

LEADING IN  
PRODUCTION  
EFFICIENCY



## EcoFlow HPF

### High-Pressure Regulator Flow Automatic

#### Operation manual

MRE00009EN, V02

N26070020


### Information about the document

This document describes the correct handling of the product.

- Read the document prior to every activity.
- Prepare the document for the application.
- Pass on the product only together with the complete documentation.
- Always follow safety instructions, handling instructions and specifications of every kind.
- Illustrations can deviate from the technical construction.

### Validity range of the document

This document describes the following product:

N26070020 EcoFlow HPF P 320 5 F AI	
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### Hotline and Contact

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## 1 Product overview

### 1.1 Overview

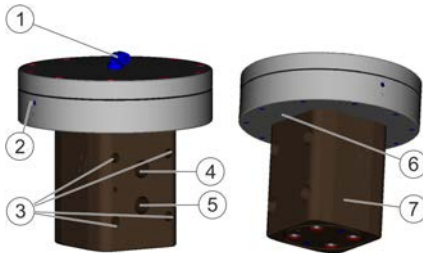


Fig. 1: Product overview

- 1 Control air connection
- 2 Leakage connection
- 3 Through bore-hole flange mounting
- 4 Material outlet
- 5 Material inlet
- 6 Leakage connection
- 7 Regulator housing

### 1.2 Short description

The high pressure regulator (hereafter called "Regulator") reduces the pressure in the supply line of an application system using control air pressure to the required material pressure. It protects the downstream devices from pressure surges and pulsations. You can use the regulator for automatic application by attaching it to a flange plate.

## 2 Safety

### 2.1 Presentation of Notes

The following notes can appear in this instruction:

#### DANGER!

High risk situation that can lead to serious injuries or death.

#### WARNING!

Medium risk situation that can lead to serious injuries or death.

#### CAUTION!

Low risk situations that can lead to minor injuries.

#### NOTICE!

Situations that can lead to material damage.

#### ENVIRONMENT!

Situations that can lead to environmental damage.

Additional information and recommendations.

### 2.2 Intended Use

#### Use

The regulator **EcoFlow HPF** is used exclusively for pressure control in the supply line of application stations.

The regulator **EcoFlow HPF** may only be operated with fluids of the Group 2 (fluids) in conformance with the pressure devices guideline 2014/68/EU. The use is only permitted within the specified technical data 11 "Technical data".

### Restrictions

Group 2 is not valid for media with the following characteristics:

- Explosive
- Flammable
- Poisonous
- Oxidizing

### Misuse

If used improperly, it can cause serious injuries.

Examples of wrong use are:

- Use in explosive areas
- Use along with hand guided atomizers
- Use of unapproved materials, see safety data sheets
- Making conversions or changes on your own

## 2.3 Residual risks

### Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Regulator Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.

### Escaping material

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Do not try to seal leakages using body parts, gloves or towels.
- If there are injuries, seek medical attention immediately.

Before working on the product:

- Purge the system, in which the product is installed.
- Disconnect the system, in which the product is installed, from compressed air and material supply.
- Secure system personalized from being switched on again.
- Depressurize the lines.

## 2.4 Property damage

### Hardening material

If the material in the product hardens, the product will be damaged or destroyed.

- 1K material: Note curing time. ↪ 11.9 “Material specification”
- 2K material: Note pot time. ↪ 11.9 “Material specification”
- Purge product ↪ 6.2 “Purging”, e.g. in the case of:
  - Production interruptions
  - Production end
  - Before every change of material
  - Before a long time of non-use
  - Before placing in storage

## 2.5 Staff qualification



### WARNING!

#### Inadequate qualification

Wrong estimation of dangers can cause serious injury or death.

- Only sufficiently qualified persons may execute all work.
- Some work requires additional qualification. Additional qualifications of specialized personnel are marked with a "+".

This document is intended for qualified personnel in the industry.

#### Cleaning staff

The cleaning staff receives regular instructions from the operator about the following contents:

- Using the product
- Handling cleaning tools
- Handling cleaning agents
- Technical Measures for occupational safety and health

#### Mechanic

The mechanic is trained specifically for the field of work in which he works.

