



OXYWAY

Single-stage pressure reducer, fixed:
Fix I; Fix I side outlet; Fix II; Fix III; Fix III left

Single-stage pressure reducer, variable:
Fine I; Fine II; Fine III

Single-stage pressure reducer, indexed:
Fast I; Fast II; Fast II High Flow; Fast III

Indexed flowmeter OXYWAY Click

Two-stage pressure reducer, fixed:
OXYTRON

Service and Repair Instructions

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Introduction

For many decades WEINMANN has developed, produced and marketed appliances for oxygen therapy, inhalation therapy and emergency medicine.

In 1957 WEINMANN put the first diaphragm pressure reducer on the market.

Pressure reducers are used in medical oxygen inhalation. They reduce the pressure delivered by oxygen bottles from 200 bar to the specified operating pressure.

The flowmeter is used during the inhalation of medical oxygen via the central gas supply system of a hospital, for example.

Pressure reducers are a functional component of a wide range of appliance combinations such as stationary oxygen appliances and portable oxygen devices. They are therefore an important component in the treatment of chronic respiratory diseases and/or disorders of the cardiovascular system.

The aim of these Service and Repair Instructions is to familiarize you, a **trained and competent expert**, with the function, technology, servicing and repair of pressure reducers and flowmeters. In conjunction with a training course that you have already been

given by WEINMANN, you now belong to that group of "trained and competent experts", which means you can give your customers proper instruction, rectify faults yourself and perform the prescribed functional check and any repairs in accordance with these Service and Repair Instructions.

In the event of any warranty claim the device must be sent to WEINMANN.

So that we can process any warranty claims or requests for favorable treatment, please send us the customer's purchase slip (invoice) with the appliance.

Repairs and/or repair work may only be performed by WEINMANN or by trained and competent experts.

You are responsible for any repairs you carry out yourself and the relevant guarantees!

Only genuine WEINMANN replacement parts may be used for repairs.

Please remember:

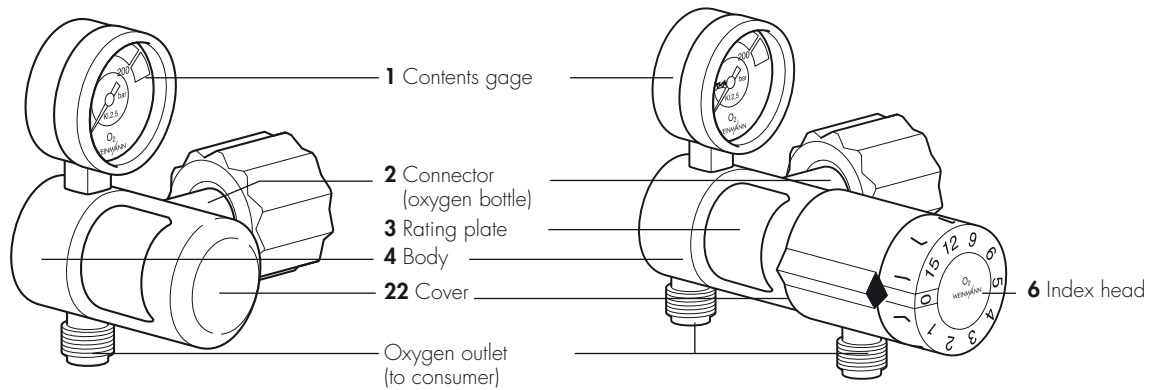
Your customers put their trust in you and rely on your efficiency, just as you rely on WEINMANN.

Note:

You will find the following information in the operating instructions for the devices:

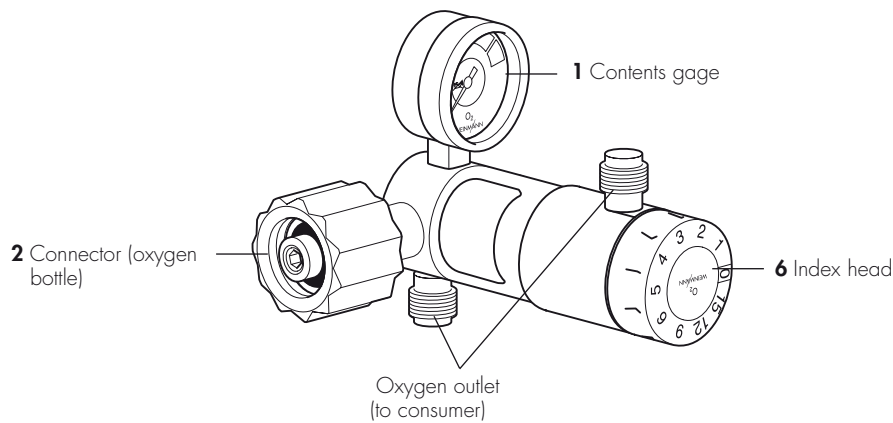
- Safety information
- Assembly
- Operation
- Hygienic preparation
- Functional Check
- Warranty.

1. Overview

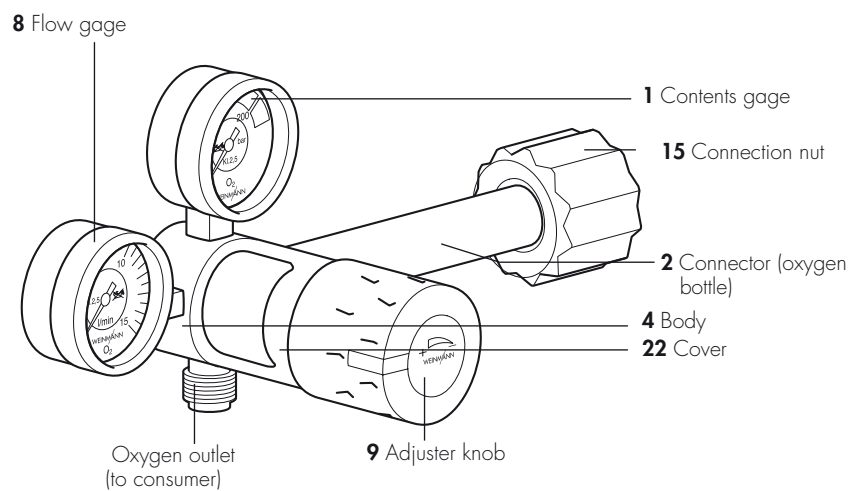


Fixed pressure reducer FIX
WM 30050; 30100; 30200;
30300; 30350

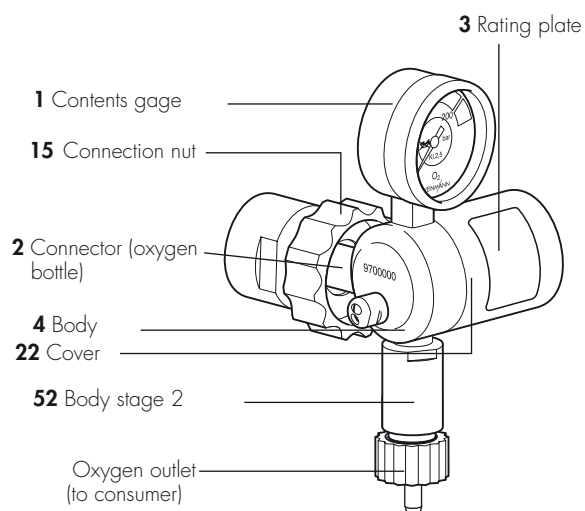
Indexed pressure reducer FAST
WM 30600; 30800; 30850



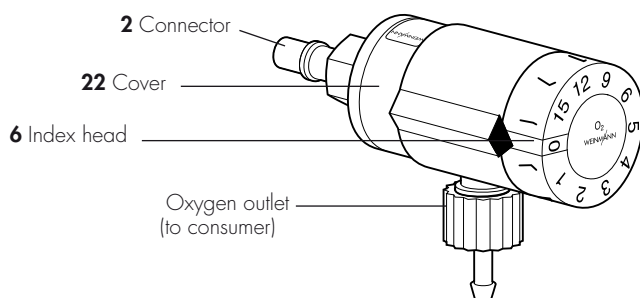
Multistep pressure reducer Fast II High Flow
WM 31899



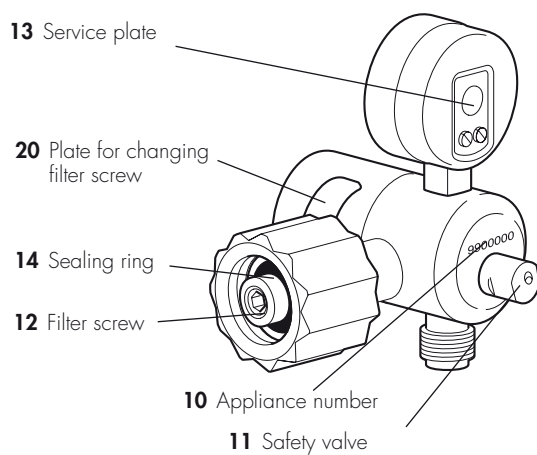
Variable pressure reducer FINE
WM 30500; 30700; 30750



**Two-stage pressure reducer
OXYTRON WM 30150**



**Indexed flowmeter
OXYWAY Click WM 31030**



Rear view of pressure reducer

1.1 Explanation of Numbers

Type: 30800

The type row indicates the basic design of the pressure reducer, e.g. "30800" for indexed pressure reducers (Fast I).

Order number:

WM 308xx
└── specific version
└── type

In the order number the first three numbers are a short indication of the type, and the last two digits indicate the specific version (e.g. the connection variants).

Appliance number:

00xxxxx
└── consecutive numbering
└── year of manufacture

The first two digits of the appliance number show the year of manufacture. The next five digits are the consecutive appliance serial number within each type. The appliance number is stamped on the back of the pressure reducer.

1.2 Information about conformity with standards

Up to serial number 0849999, OXYWAY pressure reducers meet standard EN 738-1.

From serial number 0850000, OXYWAY pressure reducers meet standard EN ISO 10524-1:2006.

In the course of adapting the products to standard EN ISO 10524-1:2006, it was not possible to design all components to be downward-compatible. Parts which are not downward-compatible are available for both device statuses separately and are marked accordingly in the replacement parts lists (see "8. Replacement Parts" on page 64) of these instructions.

Caution!

Malfunction as a result of unclear device status.

If replacement parts which are not downward-compatible are used in the wrong pressure reducers, connected devices will malfunction.

- Fit replacement parts which are not downward-compatible only **in accordance** with the pressure reducer serial numbers quoted.
- Do not convert pressure reducers up to SN 0849999 "to suit the new standard".

2. Function

2.1 General

During operation, the oxygen coming from the oxygen bottle passes through the bottle valve and the connector **2** into the body **4** of the pressure reducer. You can read off the bottle pressure (delivery pressure) at the contents gage **1**.

WEINMANN piston pressure reducers are of modular design. This makes it possible to keep the number of replacement parts to a minimum.

A filter screw with integrated sinter filter (see explanation on right) traps any impurities. A further sinter filter absorbs pressure surges in the oxygen flow. The filter screw **12** is located at the entrance to the connector **2**. The second sinter filter is fitted between the connector **2** and the body **4**.

In the reduction stage the bottle pressure is reduced to the required nominal outlet pressure, depending on type. The principle used, with crater drill hole and spring-loaded piston, ensures especially constant pressure in spite of variations in flow.

All pressure reducers are protected against excess pressure by a safety valve **11**.

Explanations:

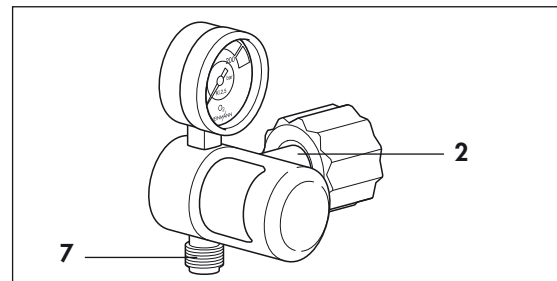
Sinter filter: Small spherical bronze particles are pressed together under heat, creating a filter with a particularly fine pore structure (50 - 75 µm).

Flow: Outlet volume; expressed in liters per minute.

2.2 Fixed pressure reducer FIX (WM 30050; 30100; 30200; 30300; 30350)

A fixed orifice in oxygen outlet **7** creates a constant flow.

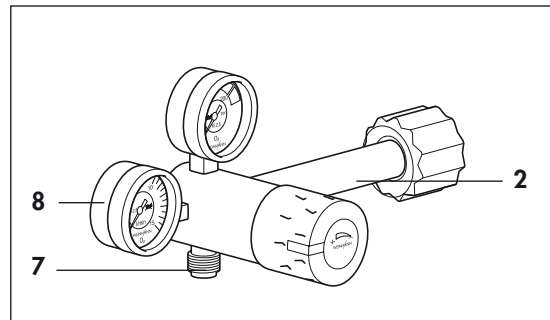
The pressure reducers in this series differ in the length and position of the connector **2** and the oxygen outlet **7**.



2.3 Variable pressure reducer FINE (WM 30500; 30700; 30750)

The piston is acted upon by a second spring which can be adjusted via a spindle system and thereby creates different outlet pressures. In conjunction with the fixed orifice in the oxygen outlet **7** you can therefore make continuously variable adjustments to the flow. You can read off the flow setting at the flow gage **8**.

The pressure reducers in this series differ in the length and position of the connector **2**.

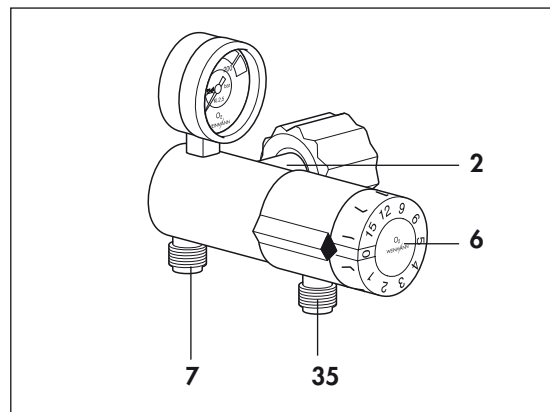


2.4 Indexed pressure reducer FAST (WM 30600; 30800; 30850)

As in the fixed pressure reducers, this creates a constant operating pressure (outlet pressure).

The index head **6** contains an orifice disc with various orifice diameters which are aligned by an index (click-in) system with the oxygen outlet **35**. This enables you to set various flow rates.

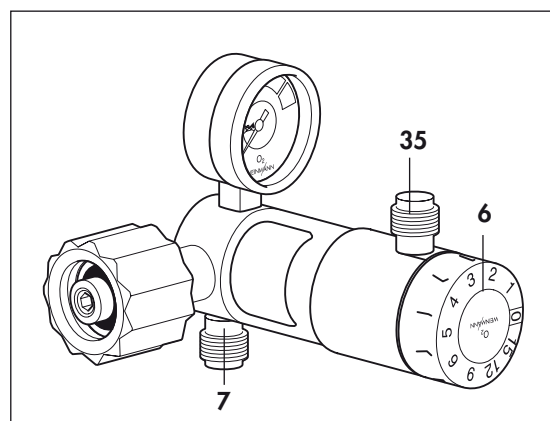
The pressure reducers in this series differ in the length and position of the connector **2**. A pressure reducer of type WM 30850 has two oxygen outlets.



2.5 Multistep pressure reducer Fast II High Flow (WM 31899)

As in the Fast multistep pressure reducers, there is an orifice disk with a variety of orifice diameters in adjuster **6** which is brought into line with oxygen outlet **35** by means of a locating system.

In addition to the flow outlet, there is a pressure outlet for medical devices with an oxygen requirement in excess of 90 l/min. The pressure outlet and the flow outlet may not be in operation simultaneously.

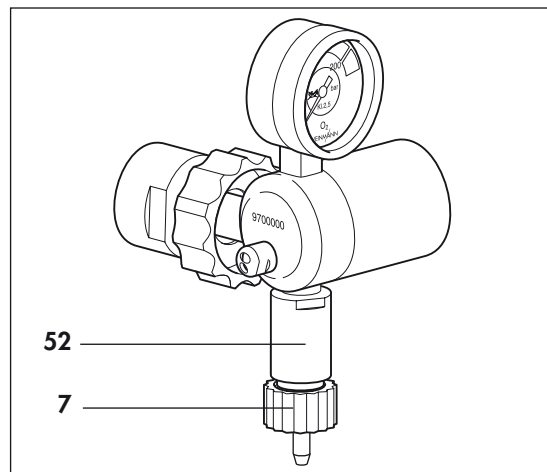


2.6 Two-stage pressure reducer OXYTRON (WM 30150)

The two-stage pressure reducer has a first stage in the form of a fixed pressure reducer WM 30100, and a second reduction stage **52** to permit optimal adjustment of pressure and flow to suit the OXYTRON oxygen device.

In the second stage the pressure of 4.5 bar from the first stage is similarly reduced by a system of crater drill hole and spring-loaded piston to 1.6 bar.

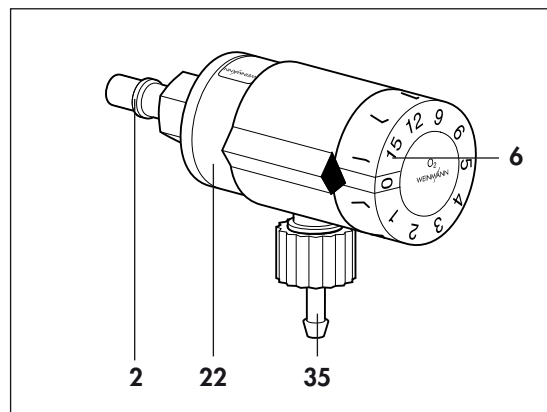
A fixed orifice in the oxygen outlet **7** generates a constant flow of 12 l/min.



2.7 Indexed flowmeter OXYWAY Click

During operation, the oxygen supplied by the central gas system at a pressure of 4.5 bar passes through the inlet connector **2** into the body **22** of the OXYWAY Click.

The dial head **6** contains an orifice disk with orifices of different diameters which are lined up with the oxygen outlet **35** by means of a click dial system. You can set the following flow rates: 1, 2, 3, 4, 5, 6, 9, 12, 15 l/min..



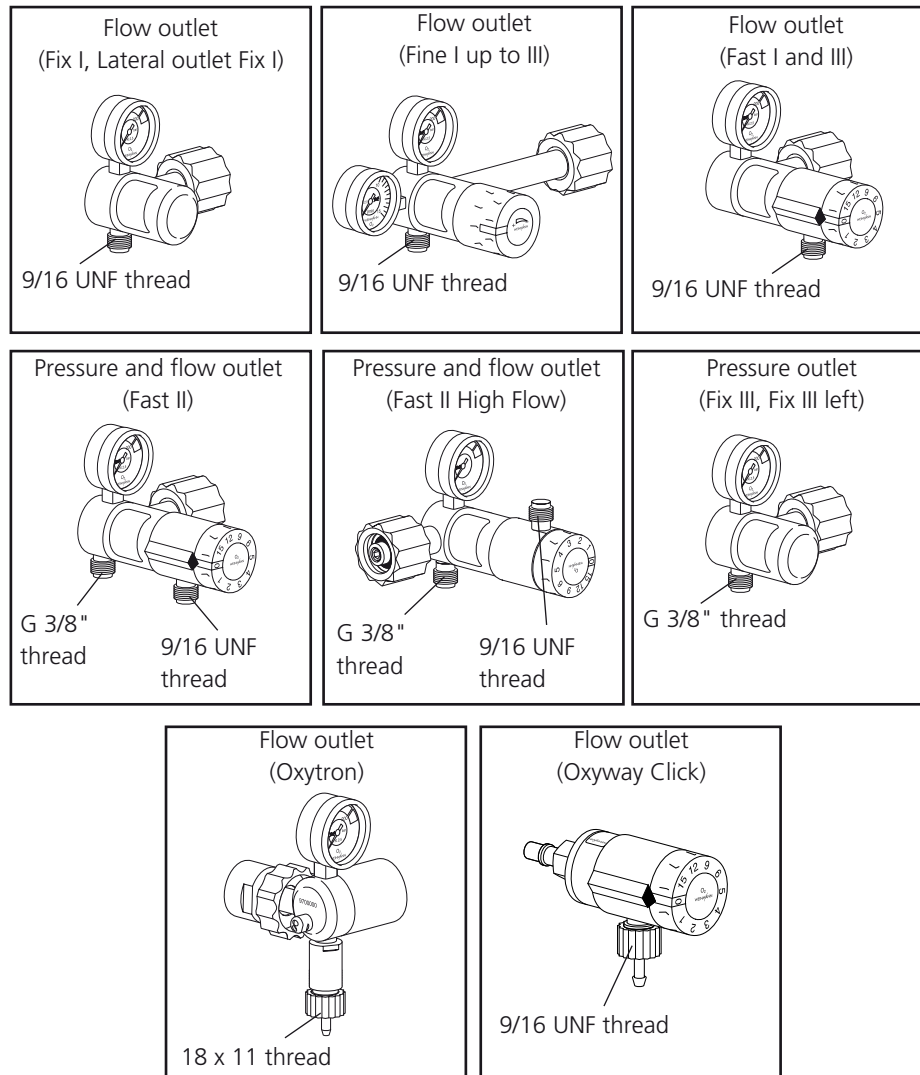
2.8 Oxygen outlets pressure reducer OXYWAY

Oxyway pressure reducers are available with different oxygen outlets: the pressure outlet and the flow outlet are different (see also "10. Technical Data" on page 79).

Flow outlets are intended for the direct supply of the patient, e.g. via nasal cannula, mask or

intermediate humidifier. Flow outlets have a 9/16 UNF thread.

Pressure outlets are intended to supply ventilators such as the Medumat, modules or distributor bars. Pressure outlets have a G 3/8" thread.



3. Final Check

3.1 General

Test conditions:

- Ambient temperature: 15 °C
- Ambient pressure: 1013 hPa
- Connection to oxygen supply. For flow tests, a constant pressure* of 100 bar or 200 bar is required.

* 100 bar up to SN 0849999
200 bar from SN 0850000

All the tolerances listed in these instructions (see "10. Technical Data" on page 79) relate to these conditions. Note that if different ambient conditions prevail, deviating measuring results may be obtained.

For the check you will need:

- shutoff valve (max. 6 bar) after oxygen outlet
- test pressure gage 0 - 10 bar
- test pressure gage 0 - 2.5 bar

and three flow meters:

- 0 - 50 ml/min
- 0 - 20 l/min
- 0 - 220 l/min.

If the final check reveals faults, the device must not be used until the defect has been rectified. For possible causes of the defect and how to remedy them, see Chapter "5. Troubleshooting" on page 18.

A complete check of the OXYWAY Fix, Fast and Fine pressure reducer includes:

- Visual inspection for mechanical damage,
- "3.3.1 Testing system for leaks" on page 12,
- "3.3.2 Testing safety valve for leaks" on page 13,
- "3.3.3 Checking "0" position of contents gage" on page 13,
- "3.3.4 Checking "0" position of flow gage on pressure reducer FINE" on page 13
- "3.3.5 Checking for leaks with valve closed on pressure reducer FINE" on page 14,
- "3.3.6 Checking adjustable flow rate on pressure reducer FINE" on page 14,
- "3.3.7 Checking adjustable flow rate on pressure reducer FAST" on page 14.
- "3.3.8 Checking constant flow rate in pressure reducers FIX, FAST and FAST II high Flow" on page 15
- "3.3.9 Checking static outlet pressure p_4 for all pressure reducers" on page 15.

A complete check of the OXYWAY Click flow-meter includes:

- "3.4 Checking the adjustable output (flow) on the OXYWAY Click" on page 15.

We recommend that you always keep in stock:

- Replacement seal set WM 1148,
- Filter screw WM 30905.

3.2 Intervals

After any servicing or repair work

- Perform a final check.

3.3 Performing check

3.3.1 Testing system for leaks

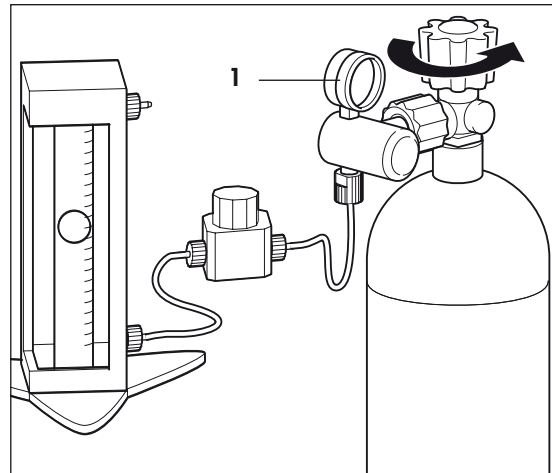
1. Close system **after** pressure reducer, e.g. by closing a valve after the pressure reducer.
2. Check that all screwed joints and hoses are firmly seated. If necessary tighten joints by hand.
3. **Slowly** open valve of oxygen bottle. Contents gage **1** of pressure reducer now shows bottle pressure, e.g. 200 bar.
4. To detect leaks, wet screwed connections with a soap-and-water solution. Use Lanosan® med for this purpose.

Warning!

Risk of explosion from soap penetration.

Leaks can cause soap to penetrate the system and combine with the oxygen to form an explosive mixture.

- Open the O₂ valve before wetting parts of the system with a soap-and-water solution. The system is then pressurized. No soap can penetrate the system.
 - Remove the soap-and-water solution without leaving any residues after the test is complete.
5. Close bottle valve again.
 6. Observe needle of contents gage **1** for about 1 minute. If needle stays in same position, the system is gas-tight. If the needle falls steadily, there is a leak.



Eliminating leaks

We recommend that you keep a stock of replacement seals for the connections.

1. Prepare solution of soapy water, using perfume-free soap.
2. Wet all screwed joints with solution. If bubbles form, this indicates a leak.
3. Release pressure in system:
 - Close oxygen bottle valve.
 - Open valve after pressure reducer until contents gage **1** reads "0".
4. Replace faulty seal responsible for leak (see "6.2 Replacing sealing ring in connector" on page 20).
5. Check for leaks again.
6. If leak cannot be eliminated, unit must be repaired.

Important!

Screwed joints of oxygen line must only be hand tightened.

3.3.2 Testing safety valve for leaks

1. Test must be performed at maximum flow. In the Fine and Fast series this is set accordingly.
2. **Slowly** open oxygen bottle valve.
3. Test with finger whether oxygen is escaping from safety valve **11**.

If oxygen is escaping, have pressure reducer repaired by manufacturer (WEINMANN).

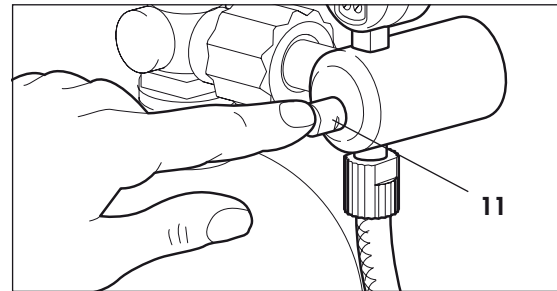
Alternatively, you can also wet the safety valve with soap-and-water solution to find leaks. Use Lanosan® med.

Warning!

Risk of explosion from soap penetration.

Leaks can cause soap to penetrate the system and combine with the oxygen to form an explosive mixture.

- Open the O₂ valve before wetting parts of the system with a soap-and-water solution. The system is then pressurized. No soap can penetrate the system.
- Remove the soap-and-water solution without leaving any residues after the test is complete.

