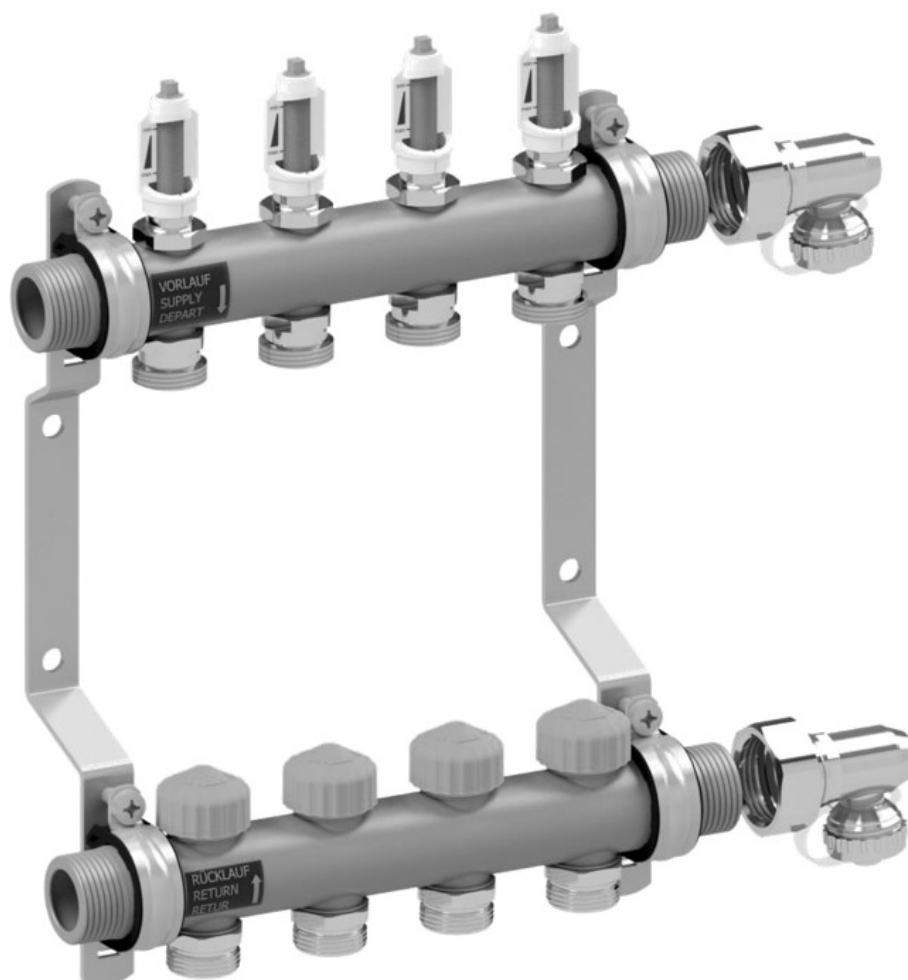


HKV2013A-AFC

Floor heating manifold with automatic flow control

Installation and Operation manual

(translated from the original operation manual)



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1 General information

1.1 Important information on these Installation and Operating Instructions

NOTICE The responsibility for complying with local laws and regulations (e.g., accident prevention guidelines) lies with the operator.

Incorrect use of the system or operating the system outside of the manufacturer's specifications will void any warranty.

These Installation and Operating Instructions

- are an integral part of the heating manifold;
- contain information on the safe and correct installation and commissioning of the heating manifold;
- Must be made available to all users for the entire life cycle of the heating manifold;
- is intended for instructed personnel familiar with the applicable standards and regulations and in particular with the relevant safety measures as well as the operation and maintenance of the heating manifold;
- is protected by copyright laws and must not be changed without the manufacturer's consent;
- must not be made available to non-authorized persons, neither as an original nor in copied form.

1.2 Product conformity

- The product is declared to be in conformity with Machinery Directive 2006/42/CE.

1.3 Product features

- All connections to the system are with 1" male thread and flat sealing.
- Space-saving design.

2 Safety

2.1 Representation of safety notices

▲ DANGER DANGER indicates an immediate hazard which, if not avoided, will result in death or severe injuries.

▲ WARNING WARNING indicates a hazardous situation resulting from inappropriate actions (e.g. incorrect use, ignoring safety notices, etc.) which, if not avoided, could result in death or severe injuries.

▲ CAUTION CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injuries.

NOTICE NOTICE indicates a situation which, if not avoided, could result in damage to property.

2.2 Important safety notices

- Read these operating instructions carefully before use.
- Maintenance, cleaning and repair work must only be carried out by trained professionals.
- In the event of damage to the heating manifold or if its function is impaired, the heating manifold must not be used. In this instance, contact your dealer immediately.
- Note the maintenance instructions and intervals.
- Protect the heating manifold against the effects of weather.
- Never use the heating manifold outdoors.
- The heating manifold must only be used in accordance with the descriptions set out in the section entitled Correct use.

