LEADING IN
PRODUCTION
EFFICIENCY

EcoFlow LPF M

Low Pressure Regulator Flow

Operation manual

MRE00003EN, V03

N26010068

www.durr.com

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 products:

N26010068 **Eco**Flow LPF M 9 2.5 G1/8" SST	

Hotline and Contact

If you have queries or would like technical information, please contact your dealer or sales partner.

1 Product overview

1.1 Overview

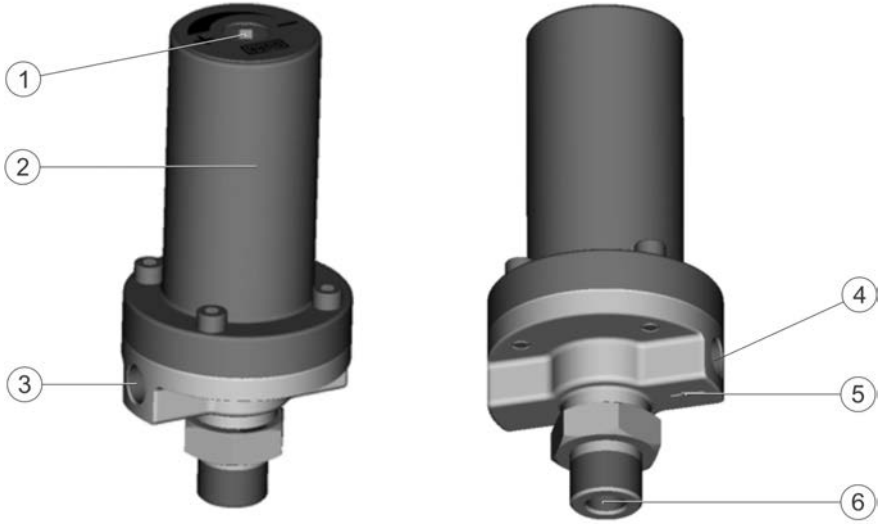

Fig. 1: Product overview

1	Adjusting screw compression spring	4	Material outlet
2	Housing cover	5	Flow direction
3	Pressure gage with sealing screw	6	Material inlet

1.2 Short description

The low pressure controller (hereafter called “Regulator”) reduces the pressure in the supply line of an application system using spring force to the required material pressure. It protects the downstream devices from pressure surges and pulsations.

An optional pressure gage displays the set material pressure.

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 low pressure controller **Eco**Flow LPF serves exclusively for material pressure regulation in the supply line of application systems.

The low pressure controller is approved for use in explosive areas of Ex zones 1 and 2.

The low pressure controller for fluids does not fall in one of the categories I- IV of the pressure devices guidelines. The low pressure controller is designed and manufactured as specified in article 3 para 3 of 97/23/EC from 2016 onwards in article 4 para 3 of 2014/68/EU.

Misuse

If used improperly, it can cause serious injuries.

Examples of wrong use are:

- Use in explosive areas Ex zone 0
- Use of unapproved materials
- Making conversions or changes on your own

EX labeling

II 2G Ex h IIA T6 Gb X

II	-	Device group II: all areas except mining
2G	-	Device category: 2 (for gaseous atmosphere)
h	-	Ignition protection category for non-electrical devices
IIA	-	Explosion group
T6	-	Temperature class
Gb	-	Device category and device protection level: Gb (zone 1)
X	-	Restriction: The device is configured for operation in an ambient temperature of 15°C to 40°C.

2.3 Residual risks

Explosion

Sparks, open flames and hot surfaces can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

- Before carrying out any work on the product, ensure a non-explosive atmosphere.
- Do not use sources of ignition and open light.
- Do not smoke.
- Ground the product.
- Wear suitable protective equipment.

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- Ensure that the flashpoint of the fluid is at least 15K above the ambient temperature.
- Observe explosion group of the coating materials and their detergents and cleaning agents.
- Follow the safety data sheet.
- Ensure that technical ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Ground the product.
- Wear suitable protective equipment.

