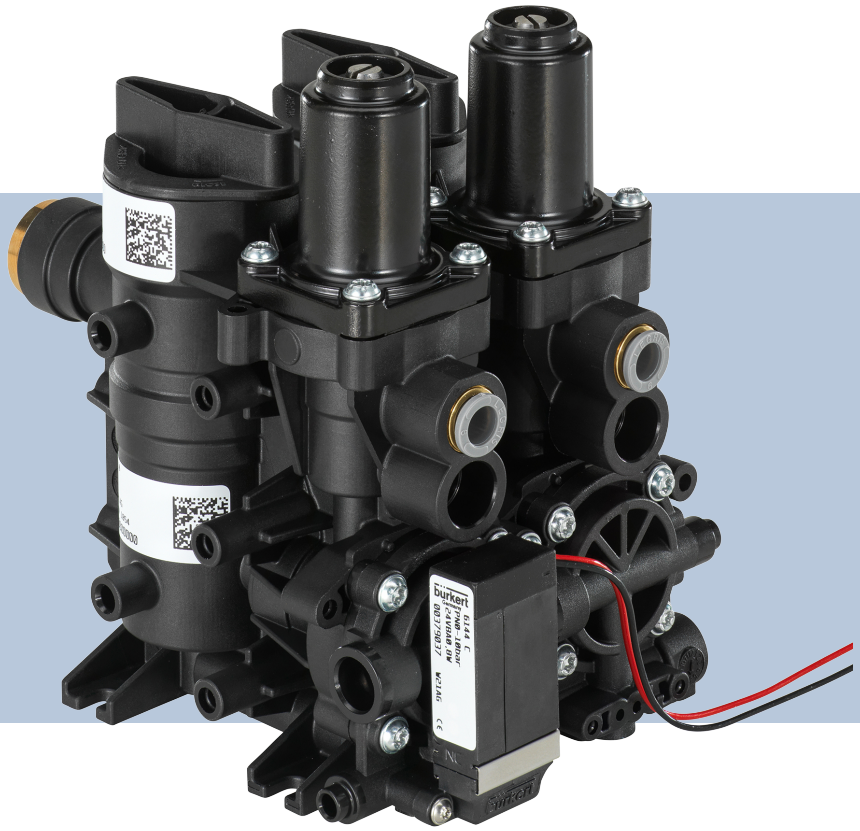
bürkert
FLUID CONTROL SYSTEMS

Type 5110

Media supply unit



Operating Instructions

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

Operating Instructions 2305/01_EN_ 20001200 / Original DE

TABLE OF CONTENTS

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

1 ABOUT THIS DOCUMENT

The document is an important part of the product and guides the user to safe installation and operation. The information and instructions in this document are binding for the use of the product.

- Before using the product for the first time, read and observe the whole safety chapter.
- Before starting any work on the product, read and observe the respective sections of the document.
- Keep the document available for reference and give it to the next user.
- Contact the Bürkert sales office for any questions.

Further information concerning the product at country.burkert.com.

1.1 Manufacturer

Bürkert Fluid Control Systems

Christian-Bürkert-Str. 13–17

D-74653 Ingelfingen

The contact addresses are available at country.burkert.com in the menu Contact.

1.2 Used symbols

DANGER!

Warns of a danger that leads to death or serious injuries.

WARNING!

Warns of a danger that can lead to death or serious injuries.

CAUTION!

Warns of a danger that can lead to minor injuries.

NOTICE!

Warns of property damage that can damage the product or the installation.

Indicates important additional information, tips and recommendations.

Refers to information in this document or in other documents.

➔ Indicates a step to be carried out.

✓ Indicates a result.

Menu Indicates a software user-interface text.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

1.3 Terms and abbreviations

The terms and abbreviations are used in this document to refer to following definitions.

MSU	Media supply unit
Device	■ MSU air/water ■ MSU air ■ MSU water

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

2 SAFETY INSTRUCTIONS

2.1 Intended use

The device is designed for the filtration, control and provision of neutral liquids and gases. The permitted media are listed in the Technical data [▶ 17] chapter.

Prerequisites for safe and trouble-free operation are correct proper transportation, storage, installation, start-up, operation and maintenance.

The instructions are part of the device. The device is intended exclusively for use within the scope of these instructions. Uses of the device that are not described in these instructions, the contractual documents or the type label can lead to severe personal injury or death, damage to the device or property and dangers for the surrounding area or the environment.

- Only trained and qualified personnel may install, operate and maintain the device. See qualification of persons in Safety [▶ 6]
- Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- Use the device only when it is in perfect condition.
- Do not use the device in potentially explosive atmosphere.
- Do not use the device in high-vibration areas.
- Do not use the device outdoors.
- Protect the device from environmental influences (e.g. radiation, humidity, vapours).
- Only use device in dry rooms.
- Observe the Operating conditions [▶ 17] temperature ranges listed.

2.2 Safety

Qualification of personnel working with the device

Improper use of the device can lead to serious personal injury or death. To avoid accidents when working with the device, the following minimum requirements must be met:

- Carry out work on the device within the scope of these instructions in a safety-compliant manner.
- Detect and avoid dangers when working on the device.
- Understand the instructions and implement the information contained therein accordingly.

Responsibility of the operator

The operator is responsible for observing the location-specific safety regulations, also in relation to personnel.

- Observe the general rules of technology.
- Install the device according to the regulations applicable in the respective country.
- The operator must make hazards arising from the location of the device avoidable by providing appropriate operating instructions.

Changes and other modifications, spare parts and accessories

Changes to the device, incorrect installation or use of non-approved devices or components create hazards that can lead to accidents and injuries.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

- Do not make any changes to the device.
- Do not mechanically load the device.
- Observe the operating instructions of the device or component used.
- Only use the devices in conjunction with approved devices or components.

Spare parts and accessories that do not meet Bürkert's requirements may impair the operational safety of the device and cause accidents.

- To ensure operational safety, only use original parts from Bürkert.

Spring action

Pressure controllers contain pre-loaded springs. When the pressure controller is opened, springs will jump out and may cause injuries.

- Do not open pressure controller.

Operation only after proper transport, storage, installation, start-up or maintenance.

Improper transport, storage, installation, start-up or maintenance endanger the operational safety of the device and can cause accidents. This can lead to serious personal injury or death.

- Only carry out works which are described in these instructions.
- Only carry out works using suitable tools.
- Have all other works carried out by Bürkert only.

Technical limit values and media

Non-compliance with technical limit values or unsuitable media can damage the device and lead to leaks. This can cause accidents and seriously injure or kill people.

- Comply with limit values. See Technical data [▶ 17] and information on the type label.
- Only feed media into the media ports that are listed in the chapter Technical data [▶ 17].
- Observe the safety data sheet for the media used.

Medium under pressure

Medium under pressure can seriously injure people. In the event of overpressure or pressure surges, the device or lines can burst. Pneumatic lines that are defective or not securely fastened can come loose and swing around.

- Before working on the device or system, switch off the pressure. Vent or empty the lines.
- Adhere to the permitted pressure ranges of the medium.
- Comply with the permitted temperature ranges of the medium.

Electric shock due to electrical components

Touching live parts can result in severe electric shock. This can lead to serious personal injury or death.

- Before working on the device or system, switch off the power supply. Secure it against reactivation.
- Observe any applicable accident prevention and safety regulations for electrical devices.

Working on the device

Working on the device that has not been powered down, unauthorised switching on or uncontrolled start-up of the system can cause accidents. This can lead to serious personal injury or death.

