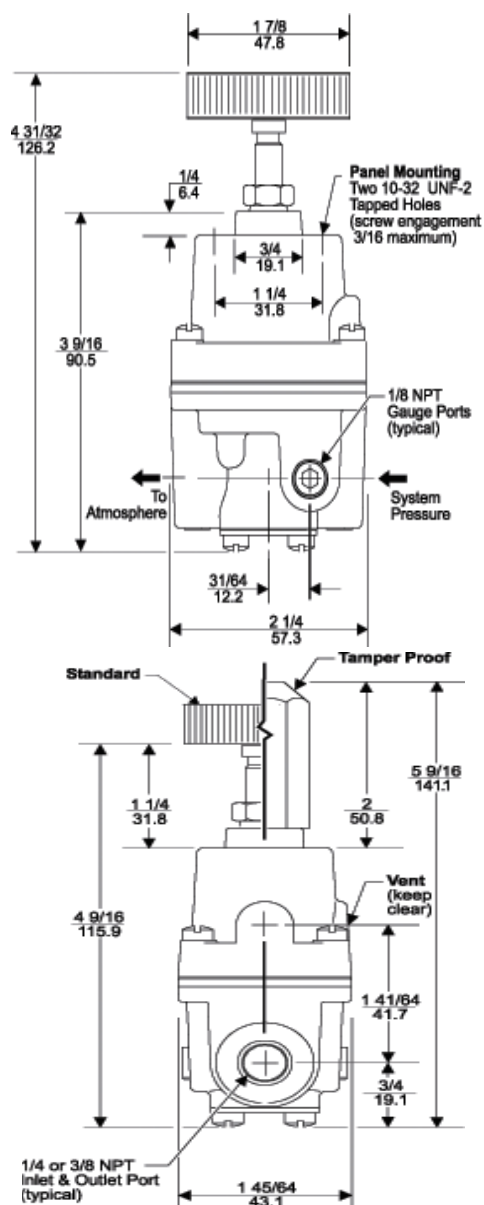
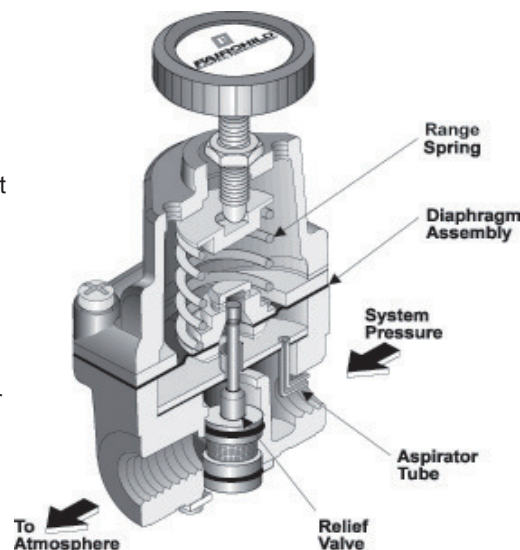
- The Model 30BP is a high capacity back pressure regulator that relieves excess system pressure to maintain a setpoint.
- Combination of high capacity and compact size make the Model 30BP an excellent choice for a wide range of precision applications including: Precise Control of Paper Machinery Felt Guides, Supply of a Precise Repeatable Signal to a Pneumatic Clutch, or Control of Cylinder Pressure.
- The Model 30BP is sensitive to 1/4" Water Column variation which permits use in precision processes.
- Flow of up to 40 SCFM allows use in applications with high flow requirements.
- A Separate Control Chamber and Aspirator Tube isolates the diaphragm from the main flow eliminating hunting and buzzing.

## Operating Principles

The Model 30BP Regulator uses the force balance principle to open the Relief Valve and vent system pressure when the set point is exceeded.

Upstream pressure is transmitted through the Aspirator Tube to the bottom of the Diaphragm Assembly. When you adjust the range screw for a specific set point, the Range Spring compresses and exerts a force on the top of the Diaphragm Assembly. As long as the pressure acting on the bottom of the Diaphragm Assembly produces a force less than the spring force acting on the top of the Diaphragm Assembly, the Relief Valve remains closed. When system pressure increases, the force on the bottom of the Diaphragm Assembly increases until it reaches the set point. When system pressure increases beyond the set point, the assembly moves upward, lifting the Relief Valve from its seat and vents the upstream air.

If upstream pressure decreases below the set point, the assembly moves downward closing the Relief Valve.



# Model 30BP Midget Precision Back Pressure Regulator

**A**

Back Pressure

## Catalog Information

**Catalog Number** 3 0 2   BP

### Pressure Range

psig	[BAR]	(kPa)
0-2	[0-0.15]	(0-15)
0-10	[0-0.7]	(0-70)
.5-30	[0.03-2]	(3-200)
1-60	[0.1-4]	(10-400)
2-100	[0.15-7]	(15-700)

- 1
- 2
- 3
- 4
- 5

### Pipe Size

- 1/4" NPT .....
- 3/8" NPT .....

- 2
- 3

### Options

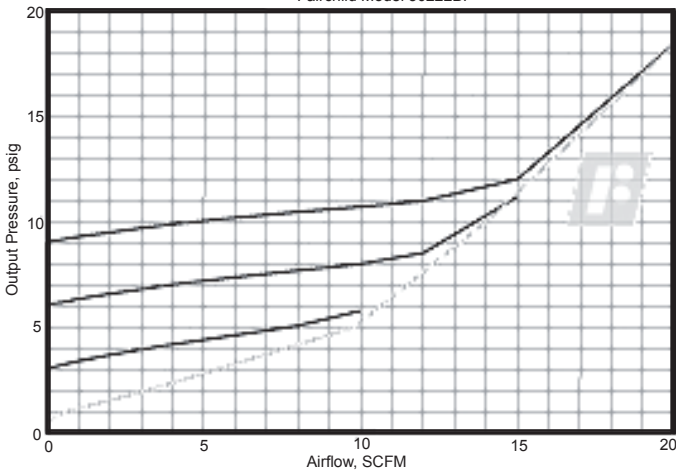
- Silicone Elastomers..... A
- Fluorocarbon (Viton) Elastomers..... J
- BSP (Parallel)<sup>2</sup>..... H
- Mounting Bracket..... M
- Screwdriver Adjustment..... S
- Tamper Proof..... T
- BSPT (Tapered)..... U

<sup>2</sup> BSP (Parallel) Threads in Inlet & Outlet Ports Only. Others BSPT.

