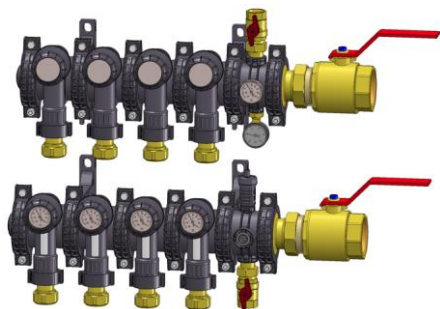




Mess-, Regel- und
Überwachungsgeräte
für Haustechnik,
Industrie und Umweltschutz



Lindenstraße 20
74363 Güglingen
Telefon +49 7135 102-0
Service +49 7135 102-211
Telefax +49 7135 102-147
info@afriso.de
www.afriso.de

Operating instructions

Brine / heating circuit manifold ProCalida® GT 3

81704

-  Read instructions before using device!
-  Observe all safety information!
-  Keep instructions for future use!

Table of contents

1	This instruction manual.....	3
1.1	Precautions	3
1.2	Explanation of symbols and typeface	3
2	Safety	4
2.1	Intended use	4
2.2	Predictable incorrect application	4
2.3	Safe handling	4
2.4	Staff qualification.....	4
2.5	Modifications to the product	4
2.6	Usage of spare parts and accessories.....	4
2.7	Liability information	5
3	Product description.....	6
3.1	Components.....	7
3.2	Application examples	9
4	Technical specifications	11
4.1	Charts.....	13
5	Mounting and commissioning.....	18
5.1	Mounting the heating circuit connections.....	18
5.2	Pre-assembling the brine/heating circuit manifold	19
5.3	Mounting the brine/heating circuit manifold with wall brackets to the wall	21
5.4	Mounting the brine/heating circuit connection.....	22
5.5	Filling, flushing and venting the system	24
5.6	Performing the pressure test and the function test	25
5.7	Adjusting the control valves	26
5.8	Turning the thermometer (optional) into reading position	28
6	Copyright	28
7	Customer satisfaction.....	28
8	Addresses.....	28



1 This instruction manual

This instruction manual is part of the product.

- ▶ Read this manual before using the product.
- ▶ Keep this manual during the entire service life of the product and always have it readily available for reference.
- ▶ Always hand this manual over to future owners or users of the product.

1.1 Precautions

WARNING TERM Type and source of the danger are shown here.



- ▶ Precautions to take in order to avoid the danger are shown here.

There are three different levels of warnings:

Warning term	Meaning
DANGER	Immediately imminent danger! Failure to observe the information will result in death or severe injuries.
WARNING	Possibly imminent danger! Failure to observe the information may result in death or severe injuries.
CAUTION	Dangerous situation! Failure to observe the information may result in minor or severe injuries as well as damage to property.

1.2 Explanation of symbols and typeface

Symbol	Meaning
	Prerequisite for an activity
▶	Activity consisting of a single step
1.	Activity consisting of a several steps
	Result of an activity
•	Bulleted list
Text	Indication on display
Highlighting	Highlighting



2 Safety

2.1 Intended use

The brine/heating circuit manifold ProCalida® GT 3 may only be used to distribute the following fluids:

- Heating water as per VDI 2035
- Brine (water/glycol mixtures with an admixture of max. 50 %)
- Water/bioethanol mixtures with a maximum admixture of 40 %

Any use other than the application explicitly permitted in this instruction manual is not permitted.

2.2 Predictable incorrect application

The brine/heating circuit manifold ProCalida® GT 3 must never be used in the following cases:

- Distribution of drinking water
- Use with adherent, corrosive or flammable fluids
- Operation in solar systems
- Operation in locations subject to direct sunlight

2.3 Safe handling

This product represents state-of-the-art technology and is made according to the pertinent safety regulations. Each device is subjected to a function and safety test prior to shipping.

- Operate the product only when it is in perfect condition. Always observe the operating instructions, all pertinent local and national directives and guidelines as well as the applicable safety regulations and directives concerning the prevention of accidents.

2.4 Staff qualification

The product may only be mounted, commissioned, operated, maintained, shut down and disposed of by qualified, specially trained staff.

2.5 Modifications to the product

Changes or modifications made to the product by unauthorised persons may lead to malfunctions and are prohibited for safety reasons.

2.6 Usage of spare parts and accessories

Usage of unsuitable spare parts and accessories may cause damage to the product.

- Use only genuine spare parts and accessories of the manufacturer.



2.7 Liability information

The manufacturer shall not be liable in any form whatsoever for direct or consequential damage resulting from failure to observe the technical instructions, guidelines and recommendations.

The manufacturer or the sales company shall not be liable for costs or damages incurred by the user or by third parties in the usage or application of this device, in particular in case of improper use of the device, misuse or malfunction of the connection, malfunction of the device or of connected devices. The manufacturer or the sales company shall not be liable for damage whatsoever resulting from any use other than the use explicitly permitted in this instruction manual.

The manufacturer shall not be liable for misprints.



3 Product description

ProCalida® GT 3 is a modular brine/heating circuit manifold made of glass-fibre reinforced polyamide. The heating/brine circuits are shut off by means of shut-off valves at the flow and control valves at the return. All seals and the fastening material are included.