- Only work on the device when it is not in use.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

➔ Ensure that the device or system cannot be switched on unintentionally.

➔ Only start the process in a controlled manner following disruptions. Observe sequence:
1. Apply supply voltage or pneumatic supply.
2. Charge the device with medium.

Leaking medium

If exhaust air from other processes is used to generate compressed air for the device, seals may be destroyed by the media contained in the exhaust air.

➔ Only use fresh air for generating compressed air for the device.

Germ contamination

Germs that are harmful to health may multiply in the device and enter the media as a result of improper operation or unsatisfactory maintenance.

➔ Observe maintenance intervals as described in the Maintenance work [▶ 24] chapter.

➔ Install a biofilter upstream of the device, depending on the area of use and quality of the water input medium.
This biofilter is not a component of the device and must be tested individually.

Hearing damage due to high noise level

Depending on the operating conditions, the device may generate loud noises.

➔ If the noise level exceeds 75 dB(A), wear hearing protection when near the device.

Hot surfaces and fire hazard

The surface of the device can become hot with fast-switching actuators or with hot media.

➔ Wear suitable protective gloves.

➔ Keep highly flammable substances and media away from the device.

Electrostatically sensitive components and assemblies

The device contains electronic components that are susceptible to the effects of electrostatic discharging (ESD). Components that come into contact with electrostatically charged persons or objects are at risk. In the worst case scenario, these components will be destroyed immediately or fail after start-up.

➔ Meet the requirements specified by EN 61340-5-1 to minimise or avoid the possibility of damage caused by a sudden electrostatic discharge.

➔ Do not touch electronic components when the supply voltage is connected.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

3 PRODUCT DESCRIPTION

The device is intended for the filtration, control and provision of neutral liquids and gases. The device consists of the following main components or functional units:

- Filter for filtering compressed air and/or water
- Shut-off valve for controlling compressed air and/or water
- Pressure controller for controlling compressed air and/or water

Both shut-off valves (air side and water side) are simultaneously activated with the pilot valve as a standard. It is possible to configure the system so that the air and water sides can each be operated separately.

The output pressures for the air and water sides are set using each pressure controller, as a standard. The device can be configured so that only one side or no sides are controlled.

Other options include:

- An uncontrolled outlet
- Output pressure display for air and drinking water using external pressure gauge (not compliant with KTW)
- G3/8” external thread for input connection
- Mounting kit for side fastening
- Check valve

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

3.1 Product structure

You can find information on possible device configurations and device options in the data sheet for Type 5110 at country.burkert.com

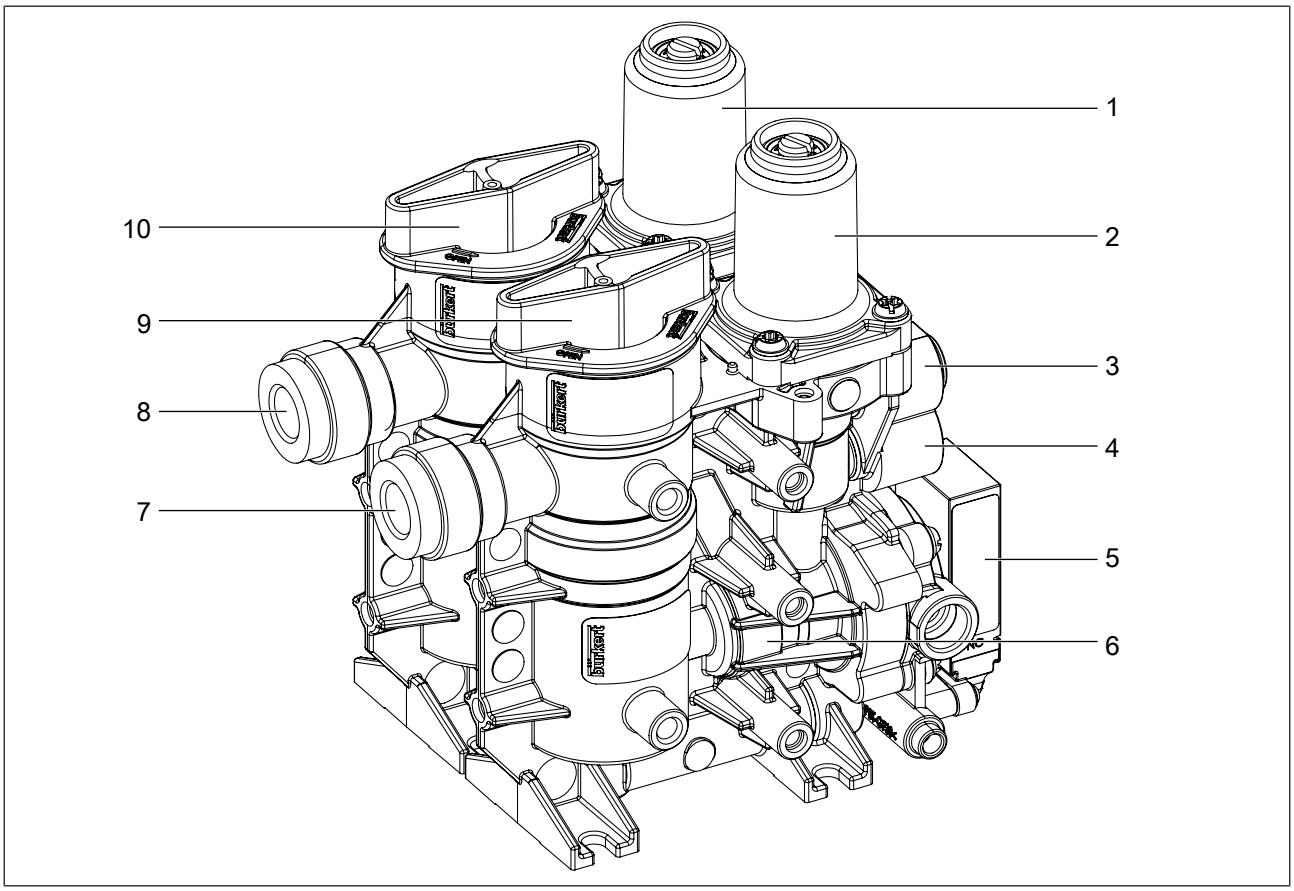


Fig. 1: MSU air/water

1	Water pressure controller	2	Compressed air pressure controller
3	Controlled compressed air outlet	4	Uncontrolled compressed air outlet (optional)
5	Pilot valve	6	Compressed air shut-off valve
7	Compressed air inlet	8	Water inlet
9	Compressed air filter	10	Water filter

The water shut-off valve and the outlets for water (controlled and uncontrolled) are hidden in the diagram.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

