WARRANTY

- The product will operate correctly, if it will be used in accordance with these instructions.
- Manufacturer assures the service.
- In case of troubles on product by normal use, manufacturer assured, that troubles will be abolish in 45 days, starting with day, when product will be taken in hand of manufacturer. When repair will not be possible, user will receive new product.
- Parts of the product, which can be wear down by normal use are not included under the warranty.
- Warranty is valid, if the date of purchase, signature and stamp of seller are documented.
- If the product will be send back to manufacturer, it shall be together with this warranty sheet.
- The manufacturer is response for transport-costs by warranty-procedure, if suitable documents are available.
- If only one part of product will be replaced, new warranty will be valid in full-duration only for that part.
- In case, that a repair was done by not competent personnel, the warranty will not be valid any more.
- The Warranty is valid 1 year, starting with a date of purchase.

Date of Production: _____

Date of Sale: _____

Manufacturer: _____

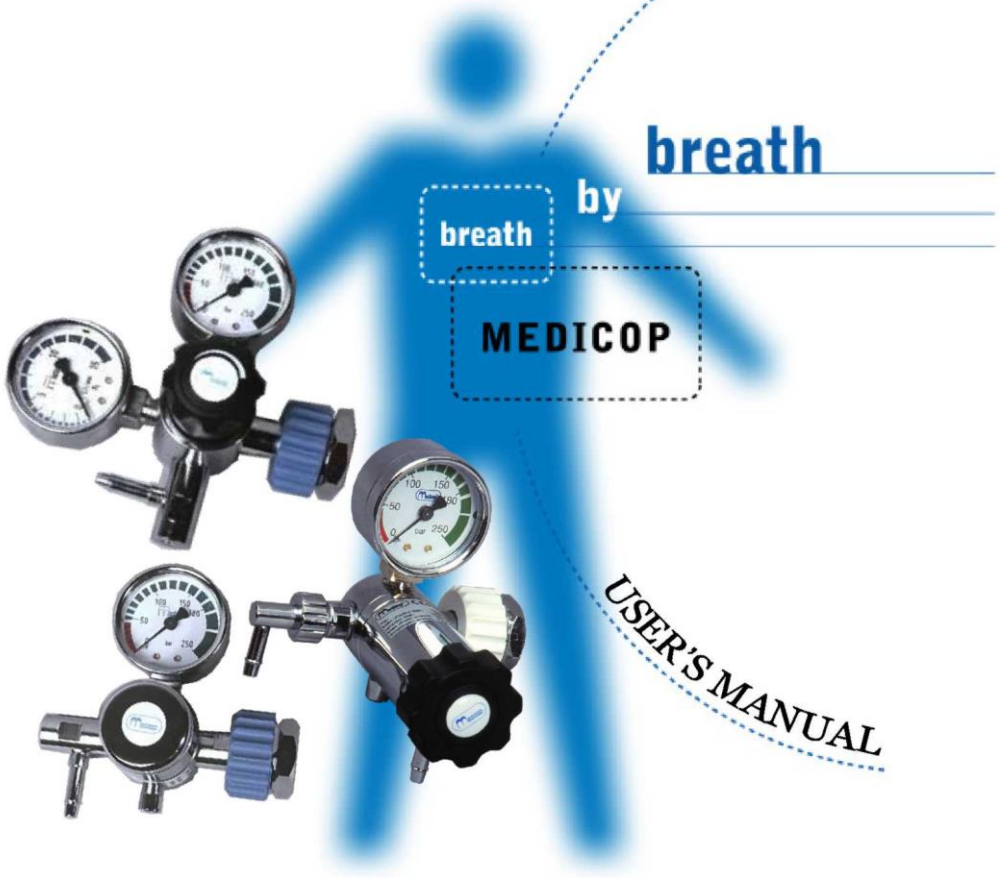
Sales Agent: _____

Serial Number: _____

Medicop EQUIPMENT SPECIALIST

CE 0123

PRESSURE REGULATORS FOR MEDICAL GASES



Medicop EQUIPMENT SPECIALIST / MEDICAL EQUIPMENT / MURSKA SOBOTA / SLOVENIA

Dear costumer,

We would like to thank you, that you are choosing our product. It is recommended that it will be used in accordance with these instructions for use.