### Installation

For installation instructions, refer to the *Fairchild Model 30BP Midget Precision Back Pressure Regulator Installation, Operation and Maintenance Manual, IS-100030BP*.

Flow Characteristics  
Fairchild Model 30222BP



## Specifications

### Set Point Range

2-100 psig, [0.15-7.0 BAR], (15-700 kPa)

### System Pressure (Maximum)

150 psig, [10.0 BAR], (1000 kPa)

### Flow Capacity (SCFM)

40 (68 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa)

### Sensitivity

1/4" (.63 cm) Water Column

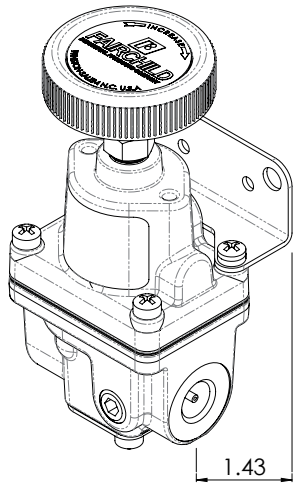
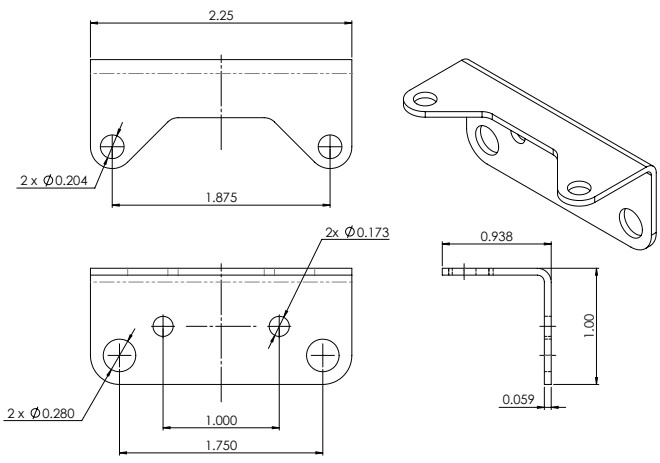
### Ambient Temperature

-40°F to +200°F, (-40°C to 93.3°C)

### Materials of Construction

- Body and Housing.....Aluminum
- Diaphragms.....Nitrile on Dacron
- Trim.....Brass

## Model 30 Mounting Bracket P/N 21667-1





**A**

# Model 66BP Pneumatic Stainless Steel Back Pressure Regulator

**Model  
66BP**

Back Pressure



The Model 66BP Stainless Steel Regulator is designed for corrosive environments and high temperatures.

## Features

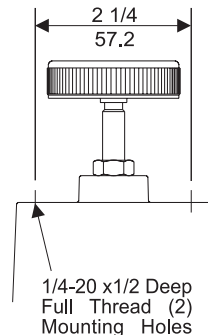
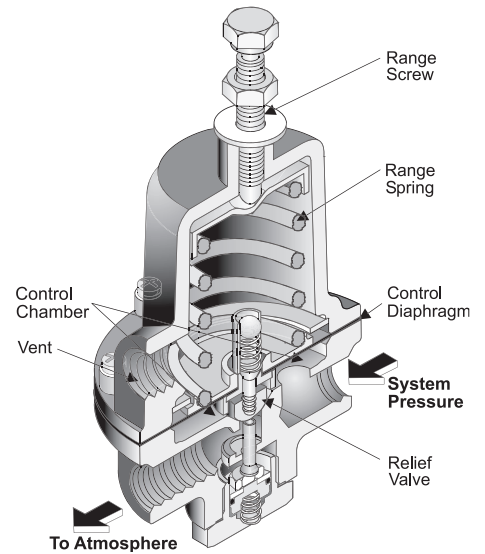
- Control sensitivity to 1" water column allows use in precision applications.
- Large Control Diaphragm area for increased sensitivity.
- Fluorocarbon Elastomers are compatible with corrosive materials and environments.
- Valve Damper eliminates hunting and buzzing.
- Line or Panel Mounting provides flexibility for installation.
- Canadian Registration Number (CRN) certification for all territories and provinces.

## Operating Principles

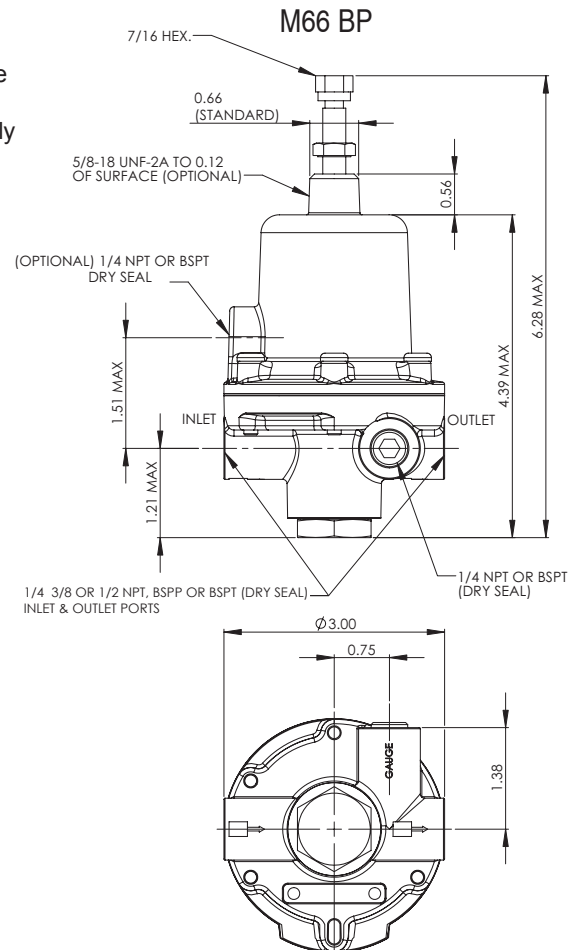
The Model 66BP Regulator uses the force balance principle to open the Relief Valve and vent system pressure when the set point is exceeded.