Danger due to escaping material

Material escaping under pressure can cause serious injuries.

Before the product:

- Switch off the system.
- Disconnect the system from energy and material supply.
- Depressurize the lines.
- Secure the system against switching on again.

Spring force

If the spring jumps out from the regulator under pressyre, it can cause injuries.
Before working on the product:

- Relieve the spring.

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 ↳ 11.8 “Material specification”
- 2K material: Observe pot time ↳ 11.8 “Material specification”
- Purge product ↳ 6.2 “Rinsing”, e.g. in the case of:
  - Production interruptions
  - Production end

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 industry and craftmanship.

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

Electrician
Electricians assemble, install, service and repair electrical systems in a professional manner.

Furthermore, electrical engineers have the following knowledge:

- Guidelines, Standards and Rules of Engineering
- Local conditions
- Electrical Systems and Their Loading Limits
- 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:

- Guidelines, 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 explosion protection
In addition to the knowledge of the various specialist fields, the mechanic has knowledge of regulations and safety measures when working in potentially explosive areas.

Dürr Systems offers special product training for ↳ “Hotline and Contact”.

2.6 Personal protective equipment

When working in explosive areas, the protective clothing, including gloves, must meet the requirements of DIN EN 1149-5. Footwear must meet the requirements of EN ISO 20344 and EN IEC 61340-4-3. The volume resistivity must not exceed 100MΩ.

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

Eye protection
Protects eyes from dust, paint drops and particles.

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.

Respirator mask
Protects from hazardous gases, vapors, dust and similar materials and media.

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 Unpacking

DANGER!

Electrostatically charged plastic films and foils in potentially explosive areas

The foil and the product can charge electrostatically at the time of the unpacking. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Unpack product outside Ex zones.
- Discharge the product.
- Dispose packaging outside of the Ex zone in accordance with the regulation or store properly for a later return.

3.3 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”.

3.4 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.

3.5 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 material feed to the regulator must allow to be disconnected and secured from being switched on again. It must be possible to close the lines upstream of the regulator.
- Lines, seals and screw connections must be designed to conform to the requirements of the regulator ↳ 11.4 “Operating values”.
- The regulator must be permanently fixed.
- The regulator must be grounded.
- A safety distance of 0.25cm/kV from the high voltage must be kept.

4.2 Assembly

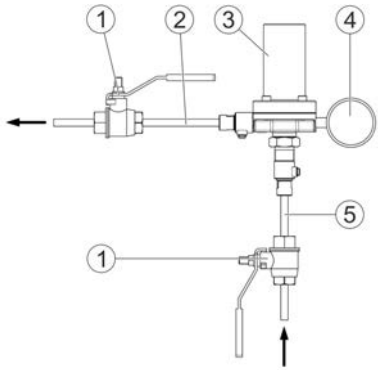

Fig. 2: Assembly drawing (example)

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

Observe the following at assembly:

- Ensure a non-explosive atmosphere.
- Install the regulator before the applicator.
- Alignment: Lid on top, regulator housing at bottom
- Flow direction
- Provide shut off valves (1).
- Ensure pressure monitoring. Install pressure gage (4) if necessary.
- If necessary, install filter before the regulator.
- Observe maximum tightening torque for all screw connections.

1. Screw the material supply line (5) into the material inlet.
2. Screw the material discharge line (2) into the material outlet.

Ground the regulator

Personnel:

- Electrician
- + additional qualification explosion protection

Protective equipment:

- Protective workwear
- Safety boots

1. Ground the regulator (3) via the material connection lines.

4.3 Assemble pressure gage

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

A pressure gage can be installed for checking the material pressure.