The product has a marking:

CE 0123

The product is made and tested in accordance with following European standards:
EN ISO 10524-1, DIN 477, BS 341, EN ISO 407 and MDD 93/42/EEC (annex I).

The product meets the requirements as regards hazard analysis for medical instruments in accordance with standard **ISO 14971.**

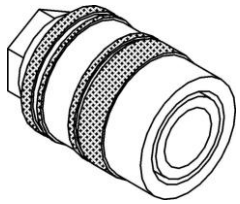
Address of the manufacturer:

Medicop d.o.o.
Obrtna ulica 43
9000 Murska Sobota
Slovenija

tel:++386 (0)2 531 12 03, 526 82 22
fax: ++386 (0)2 531 17 26
www.medicop.eu

- July 2006 -

AGA CLUTCH



Setting up the gas flow: Hold the connector with your hand and push it into the outlet as indicated by an arrow until it stops and locks in the outlet.
***Interruption of gas-flow*:** Push with one hand upon the releasing ring of the outlet and pull the connector from the outlet.

CONTROL SHEET

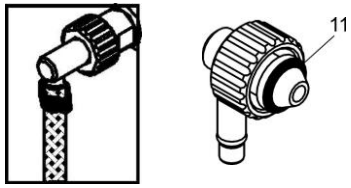
Name	*Pressure reducer for medical gases*		
Mark.			
Ser.No			
No.	Description Of Repair	Date	Response

Replacing of the washer

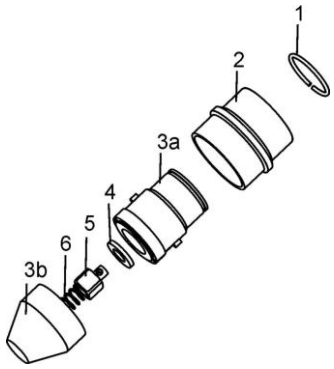
1. Remove the washer by use an appropriate dry and clean screwdriver.
2. Carefully place the new washer in to the seat.

Outlet connections

Accessory for tube
The tube shall be placed to the accessory and fixed by clamp. The washer **11** shall be replaced every 4 years.



Clutch for medical gas



Setting up the gas flow: Hold the connector with your hand and push it into the outlet as indicated by an arrow until it stops and locks in the outlet.
***Interruption of gas-flow*:** Push with one hand upon the releasing ring of the outlet and pull the connector from the outlet.
We recommend replacing the washer every 5 years.

Disassembling of the clutch:
1 – Remove the safety ring (1) from clutch casing (3a) with an appropriate tool
2 – Unscrew clutch casing (3a) of the clutch casing (3b). No tools are required.
3 – Remove plain washer (4) from it's place with a sharpen screwdriver
To assembly the clutch the reversible procedure should be done.

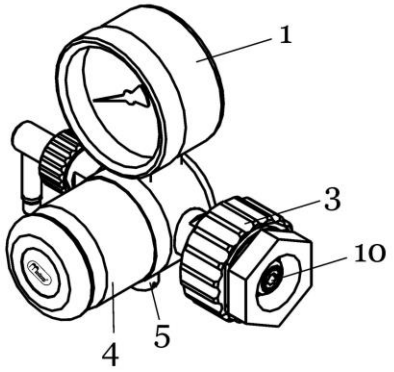
1-Safety ring, 2-Releasing ring, 3a-Clutch casing, 3b-body of the clutch, 4-Plain washer, 5-valve, 6-spring

