

OPERATION AND CONNECTION INSTRUCTIONS FOR THE PG-03 PLUS - GAS BOOSTER

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0. Operator Qualifications and Responsibility

Working with pressure equipment such as the PG-03 PLUS gas booster requires appropriate training and certification.

According to the requirements of the Polish Office of Technical Inspection (UDT) and similar regulatory authorities in other countries, operators and maintenance personnel must hold valid qualification certificates, confirming:

Practical ability to operate the equipment,

Knowledge of technical supervision regulations,

Familiarity with relevant norms and legal standards.

Scuba Service s.c. assumes no responsibility for any damage resulting from the use of the PG-03 PLUS by unqualified persons or by those who disregard applicable safety regulations and legal requirements.

1. Device Installation

Mount the booster on a stable, flat surface (e.g. a workbench or wall) using two M8 bolts.

The installation area must be dry, well-ventilated, and protected from dust and unauthorized access.

Ensure free access to all valves, fittings, controls, and the DOUBLE-ACTING SUPPLY selector valve (PG-03 PLUS).

2. Connecting Air Supply

Use a dual-valve cylinder or compressor as the compressed air source.

Connect a pressure regulator to one valve on the cylinder – this controls the input pressure to the booster.

From the regulator outlet, run an air hose to the booster.

IMPORTANT:

The hose must be connected to the port on the booster marked AIR ONLY.

This port is exclusively for compressed air supply and must not be used with any other medium.

Approved hose types:

Polyamide (PA) hose Ø8 mm, e.g., PA12 8x1 mm,

Reinforced hose (polyurethane with textile or steel braid) – with 8 mm outer diameter.

Technical requirements:

Minimum working pressure: 10 bar (recommended: 12–16 bar),

Temperature resistance: -20°C to +60°C,

Suitable for pneumatic installations.

Avoid sharp bends, mechanical damage, and heat exposure.

3. High-Pressure Side Connections

Source cylinder (gas): connect to the high-pressure inlet on the booster using a high-pressure hose with a pressure gauge.

Filling cylinder: connect to the high-pressure outlet on the booster using a high-pressure hose with a gauge.

Both gauges should allow safe and accurate monitoring of pressure during the process.

4. Startup Procedure

Check cylinder pressures:

If the filling cylinder has lower pressure than the source cylinder, proceed to the next step.

Equalize pressure (if needed):

Slowly open the valve on the filling cylinder, then the valve on the source cylinder.

Monitor pressure rise – do not exceed 10 bar/minute.

Start the booster:

Open the valve on the air supply cylinder.

Set the air regulator to 10 bar.

Open the shut-off valve – the booster will start automatically.

Then fully open the valve on the source gas cylinder.

4.1 DOUBLE-ACTING SUPPLY Valve – PG-03 PLUS only

The PG-03 PLUS model is equipped with a selector valve marked

DOUBLE-ACTING SUPPLY – ON / OFF, allowing the actuator supply mode to be changed.

OFF position (standard operation):

The actuator operates in mixed double-acting mode:

– upward piston movement is driven by compressed air,

– downward piston movement is driven by the gas taken from the source cylinder.

This is the default operating mode and corresponds to the standard PG-03 booster.

ON position (DOUBLE-ACTING SUPPLY):

The actuator operates in both directions using compressed drive air only.

The gas from the source cylinder does not participate in piston movement.

This mode allows nearly complete extraction of gas from the source cylinder and should be used only during the final stage of gas transfer.

5. Shutdown and Disconnection Procedure

Once the desired pressure is reached:

Close the shut-off valve on the air regulator – the booster will stop.

Close the valves on the source and filling cylinders.

