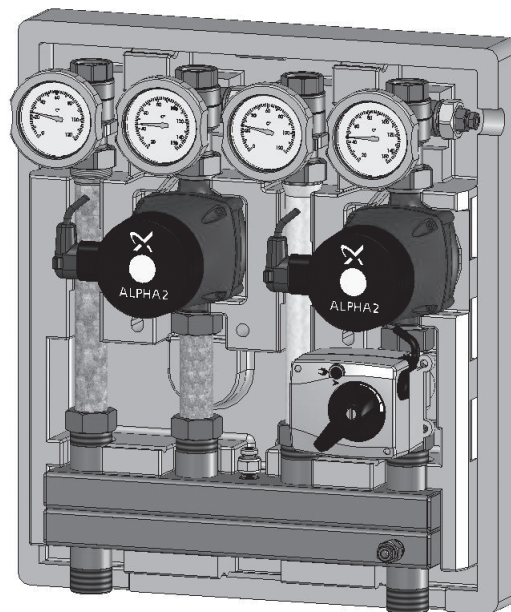


Kombimix

Technical Data for Installation and Operation



Technische Änderungen vorbehalten

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Effiziente Energietechnik

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1. Safety instructions

Read these instructions carefully before installing. The installation and initial start-up of the assembly may only be performed by an approved, specialist company. Before starting work please familiarise yourself with all the parts and their handling. The application examples in these operating instructions are basic sketches only. Local laws and regulations must be taken into account.

Target group

These instructions are intended exclusively for authorised trained experts. -Only trained experts are permitted to work on the heating system and domestic water, gas and electric circuits. Please follow these safety instructions faithfully to eliminate hazards, personal injury and material damage.



1.1 Regulations/guidelines

Observe the applicable accident prevention regulations, environmental regulations and legislation for the assembly, installation and operation of the system. In addition, observe the applicable guidelines of the DIN, EN, DVGW, VDI and VDE (including lightning protection) and all current relevant country-specific standards, laws and guidelines. All old, newly applicable and unlisted but relevant regulations and standards also apply to the respective application. In addition, observe the provisions of your local energy provider. The current valid data sheets for the components used must be observed.

Electrical connection

Electrical connection work may only be carried out by qualified electricians. The VDE guidelines and the provisions of the responsible energy utility company must be observed.

Extract

Installation and design of heat generators and domestic water heaters

- DIN 4753, Part 1: Water heaters, water heating systems and storage water heaters for drinking water.
- DIN 18 380: Installation of heating systems and central water heating systems
- DIN 18 381: Installation of gas, water and drainage pipework inside buildings.
- DIN 18 421: Insulation of service installations
- AV B W a s V: Ordinance for the general conditions of water supply
- DIN EN 806 ff.: Technical regulations for drinking water installation
- DIN 1988 ff.: Technical regulations for drinking water installation (national supplement)
- DIN EN 1717: Protection against pollution of potable water installations and general requirements of devices to prevent impurities by backflow
- Other standards: DIN EN 12828, DIN 50930, VDI 2035, DIN EN 14336

Electrical connection

- VDE 0100: Set up of electrical equipment, earthing, protective conductors, equipotential bonding conductors.
- VDE 0701: Inspection after repair, modification of electrical appliances.
- VDE 0185: Protection against lightning.
- VDE 0190: Specifications for the use of piping systems for protective measures in electric power installations.
- VDE 0855: Installation of antennae equipment (to be applied analogously).

1. Safety instructions

Additional guidelines

- VDI 6002 Sheet 1: Solar heating for domestic water- General principles, system technology and use in residential buildings
- VDI 6002 Sheet 2: Applications in student accommodation, retirement homes, hospitals, indoor swimming pools and on camping sites

WARNING:

Before carrying out any work on the pumps or control unit, these devices must be deenergised in accordance with the guidelines.



1.2 Intended use

For use in heating systems in accordance with DIN EN 12828.

Installing and operating the devices incorrectly will invalidate any warranty claims. The shut-off valves may only be closed by an authorised specialist when servicing, otherwise the safety valves will not work.

Caution:

Do not make any changes to the electrical components, the design of the system or the hydraulic components! This would adversely impact on the safe function of the system.