INSTRUCTIONS FOR USE

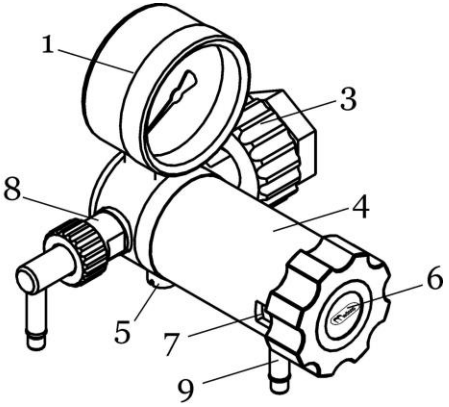
1. Description:

1.1 Purpose

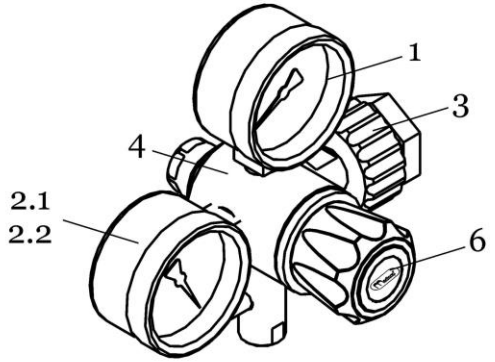
The main purpose of pressure regulators is reducing high pressure of gases in cylinders (to 20 000kPa = 200 bar) to an appropriate lower working level (usually from 3 to 5 bar) which is used for various medical and therapeutic devices.



Pressure regulator with direct outlet-flow



Pressure regulator with stepwise adjustable outlet-flow



Pressure regulator with stepwise adjustable outlet-flow or adjustable outlet pressure

1 - manometer 0-315 bar
2.1 - flowmeter 0-15 l/min
2.2 - manometer 0-15 bar
3 - connecting yoke
4 - casing of the regulator
5 - safety valve
6 - regulating screw
7 - scale
8 - outlet nipple
9 - accesori for tube
10 - sinter filter

1.2 Function

During use, the oxygen (medical gas) from the cylinder is entering through the cylinder valve and connecting yoke **3** into the casing of the regulator **4**. The pressure in the cylinder can be read on the manometer **1**. Sinter filter **10** built into the connecting yoke remove the dirtiness from the cylinder. Mechanism built into the casing of the regulator **4** is reducing the inlet pressure to the working pressure which can be constant or adjustable from 0,5 to 5 bar append from the type of the regulator. Each pressure regulator is equipped with a manometer that shows the current pressure in the cylinder, a connecting yoke for a cylinder, a safety valve **5** and an outlet accessory.

1.3 Models of pressure regulators

1300008 – Pressure regulator with direct outlet-flow

Pressure regulator is made as one-stage regulator. The regulator reduces inlet pressure (10-200 bar) to the outlet pressure 5+0.5 bar.

The pressure regulators are different regarding of the type of the connecting yoke and outlet connection.
This pressure reducer can be used for O_2, Air, CO_2

1300009 – Pressure regulator with direct outlet-flow and non-return valve

Pressure regulator is made as one-stage regulator. The regulator reduces inlet pressure (10-200 bar) to the outlet pressure 5+0.5 bar.
The none return valve built into the outlet connection prevent the back flow.
The pressure regulators are different regarding of the type of the connecting yoke.
This pressure reducer can be used for O_2, Air, CO_2

7. Maintenance

On the pressure reducer must be carried out follow maintenance work:

PRESCRIBED CONTROL:

No.	Description	Ident. Nr.	Period
1	Manometer 0 to 315bar	1052140	1 year
2.1	Flow meter 0 to 15 l/min	1052102	1 year
2.2	Manometer 0 to 15 bar	1052108	1 year
	Technical Inspection		1 years after every work
3	Complete service kit replacement by Medicop		5 years

