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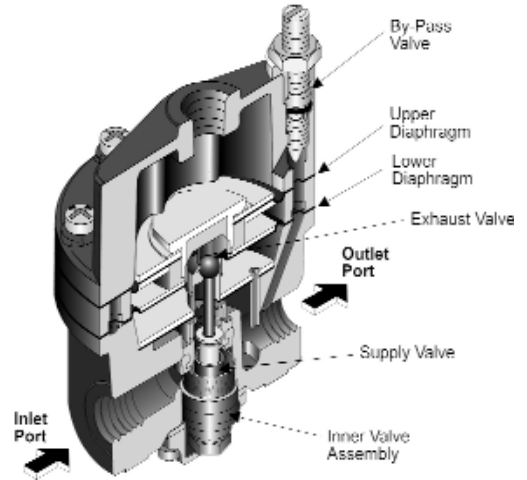
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# Model 20 Pneumatic Precision Booster



## Features

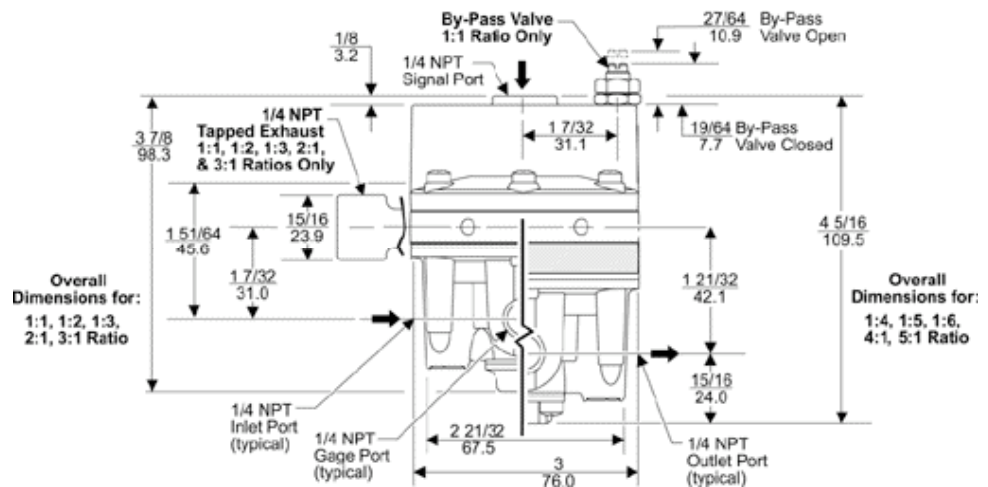
- The Model 20 Pneumatic High Capacity Volume Booster uses a pneumatic input signal to accurately control output pressure
- A balanced Supply Valve minimizes the effects of supply pressure variation
- An Aspirator Tube compensates downstream pressure droop under flowing conditions
- Optional Adjustable By-Pass Needle Valve allows tuning for optimum dynamic response (1:1 ratio only)
- Optional Fixed Negative Bias allows operation with pneumatic devices that cannot be adjusted to zero input pressure
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- Unit construction allows servicing without removal
- Mounting Bracket available
- Canadian Registration Number (CRN) Certification for all territories and provinces



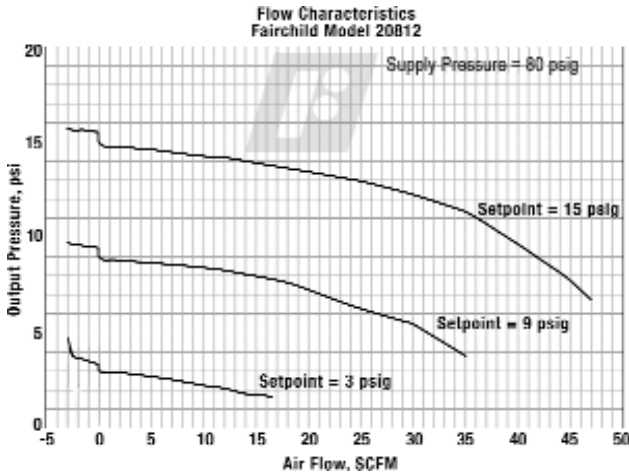
## Operating Principles

The Model 20 Booster is a pneumatic device capable of high flow and exhaust capacity. This device uses a force balance system to control the movement of the supply and exhaust valves.