Upstream pressure is transmitted through the Aspirator Port to the bottom of the Diaphragm Assembly. When you adjust the range screw for a specific set point, the Range Spring compresses and exerts a force on the top of the Diaphragm Assembly. As long as the pressure acting on the bottom of the Diaphragm Assembly produces a force less than the spring force acting on the top of the Diaphragm Assembly, the Relief Valve remains closed. When system pressure increases, the force on the bottom of the Diaphragm Assembly increases until it reaches the set point. When system pressure increases beyond the set point, the assembly moves upward, lifting the Relief Valve from its seat and vents the upstream air.

If upstream pressure decreases below the set point, the assembly moves downward closing the Relief Valve.

**Detail A**

NOTE: Mounting Holes used for with Aluminum Bonnet Option Only

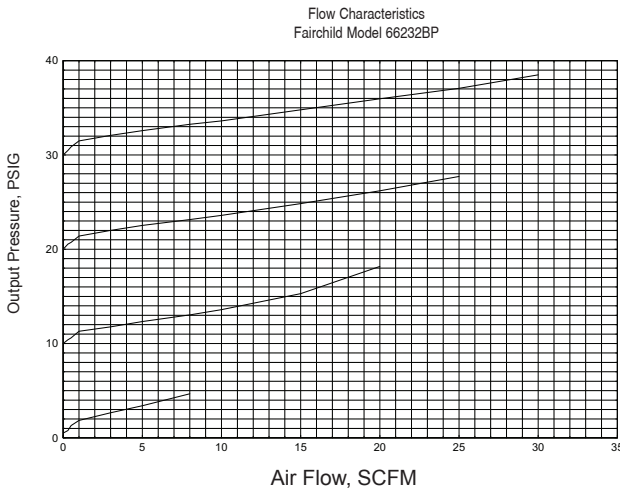


# Model 66BP Pneumatic Stainless Steel Back Pressure Regulator

**A**

Back Pressure

## Technical Information



## Specifications

### System Pressure

150 psig, [10 BAR], (1000 kPa) Maximum

### Flow Capacity

22 SCFM (37.4 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) system pressure

### Sensitivity

1" (2.54 cm) Water Column

### Ambient Temperature

-20°F to +300°F, (-28°C to 149°C)

Aluminum Bonnet Option

-20°F to +200°F, (-28°C to 93°C)

### Materials of Construction

Body and Housing ..... 316 Stainless Steel

Diaphragms ..... Fluorocarbon on Nomex

..... with Teflon Shield

Trim ..... 316 Stainless Steel and Teflon

## Catalog Information

Catalog Number **6 6 2**   **BP**

### Pressure Range

psig	[BAR]	(kPa)	
0-10	[0-0.70]	(0-70)	2
0.5-30	[0.03-2]	(3-200)	3
1-60	[0.10-4]	(10-400)	4
2-100	[0.15-7]	(15-700)	5
2-150	[0.15-10]	(15-1000)	6

### Inlet/Outlet Port Pipe Size

1/4"	2
3/8"	3
1/2"	4

### Port Thread

NPTF	N
BSPT (Tapered)	U
BSPP (Parallel)	H

### Elastomers

Fluorocarbon..... J

### Actuator

Knob Adjust	K
Screw	S

### Bonnet

Stainless Steel	S
Aluminum	A

### Options

Tapped Exhaust ..... E

### Mounting

None	N
Panel Mounting	P

## Installation

For installations instructions, refer to the *Fairchild Model 66 Stainless Steel Back Pressure Regulator Instruction, Operation and Maintenance Instructions, IS-100066BP*.

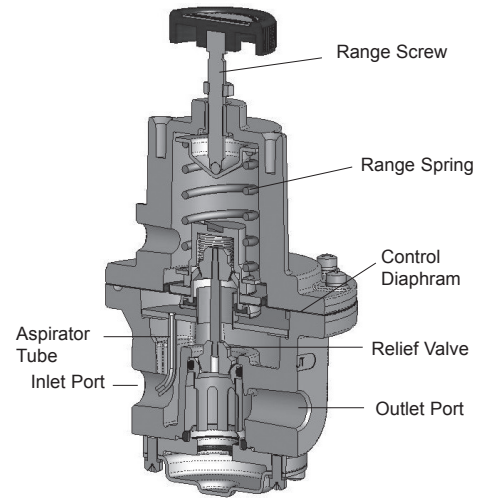
Model  
4000ABP



The Model 4000ABP Pneumatic Precision Back Pressure Regulator is a no bleed design regulator that precisely controls system back pressure.

### Features

- Control sensitivity of 1/2" water column allows use in precision applications.
- Large Relief Valve provides high exhaust flows.
- An Aspirator Tube compensates upstream pressure build up under flow conditions.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 4000ABP without removing it from the line.
- Canadian Registration Number (CRN) certification for all territories and provinces.

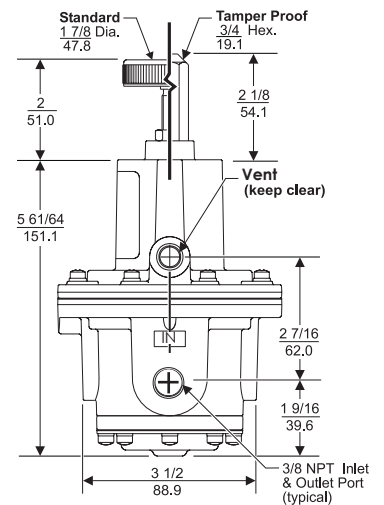
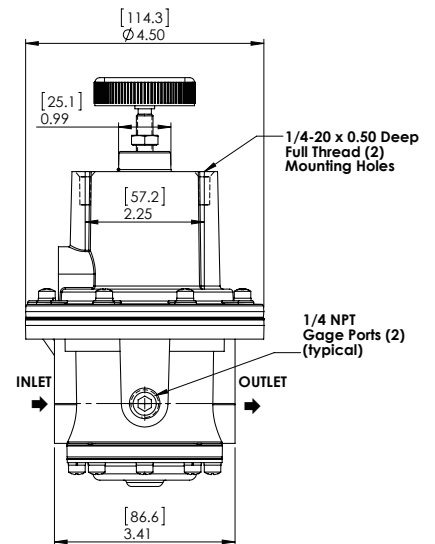


