



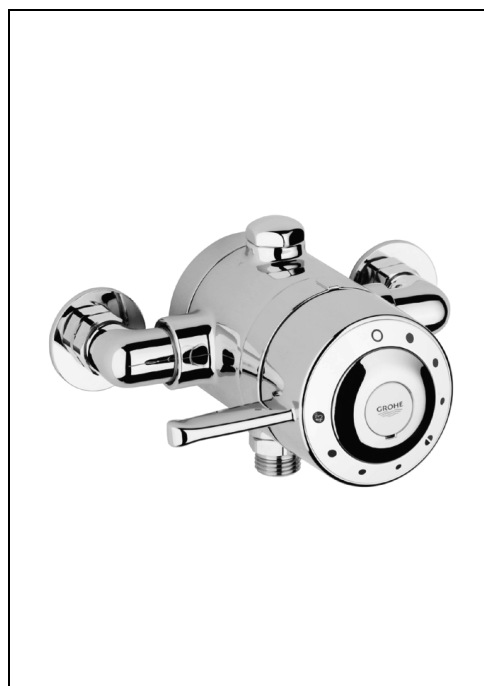
WATER TECHNOLOGY

## Avensys

### Exposed Single Thermostat Mixing Valve



34 037



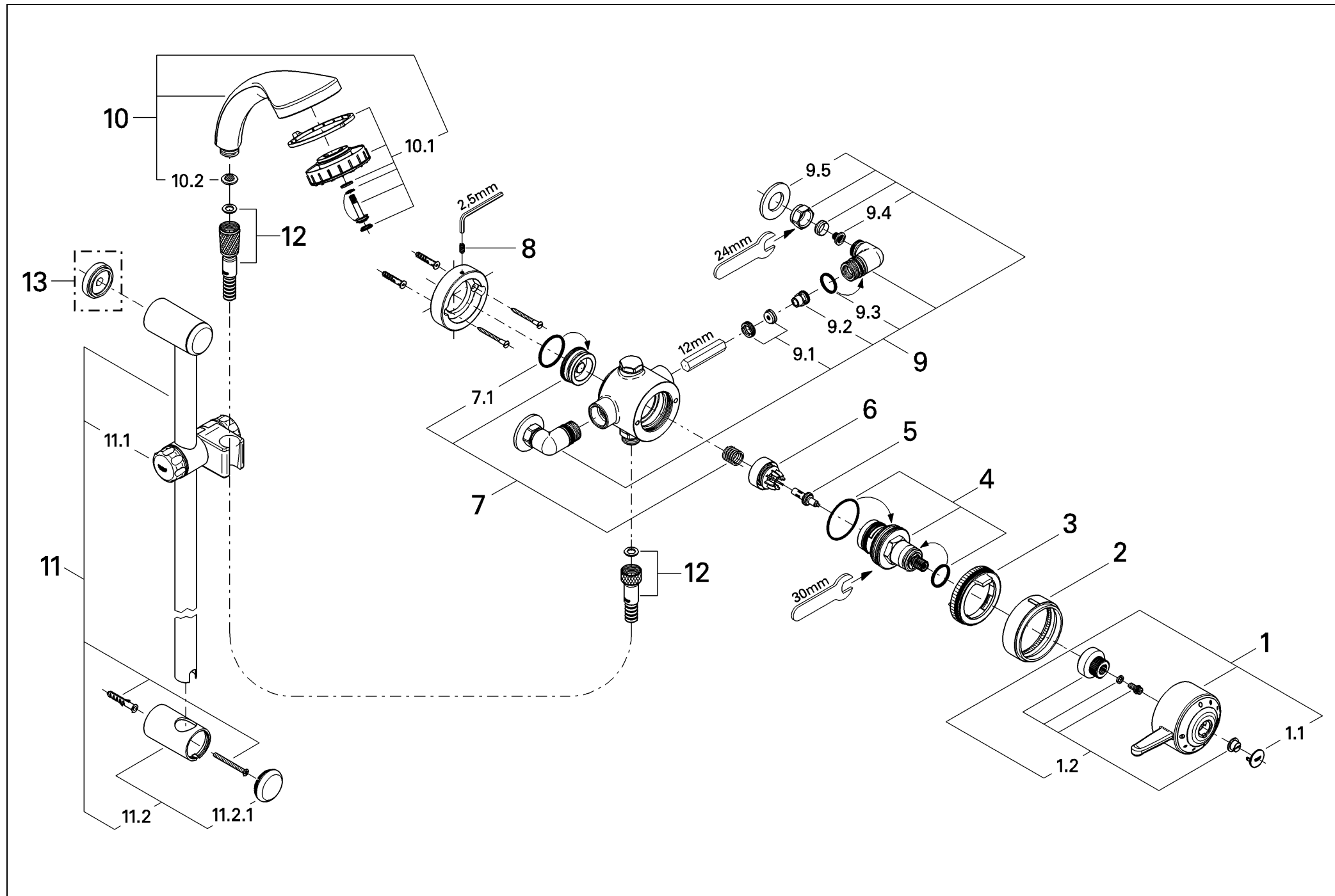
34 038

### Installation Instructions and Operating Guide

Please leave this document with the user after finishing installation!



