



RG873V

High Pressure Regulator

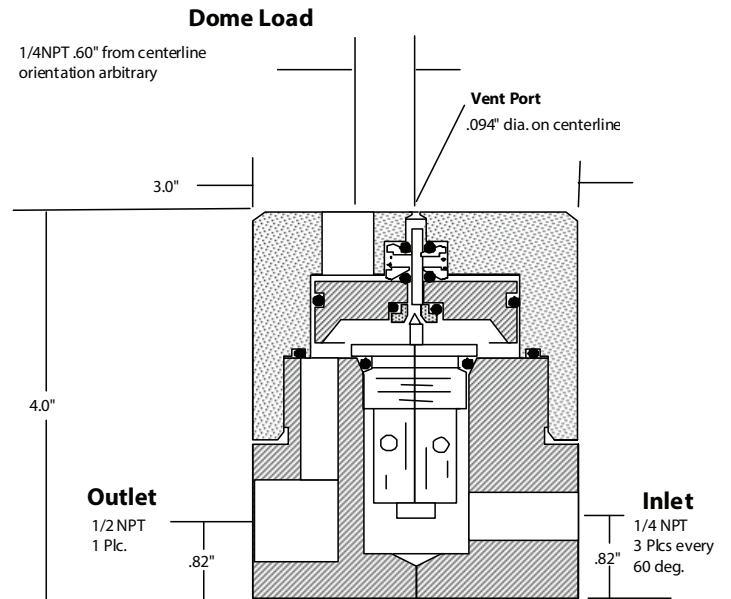
- Precise pressure control
- Up to 1000 psig control with GP or GX series control valves
- Excellent stability
- Relieving capability

Theory of Operation

The model RG873V is a piston-type dome-loading regulator. It uses a balanced poppet design for high flow and minimum effect of inlet pressure on outlet pressure. The poppet assembly is contained in a cartridge with internal filtration for easy in field changing. The regulator is self-venting.

HOW IT WORKS

Outlet pressure is adjusted by applying pressure to the dome port. When reducing the pressure the regulator will self vent via the vent hole near the cap. This is normal. When reducing set pressure, reduce pressure to below the new setting then increase pressure to the new setting. Typically a Proportion-Air electro-pneumatic control valve pilots the regulator with the desired pressure.



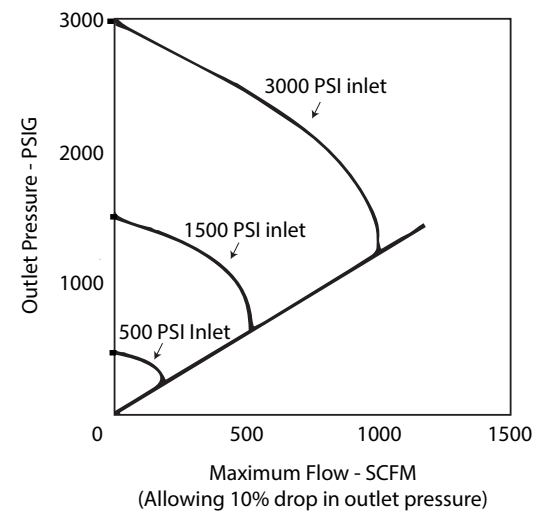
Specifications

Performance

Type	Air piloted, Piston relieving
Maximum inlet pressure	6000 PSI (413.7 bar)
Outlet pressure	0-5000 PSI (344.7 bar)
Forward flow	Max. Cv = 0.8
Exhaust flow	10 SCFM
Accuracy	±2%
Rise of outlet pressure with drop of inlet pressure	3 PSI/1000 PSI

Physical

Body and cap	Aluminum
Internals	Aluminum, brass, stainless
Seals	KEL-F, Viton
Port sizes	2x 1/4" NPT inlet 1x 1/4" NPT outlet 1x 1/2" NPT outlet
Temperature range	32-158 °F (0-70 °C)
Weight	2.8 lbs (1.2kg)



