WILKERSON®

Richland, Michigan 49083

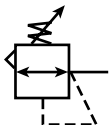
FRL-SIF-602
P17 Series
High Precision Regulator
P19 Series
High Flow Precision Regulator
ISSUED: July, 2004
Supersedes: None

Table of Contents

Regulator Comparison Chart

		High Precision Regulators			Precision Regulator	Standard Regulator
	Examples —>	**P17**	**P17-02-FH0**	**P19**	**P15, P16**	**R18, R28, R39**
Repeatability / Sensitivity	Regulator's ability to return to a set pressure after inducing flow.	0.005 PSIG 1/8" Water Column	0.005 PSIG 1/8" Water Column	0.010 PSIG 1/4" Water Column	0.5 to 1.0 PSIG	2 to 4 PSIG
Reduced Pressure Variation	This refers to the regulator's ability to maintain a consistent output pressure when faced with variables such as time, cycling, temperature, supply pressure, flow, etc.	Best	Best	Better	Good	Average
Input Pressure	Unregulated air pressure going into the regulator	150 PSIG Max.	150 PSIG Max.	250 PSIG Max.	Varies	Varies
Effect of Supply Pressure Variation on Regulated Pressure	Reduced / set pressure variation when input pressure changes by 100 PSIG	0.020 PSIG	0.020 PSIG	0.100 PSIG	4 PSIG	Approx. 3 - 6 PSIG
Reduced Pressure Range	Reduced pressure ranges available	2-40 PSIG 2-120 PSIG	2-120 PSIG	0-2 PSIG 0-30 PSIG 0-60 PSIG 0-150 PSIG	Varies	Varies
Flow Capacity	Regulator's flow capacity	14 SCFM	14 SCFM	80 SCFM	Varies	Varies
Exhaust (Relief) Capacity	Regulator's exhaust/relief flow rating when backpressure is introduced from downstream	3 SCFM	11 SCFM	4 SCFM	Low	Low
Overpressure to Relieve ***Key in cylinder applications**	Regulator's sensitivity to relieve excess downstream pressure over the set pressure.	Best (0.005 PSIG)	Best (0.005 PSIG)	Better (0.010 PSIG)	Good (1 PSIG)	Average (5-10 PSIG)
Constant Bleed	Does the regulator constantly bleed air to the atmosphere to maintain accuracy?	Yes	Yes	Yes	Varies	No
Size Constraints	Overall size of regulator	4.5" H x 2.06" W	4.5" H x 2.06" W	5.5" H x 3" W	Varies	Varies
Mounting Constraints	Mounting options	Panel, Pipe, or Bracket	Panel, Pipe, or Bracket	Panel, Pipe, or Bracket	Panel, Pipe, Bracket, or Modular	Varies
Port Size	Inlet / Outlet port size	1/4"	1/4"	1/4" or 3/8"	Varies	Varies

P17 High Precision Regulator



The P17 are high precision, multi-stage pressure regulators. This pressure controller provides the highest level of regulation accuracy and repeatability available and is ideal for applications that call for the utmost in control and maximum stability under variable operating conditions. A stainless steel measuring capsule is used as a sensing element to activate the high gain servo balanced control mechanism in which the main valve is controlled by a pilot valve. This allows for greater accuracy and eliminates many of the problems associated with conventional regulators using range springs and diaphragms.

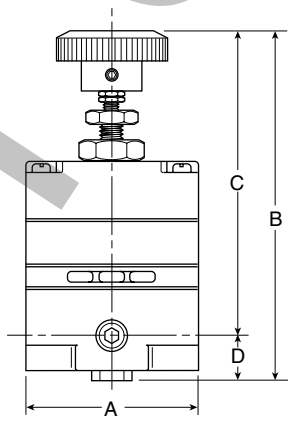
Features

- Accurate Pressure Regulation. Controls Output Pressure to within 0.1% Accuracy.
- Multi-Stage Regulation for Maximum Control and Stability.
- Two Full Flow Gauge Ports.
- Super Sensitive Relief. Downstream Pressure Buildup, Down to 0.005 PSIG Above the Set Pressure, is Automatically Vented through Internal Relief Valve.
- P17-02-FH0 has High Exhaust Relief Capacity.

Applications

The P17 regulators are well suited for any process that requires very precise regulation of air pressure in pipes and vessels. These regulators are often used, but not limited to the following applications:

- Air Gauging
- Gas Mixing
- Calibration Standards
- Air Hoists
- Web Tensioning
- Gate Actuators
- Roll Loading
- Valve Operators
- Cylinder Loading