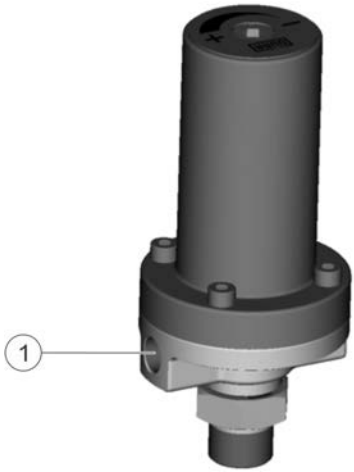

Fig. 3: Install pressure gage

1. Remove sealing screw from pressure gage connection (1).
2. Slide the sealing ring over the pressure gage threads.
3. Screw the pressure gage into the regulator housing.
4. Align pressure gage such that it can be read easily.
5. Test function and tightness of the pressure gage.

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 safety data sheet.
- Wear specified protective clothing.
- 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!

Sparks due to electrostatic discharge

If the regulator is not grounded, there can be an electrostatic charge on the the regulator. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Ground Regulator as specified.
- Before carrying out any work, make sure that there is no explosive atmosphere.

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 conections

The piepeline or a bracket supports the regulator. A loose pipeline can make the regulator vibrate during operation. It ca nloosen 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 ↳ 12.2 “Accessories”.

5.2 Commissioning

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

1. Relieve the spring.
   - Turn adjusting screw in (-) direction.
2. Adjust the input pressure so that it is at least 1bar above the desired material pressure.
3. Open ball valves in the supply lines.
4. Open the sampling point.
5. Increase spring pressure slowly until material starts flowing.
   - Turn adjusting screw in (+) direction.
6. Leave the sampling point opened until the material escapes without air.
7. Increase spring pressure, based on the following characteristic curve until the required material pressure is reached.

Characteristic curve of the outflow rate

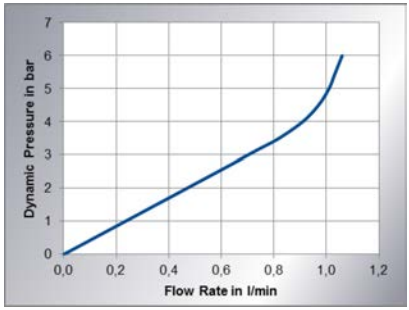

Fig. 4: Characteristic curve of the outflow rate

Specifications of the characteristic curve:
- Shield: 1 mm
- Material: Mobil DTE 24
- Viscosity: 32mPa S
- Input pressure: 7 bar

6 Operation

6.1 Safety recommendations

WARNING!

Sparks due to electrostatic discharge

If the grounding cable is removed during operation, it can cause electrostatic induction. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Do not remove grounding cable during operation.

WARNING!

Risk of injury due to escaping material

Escaping compressed material can cause serious injury.

Before working on the product:

- Disconnect the system, in which the product is installed, from material supply system.
- Secure the system against 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. ↳ 11.8 “Material specification”
- Rinse product ↳ 6.2 “Rinsing”e.g. for:
  - Production interruptions
  - Production end

6.2 Rinsing

Personnel:
- Mechanic
- + additional qualification explosion protection

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

Rinsing intervals depend on the material used.

1. Rinse regulator with low pressure. Possibly. Use rinsing equipment.

6.3 Relieving pressure

Personnel:
- Mechanic
- + additional qualification explosion protection

Protective equipment:
- Protective gloves
- Safety boots
- Use ear protection
- Protective workwear

1. Rinse regulator ↳ 6.2 “Rinsing”.
2. Close the ball valve on the material supply line.
   ⇨ Secure ball valve against reconnection while working on it.
3. Open the sampling point.
4. Open adjusting screw.
   ⇨ The regulator opens. Pressure relief in the system takes place.
5. Close adjusting screw.
   ⇨ The regulator closes. The system is now depressurized.
6. Disassemble regulator ↳ 10.2 “Disassembly”.

7 Cleaning

7.1 Safety recommendations

WARNING!

Danger of fire and explosion

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- Ensure that the flashpoint of the fluid is at least 15K above the ambient temperature.
- Only electrically conductive containers may be used for the cleaning fluid. Containers must be grounded.
- Note explosion group of the fluid.
- Follow the safety data sheet.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Ground Regulator.

