

PCV125AL

FILTER-REGULATOR COMBINATION

INSTALLATION, OPERATION AND MAINTENANCE MANUAL



WILLIAMS
MILTON ROY

PCV125AL

FILTER-REGULATOR COMBINATION

OVERVIEW

Williams Instrument Co., Inc. PCV SERIES PRESSURE REGULATOR with filter can be used to provide clean, regulated air or gas pressure to wide range of instrument and controls, including Williams Instrument's chemical metering pumps, pneumatic machinery, instrumentation, controls, & many other pneumatic products.

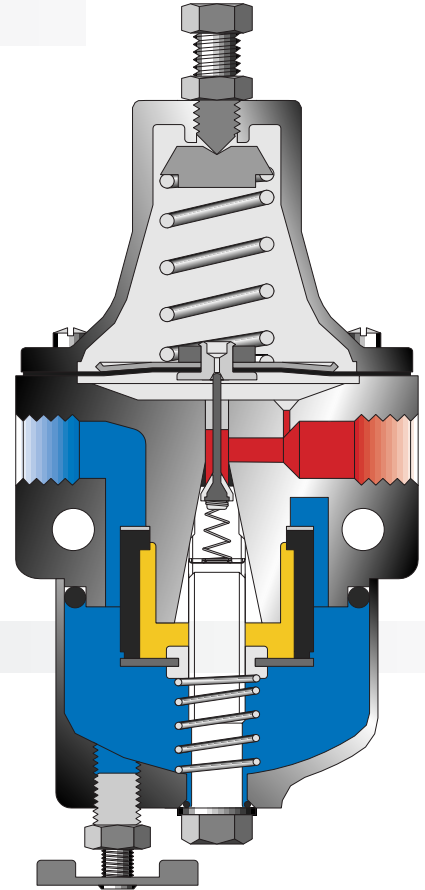
The PCV regulators are constructed of aluminum and have a maximum supply pressure of 250 PSI (1724 kPa). These units come with a 35 micron filter and have a 0-125 PSI (0-862 kPa) regulated pressure range. The adjustment screw has a wrench knob with locking nut. The Williams pressure regulator also includes a 2" Wika pressure gauge with dual scale readings of both PSI and kPa increments, for a variety of applications.

These regulators are designed for reliability with an absolute minimum of maintenance.

PRINCIPLE OF OPERATION

Turning the adjusting screw changes the force exerted by the range spring on the diaphragm assembly. In equilibrium, the force exerted by the range spring is balanced by the force from the output pressure acting underneath the diaphragm assembly.

An unbalance between the output pressure and the set pressure causes a corresponding reaction in the diaphragm and nozzle assemblies. If the output pressure rises above the set pressure, the diaphragm seal is lifted from the plug venting the excess pressure to atmosphere until equilibrium is reached. If the output pressure drops below the set pressure, the unbalanced force from the range spring acts through the diaphragm assembly unseating the nozzle plug. This allows supply pressure to flow through the nozzle to the downstream port increasing the output pressure. The output pressure increases until it balances the force on the diaphragm assembly by the range spring. At equilibrium, the plug assumes a position which supplies the required flow while maintaining the output pressure at the set pressure.



INSTALLATION

CAUTION: Maximum Supply Pressure is 250 PSI (1724 kPa). Unit has three (3) 1/4" NPT connections. The inlet connection is marked "IN" and the outlet connection marked "OUT". The third connection can be used as a gauge connection for the outlet pressure.

All air connections should be checked against leakage. Adjusting screw (1) should be kept well lubricated with grease.

MAINTENANCE

Remove all air supply pressure prior to performing maintenance.

Periodic replacement of the diaphragm assembly and nozzle plug is recommended for services where unit is on stream continuously and where consistent, high accuracy regulation is required. The frequency of replacements will depend on the nature of the service, cleanliness of the air, humidity of the air, etc.

To replace diaphragm assembly (4), loosen adjusting screw until spring tension is relieved, remove six screws (13), and lift off bonnet (5), spring plate (2), spring (3), and diaphragm assembly (4). Place new diaphragm assembly over body (14) and diaphragm plate up, and place spring (3) and spring plate (2) on diaphragm assembly (4). Re-install bonnet (5) and tighten down six screws (13). The six screws (13) should be tightened alternately.

MAINTENANCE (cont.)