### Operating Principles

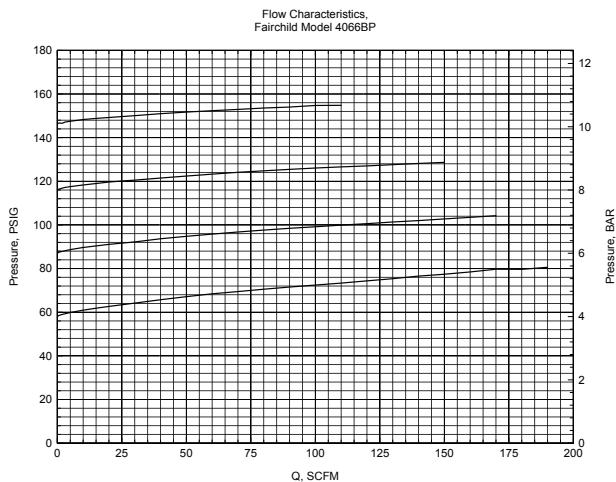
The Model 4000ABP Regulator uses the force balance principle to open the Relief Valve and vent system pressure when the set point is exceeded.

Upstream pressure is transmitted through the Aspirator Tube to the bottom of the Diaphragm Assembly. When you adjust the range screw for a specific set point, the Range Spring compresses and exerts a force on the top of the Diaphragm Assembly. As long as the pressure acting on the bottom of the Diaphragm Assembly produces a force less than the spring force acting on the top of the Diaphragm Assembly, the Relief Valve remains closed. When system pressure increases, the force on the bottom of the Diaphragm Assembly increases until it reaches the set point. When system pressure increases beyond the set point, the assembly moves upward, lifting the Relief Valve from its seat and vents the upstream air.

If upstream pressure decreases below the set point, the assembly moves downward closing the Relief Valve.



Technical Information



Specifications

Maximum Inlet Pressure (Psig)

250 [17 BAR], (1700 kPa)

Flow Capacity

150 (255m<sup>3</sup>/Hr) at 90 Psig [6 BAR], (600 kPa) setpoint.

Sensitivity

1/2" (1.27 cm) Water Column

Ambient Temperature

-40°F to +200°F, (-40°C to +93°C)

Hazardous Locations

Acceptable for use in Zones 1 and 2 for gas atmosphere; Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

Materials of Construction

Body and Housing ..... Aluminum

Diaphragms and seals ..... Nitrile

Trim ..... Zinc Plated Steel, Brass

Catalog Information

Catalog Number

40 [ ] ABP [ ] [ ] [ ] [ ]

Pressure Range

psig	[BAR]	(kPa)	
0.5-10	[0.03-0.7]	(3.0-70) . . . . .	2
0.5-30	[0.03-2]	(3.0-200) . . . . .	3
1-60	[0.1-4]	(10-400) . . . . .	4
2-150	[0.15-10]	(15-1000) . . . . .	6

Port Size

3/8" NPT .....	3
1/2" NPT .....	4
3/4" NPT .....	6

Port Thread

NPT .....	N
BSPP <sup>1</sup> .....	H
BSPT .....	U

Elastomer

Nitrile .....	N
Fluorocarbon <sup>2</sup> .....	J

Actuator

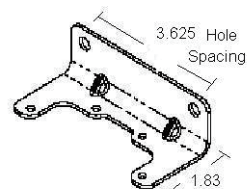
Knob .....	K
Tamperproof .....	T

<sup>1</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

<sup>2</sup> Viton Available on Ranges through 2-150 psig Only.

Installation

For installations instructions, refer to the Fairchild Model 4000A Pneumatic Precision Regulator Instruction, Operation and Maintenance Instructions, IS-1004000ABP.



20555-1

**Model 4000ABP Mounting Bracket Kit**  
P/N 20555-1 zinc plated (sold separately)



### Features

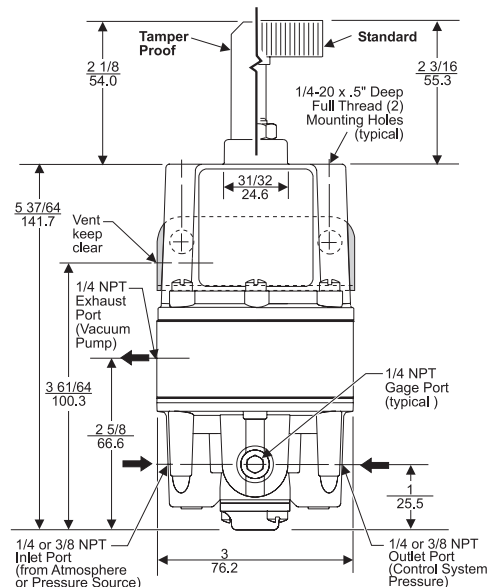
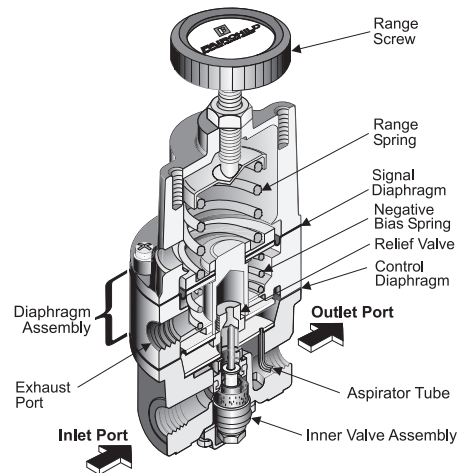
- The Model 16 Vacuum Regulator is designed for systems that require system pressure control above and below atmospheric pressure.
- Control sensitivity of 1/2" water column allows use in precision applications.
- A balanced Supply Valve minimizes the effects of supply pressure variation.
- An Aspirator Tube compensates downstream pressure droop under flow conditions.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 16 without removing it from the line.
- Mounting Bracket is available.
- Canadian Registration Number (CRN) Certification for all territories and provinces