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 safety data sheet.
- Wear specified protective clothing.
- 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
- + additional qualification explosion protection

Protective equipment:

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

Requirements:

- Regulator has been purged ↳ 6.2 “Rinsing”
- System has been depressurized ↳ 6.3 “Relieving pressure”.

1. Clean the regulator carefully using a piece of cloth.

8 Maintenance

8.1 Safety recommendations

WARNING!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone, use tools with the corresponding Ex labeling.

WARNING!

Risk of injury due to escaping material

Escaping compressed material can cause serious injury.

Before working on the product:

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

WARNING!

Sparks due to electrostatic discharge

If the regulator is not grounded, there can be an electrostatic charge on the the regulator. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Ground Regulator as specified.
- Before carrying out any work, make sure that there is no explosive atmosphere.

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 safety data sheet.
- Wear specified protective clothing.
- Avoid contact (e.g. with eyes, skin).

WARNING!

Danger of fire and explosion

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- Ensure that the flashpoint of the fluid is at least 15K above the ambient temperature.
- Only electrically conductive containers may be used for the cleaning fluid. Containers must be grounded.
- Note explosion group of the fluid.
- Follow the safety data sheet.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Ground Regulator.

WARNING!

Unsuitable replacement parts in explosive areas

Replacement parts not compliant with the specifications of the ATEX guidelines can cause explosions in an explosive atmosphere. Serious injury and death could be the consequence.

- Use exclusively original replacement parts.

WARNING!

Risk of injury due to pre-loaded spring

The spring in the regulator is pre-loaded by an adjusting screw. Disassembling the regulator with pre-tightened screws can cause injuries.

- Release the spring pressure using the adjusting screw before starting work on the regulator.

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

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

The maintenance intervals given below are based on experiential values. Adjust maintenance intervals individually if necessary.

Interval	Maintenance work
weekly	Check condition and tightness of the regulator, the connections and lines.
	Check leakage of liquids.
monthly	Clean ↳ 7.2 “Cleaning”.
semi-annually	Check if the adjusted pressure value at the pressure gage is in line with the specifications.
	Check membrane in contact with material (10), sealing ring (12 and 18), O-ring (14), inlet (11), ball (15) and compression spring (16), and replace if defective ↳ 8.3 “Dismantling”.
annually	Check screw connections.
	Check fastening.
every 2 years	Check custom fitting (17) and compression spring (6) and replace if defective ↳ 8.3 “Dismantling”.

8.3 Dismantling

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

Requirements:

- Regulator has been purged ↳ 6.2 “Rinsing”.
- Regulator has been disassembled ↳ 10.2 “Disassembly”.

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.

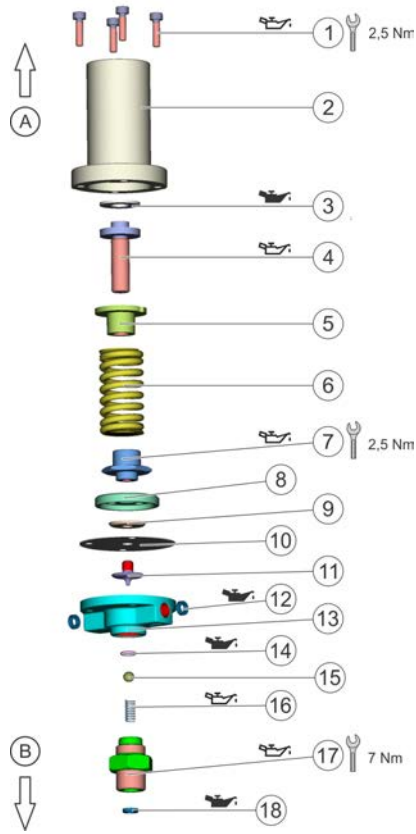

Fig. 5: Exploded view

Molykote TP-42
Klüber Syntheso GLEP1

2. Remove sealing rings (12) from the regulator housing (13).

3. Clamp the regulator with the control side (A) upward into a vise.

   Use protective jaws.