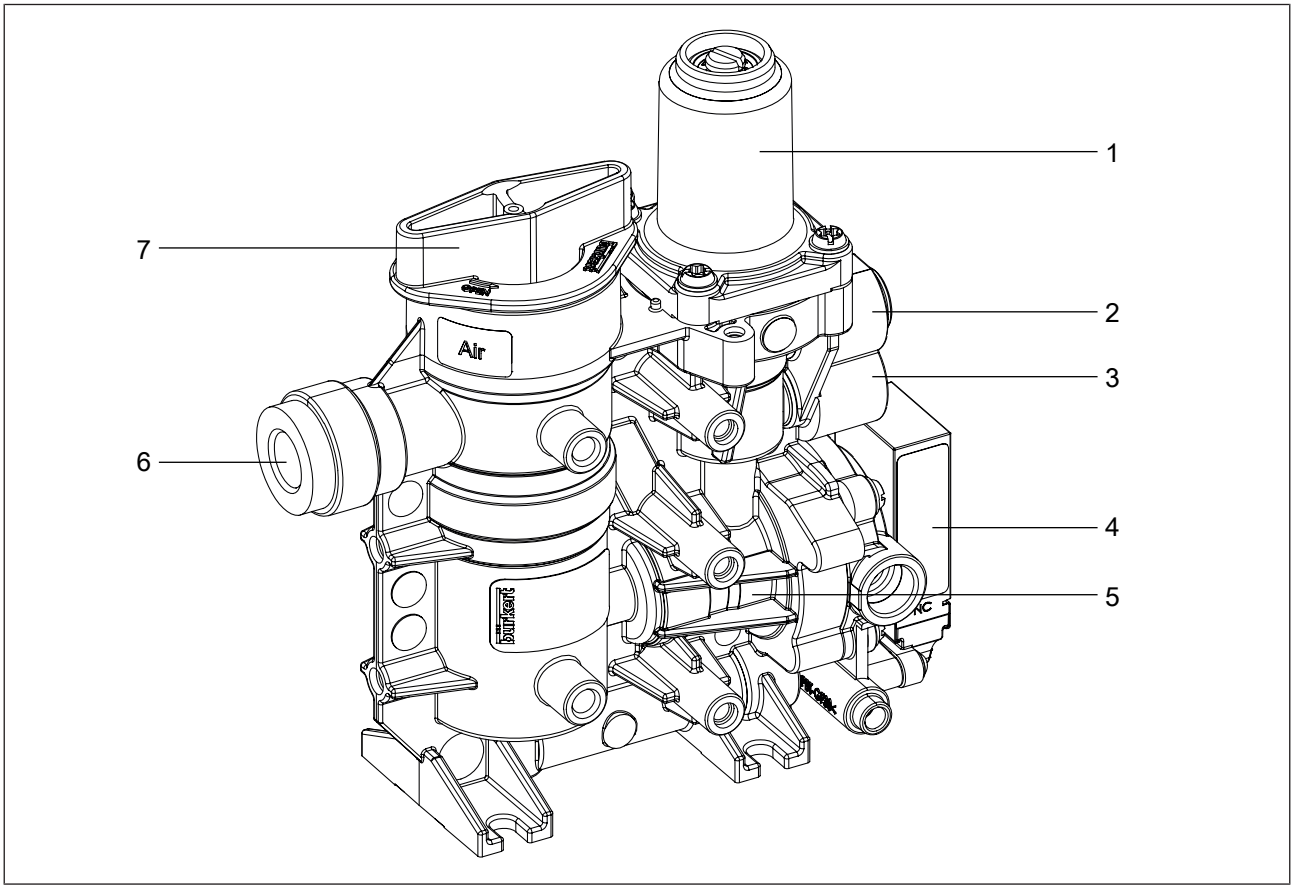


Fig. 2: MSU air

1	Compressed air pressure controller	2	Controlled compressed air outlet
3	Uncontrolled compressed air outlet (optional)	4	Pilot valve
5	Compressed air shut-off valve	6	Compressed air inlet
7	Compressed air filter		

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

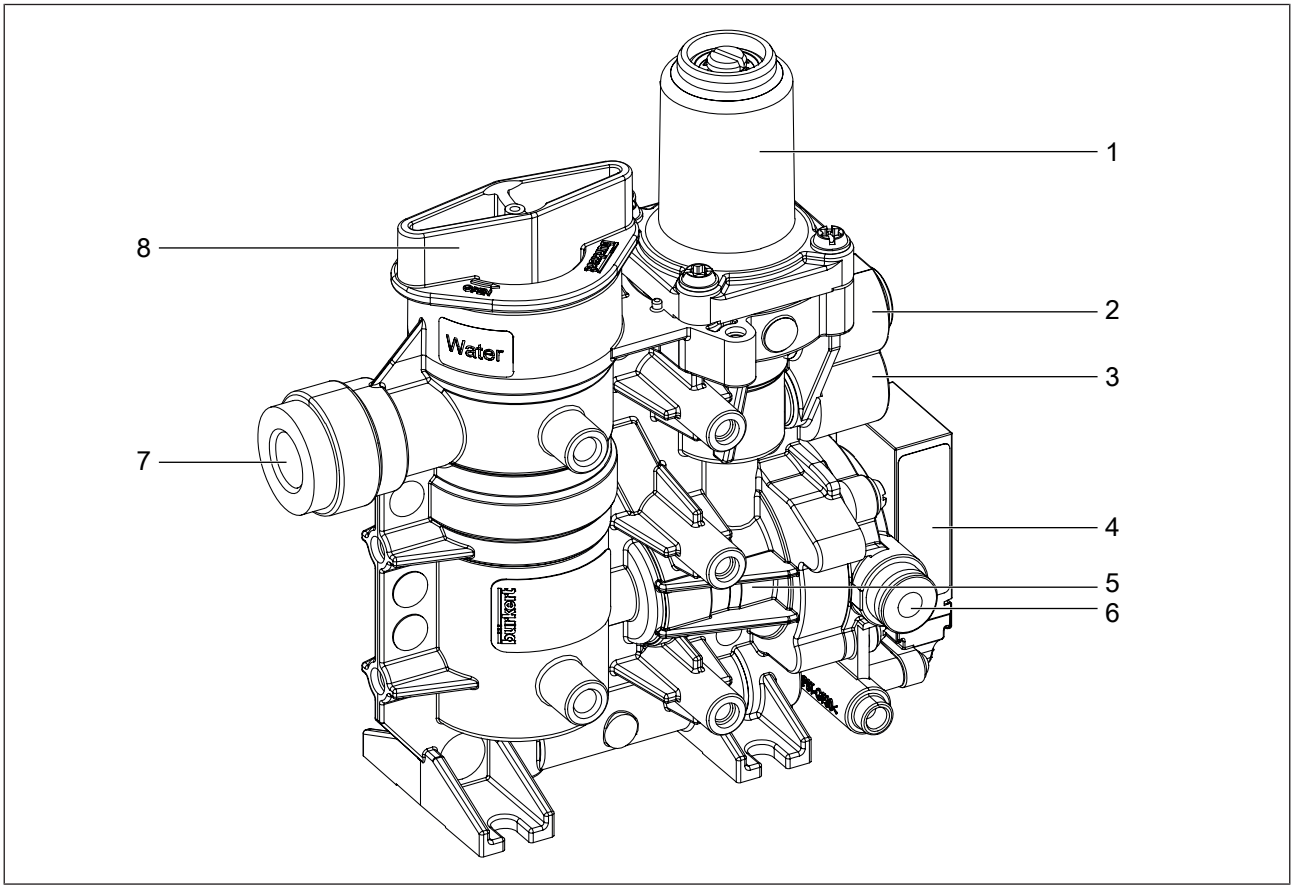
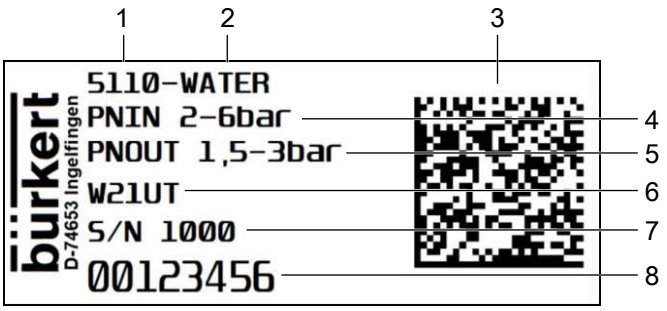