Spare Parts



3

4

## Index

<b>Table Of Contents</b> .....	1
<b>Installation Dimensions</b> .....	2
<b>Spare Parts Drawing</b> .....	3 + 4
<b>Spare Parts List</b> .....	5
<b>Technical Data</b> .....	6
<b>Installation</b> .....	7
Exposed Installation .....	7
Pipe And Shower Hose Connection ..	9
Adjustment .....	10
<b>Maintenance</b> .....	11
<b>Care</b> .....	13
<b>Trouble Shooting</b> .....	13
<b>Installation &amp; Operating Instructions</b>	15
<b>Guarantee</b> .....	17

### Dear Customer,

Thank you for choosing a GROHE product. Please follow these instructions carefully and you will enjoy many years of reliable service from this fitting.

## Spare Parts

No.	Description	Cat.-No.	Pack- ing unit	No.	Description	Cat.-No.	Pack- ing unit
1	Lever handle complete	47 595	1	9.4	Filter	06 768	5
1.1	Cap	00 090	1	9.5	Escutcheon	00 197	2
1.2	Fixing set	47 592	1	10	Handshower	28 216	1
2	Cover Ring	00 565	1	10.1	Adjustment ring	45 794	1
3	Stop ring	47 593	1	10.2	Sleeve	07 002	2
4	Control unit	47 600	1	11	Shower rail	28 666	1
5	Wax element	00 798	1	11.1	Sliding shower holder	07 659	1
6	Slider	07 587	1	11.2	Shower rail holder	45 362	1
7	Seat with spring	47 594	1	11.2.1	Cover cap	45 363	1
7.1	O-ring seal	03 169	5	12	Flexible hose	28 161	1
8	Set screw M5x12	02 125	5				
9	Connection elbow	12 111	2		<b>Optional accessory</b>		
9.1	Flow limiter set	46 428	1	13	Compensation ring	45 406	1
9.2	Non-return valve	06 544	2				
9.3	O-ring seal	01 287	10				

## Technical Data

### Functioning Principle

This **Avensys** mixing valve is a thermostatic mixer with wax cartridge. Turning the lever handle in a counter-clockwise direction opens the water flow from cold to hot.

This product is supplied with connectors to fit  $\varnothing$  15mm pipework. Connection should be hot left, cold right as viewed from the operating position. The product is preassembled.

### Plumbing Systems

This thermostatic mixing valve is suitable for installation with:

- Gravity-fed plumbing systems with an open vented hot water cylinder
- Cold water storage cistern
- Mains pressure unvented and instantaneous thermal hot water storage systems
- Multi-point gas water heaters
- Combination boilers with a modulating hot water output

### Supply Pipework

Ensure the supply pipework is thoroughly flushed before installing the mixing valve. GROHE recommends installing isolating valves upstream of the mixing valve for servicing purposes.

### New Water Regulations

This GROHE-product should be installed to comply with the New Water Regulations covering backflow prevention. It must also be installed in accordance with local bye-law requirements.

### Specification

- Exposed thermostatic shower mixing valve, concealed or exposed supplies
- Flow pressure
  - Low pressure 0.1 - 1 bar
  - High pressure 1 - 10 bar

- Avoid major pressure differences between hot and cold water supply:

For different supply pressures use enclosed flow limiters, see chapter "**Exposed Installation**" on page 7.

- Max. operating pressure 10 bar
- Max. test pressure 16 bar
- Mixed water flow rate without downstream resistance:

Pressure	0.1	0.2	0.3	0.4	0.5	0.6	bar
Flow rate	7.5	10.5	14	17	18.5	21	l/min

- Temperature
  - Max. (hot water inlet) 80 °C
  - Recommended (for economy) 60 °C
  - Maximum temperature is reached when the lever handle is rotated 270° in a counter-clockwise direction.
- Water connection hot - LH  
cold - RH

## Installation

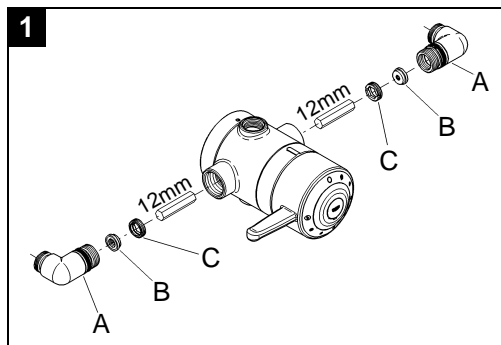
### Exposed Installation

The thermostatic shower mixing valve can be installed in two different ways. The mixing outlet can be at the bottom for use with a handshower or at the top for use with a headshower.