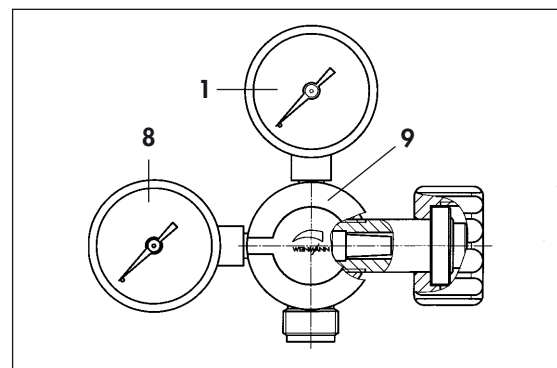


3.3.3 Checking "0" position of contents gage

1. **Slowly** open oxygen bottle valve.
Contents gage **1** now shows bottle pressure.
2. To release pressure in system:
 - Close oxygen bottle valve
 - Switch on connected appliance
 - Open shutoff valve after oxygen outlet.
3. Needle of contents gage **1** now falls toward "0". Wait until needle stops moving. Now switch appliance off.
4. Check whether needle points exactly to "0".
If not, fit replacement contents gage (see "6.5 Replacing gage" on page 27).

3.3.4 Checking "0" position of flow gage on pressure reducer FINE

1. **Slowly** open oxygen bottle valve.
2. Set flow rate (e.g. 7 l/min) at adjuster knob **9**.
You can read the set value at the flow gage **8**.
3. To release pressure in system:
 - Close oxygen bottle valve
 - Open shutoff valve after oxygen outlet
 - Switch on connected appliance.
4. Needle of flow gage **8** now falls toward "0".
Wait until needle stops moving. Now switch appliance off.
5. Check whether needle points exactly to "0".
If not, fit replacement gage (see "6.5 Replacing gage" on page 27).



3.3.5 Checking for leaks with valve closed on pressure reducer FINE

You need a flow meter with a range of 0 – 50 ml/min.

Perform measurement at an inlet pressure of 200 bar.

1. **Slowly** open oxygen bottle valve.
Contents gage **1** now shows bottle pressure.
2. Check whether flow gage **8** shows a flow rate of "0".
If not, use adjuster knob **9** to set flow rate to "0".
3. Connect flow meter (0 - 50 ml/min) to oxygen outlet **7**.
4. Wait until flow meter shows constant reading.
5. Read off value.
If value is greater than 30 ml/min, fit replacement piston (see "6.7 Replacing piston in pressure reducer FINE (WM 30500, 30700, 30750)" on page 30).

3.3.6 Checking adjustable flow rate on pressure reducer FINE

You need a flow meter with a range of 0 – 20 l/min.

Perform measurement at an inlet pressure of 100 bar ± 10 bar.

1. **Slowly** open oxygen bottle valve.
Contents gage **1** now shows bottle pressure.
2. Turn adjuster knob **9** to the left as far as it will go, until flow gage **8** shows a flow rate of "0".
3. Connect flow meter to oxygen outlet **7**.
4. Set any desired flow rate at adjuster knob **9**.
5. Check on flow meter whether actual value agrees with set value.
Note tolerances of pressure reducer:
1 to 5 l/min: ± 0.5 liters,
6 to 15 l/min: ± 10 %.
6. If any value does not agree, have pressure reducer repaired by manufacturer (WEINMANN).

Note: Checking the flow of the second oxygen outlet is described in a later section (3.3.8, page 15).

3.3.7 Checking adjustable flow rate on pressure reducer FAST

You need a flow meter with a range of 0 – 20 l/min.

Perform measurement at an inlet pressure of 100 bar ± 10 bar.

1. **Slowly** open oxygen bottle valve.
Contents gage **1** now shows bottle pressure.
2. Set flow of "0" at index head **6**.
3. Connect flow meter to oxygen outlet **7**.
4. Set any desired flow rate at index head **6**.
5. Check on flow meter whether actual value agrees with set value.
Note tolerances of pressure reducer:
1 to 5 l/min: ± 0.5 liters,
6 to 15 l/min: ± 10 %.
6. If any value does not agree, have pressure reducer repaired by manufacturer (WEINMANN).

Note: Checking the flow of the second oxygen outlet is described in a later section (3.3.8, page 15).

3.3.8 Checking constant flow rate in pressure reducers FIX, FAST and FAST II high Flow

You need a flow meter as follows:

- For WM 30050, 30100, 30150: flow meter 0 – 20 l/min
 - For WM 30200, 30300, 30350, 30850, 31899: flow meter 0 – 220 l/min.
1. Connect flow meter to oxygen outlet. WM 30150: 12 l/min \pm 1.2 l/min
 2. Close WM (30200), 30300, 30350: 120 l/min \pm 15 l/min
 - on pressure reducers WM 30850 and WM 31899: oxygen outlet for adjustable flow, WM 30850: 90 l/min \pm 10 l/min
 - on pressure reducer WM 30200: second oxygen outlet (on the side). WM 31899: min. 160 l/min
 3. **Slowly** open oxygen bottle valve.
 - Contents gage **1** now shows bottle pressure
 - Flow meter shows flow rate.
 4. Check flow rate reading against set value.

Pressure reducers must maintain the following flow rates:

WM 30050, 30100: 4 l/min \pm 0.5 l/min
5. In the event of discrepancies, have pressure reducer repaired by manufacturer (WEINMANN).
 6. There is a second oxygen outlet on pressure reducer WM 30200. This is a free pressure outlet.

3.3.9 Checking static outlet pressure p_4 for all pressure reducers

1. Connect appropriate test gage to oxygen outlet **7**.
2. Check closing pressures p_4 (see "10. Technical Data" on page 79). They are valid for a delivery pressure of $p_1^* = 100$ bar or 200 bar and must be reached within 1 minute at most. After this they must not show any further increase.

* 100 bar up to SN 0849999
200 bar from SN 0850000

3.4 Checking the adjustable output (flow) on the OXYWAY Click

You need a flow meter with a range of 0 – 20 l/min.

Perform the measurement at an inlet pressure of 4.5 bar \pm 0.2 bar.

1. Set the flow "0" at index head **6**.
2. Plug the flowmeter into a suitable compressed gas supply (e.g. a central gas supply system).
3. Connect the flow meter to the oxygen outlet.
4. Set any flow value at index head **6**.
5. Check on the flow meter whether the set value corresponds to the actual value.

Please observe the tolerances of the flowmeter in the process.

Rising test:

**1 to 5 l/min: \pm 0.5 liter,
6 to 15 l/min: \pm 10 %.**

Falling test:

6 \pm 10 % and 0/min: \pm 0.15 l/min

4. Servicing

4.1 General

We recommend that all maintenance work, such as inspections and repairs, be carried out by the manufacturer (WEINMANN) or by expert technical personnel trained by WEINMANN.

When carrying out repairs, be sure to observe the directions in these Service and Repair Instructions.

4.2 Intervals and scope for OXYWAY and OXYTRON pressure reducers

In cases of dirt accumulation, or at least every 2 years:

1. Fit replacement filter screw **12** (see "6.3 Replacing filter screw" on page 21).
2. Perform a functional check (see "6. Functional Check" on page 12 of the Operating Instructions).

Every 4 years

1. Fit replacement filter screw **12** (see "6.3 Replacing filter screw" on page 21);
2. Completely replace piston **16**.
 - For pressure reducers WM 30050, 30100, 30200, 30300 and 30350: see Section 6.6, page 28,
 - For pressure reducers WM 30500, 30700, 30300 and 30750: see Section 6.7, page 30,
 - For pressure reducers WM 30600; 30800, 30850: see Section 6.8, page 33;
- For pressure reducers WM 31899; 30800, 30850: see Section 6.9, page 36;
3. Fit replacement sinter filter **19** (see "6.12 Replacing Connector and Sinter Filter" on page 50);
4. Fit replacement sealing ring **14** (see "6.2 Replacing sealing ring in connector" on page 20)
5. Perform a final check (see "3. Final Check" on page 11). If you find any faults, rectify them.
6. Replace service plate **13** with a new one with the new data from "8. Replacement Parts" on page 64.

4.3 Intervals and scope for OXYWAY Click flowmeter

Check metering accuracy by having a check measurement performed every 4 years.

We recommend that repair work be performed only by the manufacturer, WEINMANN, or by trained qualified experts expressly authorized by WEINMANN.

4.4 Storage

If the pressure reducer is to remain unused for long periods, we recommend the following procedure:

1. Clean pressure reducer (see "Hygienic preparation" in the Operating Instructions).
2. Store pressure reducer in a dry place.

Important:

Be sure to observe the servicing intervals for stored appliances as well. Otherwise the appliance is no longer fit for use on removal from storage.

4.5 Disposal



Do not dispose of the unit with domestic waste. To dispose of the unit properly, please contact a licensed, certified electronic scrap disposal merchant. This address is available from your Environment Officer or from your local authority.

5. Troubleshooting

5.1 Pressure reducer OXYWAY and OXYTRON

Fault	Cause	Remedy
Leak at connector (bottle connection).	Damaged sealing ring.	Replace sealing ring (Section 6.2, page 20).
	Damaged seat for connector sealing ring.	Replace connector (Section 6.12, page 50).
Leak at oxygen outlet (appliance connection).	Damaged sealing ring.	Replace sealing ring (Section 6.2, page 20).
Leak at relief valve.	Unacceptable pressure rise in pressure reducer (delayed rise effect).	Replace piston (Section 6.6, page 28 or Section 6.7, page 30 or Section 6.8, page 33).
	Relief valve not gas-tight.	Have pressure reducer repaired by manufacturer (WEINMANN).
	Crater in body faulty.	
Pressure gage does not read "0" at zero pressure.	Pressure gage faulty.	Replace pressure gage (Section 6.5, page 27).
Outlet flow rate too low.	Oxygen outlet faulty.	Replace oxygen outlet (Section 6.4, page 21)
	Index disk faulty.	Replace index disc (Section 6.9, page 36)
	Index disk incorrectly adjusted.	Replace index disc (Section 6.9, page 36)
Outlet flow rate of OXYTRON WM 30150 outside tolerance of 12 l/min \pm 1.2 l/min	Second stage faulty	Replace complete piston (Section 6.16, page 56)
Outlet pressure of OXYTRON WM 30150 outside tolerance of 1.5 bar \pm 0.08 bar		
Variable pressure reducer: leak at oxygen outlet 7 > 30 ml/min (with valve closed and 200 bar bottle pressure).	Unacceptable pressure rise in pressure reducer.	Replace piston (Section 6.6, page 28 or Section 6.7, page 30 or Section 6.8, page 33) or have pressure reducer repaired by manufacturer (WEINMANN).

5.2 Flowmeter OXYWAY Click

Fault	Cause	Remedy
Unusually high oxygen consumption	Leak in system	Find and eliminate leak
Inadequate O ₂ supply during inhalation	Leak in system	Find and eliminate leak
	Defect or internal soiling in flowmeter	Have flowmeter repaired
Flowmeter not working	Flowmeter defective	Have flowmeter repaired
	Oxygen source defective or empty	Check oxygen source

6. Repair Information and Repair Instructions for pressure reducer OXYWAY and OXYTRON

6.1 General

- **Observe the safety information on page 4 of the Operating Instructions for OXYWAY.**
- **Caution: Risk of explosion!**

To prevent explosion risks, make sure your hands, tools and workplace are absolutely free from oil and grease during the repair work.

For this reason you should always wash your hands before starting work.
- Any operations on the appliance presuppose detailed knowledge and observance of the Operating Instructions and the Service and Repair Instructions.
- You should only carry out repairs described in these Service and Repair Instructions. Otherwise proper functioning of OXYWAY cannot be guaranteed.
- Be sure to perform a final check after **every** repair (see "3. Final Check" on page 11).
- If you replace components or individual parts, always use genuine WEINMANN parts only.
- **If there is a fault in the body or the relief valve, have OXYWAY repaired by the manufacturer (WEINMANN).**
- Certain parts must be screwed up using a torque wrench. To ensure compliance with the specified torque, **check your torque wrench regularly for torque compliance (control of inspection, measuring and test equipment).**
- **Note:**

The item numbers in the following text are the same as the item numbers in the Replacement Parts List on page 64 and the overview on page 4.

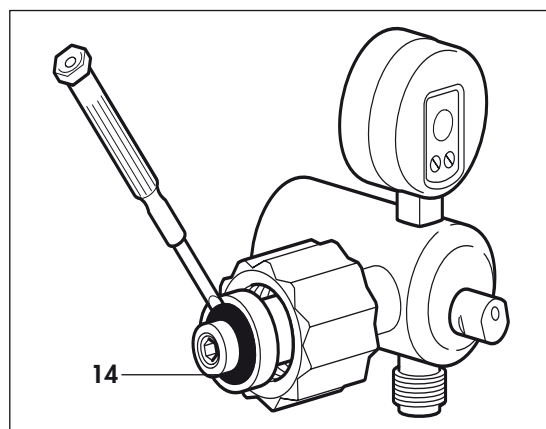
6.2 Replacing sealing ring in connector

Tools required:

- From tool set WM 15366:
 - Watchmaker's screwdriver WM 3004130041 (cleaned with methylated spirit).

1. Using a **cleaned** screwdriver, ease sealing ring **14** carefully out of its groove.

Be careful not to damage the groove in any way.
2. If necessary, clean the groove with a dry cloth or a cloth moistened with clean water.
3. **Carefully** press a new sealing ring into the groove. **Do not use any tools for this.**
4. Perform a final check (see "3. Final Check" on page 11).

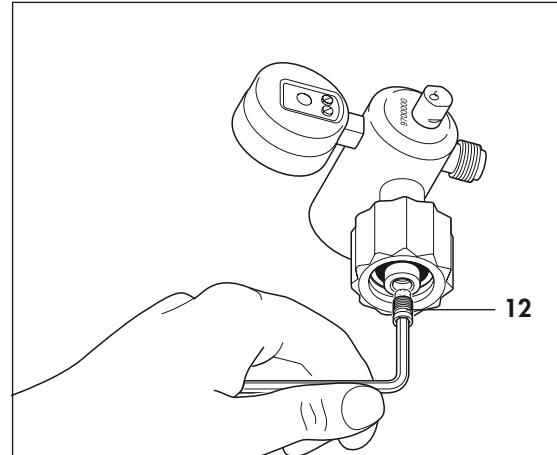


6.3 Replacing filter screw

Tools required:

- From tool set WM 15366:
 - Allen wrench 4 mm WM 30042 (**cleaned with methylated spirit**).

1. If necessary, clean out the hexagonal socket of the filter screw **12** with a small screwdriver.
2. Loosen the filter screw **12**, but do **not** unscrew it completely yet.
3. So that no dirt can fall into the pressure reducer, hold it with the connector pointing down. In this position, remove the filter screw **12**.
4. Screw a new filter screw **12** into the connector stub and tighten.
5. Perform a final check. Enter the change of filter screw with date in the service record.



6.4 Replacing oxygen outlet

6.4.1 Replacing G 3/8 pressure outlet

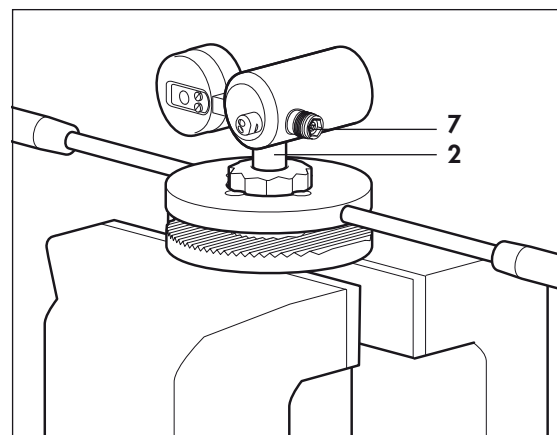
Tools and material required:

- From tool set WM 15366:
 - Counter tool with clamping handle WM 30035,
 - Screwdriver bit 9 mm WM 30039 (**cleaned with methylated spirit**);
 - Watchmaker's screwdriver WM 30041 (**cleaned with methylated spirit**);
- Vise;
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (never use other Loctite products).
- Torque wrench 25 Nm \pm 1 Nm,

Note:

The oxygen outlet must always be replaced as a complete unit, because the flow rate cannot be guaranteed if individual parts are replaced.

1. Clamp pressure reducer firmly in counter tool. To do this, perform the following steps:
 - Using a **cleaned** screwdriver, carefully ease sealing ring **14** out of groove in connector. **Be careful not to damage the groove at all.**
 - Clamp bottom part of counter tool firmly in a vise.
 - Place the top part of the counter tool on the bottom part of the counter tool.
 - Screw the connection nut onto the bottom part of the counter tool.
 - Tighten the connection nut using the top part of the counter tool.



2. Using **cleaned** screwdriver bit, unscrew defective oxygen outlet **7** by turning to left.
3. Fit new oxygen outlet **7**:

- Remove any adhesive residues from screw threads. Use a brass wire brush for the external thread and if necessary a tap G 1/8 for the internal thread.

Caution:

When cleaning threads, no dirt must enter body of pressure reducer.

- Take a new oxygen outlet .

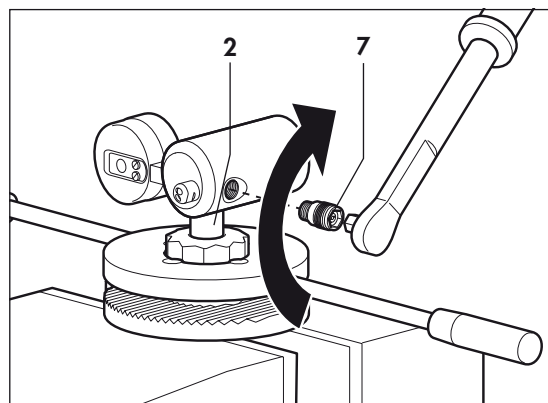
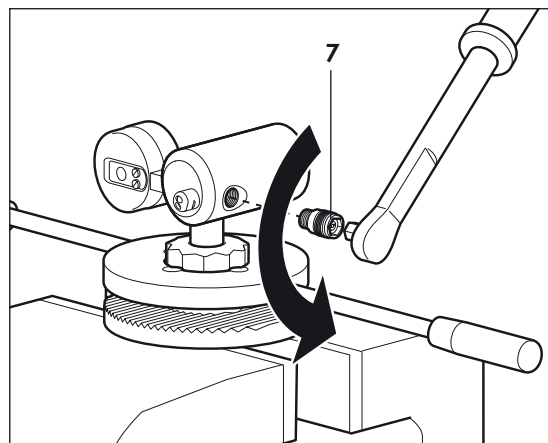
Caution:

The oxygen outlet must be clean and free from oil and grease.

- Apply a little Loctite 245 to screw thread with the exception of the first two turns.

The first two turns must be kept free of Loctite to ensure that no Loctite enters the body of the pressure reducer.

- Screw oxygen outlet **7** by hand into pressure reducer.
- Tighten oxygen outlet **7** with 9 mm screwdriver bit and a torque wrench (25 Nm \pm 1 Nm).



4. Release pressure reducer from counter tool.
5. If necessary, clean groove in connector **2** with dry cloth or cloth moistened with clean water.
6. Now press **new** sealing ring **14** carefully into groove. **Do not use any tools.**
7. Perform a final check (see "3. Final Check" on page 11).

6.4.2 Replacing UNF 9/16 flow outlet

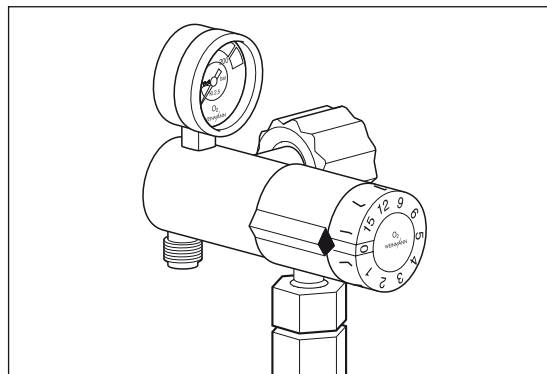
Tools required:

- UNF 9/16 counter tool, consisting of:
 - counter tool WM 14224
 - locknut WM 14223
- special wrench SW 20/22, WM 22391
- counter tool WM 30035 (clamping handle not required)
- torque wrench with SW 22 open-end wrench insert.

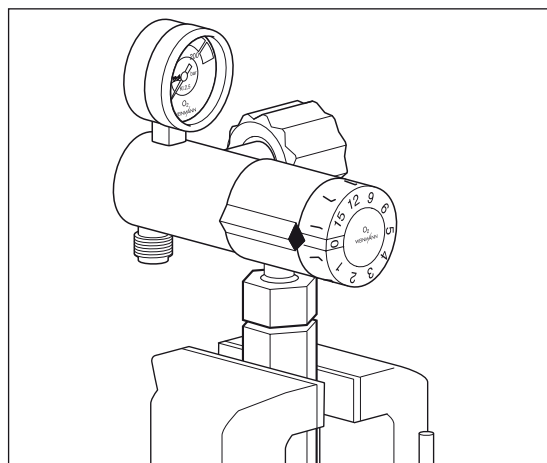
Remove defective flow outlet

1. Screw locknut WM 14223 onto counter tool WM 14224.

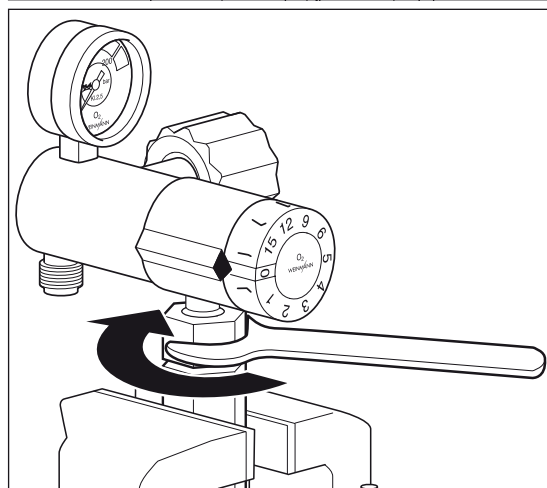
2. Screw the UNF counter tool completely onto the flow outlet of the pressure reducer.



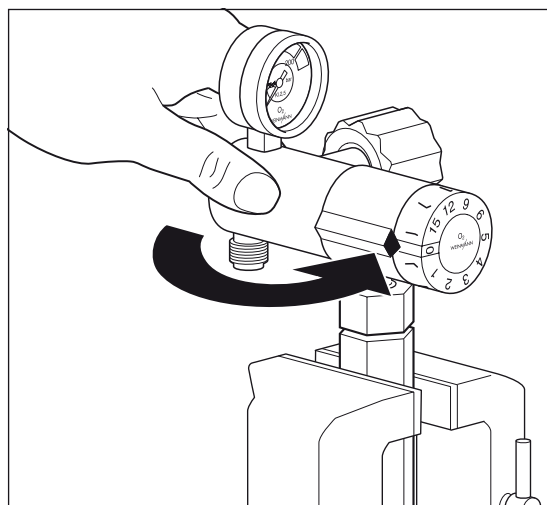
3. Clamp the pressure reducer in a vise so that only counter tool WM 14224 is actually in the vise.



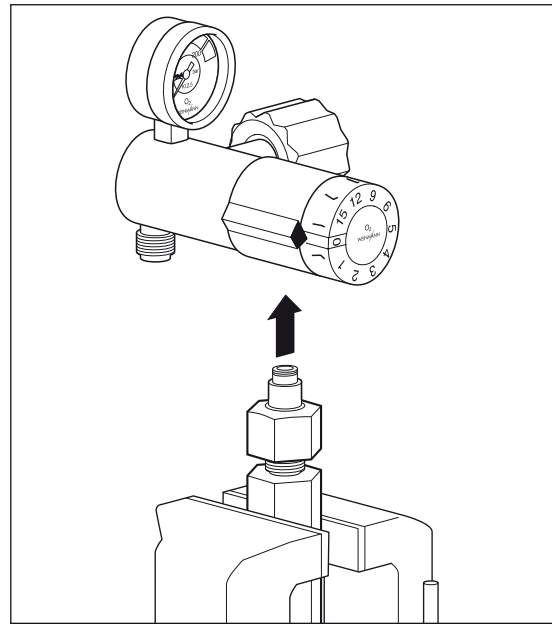
4. To clamp the defective flow outlet firmly in the counter tool, turn locknut WM 14223 clockwise with a 22 mm open-end wrench.



5. To release the pressure reducer from the flow outlet, turn the pressure reducer anticlockwise by hand.



6. Take the pressure reducer off the flow outlet.
7. To release the defective flow outlet in the counter tool, turn locknut WM 14223 anti-clockwise with the 22 mm open-end wrench.
8. Unscrew the defective flow outlet from the locknut.



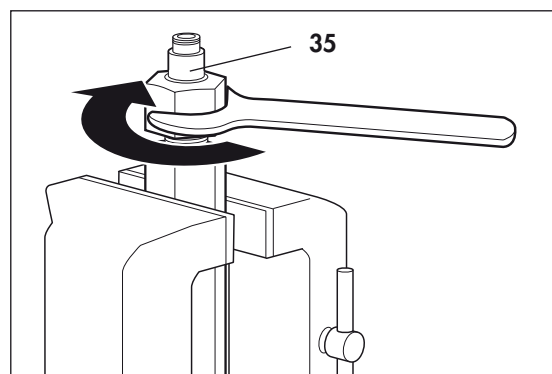
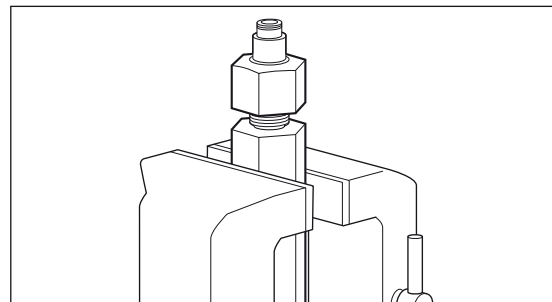
Assembling new flow outlet

Caution:
When cleaning threads, no dirt must enter body of pressure reducer.

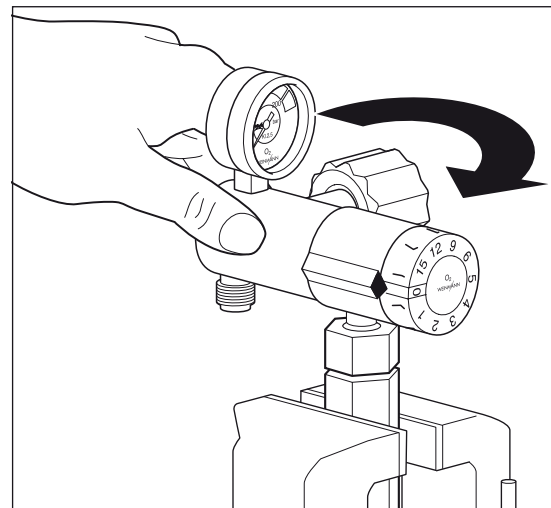
1. Take a new oxygen outlet.
- Caution:**
The oxygen outlet 35 must be clean and free from oil and grease.
2. Screw the new flow outlet fully into the counter tool.
3. Wet about 2 threads of the new flow outlet with Loctite 245 (WM 14920).

The first two turns must be kept free of Loctite to ensure that no Loctite enters the body of the pressure reducer.