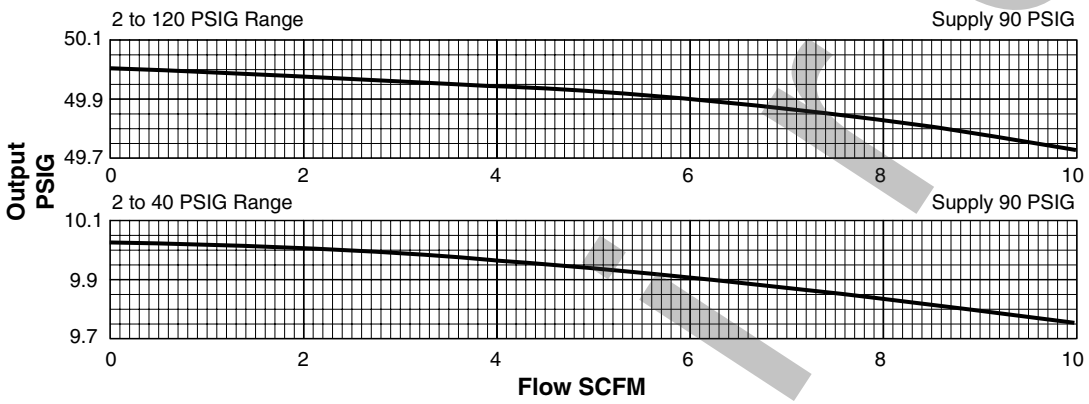
P17 Regulator Dimensions		
A 2.06 52mm	**B** 4.35 110mm	**C** 3.82 97mm
D 0.53 13.5mm		

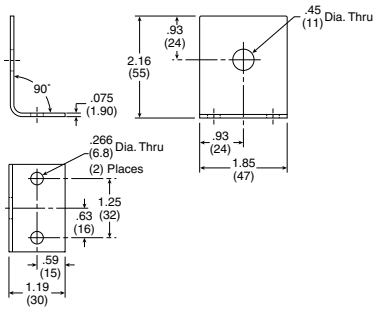
⚠WARNING
Do not connect regulator to bottled gas.
Do not exceed maximum primary pressure rating.
Product rupture can cause serious injury.

Ordering Information

Relieving		Reduced Pressure Range (PSIG)		
		2 to 40	2 to 120	2 to 120 High Relief
In / Out Ports	1/4"	P17-02-B00	P17-02-F00	P17-02-FH0

Technical Information





Mounting Bracket: 446-707-045

P17 Regulator Kits & Accessories

Mounting Bracket Kits

Pipe Mounting SA200YW57
Right Angle Mounting 446-707-045

Service Kits

2-40 PSIG RKR210A*
2-120 PSIG RKR210C*
2-120 PSIG (High Relieving) RKR220C*

* Parts in Kit

Materials of Construction

Adjusting Stem & Capsule ..... Stainless Steel
Body ..... Zinc
Control Knob ..... Plastic
Diaphragm(s) ..... Buna-N
Seals ..... Buna-N
Springs ..... Stainless Steel
Valve Poppet ..... Stainless Steel

Specifications

Constant Bleed Rate ..... Less than 0.08 SCFM (0.15m³/hr)
(Equals Bleed Rate plus other consumption)

Total Air Consumption ..... 6 SCFH (0.21m³/hr.)

Effect of Supply Pressure Variation
of 25 PSIG (1.7 bar) on outlet: ... Less than 0.005 PSIG (0.0003 bar)

Exhaust (Relief) Capacity
At 5 PSIG (0.34 bar) above 20 PSIG (1.38 bar) Setpoint
Standard Model ..... 3 SCFM (3.4m³/hr)
High-Relief Model ..... 11 SCFM (17m³/hr)

Flow Capacity
At 100 PSIG (6.89 bar) Supply,
20 PSIG (1.38 bar) Outlet ..... 14 SCFM (25m³/hr)

Gauge Ports ..... 1/4" NPTF
(Can be used as additional full flow 1/4" outlet ports)

Operating Pressure Range:		**PSIG**	**bar**
PRIMARY – Maximum		150	10.34
SECONDARY – Spring Pressure			
40 PSIG	**Minimum**	2	0.14
	Maximum	40	2.76
120 PSIG	**Minimum**	2	0.14
	Maximum	120	8.27

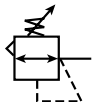
Operating Temperature Range ..... -18°C * to 65°C (0°F* to 150°F)

* Temperatures below 0°C (32°F) require moisture free air.

Repeatability / Sensitivity ..... 0.005 PSIG (0.0003 bar)
Inches of Water Column = 1/8"

Weight ..... 1.4 lb (0.64 kg)

P19 High Flow Precision Regulator



The P19 is designed for applications that require high flow capacity and accurate process control. A poppet 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 air supply in accordance with the flow velocity.

Features

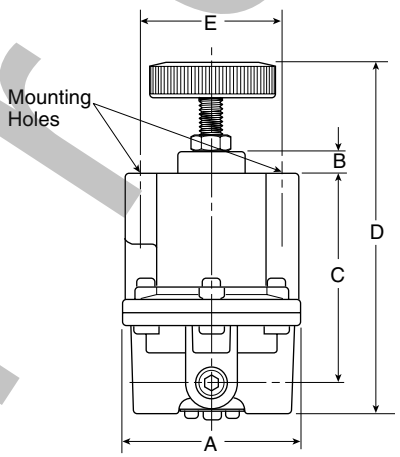
- Adjusting Knob.
- Diaphragm Design for Good Repeatability, Response and Sensitivity.
- Balanced Poppet.
- Two Full Flow Gauge Ports.
- Precise Regulation. Will Sense a Decrease in Downstream Pressure as Small as 1/4" of Water.
- High Fow Capacity. Flows of 80 SCFM Attainable with Minimal Drop.
- Stable Output. Dampening Action of Aspiration Tube makes Regulator Insensitive to Changes in Flow.
- On-line Maintenance. Can be Serviced Without Removal of Air Line.