At set point, the force due to signal pressure that acts on the top of the Upper Diaphragm balances with the force due to output pressure acting on the bottom of the Lower Diaphragm.



Technical Information



Installation

For installation instructions, refer to the *Fairchild Model 20 High Capacity Volume Booster Installation, Operation and Maintenance Instructions, IS-20000020*.

- <sup>1</sup> For 1:1, 1:2, 1:3, 2:1, & 3:1 Ratios Only.
- <sup>2</sup> Maximum Supply Pressure – 75 psig, [5.0 BAR], (500 kPa).  
For 1:1 Ratio Only.
- <sup>3</sup> Negative Bias Fixed at 3.5 psig + 0.5 psig.
- <sup>4</sup> Not Available with Y Option. For 1:1 Ratio Only.
- <sup>5</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

Catalog Information

Catalog Number 208 –

Ratio	1:1	1:2	1:3	2:1	1:4	4:1	1:5	5:1	1:6
	1	2	3	4	5	6	7	8	9
	10								
Pipe Size	1/4" NPT	3/8" NPT							
		2	3						
Options	Silicone Elastomers <sup>2</sup>	Tapped Exhaust <sup>1</sup>	BSPP (Parallel) <sup>5</sup>	By-Pass Valve <sup>4</sup>	Viton Elastomers	Non-Relieving <sup>1</sup>	BSPT (Tapered)	Negative Bias <sup>1,3</sup>	A E H I J N U Y

Specifications

Ratio	SIGNAL:OUTPUT										
	1:1	1:2	1:3	1:4	1:5	1:6	2:1	3:1	4:1	5:1	
Maximum Output Pressure	150 [10.0] (1000)	150 [10.0] (1000)	150 [10.0] (1000)	150 [10.0] (1000)	150 [10.0] (1000)	150 [10.0] (1000)	150 [10.0] (1000)	75 [5.0] (500)	50 [3.5] (350)	37.5 [2.6] (260)	30 [2.0] (200)
Maximum Supply Pressure	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)	250 [17.0] (1700)
Flow Capacity SCFM, (m <sup>3</sup> /HR) 100 psig, [7.0 BAR], (700 kPa) supply, 20 psig, [1.5 BAR], (150 kPa) output.	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)	45 (76.5)
Exhaust Capacity SCFM, (m <sup>3</sup> /HR) Downstream Pressure 5 psig, [.35 BAR], (35 kPa) above output pressure set point of 20 psig, [1.5 BAR], (150 kPa).	11 (18.7)	11 (18.7)	11 (18.7)	7.5 (12.8)	7.5 (12.8)	7.5 (12.8)	11 (18.7)	11 (18.7)	7.5 (12.8)	7.5 (12.8)	7.5 (12.8)
Sensitivity (water column)	1/4" (.64 cm)	1/2" (1.27 cm)	3/4" (1.9 cm)	1" (2.54 cm)	1-1/4" (3.18 cm)	1-1/2" (3.8 cm)	1/2" (1.27 cm)	1/2" (1.27 cm)	3/4" (1.9 cm)	3/4" (1.9 cm)	3/4" (1.9 cm)
Ratio Accuracy % of 100 psig, [7.0 BAR], (700 kPa) output span % of output span with [7.0 BAR], (700 kPa) input span	1.0 -	1.0 -	1.0 -	2.0 -	2.0 -	2.0 -	- 2.0	- 2.0	- 2.0	- 2.0	- 2.0
Supply Pressure Effect for change of 100 psig, [7.0 BAR], (700 kPa).	0.10 [.007] (0.7)	0.20 [.014] (1.4)	0.30 [.021] (2.1)	0.40 [.028] (2.8)	0.50 [.034] (3.4)	0.60 [.041] (4.1)	0.10 [.007] (0.7)	0.10 [.007] (0.7)	0.10 [.007] (0.7)	0.10 [.007] (0.7)	0.10 [.007] (0.7)
Ambient Temperature	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F	-40 to 200 °F
	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C	-40 to 93.3 °C

Materials of Construction

Body & Housing ..... Aluminum  
Trim ..... Zinc Plated Steel, Brass  
Diaphragm ..... Nitrile on Dacron Fabric

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