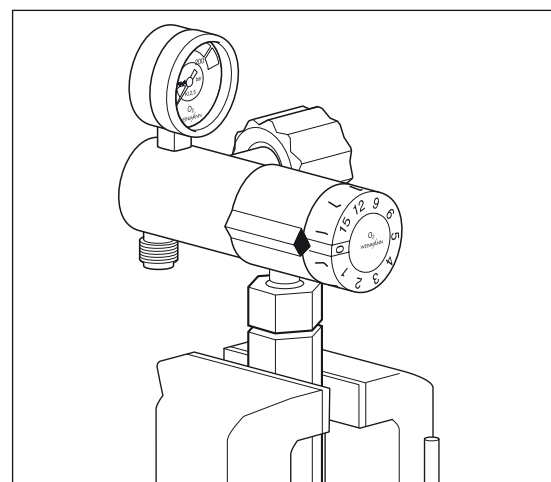
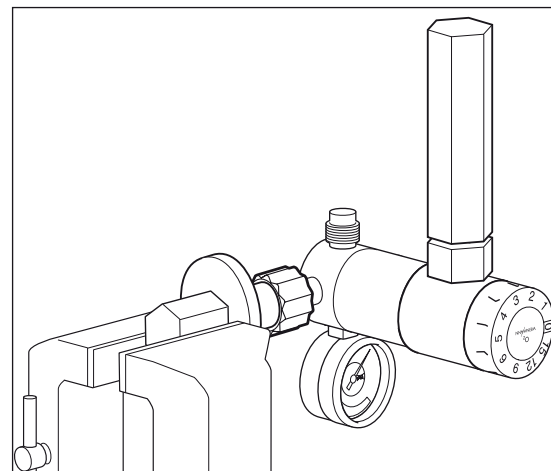
4. Clamp the counter tool in a vise so that only counter tool WM 14224 is actually in the vise.
5. To clamp the new flow outlet firmly in the counter tool, turn the counter tool clockwise with the 22 mm open-end wrench.



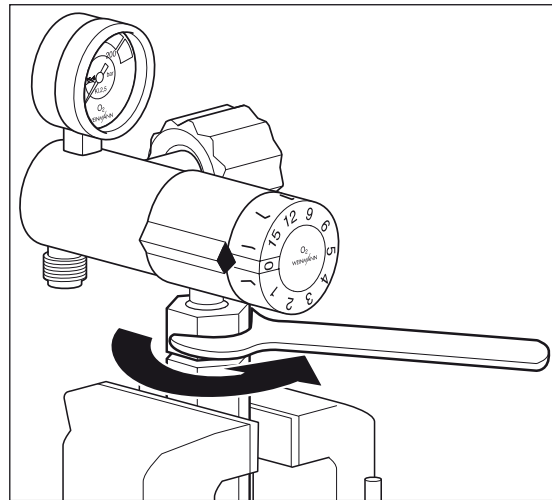
6. Screw the pressure reducer onto the new flow outlet hand-tight.
7. Take the pressure reducer with the counter tool screwed onto it out of the vise.



8. Clamp counter tool WM 30035 in the vise.
9. Screw the pressure reducer and oxygen inlet hand-tight to clamped counter tool WM 30035.
10. Put a torque wrench with open-end wrench insert SW 22 on counter tool WM 14224.
11. Tighten counter tool WM 14224 and thus the new flow outlet on the pressure reducer (torque: $25 \text{ Nm} \pm 1 \text{ Nm}$).
12. Release the pressure reducer from counter tool WM 30035.
13. Take counter tool WM 30035 out of the vise.
14. Clamp the pressure reducer in the vise so that only counter tool WM 14224 is actually in the vise.



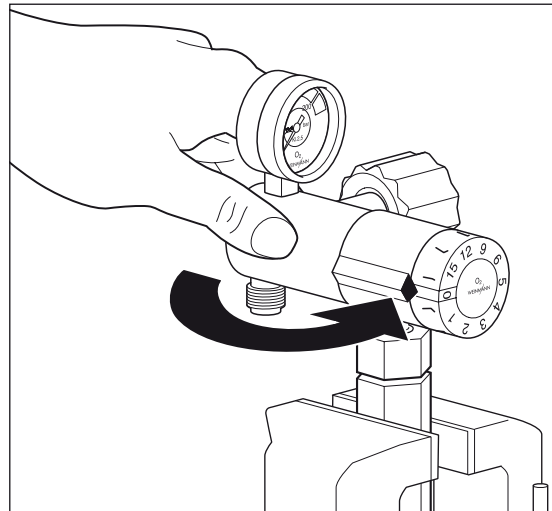
15. To release locknut WM 14223 from the flow outlet, turn it anticlockwise with the 22 mm open-end wrench.



16. Unscrew the pressure reducer and flow outlet from locknut WM 14223.

17. Take the counter tool out of the vise.

18. Perform a final check
(see "3. Final Check" on page 11).

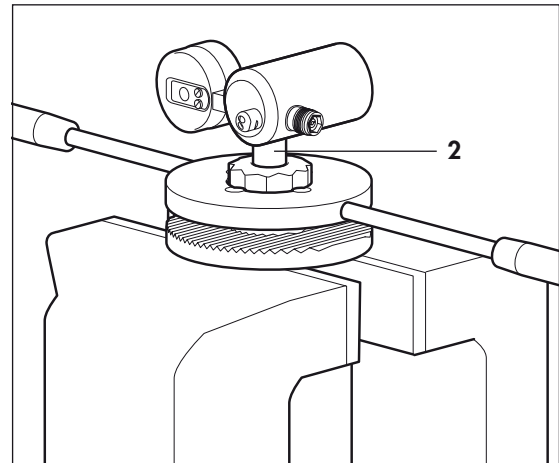


6.5 Replacing gage

Tools and material required:

- From tool set WM 15366:
 - Counter tool with clamping handle WM 30035,
 - Watchmaker's screwdriver WM 30041 (**cleaned with methylated spirit**);
- Vise;
- Sealing ring **14** (WM 1145);
- Packing washer 0.5 mm **17** (WM 1145/35);
- Packing washer 0.8 mm **18** (WM 1145/36).
- Torque wrench 23 Nm – 1 Nm,
- Torque wrench 28 Nm + 2 Nm,
- Open-end wrench SW 12 or SW 14;

1. Clamp pressure reducer firmly in counter tool.
To do this, perform the following steps:
 - Using a **cleaned** screwdriver, carefully ease sealing ring **14** out of groove in connector.
Be careful not to damage the groove at all.
 - Clamp bottom part of counter tool firmly in a vise.
 - Place the top part of the counter tool on the bottom part of the counter tool.
 - Screw the connection nut onto the bottom part of the counter tool.
 - Tighten the connection nut using the top part of the counter tool.



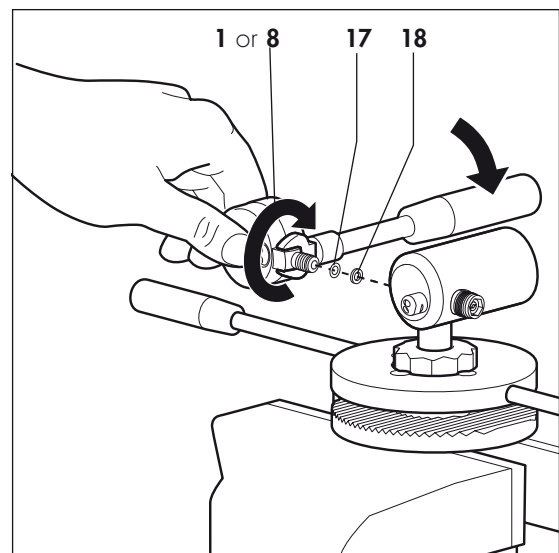
2. Loosen defective gage **1** or **8** with an open-end wrench, then unscrew it by hand.
3. **Carefully** remove two packing washers **17** and **18** from threaded hole.

Take care not to damage sealing surface in body of pressure reducer.

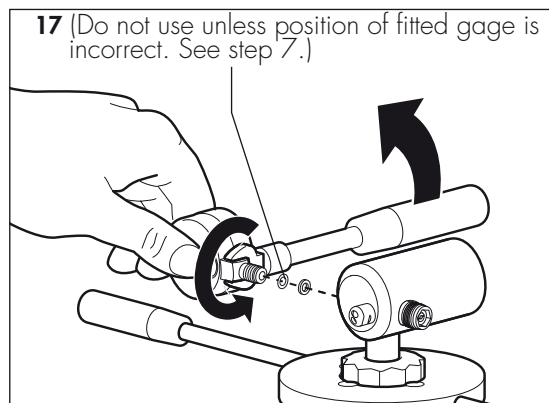
Ensure when taking out the packing washers that no particles of dirt get into the bore of the inside of the pressure reducer housing.

To guarantee the function of the pressure reducer, we recommend checking the inside of the pressure reducer housing for any contamination before the final check. To do so, proceed in accordance with the relevant section "Replacing piston on pressure reducer" (without changing the piston).

If you cannot remove the packing washers, **do not insert an additional packing washer**, but send the pressure reducer to WEINMANN for repair.



4. Of the two new packing washers, first insert only the thicker 0.8 mm packing washer **18** in the threaded hole.
5. Place open-end wrench insert in torque wrench (23 Nm – 1 Nm).
6. Screw gage into pressure reducer by hand, then tighten firmly with torque wrench.
7. Check position of gage. **If not correct**,
 - unscrew gage again,
 - insert second packing washer **17** (0.5 or 0.8 mm) in threaded hole and
 - tighten gage with torque wrench (23 Nm – 1 Nm).
8. If position of gage in relation to body is still not correct, turn gage to correct position using a **maximum** torque of 28 Nm + 2 Nm.
9. Release pressure reducer from counter tool.
10. If necessary, clean groove in connector **2** with dry cloth or cloth moistened with clean water.

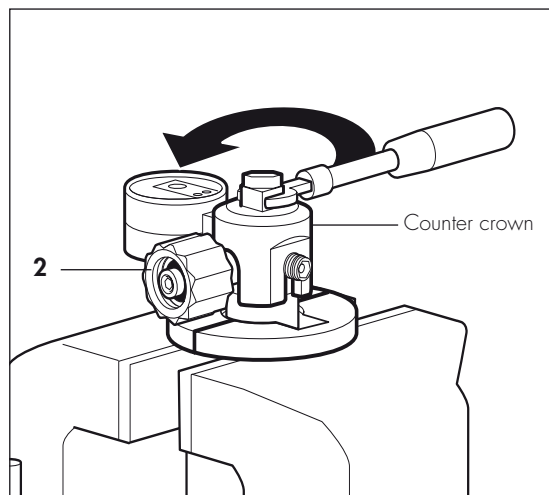


11. **Carefully** press **new** sealing ring **14** into groove. **Do not use any tools.**
12. Perform final check (see "3. Final Check" on page 11).

6.6 Replacing piston in pressure reducer FIX (WM 30050, 30100, 30200, 30300, 30350)

Tools and material required:

- From tool set WM 15366:
 - Cover clamping device WM 30036,
 - Cover fitting device WM 30037,
 - Counter crown WM 30038,
 - Vise;
 - Oxygen lubricant WM 14934.
 - Torque wrench 8 Nm + 2 Nm,
 - Open-end wrench insert SW 12;
1. **Gently** clamp cover clamping device in a vise.
 2. Insert pressure reducer in cover clamping device.
 3. Now clamp cover clamping device firmly in the vise. This presses the two halves of the clamping device together and holds the pressure reducer in position.
 4. Place counter crown over body. "A" on counter crown must point toward connector **2**.
 5. Now turn body to left to loosen it, but **do not remove it yet**.



6. Undo vise and remove pressure reducer.
7. Now carefully remove cover by hand.

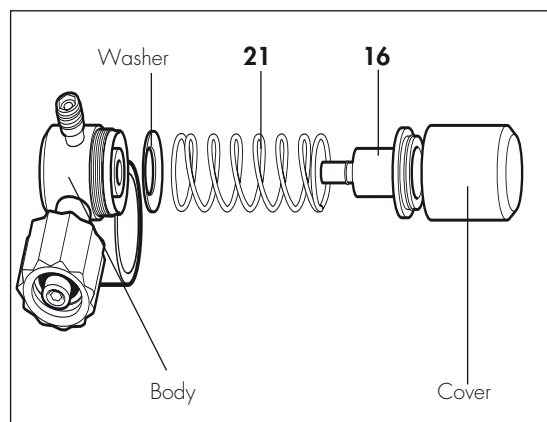
Caution!

The piston spring is under strong compression. Cover and spring could fly out at you.

8. Remove spring **21**.
9. Remove any adjustment washers inserted by the factory. Be sure to note their **positions**.
10. Remove faulty piston **16** from cover.
11. Blow out body and cover with oxygen.

Caution!

Make sure the oxygen you use for blowing out is directed away from you in order to prevent any accumulation of oxygen in your clothing.

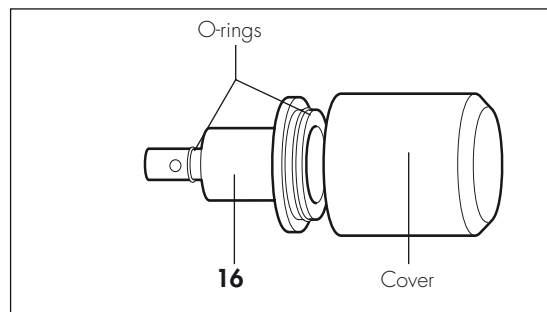


When reassembling as described below, make sure that all parts are **clean and free from oil and grease**.

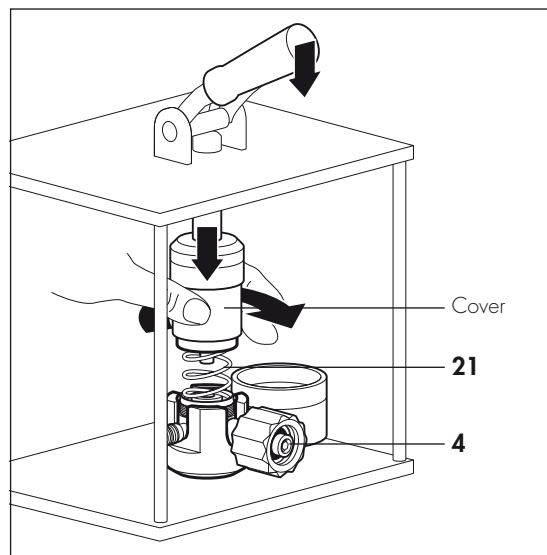
12. Apply a little oxygen lubricant to O-rings of new piston **16**, then carefully insert piston in cover.

Important!

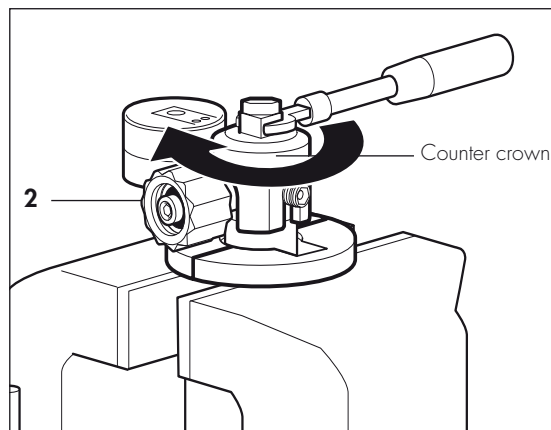
Take care not to damage O-rings.



13. Place body **4** in cover fitting device.
14. If adjustment washers were fitted, place them in body. Be sure to place them in the correct positions.
15. Insert spring **21** in body.
16. Carefully place cover on spring.
17. Now use cover fitting device to press cover down onto body.
18. Maintaining compression, screw cover onto body by hand (two to three turns are sufficient).
19. Remove pressure reducer from cover fitting device.



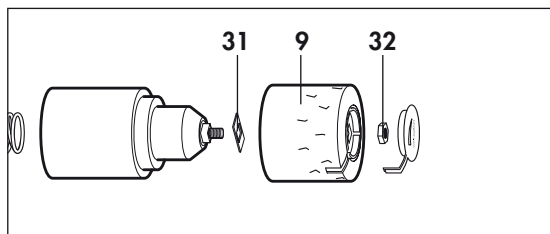
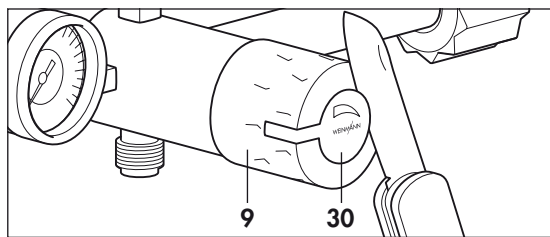
20. Tighten cover by hand.
21. Clamp pressure reducer in cover clamping device.
22. Place counter crown over body **4**. "A" on counter crown must point toward connector **2**.
23. Screw body firmly onto cover with a torque wrench (8 Nm + 2 Nm).
24. Undo vise and remove pressure reducer.
25. Perform final check
(see "3. Final Check" on page 11).



6.7 Replacing piston in pressure reducer FINE (WM 30500, 30700, 30750)

Tools and material required:

- From tool set WM 15366:
 - Cover clamping device WM 30036,
 - Cover fitting device WM 30037,
 - Counter crown WM 30038,
 - Socket wrench 8 mm;
 - Vise;
 - Torque wrench 8 Nm + 2 Nm,
 - Open-end wrench insert SW 12;
 - Flat-bladed knife;
 - Oxygen lubricant WM 14934.
1. Turn adjuster knob **9** to left until it meets the stop.
 2. Now remove cap **30** from adjuster knob by sliding knife blade under cap and levering cap off.
 3. Hold adjuster knob tightly and unscrew nut **32** with a socket wrench.
 4. Pull adjuster knob **9** off pressure reducer.
- Take care not to lose driving plate 31 on inside of adjuster knob.**



5. **Gently** clamp cover clamping device in a vise.
6. Insert pressure reducer in cover clamping device.
7. Now clamp cover clamping device firmly in vise. This presses the two halves of the cover clamping device together and holds the pressure reducer in position.
8. Place counter crown over body. "A" on counter crown must face toward connector **2**.
9. Turn body to left to loosen it, but **do not unscrew completely yet**.
10. Undo vise and remove pressure reducer.
11. Carefully unscrew cover by hand.

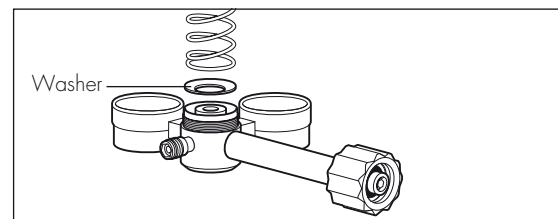
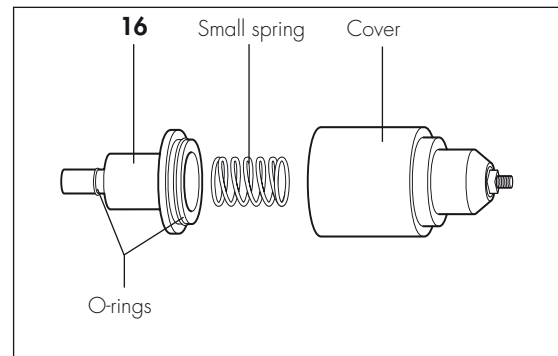
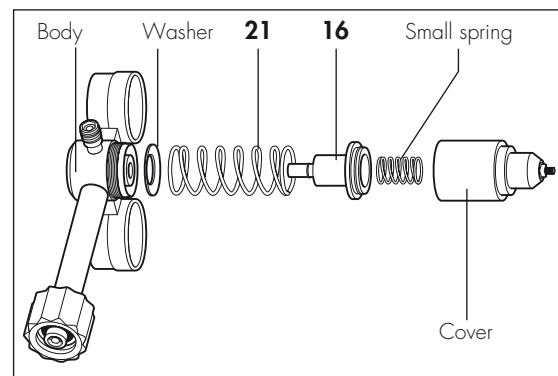
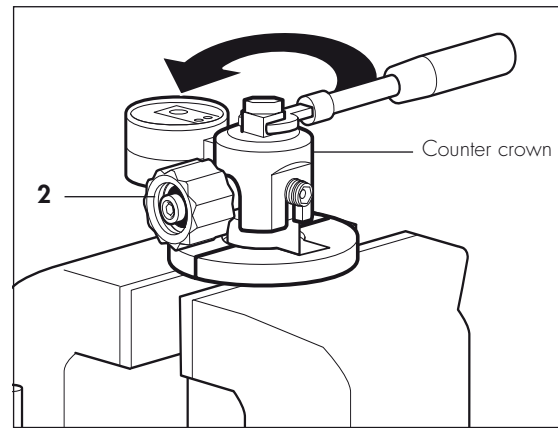
Caution!

The piston spring is under strong compression. Cover and spring could fly out at you.

12. Remove any adjustment washers inserted by the factory. Be sure to note their **positions**.
13. Pull faulty piston **16** out of cover.
14. Remove small spring from piston.
15. Blow out body and cover with oxygen.

Caution!

Make sure the oxygen you use for blowing out is directed away from you in order to prevent any accumulation of oxygen in your clothing.

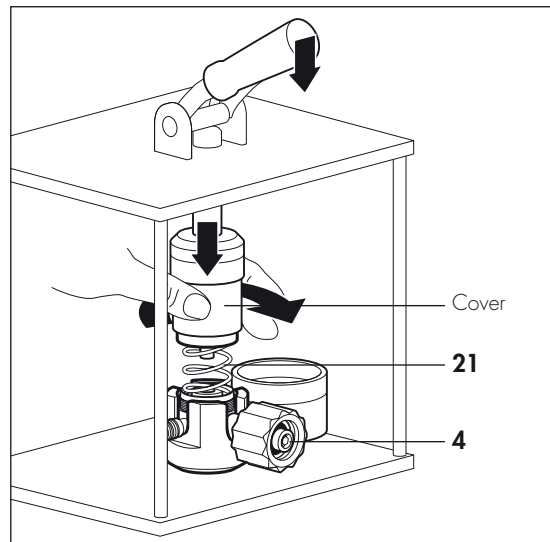


Important!

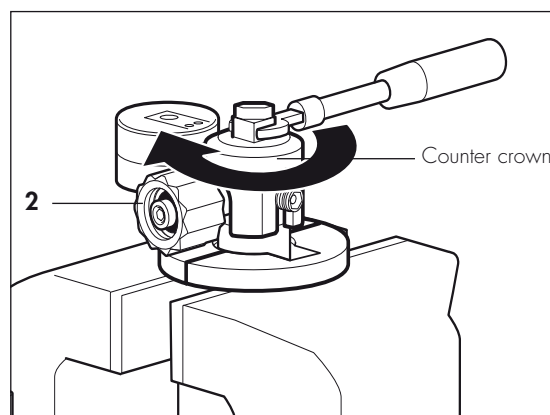
Take care not to damage the O-rings.

18. Place body **4** in cover fitting device.
19. If adjustment washers were fitted, place them in body taking care to ensure correct **positions**.
20. Insert spring **21** in body.
21. Carefully place cover on spring.

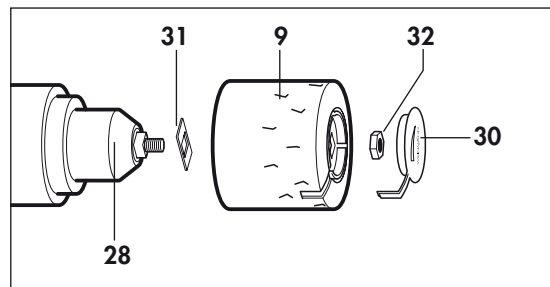
22. Use cover fitting device to press cover down onto body.
23. Maintaining compression, screw cover by hand onto body (two to three turns is sufficient).
24. Remove pressure reducer from cover fitting device.
25. Tighten cover by hand.



26. Clamp pressure reducer in cover clamping device.
27. Place counter crown over body **4**. "A" on counter crown must face connector **2**.
28. Screw body firmly to cover using a torque wrench (8 Nm + 2 Nm).
29. Undo vise and remove pressure reducer.



30. Push driver plate **31** onto square part of spindle **28**.
31. Now push adjuster knob onto spindle **9** so that driver plate **31** engages in recess in adjuster knob.
32. Screw adjuster knob on firmly with **new** nut **32**.
33. Push cap **30** onto adjuster knob.



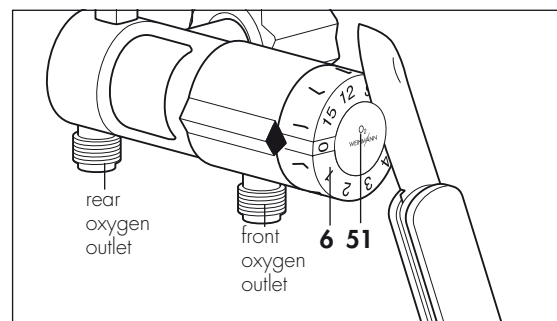
34. Perform final check
(see "3. Final Check" on page 11).

6.8 Replacing piston in pressure reducer FAST (WM 30600, 30800, 30850)

Tools and material required:

- From tool set WM 15366:
 - Cover clamping device WM 30036,
 - Cover fitting device WM 30037,
 - Counter crown WM 30038,
 - Screwdriver 3 mm WM 30043.;
 - Screwdriver bit 9 mm WM 30039 (cleaned with methylated spirit),
 - Watchmaker's screwdriver WM 30041 (cleaned with methylated spirit),
- Vise;
- Torque wrench 8 Nm + 2 Nm,
- Open-end wrench insert SW 12;
- Flat-bladed knife;
- Oxygen lubricant WM 14934;
- plus for repairing pressure reducer WM 30850:
 - Counter tool with clamping handle WM 30035 from tool set WM 15366,
- Torque wrench 25 Nm ± 1 Nm,
- Thread tap G 1/8,
- Brass wire brush,
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (Never use a different Loctite product).

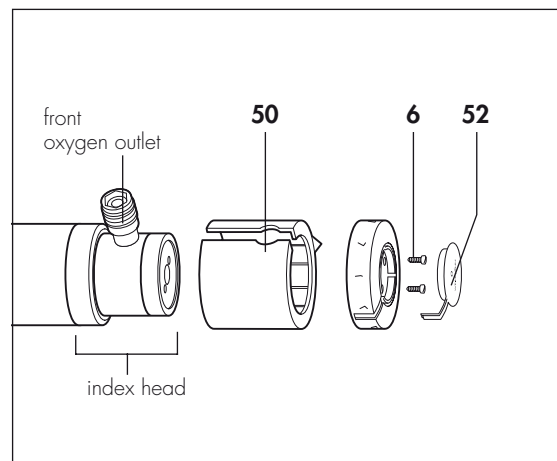
1. Turn index head **6** to position "0".
2. Remove cap **51** from index head by sliding knife blade under cap and levering off.



3. Hold index head tightly and unscrew the two countersunk screws **52**.

Take care not to change position of index head. Otherwise you cannot be sure that the actual flow values after reassembly will agree with those shown on the index head.

4. Lever off loose part of index head **6**.
5. Pull long part **50** of index head off body.



6. **Gently** clamp cover clamping device in a vise.
7. Slide the pressure reducer into the cover clamping device so that the front oxygen outlet fits into the opening of the cover clamping device.

Please note!

Slide the pressure reducer into the cover clamping device until you clamp on to the cover only.

8. Now clamp cover clamping device firmly in vise. This presses two halves of clamping device together and holds pressure reducer in position.
9. Place counter crown over body. "A" on counter crown must face connector **2**.
10. Now turn body to left to loosen it, but **do not completely unscrew it yet**.
11. Undo vise and remove pressure reducer.
12. Carefully unscrew cover by hand.

Caution!

The piston spring is under strong compression. Cover and spring could fly out at you.

13. Remove spring **21** and any adjustment washers from body. Be sure to note their **positions**.
14. Pull faulty piston **16** out of cover.
15. Blow out body and cover with oxygen.

Caution!

When blowing out with oxygen, take care that the oxygen is directed away from you to prevent any accumulation of oxygen in your clothing.