If there is a pressure differences between the hot and cold water supply install attached flow limiters in the water connection elbows, see table below.

Cold Water Inlet	Warm Water Inlet	Connection	
		Cold	Warm
0.1 - 1 bar	0.1 - 1 bar	without	without
1 - 5 bar	1 - 5 bar	7 l (green)	5 l (yellow)
1.5 - 10 bar	0.1 - 0.5 bar	7 l (green)	without
	> 0.5 bar	7 l (green)	5 l (yellow)

- Screw out connection elbows (A), see Fig. [1].

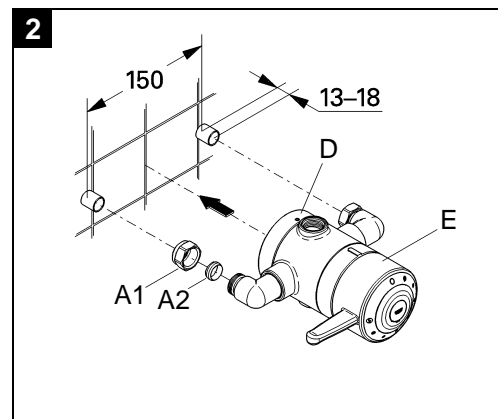


- The flow limiters (B) for 1 to 5 bar are preassembled. If necessary exchange flow limiters in accordance to table above. Replace flow limiters (B) with threaded rings (C) by using a 12mm socket spanner.

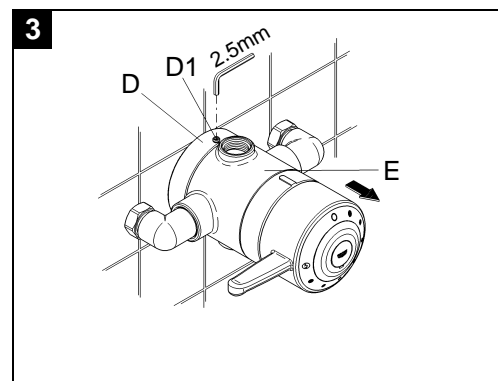
The thermostatic mixing valve is fixed to the wall via the backplate and connected to the supply pipes by a pair of elbows. The elbows are preassembled to the valve body. The valve body is fixed to the backplate by a set screw.

In case of exposed installation with supply pipes from above or below rotate inlet elbows 90° and connect to 15mm supply pipes.

1. Loosely screw on nuts (A1) with compression rings (A2), see Fig. [2].



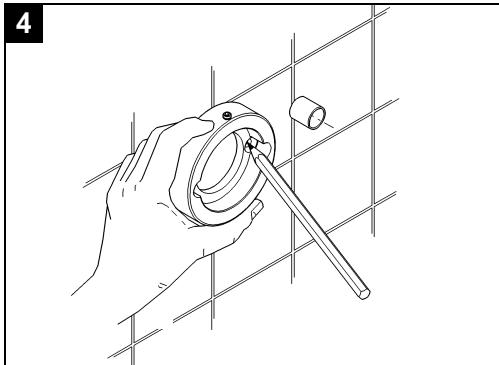
2. Ensure that the projections of the supply pipes, (i.e. exposed beyond the wall surface) have the correct length (13 - 18mm) and distance (150mm).
3. Place the valve body (E) with the elbows and backplate (D) to the supply pipes.
4. Loosen set screw (D1), see Fig. [3].



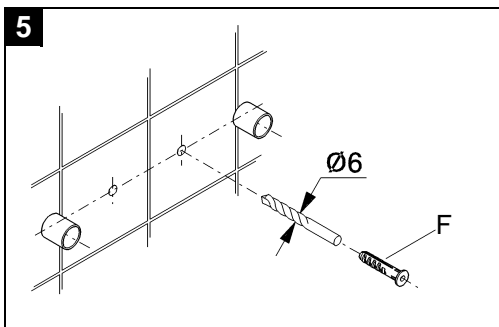
5. Remove valve body (E) from supply pipes and hold backplate (D) in position.