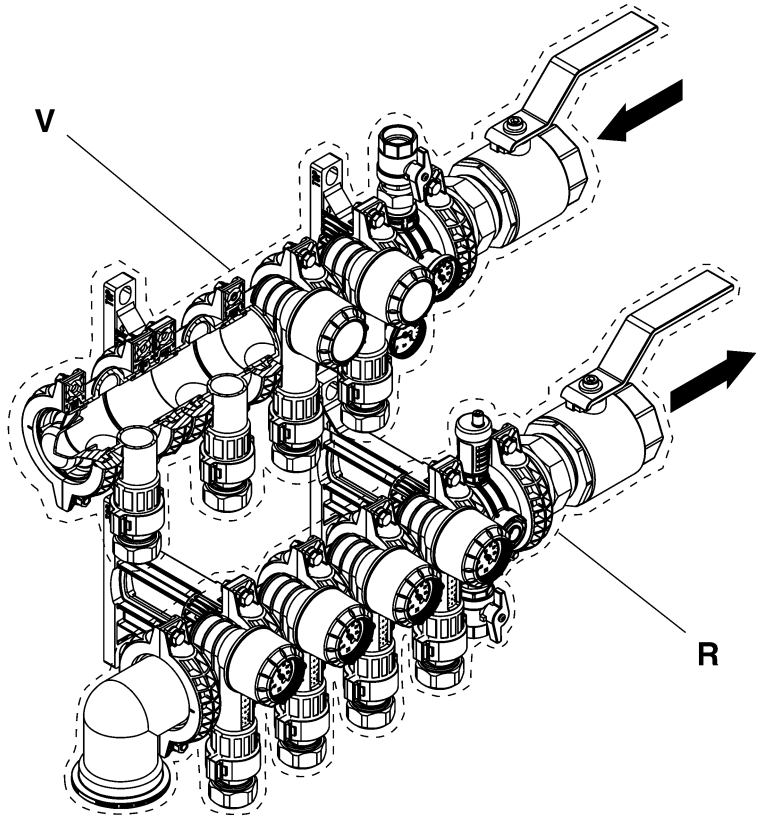


Fig. 1: ProCalida® GT 3

V Flow

R Return

3.1 Components

Standard version

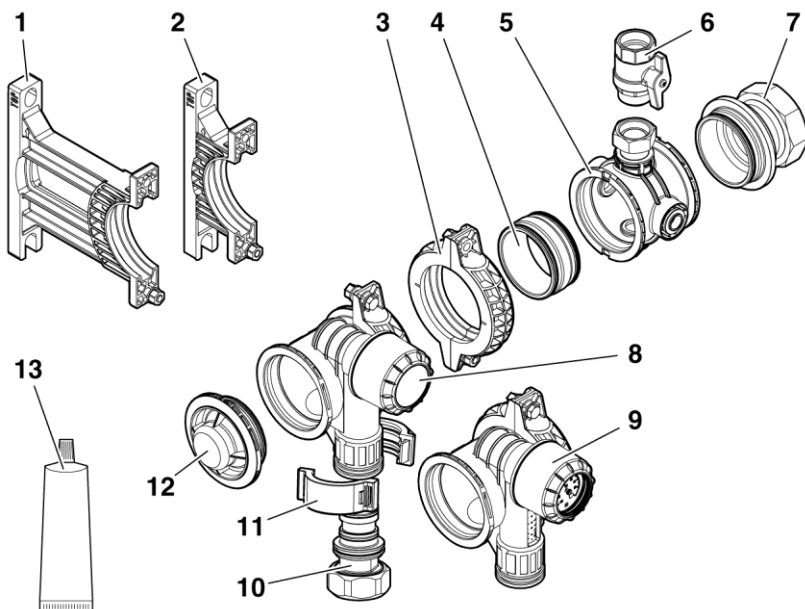


Fig. 2: Components standard version

- | | |
|---|--|
| 1 Wall bracket long | 8 Manifold segment 80/100 with shut-off valve and protective cover |
| 2 Wall bracket short | 9 Manifold segment 80/100 with control valve, flow meter, thermometer and protective cover |
| 3 Fastener | 10 Heating circuit connection |
| 4 Connection element | 11 Clamp |
| 5 Multi-way union | 12 Blind cover |
| 6 Boiler filling and drain valve KFE 1" | 13 Silicone grease |
| 7 Connection 2½" | |

Accessories

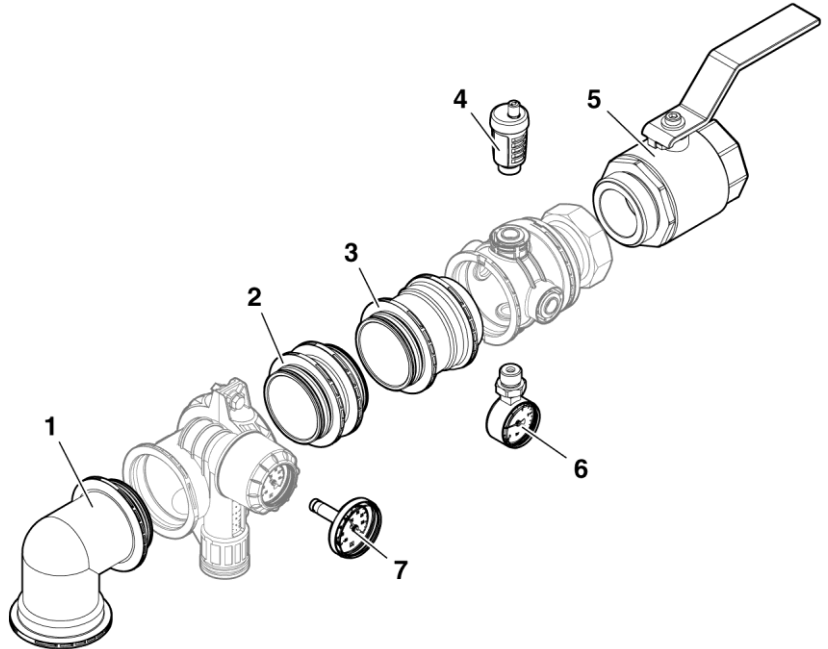
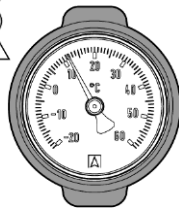


Fig. 3: Components accessories

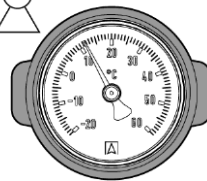
- | | | | |
|---|--------------------------|---|------------------------------------|
| 1 | 90° elbow | 5 | Ball valve 2" |
| 2 | Connection element 30 mm | 6 | Pressure gauge with mounting valve |
| 3 | Connection element 60 mm | 7 | Thermometer |
| 4 | Quick air vent | | |

Shut-off valves and control valves

The shut-off valves and control valves when delivered.



Valve open



Valve closed

3.2 Application examples

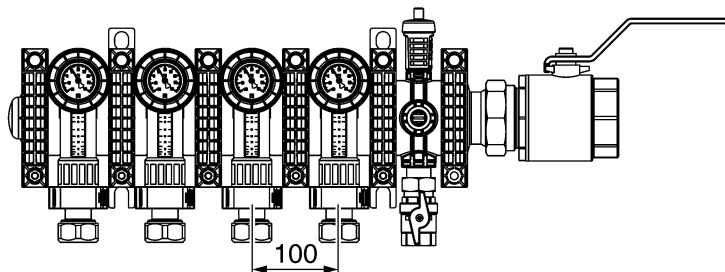


Fig. 4: ProCalida GT 3 with four segments 100 mm

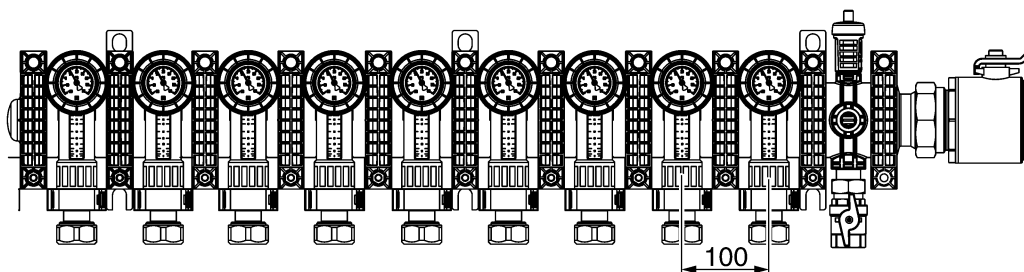


Fig. 5: ProCalida GT 3 with nine segments 100 mm

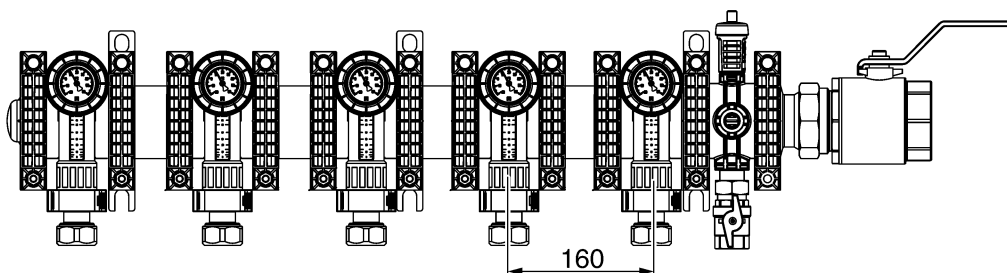


Fig. 6: ProCalida GT 3 with five segments 100 mm and four connection elements 60 mm

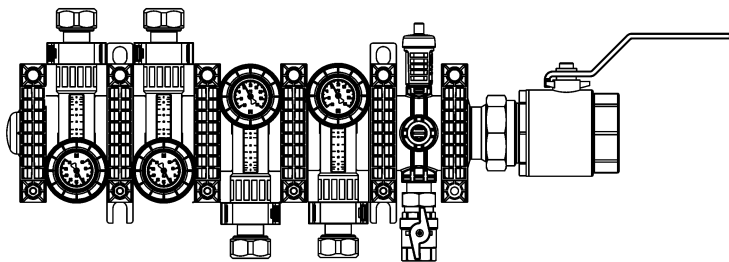


Fig. 7: ProCalida GT 3 with four segments 100 mm, connection two segments from above, two segments from below