1.3 Initial start-up

Before the initial start-up the system should be checked for leak tightness, correct hydraulic connection and accurate and correct electrical connections. It is also necessary to flush the system thoroughly or as required. Commissioning must be performed by qualified specialist personnel and be recorded in writing. The setting values must also be recorded in writing. The technical documentation must remain with the device.

1.4 When working on the system

The system must be disconnected from the mains and monitored to ensure that no voltage is being supplied (e.g. at the separate cut-out or a main switch). Secure the system against being restarted. (With gas-fuelled systems, close the gas shut-off valve and secure it to prevent it being opened accidentally.) Repairs to components with a safety function are not permitted.

1.5 Liability

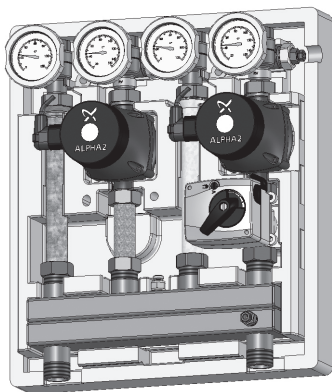
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These installation and operating instructions must be given to the customer. The technical team carrying out the work (e.g. installer) must clearly explain to the customer how the unit works and operates.

2. Devices and functional description

Functional description

This thermally insulated, compact pump group allows two heating circuits to be supplied by high-efficiency pumps via a common distribution bar. The heating circuits can be mixed (MK) or unmixed (UK). Connectors for temperature sensors are located on both the supply line and the distributor. The distribution bar can be switched from the standard to a low differential pressure distributor via a switching valve. A backflow preventer is installed in each supply line. As an optional extra, a third heating circuit can be connected, e.g. for heating domestic water.