## Installation

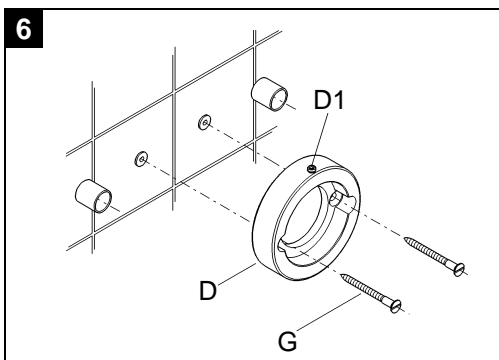
6. Mark the holes in the backplate for wall-plugs, see Fig. [4].



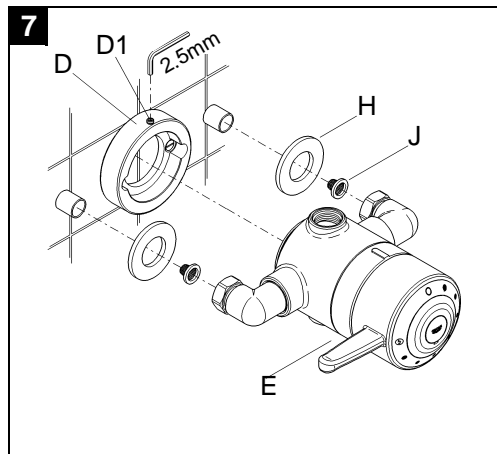
7. Drill the holes (6mm) for the wallplugs (F) and fit them into the wall, see Fig. [5].



8. Fix the backplate (D) with set screw (D1) on top or bottom to the wall with screws (G), see Fig. [6].



9. Slide the escutcheons (H) over the supply pipes and install filters (J), see Fig. [7].

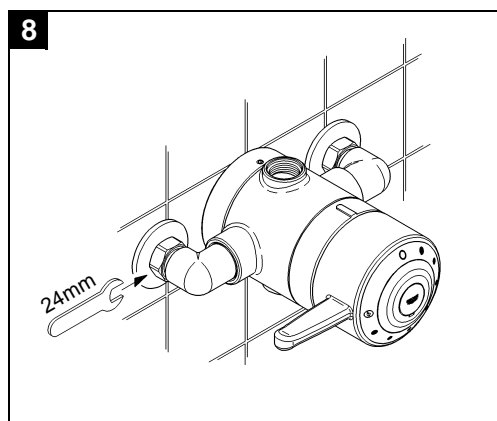


10. Slide the valve body (E) with elbows and compression nuts loosely over the supply pipes.

**The body must touch the backplate. If not, check pipes for length again.**

11. Fix the valve body (E) to the backplate (D) by tightening set screw (D1). **Do not** use excessive force to tighten the set screw (D1).

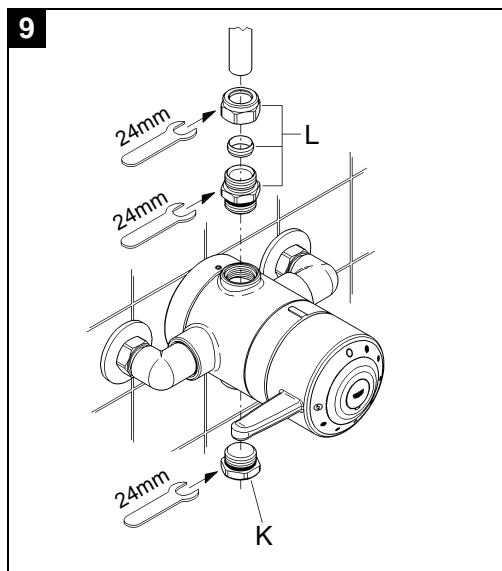
12. Tighten the compression nuts (torque min. 20 Nm), see Fig. [8].



## Installation

### Pipe Connection

1. Close free outlet with plug (K), see Fig. [9].



2. Thread the outlet nipple (L) with the O-ring seal into the valve body outlet.
3. Insert pipe and tighten outlet nipple (L).