2.3 Correct use

Heating manifold for use with radiant panel heating/cooling systems

The heating manifold is not intended to be used by persons (including children) with limited physical, sensory or mental capacities or a lack of knowledge and experience.

2.4 Foreseeable misuse

The following will qualify as foreseeable misuse:

- operating the heating manifold outside its specifications;
- incorrect use of the heating manifold;
- modifications to the device without the manufacturer's consent;
- use of spare parts or wear parts that have not been approved by the manufacturer;
- operating the heating manifold outdoors (parts and components are not UV resistant).

2.5 Responsibilities of the plant operator

The operator must ensure that:

- the heating manifold is only be used in accordance with the descriptions set out in the section entitled "Correct use";
- the heating manifold is installed, operated and maintained according to the instructions in these Installation and Operating Instructions;
- The heating manifold is only operated in accordance with local occupational health & safety regulations;
- all precautions are taken to avoid any hazards that may originate from the heating manifold;
- all first aid and fire protection precautions are taken;
- only authorised and trained persons may have access to and operate the heating manifold;
- these Installation and Operating Instructions are made available to users at any time.

2.6 Intended users

The heating manifold may only be installed, operated and maintained by qualified personnel.

Operator

Operators are considered qualified if they have read the present Original instructions and demonstrated to understand the potential hazards that may be caused by inappropriate actions.

Installation/Commissioning technician

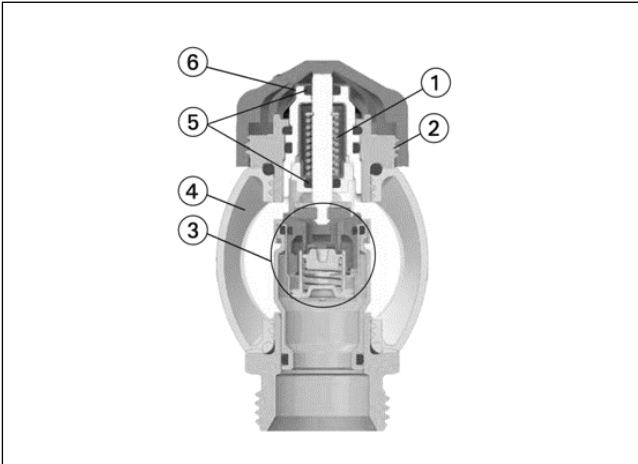
An installation/commissioning technician has demonstrated in-depth knowledge of applicable standards, laws and regulations as well as the professional qualification and specialist technical knowledge required to perform work on the heating manifold and to identify and avoid potential hazards.

3 Technical data and materials used

Technical data	
Application:	Floor heating systems
Function:	Room-based temperature control with actuator or thermostatic head Automatic flow control Shutting-off / filling / draining / flushing / venting
Max. operating pressure:	10 bar
Flow range:	The flow setting can be adjusted continuously to any value within the specified range: 30 - 300 l/h Factory setting 300 l/h
Differential pressure (Δp_V):	Max. differential pressure 60 kPa (<30 dB(A)) Min. differential pressure: 30 – 150 l/h = 17 kPa / 150 – 300 l/h = 25 kPa
Temperature:	Max. operating temperature: 70 °C Min. operating temperature: -5 °C
Pipe connection:	Manifold: G 1" MT End set: G 1" FT Heating circuits connection: G 3/4" with euro cone
Connection for thermostatic heads or actuators:	M 30 x 1.5 / Closing point: 11.8mm / Stroke: 1.7mm
Media:	Water / water-glycol mixtures according to VDI 2035/ÖNORM H 5195
Materials	
Manifold:	EN 1.4301 stainless steel
Screw connections / end set:	Nickel-plated brass
O-rings:	EPDM
Valve plate:	EPDM
Compression spring:	Stainless steel
Upper section with thermostat	Brass, PPS
Spindle:	Stainless steel spindle
Flat gaskets:	AFM 2