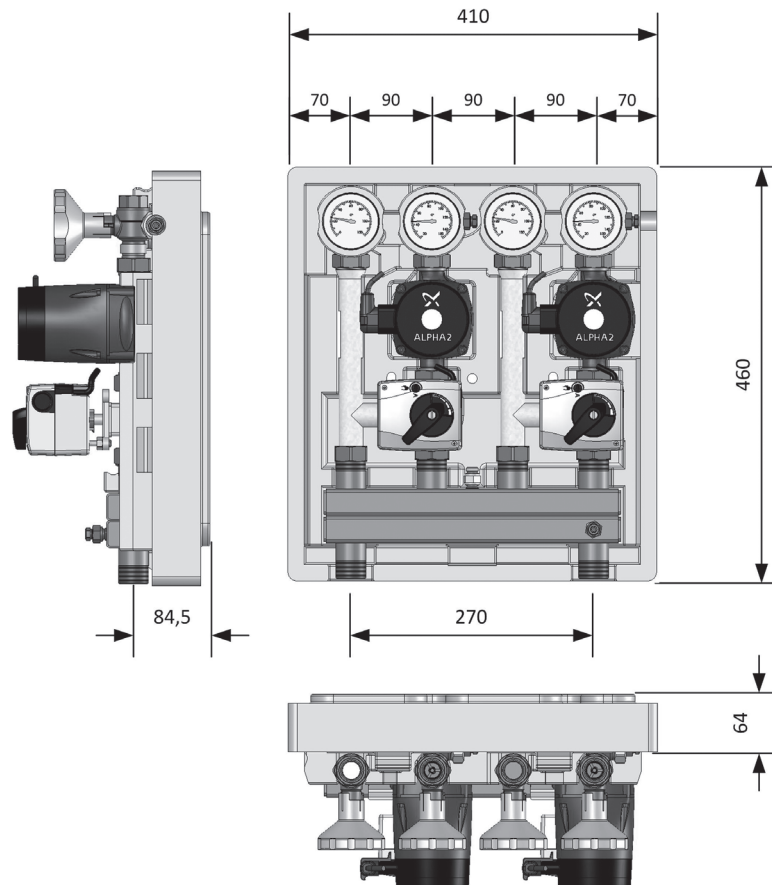


2.1 Technical data

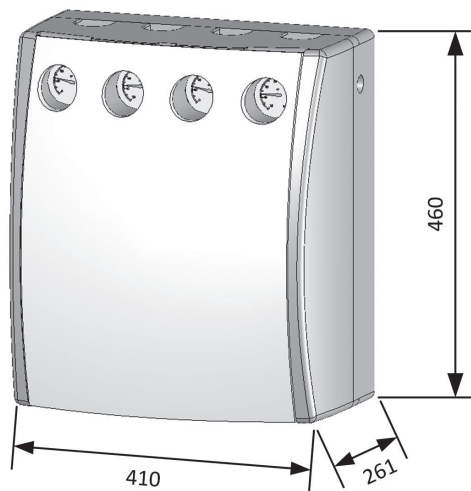
Dimension	DN 20
Outputs: Per heating circuit (mixed or unmixed)	Max. 20 kW (at $\Delta T=10\text{ K}$)
Connections: - To heating circuits - To boiler	$\frac{3}{4}$ " internal thread 1" external thread
Axial distances - To heating circuits - To boiler	90 mm 270 mm
Pump	Appropriate for the design or model
Insulating cover, external dimensions H x W x D	EPP 460 x 410 x 261 mm
Components made of	Steel, brass
Sealing material	PTFE, asbestos-free fibre sealant, EPDM
Operating temperature	Up to 110°C (observe operating temp. of the pump)
Operating pressure	PN 6

2. Devices and functional description

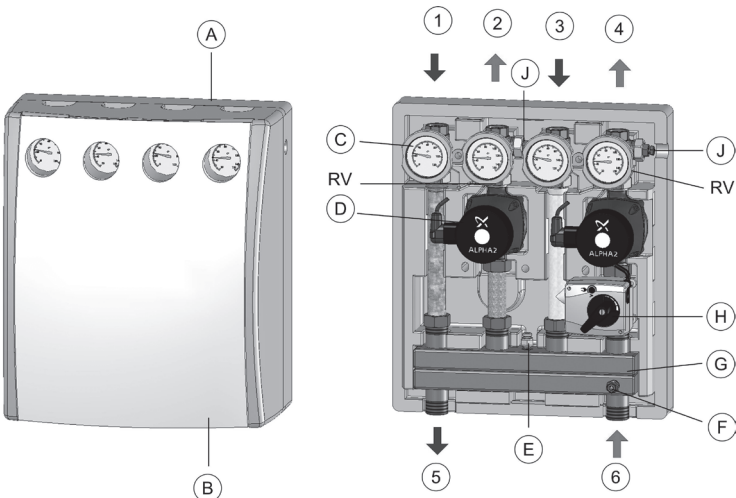
2.2 Dimensions



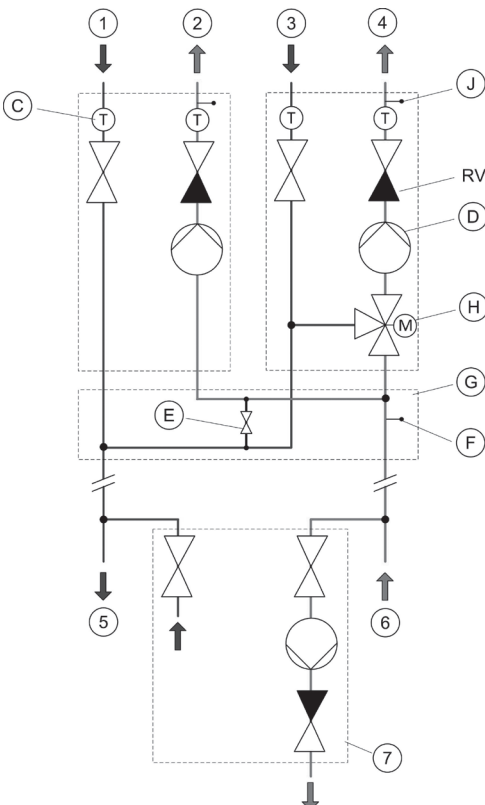
External dimensions of the thermal insulation:



2.3 Overview of components using an unmixed/mixed circuit as an example



2.4 Hydraulic diagram



2. Devices and functional description

Legend

Item	Name	Reference
1	Heating circuit 1 return line	
2	Heating circuit 1 supply line	
3	Heating circuit 2 return line	
4	Heating circuit 2 supply line	
5	Boiler return line	
6	Boiler supply line	
7	Optional pump group for third heating circuit	Unmixed circuit, e.g. for domestic water heater ^{#1}
A	Insulation - rear	
B	Insulation - front	
C	Ball valve with thermometer	
D	HE pump	if included
E	Distribution bar diverter valve	Standard / differential pressure arm ^{#2}
F	Thermowell for distribution bar supply line sensor	For 6-mm temperature sensor
G	Distribution bar	
H	Servomotor	Mixed circuit only
J	Thermowell for heating circuit supply line sensor	
RV	Backflow preventer in supply line	