#### Open hot and cold water supply.

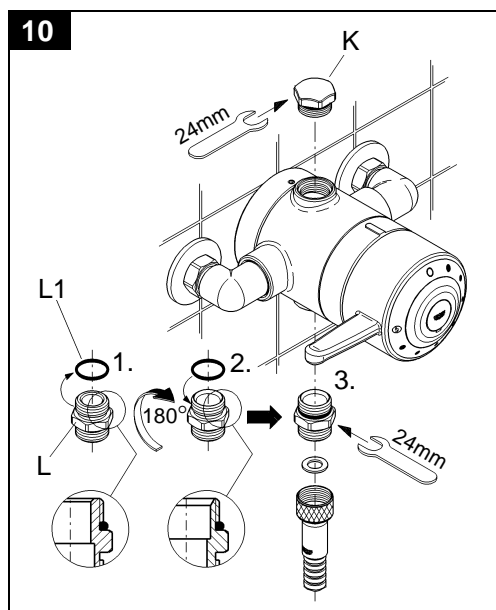
Check the pipework and connections to the thermostat mixing valve for leaks.

For **reversed supplies installation** the complete mixing valve must be rotated 180°.

Therefore lever handle, cover ring and stop ring must be dismantled, rotated 180° and reinstalled.

### Shower Hose Connection

1. Close free outlet with plug (K), see Fig. [10].



2. Remove O-ring seal (L1).
3. Turn outlet nipple (L) 180° and fit O-ring seal (L1).
4. Thread the outlet nipple with the O-ring seal into the valve body outlet.
5. Connect flexible shower hose.

#### Open hot and cold water supply.

Check the pipework and connections to the thermostat mixing valve for leaks.

For **reversed supplies installation** the complete mixing valve must be rotated 180°.

Therefore lever handle, cover ring and stop ring must be dismantled, rotated 180° and reinstalled.



## Installation

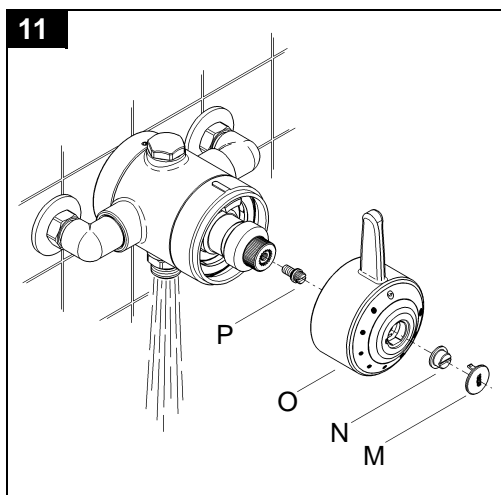
### Adjustment

The temperature of the outflowing water is factory set to 41 °C. A temperature adjustment is necessary if:

- The maximum water temperature measured at the outlet varies from the factory set temperature.
- After any maintenance operation on the thermostatic cartridge.

**For temperature adjustment please proceed as follows:**

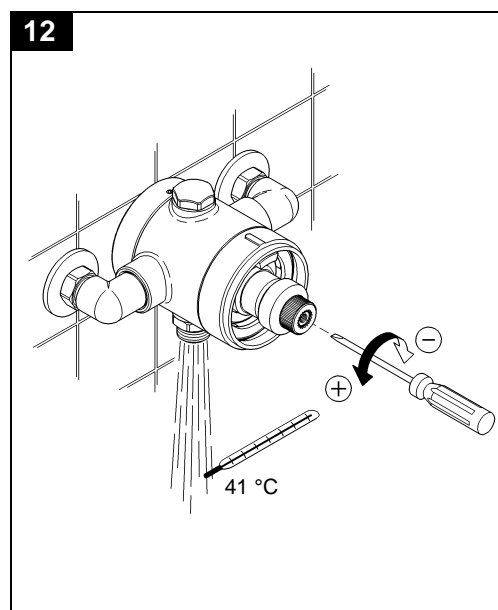
1. Turn the lever handle counter-clockwise to fully open position and open water flow.
2. Lever out cap (M), see fig. [11].



3. Unscrew screw nut (N).
4. Pull off lever handle (O).
5. Remove screw (P).

**A small rinse of water drops out.**

6. Check the temperature of the outflowing water with a thermometer, see Fig. [12].

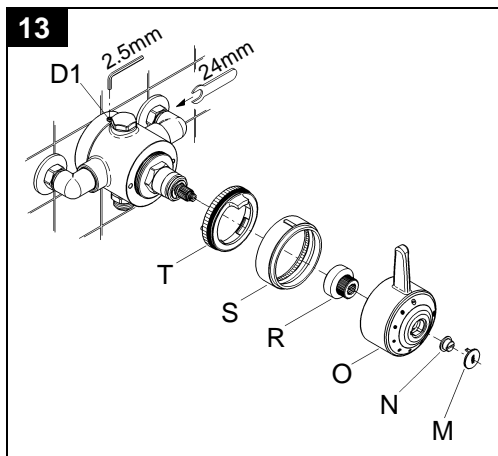


7. With a small screw driver adjust temperature to 41 °C.  
Turn clockwise (to reduce temperature) or counter-clockwise (to increase temperature).
8. Reinstall lever handle (O) in fully open position as described in Fig. [11] in reversed direction.