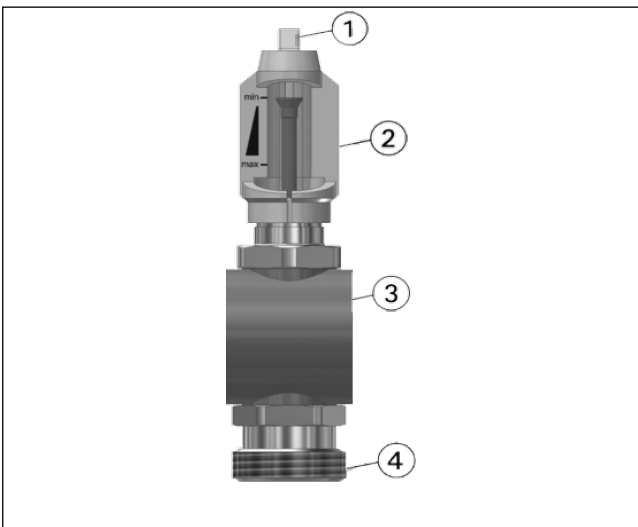
4 Setup

4.1 Upper section with thermostat and automatic flow control



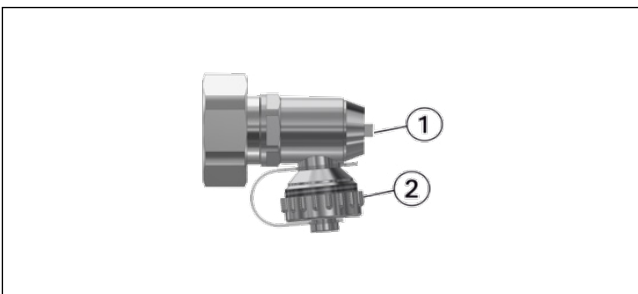
1. The combination of a strong compression spring and a high actuating force ensures that the valve does not get stuck after being shut off for a longer period.
2. Connection - M 30 x 1,5 for thermostatic heads or actuators
3. Flow switch
4. Manifold
5. Durable double O-ring seal
6. Flow setting

4.2 Flow meter



1. Shut-off valve with \square 5 mm square shaft
2. Dial with gauge glass
3. Manifold
4. Connecting nipple

4.3 KFE90 end set



1. Shut-off/Open valve with \square 5 mm square shaft
2. Filling, flushing and draining device with $\frac{1}{4}$ " connection, swivel-mounted

5 Function

5.1 Flow switch

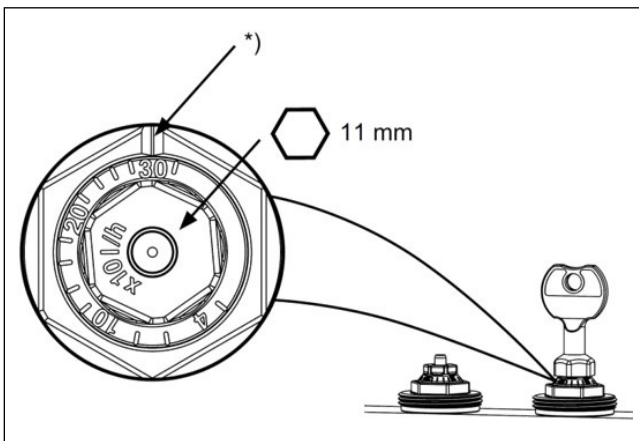
By turning the scale knob using the adjustment key or spanner (wrench size 11 mm), a control template is set to the calculated flow value. If the flow rate increases at the valve, the pressure increase pushes a sleeve, thus constantly limiting the flow to the setpoint value.

By consequence, the flow value set at the knob will not be exceeded under any circumstance. If the flow falls below the set rate, a spring pushes the sleeve back to its original position.

5.2 Flow setting

The flow setting can be adjusted continuously to any value between 3 and 30 (corresponding to flow rates from 30 to 300 l/h).

Using the adjustment key (article no. 10081366), a qualified technician can set or adjust the value as required. Manual manipulation by unauthorized persons is not possible.

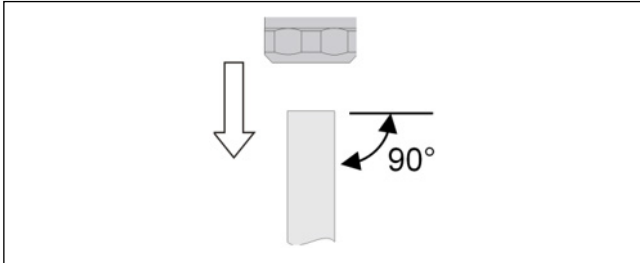


* Reference mark

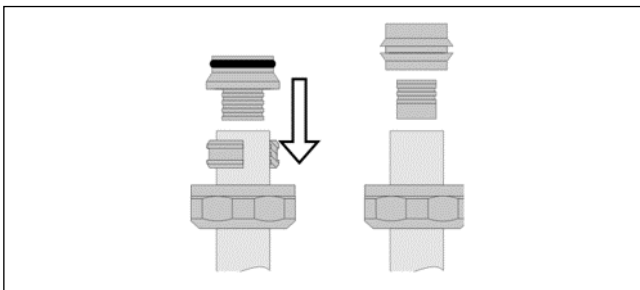
- Apply the adjustment key or spanner (wrench size 11 mm) on the upper section of the valve.
- Align the index number of the desired setting with the reference mark *) on the upper section of the valve.
- Remove the adjustment key or spanner (wrench size 11 mm). The set value can now be retrieved at the upper section of the valve (from the operator's perspective, see figure).