### Operating Principles

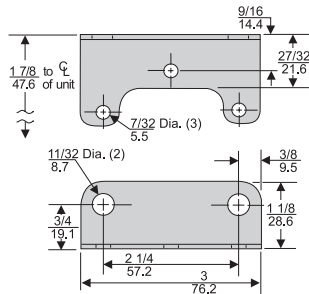
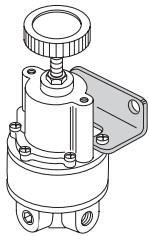
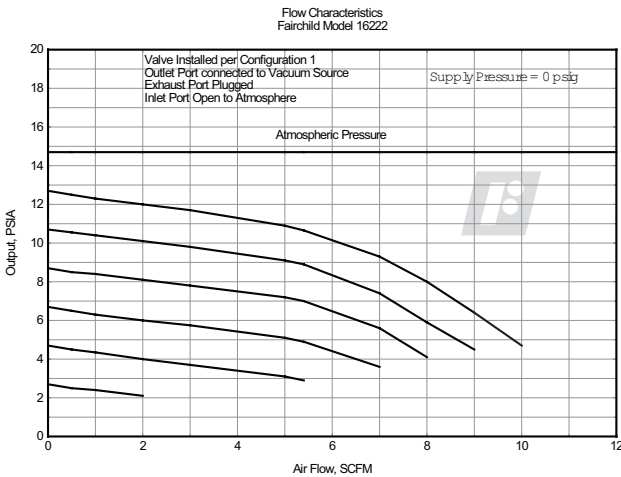
When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a downward force on the top of the Signal Diaphragm. The Negative Bias Spring creates an upward force on the bottom of the Signal Diaphragm. The upward net force opens the Relief Valve (vacuum supply) to let Vacuum flow from the Outlet Port to the Exhaust Port. As the setpoint is reached, the decrease in pressure lets the Diaphragm Assembly move downward to close the Relief Valve (vacuum supply).

When the Vacuum increases above the setpoint, the Diaphragm Assembly moves downward to open the Supply Valve that adds positive pressure to the system to maintain Output pressure. For more information, see cross sectional diagram.

Outlet pressure is maintained as a result of balance between forces acting on the top and bottom of the Diaphragm Assembly.



**Technical Information**



**Model 16 Regulator Kits & Accessories**

Mounting Bracket Kit . . . . . 09921 (sold separately)

**Specifications**

**Supply Pressure**

250 psig, [17.0 BAR], (1700 kPa) Maximum

**Positive Flow Capacity (SCFM)**

40 (65.2 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR] supply, (700 kPa) supply & 20 psig, [1.5 BAR], (150 kPa) setpoint

**Vacuum Flow Capacity (SCFM)**

2.5 (4 m<sup>3</sup>/HR) @ 29" Hg VAC with pump connected to exhaust port  
40 (65.2 m<sup>3</sup>/HR) @ 100 psig supply connected to inlet port

**Supply Pressure Effect**

Less than 0.1 psig, [.007 BAR], (0.7 kPa) for 100 psig, [7.0 BAR]. (700 kPa) change in supply pressure

**Sensitivity**

1/2" (1.27 cm) Water Column

**Ambient Temperature**

-40°F to +200°F, (-40°C to +93.3°C)

**Materials of Construction**

Body and Housing . . . . . Aluminum  
Trim . . . . . Stainless Steel, Brass and Zinc Plated Steel  
Diaphragms . . . . . Nitrile on Dacron

**Hazardous Locations**

Acceptable for use in Zones 1 and 2 for gas atmosphere;  
Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

**Catalog Information**

**Catalog Number**

1 6

**Pressure Range**

psig	[BAR]	(kPa)
Vacuum - 2	[Vacuum -0.15]	(Vacuum - 15)
Vacuum - 10	[Vacuum -0.7]	(Vacuum - 70)
Vacuum - 30	[Vacuum -2.0]	(Vacuum - 200)
Vacuum - 100	[Vacuum -7.0]	(Vacuum - 700)
Vacuum - 150	[Vacuum - 10]	(Vacuum - 1000)

21  
22  
23  
25  
26

**Pipe Size**

1/4" NPT. . . . . 2  
3/8" NPT. . . . . 3  
1/2" NPT. . . . . 4

**Options**

Silicone Elastomers <sup>1</sup> . . . . . A  
BSPP (Parallel) <sup>2</sup> . . . . . H  
Tamper Proof . . . . . T  
Fluorocarbon (Viton) Elastomers. . . . . J  
Increased Sensitivity . . . . . L  
BSPT (Tapered) . . . . . U  
No Yellow Metals <sup>3</sup> . . . . . Y

<sup>1</sup> Maximum Supply Pressure - 75 psig, [5.0 BAR], (500 kPa)  
<sup>2</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.  
<sup>3</sup> Must Include the J Option.

**Installation**

For installation instructions, refer to the *Fairchild Model 16 Vacuum Regulator Installation, Operation and Maintenance Instructions*, IS-10000016.



### Features

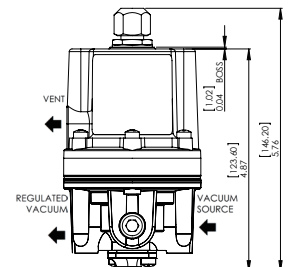
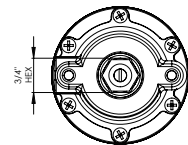
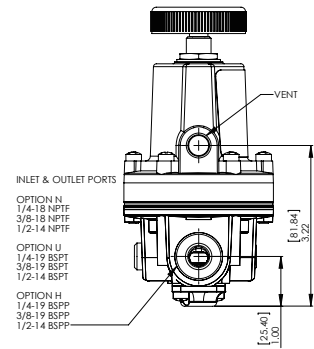
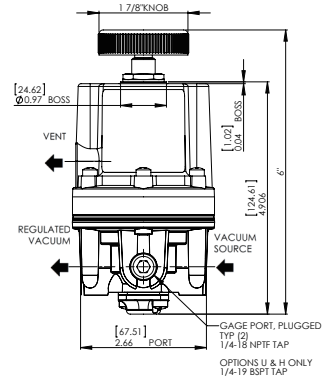
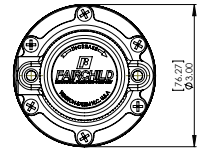
- The Model 17 Vacuum Regulator is designed for systems that require system vacuum control up to full vacuum.
- Control sensitivity of 1/2" water column allows use in precision applications.
- High flow capacity
- A balanced vacuum Valve minimizes the effects of vacuum variation.
- An Aspirator Tube compensates downstream vacuum droop under flow conditions.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 17 without removing it from the line.
- Mounting Bracket is available.
- Canadian Registration Number (CRN) certification for all territories and provinces.