Fig. 3: MSU water

1	Water pressure controller	2	Controlled water outlet
3	Uncontrolled water outlet (optional)	4	Pilot valve
5	Water shut-off valve	6	Pilot valve control medium inlet
7	Water inlet	8	Water filter

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

3.2 Type label (example)



1	Type	2	Variant
3	Data-Matrix-Code: Article number, serial number	4	Input pressure
5	Output pressure	6	Manufacture code
7	Serial number	8	Article number

3.3 Functional diagram

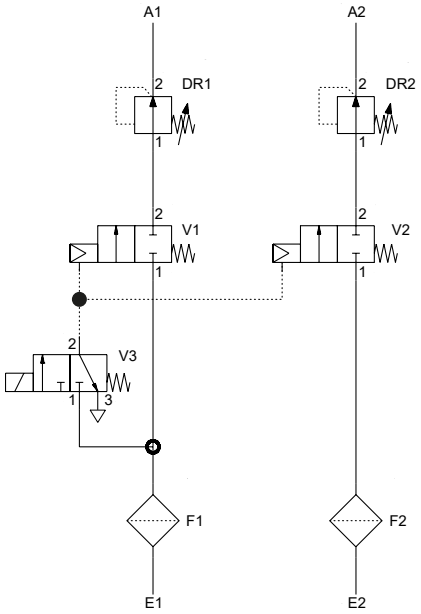


Fig. 4: Functional diagram of standard configuration for MSU air/water

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

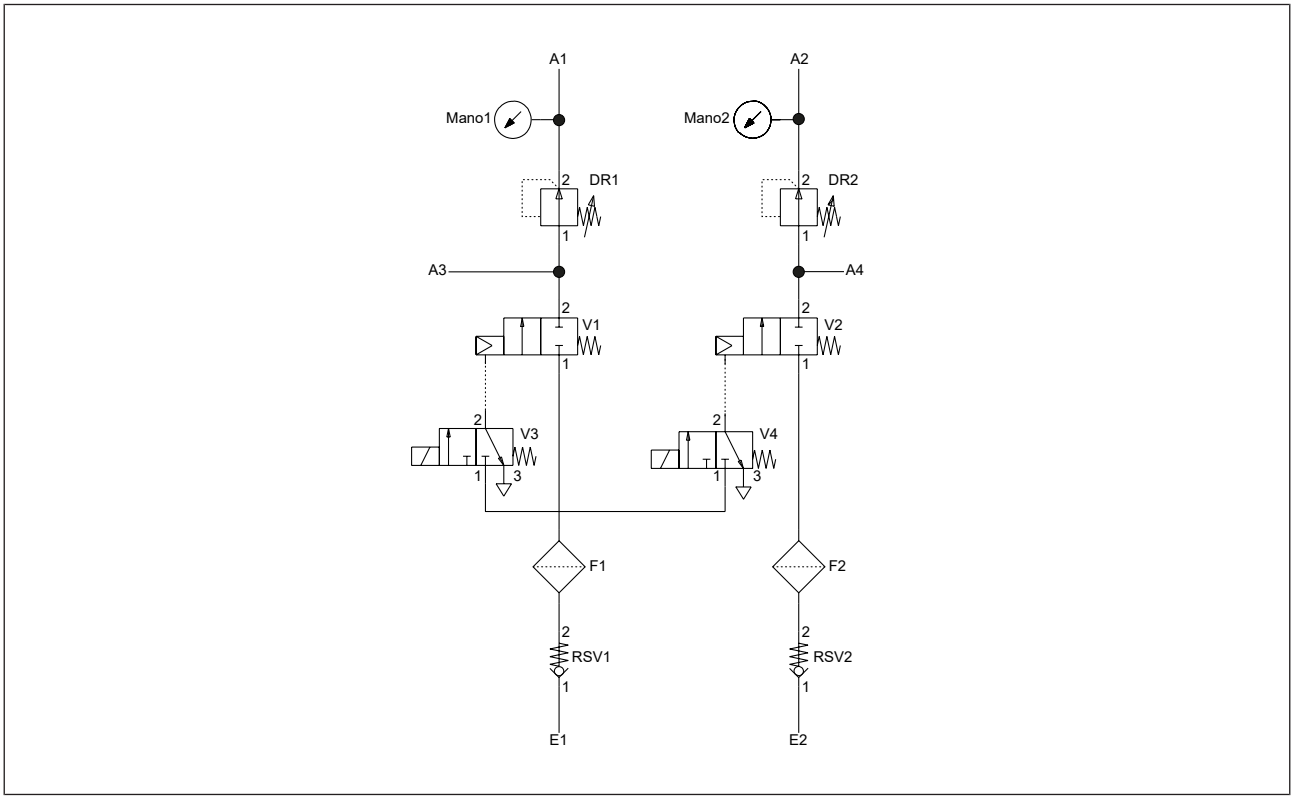


Fig. 5: Function diagram of MSU air/water with additional options

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

3.3.1 Components

The items in the following table concern the Functional diagram [▶ 13].

Item	Device type/components	Description Function
F1	Filter	Filter <50 µm Compressed air filtering
F2	Filter	Filter <100 µm Water filtering
V1	no type	2/2-way shut-off valve Compressed air controller
V2	no type	2/2-way shut-off valve Water controller
V3	Type 6144	3/2-way valve Compressed air V1 and water V2 pilot control
V4 (optional)	Type 6144	3/2-way valve Water V2 pilot control
DR1	no type	adjustable pressure controller Compressed air closed-loop control (3...5.5 bar)
DR2	no type	adjustable pressure controller Water closed-loop control (1.5...3 bar)

Tab. 1: Description of items in functional diagram

You can find detailed information on the integrated components by entering the type number of the components on our home page country.burkert.com.

3.3.2 List of connections

The items in the following table concern the Functional diagram [▶ 13].

Fluidic connections

Item	Connection type	Function
E1	G1/8” internal thread G3/8” external thread (optional)	Compressed air inlet
E2		Water inlet
A1	Push-in connector 6/4	Outlet for controlled compressed air
A2		Outlet for controlled water
A3 (optional)		Outlet for uncontrolled compressed air
A4 (optional)		Outlet for uncontrolled water
E3 (optional) and/or E4 (optional)	Push-in connector 4/2	external pilot control V1 and/or V2

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

Electrical connections

Item	Connection type	Function
V3, V4 (optional)	Strand 300 mm AWG 24 Rectangular plug 5.08 mm (optional)	Pilot valve V1 and V2

Observe tightening torque of max. 5 Nm for inlet E1 and E2 connection.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

4 TECHNICAL DATA

4.1 Standards and directives

The device complies with the valid EU harmonisation legislation. In addition, the device also complies with the requirements of the laws of the United Kingdom.

The harmonised standards that have been applied for the conformity assessment procedure are listed in the current version of the EU Declaration of Conformity/UK Declaration of Conformity.

The raw materials used for the components in contact with media correspond to the UBA-listed materials in the Drinking Water Directive KTW and W270. The raw materials with the largest surfaces in contact with media are FDA-compatible. The device was developed pursuant to DIN EN ISO 7494-2:2015.

