

INSTRUCTION MANUAL

VACUUM CALIBRATION PUMP MODEL PGV



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1 SPECIFICATIONS

Weight		0.34 kg	0.75 lb
Dimensions	Diameter	35 mm	approx. 1.4"
	Length, min	230 mm	approx. 9.1"
	Length, max	322 mm	approx. 12.7"
Pressure range*		0 to -0.95 bar	0 to -13.7 psi
Pressure media	Clean air or other gas not harmful for the materials in the measuring system.		
Output connector	R 1/8" 60° female connector for the pressure measurement hose		

* The lowest possible vacuum pressure is a function of the atmospheric pressure. The specified lowest vacuum pressure is reached during normal atmospheric pressure (approx. 1 bar).

2 DESCRIPTION

The **PGV** vacuum calibration pump is designed to manually generate up to -0.95 bar (-13.7 psi) of vacuum pressure for quick and accurate calibration of vacuum pressure instruments.

2.1 Standard Accessories

The standard accessories are as follows:

- * Service seal kit for **PGV**.
- * Opening tool.
- * R 1/8" 60° female to 1/4" NPT male for connecting the pressure measurement hose to the instrument to be calibrated.
- * Warranty card.
- * This instruction manual.

2.2 Optional Accessories

The optional accessories are as follows:

Order Code

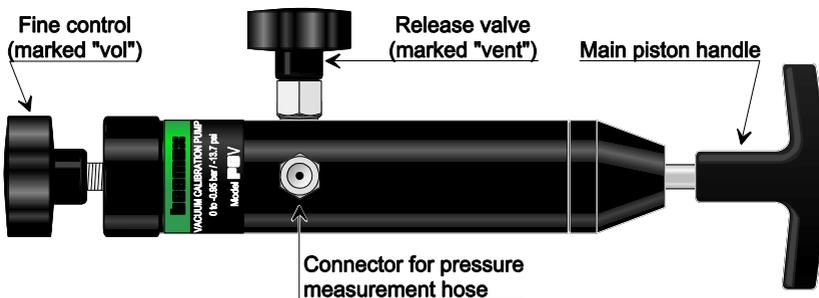
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| * Service seal kit for PGV . | 8003440 |
| * A pressure tubing set. | 8009435 |

3 OPERATION

READ THE WARNINGS PRESENTED IN THIS MANUAL BEFORE OPERATING THE VACUUM CALIBRATION PUMP.

1. Connect the instrument to be tested to the pressure measurement hose and attach it to the pump. Be sure that all connectors in the measuring system are connected to an instrument or properly plugged to avoid leakage.
2. In normal use: Adjust the fine control to mid-travel.
When aiming for the highest possible vacuum: First minimize the volume by turning the fine control fully clockwise. When the Main piston no longer increases the vacuum, turn the fine control fully counterclockwise.
3. Ensure the pressure release valve is closed (turn fully clockwise).
4. Create a vacuum by operating the main piston handle. Adjust pressure to required value using the fine control.
5. To release the vacuum open the release valve slightly.
The release valve need not be opened fully in order to release the vacuum. The release valve shaft will loosen from the **PGV** body if the valve is rotated too much.

NOTE: Careful use of the release valve and fine control enables a controlled release of pressure, essential for calibration purposes.



Note! Sealant glue is used in the threads of the connector for the pressure measurement hose and the release valve connector. Removing these parts from the pump body may result in leakage or even damage to the pump body. Opening the connections voids the warranty

4 TROUBLESHOOTING/MAINTENANCE

If the pump assembly fails to indicate vacuum after considerable pumping action of the handle, the following items should be examined:

- Check to assure that the connections between the pump, the hose end and the attached instrument(s) are tight and repeat items 3 and 4 in chapter **3 Operation**. Check to assure that all the unused connectors in the measuring system are properly plugged.

If a vacuum still cannot be obtained, it's possible that one or more of the seals in the vacuum calibration pump is leaking and needs to be replaced.

4.1 Seal Replacement

Depending on the frequency of use, the Main Piston Seal (and others) will eventually need replacing. Although the replacement seals are an optional accessory, the same instructions for fitting the seals are included in this manual as in the replacement package.

Do not scratch the cylinder surfaces when opening PGV.