Setting	1	4	1	1	10	1	1	1	1	20	1	1	1	1	30
l/h	30	40	60	80	100	120	140	160	180	200	220	240	260	280	300

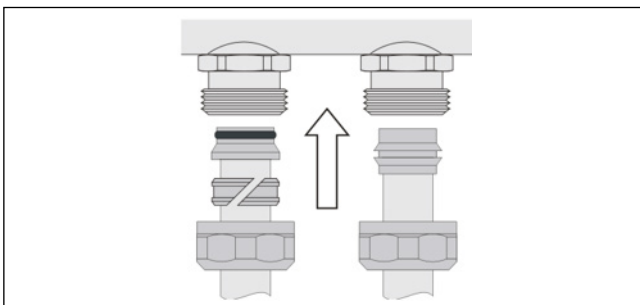
5.3 Pipe installation



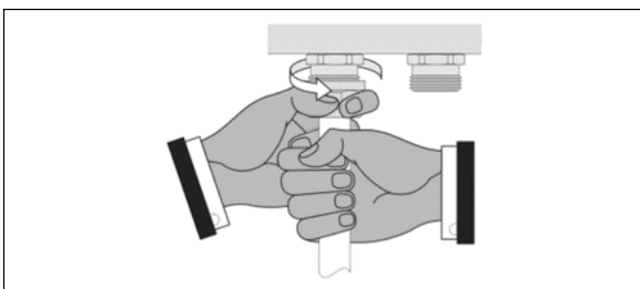
Cut the plastic, copper or multilayer composite pipe at a right angle and deburr / calibrate. Push the compression ring nut over the pipe.



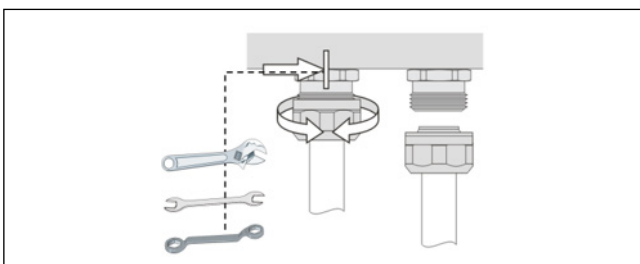
Push the compression ring over the pipe and insert hose sleeve / supporting sleeve.



Insert the pre-assembled pipe and cone into the cone fixture up to the stop.



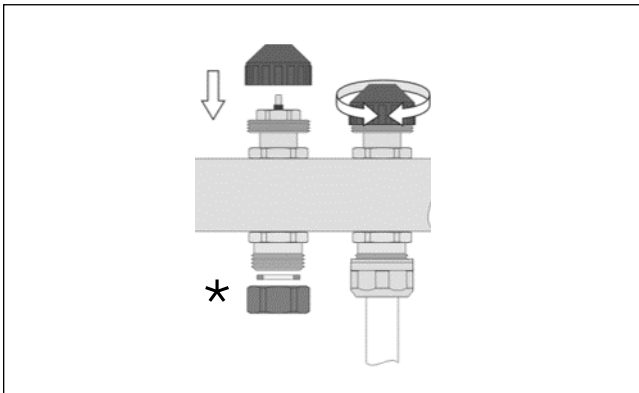
Screw on the compression ring nut by hand, pushing the plastic, copper or multilayer composite pipe up to the stop.



Lock the output screw connection using a spanner (wrench size: 24 mm) and tighten the compression spring nut using a spanner (size 30 mm; tightening torque: approx. 25-30 Nm).

The maximum tightening torque must not exceed the values specified in the installation instructions for the selected compression fitting.

5.4 Flushing / Filling / Bleeding



It is possible to shut off the return circuit valves, e.g. before flushing or filling the heating circuits.

To shut off a return valve, place the protective cap on the valve and close the valve by turning the cap in clockwise direction.

The flow meter can be shut off using a venting key.