4.2 Operating conditions

The information concerns the standard configuration for an MSU air/water

Ambient temperature	+15°C...+35°C
Medium temperature	+15°C...+35°C
Storage temperature	–20°C...+65°C
Altitude	Up to 2000 m above sea level
Environment	The device is intended for use in dry areas.
Pilot valve voltage	24 V ⎓ (±10 %) or 12 V ⎓ (±10 %) depending on configuration, see pilot valve type label
Control medium	Compressed air (fresh air), oil-free, dried
MSU water process medium	neutral liquids
MSU air process medium	neutral gases
Control medium input pressure	3...5.5 bar
MSU air process medium input pressure	4.5...8 bar
MSU water process medium input pressure	2...6 bar
MSU air process medium input pressure control range	3...5.5 bar
MSU water process medium input pressure control range	1.5...3 bar

MSU water: important for flawless operation
The control medium input pressure must always be higher than the MSU water process medium input pressure.

You can find detailed information on the integrated components by entering the type number of the components on our home page country.burkert.com.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

4.3 Mechanical data

The information concerns the standard configuration for an MSU air/water

Dimensions	approx. 84 x 112 x 117 mm (width x depth x height)
Weight	0.425 kg

Materials with media contact

Housing parts	PBT GF30
Filter	Poroplast UHMW-PE
Diaphragms/seal materials	EPDM
Shut-off valve/pressure controller	POM
Pilot valve	PPS
Inlet socket and adapter	Brass (Pb ≤0.1%)
Balls	Stainless steel

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

5 ASSEMBLY AND INSTALLATION

Risk of injury or damage to property from working on the device or system.

➔ Before working on the device or system, read Safety instructions [▶ 6] chapter.

The device should be installed so that it is easy to access for maintenance work. For example, the Type 6144 pilot valve should be installed vertically if possible. This is the only way that ensures the filter can be changed without large amounts of water leaking out.

If the holes for self-tapping plastic screws are used to fasten the device, observe the screw depths and tightening torques from the following table.

Screw depth	Tightening torque
8.5...9.5 mm	1...1.2 Nm

➔ Install device in accordance with the holes.
See the following installation drawings for the position and size of the holes.

➔ If the device is fastened to the side, use the fastening set for side installation as well. The additional fastening stabilises the unit, preventing damage when the filter is changed.

You can find information about the fastening kit for side installation in the data sheet for the Type 5110 at the country.burkert.com.

After fastening

➔ Clean any contamination from the pipes and flange connections.

➔ Attach media hoses to the system.

➔ Tighten inlet hoses with a max. torque of 5 Nm.

➔ When fastening the hoses, ensure that no force is transmitted into the system (e.g. because bending radii are too small).

➔ Check the system for tightness.

➔ Check the water supply line for tightness before electrical contacting.

➔ Do not electrically contact the system until then.

➔ Electrically contact and switch pilot valves.

➔ Connect compressed air and activate pilot valve(s) for a full tightness test.

➔ Check the system for tightness again.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