Dimensions

Left view



Center view

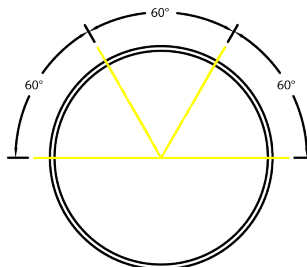
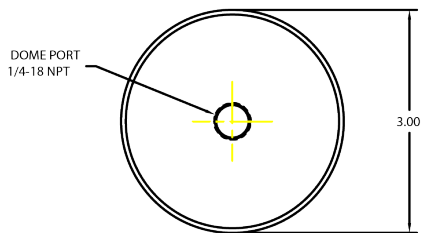
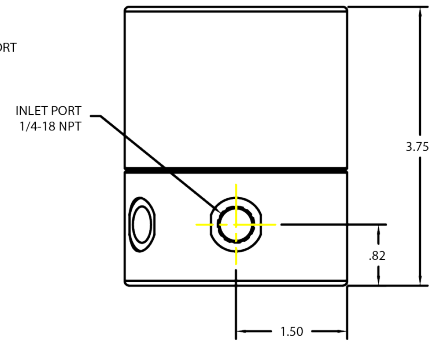
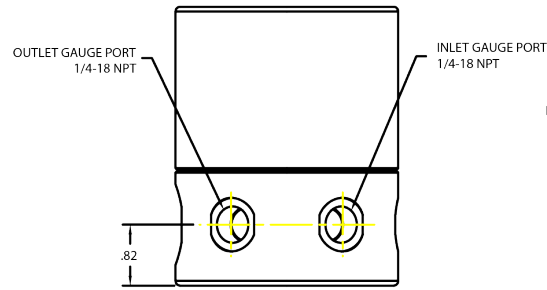
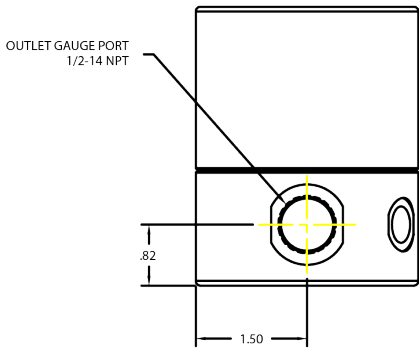


Right view



Outlets

Inlets



NOTES:

1. All measurements are in inches (mm)
2. All dimensions are for reference only

Installation and Operation

INSTALLATION

Use a suitable liquid sealant like Loctite 545 on inlet and outlet threads. Avoid over-torquing pipe thread. Normal torque applied with a 6 or 8 inch long wrench is ample. The inlet is on the left when facing the adjusting knob with the two gage ports upward. The 1/2" port is the outlet. The 1/4" port adjacent to the 1/2" port is the outlet gauge port. The other two 1/4" ports are the inlet and inlet gauge ports. Either of these ports can be used as the inlet. Connect the inlet to the source gas, such as a high pressure storage tank. The outlet is adjusted by dome pressure. *An outlet gauge and relief valve set no higher than rated outlet pressure should be connected to the outlet. A 1/2" NPT size relief valve should be used for full protection. If the inlet pressure can exceed 6000 PSI, a relief valve should also be installed at the inlet to prevent exceeding 6,000 PSI.*

OPERATION

Outlet pressure is adjusted by applying pressure to the dome port. When reducing the pressure the regulator will self-vent via the vent hole near the cap. This is normal. When reducing set pressure, reduce pressure to below the new setting then increase pressure to the new setting. Typically dome pressure is supplied by a small, low flow, hand-loading regulator having the desired pressure range. To avoid possible piston chatter, use .016 to .020 orifice at dome port.

MAINTENANCE

CAUTION As with any regulator or valve, particulates or moisture can plug or freeze the internal filter or valve seat. This can occur when upstream dryers are not changed or remain unused for long periods, allowing corrosive materials to accumulate. In critical applications where it is important not to lose flow, a larger particulate filter should be used upstream. The user should establish time intervals for changing the valve cartridge, filter and upstream dryers based on experience and service conditions. No representation is made herein as to time intervals as each use is unique. Back-up systems should be used in very critical applications since field maintenance is hard to ensure. In all cases the unit can be returned for repair. Maintenance or repairs should only be done by qualified personnel in a clean environment by following the drawings and parts lists herein. If leakage occurs through the regulator or out the regulator vent, allow the inlet and outlet pressure to equalize by shutting off the inlet. If leakage continues after the inlet and outlet equalize the vent seat (Table 1, Item 5) or piston seal (Table 1, Item 15) are leaking, or if leakage stops when the inlet and outlet pressure equalize the poppet cartridge (Table 1, Item 1) is leaking, purchase repair kit H979-DVI.