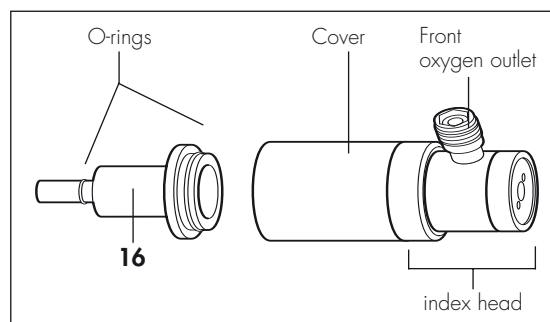
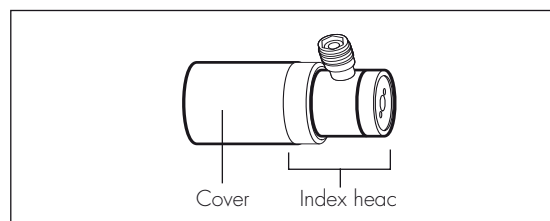
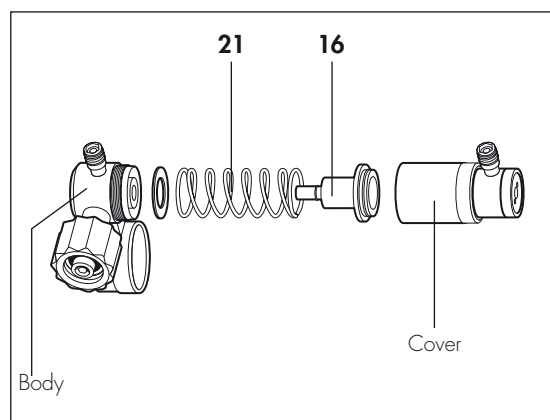
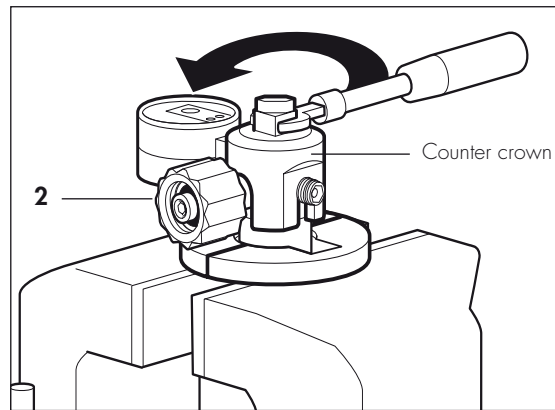
Cover assembly should not be loosened (disassembled) any farther, as this would cause changes in the relevant flow rates and the alignment of the two oxygen outlets in relation to each other.

When reassembling as described below, make sure all parts are **clean and free from oil and grease**.

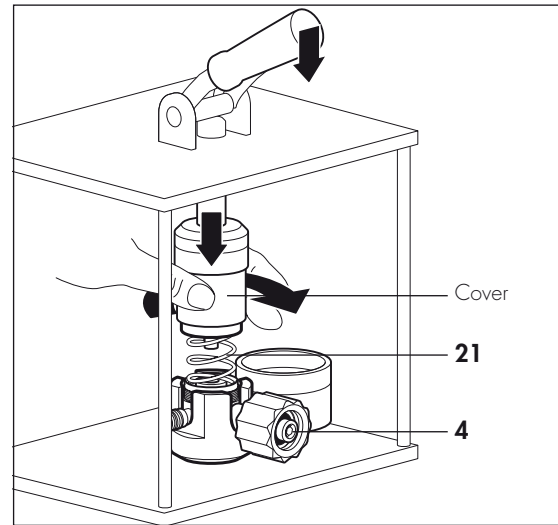
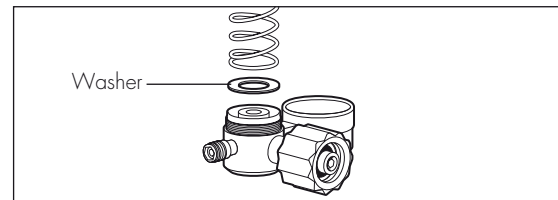
16. Carefully insert piston in cover.

Important!

Take care not to damage O-rings.

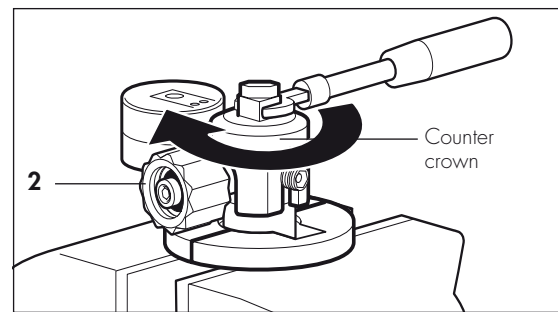


17. Place body in cover fitting device.
18. If adjustment washers were fitted, place them in body taking care to ensure correct **positions**.
19. Insert spring **21** in cover.
20. Carefully place cover onto body.
21. Use cover fitting device to press cover down onto body.
22. Maintaining pressure, screw cover onto body by hand (two to three turns are sufficient).
23. Remove pressure reducer from cover fitting device.
24. Screw on cover hand tight.



25. Clamp pressure reducer in cover clamping device.
26. Place counter crown over body. "A" on counter crown must face connector **2**.
27. Screw body firmly to cover using a torque wrench (8 Nm + 2 Nm).

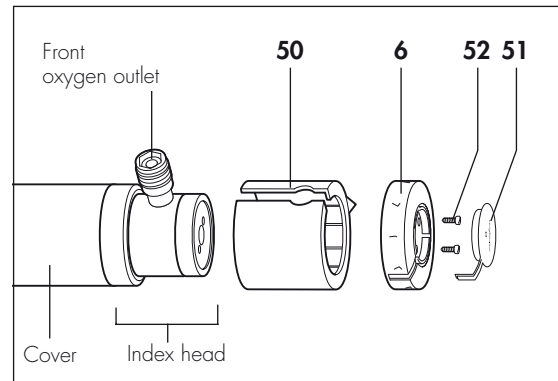
Caution!
The two oxygen outlets must be aligned.



28. Undo vise and remove pressure reducer.
29. Push long part **50** of index head onto body.
30. Place index head **6** on pressure reducer.

Take care to fit it in correct position. Triangular marker on long part of index head must then point to "0".

31. Screw on index head with two countersunk screws **52**.
32. Push cap **51** onto index head.
33. Perform final check (see "3. Final Check" on page 11).

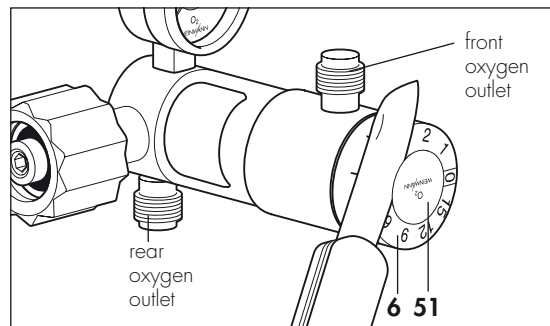


6.9 Replacing piston in pressure reducer Fast II High Flow (WM 31899)

Tools and material required:

- From tool set WM 15366:
 - Cover clamping device WM 30036,
 - Cover fitting device WM 30037,
 - Counter crown WM 30038,
 - Screwdriver 3 mm WM 30043.;
 - Screwdriver bit 9 mm WM 30039 (cleaned with methylated spirit),
 - Watchmaker's screwdriver WM 30041 (cleaned with methylated spirit),
- Vise;
- Torque wrench 8 Nm + 2 Nm,
- Open-end wrench insert SW 12;
- Flat-bladed knife;
- Oxygen lubricant WM 14934;
- plus for repairing pressure reducer WM 31899:
 - Counter tool with clamping handle WM 30035 from tool set WM 15366,
- Torque wrench 25 Nm ± 1 Nm,
- Thread tap G 1/8,
- Brass wire brush,
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (Never use a different Loctite product).

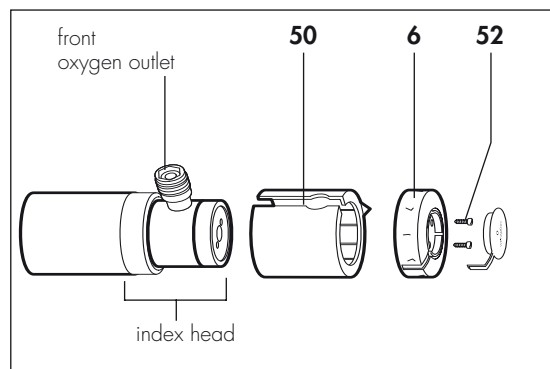
1. Turn index head **6** to position "0".
2. Remove cap **51** from index head by sliding knife blade under cap and levering off.



3. Hold index head tightly and unscrew the two countersunk screws **52**.

Take care not to change position of index head. Otherwise you cannot be sure that the actual flow values after reassembly will agree with those shown on the index head.

4. Lever off loose part of index head **6**.
5. Pull long part **50** of index head off body.



6. **Gently** clamp cover clamping device in a vise.
7. Slide the pressure reducer into the cover clamping device so that the front oxygen outlet fits into the opening of the cover clamping device.

Please note!

Slide the pressure reducer into the cover clamping device until you clamp on to the cover only.

8. Now clamp cover clamping device firmly in vise. This presses two halves of clamping device together and holds pressure reducer in position.
9. Place counter crown over body. "A" on counter crown must face connector **2**.
10. Now turn body to left to loosen it, but **do not completely unscrew it yet**.
11. Undo vise and remove pressure reducer.
12. Carefully unscrew cover by hand.

Caution!

The piston spring is under strong compression. Cover and spring could fly out at you.

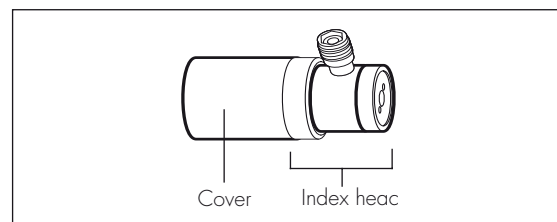
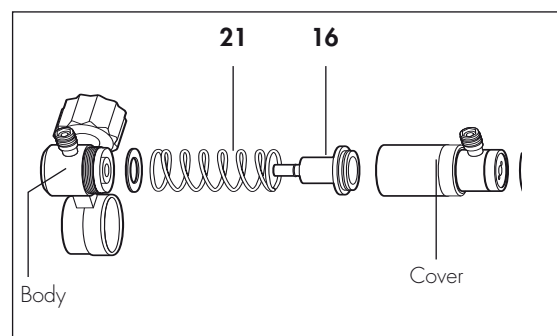
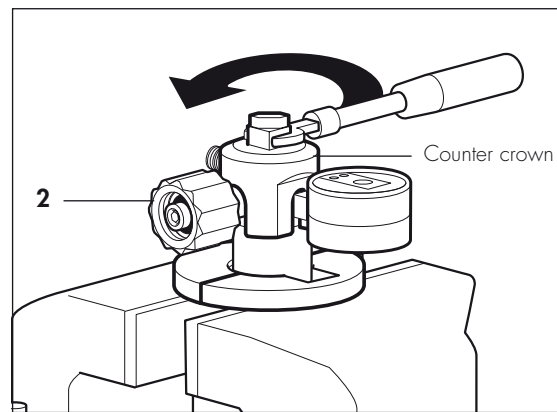
13. Remove spring **21** and any adjustment washers from body. Be sure to note their **positions**.
14. Pull faulty piston **16** out of cover.
15. Blow out body and cover with oxygen.

Caution!

When blowing out with oxygen, take care that the oxygen is directed away from you to prevent any accumulation of oxygen in your clothing.

Caution!

Cover assembly should not be loosened (dismantled) any farther, as this would cause changes in the relevant flow rates and the alignment of the two oxygen outlets in relation to each other.

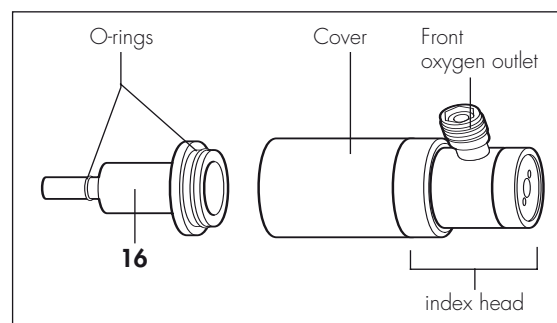


When reassembling as described below, make sure all parts are **clean and free from oil and grease**.

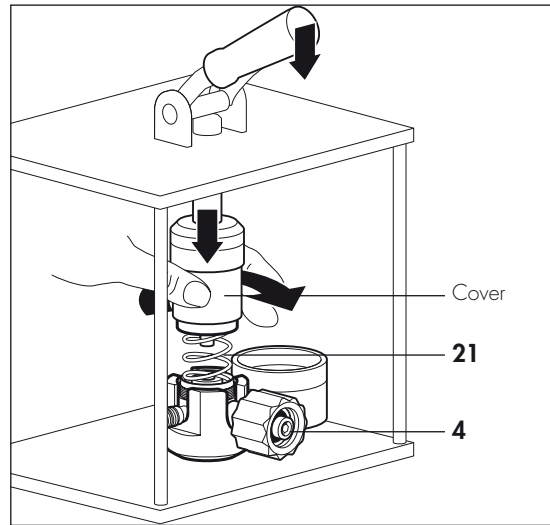
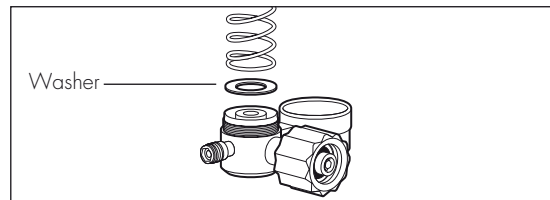
16. Carefully insert piston in cover.

Important!

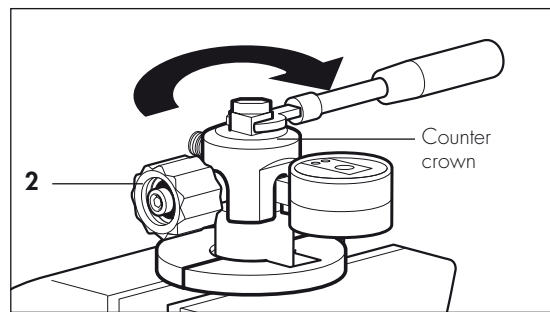
Take care not to damage O-rings.



17. Place body in cover fitting device.
18. If adjustment washers were fitted, place them in body taking care to ensure correct **positions**.
19. Insert spring **21** in body.
20. Carefully place cover on spring.
21. Use cover fitting device to press cover down onto body.
22. Maintaining pressure, screw cover onto body by hand (two to three turns are sufficient).
23. Remove pressure reducer from cover fitting device.
24. Screw on cover hand tight.



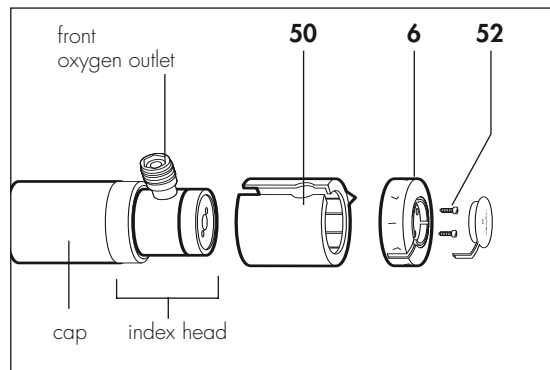
25. Clamp pressure reducer in cover clamping device.
26. Place counter crown over body. "A" on counter crown must face connector **2**.
27. Screw body firmly to cover using a torque wrench (8 Nm + 2 Nm).



28. Undo vise and remove pressure reducer.
29. Push long part **50** of index head onto body.
30. Place index head **6** on pressure reducer.

Take care to fit it in correct position. Triangular marker on long part of index head must then point to "0".

31. Screw on index head with two countersunk screws **52**.
32. Push cap **51** onto index head.
33. Perform final check (see "3. Final Check" on page 11).

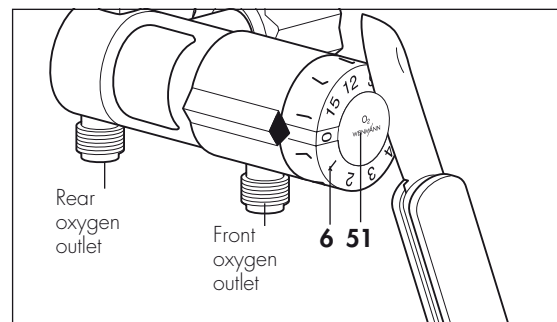


6.10 Replacing index head / cover

- From tool set WM 15366:
 - Cover clamping device WM 30036,
 - Cover fitting device, WM 30037,
 - Counter crown WM 30038,
 - Special pliers for WM 30046,
 - Counter tool:
 - UNF (from WM 14223 and WM 14224),
 - G 3/8 WM 22827 (from 15348 or WM 15349),
 - Fitting aid,
 - Allen (internal hexagon) key, 2 mm,
 - Screwdriver 3 mm WM 30043;
 - Screwdriver bit 9 mm WM 30039 **(cleaned with methylated spirit)**,
 - Watchmaker's screwdriver WM 30041 **(cleaned with methylated spirit)**,
- Vise;
- Torque wrench 8 Nm + 2 Nm;
- Open-end wrench insert SW 12;
- Flat-bladed knife;
- Oxygen lubricant WM 14934;
- plus for repairing pressure reducer WM 30850:
 - Counter tool with clamping handle WM 30035 from tool set WM 15366,
- Torque wrench 25 Nm \pm 1 Nm,
- Thread tap G 1/8,
- Brass wire brush,
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (Never use a different Loctite product).

6.10.1 Dismantling adjuster knob

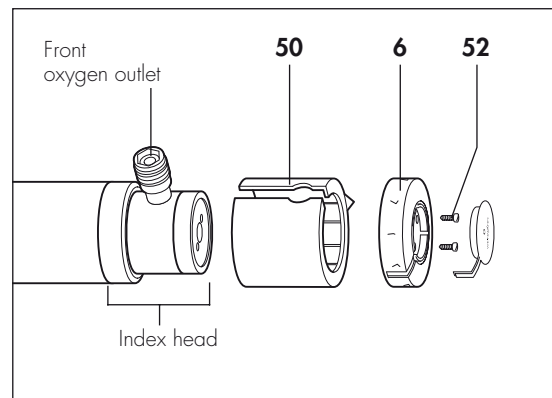
1. Set index head **6** to "0".
2. Remove cap **51** from index head by sliding knife blade under cap and levering off.



3. Hold index head firmly and unscrew the two countersunk screws **52**.

Take care not to change position of index head. Otherwise you cannot be sure that the actual flow values after reassembly will agree with those shown on the index head.

4. Lift off loose part of index head **6**.
5. Pull long part **50** of index head off body.



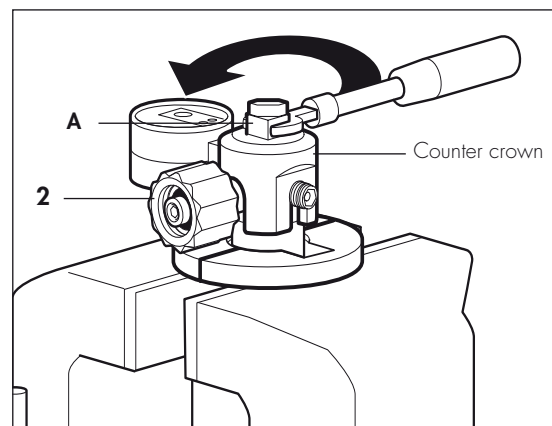
6.10.2 Removing cover with index head from body

1. **Gently** clamp cover clamping device in a vise.
2. Insert pressure reducer in cover clamping device so that front oxygen outlet fits into opening in cover clamping device.

Caution!

Push pressure reducer into cover clamping device only just far enough to clamp the cover itself.

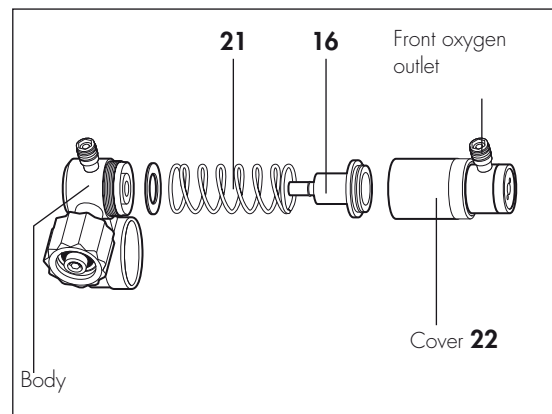
3. Now clamp cover clamping device firmly in vise. This presses the two halves of the cover clamping device together and holds the pressure reducer in position.
4. Place counter crown over body. "A" on counter crown must face towards connector **2**.
5. Turn body to left to loosen it, **but do not unscrew completely yet**.
6. Open vise and remove pressure reducer.
7. Carefully unscrew cover from index head.



Caution!

The piston spring is under strong compression. Cover and spring could fly out at you.

8. Remove spring **21** and any adjustment washers from body. Be sure to note their **positions**.

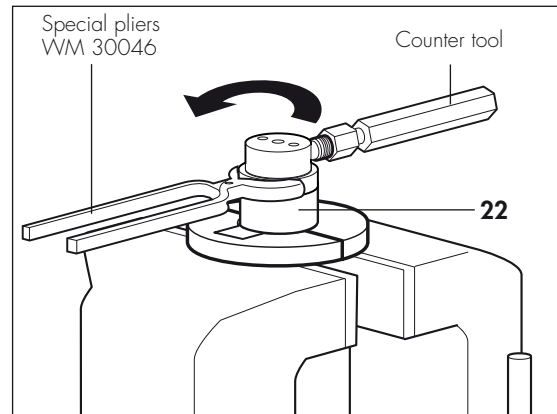
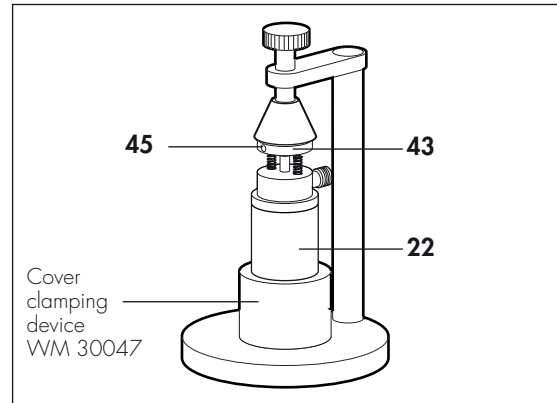
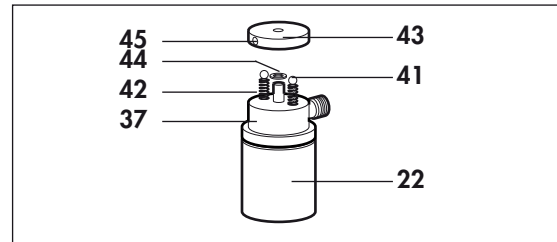


6.10.3 Removing index head from cover

Caution!

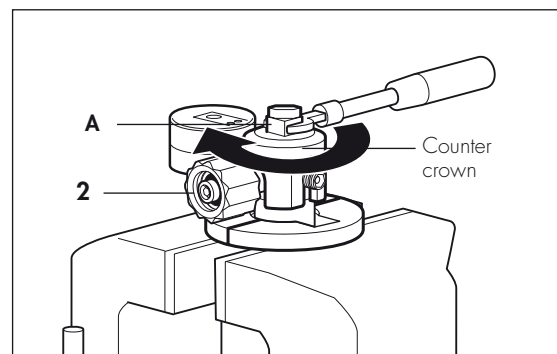
Under the index disk are balls and springs which are under compression. Perform the following steps carefully, otherwise the springs and balls could fly out at you.

1. Loosen grub screw **45** of index disk **43**.
2. Carefully remove index disc **43**, slide ring **44**, springs **42** and balls **41** from index head.
3. Push the locator for the orifice disk completely out of the index head.
4. Clamp the cover about 20 mm down in the cover clamping device.
5. Screw the special counter tool onto the oxygen outlet and use the special pliers to remove the union nut of the index head from the cover.



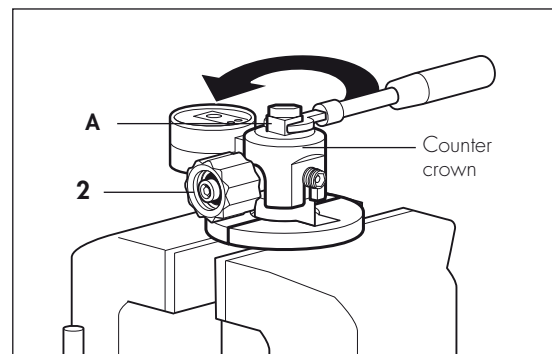
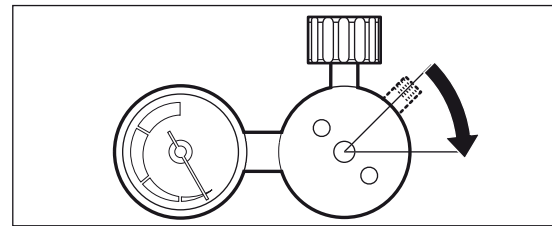
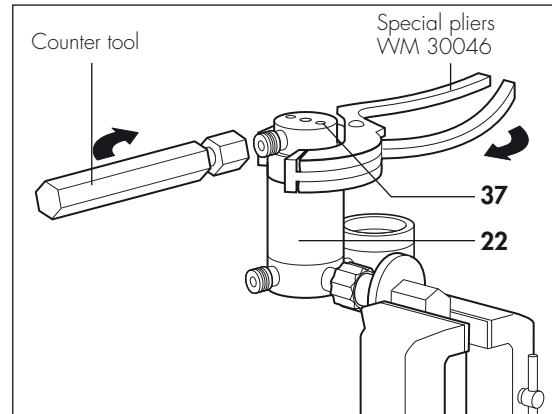
6.10.4 Assembling index head and cover

1. Take a new index head or cover, as necessary.
2. Screw cover hand tight onto body.
3. Clamp pressure reducer in cover clamping device.
4. Place counter crown over body. "A" on counter crown must face towards connector.
5. Screw body onto cover using a torque wrench (8 Nm +2 Nm).



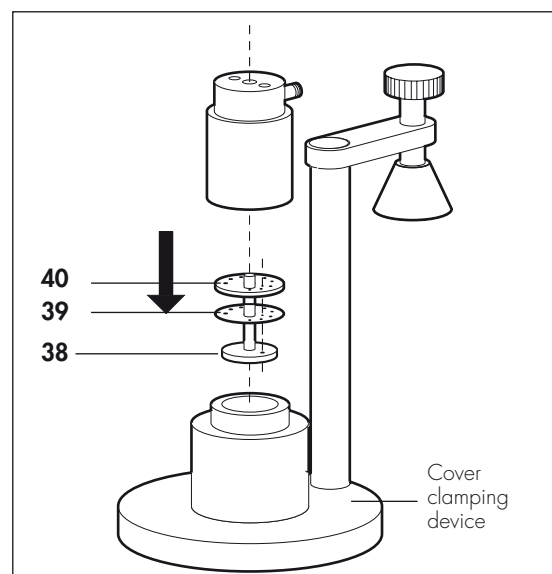
6.10.5 Aligning oxygen outlet

1. Screw the empty index head onto the bottom part of the housing.
2. Schrauben Sie die Anschlussmutter auf das Konterwerkzeug.
3. Befestigen Sie das Konterwerkzeug an dem Sauerstoffausgang.
4. Use the rubber-jawed pliers to slacken the screwed connection on the index head.
5. Now use the special counter tool to turn the oxygen outlet into its final position. It should now no longer be possible to turn the index head.
6. Both oxygen outlets are in line.
7. Release the special counter tools.
8. Unscrew the connection nut from the counter tool.
9. Clamp the pressure reducer in the cover clamping device.
10. Clamp the counter crown over the housing. The **A** on the counter crown must point towards the connection bolt.
11. Now release the housing by turning it anticlockwise.