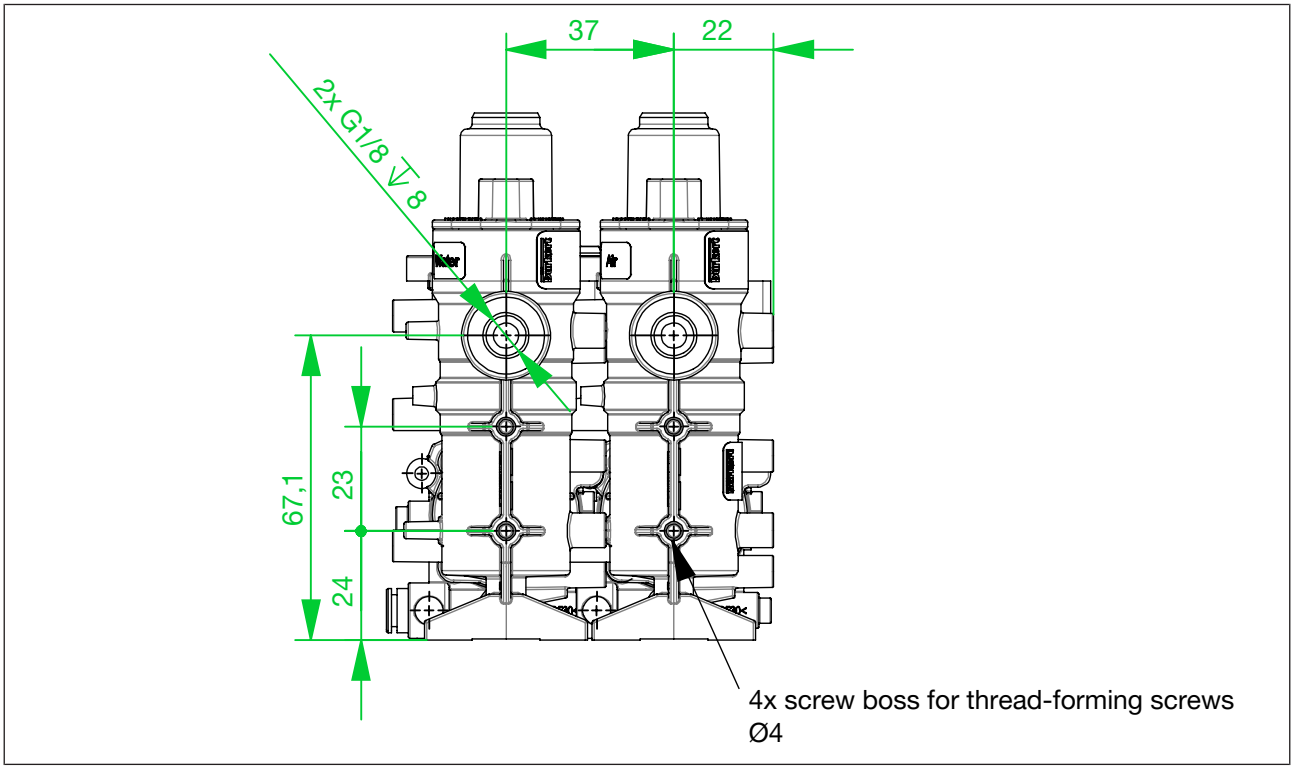


Fig. 6: Inlet side/front installation drawing

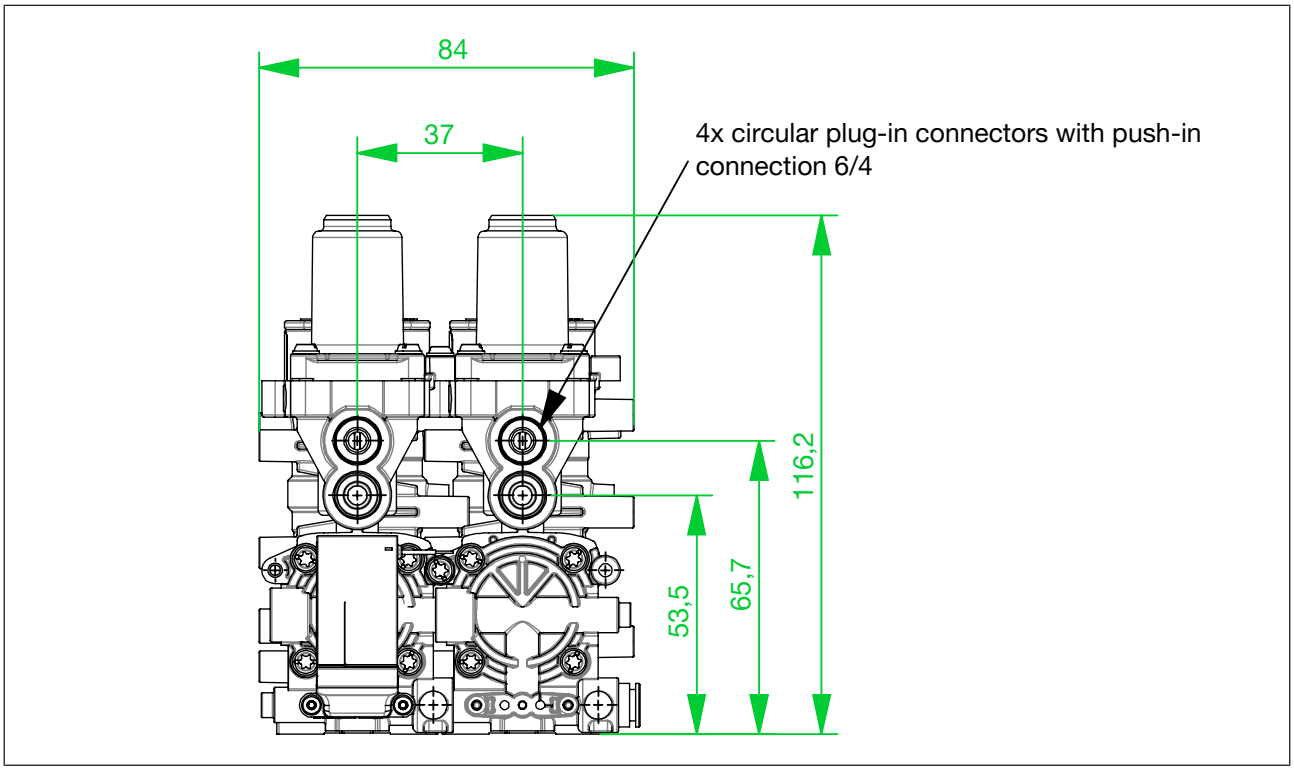


Fig. 7: Outlet side/rear installation drawing

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

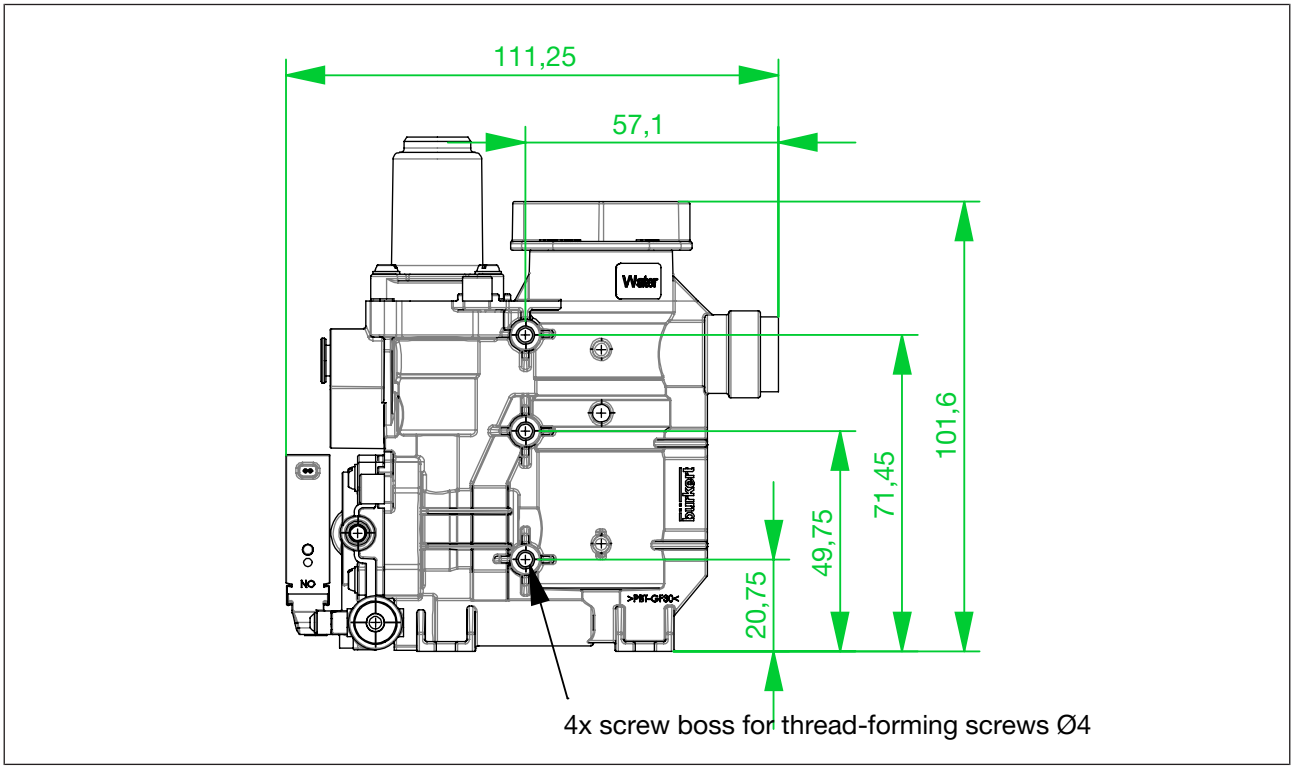


Fig. 8: View from left installation drawing

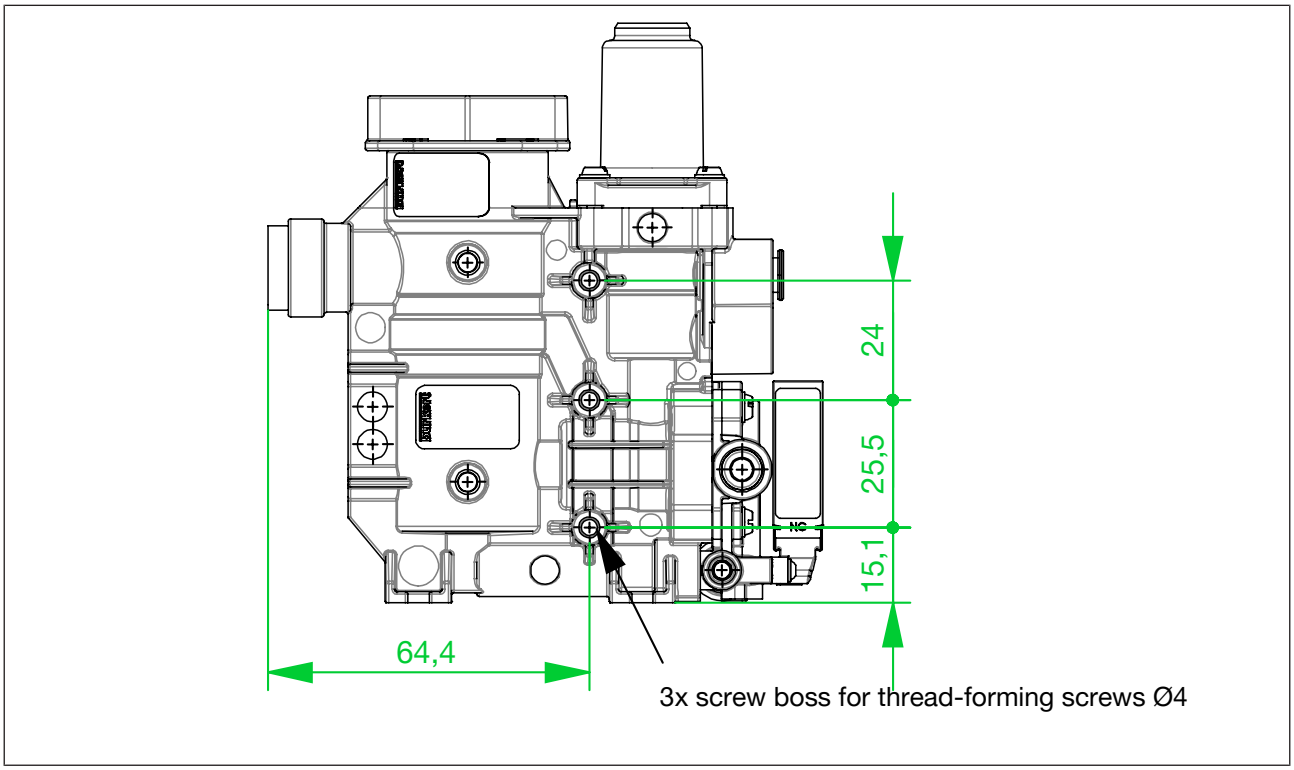


Fig. 9: View from right installation drawing

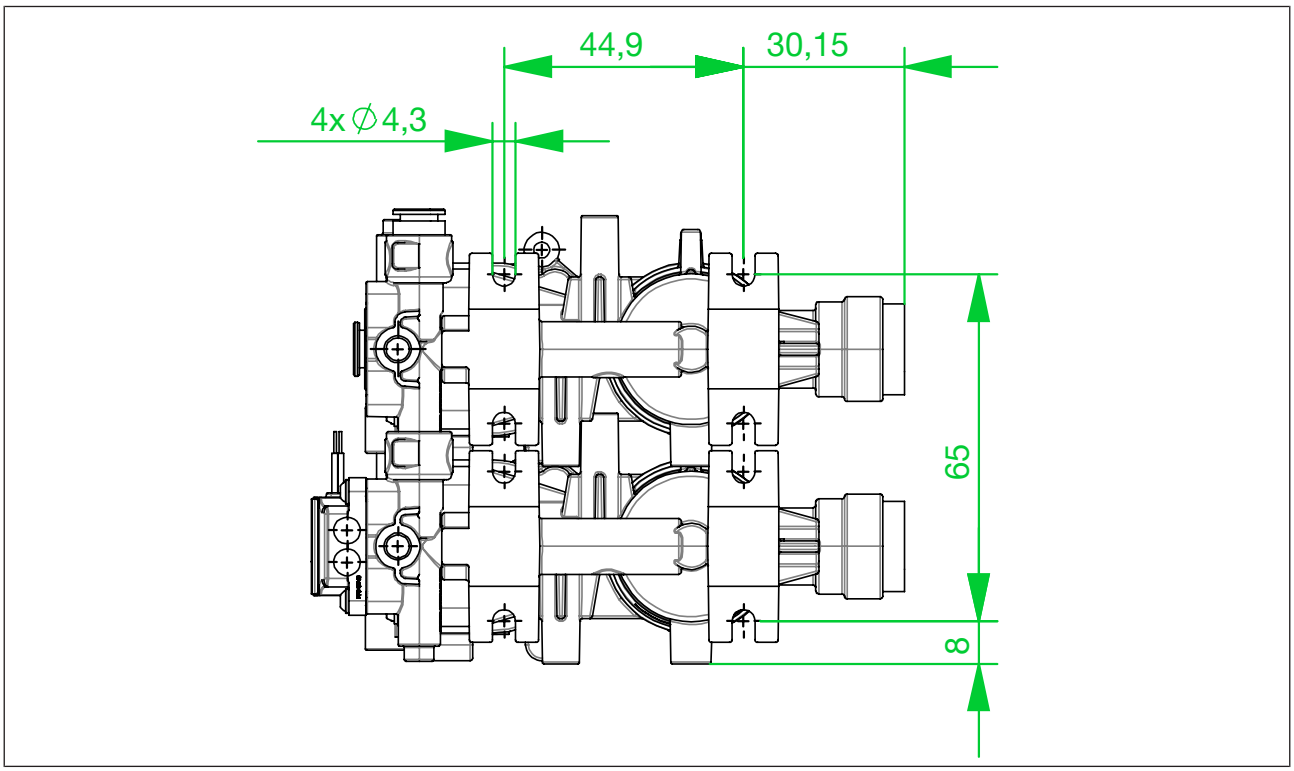


Fig. 10: View from below installation drawing

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

6 COMMISSIONING

Risk of injury or damage to property from working on the device or system.

➔ Before working on the device or system, read Safety instructions [▶ 6] chapter.

6.1 Before start-up

➔ Before start-up, check that the system has been correctly installed, and check the applied pressures and voltages (see Technical data [▶ 17]).

➔ Vent the water side before start-up.

6.2 Set pressure controller

NOTICE!

Damage to pressure controller