Furthermore, he has the following knowledge:

- Directives, Standards and Rules of Engineering
- Local conditions
- Technical Measures for occupational safety and health

The mechanic is responsible for the following activities on equipment and components:

- Assembly
- Waiting
- Maintenance
- Disassembly

#### + Additional qualification high pressure

In addition, the mechanic has knowledge of regulations and safety measures for high pressure systems > 20 bar.

Dürr Systems offers special product training for ↪ "Hotline and Contact".

## 2.6 Personal protective equipment

Wear the required personal protective equipment when working. Provide the following personal protective equipment:



#### Eye protection

Protects eyes from dust, paint drops and particles.



#### Face protection

Protect the face from dust, paint drops and particles flying around, such as chips and slivers.



#### Protective gloves

Protect the hands from:

- mechanical forces
- Thermal forces
- Chemical effects



#### Protective workwear

Tight fitting workwear with low tear strength, tight sleeves and no hanging parts.



#### Safety boots

Protect feet from crushing, falling items and slipping.



#### Use ear protection

Protects from auditory damage due to noise.

## 3 Transport, scope of supply and storage

### 3.1 Transport

#### NOTICE!

##### **Incorrect Transport**

Incorrect Transport can cause property damage.

- Protect Regulator from moisture.
- Protect Regulator from vibrations.
- Protect Regulator from falling down.
- Transport temperature: -30°C to 60°C

### 3.2 Scope of delivery

The scope of supply includes the following components:

- Regulator

Inspect delivery on receipt for completeness and integrity.

Report defects immediately ☞ “Hotline and Contact”.

### 3.3 Handling of packaging material



#### **ENVIRONMENT!**

##### **Incorrect disposal**

Incorrectly disposed packaging material can damage environment.

- Dispose of material no longer required in an environment-friendly manner.
- Observe local disposal specifications.

### 3.4 Storage

Storage provisions:

- Do not store outdoors.
- Store Regulator only when dry.
- Store in a dust-free place.
- Do not expose to aggressive media.
- Protect from solar radiation.
- Avoid mechanical vibrations.
- Temperature: 10°C to 40°C
- Relative humidity: 35% to 90%

## 4 Assembly

### 4.1 Requirements for the Installation point

- The regulator must be operated in a closed system.
- The regulator must be integrated in a remote controlled and automated process.
- It should be possible to disconnect the energy supply to the regulator and secure it from being switched back on.
- Lines, seals and screw connections must be designed to conform to the regulator requirements ☞ 11.4 “Operating values”.
- The control air supply must be adjustable.

## 4.2 Assembly

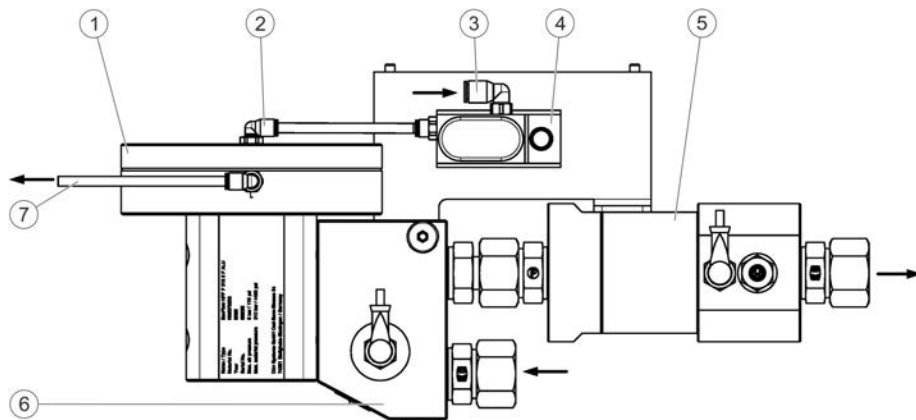


Fig. 2: Assembly drawing (example of a metering device)

### Protective equipment:

- Protective workwear
- Eye protection
- Protective gloves
- Safety boots

### Observe the following at assembly:

- Install the regulator before the applicator.
  - Assemble regulator on a flange plate. The connections for material feed and material discharge must be installed in the flange plate.
  - Alignment: Lid on top, regulator housing at bottom
1. Screw the connection block (6) tightly on the flange plate of the regulator (1).