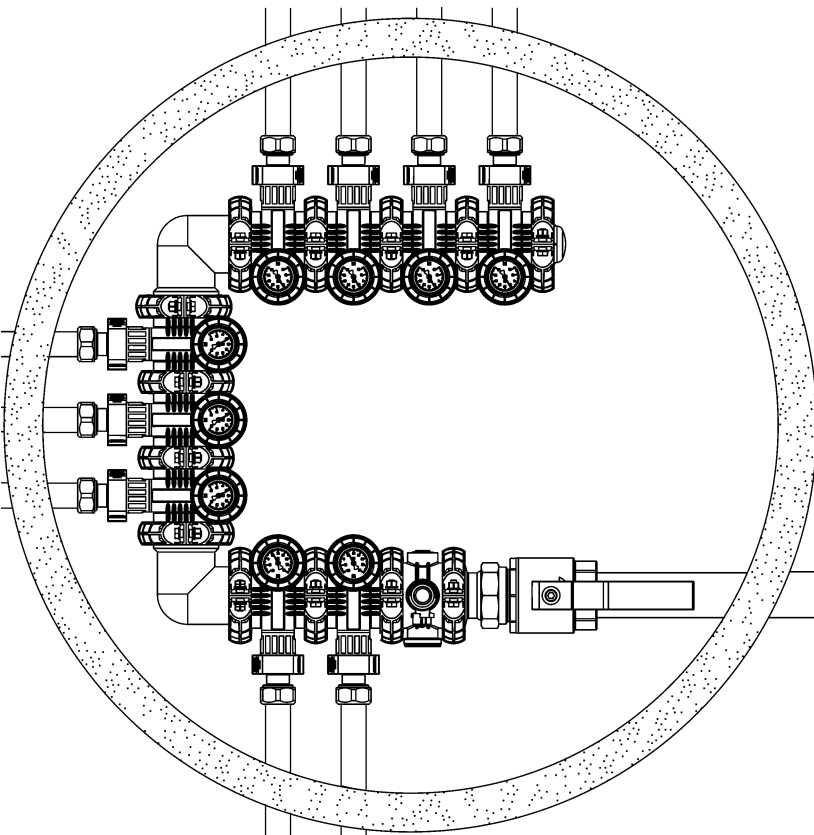


Fig. 8: ProCalida GT 3 with nine segments 100 mm and two 90° elbows, installation in a shaft



4 Technical specifications

Table 1: Technical specifications

Parameters	Value
Main connection	G2 ½ with union nut
Possible brine circuit connections [mm]	Compression fitting Ø 25 x 2.3/2.5 Ø 32 x 2.9 Ø 40 x 3.7
Test pressure (24 h, < 30 °C)	Max. 6 bar
Operating temperature and pressure	Max. 60 °C at 3 bar
Number of cooling circuits	Max. 30
Thermometer	-20 °C to +40 °C 0 °C to +60 °C -20 °C to +60 °C
Flow meter	2-12 l/min 5-42 l/min 35-70 l/min 60-125 l/min

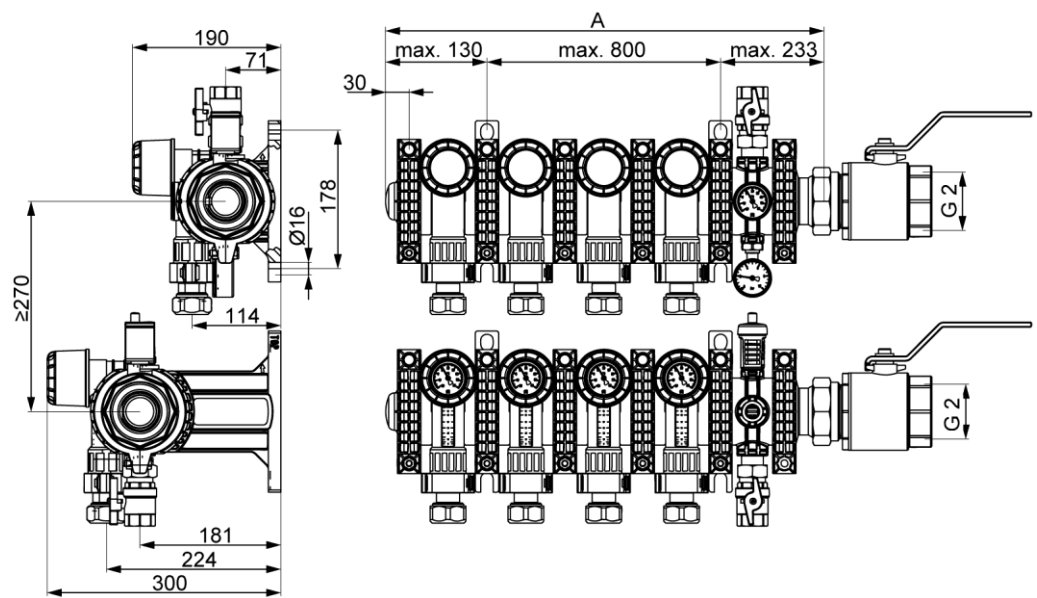


Fig. 9: Dimensions [mm]

If identical segments without connection elements 30 mm/60 mm are used, this results in the following dimensions for A:

Table 2: Dimension **A**, heating circuits 2 to 20

Brine / heating circuits	2	3	4	5	6	7	8	9	10	11
A [mm] with segment length 80 mm	320	400	480	560	640	720	800	880	960	1040
A [mm] with segment length 100 mm	360	460	560	660	760	860	960	1060	1160	1260

Brine / heating circuits	12	13	14	15	16	17	18	19	20	n
A [mm] with segment length 80 mm	1120	1200	1280	1360	1440	1520	1600	1680	1760	...
A [mm] with segment length 100 mm	1360	1460	1560	1660	1760	1860	1960	2060	2160	...



4.1 Charts

Pressure loss curves valve characteristic

Pressure loss curves depending on flow stream and opening angle.
Pressure loss at flow valve considered.

Δp Pressure loss [mbar] $\dot{m}$ Flow stream [kg/h]