To replace nozzle plug (6), remove filter bolt (21), washer (20) and slide off bowl (10). Removal of filter bolt (21) will allow parts (7), (9), (10), (15), (16), (17), (18) and (19) to be freed for removal. Care should be exercised not to misplace plug spring (15) and plug spring retainer (16). Remove nozzle plug (6) and carefully insert new nozzle plug through guide in body (14). Place washer (20) over filter bolt (21) and insert filter bolt through hole in bowl (10). Place filter spring (19) over filter bolt (21) and slide grommet (18) lower filter plate (17)

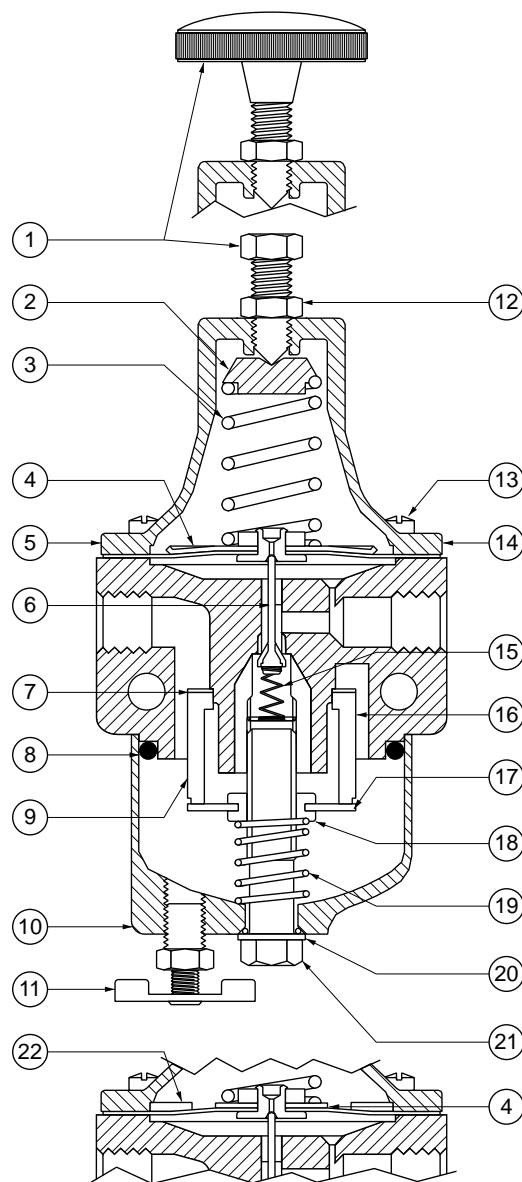
over filter bolt (21). With body upside down, place plug spring (15) and plug spring retainer (16) onto nozzle plug (6). Place upper filter plate (7) and filter (9) onto body (14). Install O-ring (8). Hold bowl assembly firmly against body while tightening the filter bolt. The filter bolt should be torqued lightly (50 in-lbs. maximum). Do not overtighten.

To clean filter, remove filter bolt (21), washer (20) and slide off bowl (10). Filter element (9) may be cleaned by rinsing in a suitable

solvent, and blowing dry with air stream directed on inside of cylinder. At periodic intervals the dripwell should be cleaned by opening draincock (11) while unit is in line under pressure.

When reassembling the Airpak, care should be taken that all joints are gasketed and air-tight. Hand tighten filter bolt (21). If this will not product tight joints around filter bowl, the body O-ring (8) must be replaced.

ITEM NO.	DESCRIPTION	QTY. REQ'D	PCV-125-AL
1	Knob-Wrench Style Handwheel	1	6017750
2	Spring Plate		6017792
3	Range Spring		6385850
	Green 0-25 PSI (0-172 kPa)	1	6017453
	Ren 0-60, 125 PSI (0-414,862 IPa)	1	6385176
4(1)	Diaphragm Assembly		
	KEX_	1	6385087
	KMX_	1	6385485
	0-125 PSI (0-862 kPa) KEX	1	6385094
	0-125 PSI (0-862 kPa) KMX	1	6385543
5	Bonnet	1	6385080
6(1)	Nozzle Plug	1	6385092
7	Upper filter Plate	1	6384465
8(1)	O-ring	1	6077150
9(1)	Filter		
	Cellulose (10 Micron) - Optional	1	6077663
	Polypropylene (35 Micron)	1	6385341
	Stainless Steel (40 Micron)	1	6078216
10	Bowl	1	6385079
11	Draincock	1	6384623
12	Hex Jam Nut	1	6900212
13	Fill. Hd. Screws #8-32 x 5/8" Lg.	6	6900029
14	Body Assembly	1	6385209
15	Plug Spring	1	6385474
16	Plug Spring Retainer	1	6385471
17	Lower Filter Plate	1	6385081
18(1)	Grommet	1	6385083
19	Filter Spring	1	6385082
20(1)	Washer - Delrin	1	6385085
21	Filter bolt	1	6900577
22	Restricting Plate (0-125 PSI (0-862 kPa) only)	1	601487