The flange plate has 4 through bore-holes for assembly.

2. Connect the flow rate meter (5) to the material outlet of the connection block (6).
3. Screw the leakage line (7) into the leakage connection.

The leakage line also prevents dirt from entering the regulator housing through the leakage connection.

4. Connect the proportional valve (4) to the control air inlet (2) of the regulator.



5. Connect the control air (3) to the proportional valve (4) ↪ 11.4 "Operating values".
6. Ground the regulator (1) via the material connection lines.

## 5 Commissioning

### 5.1 Safety Instructions



#### **WARNING!**

##### **Danger from harmful or irritant substances**

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Regulator Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.
- Avoid contact (e.g. with eyes, skin).



#### **WARNING!**

##### **Squirting material**

Escaping compressed material can cause serious injury.

- Check the product for leakage before commissioning.
- Put the product into operation only if the connections are made professionally.



#### **WARNING!**

##### **Material Escaping Under Pressure**

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Put the regulator into operation only after all connections have been made professionally and checked for leakages.
- Lines, seals and screw connections must be designed to conform to the regulator requirements.



#### **NOTICE!**

##### **Material damage due to dry run**

If the regulator is operated without material, it wears out faster.

- Always operate a regulator with material.



#### **NOTICE!**

##### **Material damage due to unsuitable pipe connections**

The pipeline or a bracket supports the regulator. A loose pipeline can make the regulator vibrate during operation. It can loosen screw connections. Paint or solvent can leak out. This results in property damage.

- Dimension the lines to conform to the regulator requirements .
- If necessary, support the regulator by using a bracket ↪ 12.3 "Accessories".

## 5.2 Commissioning



The regulator is commissioned along with the system.

### Personnel:

- Mechanic
- + Additional qualification high pressure

### Protective equipment:

- Protective workwear
- Eye protection
- Protective gloves
- Safety boots
- Use ear protection

1. Set control air pressure to 0bar.

2. Adjust the input pressure of the medium such that it is at least 20bar above the desired material pressure.

3. Open ball valves in the supply lines.

4. Open the sampling point.

5. Increase control air pressure slowly until material starts flowing.

6. Leave the sampling point opened until the material escapes without air.

7. Increase control air pressure, based on the following characteristic curve until the required material pressure is reached.

### Characteristic curve of the outflow rate

The characteristic curve depends on the medium.

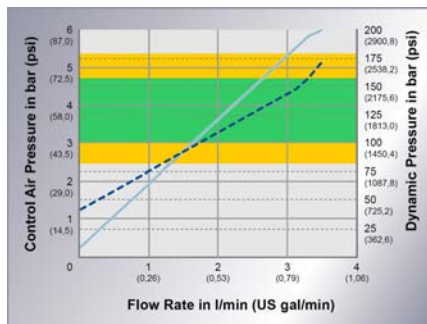


Fig. 3: Example of characteristic curve of the outflow rate

- Dynamic pressure
- Air pressure

### Specifications of the characteristic curve:

- Input pressure: 200bar

### Recommendation:

- Output pressure: 100 to 160bar (at 200bar input pressure)
- Pressure difference between inlet and outlet: 40 to 100bar

## 6 Operation

### 6.1 Safety recommendations



#### **WARNING!**

##### **Material escaping under pressure**

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Do not try to seal leakages using body parts, gloves or towels.
- If there are injuries, seek medical attention immediately.

Before working on the product:

- Disconnect the system, in which the product is installed, from material supply system.
- Secure system personalized from being switched on again.
- Depressurize the lines.



#### **NOTICE!**

##### **Hardening material**

If the material in the product hardens, the product will be damaged or destroyed.