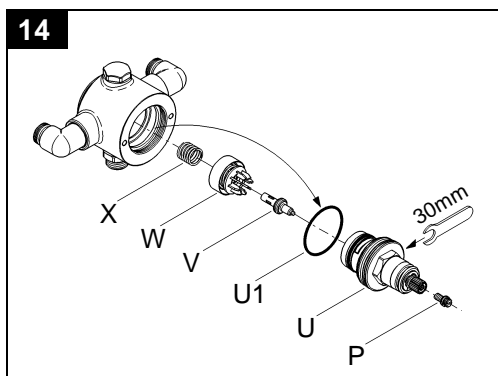
## Maintenance

### I. Control Unit

1. Shut off hot and cold water supply!
2. Turn the lever handle counter-clockwise to fully open position.
3. Lever out cap (M), see Fig. [13].



4. Unscrew screw nut (N).
5. Pull off lever handle (O).
6. Remove adapter (R).
7. Pull off cover ring (S) and stop ring (T).
8. Loosen set screw (D1).
9. Unscrew connections and take valve from the supplies.
10. Screw out control unit (U), see Fig. [14].



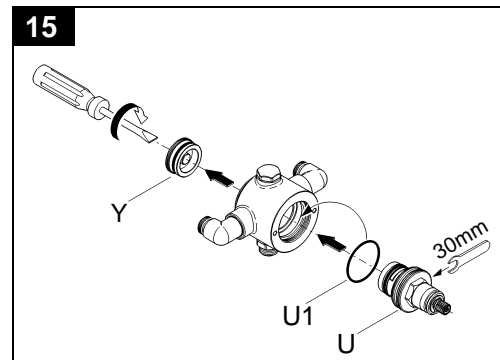
11. Take out O-ring seal (U1).

12. Screw out screw (P) if replacing control unit (U).
13. Take out wax element (V), slider (W) and spring (X).

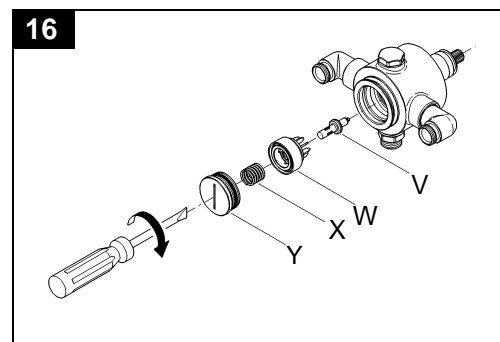
Inspect and clean all parts, replace if necessary and grease with special valve grease (ref. No. 18 012).

### Reinstall control unit

1. Unscrew seat (Y) with O-ring, see Fig. [15].



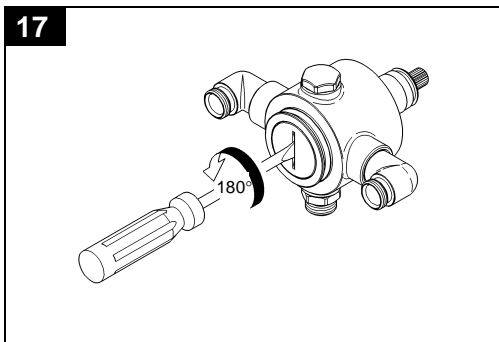
2. Reinstall O-ring seal (U1).
3. Screw in control unit (U).
4. Reinstall wax element (V), slider (W) and spring (X) from behind, see Fig. [16].



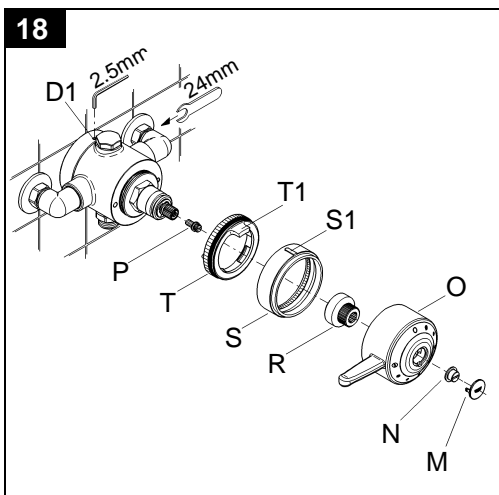
5. Tighten seat (Y) in the valve body.