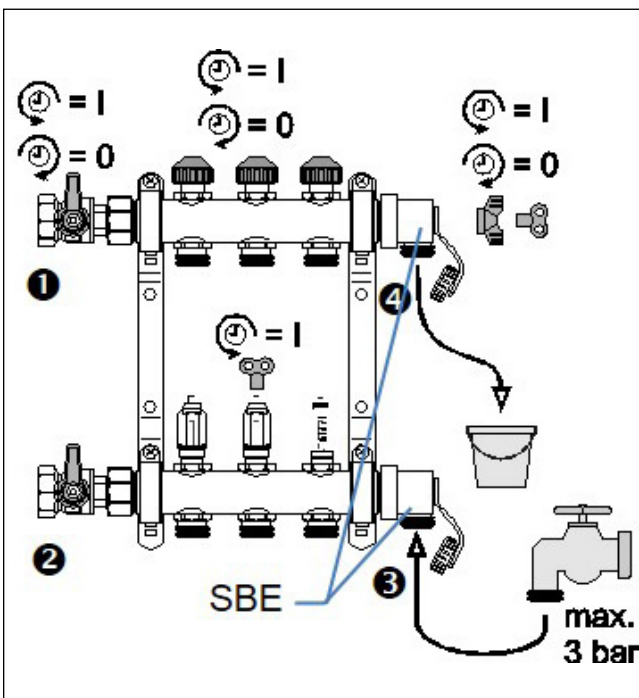
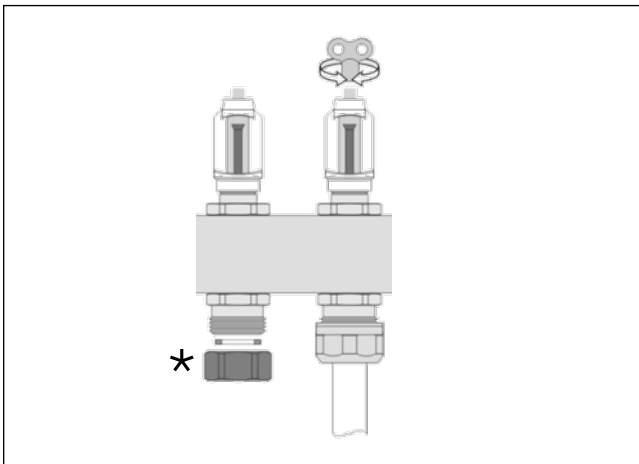
This is not required for filling or flushing the heating circuits, though.

If the flow meter is shut off and needs to be reopened, make sure to follow the steps in the order given below

to avoid malfunctions or damage to components:

First open the flow meter. Only then open the regulating valve. It is important to follow this sequence!

(*) To permanently shut off the heating manifold, mount a 3/4" sealing cap on the connection piece on the building side.



Shut off manifold using ball valves **1** + **2**.

Shut off all valves using protection caps.

Connect the flushing / filling hose to the flushing / filling unit (SBE) **3**; the output on the return flushing / filling unit (SBE) **4** must be open!

All flow meters must be fully open!

Shut off all circuits using the return regulating valve;