If the adjusting screw is turned to the left (anticlockwise) while the device is pressurised, the pressure controller cover may be damaged. Water may leak unchecked out of the area around the adjusting screw and damage the surrounding parts.

➔ Only turn the adjusting screw to the left (anticlockwise) if the device has been vented.

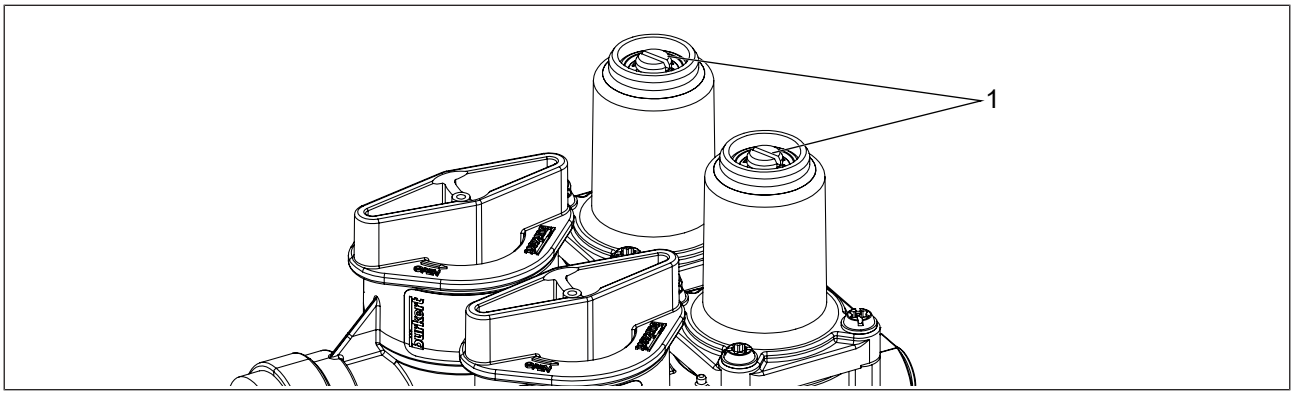


Fig. 11: Set pressure controller

1	Adjusting screw

Turn adjusting screw to the right (clockwise):
Increases the pressure after the pressure controller.

Turn the adjusting screw to the left (anticlockwise):
Reduces the pressure after the pressure controller.

Relieve pressure controller

If the device is stored for long periods, the pressure controller should be relieved:

➔ Turn the adjusting screw to the left (anticlockwise) until it comes to a stop.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

7 MAINTENANCE

Risk of injury or damage to property from working on the device or system.