## Maintenance

6. Unscrew seat a half turn (180°), see Fig. [17].



7. Slide valve on the supplies, see Fig. [18]



8. Tighten set screw (D1) and compression nuts.
9. Reinstall screw (P) in control unit.
10. Push on stop ring (T) with catch (T1) on top.
11. Reinstall cover ring (S) with mark (S1) on top.
12. Push on adapter (R).
13. Close control unit by turning the adapter (R) clockwise.
14. Reinstall lever handle (O) in closed position.
15. Fix lever handle with screw nut (N) and cover with cap (M).

Readjustment is necessary after every maintenance operation on the control unit, see chapter “**Adjustment**” on page 10.

**II. Non-return valve**, see spare parts drawing on page 3, 4, and Fig. [13].

1. Same procedure as for control unit, see Fig. [13], points 1, 8 and 9.
2. Unscrew elbow, see spare parts drawing on page 3 and 4.
3. Remove threaded ring with flow limiter (9.1) if installed.
4. Take out and replace non-return valve (9.2).

Reassemble in reverse order.

Only genuine GROHE replacement parts must be used.

## Care

We want to ensure that you get long-lasting satisfaction and pleasure from your GROHE fitting. Therefore, please read the following care instructions because damage to the surface and underlying material resulting from improper treatment is not covered by our guarantee.

Do not use any abrasive sponges or scouring agents for cleaning. We also advise not to use cleaning agents containing solvent or acid, limescale removers, household vinegar and cleaning agents with acetic acid. They are aggressive to the surface and will leave

your fitting dull and scratched. As the formulations of commercially available cleaning agents frequently change, we cannot guarantee they will provide the gentle care our fitting deserves.

Clean the fitting with a little soap and a moist cloth only, then simply rinse off and wipe dry. You can avoid lime spots by drying the fitting each time it is used. If lime deposits do occur, remove them with **Grohclean** (ref. no. 18 078), our environment-friendly cleaning liquid. **Grohclean** is specially formulated to gently clean the surface of our fittings.

## Trouble Shooting

Problem	Cause	Remedy
Thermostatic valve opens through hot	Hot and cold water supplies have been connected in reverse	Rotate the thermostatic mixing valve
Range of temperature adjustment restricted	High pressure difference between hot and cold water supply	Install flow limiter see chapter <b>Exposed Installation</b>
Shower insufficiently cold or hot	Adjustment incorrectly set Hot water supply temperature too low	Refer to the instructions in chapter <b>Adjustment</b> Check hot water source temperature setting
No flow of hot or cold water	Either the hot or cold side is not fully pressurized Debris caught inside the inlet of the control unit	Replace non-return valve, refer to chapter <b>Maintenance</b> Remove mixing valve and flush out or remove any debris lodged inside the hot or cold inlets or filters
Hot water emerges to cold water supply or vice versa	Non return valves are damaged in cause of lime	Replace non-return valve, refer to chapter <b>Maintenance</b>

## Re. Installation & Operating Instructions

### For Product 34 038 only!

The product must be installed with isolating valves for maintenance and in-service testing.

Before commissioning, GROHE recommends simulating at least 12 alternate hot and cold water failures before final adjustment of the mixed water set temperature.

No maintenance other than cleaning the filters should be carried out on this product.

### 1. Commissioning and in-service tests

#### 1.1 Commissioning

##### 1.1.1 Purpose

Since the installed supply conditions are likely to be different from those applied in the laboratory tests it is appropriate, at commissioning, to carry out some simple checks and test on each mixing valve to provide a performance reference point for future in-service test.

##### 1.1.2 Procedure

###### 1.1.2.1 Check that:

- a) the designation of the thermostatic mixing valve matches the intended application.
- b) the supply pressures are within the range of operating pressures for the designation of the valve.
- c) the supply temperatures are within the range permitted for the valve and by guidance information on the prevention of legionella etc.

###### 1.1.2.2 Adjust the temperature of the mixed water in accordance with the manufacturer's instructions 41°C maximum for shower and wash basin and the requirement of the application and then carry out the following sequence.

- a) record the temperature of the hot and cold water supplies.
- b) record the temperature of the mixed water at the largest draw-off flow rate.
- c) record the temperature of the mixed water at a smaller draw-off flow rate, which shall be measured.
- d) isolate the cold water supply to the mixing valve and monitor the mixed water temperature.
- e) record the maximum temperature achieved as a result of
- d) and the final temperature. NOTE. The final mixed water temperature should not exceed the values in Table 1, and any higher temperature should occur only briefly.
- f) record the equipment, thermostat etc. used for the measurements.