- Note curing time. ↪ 11.9 "Material specification"
- Purge product ↪ 6.2 "Purging" e.g. for:
  - Production interruptions
  - Production end

### 6.2 Purging

Personnel:

- Mechanic
- + Additional qualification high pressure

Protective equipment:

- Protective workwear

- Eye protection
- Safety boots



#### **NOTICE!**

##### **Material damage due to unsuitable rinsing agent**

If the rinsing agent reacts chemically with the components or the material, components get damaged.

- Use only the rinsing agents that are compatible with the components and the material.
- Refer to safety data sheet of material manufacturer.

The regulator must be rinsed.

- After end of work
- Before every change of material
- Prior to cleaning
- Prior to dismantling
- Before a long time of non-use
- Before placing in storage



Purging intervals depend on the material used.

1. Purge regulator with low pressure. Possibly. Use purging equipment.

### 6.3 Relieving pressure

Personnel:

- Mechanic
- + Additional qualification high pressure

Protective equipment:

- Protective workwear
- Face protection
- Safety boots

1. Purge regulator ↪ 6.2 “Purging”.
2. Close the ball valve on the material supply line.
  - ⇒ Ensure that the ball valve remains closed during the works.
3. Open the sampling point.
4. Set control air pressure to 4bar.
  - ⇒ The regulator opens.
5. Set control air pressure to 0bar.
  - ⇒ The regulator closes.
6. Disassemble regulator ↪ 10.2 “Disassembly”.

## 7 Cleaning

### 7.1 Safety recommendations



#### **WARNING!**

##### **Danger from harmful or irritant substances**

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Regulator Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.
- Avoid contact (e.g. with eyes, skin).



#### **NOTICE!**

##### **Unsuitable cleaning agents**

Unsuitable cleaning agents can damage the product.

- Only use cleaning agents approved by the material manufacturer.
- Follow safety data sheets.
- Place heavily soiled components in a cleaning bath.
  - Only place those parts in the cleaning bath, which are suitable for the cleaning bath.
  - Use only electrically conductive containers.
  - Ground the container.
  - Do not use ultrasound baths.

**! NOTICE!**

**Unsuitable Cleaning Tools**

Unsuitable cleaning tools can cause damage.

- Only use cloths, soft brushes and paintbrushes.
- Do not use abrasive cleaning tools.
- Do not use compressed air for cleaning.
- Do not use any thinner spray guns.
- Do not use high pressure for cleaning agents.

**7.2 Cleaning**

Personnel:

- Cleaning staff

Protective equipment:

- Protective workwear
- Eye protection
- Protective gloves
- Safety boots

Requirements:

- Regulator has been purged ↗ 6.2 “Purging”
- System has been depressurized ↗ 6.3 “Relieving pressure”.

1. Clean the regulator carefully using a piece of cloth wetted with a solvent.

**8 Maintenance**

**8.1 Safety notes**



**WARNING!**

**Material escaping under pressure**

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Do not try to seal leakages using body parts, gloves or towels.
- If there are injuries, seek medical attention immediately.

Before working on the product:

- Disconnect the system, in which the product is installed, from compressed air and material supply.
- Secure system personalized from being switched on again.
- Depressurize the lines.




**WARNING!**

**Danger from harmful or irritant substances**


Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Regulator Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.
- Avoid contact (e.g. with eyes, skin).

 **NOTICE!****Damage due to improper maintenance work**

Carrying out maintenance work that is not described in this instructions manual can result in errors in assembly and cause material damage.

- Only carry out work mentioned in this instructions manual.

 **NOTICE!****Material damage due to worn out components**

Worn out components can damage the product.

- Observe the maintenance intervals  
↳ 8.2 "Maintenance schedule".

 **ENVIRONMENT!****Environmental damage caused by improper handling**

Leaked out operating and auxiliary materials are a threat to the environment.

- Use suitable collector trays during servicing and maintenance work.
- Dispose of operating and auxiliary materials according to the disposal provisions in force.
- In case of doubt, refer to the local disposal authorities.