### Operating Principles

The model 17 is a true vacuum regulator in that a vacuum supply is provided at one port and controlled vacuum is made available at the other. The model 17 uses force balance principals to control the movement of the main valve. Since the vacuum regulator operates below atmospheric pressure, atmospheric pressure is employed to provide the motive force to operate the vacuum regulator.

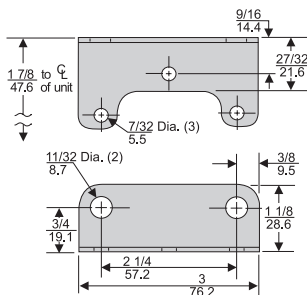
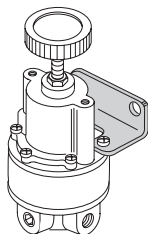
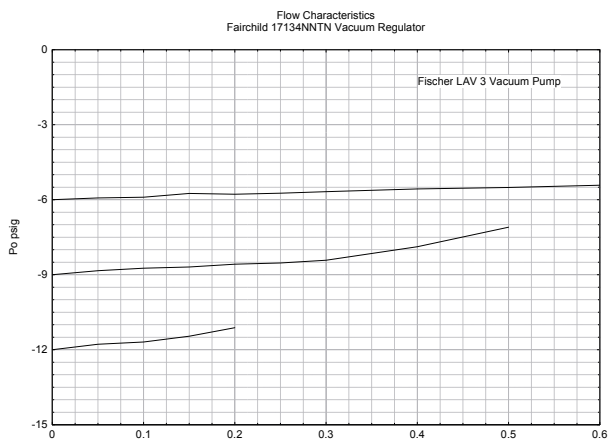
Referencing the diagram above, turning the control knob clockwise draws the lower spring seat upward compressing the range springs. The upper spring seat, connected to the diaphragm assembly, is spring biased in an upward direction as a result. The upward bias of the diaphragm assembly opens the supply valve and ports the vacuum supply to the outlet. As the vacuum level increases, the diaphragm assemble is drawn downward and closes the supply valve as the setpoint is reached. If the vacuum setpoint is exceeded, the diaphragm assembly continues in a downward direction and unseats the relief valve allowing atmospheric pressure to enter the system and reduces the vacuum level to the setpoint.

MODEL 17 WITH "K" OPTION KNOB



MODEL 17 WITH "T" OPTION

**Technical Information**



**Model 17 Regulator Kits & Accessories**

Mounting Bracket Kit . . . . .09921 (sold separately)

**Specifications**

- Max Vacuum Capacity**  
30 in Hg (762 Torr) (102 kPa), up to "Full" Vacuum
- Flow Capacity**  
12 SCFM (20.4 m<sup>3</sup>/HR)
- Relief Capacity**  
2.0 SCFM (3.4 m<sup>3</sup>/HR)
- Vacuum Supply Effect**  
Less than 0.1 % of change in supply vacuum
- Ambient Temperature**  
-40°F to +200°F, (-40°C to 93.3°C)

**Hazardous Locations**  
Acceptable for use in Zones 1 and 2 for gas atmosphere; Groups IIA and IIB and Zones 21 and 22 for dust atmospheres

**Materials of Construction**  
Body and Housing . . . . . Aluminum  
Diaphragms . . . . . Buna N on Dacron (Std. unit only)  
Trim . . . . . Stainless, Zinc Plated Steel

**Catalog Information**

**Catalog Number** 171

**Vacuum Range**

in Hg	[Torr]	(kPa)
0-5	[127]	(17)
0-15	[381]	(51)
0-30	[762]	(102)

- 1  
2  
3

**Pipe Size**

- 1/4" NPT . . . . . 2
- 3/8" NPT . . . . . 3
- 1/2" NPT . . . . . 4

**Port Threads**

- NPT . . . . . N H U
- BSPP . . . . . H U
- BSPT . . . . . U

**Elastomer**

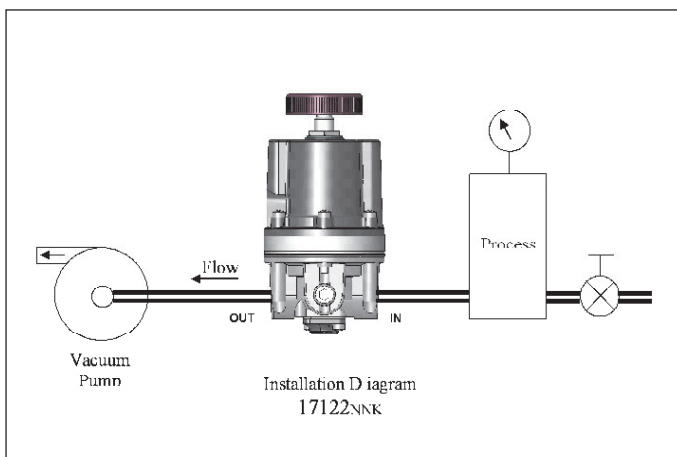
- Nitrile . . . . . N J
- Fluorocarbon . . . . . J

