

13. Trouble Shooting

Failure	Possible Reason	Elimination
Pressure manometer (2) does not display	Cylinder valve is not open Cylinder is empty	Open the valve Connect new cylinder
	Mechanical damage	Service
Safety (blowdown) valve (7) responds	Disturbance in the control system	Close the cylinder valve Service
Leakage at the nut (1) between valve and pressure regulator	Sealing ring is damaged or missing	Service
Pressure regulator can not be solved by hand	Remaining pressure between cylinder valve and pressure regulator	See chapter 7. Pressure release
Mechanical damage		Service
Other problems or malfunctions		Service

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Operation Manual/ Technical Information

(Read carefully before use!)

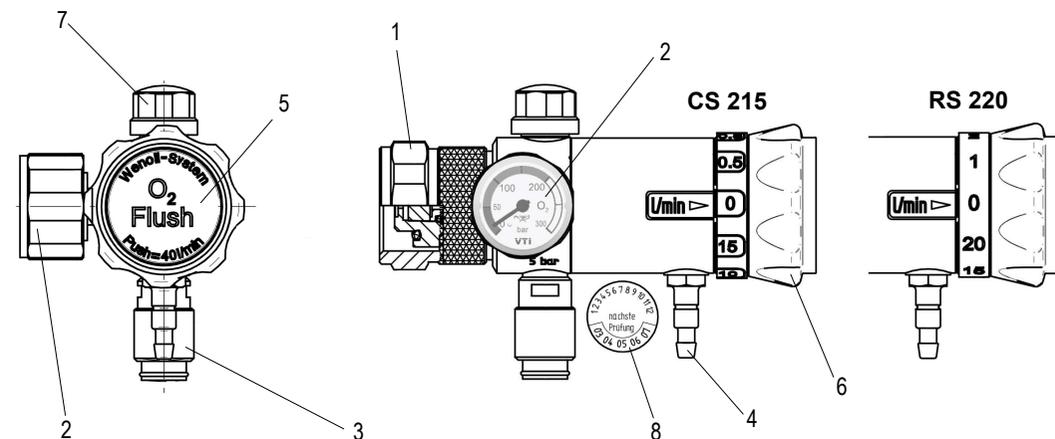
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Pressure Regulator

CS 215 and RS 220

for med. O₂ / 200 bar

CE
0482



1. General Information

This pressure regulator for med O₂ was prepared with great care. Misuse, e.g. use of force or dropping can cause interference on the pressure display or to the flow setting. In particular, by the use of oxygen careful handling is required. Therefore, knowledge of and compliance with all instructions contained in this documentation represent the prerequisite for the product's safe operation.

In the event of malfunctions - if they can not be solved on your own - is to inform the customer service (see "Trouble Shooting"- Chapter 13).

2. Application purpose

The pressure regulator is designed for the application of medical oxygen in case of emergency and for the treatment of patients.

3. Product description

This single-stage pressure regulator is certified according to DIN EN ISO 10524-1 and has a medium-pressure outlet, 5 bar, with self-sealing quick connection (3) and a constant flow outlet with a two-stage hose barb with 4 / 6 mm diameter (4). The maximum flow capacity of the medium-pressure outlet is 120 l/min. The constant flow through a pinhole is gradually established as follows:

Scaling CS 215: 0 | 0,5 | 0,8 | 1 | 1,3 | 1,5 | 2 | 2,5 | 10 und 15 l/min.

Scaling RS 220: 0 | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 15 und 20 l/min.

By the self-resetting flush button (5) an O₂ flow of 40l/min can be applied over the hose barb (4) at CS 215 and RS 220).

Important Note:

The pressure regulator must be kept absolutely oil-and grease-free, those hydrocarbon compounds may react explosive with oxygen! Before changing the cylinder, wash your hands and do not use hand cream!