## 8.2 Maintenance schedule

The maintenance intervals given below are based on experiential values. If required, adjust maintenance intervals individually.



If a maintenance assistant is used in the system visualizer, the maintenance intervals of the maintenance assistant are valid.

Interval	Maintenance work
weekly	Check condition and tightness of the regulator, the connections and lines. Check air leak and leakage of liquids.
monthly	Clean regulator ↪ 7.2 "Cleaning".
semi-annually	Check needle (17), needle seat (16), O-rings (15, 18), and replace if defective ↪ 8.3 "Dismantling".
annually	Check screw connections and fastening. Check rod seal (14), guide rod (7), and replace if defective ↪ 8.3 "Dismantling".
every 2 years	Check membrane (4) and spring (11), and replace if defective ↪ 8.3 "Dismantling".

### 8.3 Dismantling

You must dismantle the regulator to be able to perform maintenance work and to replace components. The requirement is a clean working place in a workshop.

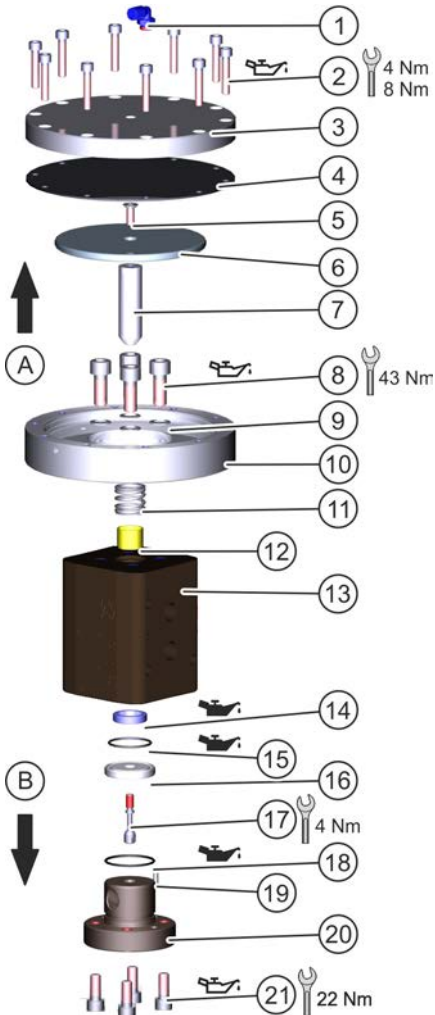


Fig. 4: Exploded view

- Molykote TP-42
- Klüber Syntheso GLEP 1

Protective equipment:

- Protective workwear
- Eye protection
- Protective gloves
- Safety boots

Requirements:

- Lines have been purged and depressurized.
- Regulator has been cleaned and disassembled.
- Material feed is disconnected and secured against being switched on again.

1. Disassemble the regulator
2. Clamp the regulator with the control side (A) upward into a vise.


Use protective jaws.

3. Thread off screws (2) on the lid (3).
4. Remove the lid (3).
5. Mark the top side of the membrane (4).
6. Remove the membrane (4).
7. Remove regulator from the vise. Clamp it again with the material side (B) facing upwards.
8. Remove the screws (21) on the valve cap (20).




9. **! NOTICE!**  
 Regulator cover, O-ring and tool may be damaged if the proper procedure is not followed.

Thread two screws evenly into the pull-off thread. Force off the valve cap (20).

 Do not tilt.

10. Disassemble O-Ring (18).  
 11. Loosen the needle (17) and remove it.

 Dürr Systems recommends using auxiliary tool (W02020241) ↪ 12.2 "Tools".

12. Remove needle seat (16).  
 13. Remove regulator from the vise. Clamp it again with the control side (B) facing up.  
 14. Remove plate (6) with guide rod (7).  
 15. Remove the compression spring (11).  
 16. Loosen screws (8).  
 17. Take off the flange (10).  
 18. Remove valve housing (13) from the vise. Clamp it again with the material side (B) facing upwards.  
 19. Remove rod seal (14) from the bore.  
 20. Clean and check all components and replace if damaged. Replace seals.