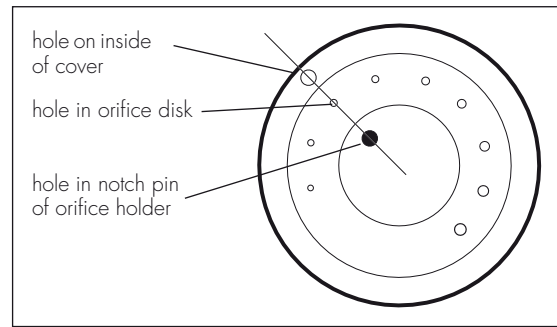


6.10.6 Inserting orifice disk and fitting index disk

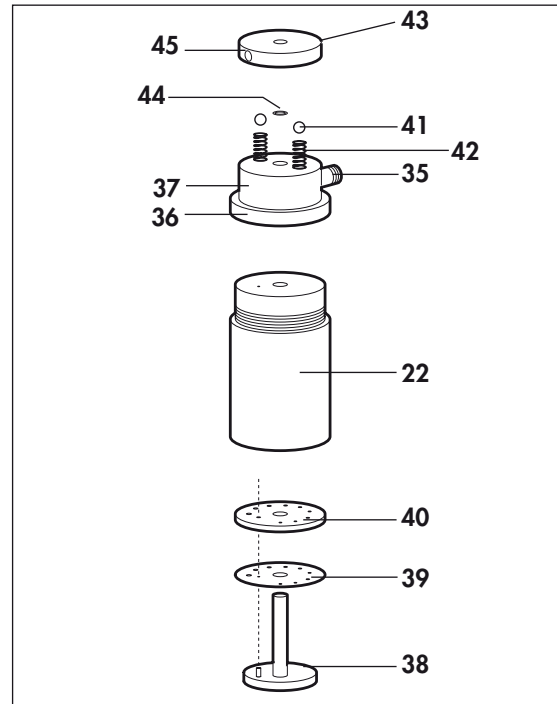
1. Place orifice holder **38** complete with orifice disk **39** and slide disk **40** onto fitting aid and push cover with index head onto it as far as possible.
2. Remove pre-assembled cover from fitting aid.



3. Align hole on inside of cover with hole in notch pin.
4. Put the preassembled housing back on the fitting aid. There must be no change in the position of orifice holder in relation to cover.



5. Place slide disc **44** over projecting spindle of orifice holder.
6. Insert springs **42** in corresponding holes and place balls **41** on springs **42**.
7. Place index disk **43** on balls **41** so that thread of fixing screw is opposite oxygen outlet **35**.
8. Use fitting aid to press index disk onto index head. Secure index head with fixing screw.
9. Take assembled unit from fitting aid and check position of holes in cover and notch pin.

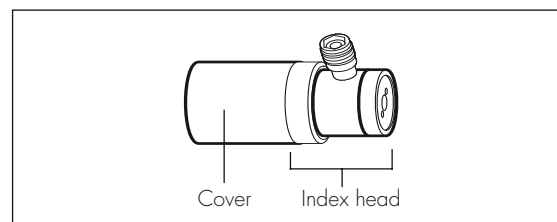


6.10.7 Fitting index head with cover on body

1. Blow out body and cover with oxygen.

Caution!

When blowing out with oxygen, take care that the oxygen is directed away from you to prevent any accumulation of oxygen in your clothing.



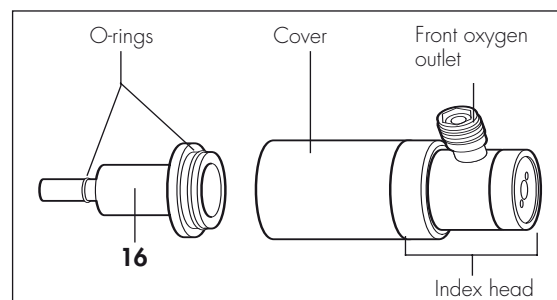
When reassembling as described below, make absolutely sure that all parts are **clean and free from oil and grease**.

2. Push the piston carefully into the cover.

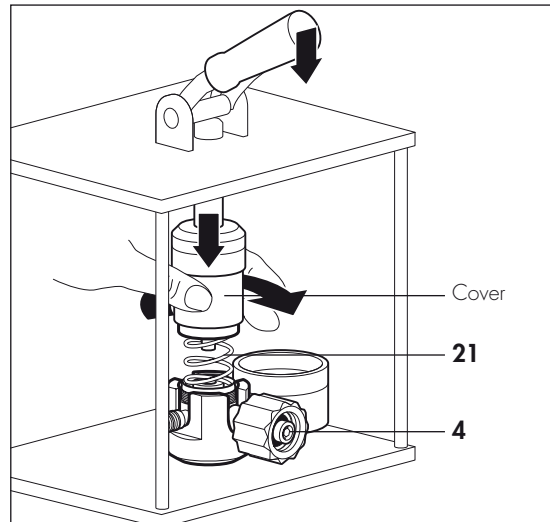
Important

Take care not to damage O-rings.

3. Place body in cover fitting device.
4. If any adjustment washers were present, place them in the body. Take care to fit in correct **position**.
5. Insert spring **21** into cover.



6. Carefully place cover onto body.
7. Now use cover fitting device to press cover down onto body.
8. Maintaining the pressure, screw cover onto body by hand (two to three turns is sufficient).
9. Remove pressure reducer from cover fitting device.
10. Screw cover on firmly by hand.

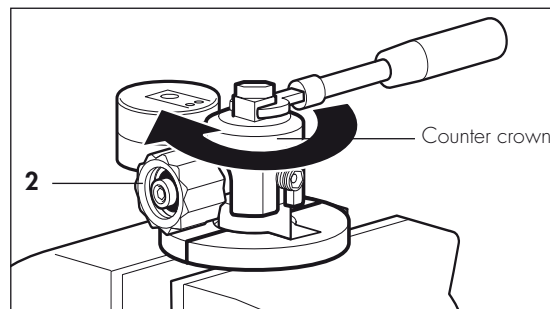


11. Clamp pressure reducer in cover clamping device.
12. Place counter crown over body. "A" on counter crown must face towards connector **2**.
13. Screw body onto cover using a torque wrench (8 Nm + 2 Nm).

Caution!

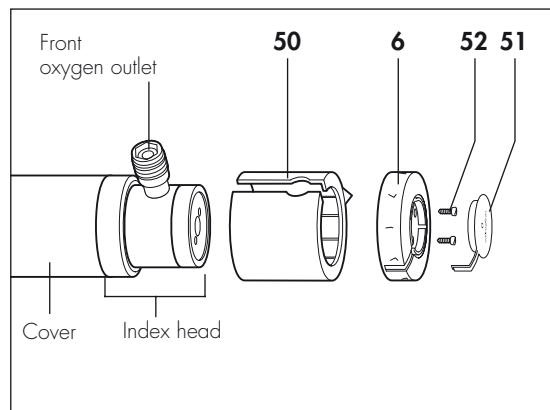
The two oxygen outlets must be aligned.

14. Undo vise and remove pressure reducer.



6.10.8 Fitting adjuster knob

1. Push long part **50** of index head onto body.
2. Place index head **6** on pressure reducer.
Take care to fit in correct position. Triangular marker on long part of index head must then point to "0".
3. Screw on index head with two countersunk screws **52**.
4. Push cap **51** onto index head.
5. Perform final check.
(see "3. Final Check" on page 11).

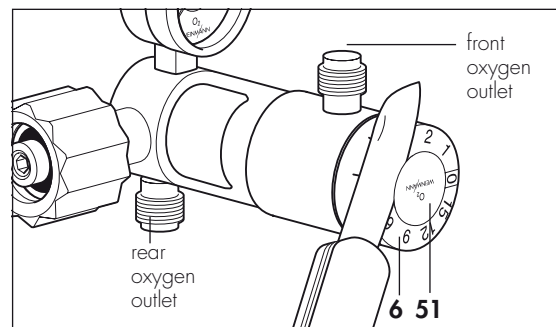


6.11 Replacing index head/cover on Fast II High Flow pressure reducer

- From tool set WM 15366:
 - Cover clamping device WM 30036,
 - Cover fitting device, WM 30037,
 - Counter crown WM 30038,
 - Special pliers for WM 30046,
 - Counter tool UNF (from WM 14223 and WM 14224),
 - Fitting aid,
 - Allen (internal hexagon) key, 2 mm,
 - Screwdriver 3 mm WM 30043;
 - Screwdriver bit 9 mm WM 30039 (cleaned with methylated spirit),
 - Watchmaker's screwdriver WM 30041 (cleaned with methylated spirit),
- Vise;
- Torque wrench 8 Nm + 2 Nm;
- Open-end wrench insert SW 12;
- Flat-bladed knife;
- Oxygen lubricant WM 14934;
- plus for repairing pressure reducer WM 30850:
 - Counter tool with clamping handle WM 30035 from tool set WM 15366,
- Torque wrench 25 Nm \pm 1 Nm,
- Thread tap G 1/8,
- Brass wire brush,
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (Never use a different Loctite product).

6.11.1 Dismantling adjuster knob

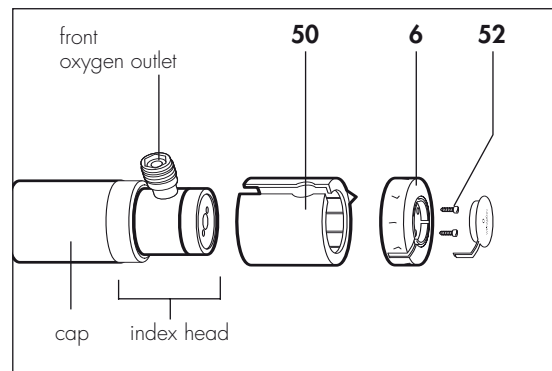
1. Set index head **6** to "0".
2. Remove cap **51** from index head by sliding knife blade under cap and levering off.



3. Hold index head firmly and unscrew the two countersunk screws **52**.

Take care not to change position of index head. Otherwise you cannot be sure that the actual flow values after reassembly will agree with those shown on the index head.

4. Lift off loose part of index head **6**.
5. Pull long part **50** of index head off body.



6.11.2 Removing cover with index head from body

1. **Gently** clamp cover clamping device in a vise.
2. Insert pressure reducer in cover clamping device so that front oxygen outlet fits into opening in cover clamping device.

Caution!

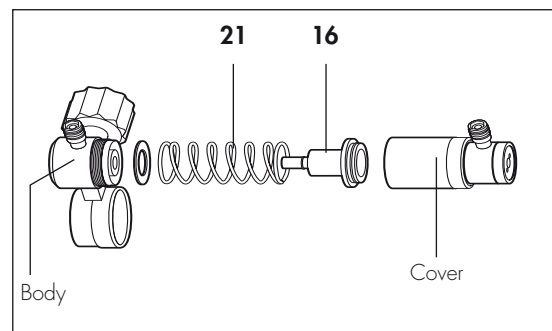
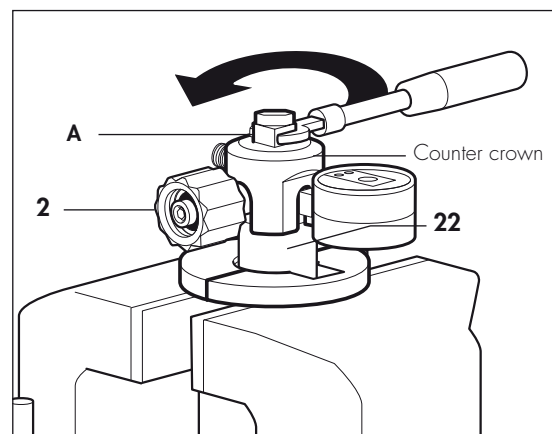
Push pressure reducer into cover clamping device only just far enough to clamp the cover itself.

3. Now clamp cover clamping device firmly in vise. This presses the two halves of the cover clamping device together and holds the pressure reducer in position.
4. Place counter crown over body **22**. "A" on counter crown must face towards connector **2**.
5. Turn body **22** to left to loosen it, **but do not unscrew completely yet**.
6. Undo vise and remove pressure reducer.
7. Carefully unscrew cover from index head.

Caution!

The piston spring is under strong compression. Cover and spring could fly out at you.

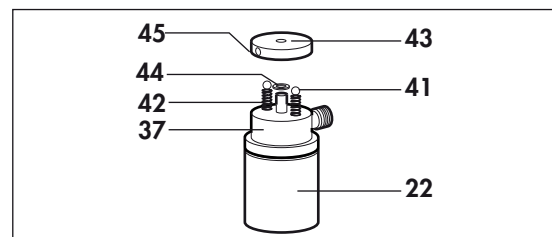
8. Remove spring **21** and any adjustment washers from body. Be sure to note their positions.



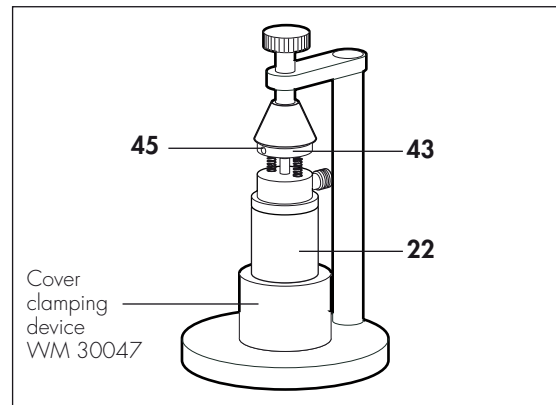
6.11.3 Removing index head from cover

Caution!

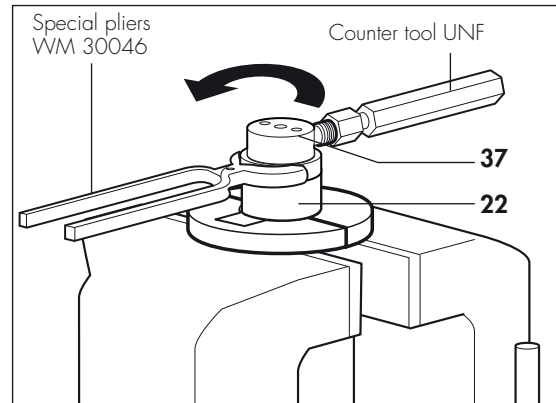
Under the index disk are balls and springs which are under compression. Perform the following steps carefully, otherwise the springs and balls could fly out at you.



1. Loosen grub screw **45** of index disk **43**.
2. Carefully remove index disc **43**, slide ring **44**, springs **42** and balls **41** from index head.
3. Push orifice disk holder completely out of index head.
4. Clamp cover about 20 mm deep in cover clamping device.

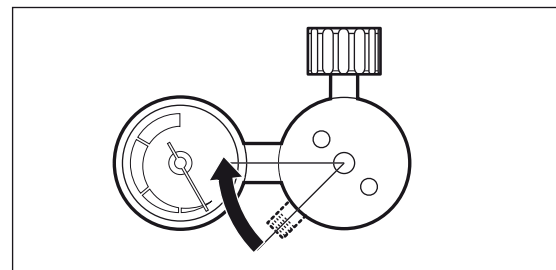
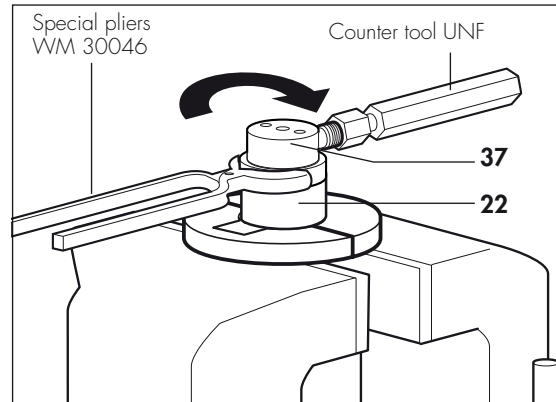


5. Screw counter tool onto oxygen outlet and use special pliers to remove union nut of index head from cover.



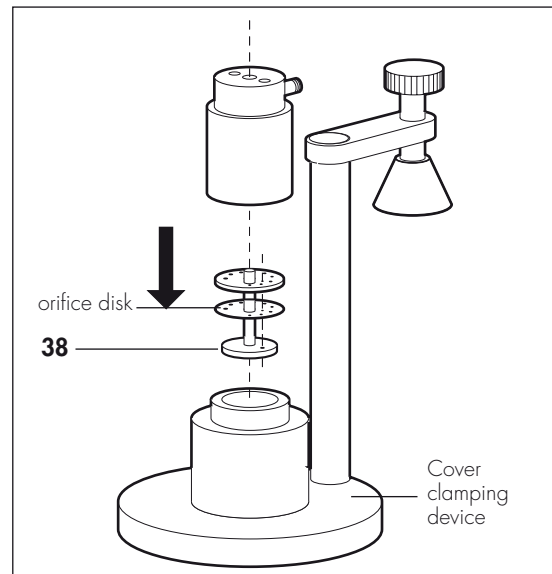
6.11.4 Assembling and aligning index head and cover

1. Take a new index head or cover, as necessary.
2. Screw cover hand tight onto body.
3. Clamp pressure reducer in cover clamping device.
4. Place counter crown over body. "A" on counter crown must face towards connector.
5. Screw body onto cover using a torque wrench (8 Nm +2 Nm).
6. Place index head on cover so that oxygen outlet is about 45 degrees before its end position. Tighten union nut of index head by hand.
7. Screw union nut of index head against cover until you meet appreciable resistance.
8. Screw counter tool onto oxygen outlet.
9. Now use counter tool to turn oxygen outlet to its end position. It should no longer be possible to turn the index head out of position.
10. Remove counter tool from oxygen outlet.

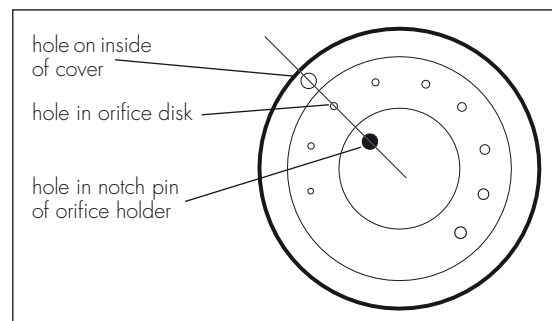


6.11.5 Inserting orifice disk and fitting index disk

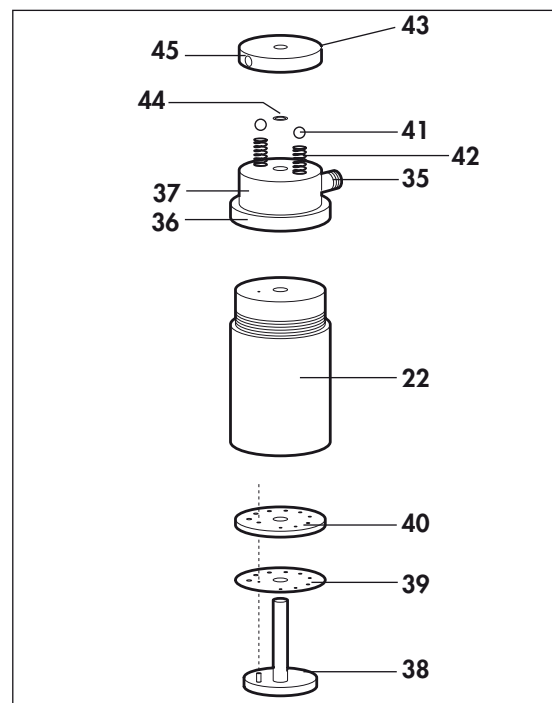
1. Place orifice holder **38** complete with orifice disk and notch pin onto fitting aid and push cover with index head onto it as far as possible.
2. Remove pre-assembled cover from fitting aid.



3. Align hole on inside of cover with hole in notch pin.
4. Put the preassembled housing back on the fitting aid. There must be no change in the position of orifice holder in relation to cover.



5. Place slide disc **44** over projecting spindle of orifice holder.
6. Insert springs **42** in corresponding holes and place balls **41** on springs **42**.
7. Place index disk **43** on balls **41** so that thread of fixing screw is opposite oxygen outlet **35**.
8. Use fitting aid to press index disk onto index head. Secure index head with fixing screw.
9. Take assembled unit from fitting aid and check position of holes in cover and notch pin.



6.11.6 Fitting index head with cover on body

1. Blow out body and cover with oxygen.

Caution!

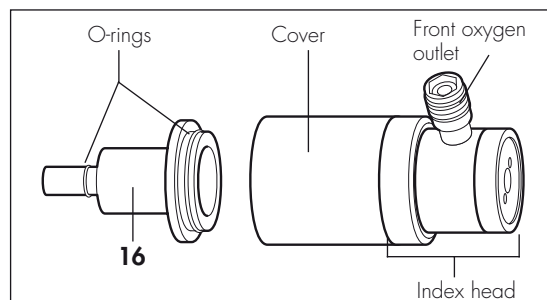
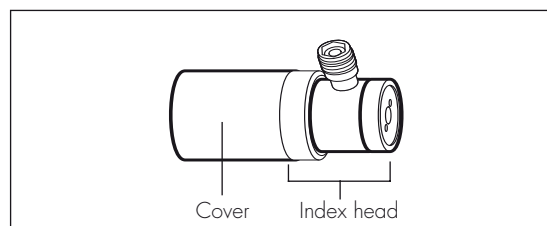
When blowing out with oxygen, take care that the oxygen is directed away from you to prevent any accumulation of oxygen in your clothing.

When reassembling as described below, make absolutely sure that all parts are **clean and free from oil and grease**.

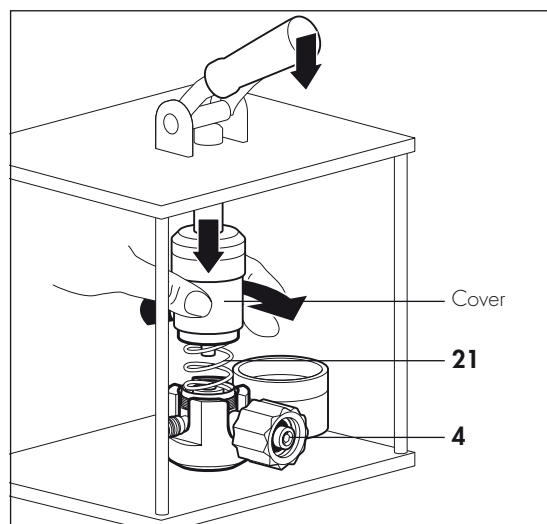
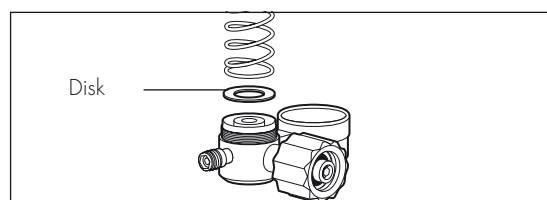
2. Carefully insert piston in cover.

Important

Take care not to damage O-rings.



3. Place body **4** in cover fitting device.
4. If any adjustment washers were present, place them in the body. Take care to fit in correct **position**.
5. Insert spring **21** in body.
6. Carefully place cover on spring.
7. Now use cover fitting device to press cover down onto body.
8. Maintaining the pressure, screw cover onto body by hand (two to three turns is sufficient).
9. Remove pressure reducer from cover fitting device.
10. Screw cover on firmly by hand.

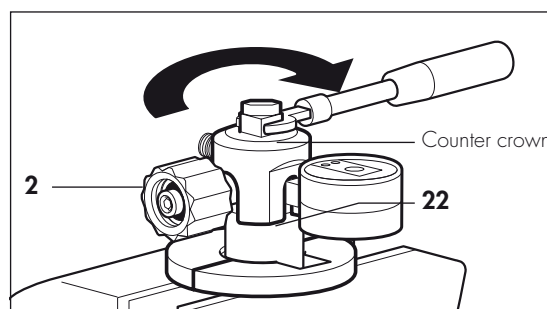


11. Clamp pressure reducer in cover clamping device.
12. Place counter crown over body **4**. "A" on counter crown must face towards connector **2**.
13. Screw body onto cover using a torque wrench (8 Nm + 2 Nm).

Caution!

The two oxygen outlets must be aligned.

14. Undo vise and remove pressure reducer.

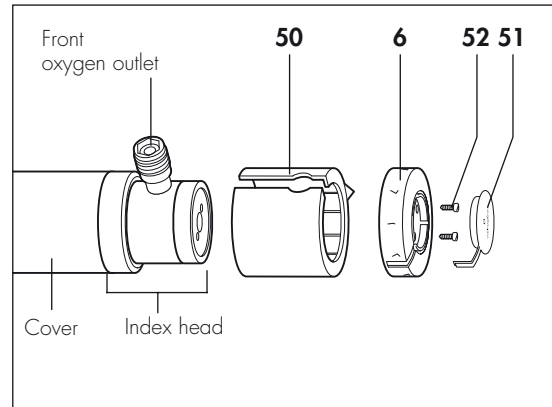


6.11.7 Fitting adjuster knob

1. Push long part **50** of index head onto body.
2. Place index head **6** on pressure reducer.

Take care to fit in correct position. Triangular marker on long part of index head must then point to "0".

3. Screw on index head with two countersunk screws **52**.
4. Push cap **51** onto index head.
5. Perform final check.
(see "3. Final Check" on page 11).

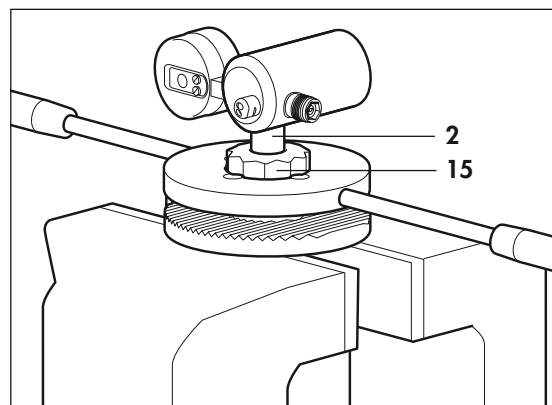


6.12 Replacing Connector and Sinter Filter

Tools and material required:

- From tool set WM 15366:
 - Counter tool with clamping handle WM 30035,
 - Counter crown WM 30038,
 - Watchmaker's screwdriver WM 30041 (**cleaned with methylated spirit**);
- Vise;
- Torque wrench 55 Nm \pm 1 Nm,
- Open-end wrench insert SW 12;
- Oxygen lubricant WM 14934;
- Sealing ring **14** (WM 1145);
- Sinter filter **19** (WM 6619);
- Filter screw **12** (WM 30905).

1. Clamp pressure reducer firmly in counter tool. Proceed as follows:
 - Using **cleaned** screwdriver, carefully ease sealing ring **14** out of groove in connector.
 - **Take care not to damage groove in any way.**
 - Clamp bottom part of counter tool in a vise.
 - Place the top part of the counter tool on the bottom part of the counter tool.
 - Screw connection nut **2** onto the bottom part of the counter tool.
 - Tighten connection nut **2** using the top part of the counter tool.

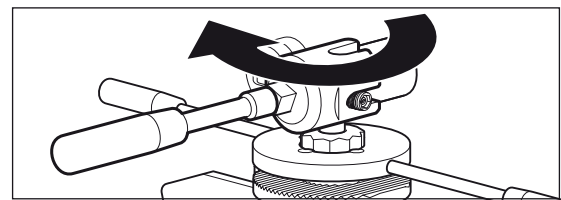
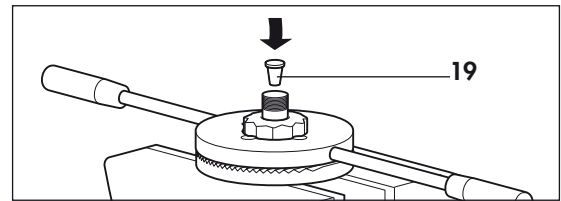
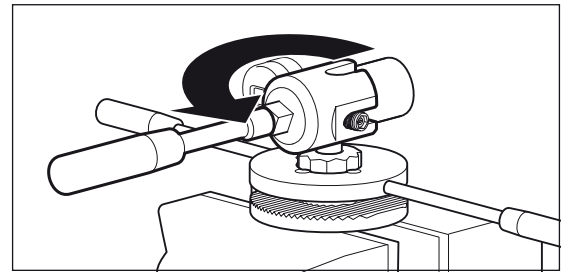


2. Place counter crown over body **4**. "A" on counter crown must face connector **2**.
3. Place torque wrench (with open-end wrench insert) **lengthwise** on square end of counter crown.
4. Loosen body by unscrewing to left, then remove completely by hand.
5. Remove connector **2** from counter tool.
6. Check connection nut **15** and **new** connector **2** for defects (e.g. thread, chrome plating, sealing surface).
Do not refit faulty parts.
7. If necessary clean groove in connector **2** with dry cloth or cloth moistened with clean water.
8. Fasten connector **2** firmly in counter tool with connection nut **15**.
9. Blow out connector with oxygen.