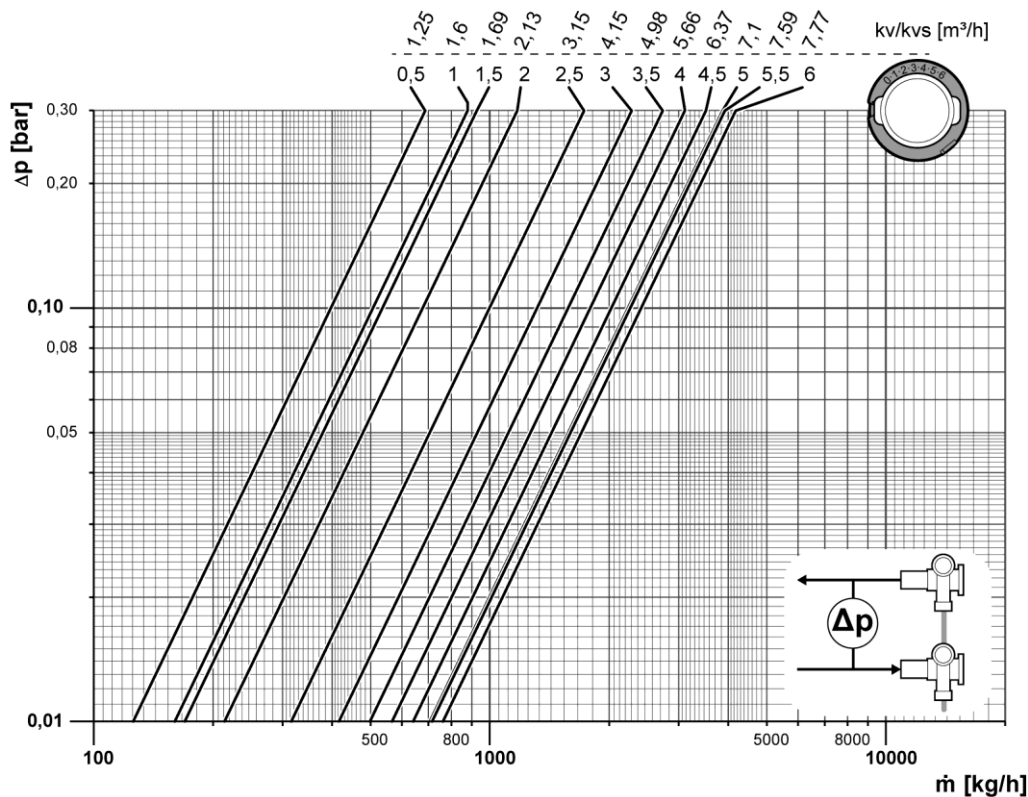


Fig. 10: Diagram for calculating the flow

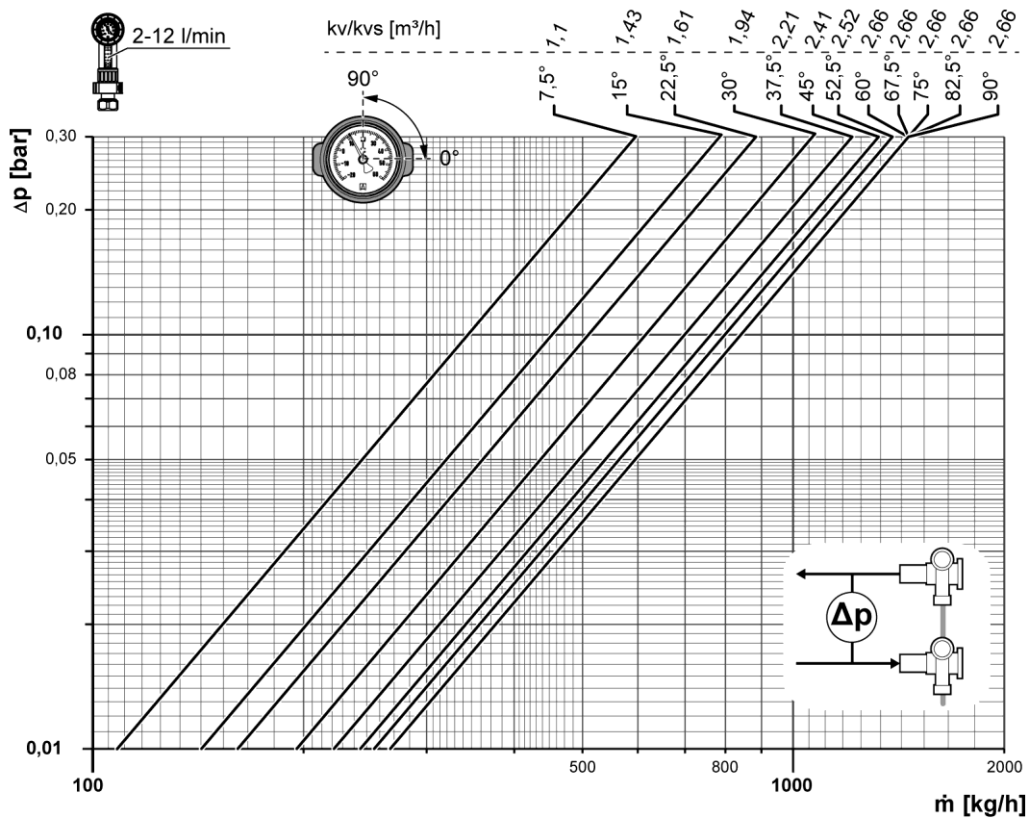


Fig. 11: Pressure loss curves with flow meter 2-12 l/min.

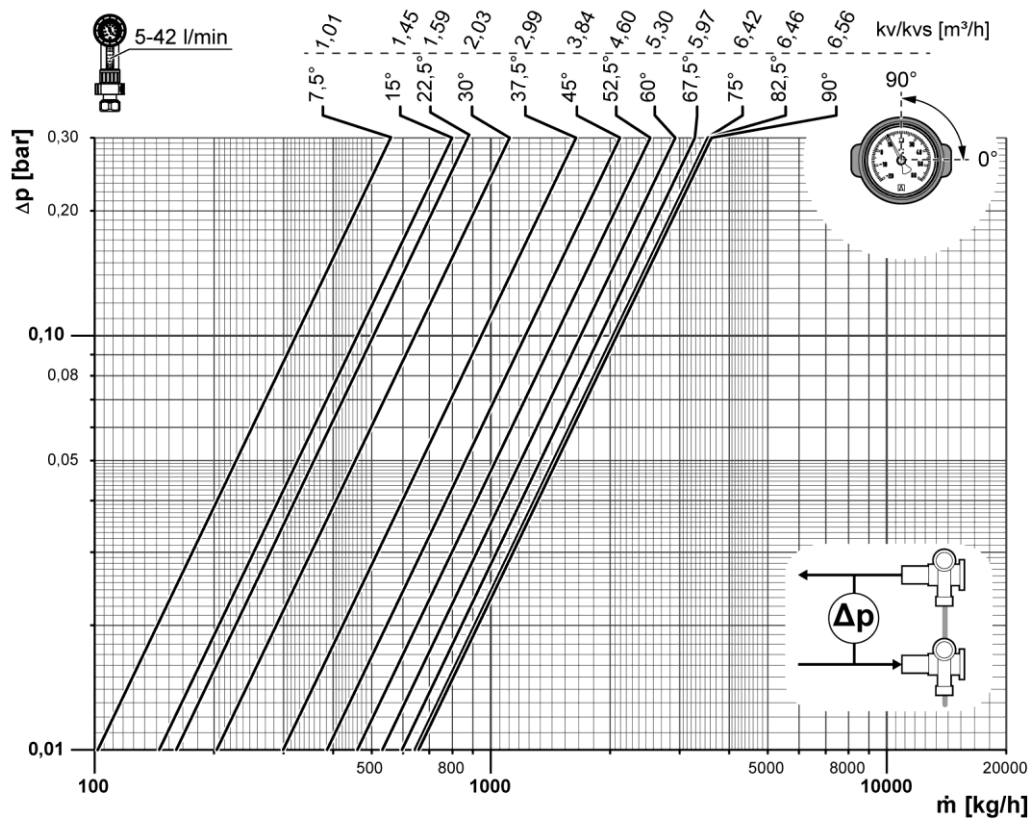


Fig. 12: Pressure loss curves with flow meter 5-42 l/min.