## 8.4 Assembly

Protective equipment:

- Protective workwear
- Eye protection
- Protective gloves
- Safety boots

Requirements:

- Regulator has been cleaned and dried.
1. Clamp the regulator housing (13) with the material side (B) upwards into a vise.


 Use protective jaws.

2. Grease the new rod seal (14).  
 3.

**! NOTICE!**


If the alignment is wrong, the rod seal will be damaged.

Push the rod seal (14) over the edge of the material feed bore and into the bore at the underside of the valve housing by using your fingers. Do not tilt and ensure that the rod seal seat is centered.

 Dürr Systems recommends using auxiliary tool (W02020244) ↪ 12.2 "Tools".

- Guide the auxiliary tool into the bore on the underside of the valve housing.
  - Press the auxiliary tool into the bore until flange of the auxiliary tool fits closely.
4. Remove regulator from the vise. Clamp it again with the control side (B) facing up.  
 5. Put on the flange (10). Align with the bore of the valve housing (13).  
 6. Insert screws (8). Tighten evenly and cross-wise.

- Tightening torque: 43Nm

 While doing so, do not move the flange.

7. Insert compression spring (11).  
 8. Insert plate (6) with guide rod (7) and press it on.

9. Check the opposite side to see whether the rod seal (14) fits closely to the base of the bore after assembling the guide rod (7).
10. Remove regulator from the vise. Clamp it again with the material side (B) facing upwards.
11. Lightly grease the new O-ring (15). Fit it into the needle seat (16).
12. Insert the needle seat (16) with the O-Ring facing down into the valve housing (13).
13. Insert the needle (17) through the bore of the needle seat (16) into the end of the guide rod.
14. Hand-tighten the needle (17) to the guide rod (7). While doing so, secure it on the opposite-placed plate (6) with an Allen wrench.
  - Tightening torque: 4 Nm
15. Gently turn the plate (6) and guide rod (7) twisting side to side.
  - ⇒ The needle seat becomes centered.
16. Lightly grease the new O-ring (18).
17. Align the valve cap (20) on the alignment pin (19) and insert it.
18. Insert screws (21). Tighten evenly and cross-wise.
  - Tightening torque: 22Nm
19. Remove regulator from the vise. Clamp it again with the control side (B) facing up.

20. Check membrane (4) for damage. Replace if necessary.



If the membrane is not replaced, assembly the membrane again with the marking upward. The membrane has been stretched out on one side during operation.

- 21.



### **NOTICE!**

Particles on the membrane damage it. Position and place membrane (4) on the hole pattern. Ensure cleanliness.

22. Position and place the cover (3) on the hole pattern.
23. Insert screws (2). Tighten evenly and cross-wise.
  - Tightening torque 1. Stage: 4 Nm
  - Tightening torque 2. Stage: 8Nm

## 9 Faults

### 9.1 Behavior during faults

If faults occur:

- Shut down the power supply. Secure against reconnection. Verify that no current is present in cables.
- Disconnect the compressed air supply and material feed. Secure against reconnection. Depressurize the lines.
- Follow the defects table to correct the fault.

## 9.2 Defects table

Fault description	Cause	Remedy
Regulation not possible	Needle worn out	Replace needle.
	Needle seat worn out	Replace needle seat.
	Needle seat not centered	Re-assemble needle seat.
	Needle seat incorrectly inserted	Re-assemble needle seat.
	Membrane damaged	Replace membrane.
	Leak in the rod seal	Replace guide rod and rod seal.
	Air supply fluctuates.	Check air control. Repair if necessary.
Air leak on the flange	Membrane damaged	Replace membrane.
Material leakage between housing and flange plate	O-rings damaged	Replace O-rings.
Material leak at the flange	Guide rod and rod seal worn out	Replace guide rod and rod seal.

For troubleshooting you have to (partly) dismantle the regulator ↪ 8.3 “Dismantling”. If faults cannot be remedied, please contact your dealer or reseller ↪ “Hotline and Contact”.