**Actuator Type**

- Knob Assembly . . . . . K T
- Tamperproof . . . . . T

**Relief**

- Relieving . . . . . R N
- Non-Relieving . . . . . N





## Model 18 Vacuum Relief Regulator



### Features

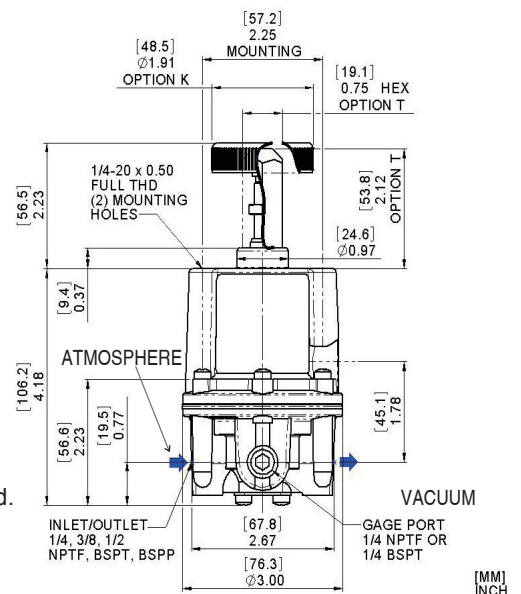
- The Model 18 is a high accuracy vacuum relief regulator, providing superior vacuum control over a narrow pressure range. The model 18 is an excellent choice for a wide range of precision applications.
- The Model 18 has the following features:
  - Control sensitivity of 1/8" water column allows use in precision applications.
  - A separate Control Chamber and Aspirator Tube isolate the diaphragm from the main flow to eliminate hunting and buzzing.
  - Unit construction lets you service the Model 18 without removing it from the line.
  - Mounting Bracket is available.
  - Canadian Registration Number (CRN) certification for all territories and provinces.

### Operating Principles

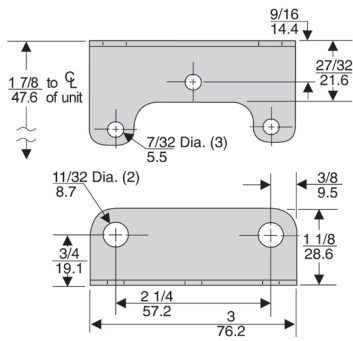
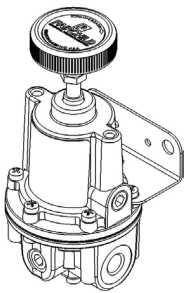
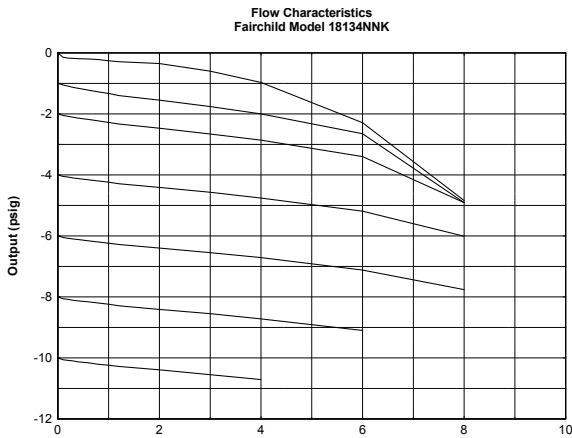
The Model 18 Vacuum Relief Valve uses a force balance principle to open the Relief Valve and allow atmospheric air to lower vacuum levels when the set point is exceeded.

Vacuum is transmitted to the top of the M18 Diaphragm Assembly, exerting an upward force on the diaphragm. When you adjust the range screw for a specific set point, the Positive Bias Spring compresses and exerts a downward force on the top of the Diaphragm Assembly. As long as the vacuum force acting on the Diaphragm Assembly produces a force less than the spring force acting on the top of the Diaphragm Assembly, the Relief Valve remains closed. When vacuum increases beyond the set point, the assembly moves upward, lifting the Relief Valve from its seat and allowing atmospheric air in, lowering vacuum level in the system.

If vacuum pressure decreases below the set point, the assembly moves downward closing the Relief Valve.



Technical Information



Model 18 Regulator Kits & Accessories

Mounting Bracket Kit . . . . . 09921 (sold separately)

Specifications

**Max Vacuum Capacity**  
30 in Hg (1000 mBar) (100 kPa), up to "Full" Vacuum

**Flow Capacity**  
8 SCFM (68 m3/HR) @ 29" Hg VAC

**Sensitivity**  
Less than 1/8" (.32 cm) Water Column

**Ambient Temperature**  
-40°F to +200°F, (-40°C to 93°C)

Materials of Construction

Body and Housing . . . . . Aluminum  
Diaphragms . . . . . Nitrile on Dacron  
Trim . . . . . Zinc Plated Steel, Brass

Catalog Information

Catalog Number 181

**Vacuum Range**

in Hg	[mbar]	(kPa)
4	[140]	(14)
20	[700]	(70)
30	[1000]	(100)

Pipe Size

1/4" . . . . . 2 3  
3/8" . . . . . 3 4  
1/2" . . . . . 4

Port Threads

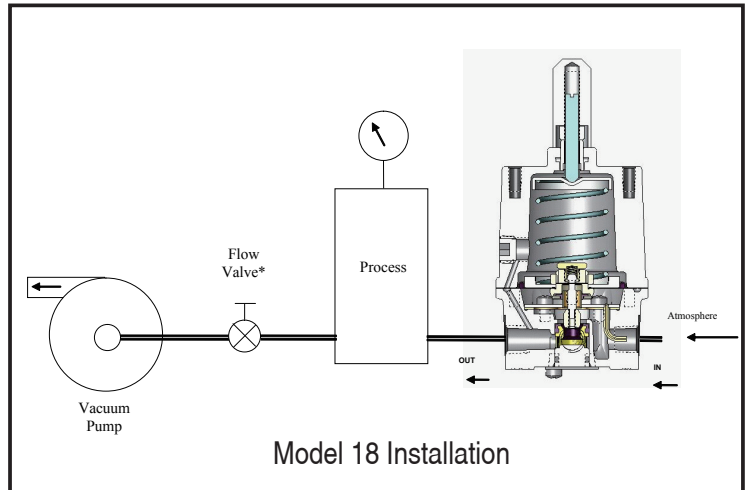
NPTF . . . . . N H U  
BSPP . . . . .  
BSPT . . . . .

Elastomer

Nitrile . . . . . N A J  
Silicone . . . . .  
Fluorocarbon . . . . .

Actuator Type

Knob Assembly . . . . . K T  
Tamperproof . . . . .