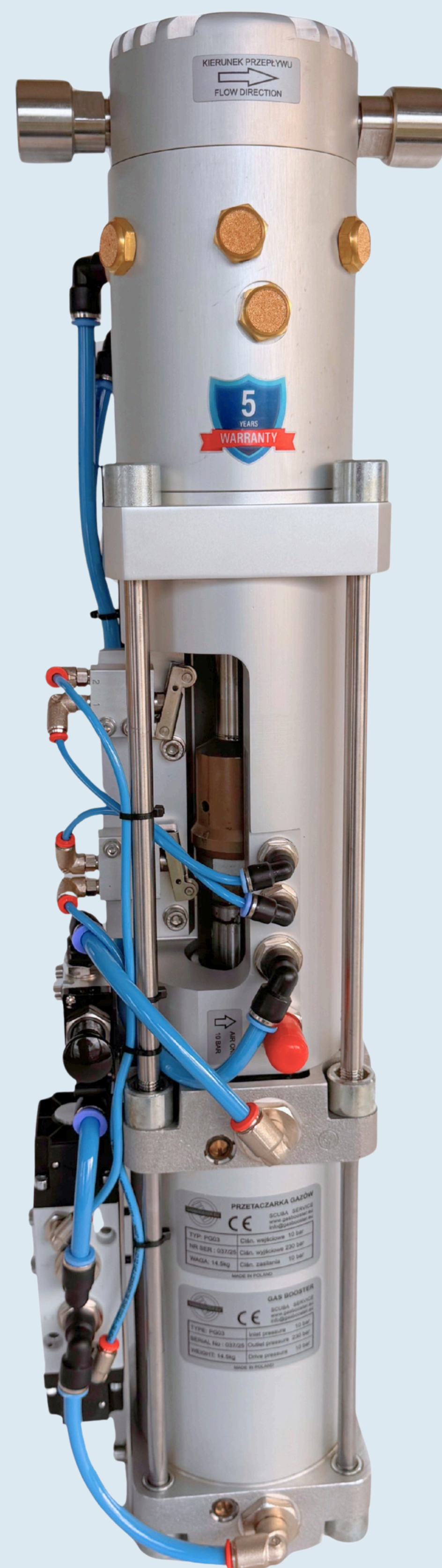
Disconnect hoses:

Carefully disconnect the filling cylinder.

Check the system for leaks.

If the filling cylinder has higher pressure than the source cylinder:

Fully open both cylinder valves and start the booster – the device will transfer gas until the target pressure is reached.



6. General Notes

Booster performance is specified in the test sheet provided with the unit.

Every PG-03 PLUS booster should meet the technical values defined by the manufacturer.

The booster is not suitable for nitrogen service.

Regularly inspect hoses, fittings, and overall system integrity.

The PG-03 PLUS model is additionally equipped with a DOUBLE-ACTING SUPPLY selector valve, allowing the actuator to operate using compressed drive air in both directions during the final stage of gas transfer.

7. Oxygen Filling – Safety Guidelines

7.1. Warning

Oxygen under pressure poses a serious risk of fire and explosion. Even trace amounts of oil or grease can cause ignition.

The PG-03 PLUS can only be used for oxygen service if:

It is explicitly marked as oxygen-compatible,

It has been cleaned according to “oxygen clean” standards.

7.2. Requirements

All system components must be:

Oxygen clean,

Marked as oxygen compatible.

Only needle valves may be used in oxygen systems.

Ball valves are strictly prohibited – their operation may generate heat and friction, leading to fire.

The oxygen filling station must be:

Well-ventilated,

Free from open flames or ignition sources,

Clearly marked with warning signs.

Personal protective equipment:

Safety goggles,

Cotton or nitrile gloves,

Clean clothing free from grease or oil.

7.3. Procedure

Open all valves very slowly to prevent adiabatic compression.

Monitor pressure – do not exceed 10 bar/min.

Never leave the filling process unattended.

7.4. Prohibited actions

Do not use ball valves.

Do not apply technical oils, greases, or lubricants.

Do not touch components without confirming cleanliness.

Do not use cylinders with expired or missing certifications.

Do not operate in unventilated rooms.

7.5. After filling

Close all valves in proper sequence.

Disconnect hoses.

Check for leaks.

Record the fill in logbooks if required by internal procedures.

8. Additional Information

Manufacturer: Scuba Service s.c.

Address: ul. Stoczniewców 9, 03-982 Warsaw, Poland

Phone: +48 662 007 430

Website: www.gasbooster.eu

All technical data, product cards, performance tests, and compliance declarations are available on the manufacturer's website.