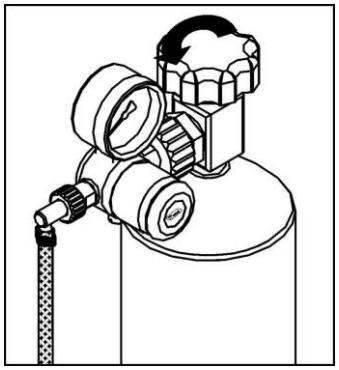
PRESCRIBED REPLACEMENT:

No.	Description	Ident. Nr.	Period
10	*Sinter filter DIN connector yoke*	1052015	1 year
10	*Sinter filter BS connector yoke*	1052015	1 year
10	*Sinter filter PIN-INDEX connector yoke*	1052064	1 year
	Washer DIN connector yoke, Ø10.78x2.62	1052026	1 year
	Washer BS connector yoke, Ø10.78x2.62	1052026	1 year
	Washer PIN-INDEX connector yoke, Ø16/Ø6,5	1052052	1 year

Replacing of the sinter filter

1. With an appropriate screwdriver unscrew the sinter filter by turning it to the left.
2. During the procedure it is recommended the pressure regulator is turned up side-down, so that dirtiness can not enter into the regulator when it is without filter.
3. Fix the new sinter filter by turning it with a screwdriver to the right.

Checking the system for leaks



1. Close the system behind the pressure reducer by switching off devices connected to the pressure reducer.
2. Check if the connection is tightly attached. If necessary tight them by hands only.
3. Open slowly the cylinder valve. The pressure in the cylinder can be read on the manometer **1.**
4. Close the shut-off valve of the cylinder.
5. Observe the needle of the manometer app. 1 minute. If the needle is staying constant the system is free from leakage. And if the needle falls the system has a leakage.

Prepare of the leakages

1. Prepare a soapy solution using unparfumed soap.
   With the soapy solution wet the screwed unions. At the leakages bubbles will be form.
2. Perform decompression of the system by turning on and than off the pressure reducer or device connected to the pressure reducer. Exchange the faulty seals at the leaks.
3. Check the system for leaks again.
   If the leaks can not be tightened up the unit must be repaired.

1300001 – Pressure regulator with adjustable outlet flow
1300030 – Pressure regulator with adjustable outlet pressure

Pressure regulator is made as two-stage regulator. In the first stage the inlet pressure (200 bar) is reduced to app. 15 bar and in the second stage the pressure can be adjustable from 0 to max 5 bar (1300030) or 0-15l/min (1300001).
The valve is equipped with two manometers. First manometer 1 shows the pressure in the cylinder. The second flow meter 2.1 shows the adjusted outlet flow or manometer 2.2 adjusted outlet pressure.
The outlet-flow or outlet-pressure could be adjusted by screw 6.
The pressure regulators are different regarding of the type of the connecting yoke and outlet connection.
This pressure reducer can be used for O_2, Air, CO_2

1300007 – Pressure regulator with fixed outlet-flow

The regulator is designed as two-step reducer. First reduction is done from max. 200 bar to 10 bar and the second reduction from 10 bar to 5 bar. The outlet pressure could be also adjusted from 0 to 5.5 bar, but only by the manufacturer.
The outlet flow is fixed at 4 l/min.
The pressure regulators are different regarding of the type of the connecting yoke.
This pressure reducer can be used for O_2, Air, CO_2

1300011, 1300018 – Pressure regulator with stepwise adjustable outlet-flow

Pressure regulator is made as one-stage regulator. The regulator reduces inlet pressure (10-200 bar) to the outlet pressure 5+0.5 bar. Manometer 1 shows the pressure in the cylinder Pressure regulator makes it possible to set different outlet flows by turning of the regulating screw 6. Flow setting is indicated on the scale 7. You can simultaneously use the direct fixed outlet flow and different stepwise adjusted outlet flow.

