

Laser gas bottle:

7.4

For the operation of CO₂ slab lasers by ROFIN-SINAR a Premix laser gas is used. The Premix laser gas contains, among other gases, a 6 percent volume of CO - gas (Carbon monoxide). The laser gas bottle contains 1500 NI (NI = standard liters) Premix laser gas on delivery. 6 percent of this is CO, that is 90 NI.

CO gas in high concentrations represents a potential hazard.

The other components of the Premix laser gas (94 %) are helium (He), nitrogen (N), carbon dioxide (CO₂) and xenon (Xe). These gases do not represent a potential hazard.

To fill the vacuum vessel of the laser, 7 NI of Premix laser gas are required. CO represents < 0.5 NI of this. Before a refill is done, the laser gas is blown out of the vacuum vessel into the ambient air of the workroom.

Refer to the rules and regulations of your country regarding physical and biological limit values of CO in the ambient air.

Operators of a CO₂ slab laser are obliged to acquaint themselves with potential hazards by considering the conditions on site and taking necessary precautions.

Have a good ventilation in your work space and do not vent or open the laser gas bottle!



Pressure in the laser gas bottle - Check:

7.4.1

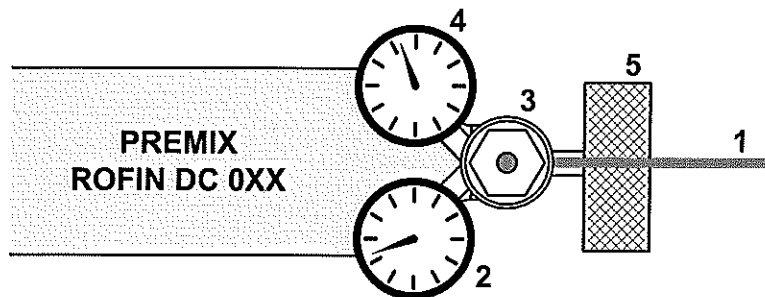


Fig. 7.4.1/1:

- 1 Stainless steel tube to the vacuum vessel
- 2 Display for pressure in the laser gas bottle (high pressure)
- 3 Pressure reducer
- 4 Display for laser gas pressure to the vacuum vessel (low pressure)
- 5 Laser gas bottle valve

— Check 1 x per week - Pressure in the laser gas bottle:

- If the pressure in the laser gas bottle is < 30 bars, a new laser gas bottle should be ordered.
- If the pressure in the laser gas bottle is < 30 bars, a warning signal will be displayed on the display of the Controller Terminal (optional). You should now order a new laser gas bottle.

The exact order description is: **PREMIX ROFIN DC 0XX** (see section 7.4.3 — laser gas bottle - order)

— Check (tightness) after the Laser Gas Bottle Change:

Make **absolutely** certain to check that the screws are tight after exchanging the laser gas bottle according to section 7.4.2!

- Switch off the high voltage with push button **S3** (High voltage **OFF**).
 - Open the right - hand side (when looking in the direction of the laser beam) of the plastic laser housing.
 - Close the laser gas cylinder valve.
 - Read the pressure in the laser gas cylinder on the pressure display (2) or in the Service / Report menu (optional). Make a note of the value.
 - Close the right - hand side of the plastic laser housing.
- Note: the laser can continue to be operated.**
- The normal pressure loss is 0.5 bars / hour.
 - Read the pressure in the laser gas cylinder on the display (2) (e.g. after 10 hours = 5 bars). If the pressure loss is > 5 bars there is a leak in the system!

Retighten all the screws which were loosened during the laser gas bottle change.

Recheck again for tightness.

Laser gas bottle - Change:

7.4.2

Laser gas bottle - Change when the laser gas pressure < 10 bars:

- Switch the laser off (section 5.2.3).
- Close the valve of the laser gas bottle.
- Unscrew and remove the pressure reducer (3) (Fig. 7.4.1/1) from the laser gas bottle.
- Secure the laser gas bottle with the protective cap.
- Untighten the clamp holding the laser gas bottle and lift the laser gas bottle out of the laser housing.
- Place the new laser gas bottle into the laser housing. Refasten the clamp for the laser gas bottle.

Mounting the pressure reducer:

- Remount the pressure reducer (3) (Fig. 7.4.1/1) onto the laser gas bottle.
- **After mounting the pressure reducer:**
 - Press pushbutton F2 "GAS CHANGE" in the Service / Report Menu to remove any impurities. Effect this procedure twice.

Note: If the screw connections between the laser gas bottle and the pressure reducer are not tight laser gas will escape into the surrounding atmosphere!

- Check for tightness according to section 7.4.1.

Order at one of the following suppliers or at an suitable sales department in your country:

Delivery into the USA, Canada und Mexico *:

*For DC 0XX lasers installed in the USA, Canada and Mexico, laser gas must be supplied by RS Inc. Use of laser gas not supplied by RS Inc. will void all warranties on the laser.

ROFIN-SINAR Inc.

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www.rofin.com

T: +1-734-456-3100
parts@rofin-inc.com

Delivery into all other countries:

Air Liquide Deutschland GmbH

Frank Dimmers
www.airliquide-deutschland.com

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