#1) For heat generators with internal pump only

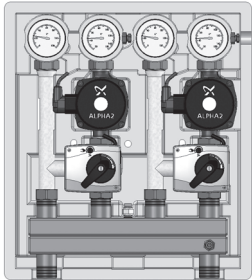
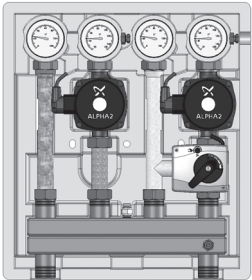
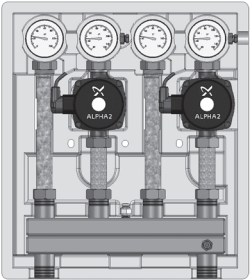
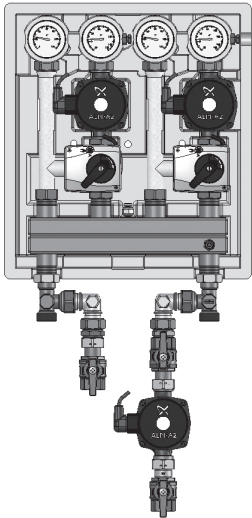
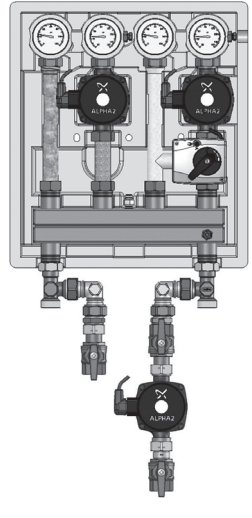
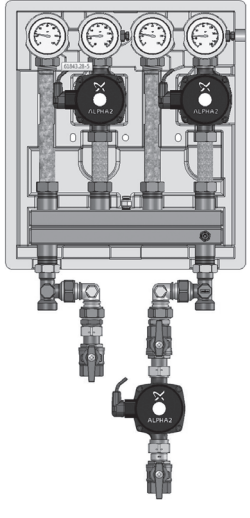
#2) See chapter 4.4

2.5 Variants

The Kombimix pump group is available in various design variants.

For example:

- Variants with unmixed/mixed circuits
- Variants with/without pumps, pump selection
- Variants with/without servomotor
- Optional accessories: additional unmixed circuit heating circuit

	Two mixed heating circuits	One mixed heating circuit and one unmixed heating circuit	Two unmixed heating circuits
Kombimix pump groups	<p>Art. No. 26101.1</p> 	<p>Art. No. 26102.1</p> 	<p>Art. No. 26103.1</p> 
With optional connector set (Art. No. 66356.86) for additional heating circuit			