Repair

NOTES

- Use Dow silicone grease 111 or equivalent on threads.
- Use Christo-Lube MCG 121 on O-rings.
- Use Slick 50 EP grease or equivalent on bearings 11 and 12 and on threads between items 7 and 9.

ASSEMBLY/REASSEMBLY

- Clean all parts and ensure there are no visible chips or particulates.
- Inspect vent seat 5* under 10X magnification at sealing edge. Wipe clean as required.
- Install cartridge 1 with O-ring 15 in housing 2. Torque to 10 to 20 ft lbs.
- Install O-ring 10 on piston 4. Pack heavily with Christo-Lube MCG 121.
- Assemble two O-rings 12, two O-ring retainers 6, and spring 8 on tube 7 as shown.
- Place this assembly into recess in cap 3 as shown then install piston 4 into cap. Insure tube 7 engages in hole of piston 4.
- Install O-ring 12 in cap as shown.
- Lubricate cylinder walls of item 3 and O-ring 10 on piston then install piston 4 as shown into cap 3. Gently slide piston into cap to avoid damage to O-ring 10.
- Install O-ring 11 and seat 5 into piston as shown.
- Screw cap 3 and body 2 together. Hold cap 3 downward so seat 5 does not fall out during assembly. Torque to 10 to 20 ft lbs using a strap wrench or by hand.

*Refers to the item number in Table 1

Table 1		
Item	Qty	Part # and Description
1	1	895 poppet assembly
2	1	893 body
3	1	922-1V cap
4	1	923-1V piston
5	1	946-1 vent seat
6	2	921 seal retainer
7	1	953-1 tube
8	1	876-9D spring
9	1	876-10D O-ring 2-006 Viton 90
10	1	876-11D O-ring 2-131 Viton 90
11	1	876-15 O-ring 2-010 Viton 90
12	2	876-27 O-ring 2-135 Viton 90
13	1	876-16 O-ring 2-020 Viton 90
15	1	876-007D O-ring 2-007 Viton 90 (vented)

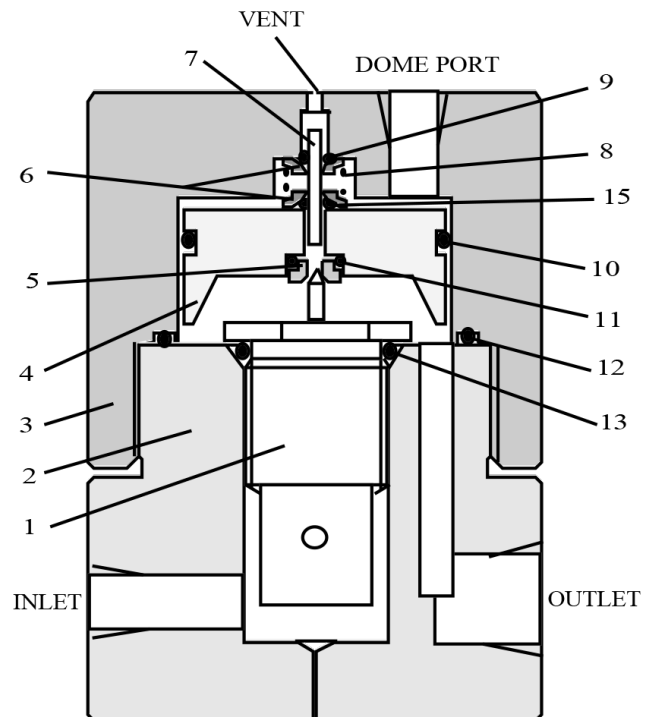


Figure 1

Configuration

RG873V

PRESSURE RANGE	0 to 6,000 PSIG (414 bar)	PORT SIZE	1/4" Inlet, 1/2" Outlet
MAX FLOW	150 SCFM (71 Lit/sec)	RELIEVING CAPABILITY	

Example Part Number	RG873V	4	N
Section Reference ->		1	2

1	Port Size
4	1/2"

2	Thread Type
N	NPT

Repair Kits

H979-DV1	Complete Kit (Includes: 895 poppet assembly, 946-1 vent seat, 876-10D O-ring 2-006 Viton 90, 876-15 O-ring 2-010 Viton 90, 876-27 O-ring 2-135 Viton 90, 876-16 O-ring 2-020 Viton 90)
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SAFETY PRECAUTIONS

Please read the following safety information before installing or operating any Proportion-Air, Inc. equipment or accessories. To confirm safety, observe 'ISO 4414: Pneumatic Fluid Power - General rules relating to systems' and other safety practices.