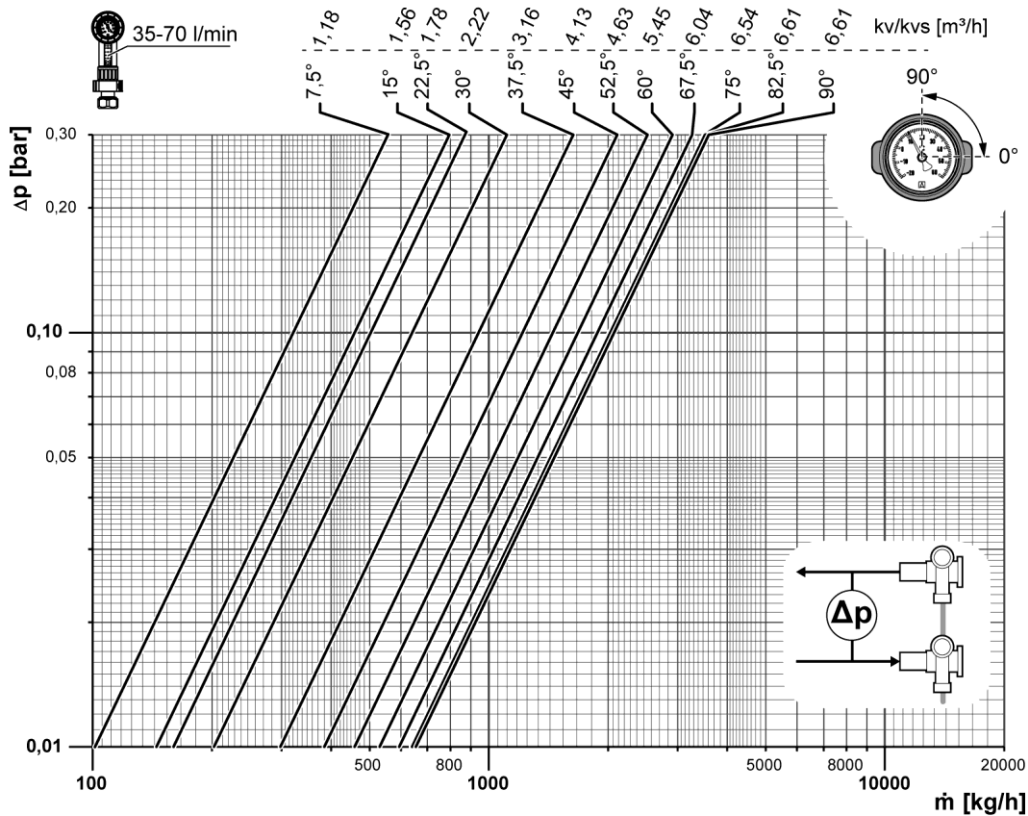


Fig. 13: Pressure loss curves with flow meter 35-70 l/min.

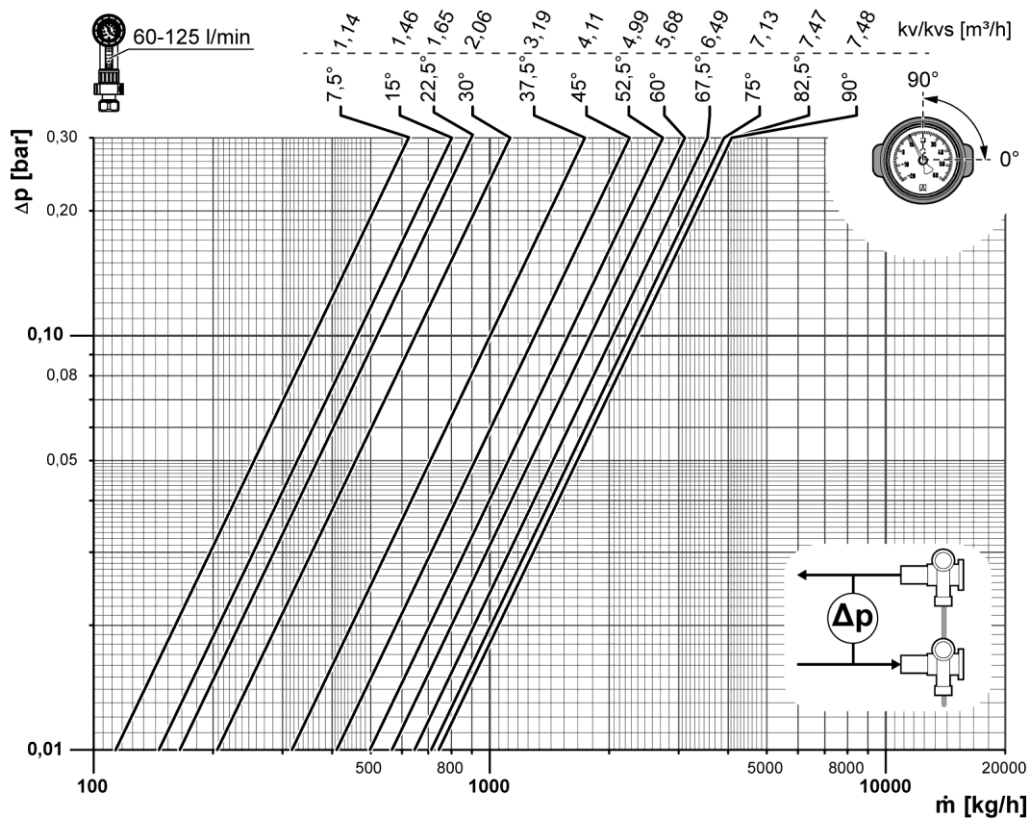


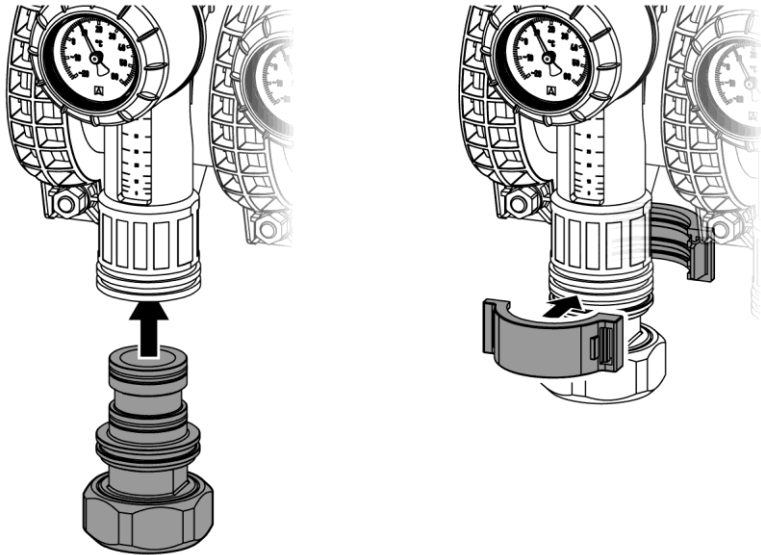
Fig. 14: Pressure loss curves with flow meter 60-125 l/min.

5 Mounting and commissioning

- ▶ Verify that ProCalida GT 3 is not subjected to direct sunlight at the installation site.
- ▶ Only mount clean components. Clean polluted components with a moist piece of cloth. Make sure the sealing surfaces are clean.
- ▶ Close unused connections with plugs or caps.
- ▶ Connect pipes to the brine/heating circuit manifold in such a way that there is no traction, pressure or mechanical tension (see chapter 4, page 11).
- ▶ Depending on the on site conditions, the distances between the wall brackets could be shortened to 400 mm.
- ▶ Comply with the maximum distances between the wall brackets and between manifold ends and wall brackets (see chapter 4, page 11).

5.1 Mounting the heating circuit connections

- ▶ Grease the O ring.
- ▶ Insert the heating circuit connection into the segment and lock it with clamps.

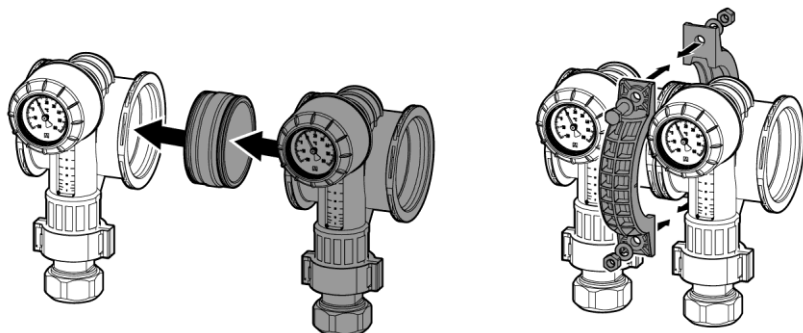


5.2 Pre-assembling the brine/heating circuit manifold

Mounting segments

- Take into account the position of the wall brackets when mounting the segments (see chapter 4, page 11).