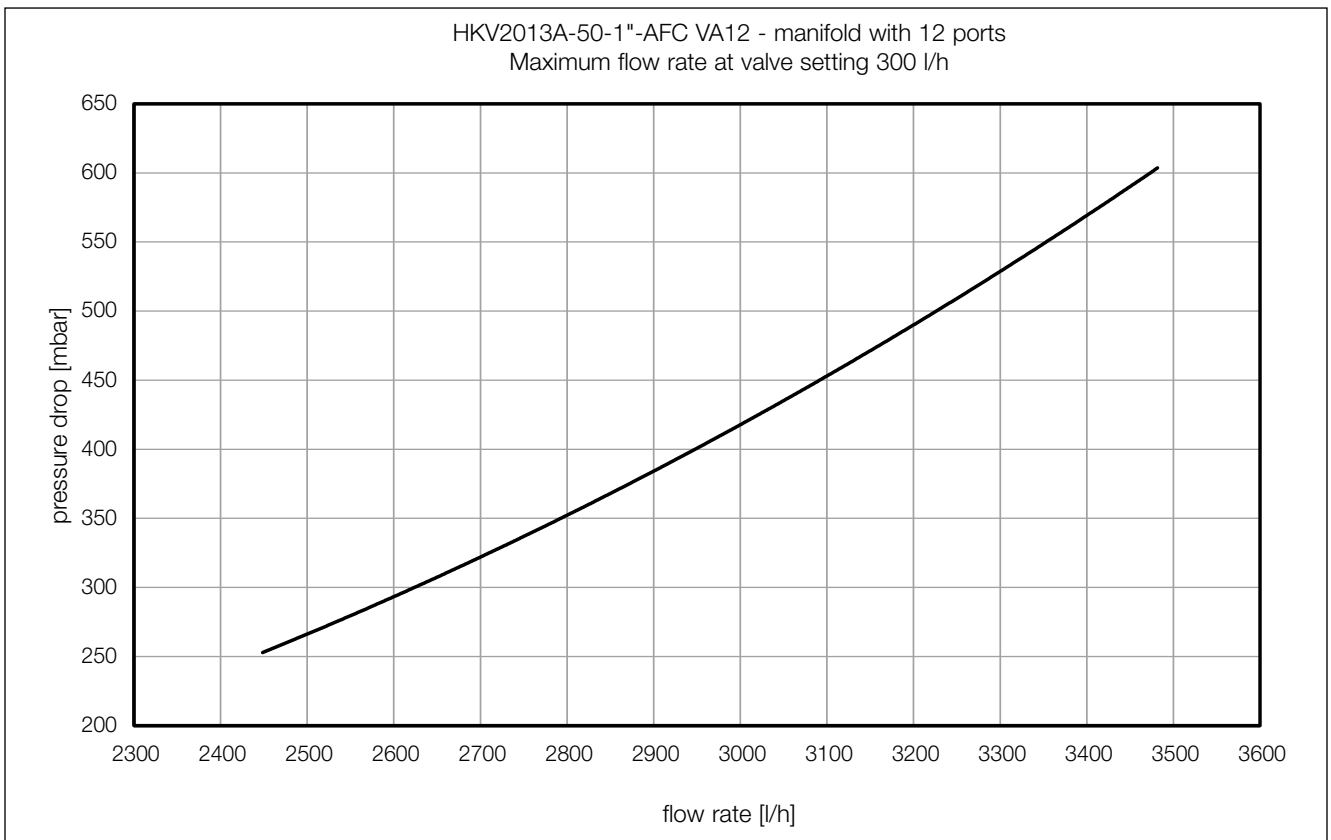
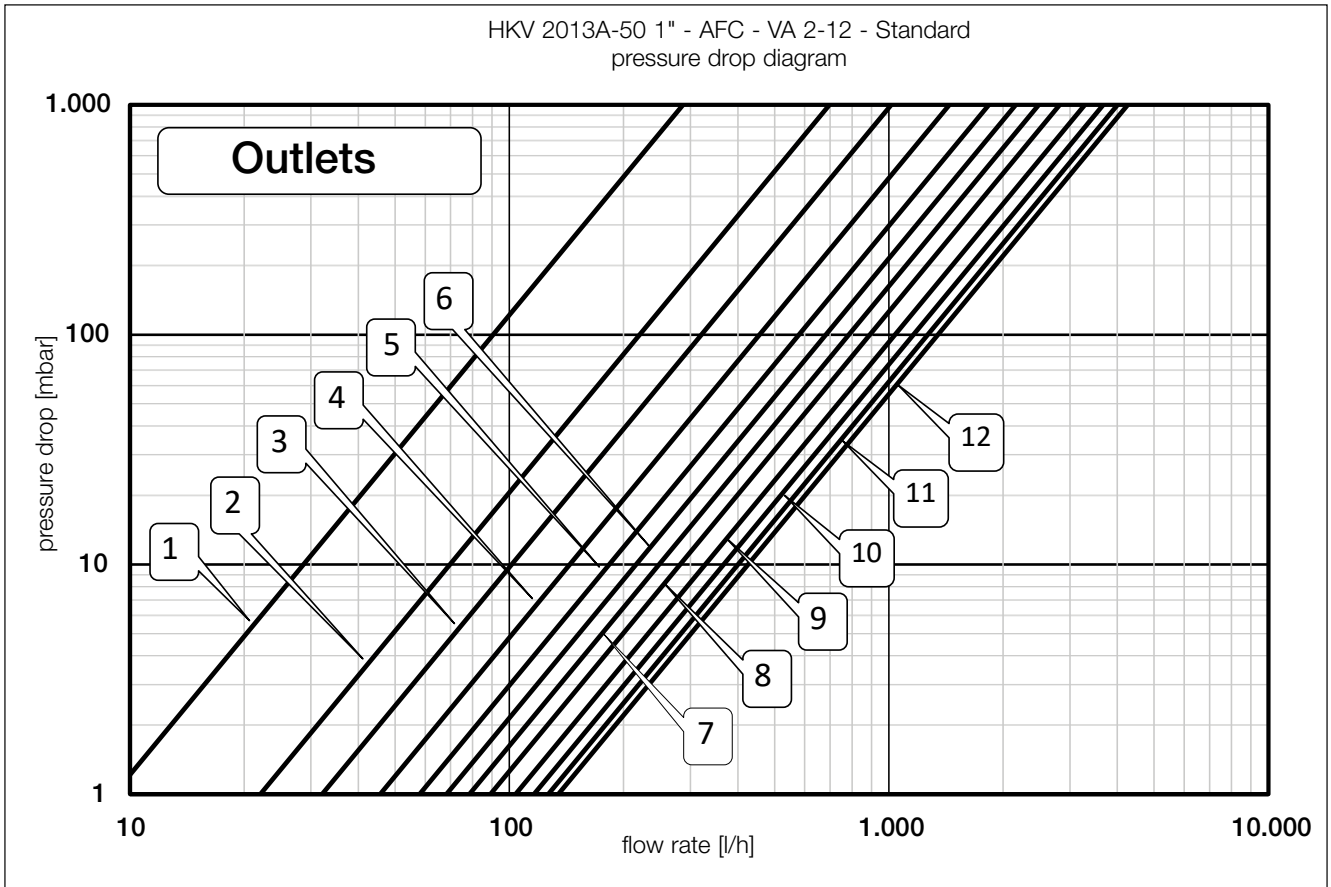
only the valve of the circuit to be flushed must be fully open!