The pressure regulators are different regarding of the type of the connecting yoke and outlet connection.
This pressure reducer can be used for O_2, Air, CO_2

1.4 Technical Data

Model / **Description**	**1300008 (standard)**	**1300009 (standard)**	**1300001 (standard)**	**1300030 (standard)**	**1300007 (standard)**	**1300011, 1300018 (standard)**
Middle dimensions in mm	100x100x110 mm					
Connecting yoke	(DIN 477), PIN-INDEX, BS (341), or other specific connections					
Middle weight in kg	0,8					
Inlet pressure	200					
Outlet working pressure	5±0,5	5±0,5	-	0-5	-	5±0,5
Flow at the working pressure l/min	120*	120*	0-15	-	4	0-25 0-15
Safety valve set pressure in bar	7,5	7,5	7,5	7,5	7,5	7,5
Temperature: **- operation** **- storage**	-20°C to + 60°C -20°C to + 70°C					
Classification	IIb					
Standard	EN 738-1					

*at 150 bar

4.5 Storage

In case that the device is not in use we recommend followed:
1. Clean up the device (»Cleaning«)
2. Pressure regulator shall be store in the dry place

5. Cleaning

The pressure regulator shall be dry cleaned only.
No liquid must be entered in to the pressure reducer.
Parts which are in contact with oxygen are prohibited to cleaning with liquids.

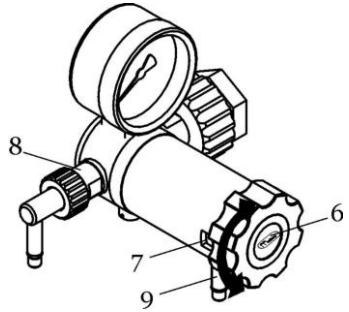
6. Troubleshooting

Fault	**Cause**	**Mending**
Leakage on the connecting yoke	Damaged sealing	Replace sealing
Leakage on the outlet accessory	Damaged sealing	Replace sealing
Leakage at safety valve	Prohibited pressure increase in the pressure reducer	Repair by manufacturer or trained authorized person only.
Mechanical damage (manometer, sealing surface, surface damages)		

4.3 Adjusting of the outlet flow

1300008, 1300009, 1300007 – Pressure regulator with direct outlet-flow
Outlet flow is fixed and can not be changed.

1300001 – Pressure regulator with adjustable outlet flow
The outlet flow can be adjusted by regulating screw **6**.
The flowmeter 2.1 indicated the adjusted outlet flow 0- 15l/min.

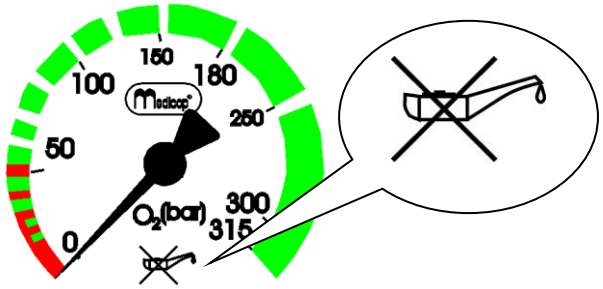


1300011 (0-25), 1300018 (0-15) – Pressure regulator with stepwise adjustable outlet-flow
Direct flow at the outlet **8** is fixed.
The flow at the outlet **9** can be set by regulating screw **6**. Adjusted value is indicated on the scale 7. Outlet flow (stepwise):
0,1,2,3,4,5,6,7,10,15
or
0,1,2,3,4,7,10,15,20,25 l/min

4.4 After operation

1. Don't ever let to get the cylinder completely empty because the ambient air can be entering in to the cylinder and causing corrosion.
2. On the manometer of the pressure reducer check the remaining capacity of gas. You should change the cylinder when the pressure drops app. below 50bar.
3. Shut down the cylinder valve.
   Set the flow and the pressure at the pressure regulators with adjustable outlet flow and adjustable outlet pressure to „0".