SPECIFICATIONS

Regulated Output Pressure Range:

0-125 PSI (0-862 kPa)

Maximum Supply Pressure:

250 PSI (1724 kPa)

Flow Capacity:

20 SCFM @ 100 PSI

(0.566 m³/min @ 680 kPa)

Sensitivity:

0.1 PSI (0.689 kPa)

Supply Pressure Effect:

0.3 psi (2.07 kPa) for 25 psi (172 kPa)

Change in supply pressure

Ambient Temperature Range:

-20°F to +150°F (-29°C to +66°C)

Filter Rating:

35 micron (polypropylene)

Pressure Gauge:

2" dual scale (PSI/kPa) Wika gauge

0-160 PSI / 0-1103 kPa

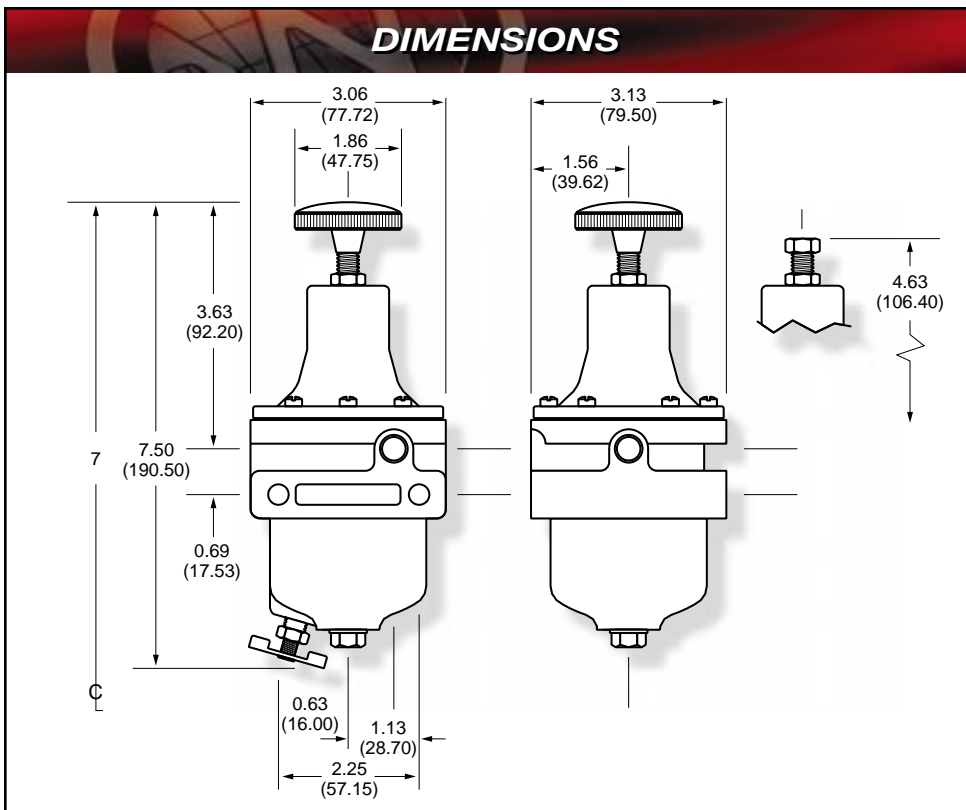
Connections:

1/4" NPT(F) inlet and outlet

Shipping Weight:

2 Lbs

DIMENSIONS



www.williamspumps.com

PENNSYLVANIA: 201 Ivyland Road • Ivyland, PA 18974 USA • (800) 235-3421 • (215) 293-0415 • Fax: (215) 293-0498 • E-mail: info@williamspumps.com

CANADA: 9357 45th Avenue • Edmonton, Alberta T6E 5Z7 Canada • (780) 434-9471 • Fax: (780) 435-6560 • E-mail: edmonton@williamspumps.com

SINGAPORE: 18 Bedok Road South • Singapore 469276 • (65) 242-9182 • Fax: (65) 243-4249 • E-mail: singapore@williamspumps.com