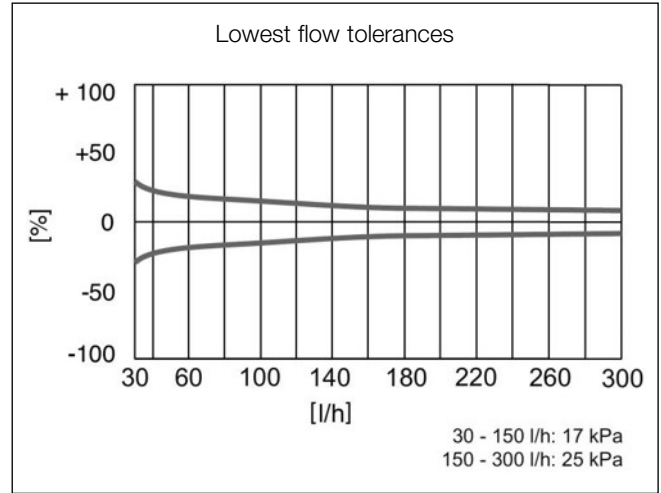
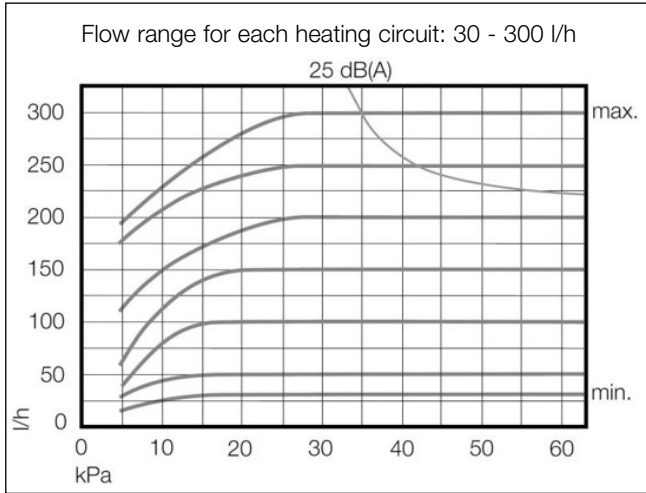
Flush the circuits individually and one by one with clean water.

After a circuit has been flushed, close the regulating valve and flush / fill the next circuit in line.

Once all circuits have been flushed / filled, remove the hose from the flushing / filling unit (SBE).

6 Performance characteristics






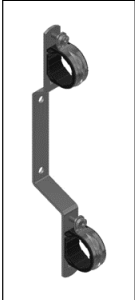

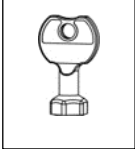

Settings for different radiator outputs and temperature differences

Q [w]	200	250	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4800	5200	
Δt [K]																												
5	3	4	5	7	9	10	12	14	16	17	21	24	28															
8			3	4	5	7	8	9	10	11	13	15	17	19	22	24	26	28										
10				3	4	5	6	7	8	9	19	0	12	14	16	17	19	21	22	24	26	28	29					
15					3	3	4	5	5	6	7	8	9	10	12	13	14	15	16	17	18	20	21	22	23	28	30	