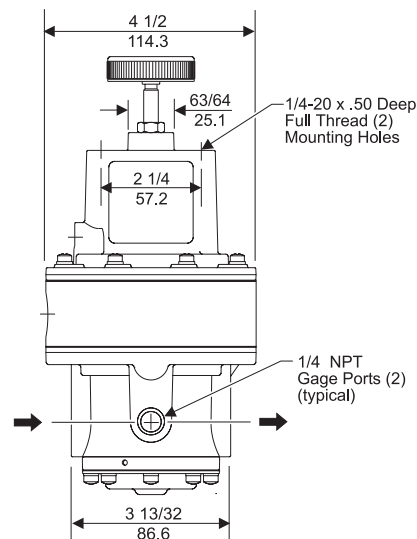
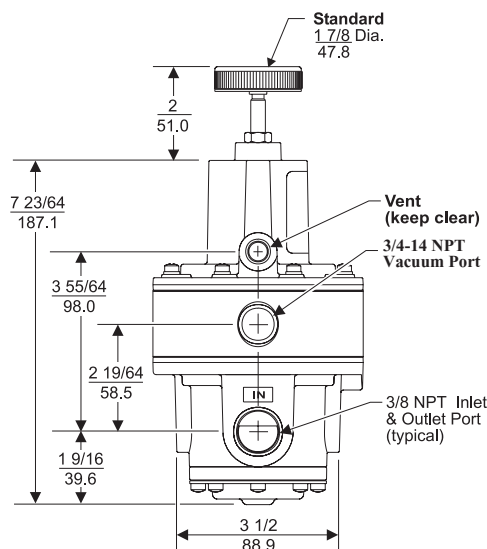
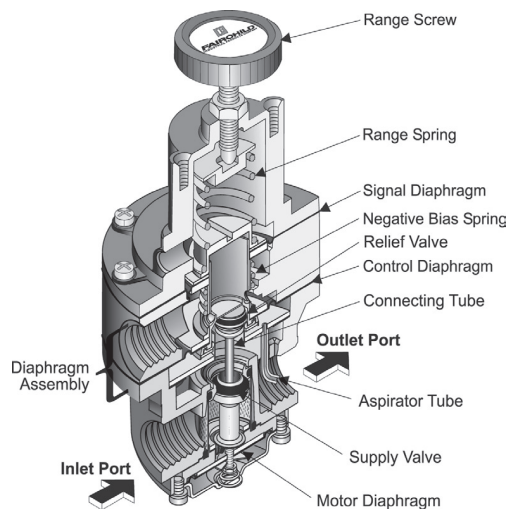
### Features

- The Model 1600A Vacuum Regulator controls pressure in high flow systems above and below atmospheric pressure.
- The single unit controls vacuum and positive pressure.
- Control sensitivity of 1" water column allows use in precision applications.
- Large Supply and Exhaust Valves provide high forward and exhaust flows.
- Soft Supply and Exhaust Valve seats minimize air consumption.
- A balanced Supply Valve minimizes the effect of supply pressure variation.
- An Aspirator Tube compensates downstream pressure droop under flow conditions.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 1600 without removing it from the line.

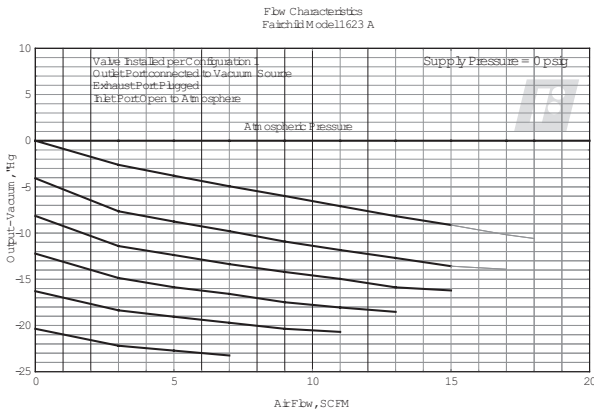
### Operating Principles

When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a downward force on the top of the Signal Diaphragm. The Negative Bias Spring creates an upward force on the bottom of the Signal Diaphragm. The upward net force opens the Relief Valve (vacuum supply) to let Vacuum pressure flow through the Outlet Port and the Aspirator Tube to the Control Chamber. As the setpoint is reached, the decrease in pressure lets the Diaphragm Assembly move downward to close the Relief Valve (vacuum supply).

When the vacuum pressure increases above the setpoint, the Diaphragm Assembly moves downward to open the Supply Valve (positive pressure) to maintain Output pressure.



**Technical Information**



**Specifications**

**Supply Pressure**

250 psig, [17.0 BAR], (1700 kPa) Maximum

**Flow Capacity (SCFM)**

28 (48 m<sup>3</sup>/HR) @ 29" Hg vacuum with inlet port open to atmosphere.

150 (255 m<sup>3</sup>/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply & 20 psig, [1.5 BAR], (150 kPa) setpoint

**Exhaust Capacity**

20 (34 m<sup>3</sup>/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpoint

**Supply Pressure Effect**

Less than 0.1 psig, [.007 BAR], (0.7 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure

**Sensitivity**

1" (2.54 cm) Water Column

**Ambient Temperature**

-40°F to +200°F, (-40°C to +93°C)

**Materials of Construction**

Body and Housing.....Aluminum  
Trim ..... Zinc Plated Steel, Brass  
Diaphragms ..... Nitrile on Dacron

**Catalog Information**

**Catalog Number**

1 6   A

**Pressure Range**

psig	[BAR]	(kPa)	
Vacuum - 10	[Vacuum -0.7]	(Vacuum - 70)...	2
Vacuum - 30	[Vacuum -2.0]	(Vacuum - 200)...	3
Vacuum - 150	[Vacuum - 10]	(Vacuum - 1000)...	6

**Pipe Size**

3/8" NPT .....	3
1/2" NPT .....	4
3/4" NPT .....	6

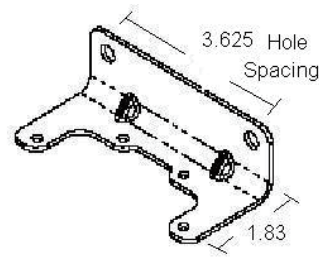
**Options**

BSPP (Parallel) <sup>1</sup> .....	H
Fluorcarbon .....	J
Tamper Proof .....	T
BSPT (Tapered) .....	U

<sup>1</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

**Installation**

For installation instructions, refer to the *Fairchild Model 1600A Vacuum Regulator Installation, Operation and Maintenance Instructions*, IS-1001600A.



20555-1

**Model 1600A Mounting Bracket Kit**  
P/N 20555-1 zinc plated (sold separately)