 1. Grease the O rings.
 2. Insert connection element into segments.
 3. Mount the fasteners. Hand-screw the nuts.

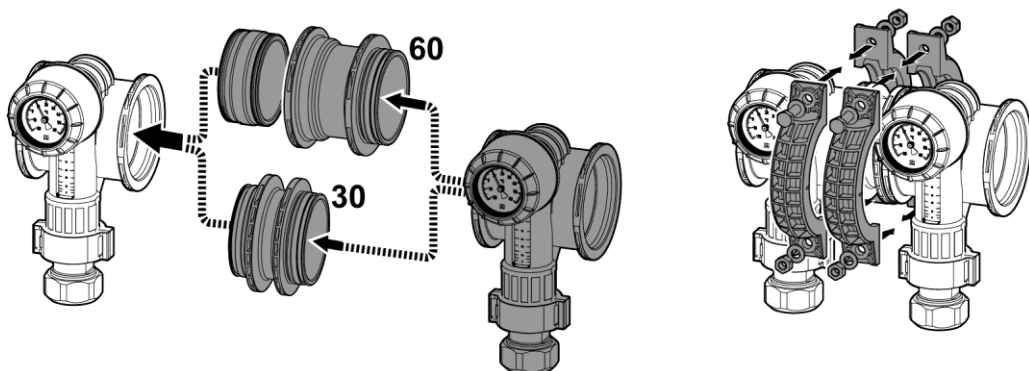


Mounting optional connection elements 30 mm/60 mm

Optional connection elements 30 mm/60 mm increase the distance between two segments by 30 mm/60 mm.

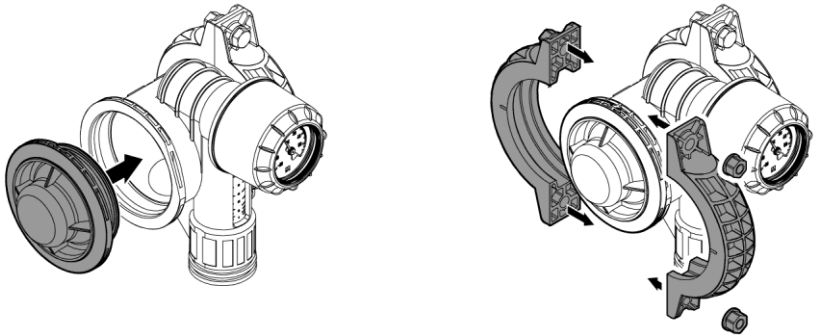
Connection elements 30 mm/60 mm can be combined to increase the distance between the segments.

1. Grease the O rings.
2. Insert connection element into segments.
3. Mount the fasteners. Hand-screw the nuts.



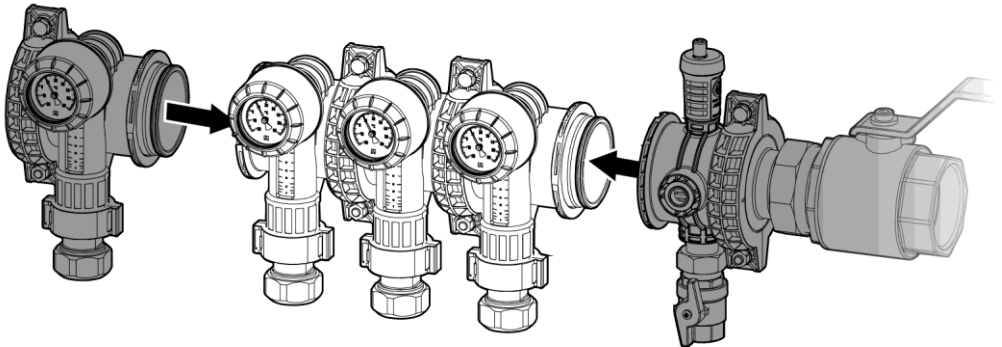
Mounting a blind cover to the end segment

1. Grease the O ring.
2. Insert the blind cover into the segment.
3. Mount the fasteners. Hand-screw the nuts.



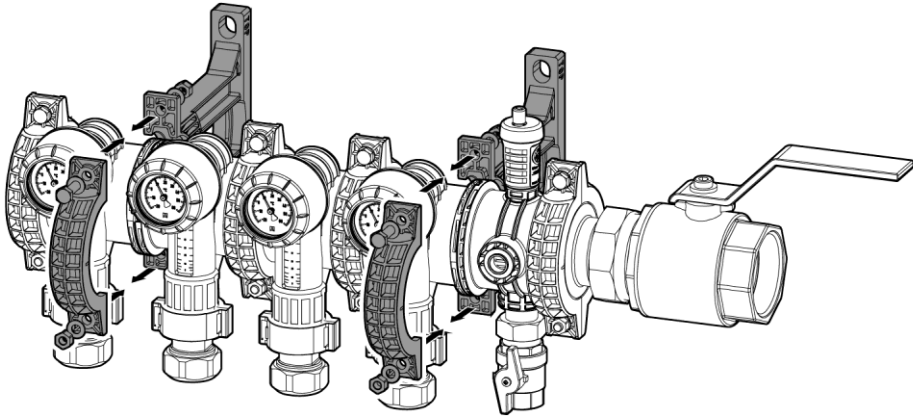
Mounting connection segments and end segments to middle segments

1. Grease the O rings.
2. Put the segment blocks together.



Mounting wall brackets to the brine/heating circuit manifold

- Mount the fasteners. Hand-screw the nuts.



5.3 Mounting the brine/heating circuit manifold with wall brackets to the wall

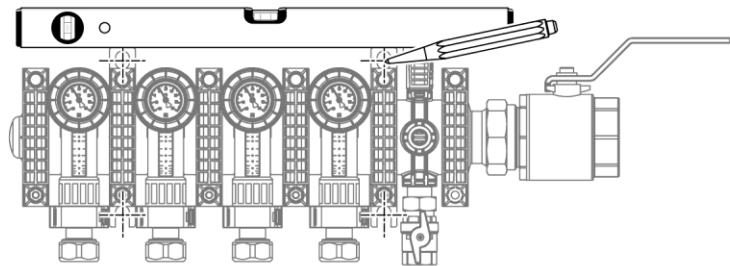
CAUTION



Hazard of crushing caused by falling brine/heating circuit manifold. Brine/heating circuit manifolds consisting of multiple segments are heavy.

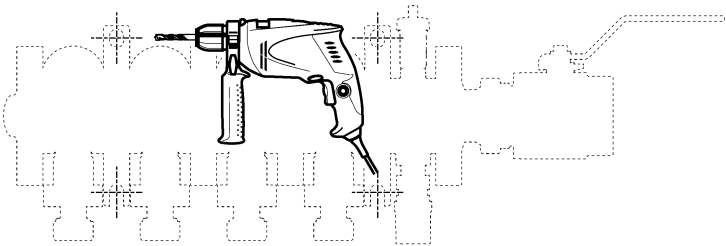
- Heavy brine/heating circuit manifolds may only be mounted with the assistance of several persons.

1. Define the position of the brine/heating circuit manifold at the wall.
2. Hold the brine/heating circuit manifold to the wall, align it horizontally and mark the positions for the holes.