2. Warnings



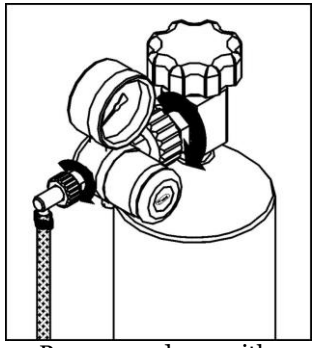
- **The oiling of the regulator parts is strongly prohibited!**
- **Don't ever let to get the cylinder completely empty but it should be refilled when there is still app. 10-50 bar of pressure inside!**
- **At the operating with pressure regulator pay attention to cleanness of your hands, tools and environment!**
- **The shut-off valve of the cylinder shall be closed and opened slowly, because there is the danger of the pressure push.**
- **The settings of the safety valve shall not be changed!**
- **The shut-off valve of the cylinder shall be closed after the use!**
- **The cylinder shall be insured against overthrowing!**
- **Smoking and use of the open fire nearby the unit is strongly prohibited!**
- **Before use read also the enclosed user manuals, and user manuals of the devices supplied to the pressure regulator!**
- **Maintenance works shall be carried out by trained person only!**
- **Never use tools to tighten or unscrew the connecting yoke!**
- **Before use and maintenance wash your hand toughly!**
- **Screwed unions shall be tightened by hands only.**

3. Preparing for operating

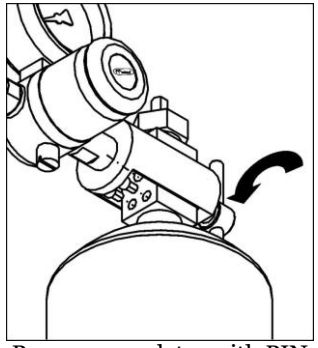
3.1 Connecting of the pressure regulator to the gas cylinder

To blow away the particles of dirtiness briefly open the valve of the cylinder and then tight it again.
At the procedure the outlet of the cylinder valve shall be pointed to the floor so that the particles do not get in to the eye or not cause other damage. The oxygen shall not get in to the clothing.

1. Pressure reducer shall be screwed and tightened to the cylinder by coupling nut without any tools.
2. Open the cylinder valve by one slowly turns of the cylinder valve to the left. The pressure in the cylinder is indicated on the manometer 1.



Pressure reducer with coupling nut



Pressure regulator with PIN INDEX connecting yoke

By coupling of the regulator with PIN-INDEX yoke to the make sure that the pins of the yoke are correctly inserted in to the cylinder valve.

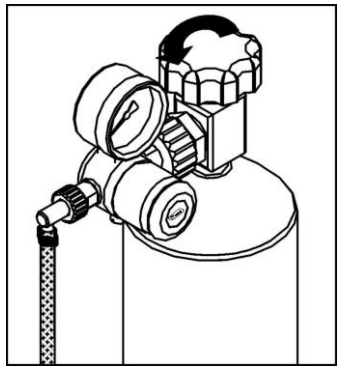
3.2 Removing of the pressure reducer

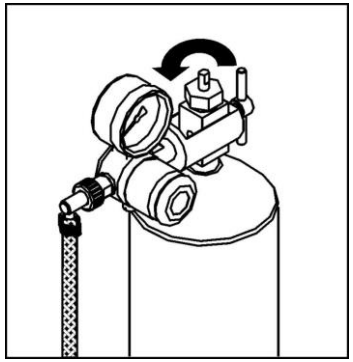
1. Shut the cylinder valve by turning the cylinder valve to the right.
2. Perform decompression of the system by turning on and than off the pressure reducer or device connected to the pressure reducer. If the reducer is under the pressure it is impossible to remove them.
3. Unscrew the coupling yoke from the cylinder valve.

4. Operating

4.1 Start operating

By one slowly turn open the cylinder valve. Gas supply is established. Manometer indicated the pressure in the cylinder.





4.2 Adjusting of the outlet pressure

1300030 – Pressure regulator with adjustable outlet pressure
The outlet pressure can be adjusted with regulating screw **6**. The manometer **2.2** indicated the adjusted pressure.