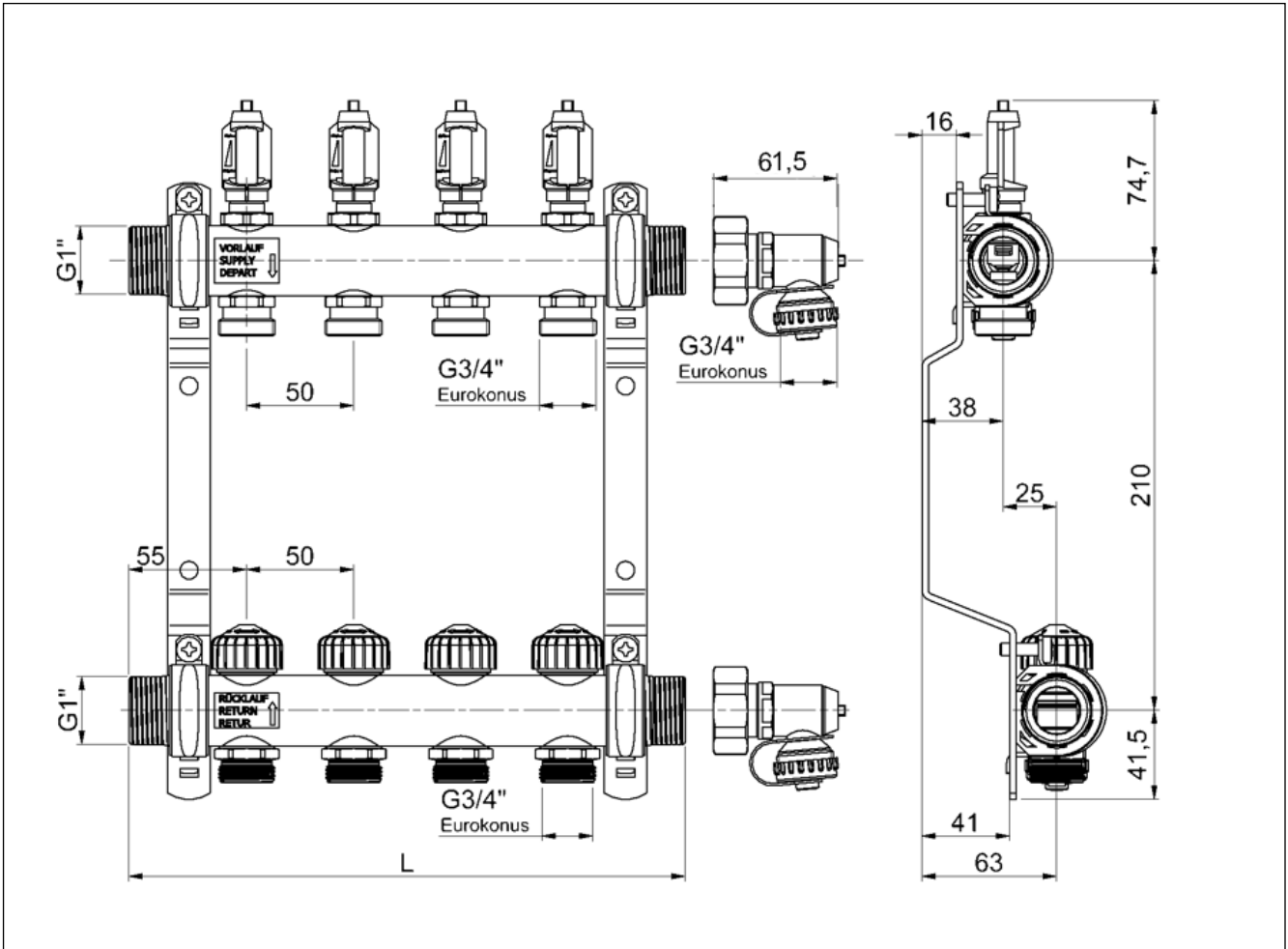
Q = Radiator output
 Δt = Temperature difference
 Δp = Differential pressure

Δp min. 30 - 150 l/h = 17 kPa
 Δp min. 150 - 300 l/h = 25 kPa

7 Spare parts

Spare part	Item no.	Spare part	Item no.
 Flow indicator with min./max. dial	10083108	 Mounting bracket (complete)	10001342
 Valve insert for flow control including bottom section	10083109	 Adjustment key	10081366
 End set	10028149		

8 Dimensions



Manifold (# of outputs)	2	3	4	5	6	7	8	9	10	11	12
L [mm]	160	210	260	310	360	410	460	510	560	610	660
Item no.	10081563	10081564	10081565	10081566	10081567	10081568	10081569	10081570	10081571	10081572	10081573

9 Disposal

⚠ WARNING Incorrect disposal pollutes the environment and the groundwater!

When disposing of parts and operating materials, the regulations and guidelines set down by the legislator of the respective country must be observed.

1. Dismantle the heating manifold properly or commission the disassembly to a specialised firm.
2. Separate the components and parts into recyclable materials, hazardous materials and operating materials.
3. Dispose of dismantled parts and assemblies in accordance with local laws and regulations or recycle them.

9.1 Return to the manufacturer

Contact the manufacturer of if you want to return the heating manifold or parts of it.

9.2 Notification of authorities or manufacturers

Please notify the manufacturer of any decommissioning or disposal of the heating manifold (for statistical purposes only).

10 Warranty

WATTS products are thoroughly tested. Watts products are thoroughly tested. The said guarantee covers solely replacement or – at the full sole discretion of WATTS - repair, free of charge, of those components of the goods supplied which in the sole view of Watts present proven manufacturing defects. The period of limitation for claims based on defects and defects in title is one (1) year from delivery/the passage of risk. This warranty excludes any damage due to normal product usage or friction and does not include any modified or unauthorized repair for which WATTS will not accept any request for damage (either direct or indirect) compensation. (For full details see our website.) All sales subject to the Watts terms to be found on www.watts.eu/en/gtc.

The descriptions and photographs contained in this product specification sheet are supplied by way of information only and are not binding. Watts Industries reserves the right to carry out any technical and design improvements to its products with-out prior notice. Warranty: All sales and contracts for sale are expressly conditioned on the buyer's assent to Watts terms and conditions found on its website at www.watts.eu/en/gtc. Watts hereby objects to any term, different from or additional to Watts terms, contained in any buyer communication in any form, unless agreed to in a writing signed by an officer of Watts.



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