Caution!

When blowing out, make sure oxygen is directed away from you to prevent any accumulation of oxygen in your clothing.

10. Insert a new sinter filter **19** in connector.
Do not on any account use Loctite or other thread sealants.
11. Screw body onto connector by hand.
12. Place counter crown over body **4**. "A" on counter crown must face connector **2**.
13. Using torque wrench (55 Nm \pm 1 Nm), tighten body securely on connector.
14. Release pressure reducer from counter tool.
15. Insert new filter screw **12** in connector (see "6.3 Replacing filter screw" on page 21).
16. **Carefully** press **new** sealing ring **14** into cleaned groove. **Do not use tools.**
17. Perform final check (see "3. Final Check" on page 11).



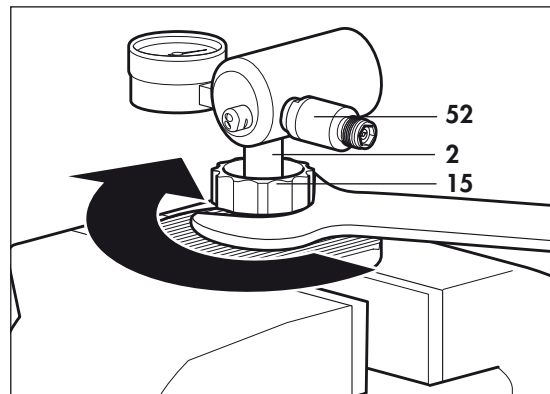
6.13 Changing connector and sinter filter in OXYTRON pressure reducer

Tools and material required:

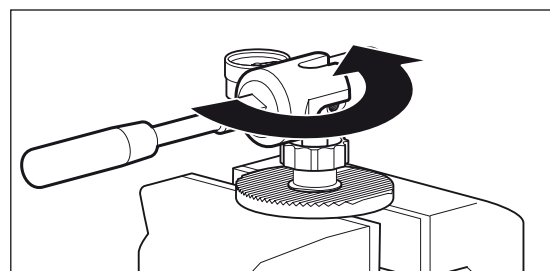
- From tool set WM 15366:
 - Bottom part of counter tool WM 30035,
 - Counter crown WM 30038,
 - Watchmaker's screwdriver WM 30041 (**cleaned with methylated spirit**);
 - Single-end wrench SW 19 WM 30040 (**cleaned with methylated spirit**).
- Vise;
- Torque wrench 55 Nm \pm 1 Nm,
- Torque wrench 10 Nm \pm 2 Nm,
- Open-end wrench insert SW 12;
- Open-end wrench SW 30;
- Oxygen lubricant WM 14934;
- Sealing ring **14** (WM 1145);
- Sinter filter **19** (WM 6619);
- Filter screw **12** (WM 30905).

1. Clamp pressure reducer firmly in counter tool. Proceed as follows:

- Using **cleaned** screwdriver, carefully ease sealing ring **14** out of groove in connector. **Take care not to damage groove in any way.**
- Clamp bottom part of counter tool firmly in a vise.
- Insert connector **2** in stub of bottom part.
- Use open-end wrench SW 30 to tighten connection nut **15**.



2. Using the **cleaned** single-end wrench SW 19, turn second stage **52** to left and unscrew it (see "6.14 Replacing second stage of OXYTRON pressure reducer (WM 30150)" on page 54).
3. Place counter crown over body **4**. "A" on counter crown must face connector **2**.
4. Place torque wrench (with open-end wrench insert) **lengthwise** on square end of counter crown.
5. Loosen body by turning to left, then remove by hand.
6. Release connector **2** from counter tool.
7. Check connection nut **15** and **new** connector **2** for defects (e.g. thread, chrome plating, sealing surface). **Do not refit faulty parts.**
8. If necessary clean groove in connector **2** with dry cloth or cloth moistened with clean water.

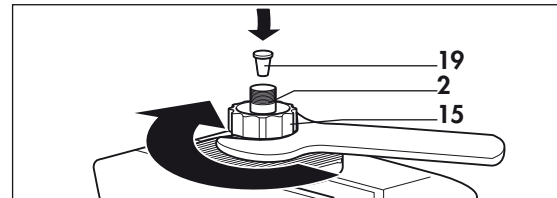


9. Using open-end wrench SW 30, fix new connector **2** firmly in bottom part of counter tool with connection nut **15**.
10. Blow out connector with oxygen.

Caution!

When blowing out connector, make sure that oxygen is directed away from you to prevent any accumulation of oxygen in your clothing.

11. Insert a new sinter filter **19** in connector.
Do not on any account use Loctite or other thread sealants.
12. Screw body onto connector by hand.
13. Place counter crown over body **4**. "A" on counter crown must face connector **2**.
14. Use torque wrench ($55 \text{ Nm} \pm 1 \text{ Nm}$) to screw body firmly onto connector.



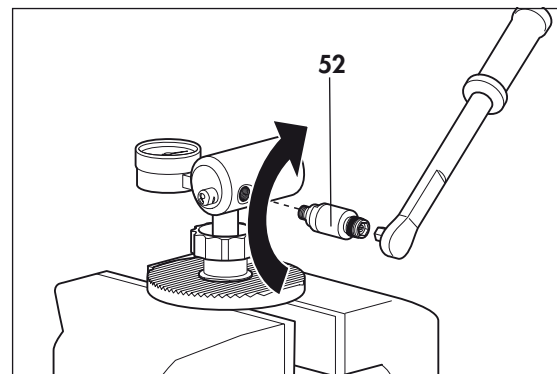
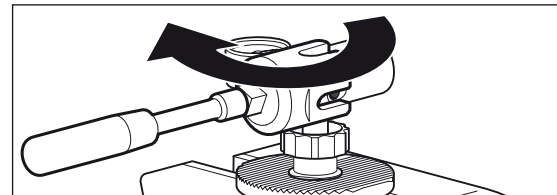
15. Fit new second stage:
 - Remove adhesive residues from threads. Use a brass wire brush for the external thread and, if necessary, a thread tap G 1/8 for the internal thread.

Caution:
When cleaning threads, make sure no dirt enters body.

 - Pick up second stage **52**.

Caution:
Second stage 52 must be clean and free from oil and grease.

 - Apply a little Loctite 245 to thread, except for the first two turns.
First two turns are left free so no Loctite can get into the body.
 - Screw second stage **52** into the pressure reducer by hand.
 - Use screwdriver bit and torque wrench ($10 \text{ Nm} + 2 \text{ Nm}$) to tighten second stage **52**.



16. Release pressure reducer from counter tool.
17. Insert a new filter screw **12** in connector (see "6.3 Replacing filter screw" on page 21).
18. **Carefully** press **new** sealing ring **14** into groove. **Do not use tools.**
19. Perform final check (see "3. Final Check" on page 11).

6.14 Replacing second stage of OXYTRON pressure reducer (WM 30150)

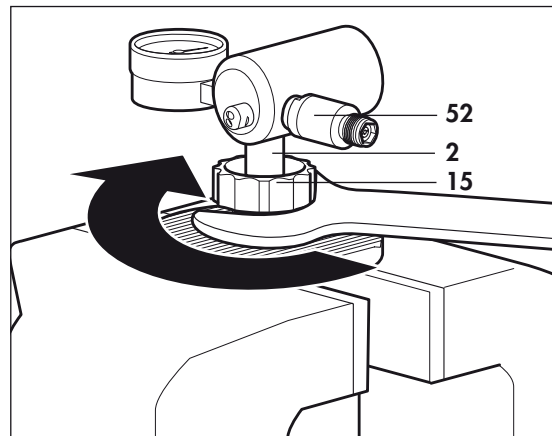
Tools and material required:

- From tool set WM 15366:
 - Counter tool with clamping handle WM 30035;
 - Screwdriver bit 9 mm WM 30039 (**cleaned with methylated spirit**);
 - Watchmaker's screwdriver WM 30041 (**cleaned with methylated spirit**);
 - Single-end wrench SW 19 WM 30040.
- Vise;
- Torque wrench 10 Nm + 2 Nm
- Open-end wrench SW 30
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (never use a different Loctite product).

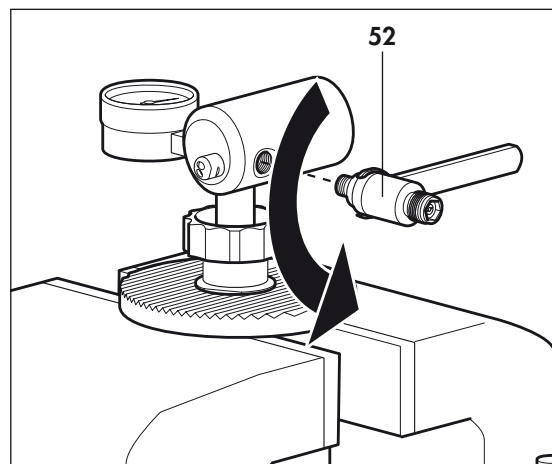
Note:

Position of set screw in outlet from second stage must not be changed, as this would change the flow rate.

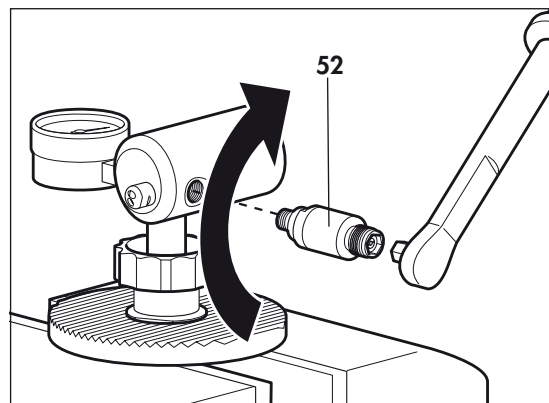
1. Clamp pressure reducer firmly in counter tool. Proceed as follows:
 - Using **cleaned** screwdriver, carefully ease sealing ring **14** out of groove in connector.
 - Take care not to damage groove in any way.**
 - Clamp bottom part of counter tool firmly in a vise.
 - Insert connector **2** in stub of bottom part.
 - Use open-end wrench SW 30 to screw connection nut **15** tight.



2. Using **cleaned** single-end wrench, turn faulty second stage **52** to left and unscrew.
3. Fit new second stage:
 - Remove adhesive residues from screw threads. Use screw tap G 1/8 for internal thread.
 - Caution:**
When cleaning screw threads, do not let any dirt enter the body.
 - Pick up a new second stage **52**.
 - Caution:**
Second stage 52 must be clean and free from oil and grease.
 - Apply a little Loctite 245 to screw thread, except for first two turns.
First two turns must be left free of Loctite so no Loctite can get inside body.



- Screw second stage **52** into pressure reducer by hand.
- Using screwdriver bit 9 mm and torque wrench (10 Nm + 2 Nm), screw second stage **52** up tight.



4. Release pressure reducer from counter tool.
5. If necessary, clean groove in connector **2** with dry cloth or cloth moistened with clean water.
6. **Carefully** press **new** sealing ring **14** into groove. **Do not use tools.**
7. Perform final check (see "3. Final Check" on page 11).

6.15 Replacing first-stage piston in OXYTRON pressure reducer (WM 30150)

Tools and material required:

- From tool set WM 15366:
 - Counter tool with clamping handle WM 30035,
 - Screwdriver bit 9 mm WM 30039 (**cleaned with methylated spirit**);
 - Watchmaker's screwdriver WM 30041 (**cleaned with methylated spirit**);
 - Single-end wrench SW 19 WM 30040 (**cleaned with methylated spirit**).
- Vise;
- Torque wrench 25 Nm ± 1 Nm
- Open-end wrench SW 30
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (Never use a different Loctite product).

Note:

Position of set screw in second-stage outlet must not be altered, as this would change the flow rate.

1. Unscrew second stage (see "6.14 Replacing second stage of OXYTRON pressure reducer (WM 30150)" on page 54).
2. Replace piston (see "6.6 Replacing piston in pressure reducer FIX (WM 30050, 30100, 30200, 30300, 30350)" on page 28).
3. Screw second stage on again (see "6.14 Replacing second stage of OXYTRON pressure reducer (WM 30150)" on page 54).

6.16 Replacing second-stage piston in OXYTRON pressure reducer (WM 30150)

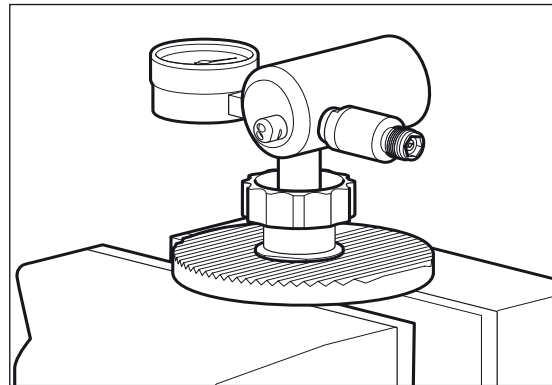
Tools and material required:

- From tool set WM 15366:
 - Counter tool with clamping handle WM 30035,
 - Screwdriver bit 9 mm WM 30039 (**cleaned with methylated spirit**);
 - Watchmaker's screwdriver WM 30041 (**cleaned with methylated spirit**);
 - Single-end wrench SW 19 WM 30040 (**cleaned with methylated spirit**).
- Vise;
- Oxygen lubricant WM 14934.
- Torque wrench 10 Nm + 2 Nm
- Sealing ring **14** (WM 1145);
- Loctite 245 WM 14920 (Never use a different Loctite product).

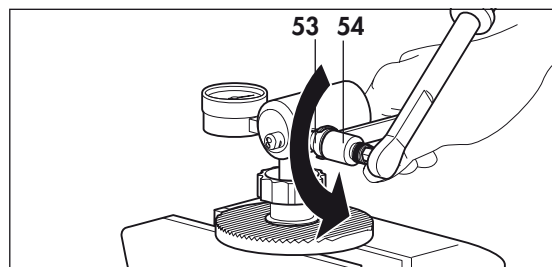
Note:

Position of set screw in second-stage outlet must not be altered, as this would change the flow rate.

1. Clamp pressure reducer firmly in counter tool. Proceed as follows:
 - Using **cleaned** screwdriver, carefully ease sealing ring **14** out of groove in connector.
 - **Take care not to damage groove in any way.**
 - Clamp bottom part of counter tool in a vise.
 - Screw up connection nut by hand.



2. Open cover **54** of second stage by holding body **53** with special open-end wrench SW 19 and loosening cover **54** with 9 mm screwdriver bit.



3. Slowly unscrew cover **54** by hand.

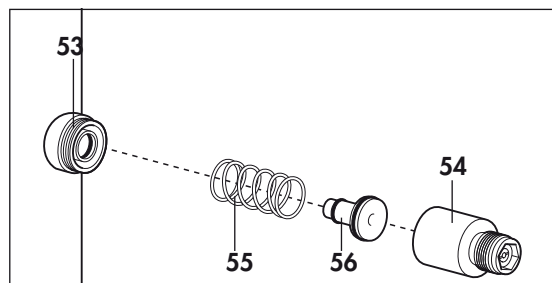
Note:

Piston spring is under compression!

4. Remove spring **55**.
5. Remove faulty piston **56** from cover.

Note:

When reassembling as described below, make sure all parts are clean and absolutely free from grease. Sliding surface of O-ring on inside of cover **54 must not be scored or scratched.**

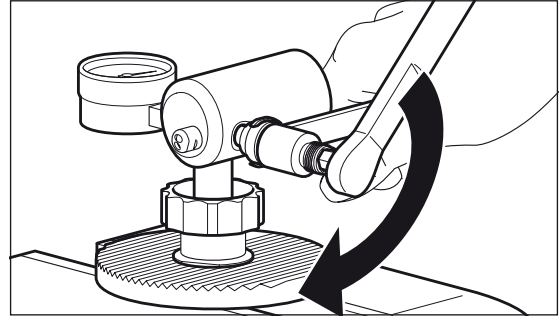


6. Apply a little oxygen lubricant to O-ring and carefully insert new piston **56** in cover.

Caution:

Do this very carefully. New O-rings must not be damaged during insertion.

7. Place spring **55** on piston.
8. Screw cover **54** onto body **53** by hand.
9. Hold body with special open-end wrench SW 19. Then use 9 mm screwdriver bit and torque wrench (10 Nm + 2) to tighten cover.



10. Release pressure reducer from counter tool with open-end wrench SW 30.
11. If necessary clean groove in connector **2** with dry cloth or cloth moistened with clean water.
12. **Carefully** press **new** sealing ring **14** into groove. **Do not use tools.**
13. Perform final check (see "3. Final Check" on page 11).

7. Repair Information and Repair Instructions for flowmeter OXYWAY Click

7.1 General

- **Observe the safety information on page 4 of the Operating Instructions for OXYWAY Click.**
- **Caution:**
Spontaneous explosive reactions can occur if compressed oxygen comes into contact with flammable substances (grease, oil, alcohol etc.)!

To prevent explosion risks, make sure your hands, tools and workplace are absolutely free from oil and grease during the repair work.

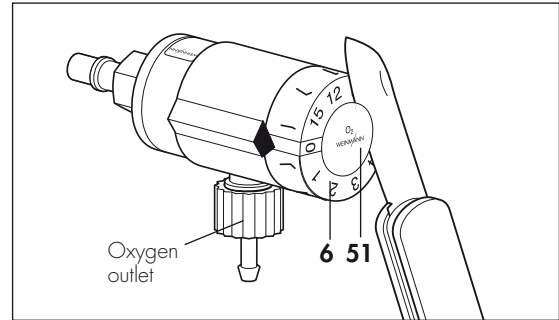
For this reason you should always wash your hands before starting work.
- Any operations on the appliance presuppose detailed knowledge and observance of the Operating Instructions and the Service and Repair Instructions.
- You should only carry out repairs described in these Service and Repair Instructions. Otherwise proper functioning of OXYWAY Click cannot be guaranteed.
- Be sure to perform a final check after **every** repair (see "3. Final Check" on page 11).
- If you replace components or individual parts, always use genuine WEINMANN parts only.
- Certain parts must be screwed up using a torque wrench. To ensure compliance with the specified torque, **check your torque wrench regularly for torque compliance (control of inspection, measuring and test equipment).**
- **Note:**
The item numbers in the following text are the same as the item numbers in the Replacement Parts List on page 64 and the overview on page 4.

7.2 Replacing index head / cover

- From tool set WM 15366:
 - Cover clamping device WM 30036,
 - Counter tool:
 - G 3/8 WM 22827 (from WM 15348 or WM 15349),
 - UNF (from WM 14223 or WM 14224)
 - Fitting aid,
 - Allen (internal hexagon) key, 2 mm,
 - Screwdriver 3 mm WM 30043;
- Vise;
- Torque wrench 16 Nm + 2 Nm;
- Flat-bladed knife;
- Oxygen lubricant WM 14934;

7.2.1 Dismantling adjuster knob

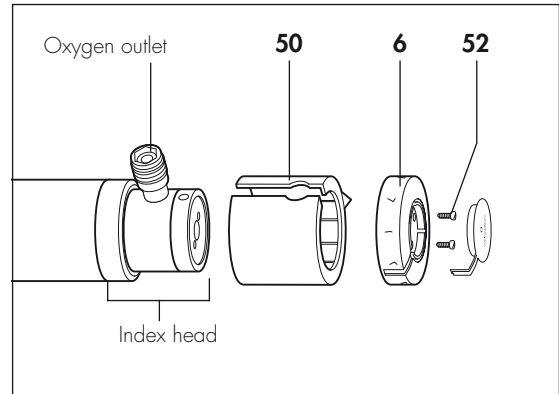
1. Set index head **6** to "0".
2. Remove cap **51** from index head by sliding knife blade under cap and levering off.



3. Hold index head firmly and unscrew the two countersunk screws **52**.

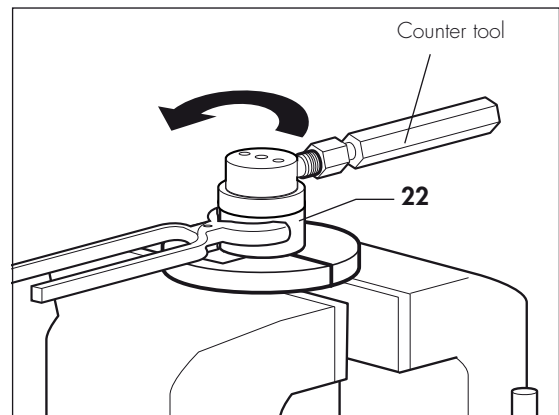
Take care not to change position of index head. Otherwise you cannot be sure that the actual flow values after reassembly will agree with those shown on the index head.

4. Lift off loose part of index head **6**.
5. Pull long part **50** of index head off body.

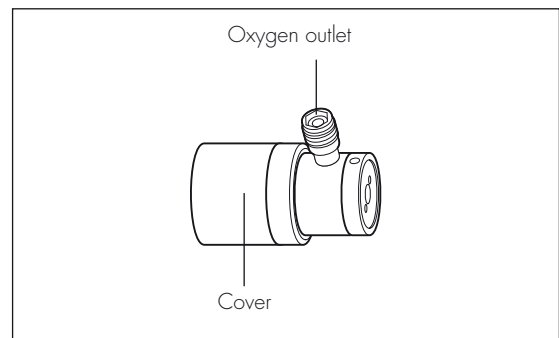


7.2.2 Removing cover with index head from body

1. **Gently** clamp cover clamping device in a vise.
2. Now clamp cover clamping device firmly in vise. This presses the two halves of the cover clamping device together and holds the flowmeter in position.



3. Now loosen body (**do not unscrew completely yet!**) by turning it anti-clockwise.
4. Undo vise and remove flowmeter.
5. Now slowly unscrew the body from the index head.

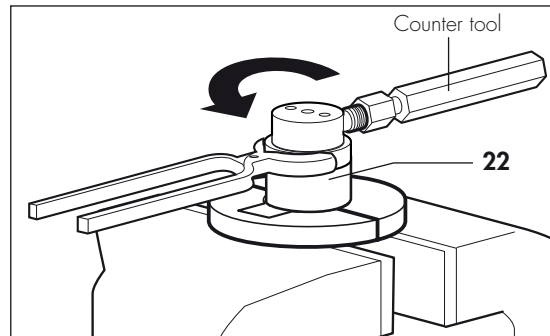
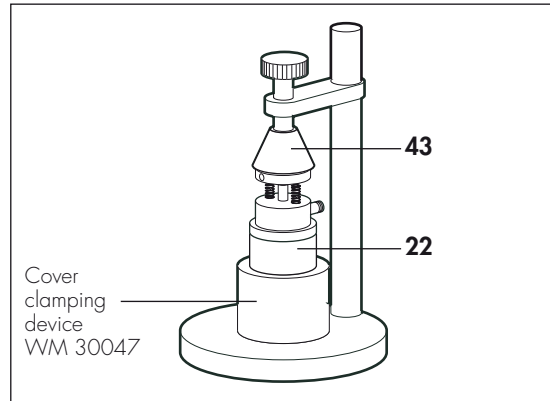
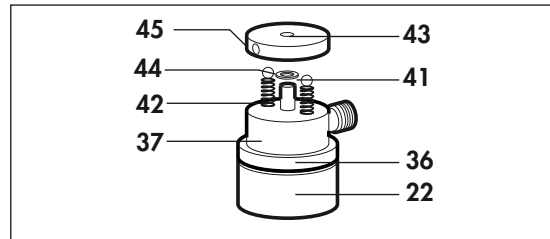


7.2.3 Removing index head

Caution!

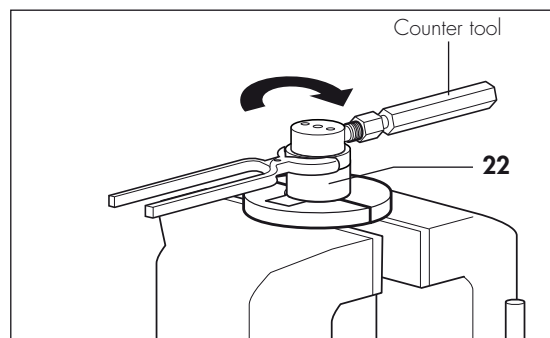
Under the index disk are balls and springs which are under compression. Perform the following steps carefully, otherwise the springs and balls could fly out at you.

1. Loosen grub screw **45** of index disk **43**.
2. Carefully remove index disc **43**, slide ring **44**, springs **42** and balls **41** from index head.
3. Push orifice disk holder completely out of index head.
4. Clamp cover about 20 mm deep in cover clamping device.
5. Screw counter tool onto oxygen outlet and use special pliers to remove union nut of index head from cover.

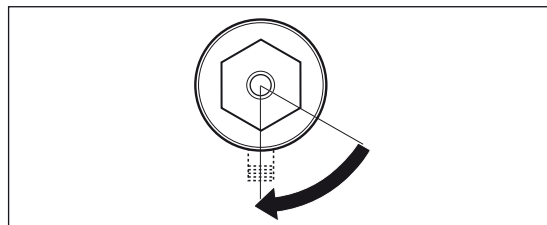


7.2.4 Assembling index head and cover

1. Take a new index head or cover, as necessary.
2. Tighten up the body hand-tight on the cover for the central gas supply system.
3. Clamp flowmeter in cover clamping device.
4. Screw the body into the central gas supply cover using a torque wrench (8 Nm +2 Nm).
5. Place index head on cover so that oxygen outlet is about 45 degrees before its end position. Tighten union nut of index head by hand.

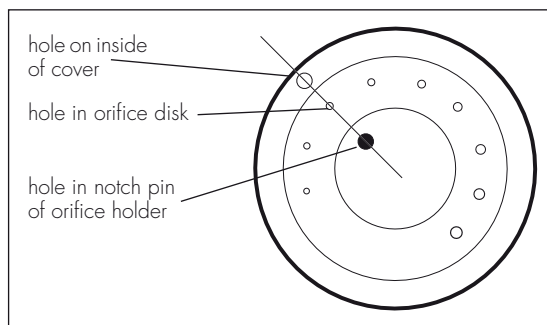
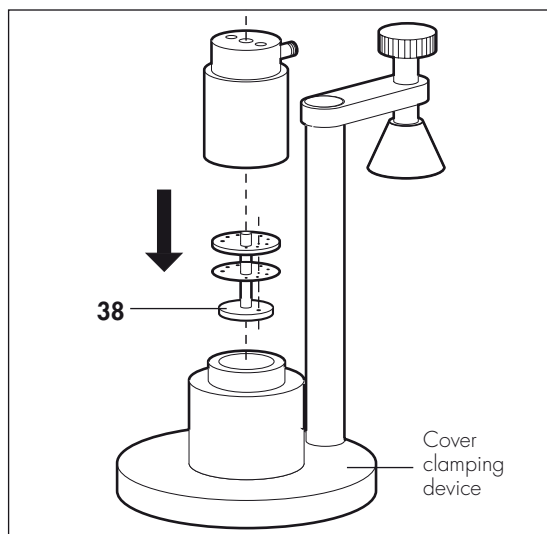
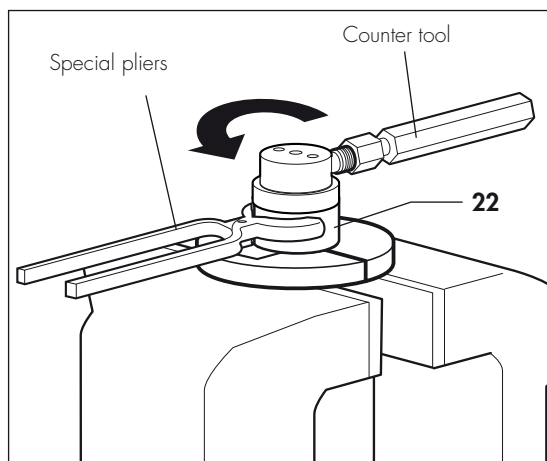


6. Screw union nut of index head against cover until you meet appreciable resistance.
7. Screw special counter tool onto oxygen outlet.
8. Now use special counter tool to turn oxygen outlet to its end position. It should no longer be possible to turn the index head out of position.
9. Remove special counter tool from oxygen outlet.