➔ Before working on the device or system, read Safety instructions [▶ 6] chapter.

7.1 Maintenance work

CAUTION!

Germ load due to improper maintenance

If the filters are not regularly changed, contamination may build up. This may result in a load of germs that are harmful to health.

➔ Change filter at least 1 x a year.

➔ Observe maintenance intervals of 6 months.

NOTICE!

Medium may leak out if the diaphragm is worn.

➔ Regularly check the adjusting screw of the pressure controller for leaking medium. If medium is leaking, contact the Bürkert sales department.

➔ Regularly check the plastic housing of the pressure controller for damage.

If the information in these operating instructions is followed, the valves of the device will not need maintenance.

➔ Regularly inspect the setting pressure of the pressure controller. If there is a deviation, control the setting pressure, as described in the Set pressure controller [▶ 23] chapter.

If the device has not been installed upright, larger quantities of water may leak when the filter is changed.

2 filters with different mesh widths are available. The contours on the bottom of the filters can be used to distinguish between them.

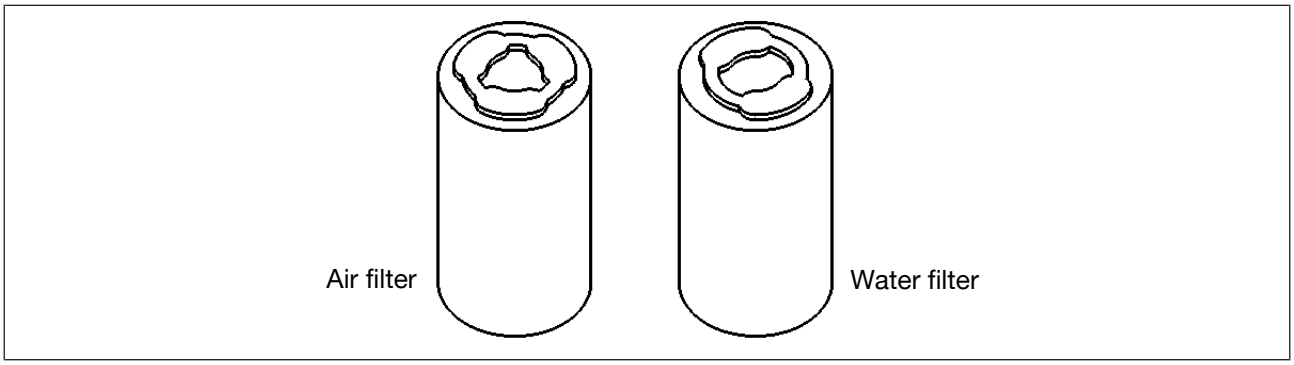


Fig. 12: Types of filter

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

Replace the filter

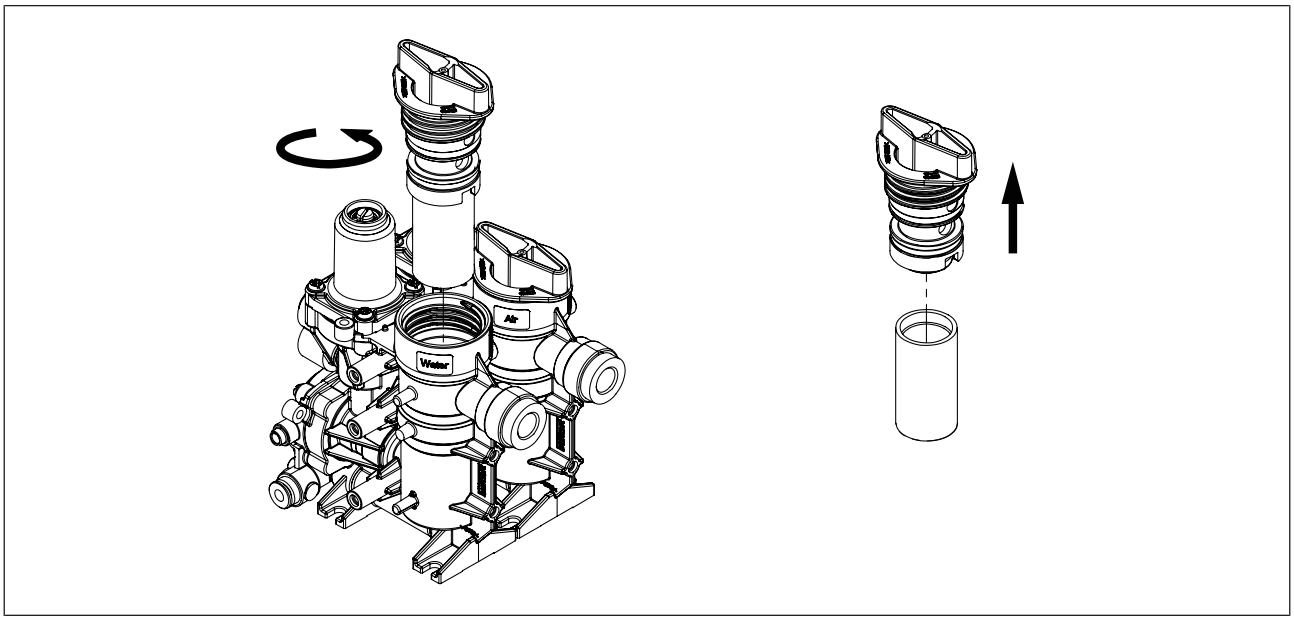


Fig. 13: Unscrew filter cover (left) and replace filter (right)

- ➔ Unscrew filter cover.
- ➔ Remove filter.
- ➔ Insert a new filter.
- ➔ Screw the filter cover back in.
- ➔ Check the system for tightness.

Parts subject to natural or technology-related wear:

- Diaphragms
- Seals

If leakages occur as a result of wear, replace the system with a new one.

You can find detailed information on maintenance of the integrated components by entering the type number of the components on our home page country.burkert.com.
You can find the available spare parts in the chapter on Spare parts [▶ 26]

7.2 Troubleshooting

Check in case of faults:

- Port connections
- Operating pressure
- Power supply and valve control unit
- Filter pollution degree

If these measures do not work, contact the Bürkert sales department.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

8 SPARE PARTS

Risk of injury or damage to property from working on the device or system.

➔ Before working on the device or system, read Safety instructions [▶ 6] chapter.

RI no.	Spare part	Order number
F1	Air filter	60006603
F2	Water filter	60005045

Tab. 2: Spare parts for Type 5110 media supply unit

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

9 DISASSEMBLY

Risk of injury or damage to property from working on the device or system.

➔ Before working on the device or system, read Safety instructions [▶ 6] chapter.

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023

10 LOGISTICS

10.1 Transport and storage

- ➔ Protect the device against moisture and dirt in the original packaging during transportation and storage.
- ➔ Avoid UV radiation and direct sunlight.
- ➔ Protect connections from damage with protective caps.
- ➔ Observe permitted storage temperature.
- ➔ If storing for long periods, completely relieve the pressure controller (see the Set pressure controller [▶ 23]chapter).

10.2 Disposal

Environmentally friendly disposal

- ➔ Follow national regulations regarding disposal and the environment.
- ➔ Collect electrical and electronic devices separately and dispose of them as special waste.

Further information at country.burkert.com

MAN 1000582562 EN Version: - Status: RL (released | freigegeben) printed: 30.05.2023