Applications

The P19 regulators are an ideal choice for any application that calls for accurately maintained output pressure under high flow conditions. This includes, but is not limited to such applications as:

Test Equipment

- Gas Mixing
- Valve Operators
- Positioning Cylinders
- Laboratory Equipment
- Web Tensioning
- Clutch & Brake Controls
- Roll Loading
- Test Panels
- Actuators



P19 Regulator Dimensions		
A 3.00 76mm	**B** 0.38 10mm	**C** 3.40 86mm
D 6.06 154mm	**E** 2.25 57mm	

⚠WARNING

Do not connect regulator to bottled gas.

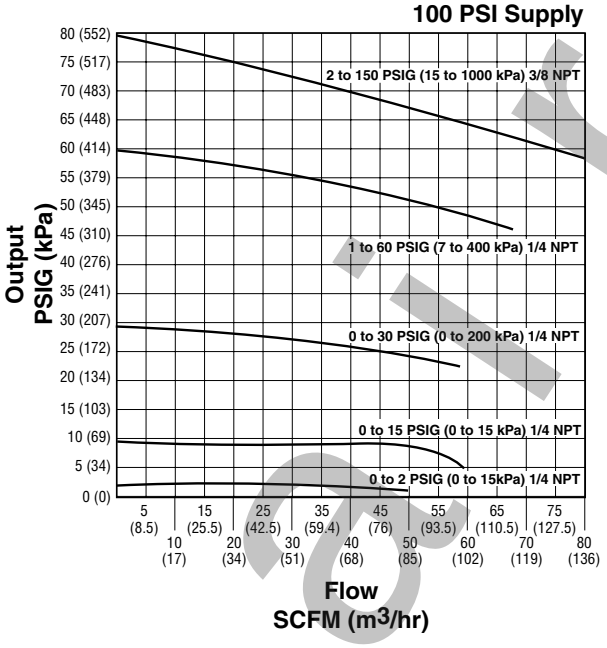
Do not exceed maximum primary pressure rating.

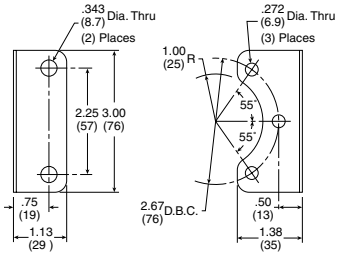
Product rupture can cause serious injury.

Ordering Information

Relieving		Reduced Pressure Range (PSIG)			
		0 to 2	0 to 30	0 to 60	0 to 150
In / Out Ports	1/4"	P19-02-A00	P19-02-C00	P19-02-D00	P19-02-H00
	3/8"	N/A	P19-03-C00	P19-03-D00	P19-03-H00

Technical Information





Mounting Bracket: 446-707-025

P19 Regulator Kits & Accessories

Mounting Bracket Kit 446-707-025

Service Kits – Relieving

0 to 2 PSIG RKR230E
0 to 30 PSIG RKR230B
0 to 60 PSIG RKR230C
0 to 150 PSIG RKR230D

Materials of Construction

Adjusting Stem & Spring ..... Steel
Biased Spring ..... Stainless Steel
Body, Bonnet ..... Aluminum
Control Knob ..... Plastic
Diaphragm ..... Buna-N Elastomer and Polyester Fabric
Seals ..... Buna-N
Valve Poppet ..... Brass
Valve Poppet Seat ..... Buna-N

Specifications

Constant Bleed Rate ..... 1.0 to 12.5 SCFH
(Depending upon output pressure)

Gauge Ports ..... Two Ports 1/4"
(Can be used as additional Full Flow 1/4 Inch Outlet Ports)

Effect of Supply Pressure Variation –
Less than 0.1 PSIG for 100 PSIG (6.89 bar) change

Exhaust (Relief) Capacity –
4 SCFM with downstream pressure 5 PSIG above set pressure.
Exhaust commences at 0.01 PSIG above set pressure.

Flow Capacity –
At 100 PSIG (6.89 bar) Supply,
80 PSIG (5.5 bar) Outlet ..... 80 SCFM (37.8 dm^2/s)

Operating Temperature Range – ..... -40°C to 71°C
(-40°F to 160°F)

Operating Pressure Range –	**PSIG**	**bar**
PRIMARY – Maximum	250	17

Port Threads ..... 1/4"

Exhaust (Relief) Capacity ..... 4.0 SCFM
(Downstream pressure 5PSI above set pressure)

Repeatability / Sensitivity ..... ±0.010 PSIG (±0.00068 bar)
Inches of Water Column = 1/4"

Response ..... 250 ms
The valve will open to full flow and fill a volume of 1250 cm^3

Weight ..... 1lb. 10 oz. (0.74 kg)