4.1.1 Main Piston Seal

Unscrew the conical end of **PGV**. If necessary, use the opening tool provided.

Pull out the main piston and remove the old piston seal. Fit the new piston seal. Reassemble.

4.1.2 Fine Control Seal

Unscrew the flat end of **PGV** by hand. No tools are required.

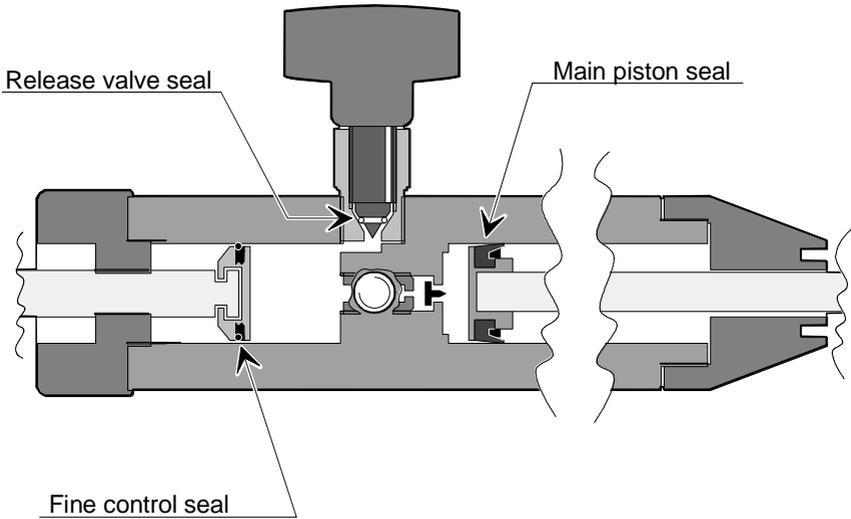
Pull out the fine control piston and remove the old piston seal. Be careful not to lose the piston, because it is not fixed to the piston rod. Fit new piston seal (o-ring).

Lightly grease the piston seal using silicone grease. Reassemble.

4.1.3 Release Valve Seal

Remove the release valve shaft from the **PGV** body by rotating the release valve counterclockwise.

Fit new piston seal (o-ring). Reassemble.



NOTE! Using PGV with seals not supplied by Beamex is at your own risk. The warranty is no longer valid when using other seals than the ones supplied by Beamex.

Opening the check valve assembly voids the warranty.

4.2 Leak test

The leak test information given here help users to confirm that the pump works as it should. Read also notes on the next page.

Leak test procedure

To perform the leak test procedure, you need a calibrator with a pressure measurement module capable of vacuum pressure measurement and a pressure measurement T-hose. Connect the T-hose to **PGV** and into the module in the calibrator. Either plug the hose's third connector or connect it to another applicable pressure measurement module/device.

Close **PGV**'s vent valve and pull the main piston handle fully out. Then push it slowly back. The vacuum should be at around **-450 mbar*** (approx. -6.5 psi). Use the fine control to increase the vacuum to around **-500 mbar** (approx. -7.3 psi).

Write down the measured pressure _____

Wait for thirty (30) seconds and write down the pressure reading again _____

If the measurements differ more than **2 mbar** (approx. 0.03 psi), either the pump or the measurement system (hose and calibrator connection) leaks.

* The exact pressure values do not matter as it is the difference in pressure readings we are interested in.
This test should be done in normal room temperature while the atmospheric pressure is "normal" (approx. 1000 mbar / 14.5 psi).

5. WARNINGS

Read the instruction manual carefully prior to setting up and using the vacuum calibration pump.

Only personnel with good experience and knowledge of pressure media are allowed to work with the vacuum calibration pump. Incorrect use may result in damage to the pump, the instrument connected to the pump and/or personal injury.

Ensure that all connections are made correctly and that the hose and the connectors are intact. Use hand tightening only when doing the connections.

Do not use faulty hoses or connectors.

Do not connect the pump to a pressure source.