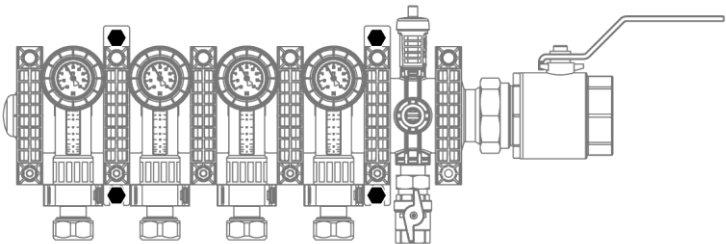




3. Drill Ø 10 mm holes.

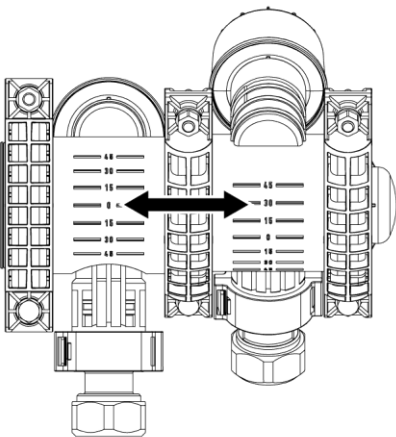
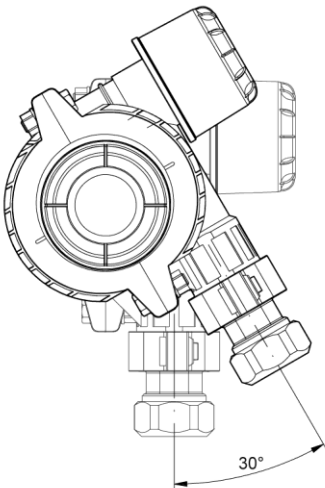


4. Mount the brine/heating circuit manifold to the wall using suitable fixing material.



5.4 Mounting the brine/heating circuit connection

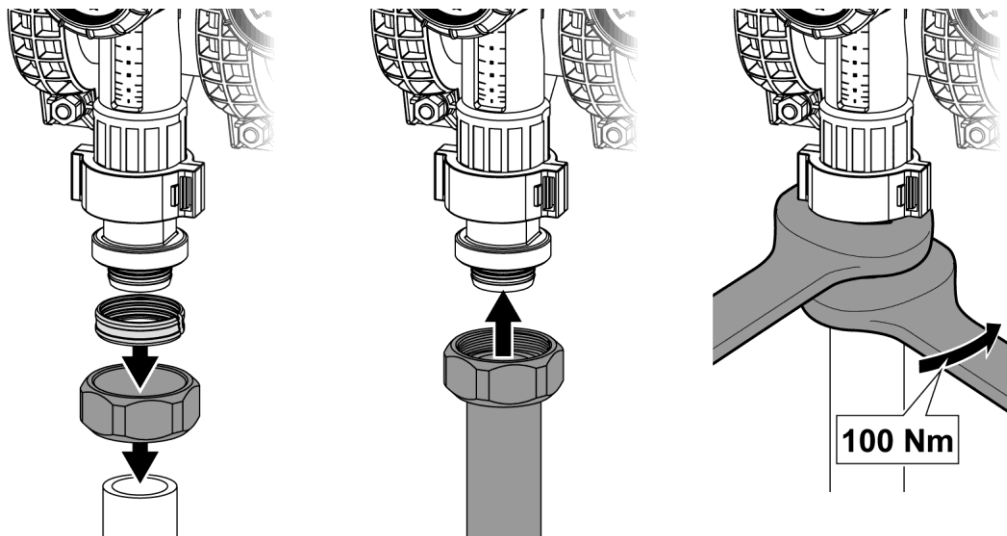
- Turn the segments, if necessary.



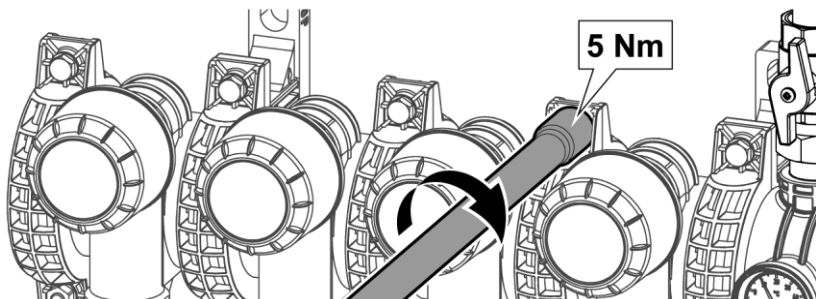


Mounting pipes

1. Dismount the nut and the compression fitting from the heating circuit connection and place them onto the pipe.
2. Connect the pipe and the heating circuit connection and tighten the nut with a tightening torque of 100 Nm (± 20 Nm).

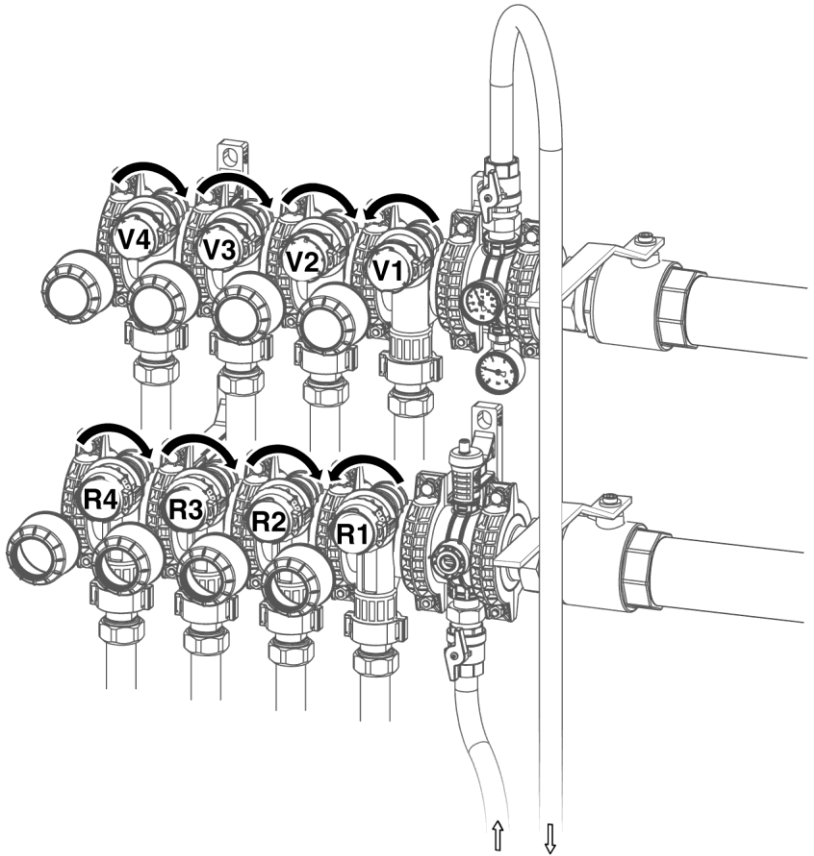


3. Tighten the nuts at the fasteners with a tightening torque of 5 Nm.



5.5 Filling, flushing and venting the system

- Always flush the system in the direction from return to flow to avoid pulsed shocks from acting on the floats in the flow meters.
- 1. Remove the protective covers from the segments.
- 2. Connect hoses to the boiler filling and drain valve KFE of the flow and to the boiler filling and drain valve KFE of the return.
- 3. Open the boiler filling and drain valve KFE of the flow.
- 4. Open the flow valve of the first heating circuit (**V1**).
Open the return valve of the first heating circuit (**R1**).
- 5. Close all other valves (**V2-V...**, **R2-R...**).