WARNING

Improper operation could result in serious injury or loss of life!

1. PRODUCT COMPATIBILITY

Proportion-Air, Inc. products and accessories are for use in industrial pneumatic applications with compressed air media. The compatibility of the equipment is the responsibility of the end user. Product performance and safety are the responsibility of the person who determined the compatibility of the system. Also, this person is responsible for continuously reviewing the suitability of the products specified for the system, referencing the latest catalog, installation manual, Safety Precautions and all materials related to the product.

2. EMERGENCY SHUTOFF

Proportion, Inc. products cannot be used as an emergency shutoff. A redundant safety system should be installed in the system to prevent serious injury or loss of life.

3. EXPLOSIVE ATMOSPHERES

Products and equipment should not be used where harmful, corrosive or explosive materials or gases are present. Unless certified, Proportion-Air, Inc. products cannot be used with flammable gases or in hazardous environments.

4. AIR QUALITY

Clean, dry air is not required for Proportion-Air, Inc. products. However, a 40 micron particulate filter is recommended to prevent solid contamination from entering the product.

5. TEMPERATURE

Products should be used with a media and ambient environment inside of the specified temperature range of 32°F to 158°F. Consult factory for expanded temperature ranges.

6. OPERATION

Only trained and certified personnel should operate electronic and pneumatic machinery and equipment. Electronics and pneumatics are very dangerous when handled incorrectly. All industry standard safety guidelines should be observed.

7. SERVICE AND MAINTENANCE

Service and maintenance of machinery and equipment should only be handled by trained and experienced operators. Inspection should only be performed after safety has been confirmed. Ensure all supply pressure has been exhausted and residual energy (compressed gas, springs, gravity, etc.) has been released in the entire system prior to removing equipment for service or maintenance.

CAUTION

Improper operation could result in serious injury to people or damage to equipment!

1. PNEUMATIC CONNECTION

All pipes, pneumatic hose and tubing should be free of all contamination, debris and chips prior to installation. Flush pipes with compressed air to remove any loose particles.

2. THREAD SEALANT

To prevent product contamination, thread tape is not recommended. Instead, a non-migrating thread sealant is recommended for installation. Apply sealant a couple threads from the end of the pipe thread to prevent contamination.

3. ELECTRICAL CONNECTION

To prevent electronic damage, all electrical specifications should be reviewed and all electrical connections should be verified prior to operation.

EXEMPTION FROM LIABILITY

1. Proportion-Air, Inc. is exempted from any damages resulting from any operations not contained within the catalogs and/or instruction manuals and operations outside the range of its product specifications.

2. Proportion-Air, Inc. is exempted from any damage or loss whatsoever caused by malfunctions of its products when combined with other devices or software.

3. Proportion-Air, Inc. and its employees shall be exempted from any damage or loss resulting from earthquakes, fire, third person actions, accidents, intentional or unintentional operator error, product misapplication or irregular operating conditions.

4. Proportion-Air, Inc. and its employees shall be exempted from any damage or loss, either direct or indirect, including consequential damage or loss, claims, proceedings, demands, costs, expenses, judgments, awards, loss of profits or loss of chance and any other liability whatsoever including legal expenses and costs, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.

WARRANTY

Proportion-Air, Inc. products are warranted to the original purchaser only against defects in material or workmanship for eighteen (18) months from the date of manufacture. The extent of Proportion-Air's liability under this warranty is limited to repair or replacement of the defective unit at Proportion-Air's option. Proportion-Air shall have no liability under this warranty where improper installation or filtration occurred.



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Handcrafted in the USA
ISO 9001-2015 Certified