4. Turn the adjusting screw (4) in the (-) direction, until the compression spring (6) loses its tension.
5. Unscrew cheese-head screws with a hexagon socket (1).
6. Remove housing lid (2) with spacer (3), compression spring (6) and adjusting screw (4) with threaded bushing (5).
7. Mark the top side of the membrane (10).
8. Loosen custom nut (7) of the inlet (11).
   - Hold inlet (11) with a hexagonal socket.
   - Loosen custom nut (7) with an open-end wrench.
9. Remove membrane (10) with the spacers (8) and (9).
10. Remove regulator from the vise. Clamp it again with the material side (B) facing upwards.
11. Loosen the custom fitting (17) with sealing ring (18).
12. Remove compression spring (16), ball (15) and O-ring (14).
13. Clean and check all components. Replace, if damaged. Replace seals.

8.4 Assembly

Lubricate threads and seals before assembly.

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

1. Clamp the regulator housing (13) with the material side (B) upwards into a vise.

   Use protective jaws.

2. Lightly grease the new O-ring (14). Insert it into the regulator housing (13).
3. Insert ball (15) into the regulator housing (13).
4. Lightly grease compression spring (16). Insert into the custom fitting (17).
5. Screw custom fitting (17) onto regulator housing (13).
6. Remove regulator from the vise. Clamp it again with the control side (B) facing up.
7. Check membrane (10) 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.

NOTICE!

Particles on the membrane damage it.

8. Place membrane (10), sealing ring (9) and spacer (8) onto the inlet (11).
9. Screw custom nut (7) onto the inlet (11).
   - Tightening torque: 2.5Nm
10. Grease threaded bushing (4) and adjusting screw (5).
11. Screw threaded bushing (5) onto the adjusting screw (4).
12. Place the compression spring (6), threaded bushing (5), adjusting screw (4) and spacer (3) onto the custom nut (7).
13. Place housing lid (2) onto the regulator housing (13).
14. Lightly fix housing lid (2) with cheese-head screws (1).
15. Using the adjusting screw (4), compress the compression spring (6) slowly until the inlet (11) deflects downwards.
16. Tighten the cheese-head screws (1) in a crosswise sequence.
    - Tightening torque: 2.5Nm
17. Lightly grease sealing rings (12). Insert into the regulator housing (13).

Test the tightness and proper operation prior to recommissioning.

9 Faults

9.1 Defects table

For troubleshooting you have to (partly) dismantle the regulator ↳ 8.3 “Dismantling”. If faults cannot be remedied: ↳ “Hotline and Contact”.

Fault description	Cause	Remedy
Poor regulation	Ball, O-ring or compression spring are worn out	Replace ball, O-ring and compression spring.
	Membrane damaged	Replace membrane.
	Metal membrane chuck is damaged	▪ Replace the membrane chuck. ▪ Check membrane for damage. ▪ If membrane is damaged, replace membrane.
	Compression spring broken	Replace compression spring.
Material leaks from housing	Membrane damaged	Replace membrane.
	Inlet and spacer incorrectly assembled	Reassemble inlet and spacer.
	Cheese-head screws tightened with incorrect torque	Tighten cheese-head screws with the correct torque.
Whistling sound from regulator.	Regulator set incorrectly	▪ Checking pressure settings. ▪ Change parameters.

10 Disassembly and Disposal

10.1 Safety recommendations

WARNING!

Risk of injury due to escaping material

Escaping compressed material can cause serious injury.

Before working on the product:

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

WARNING!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone, use tools with the corresponding Ex labeling.

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 safety data sheet.
- Wear specified protective clothing.
- Avoid contact (e.g. with eyes, skin).

10.2 Disassembly

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

1. Rinse regulator ↳ 6.2 “Rinsing”.
2. Close material supply line with valve and secure against being switched on again.
3. Depressurize the line ↳ 6.3 “Relieving pressure”.
4. Loosen cap nut of material supply line.