**Table 1: Guide to maximum continuous temperatures during site tests.**

Application	Mixed water temperature °C
High- /Low Pressure Shower	41
High- /Low Pressure Washbasin	41

### 1.2 In-service tests

#### 1.2.1 Purpose

The purpose of in-service tests is to regularly monitor and record the performance of the thermostatic mixing valve. Deterioration in performance can indicate the need for service work on the valve and/or the water supplies.

## Re. Installation & Operating Instructions

### 1.2.2 Procedure

**1.2.2.1** Carry out the procedure 1.1.2.2 (a) to (c) using the same measuring equipment, or equipment to the same specification.

**1.2.2.2** If the mixed water temperature has changed significantly from the previous test results (e.g. > 1K), record the change and before re-adjusting the mixed water temperature check

- a) that any in-line or integral strainers are clean.
- b) any in-line or integral check valves or other anti-backsiphonage devices are in good working order.
- c) any isolating valves are fully open.

**1.2.2.3** With an acceptable mixed water temperature, complete the procedure 1.1.2.2(a) to (f).

**1.2.2.4** If at step 1.1.2.2 (e) the final mixed water temperature is greater than the values in Table 1 and/or the maximum temperature exceeds the corresponding value from the previous test results by more than about 2 K, the need for service work is indicated.

#### NOTE:

In-service tests should be carried out with a frequency which identifies a need for service work before an unsafe water temperature can result. In the absence of any other instruction or guidance, the procedure described in Annex F may be used.

### Frequency of in-service tests

#### F.1 General

In the absence of any other instruction or guidance on the means of determining the appropriate frequency of in-service testing, the following procedure may be used:

**F.1.1** 6-8 weeks after commissioning carry out the tests given in 1.2.2.

**F.1.2** 12-15 weeks after commissioning carry out the tests given in 1.2.2

**F.1.3** Depending on the result of F.1.1. and F.1.2 several possibilities exist:

- a) If no significant changes (eg. < 1 K) in mixed water temperatures are recorded between commissioning and F.1.1 or between commissioning and F.1.2 the next in-service can be deferred to 24 to 28 weeks after commissioning.
- b) If small changes (eg. 1 to 2 K) in mixed water temperatures are recorded in only one of these periods, necessitating adjustment of the mixed water temperature, then the next in-service test can be deferred to 24 to 28 weeks after commissioning.
- c) If small changes (eg. 1 to 2 K) in mixed water temperatures are recorded in both of these periods, necessitating adjustment of the mixed water temperature, then the next in-service test should be carried out at 18 to 21 weeks after commissioning.
- d) If significant changes (eg. > 2 K) in mixed water temperatures are recorded in either of these periods, necessitating service work, then the next in-service test should be carried out at 18 to 21 weeks after commissioning.

**F.1.4** The general principle to be observed after the first 2 or 3 in-service tests is that the intervals of future tests should be set to those which previous tests have shown can be achieved with no more than a small change in mixed water temperature.

## Guarantee

### Guarantee declaration

Our products correspond to the valid technical and water supply standards as well as the relevant approvals requirements. We guarantee them to be free of design and production faults at the time of delivery and that with correct use and care in accordance with our printed instructions they will function reliably.

### Guarantee period

- The guarantee is valid in private homes for 5 years from the purchase date. Proof of purchase has to be provided when making a guarantee claim.
- By use in commercial or institutional applications the guarantee is valid for 1 year after first use. An extension of the guarantee up to 5 years can be achieved by showing that the product is professionally maintained each year.

To make a guarantee claim, proof of purchase or, the beginning of use is required. The guarantee period is not renewed or increased through supply of spare parts or repair during the guarantee period. The guarantee period for purchased spare parts is the same as for original products.

### Guarantee performance

- A) During the whole guarantee period we will correct all functional defects for which we are responsible (limitations see E + F).
- B) It is our option if we correct the defects by repair or replacement.
- C) During the above guarantee period we will not charge for the cost of parts, travel, working time, freight and packaging needed to effect the correction of defects.
- D) If we are not able to correct the defect we are prepared to supply a replacement product.
- E) Deliberate or careless damage is not covered by this guarantee. If the installation, assembly or care instructions that were valid at the time of installation are not followed or the product is used for a purpose other than that given in the written information the guarantee declaration does not apply. Problems caused by dirt, lime-scale or aggressive cleaners are not covered by the guarantee.
- F) The guarantee becomes void if repairs are not carried out competently or spare parts of non GROHE origin are used.
- G) Replaced parts become the property of GROHE and are to be surrendered to our service personnel or sent to our registered offices.

Please enter date of purchase and installation here.

### Our address

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