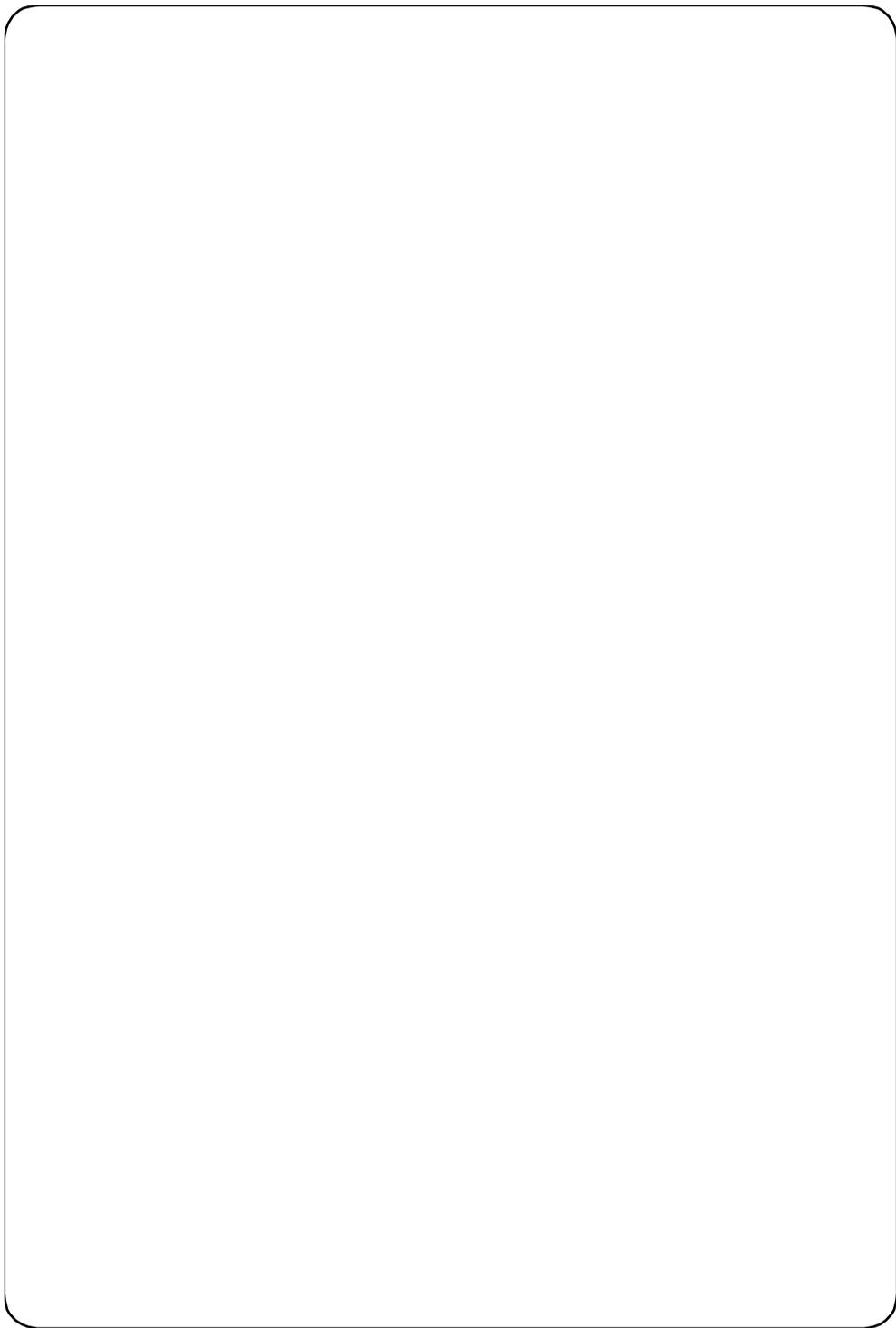
Use only the measuring hose provided by Beamex.

Use only the connectors provided with the pump. Impurities from wrong materials may plug the pump.

Notes.

Decreasing the pressure lowers the temperature of the air in the measurement system. The faster you pump the more significant the decrease in temperature. When you stop pumping, the air in the measurement system slowly warms up again. This results in unwanted pressure change.

We recommend that the pumping is done with moderate speed to allow the temperature changes time to stabilize. When required pressure is reached, wait a while to see if there are any alterations in pressure due to temperature changes. Wait time depends on the temperature increase and the measurement system. Then adjust the pressure to required level.



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