5. Loosen cap nut of material discharge line.
6. 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.
  11.6 “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 Technical data

11.1 Dimensions and weight

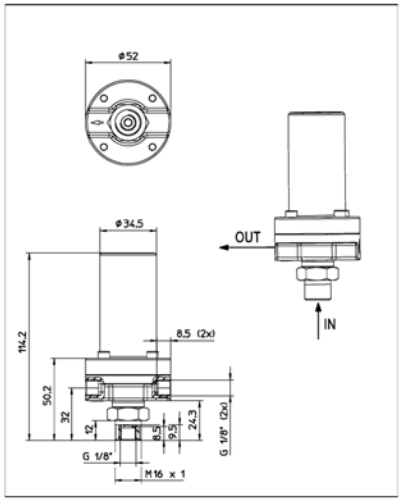

Fig. 6: Dimensions

Detail	Value
Total length	114.2mm
Diameter	52mm
Weight	0.42kg

11.2 Connections

Connection	Value
Material outlet	G1/8"
Material inlet	G1/8"
Pressure gage	G1/8"

11.3 Operating conditions

Detail	Value
Operating temperature, min.	15°C
Operating temperature, max.	35°C
Ambient temperature, min.	15°C
Ambient temperature, max.	40°C

11.4 Operating values

Detail	Value
Media input pressure, max.	20 bar
Control range	0.5 to 9bar
Flow rate, max.	2.5L/min

11.5 Type plate

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

- Product name
- Material number
- Year of manufacture
- Serial number
- Ex labeling
- Maximum material pressure
- Manufacturer
- CE labeling
- QR Code

11.6 Materials used

Component	Material
Lid	Aluminum
Regulator housing	Stainless steel
Parts in contact with material	Stainless steel
Membrane	PTFE
Ball	Hard metal

11.7 Operating and auxiliary materials

Material	Specification
Screw connections lubricant	Molykote TP-42
Seal lubricant	Klüber Syntheso GLEP 1

11.8 Material specification

Suitable Material:

- Flammable fluid coating materials of the explosion group IIA and their approved cleaning agents
- Non-flammable fluid coating materials and their approved detergents

Specification:

- Vapor pressure ≤0.5bar above atmosphere
- Ignition temperature >50°C
- Temperature ≤35°C, always 15K below flashpoint

Viscosity

Detail	Value
Viscosity, min.	10mPa S
Viscosity, max.	250mPa S

12 Replacement parts and accessories

12.1 Replacement parts

Item numbers relate to the ↳ 8.3 “Dismantling”.

Item	Denomination	Quan-tity	Order No.
1	Cheese-head screw M4x16 DIN912 1.4301	4	-
2	Housing cover	1	-
3	Spacer	1	-
4	Adjusting screw	1	-
5	Threaded bushing	1	-
6	Compression spring	1	M68010059
7	Custom nut	1	-
8	Spacer	1	-
9	Sealing ring	1	included in KIT N26960004
10	Membrane	1	included in KIT N26960004
11	Inlet	1	M03010064
12, 18	Sealing ring	3	included in KIT N26960004
13	Regulator housing	1	-
14	O-ring 5.28x1.78	1	included in KIT N26960004
15	Ball D6 hard metal	1	included in KIT N26960004
16	Compression spring	1	included in KIT N26960004
17	Custom fitting	1	-

12.2 Accessories

Fig. 7: Accessories

Item	Description	Quan-tity	Material No.
-	Pressure gauge with sealing ring	1	W07010261
1	Angle bracket 85x60x50	1	M19100396
2	Angle bracket 120x60x50	1	M19100397
3	Hexagonal nut M16x1 SA 358	1	M30030010

12.3 Order

WARNING!

Unsuitable replacement parts in explosive areas

Replacement parts not compliant with the specifications of the ATEX guidelines can cause explosions in an explosive atmosphere. Serious injury and death could be the consequence.

- Use exclusively original replacement parts.

WARNING!

Unsuitable replacement parts

Replacement 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 replacement parts.

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

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