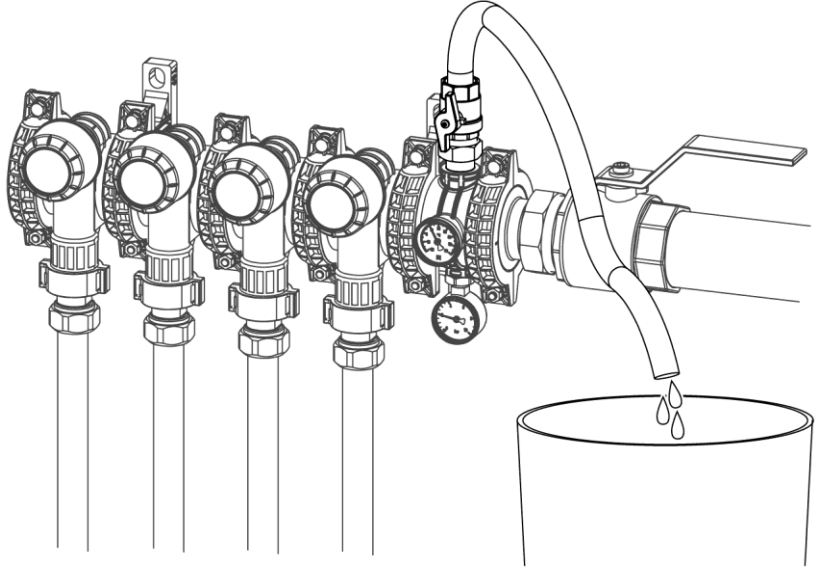


- 6. Slowly open the boiler filling and drain valve KFE of the return. Fill the system with a maximum of 3 bar and flush it. Close the valves of the filled heating circuit.

7. Repeat the procedure (filling and flushing, step 3.-5.) for all other heating circuits.

Vent

- Drain the system at the boiler filling and drain valve KFE of the flow, if required.



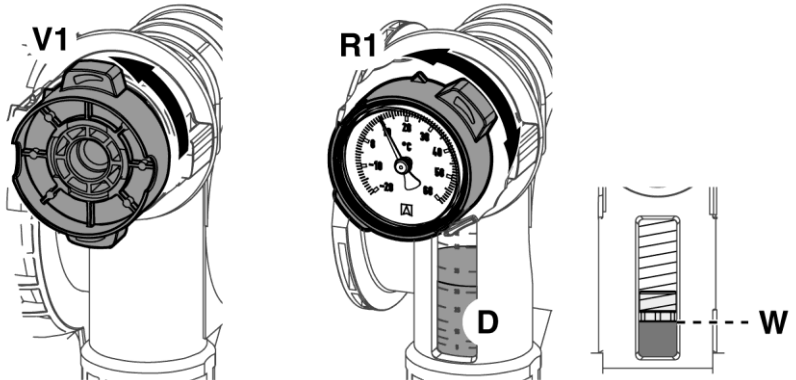
5.6 Performing the pressure test and the function test

1. Apply 6 bar of pressure to the system for a period of 2 hours (max. 30 °C).
2. Perform a leak test after 2 hours.
- ↳ The pressure drop must not exceed 0.2 bar.
3. Fill the system with the fluid until the operating pressure is reached.

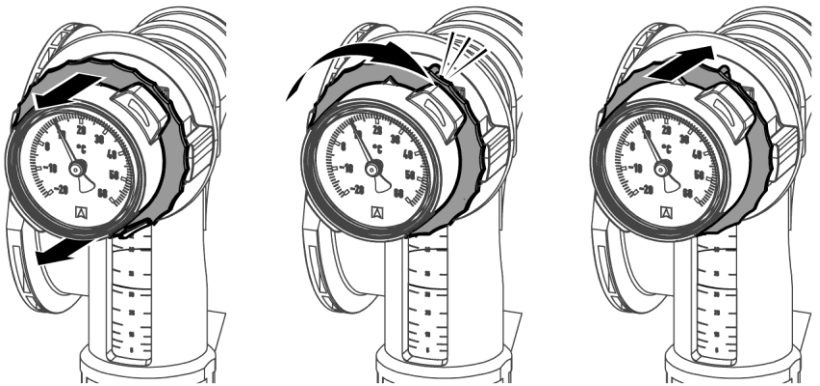
5.7 Adjusting the control valves

With flow meter

1. Fully open the flow valve (**V1**). Open the return valve (**R1**) until the calculated flow rate (**W**) is indicated at the flow meter (**D**).



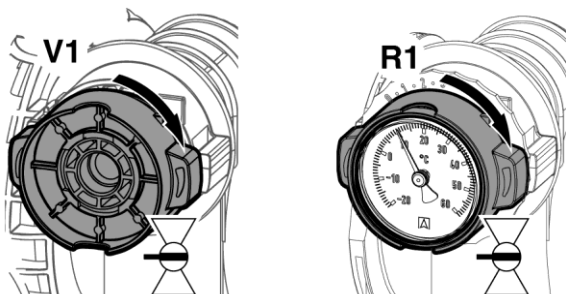
2. Pull the ring to the front to unlock.
3. Turn the ring all the way to the mechanical stop of the flow valve.
4. Push the ring back to lock.



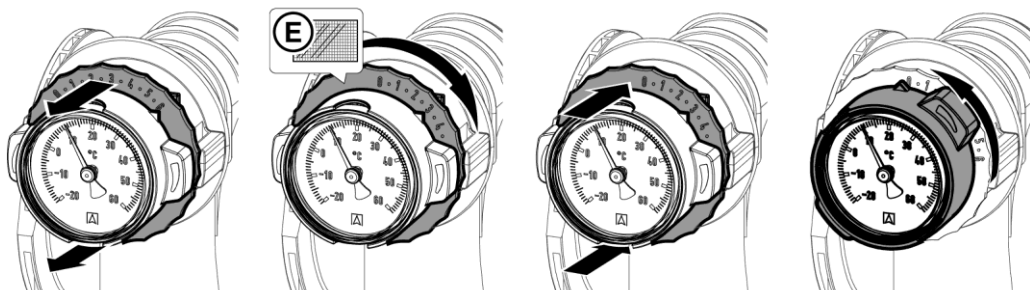
5. Turn the thermometer (optional) into reading position (see chapter 5.8, page 28).
6. Repeat the steps for all other heating circuits
7. Fit the protective cover.

Without flow meter

1. Fully close the flow valve (**V1**).
2. Fully close the normally open contact (**R1**).

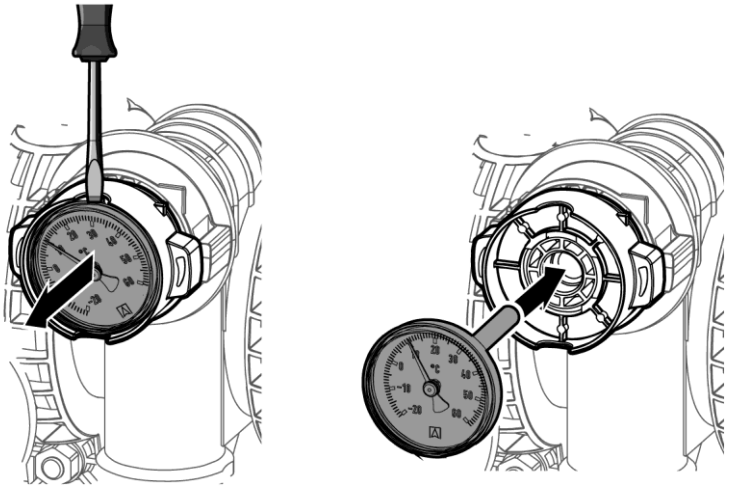


3. Take the adjustment valve from fig. 10, page 13.
4. Pull the ring to the front to unlock.
5. Set the adjustment value (**E**) at the ring.
6. Push the ring back to lock.
7. Open the return valve all the way to the mechanical stop.



8. Fully open the flow valve.
9. Turn the thermometer (optional) into reading position (see chapter 5.8, page 28).
10. Fit the protective cover.

5.8 Turning the thermometer (optional) into reading position



6 Copyright

The manufacturer retains the copyright to these operating instructions. These operating instructions may not be reprinted, translated, copied in part or in whole without prior written consent.

We reserve the right to technical modifications with reference to the specifications and illustrations in this manual.

7 Customer satisfaction

Customer satisfaction is our prime objective. Please get in touch with us if you have any questions, suggestions or problems concerning your product.

8 Addresses

The addresses of our worldwide representations and offices can be found on the Internet at www.afriso.de.