4. Labeling

Each pressure regulator is indicated with the following references:

Producer: VTI	Serial number: RS 220 Nr. XXXXXX / CS 215 Nr. XXXXXX
Inlet pressure P1: 200 bar	Gas type: Med. O ₂ (Medical oxygen)
Outlet pressure P2: 5 bar	Certification: CE 0482

5. Attaching the regulator to the cylinder valve

Secure the cylinder to fall and falling. Unscrew the cap (if any) of the oxygen cylinder. Take the pressure regulator of the packaging and screw by hand by means of the coupling nut (1) clockwise to the threads of the cylinder valve. Before, make sure that the sealing ring is present in the nut and that all connections are clean. The screwing by hand is sufficient to get the pressure regulator gas-tight connected to the cylinder valve. Do not use tools! The pressure manometer (2) has no leverage function! Never use it to tighten / loosen the pressure regulator of the cylinder!

6. Commissioning and Operation

Open the oxygen supply by **slowly** turning the hand wheel of the cylinder valve in anti-clockwise direction (towards the "open" direction) until it reaches the stop position. **Do not open jerkily!** A sudden opening of the cylinder valve can cause a momentary pressure surge, which is derived from the safety valve (7). The noise occurring here is not indication of a defect, the pressure regulator is working properly.

Warning: Non-compliance with the aforementioned instructions may lead to fire hazard due to oxygen pressure surges. Systems whose valves cannot be opened by hand must not be used and have to be put out of operation. Such systems have to be forwarded to the manufacturer / service company.

The cylinder pressure manometer (2) shows the actual cylinder pressure in bar, at full cylinder approx. 200 bar. If the pointer is in the red zone, the oxygen supply only for a limited time is guaranteed. In this case, the bottle must be changed as soon as possible. The setting of the amount of oxygen is made with the hand wheel (6) at the front of the pressure regulator. By gradually turning the wheel to the left (positive direction) or right (negative direction) is changing the supply amount of oxygen. The amount of the set oxygen flow is shown in liters per minute (tolerance + / -10% or + / -0.5 liter, whichever is greater) at the scale of the hand wheel.

Important Note:

Oxygen - if it is given additionally - has to be considered as a medicine. Therefore regulations and instructions of doctor or rescue personnel should be paid attention.

7. Switching off of the regulator and connection to a new oxygen cylinder

Close the oxygen cylinder valve by hand. Wait a few seconds, until the rest of oxygen escaped from the pressure regulator. Turn the hand wheel to the left until it stops (scale is set to "0"). The pressure regulator can now be solved from the valve by turning the nut anticlockwise. If required the pressure regulator can be connected to a new oxygen cylinder. Check the function of the pressure regulator (see chapter 6) after each change of cylinder.

Important Note:

Filled oxygen cylinders should never be placed in the sun or near a heater. Open fires and smoking are prohibited close to oxygen leading valves. Do not use foreign parts, for example sticking plaster to seal the inputs and outputs. Always place the cylinder in a way that it can not fall over.

8. Cleaning

The device has to be cleaned regularly with a clean dry cloth. Under no circumstances use alcohol-, oil-, fat- or wax-containing cleaning and hygiene products.

9. Safety valve (7)

Each regulator is equipped with a blowdown valve (safety valve) as standard. This is factory preset and must not be moved. By manipulation, the flow rate accuracy can be influenced or uncontrolled gas release can be effected.

10. Check

Not used devices have to be tested at least every six months as follows:

- Are external damages visible?
- Is a realistic pressure shown at the manometer when pressure regulator and open cylinder valve are connected?
- Flows out oxygen at the zero position on the hose barb?

In an error the service is to communicate!

11. Maintenance

The pressure regulator must be sent every 5 years - in case of pollution and visible defects earlier - to EMS for maintenance / service. See information for the next re-test on the inspection sticker (8). The device should always be stored in clean, dry environment. During transport, a suitable transport protection has to be used.

12. Warranty

Subject to the compliance with the operating manual and the absence of improper external intervention, the manufacturer grants a 24-month warranty period from the date of manufacture. The warranty is restricted to impeccable functionality and material. Further claims are excluded unless provided for differently by legal regulations.

Defects which are not caused by the product itself but by external intervention, improper treatment or non-compliance with the instructions contained in this operating manual are excluded from the warranty.