## 10 Disassembly and Disposal

### 10.1 Safety recommendations



#### WARNING!

##### Material escaping under pressure

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Do not try to seal leakages using body parts, gloves or towels.
- If there are injuries, seek medical attention immediately.

Before working on the product:

- Disconnect the system, in which the product is installed, from compressed air and material supply.
- Secure system personalized from being switched on again.
- Depressurize the lines.



#### WARNING!

##### Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Regulator Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the relevant safety data sheets.
- Wear specified protective equipment.
- Avoid contact (e.g. with eyes, skin).

### 10.2 Disassembly

Personnel:

- Mechanic

Protective equipment:

- Eye protection
- Protective gloves

1. Purge regulator ↪ 6.2 "Purging".
2. Depressurize the line ↪ 6.3 "Relieving pressure".
3. Unscrew material discharge line from the material outlet.
4. Unscrew material supply line from the material inlet.
5. Remove the regulator.

### 10.3 Disposal



#### ENVIRONMENT!

##### Improper waste disposal

Improper waste disposal threatens the environment and prevents re-use and recycling.

- Clean components before their disposal.
- Always dispose of components in accordance with their characteristics. ↪ 11.7 "Materials used"
- Collect leaked out utilities and auxiliaries completely.
- Dispose of work equipment soaked in coating materials or operating substances according to the disposal provisions in force.
- Dispose of utilities and auxiliaries according to the disposal provisions in force.
- In case of doubt, refer to the local disposal authorities.



## 11.7 Materials used

Component	Material
Valve housing, valve cap	Aluminum
Membrane	EPDM
Materials in contact with material	Aluminum
Needle, needle seat	Hard metal

## 11.8 Type plate

The type plate is also on the regulator housing and features the following data:

- Product name
- Material number
- Year of manufacture
- Serial number
- Maximum air pressure
- Maximum material pressure
- Manufacturer

## 11.9 Material specification

### Material

PVC Plastisol:

- Flashpoint > 100°C
- Solvent-free
- Highly viscous

### Viscosity

Detail	Value
Viscosity, min.	2Pa S
Viscosity, max.	45Pa S
Viscosity, max. (gluing)	5000Pa S

# 12 Spare parts, tools and accessories

## 12.1 Spare parts

Item numbers relate to the Fig. 4.

Item	Denomination	Quantity	Material no.
1	Plug-in connection G1/8"	1	
2	Cheese-head screw M6x30 DIN912 8.8	10	
3	Lid	1	
4	Membrane	1	M08510051
5	Countersunk-head screw M6x16 DIN7991 8.8	1	
6	Plate	1	
7	Guide rod	1	
8	Cheese-head screw M10x25 DIN912 8.8	4	
9	Safety washer d10.5 type: S10	4	
10	Flange	1	

Item	Denomination	Quantity	Material no.
11	Compression spring	1	M68010001
12	Plain bearing	1	Wear part kit: N26960001
13	Valve housing	1	
14	Rod seal	1	Wear part kit: N26960001
15	O-ring 30x2	1	Wear part kit: N26960002
16	Needle seat	1	
17	Needle	1	
18	O-ring 35x2	1	
19	Alignment pin 4m6x12	1	
20	Valve cap	1	
21	Cheese-head screw M8x20 DIN912 8.8	4	

## 12.2 Tools



Fig. 6: Tools

Item	Description	Quantity	Material no.
1	Auxiliary tool for rod seal assembly	1	W02020244
2	Auxiliary tool for tightening the needle	1	W02020241

## 12.3 Accessories

There are no accessories available for this product.

## 12.4 Order



### **WARNING!**

#### **Unsuitable spare parts**

Spare parts of third-party suppliers may possibly not be able to hold the loads. Serious injury and death could be the consequence.

- Use exclusively original spare parts.

Ordering spare parts, tools and accessories as well as information on products that are listed without order number ↪ “Hotline and Contact”.











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Translation of the original operation manual  
MRE00009EN, V02

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