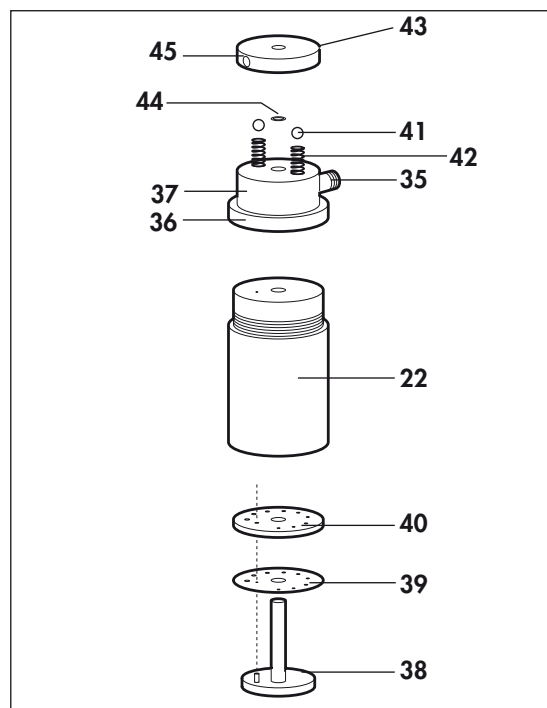


7.2.5 Inserting orifice disk and fitting index disk

1. Use cover clamping device to remove index head with cover from body.
2. Place orifice holder complete with orifice disk and notch pin onto fitting aid and push cover with index head onto it as far as possible.
3. Remove pre-assembled cover from fitting aid.
4. Align hole on inside of cover with hole in notch pin.
5. Place pre-assembled cover on fitting aid again. There must be no change in the position of orifice holder in relation to cover.
6. Place slide ring over projecting spindle of orifice holder.
7. Insert springs in corresponding holes and place balls on springs.

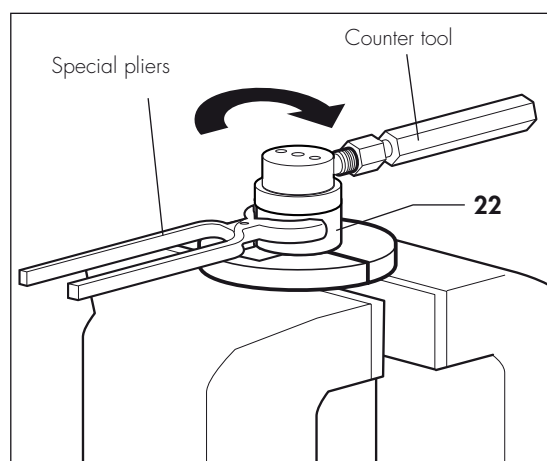


8. Place index disk on balls so that thread of fixing screw is opposite oxygen outlet.
9. Use fitting aid to press index disk onto index head. Secure index head with fixing screw.
10. Take assembled unit from fitting aid and check position of holes in cover and to notch pin.



7.2.6 Assembling index head and housing

1. Clamp the cover clamping device gently in a vise.
2. Now clamp the cover clamping device in the vise. This presses the two halves of the clamping device firmly together and holds the cover of the flowmeter in position.
3. Screw the housing on the central gas supply system cover tight.

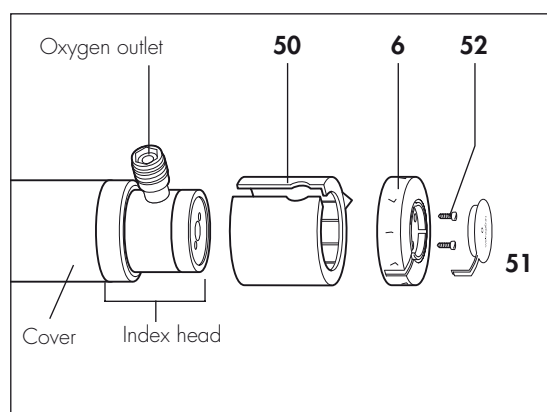


7.2.7 Fitting adjuster knob

1. Push long part 50 of index head onto body.
2. Place index head 6 on pressure reducer.

Take care to fit in correct position. Triangular marker on long part of index head must then point to "0".

3. Screw on index head with two countersunk screws 52.
4. Push cap 51 onto index head.
5. Perform final check.
(see "3. Final Check" on page 11).



7.3 Changing filter screw

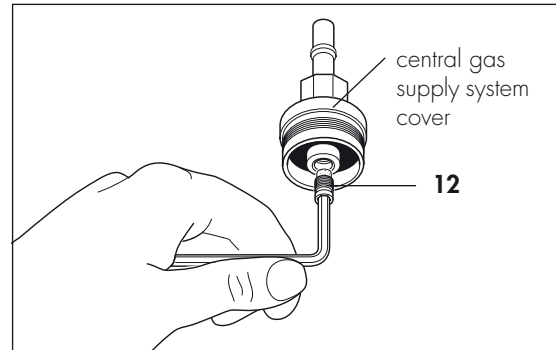
Tools required:

- From tool set WM 15366:
 - Allen wrench 4 mm WM 30042 (**cleaned with methylated spirit**).

1. Release the index head and the body of the flowmeter from the central gas supply system cover as described in "7.2 Replacing index head / cover" on page 58.

The filter screw is located on the inside of the central gas supply system cover (see drawing).

2. If necessary, clean the hexagon socket of filter screw **12** using a small screwdriver.
3. Loosen filter screw **12**, but do **not** unscrew it yet.
4. So that no dirt can fall into the flowmeter, hold the central gas supply system cover with the connector pointing down. In this position, unscrew filter screw **12** completely.
5. Screw a new filter screw **12** firmly into the central gas supply system cover.



6. Refit the index head and cover as described in "7.2 Replacing index head / cover" on page 58.
7. Perform a final check. Enter the filter screw change and date in the service record.

7.4 Replace central gas supply system plug connection

Tools required:

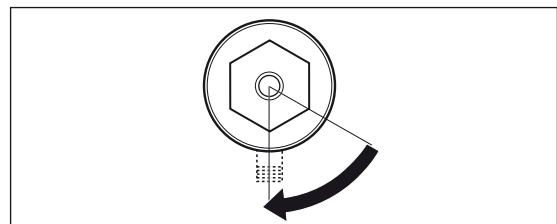
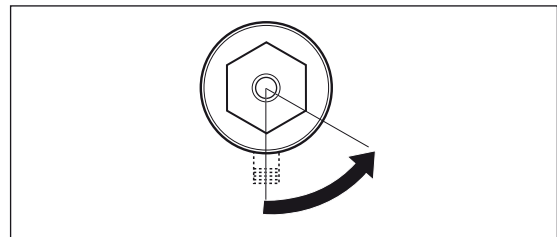
- Cover clamping device WM 30036,
- Open-end wrench SW 17
- Loctite WM 14901

1. Undo the index head as described in "7.2 Replacing index head / cover" on page 58.
2. Clamp the flowmeter in the cover clamp so that only the cover is clamped.
3. Release the old plug connection and take it off the body.
4. Remove the old seal and put in a new one (unless it is a Swedish AGA connector).
5. Wet the thread (leave first two turns) of the plug connector with a little Loctite 601.

6. Insert the new plug connector in the body and tighten it up with an open-ended wrench.

Ensure that the plug connector is **correctly lined up**. Two of the six sides (see drawing) must be flush with the O₂ outlet. This ensures that the O₂ outlet of the flowmeter points vertically downwards when it is connected to the central gas supply system.

7. Perform a final check (see "3. Final Check" on page 11).



8. Replacement Parts

Note:

The item numbers in the following tables are the same as the numbers in the text of these Service and Repair Instructions.

8.1 Information about conformity with standards

Up to serial number 0849999, OXYWAY pressure reducers meet standard EN 738-1.

From serial number 0850000, OXYWAY pressure reducers meet standard EN ISO 10524-1:2006.

In the course of adapting the products to standard EN ISO 10524-1:2006, it was not possible to design all components to be downward-compatible. Parts which are not downward-compatible are available for both device statuses and are marked accordingly in the replacement parts lists (see "8. Ersatzteile" on page 69) of these instructions.

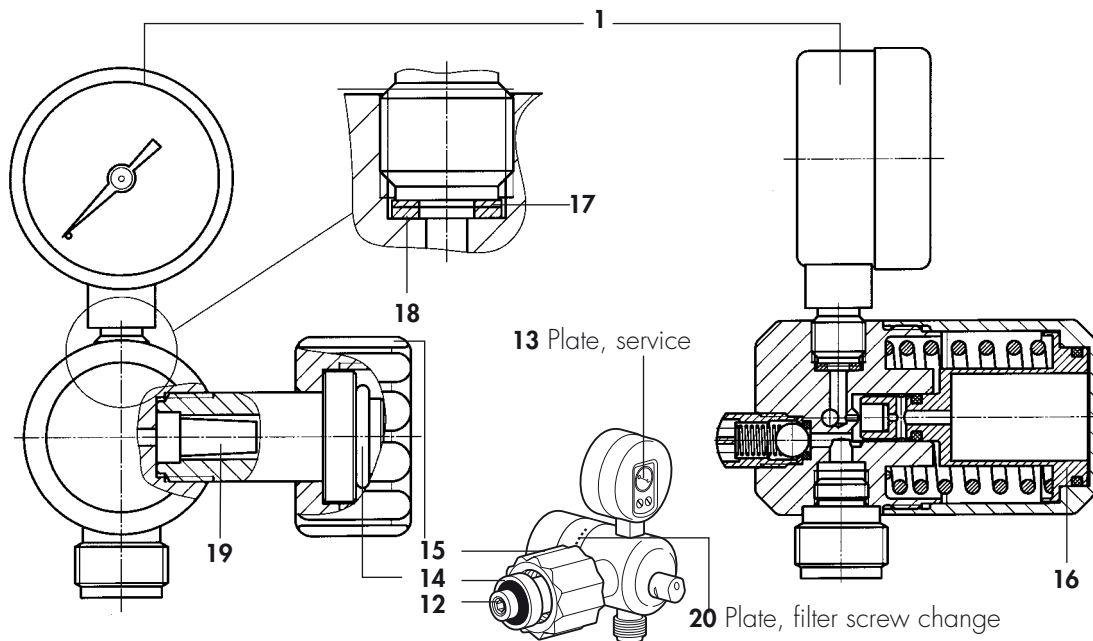
Caution!

Malfunction as a result of unclear device status.

If replacement parts which are not downward-compatible are used in the wrong pressure reducers, connected devices will malfunction.

- Fit replacement parts which are not downward-compatible **only in accordance** with the pressure reducer serial numbers quoted.
- Do not convert pressure reducers up to SN 0849999 "to suit the new standard".

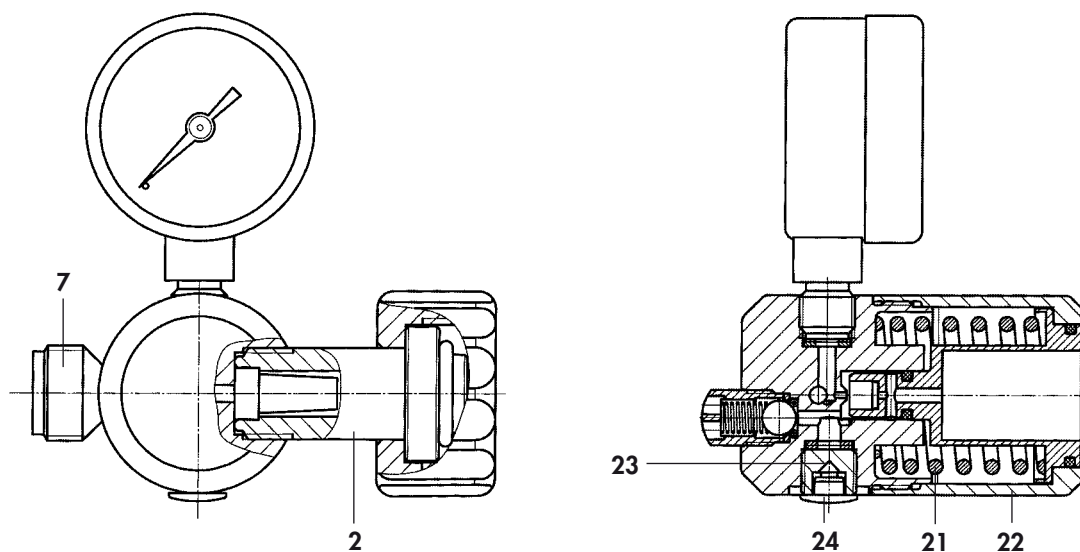
8.2 Replacement parts list for all pressure reducers



Item No.	Description	Order No.
	Maintenance kit	WM 15458
1	Contents gage 0 – 315 bar	WM 30914
12	Filter screw	WM 30905
13	Plate, service, 4 years	WM 75341
14	Sealing ring, O-ring 12.3 x 2.4	WM 1145
15	Connection nut for all connectors except WM 30150 (DE) (see "8.10 Additional replacement parts 2nd stage OXYTRON WM 30150" on page 73 and "8.11 Connections for pressure reducer" on page 74)	WM 1144/16
16	Piston, complete	WM 30910
17	Sealing washer 4 x 8 x 0.5 (for gage)	WM 1145/35
18	Sealing washer 4 x 8 x 0.8 (for gage)	WM 1145/36
19	Sinter filter	WM 6619
20	Plate, filter screw change	WM 0495
	Gage cap	WM 30960
	Safety tag	WM 16211
	Set of replacement seals	WM 1148
	Oxygen lubricant	WM 14934

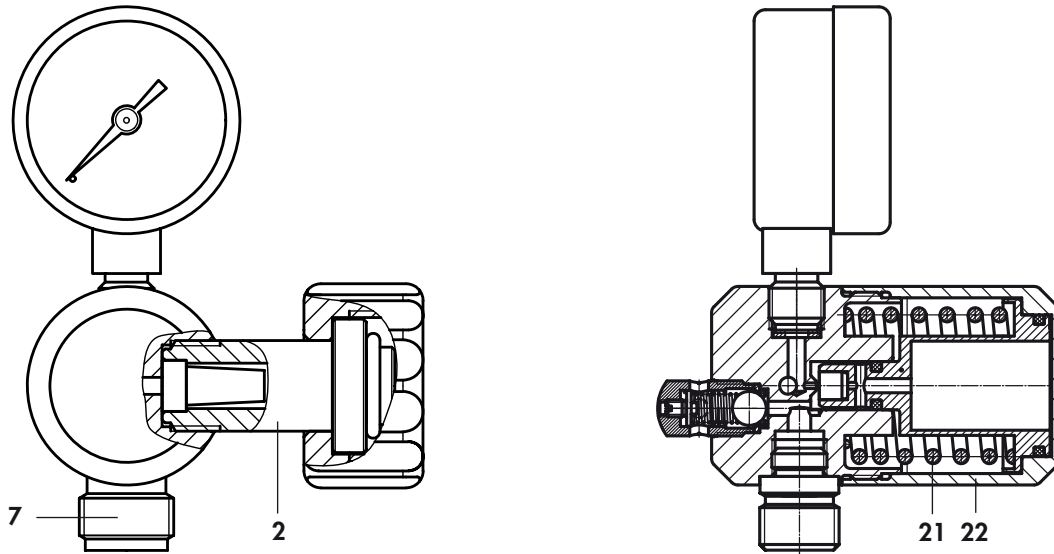
The instructions for use for the devices are available on the Internet at www.weinmann.de or contact WEINMANN.

8.3 Additional replacement parts for WM 30050



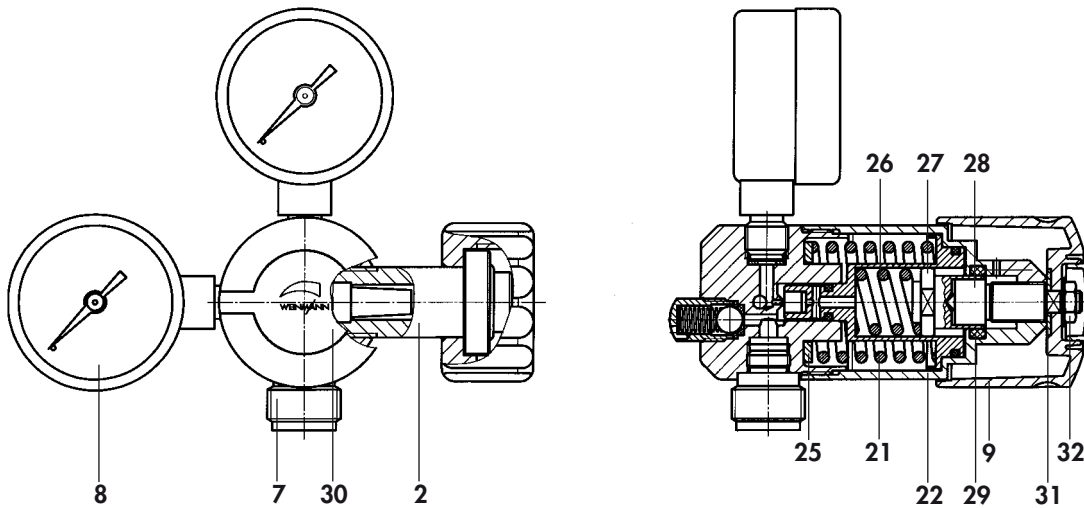
Item No.	Description	Order No.
2	Connector	see chapter 8.11
7	Thread connection, complete (oxygen outlet) – Threaded connection up to SN 0849999 – Threaded connection from SN 0850000	WM 30927 WM 30002
21	Spring for piston	WM 30924
22	Cover (body cover)	WM 30922
23	Screw plug G 1/8	WM 1519
24	Cap	WM 30993

8.4 Additional replacement parts for WM 30100, 30150, 30200, 30300



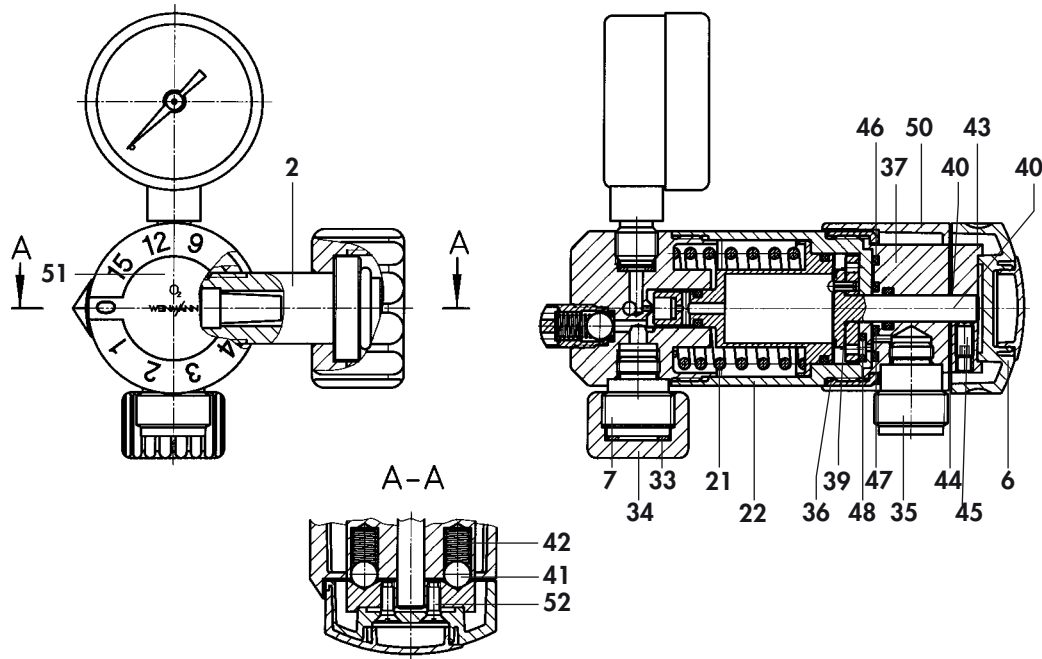
Item No.	Description	Order No.
2	Connector	see chapter 8.11
7	Threaded connection, complete (oxygen outlet) – WM 30100 up to SN 0849999 – WM 30100 from SN 0850000 – WM 30150 – WM 30200, 30300	WM 30926 WM 30005 WM 30904 WM 30936
21	Spring for piston	WM 30924
22	Cover (body cover)	WM 30922

8.5 Additional replacement parts for WM 30500, 30700, 30750



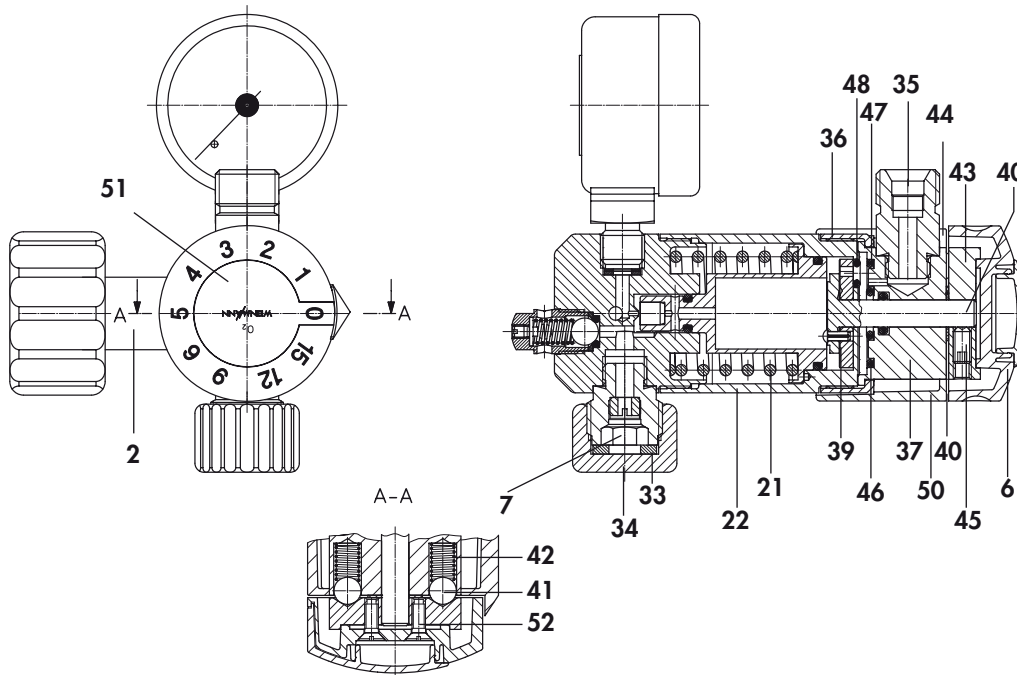
Item No.	Description	Item No.
2	Connector	see chapter 8.11
7	Threaded connection, complete (oxygen outlet) up to SN 0849999: – Threaded connection, complete 3 – 15 l/min for WM 30500 – Threaded connection, complete 1.5 – 8 l/min for WM 30700 – Threaded connection, complete 0.5 – 3 l/min für WM 30750 Threaded connection, complete (oxygen outlet) from SN 0850000: – Threaded connection, complete 3 – 15 l/min for WM 30500 – Threaded connection, complete 1.5 – 8 l/min for WM 30700 – Threaded connection, complete 0.5 – 3 l/min für WM 30750	WM 30946 WM 30966 WM 30969 WM 31119 WM 31120 WM 31121
8	Flow gage for devices up to SN 0849999: – Flow gage 3 – 15 l/min for WM 30500 – Flow gage 1.5 – 8 l/min for WM 30700 – Flow gage 0.5 – 3 l/min for WM 30750 Flow gage for devices from SN 0850000: – Flow gage 3 – 15 l/min for WM 30500 – Flow gage 1.5 – 8 l/min for WM 30700 – Flow gage 0.5 – 3 l/min for WM 30750	WM 30961 WM 30962 WM 30963 WM 31112 WM 31113 WM 31114
9	Rotary knob (adjuster knob)	WM 30949
21	Spring for piston	WM 30954
22	Cover (body cover)	WM 30952
25	Washer 18 x 27.2 x 2	WM 30944
26	Spring for lifting pin	WM 30959
27	– Lifting pin (up to SN 0849999) – Lifting pin, long (from SN 0850000)	WM 30956 WM 31102
28	– Spindle (up to SN 0849999) – Spindle (from SN 0850000)	WM 30957 WM 31103
29	O-ring 11.91 x 2.62	WM 1145/96
30	Cap for adjuster knob 9 , printed	WM 30950
31	Driver plate	WM 3812
32	Hexagonal nut DIN 985 – M5 – 8 ST–GalZn	WM 51446

8.6 Additional replacement parts for WM 30800, 30850



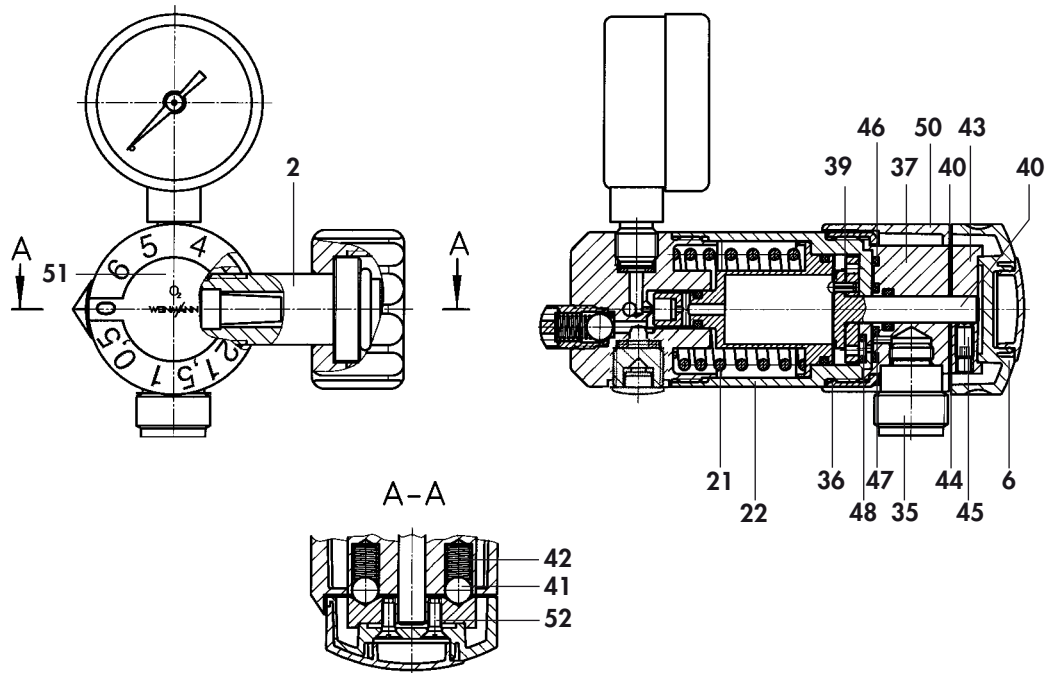
Item No.	Description	Order No.
2	Connector	see chapter 8.11
6	Rotary knob (index head), printed	WM 30985
7	Threaded connection, complete (oxygen outlet)	WM 30999
21	Spring for piston	WM 30924
22	Cover (body cover)	WM 30972
33	Sealing washer 7 x 14 x 2	WM 1145/31
34	Union nut (for threaded connection 7)	WM 1232
35	Index head, complete, comprising: Threaded connection, complete (oxygen outlet): – Threaded connection up to SN 0849999 – Threaded connection from SN 0850000	WM 30996 WM 31125
36	– Union nut	WM 30980
37	– Index head	WM 30978
38	– Orifice disk holder, complete	WM 30012
39	– Orifice disk 0-15 l/min	WM 30976
40	– Slide disk	WM 30974
41	– Ball	WM 4677
42	– Spring	WM 30928
43	– Index washer	WM 30988
44	– Slide disk 6 x 12 x 0.5	WM 30984
45	– Set screw DIN EN ISO 4029 M4X8-V2A with Tuflok	WM 50745
46	O-ring 20.35 x 1.78	WM 1145/97
47	O-ring 7.65 x 1.78	WM 1145/102
48	O-ring 2.9 x 1.78	WM 1145/98
49	O-ring 5.7 x 1.70	WM 1145/99
50	Pointer	WM 30991
51	Cap for index head 6 , printed	WM 30990
52	Countersunk screw M3 x 8 DIN 963 MS	WM 51063

