

5. Operation and maintenance

5.1 Pressure regulators have always to be protected from damage (visual inspection in regular intervals).

- ⚠ 5.2 The adjustment of the relief valve (4) may not be modified.
- 5.3 Pay attention to a good status of seals, sealing surfaces and pressure gauges.
- ⚠ 5.4 In case of malfunctions, e. g. an increase in the outlet pressure during the supply, or in case of leakage versus atmosphere or a defect pressure gauge, shut down the upstream gas supply and take the pressure regulator out of operation.

6. Shut-down

6.1 For longer interruptions or end of work:
Close the gas cylinder valve (1) first by releasing of the hand knob (6), to depressurize the cylinder pressure regulator.

- ⚠ 6.2 Before disassembling pay attention that pressure gauges (3) and (5) display zero.

7. Repair

7.1 Repairs may only be carried out in authorized repair workshops by expert persons.

7.2 Only original spare parts must be used. The materials have been adapted to the gas type in each instance. So always specify the gas type

7.3 In case of independent repairs, the use of non-original spare parts or changes on the side of the user or a third party without the approval of the manufacturer, any form of liability for resulting damages will expire as well as the manufacturers warranty.

7.4 After being repaired, the pressure regulator must be checked with respect to proper function, leak-tightness and cleanliness of the gas-wetted surfaces. When the system is used again, a sufficient purging operation must be carried out first.

Instructions for use

FM-CR 61

FM-CR 62

Pressure regulator for gas cylinder

spectro.com

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FM-CR 61/62

1. Application

1.1 Designated use

Use the pressure regulator FM-CR 61/62 for gases dissolved under pressure, compressed gases or liquefied gases. The pressure regulator FM-CR 61/62 reduces an inlet pressure to an as constant as possible outlet pressure.

1.2 Non-designated use

Do not use the pressure regulator for gases in the liquid phase.

Do not use unsuitable gas types or corrosive gases.

Do not use at temperatures below -30°C or above +60°C.

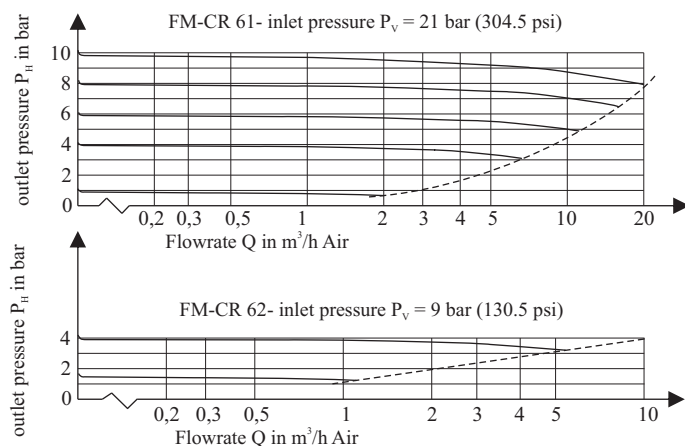


The system has to be used according to these instructions for use and especially the safety instructions!

1.3 Technical data

For other gas types this flow rate will be multiplied with the following factors:

| | |
|----------|------|
| Oxygen | 0,95 |
| Nitrogen | 1,02 |
| Hydrogen | 3,81 |



The pressure regulator FM-CR 61/62 conforms to the latest standard DIN/EN/ISO 2503. For special versions, this standard is taken into account as appropriate.

2. Safety instructions

- 2.1 All items of information marked ▲ are valid as special safety instructions.
- 2.2 These pressure regulators adhere to state-of-the-art technology and to the demands of the existing standards and regulations.
- 2.3 Changes or modifications are not allowed to be made to the pressure regulator without the prior consent of the manufacturer.
- 2.4 The result of improper handling and improper use as intended can involve risks for the user and other persons as well as damage to the device.
- 2.5 The equipment must be operated by suitable trained personnel only.
- 2.6 Regulations to be adhered to:
 - BGV A1 (VBG 1), "General specifications"
 - BGV B6 (VBG 61), "Gases"
 - BGV B7 (VBG 62), "Oxygen"
 - Guidelines for Laboratories (Zh 1/119)

▲ **Special attention has to be paid to the country specific laws, regulations and procedures concerning the use of this type of equipment.**

- 2.7 Use only for gas types the pressure regulator is labelled for (see item 3).
- 2.8 Do not use at temperatures below -30°C or above $+60^{\circ}\text{C}$.
- 2.9 The valve has always to be opened slowly!
- 2.10 All parts coming into contact with oxygen must be kept in oil-free and grease-free condition.

Fire or explosion hazard!

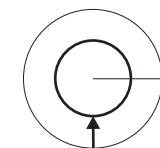
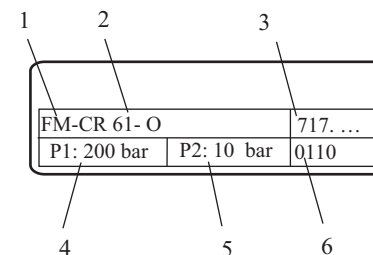
- 2.11 Smoking or open fire (e.g. candles) in the vicinity of the gas supply system is strictly prohibited.

Fire and explosion hazard!

- 2.12 Protect gas cylinders against falling.
- 2.13 No adapters must be used between the gas cylinder valve and the pressure regulator.

3. Labelling

Nameplate



Inspection stamp confirming successfully completed test

- 1 FM-CR 61- single stage
FM-CR 62- two stage
- 2 Gas type
- 3 Article no.
- 4 Max. inlet pressure
- 6 Date of manufacture

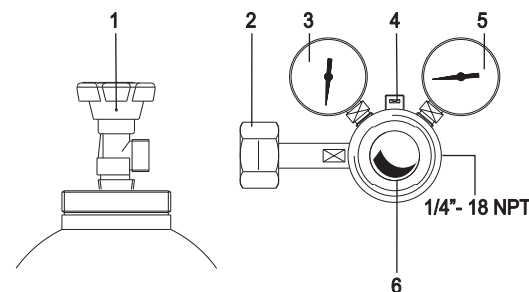
| Gastype | Index letter |
|--------------------|--------------|
| Oxygen | O |
| Hydrogen mixture | H |
| Compressed-air | D |
| Nitrogen noble gas | N |

4. Start-up

- 4.1 Before starting read the specifications of this instruction for use and observe it while working.
- 4.2 Check, that the cylinder valve thread, pressure regulator, connector and connection seals are without any damage (blow slightly if necessary).



In case of a damage, the cylinder pressure regulator must not be connected.



- 1 Cylinder valve to DIN 477 or the relevant national standard
2. Regulator connection to DIN 477 or the relevant national standard
3. High-pressure gauge
4. Relief valve
5. Low-pressure gauge
6. Hand knob

- 4.3 Connect the pressure regulator to the closed gas cylinder valve (1). Tighten gas-tight with a suitable spanner.
- 4.4 Carry out the connections between the cylinder pressure regulator and the point of use. Never allow cylinder pressure regulator to regulate into the open atmosphere. Wind PTFE tape (Art. No. 0321422) clockwise around NPT-screwed connections (5 to 10 turns). In case of flammable and toxic gases attach a relief line to the relief valve (4) and ensure a safety gas discharge. Check all connections for leaks.
- 4.5 Release the pressure regulator spring with the hand knob (6) - open the cylinder valve (1) (High pressure gauge 3 indicates the cylinder pressure) and adjust the required outlet pressure with the hand knob (6) - Adjust the required outlet pressure with hand knob (6). Correct the pressure setting in case of a decrease of pressure.