8.7 Additional replacement parts for WM 31899



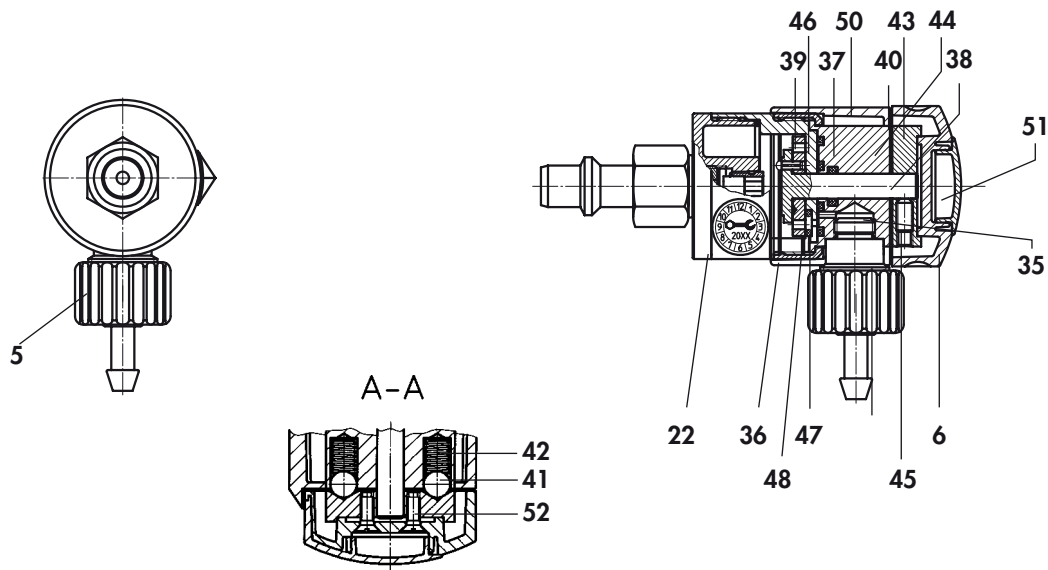
Item No.	Description	Order No.
2	Connector	see chapter 8.11
6	Rotary knob (index head), printed	WM 31142
7	Threaded connection, complete (oxygen outlet)	WM 30999
21	Spring for piston	WM 30924
22	Cover (body cover)	WM 30972
33	Sealing washer 7 x 14 x 2	WM 1145/31
34	Union nut (for threaded connection 7)	WM 1232
35	Index head, complete, comprising:	WM 31125
36	– Threaded connection, complete (oxygen outlet)	WM 30980
37	– Union nut	WM 30978
38	– Index head	WM 30012
39	– Orifice disk holder, complete	WM 30976
40	– Orifice disk 0-15 l/min	WM 30974
41	– Slide disk	WM 30977
42	– Ball	WM 4677
43	– Spring	WM 30928
44	– Index washer	WM 30988
45	– Slide disk 6 x 12 x 0.5	WM 30984
46	– Set screw DIN EN ISO 4029 M4X8-V2A with Tuflok	WM 50745
47	O-ring 20.35 x 1.78	WM 1145/97
48	O-ring 7.65 x 1.78	WM 1145/102
49	O-ring 2.9 x 1.78	WM 1145/98
50	O-ring 5.7 x 1.70	WM 1145/99
51	Pointer	WM 30991
52	Cap for index head 6 , printed	WM 30990
53	Countersunk screw M3 x 8 DIN 963 MS	WM 51063
	Label, 190 l/min	WM 75419

8.8 Additional replacement parts for WM 30600



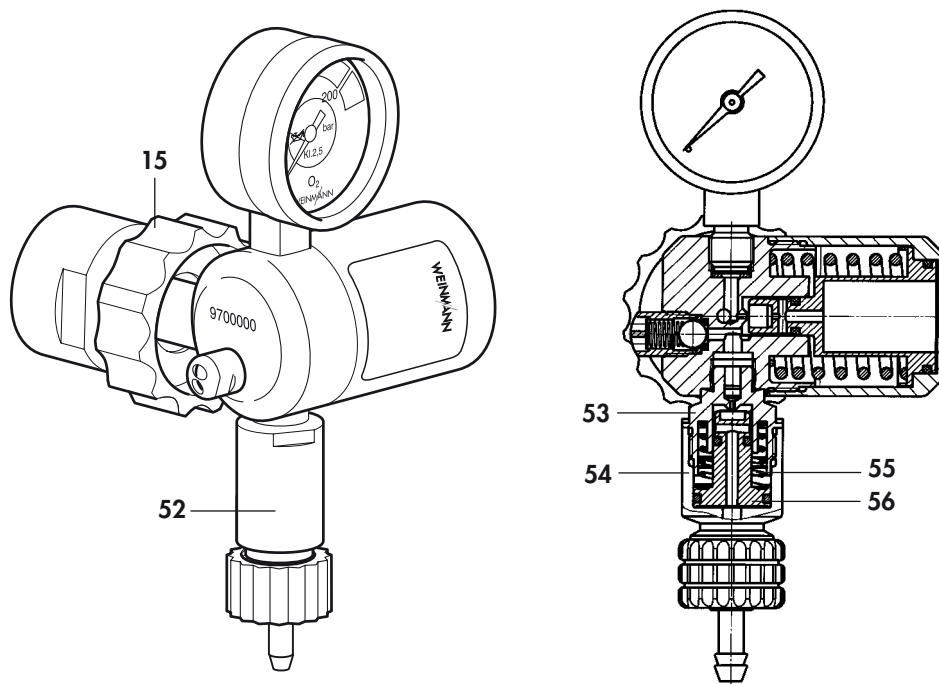
Item No.	Description	Order No.
2	Connector	see chapter 8.11
6	Rotary knob (index head), printed	WM 30015
21	Spring for piston	WM 30924
22	Cover (body cover)	WM 30972
23	Screw plug G 1/8	WM 1519
24	Cap	WM 30993
35	Index head, complete, comprising: – Threaded connection, complete (oxygen outlet) – Threaded connection up to SN 0849999 – Threaded connection from SN 0850000	WM 30996 WM 31125
36	– Union nut	WM 30980
37	– Index head	WM 30978
38	– Orifice disk holder, complete	WM 30012
39	– Orifice disk 0-6 l/min	WM 30909
40	– Slide disk	WM 30974
41	– Ball	WM 4677
42	– Spring	WM 30928
43	– Index washer	WM 30988
45	– Set screw DIN EN ISO 4029 M4X8-V2A with Tuflok	WM 50745
46	O-ring 20.35 x 1.78	WM 1145/97
47	O-ring 7.65 x 1.78	WM 1145/102
48	O-ring 2.9 x 1.78	WM 1145/98
49	O-ring 5.7 x 1.70	WM 1145/99
44	Slide disk 6 x 12 x 0.5	WM 30984
50	Pointer, printed	WM 30991
51	Cap for index head 6 , printed	WM 30990
52	Countersunk screw M3 x 8 DIN 963 MS	WM 51063

8.9 Additional replacement parts for OXYWAY Click



Item No.	Description	Order No.
5	Connector with union nut – G3/8 – UNF	WM 1415 WM 31122
6	Rotary knob (index head), printed	WM 30015
22	Housing	WM 31025
35	Index head, complete, comprising: – Threaded connection, complete (oxygen outlet) – Threaded connection up to SN 0849999 – Threaded connection from SN 0850000	WM 30996 WM 31125
36	– Union nut	WM 30980
37	– Index head (long part with triangular marker)	WM 30978
38	– Orifice disk holder, complete	WM 30012
39	– Orifice disk 0-1.5 l/min	WM 30976
40	– Slide disk	WM 30974
41	– Ball	WM 4677
42	– Spring	WM 30928
43	– Index washer	WM 30988
44	– Slide disk 6 x 12 x 0.5	WM 30984
45	– Set screw DIN EN ISO 4029 M4X8-V2A with Tuflok	WM 50745
46	O-ring 20.35 x 1.78	WM 1145/97
47	O-ring 7.65 x 1.78	WM 1145/102
48	O-ring 2.9 x 1.78	WM 1145/98
49	O-ring 5.7 x 1.70	WM 1145/99
50	Pointer	WM 30991
51	Cap for index head 6 , printed	WM 30990
52	Countersunk screw M3 x 8 DIN 963 MS	WM 51063

8.10 Additional replacement parts 2nd stage OXYTRON WM 30150



Item No.	Description	Order No.
52	Second stage, completely preassembled, comprising:	WM 30904
53	Body, chrome plated	WM 30918
54	Cover, chrome plated	WM 30908
55	Spring for piston	WM 30934
56	Piston, complete	WM 30906
15	Connection nut for WM 30150	WM 1144/10

8.11 Connections for pressure reducer

Designation for G 3/4 bolt	Order No.
Connection bolt, complete, 30 mm, G 3/4 for WM 30051, WM 30101, WM 30301, WM 30351, WM 30501, WM 30701, WM 30751	WM 1141/16
Connection bolt, complete, 50 mm, G 3/4	WM 1141/18
Connection bolt, complete, 80 mm, G 3/4	WM 1141/42
Connection bolt, complete, 100 mm, G 3/4	WM 1141
Connection bolt, complete, 140 mm, G 3/4	WM 1141/92
Connection nut for connection bolt G 3/4	WM 1144/16
Seal for G 3/4 connection bolt	WM 1145
Designation for G 5/8 bolt	Order No.
Connection bolt, complete, 30 mm, G 5/8, 60° Bullnose	WM 1141/66
Connection bolt, complete, 50 mm, G 5/8, 60° Bullnose	WM 1141/55
Connection bolt, complete, 100 mm, G 5/8, 60° Bullnose	WM 1141/56
Connection bolt, complete, 80 mm, G 5/8, 60° Bullnose	WM 1141/45
Connection bolt, complete, 30 mm, G 5/8, 72° Bullnose	WM 1141/53
Connection bolt, complete, 50 mm, G 5/8, 72° Bullnose	WM 1141/52
Connection bolt, complete, 80 mm, G 5/8, 72° Bullnose	WM 1141/44
Connection bolt, complete, 100 mm, G 5/8, 72° Bullnose	WM 1141/59
Connection bolt, complete, 140 mm, G 5/8, 72° Bullnose	WM 1141/28
Connection bolt, complete, 50 mm, G 5/8, 90° Bullnose	WM 1141/98
Connection bolt, complete, 80 mm, G 5/8, 90° Bullnose	WM 1141/79
Connection bolt, complete, 100 mm, G 5/8, 90° Bullnose	WM 1141/75
Connection bolt, complete, 140 mm, G 5/8, 90° Bullnose	WM 1141/84
Connection bolt, complete, 30 mm, G 5/8, 90° Bullnose	WM 1141/82
Seal for G 5/8 connection bolt	WM 1145/4
Connection nut for connection bolt G 5/8 for Bullnose	WM 1144/52
Connection nut for connection bolt G 5/8 for Bullnose	WM 1144/54
Designation for NGO bolt	Order No.
Connection bolt, complete, 40 mm, NGO	WM 1141/77
Connection bolt, complete, 50 mm, NGO	WM 1141/24
Connection bolt, complete, 80 mm, NGO	WM 1141/43
Connection bolt, complete, 100 mm, NGO	WM 1141/2
Connection nut for connection bolt NGO	WM 1144/27
Seal for NGO connection bolt	WM 1145/50
Designation for W21.8/21.7 bolt	Order No.
Connection bolt, complete, 30 mm, W21,8/21,7	WM 1141/71
Connection bolt, complete, 50 mm, W21,8/21,7	WM 1141/24
Connection bolt, complete, 80 mm, W21,8/21,7	WM 1141/43
Connection bolt, complete, 100 mm, W21,8/21,7	WM 1141/2

Connection nut for connection bolt W21,8/21,7	WM 1144/2
Seal for W21,8/21,7 connection bolt	WM 1145/2
Designation for bolt PIN index	Order No.
Connection bolt, PIN Index	WM 1142/86
Connection bolt, chrome-plated for 30 mm PIN index	WM 1142/88
Connection bolt, chrome-plated for 50 mm PIN index	WM 1142/87
Sealing ring 15,2-6,0-2,0	WM 1145/86
PIN index hoop, chrome-plated	WM 2841
PIN index pin	WM 2842
T-screw, chrome-plated	WM 2843

9. Tools, Inspection/Measuring/Test Equipment

Following is a list of all tools and inspection, measuring and test equipment mentioned in these Service and Repair Instructions.

For details of the tools and equipment needed in the individual case, see the relevant section.

Special tools are obtainable through the manufacturer (WEINMANN).

9.1 General tools and resources

- Socket wrench 8 mm, for slackening and tightening hexagonal nut **32** in adjustment knob (for WM 30500, 30700, 30750);
- Open-end wrench SW 12 or SW 14, for slackening gage;
- Open-ended wrench, WAF 17, to undo the plug connector for the central gas supply system (OXYWAY Click flowmeter);
- Special wrench SW 20 WM 22391 for tightening and slackening UNF 9/16 counter tool
- Open-end wrench SW 30, for tightening connection nut of pressure reducer OXYTRON (WM 30171).

9.2 Special tools

The following tools and inspection, measuring and test equipment are obtainable through the manufacturer (WEINMANN):

- Special counter tool
G 3/8 WM 22827
- UNF 9/16 counter tool, consisting of:
 - UNF 9/16 counter tool WM 14223
 - UNF 9/16 hexagon nut WM 14224
- special wrench SW 20/22 WM 22391

Tool set WM 15366 comprising:

- Counter tool with clamping handle, for holding pressure reducer during repairs WM 30035
comprising
 - Bottom part
 - Top part with clamping handle with G 3/4 socket
 - The following sockets are available on special request:
 - G 5/8 Holland;
 - G 5/8 England;
 - G 21.8;
 - G NGO.
- Cover clamping device, for removing body cover **22** WM 30036
- Cover fitting device, for tightening body cover **22** WM 30037
- Counter crown, for unscrewing pressure reducer body WM 30038
- Screwdriver bit 9 mm, for unscrewing and screwing up oxygen outlet **7** WM 30039
- Single-end wrench SW 19, for 2nd stage OXYTRON (WM 30150) WM 30040
- Watchmaker's screwdriver, for changing sealing ring **14** WM 30041
- Allen key 4 mm, for filter screw **12** WM 30042
- Screwdriver 3 mm for slackening/tightening screw **52** WM 30043
- Adapter for torque wrench WM 30044

Additional tools for pressure reducer FAST:

- Special gripping pliers WM 30046
- Clamping device, for assembling cover WM 30047
- Loctite **601** WM 14901
- Oxygen lubricant, for O-rings of piston and spindle; WM 14934

Loctite **245** WM 14920
for securing oxygen outlet and second stage of WM 30150).
(BAM - tested to 15 bar, never use a different Loctite product)

9.3 Inspection, measuring and test equipment

- Pressure gage 0 to 10 bar, class 1.0, oxygen version, for measuring outlet pressure at oxygen outlet ;
- Pressure gage 0 to 2.5 bar, class 1.0, oxygen version, for measuring outlet pressure at oxygen outlet ;
- Flow measuring tube 0 to 50 ml/min, class 2.5, oxygen version, for measuring leakages at oxygen outlet with flow setting "0" (for WM 30500, 30700, 30750);
- Flow measuring tube 0 to 20 l/min, class 1.0, oxygen version, for measuring
 - outlet flow of 0 to 15 l/min (for WM 30600, 30800, 30850),
 - constant flow of 12 l/min (for WM 30150);
- Flow measuring tube 0 to 220 l/min, class 1.0, oxygen version, for measuring
 - constant flow of 90 l/min (for WM 30850),
 - constant flow of 110 l/min (for WM 30200, 30300, 30350).
- Torque wrench, fixed setting of
 - 55 Nm \pm 1 Nm, Hazet No. 6291-1CT for fitting connector **2**;
 - 28 Nm + 2 Nm, Hazet No. 6391-35 for fitting gages **1** and **8**;
 - 25 Nm \pm 1 Nm, Hazet No. 6110-1CT for fitting oxygen outlet (pressure outlet);
 - 23 Nm – 1 Nm, Hazet No. 6391-35 for fitting gages **1** and **8**;
 - 16 Nm \pm 2 Nm, for fitting oxygen outlet (flow outlet);
 - 10 Nm + 2 Nm, Hazet No. 6110-1CT for screwing on second stage **52** of pressure reducer WM 30150.
 - 8 Nm + 2 Nm, Hazet No. 6110-1CT for screwing pressure reducer body onto cover **22**;
- 2 Open-end wrench inserts SW 12, (for torque wrench) for tightening gage, Hazet No. 6450c-12;
- 2 Open-end wrench inserts SW 14, (for torque wrench) for tightening gage, Hazet No. 6450c-14;
- 1 Open-end wrench insert SW 13, (for torque wrench) for fitting pressure reducer body, Hazet No. 6450c-13;
- open-end wrench insert SW 17;
- open-end wrench insert SW 22;
- Lanosan® med medical soap for leak test.

The following items of inspection, measuring and test equipment are obtainable from the firms listed below:

Pressure gage:

WIKA
Alexander Wiegand GmbH & Co.
Alexander-Wiegand-Strasse 30
D-63911 Klingenberg am Main
Tel.: +49 - 9372 - 1320.

Flow measuring tubes:

Under the name
"Variable area flowmeters" from
YOKOGAWA
Deutschland GmbH
Elektronische Mess- und Regelanlagen
Berliner Strasse 101 - 103
D-40880 Ratingen
Tel.: +49 - 2102 - 49830.

Hazet torque wrenches:

Messrs. Hommel
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10. Technical Data

10.1 Pressure reducer OXYWAY up to SN 0849999 and OXYTRON

Name	30050 Fix I, side outlet 30100 Fix I	30150 OXYTRON	30200 Fix II	30300 Fix III 30350 Fix III left	30500 Fine I	30700 Fine II	30750 Fine III	30800 Fast I	30850 Fast II	30600 Fast III
Type										
Dimensions (W x H x D) in mm	70-82 x 82-94 x 69	90 x 146 x 90	136-156 x 94 x 69	70-90 x 94 x 69	119-239 x 94 x 100	119-239 x 94 x 100	119-199 x 94 x 100	70 x 94 x 112	70 x 94 x 112	70x94x112
High-pressure hand connection	country-specific thread									
Weight in g	530	750	640	530	730	730	730	710	750	710
Nominal inlet pressure p ₁ in bar	20 - 200									
Nominal outlet pressure p ₂ in bar	4.5 ± 0.2	1.5 ± 0.15	4.5 ± 0.2	0.5 – 6				4.5 ± 0.2		
Delivery pressures p ₁	100									
Closing pressures p ₄ in bar at 100 bar	4.7 ± 0.25	1.6 ± 0.15	4.7 ± 0.25	6.5 ± 0.5				4.9 ± 0.25		
Test pressure gage (class 1.0) in bar	0 - 10	0 - 2.5	0 - 10							
Flow Q ₁ in l/min, first outlet	4 ± 0.5	12 ± 1.2	120 ± 15	3 – 15	1.5 - 8	0.5 – 3	1±0.5 2±0.5 3±0.5 4±0.5 5±0.5 6±0.6 9±0.9 12±1.2 15±1.5	1±0.5 2±0.5 3±0.5 4±0.5 5±0.5 6±0.6 9±0.9 12±1.2 15±1.5	0.5±0.13 1±0.25 1.5±0.25 2±0.25 2.5±0.25 3±0.25 4±0.5 5±0.5 6±0.5	
Flow Q ₂ in l/min, second outlet	–	–	min. 120	–	–	–	–	–	90 ± 10	–
Opening pressure, relief valve	7.4 bar				10.4 bar			7.4 bar		
Temperature: Operation Storage	-20 °C to +60 °C -20 °C to +70 °C									
Product category according to 93/42/EEC	IIb									
Compliance with standards	EN 738-1									

Subject to change without notice

CE 0197

10.2 Pressure reducer OXYWAY from SN 0850000

Name	Fix I, Lateral outlet Fix I	OXYTRON	Fix III Fix III left	Fine I	Fine II	Fine III	Fast I	Fast II	Fast II High Flow	Fast III
Type	30050 30100	30150	30300 30350	30500	30700	30750	30800	30850	31899	30600
Dimensions (WxHxD) in mm	70-82x82-94x69	90 x 146 x 90	70-90x94x69	119-239x94x100	119-239x94x100	119-199x94x100	70x94x112	70x94x112	70x94x112	70x94x112
High-pressure hand-screwed connection	country-specific thread									
Weight in g	530	750	530	730	730	730	710	750	750	710
Initial pressure p ₁ at 15 °C	200 - 10									
Nominal outlet pressure p ₂ , flow outlet in bar Outlet thread: 9/16 UNF	max. 5,5	1.5 ± 0.15	-	0,5 - 4,5			max. 5,5			
Nominal outlet pressure p ₂ , pressure outlet in bar Outlet thread: G 3/8"	-		4,5	-			-	4,5	4,5	-
Delivery pressures p ₁	200									
Closing pressures p ₄ in bar at 200 bar	5.1 ± 0.3	1.6 ± 0.15	5.1 ± 0.3	4.5 ± 0.9	4.5 ± 0.9	4.5 ± 0.9	4.9 ± 0.5	4.9 ± 0.5	4.9 ± 0.5	4.9 ± 0.5
Flow rate, flow outlet in l/min (at 15° C / 1013 hPa) (delivery pressure 100 bar)	4±0,8	-	-	3-15	1,5-8	0,5-3	1±0,3 2±0,4 3±0,45 4±0,6 5±1 6±1,2 9±1,8 12±2,4 15±3	1±0,3 2±0,4 3±0,45 4±0,6 5±1 6±1,2 9±1,8 12±2,4 15±3	1±0,3 2±0,4 3±0,45 4±0,6 5±1 6±1,2 9±1,8 12±2,4 15±3	0,5±0,15 1±0,3 1,5±0,45 2±0,4 2,5±0,5 3±0,6 4±0,8 5±1 6±1,2
Nominal pressure outlet flow rate in l/min (at a feed pressure of 100 bar)	-	-	appr. 120	-			-	90	appr. 190	-
Flow rate, pressure outlet in l/min (at 15° C / 1013 hPa and p ₁ = 20-200 bar)	-		min. 110	-			-	min. 90	min. 160	-
Safety valve set pressure in bar	7,4 bar									
Temperature: – Operation – Storage	-20 °C to +60 °C -20 °C to +70 °C									
Product category according to 93/42/EEC	IIb									
Standards satisfied	DIN EN ISO 10524-1									

Subject to change without notice

CE 0197

10.3 Technical Data for flowmeter OXYWAY Click

Name	OXYWAY Click
Dimensions (W x H x D) in mm	43x72x100
Weight in g	335
Nominal inlet pressure p_1 in bar	4,5
Operating range Flow Q_1 in l/min	1±0.5/2±0.5/3±0.5/4±0.5/5±0.5/6±0.6/ 9±0.9/12±1.2/15±1.5
Temperature: – Operation – Storage	-20 °C to +60 °C -20 °C to +70 °C
Product category according to 93/42/EEC	IIa
Compliance with standards	EN 13220/01.99

Subject to change without notice

CE 0197

11. Technical amendments

Article	Technical amendment	From device no.	Date
30050	Pressure gage SW 14	0100476	08.10.2001
	New safety valve 30932	0200076	13.02.2002
	Standard change: pressure reducers meet EN ISO 10524-1, UNF 9/16 outlet	0850000	14.10.2008
	Pressure gage with cap WM 31111	0910622	01.02.2009
30100	Pressure gage SW 14	0100676	08.10.2001
	New safety valve 30932	0200051	13.02.2002
	Standard change: pressure reducers meet EN ISO 10524-1, UNF 9/16 outlet	0850000	16.10.2008
	Pressure gage with cap WM 31111	0910622	01.02.2009
30171	Pressure gage SW 14	0102276	06.09.2001
	New safety valve 30932	0200201	06.02.2002
	Pressure gage with cap WM 31111	0910622	01.02.2009
30200	Pressure gage SW 14	0100426	16.10.2001
	New safety valve 30932	0200046	07.02.2002
30300	Pressure gage SW 14	0102454	10.09.2001
	New safety valve 30932	0400901	15.01.2004
	Pressure gage with cap WM 31111	0910622	01.02.2009
30400	Pressure gage SW 14	0100151	06.09.2001
	New safety valve 30932	0200001	27.05.2002
	Pressure gage with cap WM 31111	0910622	01.02.2009
30500	Spring, new (large+small)	9900797	09.02.1999
	Flow gage (from 3 liters)	9901612	12.04.1999
	Pressure gage SW 14	0103996	30.11.2001
	New safety valve 30932	0200326	30.01.2002
	Standard change: pressure reducers meet EN ISO 10524-1, UNF 9/16 outlet, max. back pressure reduced	0850000	09.10.2008
	Pressure gage with cap WM 31111	0910622	01.02.2009

Artikel	Technical amendment	From device no.	Date
30600	Pressure gage SW 14	0100116	21.09.2001
	New safety valve 30932	0200031	07.02.2002
	Standard change: pressure reducers meet EN ISO 10524-1, UNF 9/16 outlet	0850000	13.02.2009
	Pressure gage with cap WM 31111	0910622	01.02.2009
30700 + 30750	Spring, new (large+small)	9900001	15.02.1999
	Flow gage 8 liter (from 1,5 liters)	9900076	13.04.1999
	New nut WM 51446	9900443	13.10.1999
	3-liter pressure gage SW 14	0100936	13.11.2001
	8-liter pressure gage SW 14	0100551	03.12.2001
	New safety valve 30932	0200056	11.02.2002
	Standard change: pressure reducers meet EN ISO 10524-1, UNF 9/16 outlet, max. back pressure reduced	0850000	09.02.2009
	Pressure gage with cap WM 31111	0910622	01.02.2009
30800 + 30850	New orifice locator	9801305	26.08.1998
	Pressure gage SW 14	9101196	07.09.2001
	New safety valve 30932	0200171	12.02.2002
	Standard change: pressure reducers meet EN ISO 10524-1, UNF 9/16 outlet	0850000	21.01.2009
	Pressure gage with cap WM 31111	0910622	01.02.2009
31030	Standard change: pressure reducers meet EN ISO 10524-1, UNF 9/16 outlet	0900115	27.01.2009

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