3. Installation

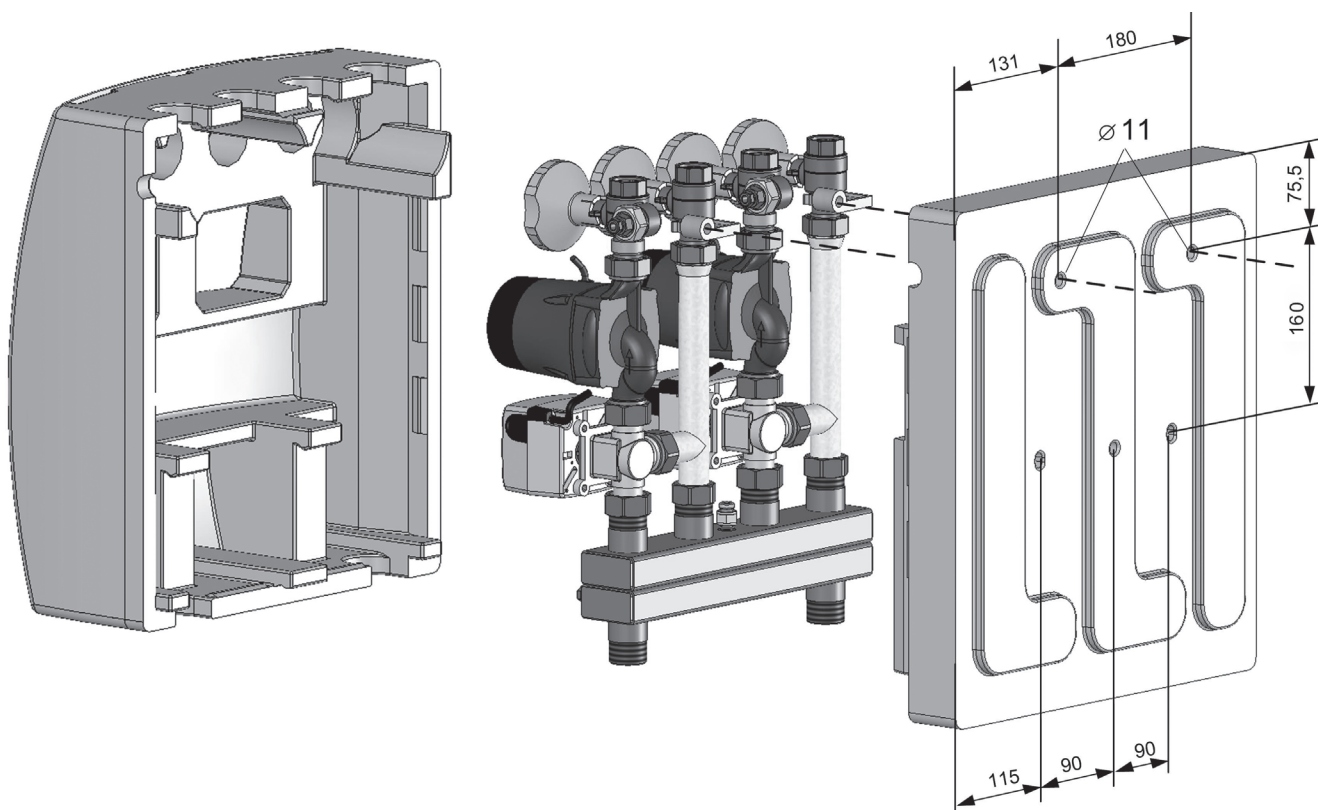
3.1 Hydraulic connections and installation examples

The following illustrations provide connection examples (in this instance with 2 mixed heating circuits- MK) for the hydraulic connections.

Components <ul style="list-style-type: none"> Two heating circuits Heat generator 	Components <ul style="list-style-type: none"> Two heating circuits Heat generator Connection set for supplying the domestic water heater via a third heating circuit
Legend <ul style="list-style-type: none"> VL Supply line RL Return line HK1 Heating circuit 1 (MK or UK) HK2 Heating circuit 2 (MK or UK) HK3 Heating circuit 3 (UK) optional - for heat generators without internal pumps only WE Heat generator KW Cold water TWW Domestic hot water 	

3.2 Installing thermal insulation

The pump groups and insulation can be mounted on a wall using two mounting holes (11 mm diameter) in the rear insulation. The lower holes in the insulation can be used for laying cables, wires and electrical connections.



4. Components

Note:

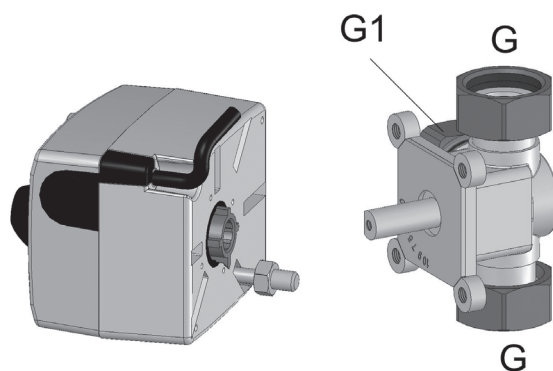
Please also comply with product-specific documentation pertaining to the pumps and servomotor!

4.1 Heating circuit pump

Please refer to the separate printed matter to determine the appropriate pump model for the Kombimix variant used.

4.2 Three-way mixing valve with servomotor

In the three-way mixing valve, the flow of the cold return line (coming from heat consumers) combines with the flow of the hot supply line (from the heat generator) to generate the desired heating circuit supply temperature. The supply temperature sensor provides the actual values for this. The controller uses the motor to move the mixer to the correct mixer position (10 positions) in order to achieve the setpoint value.



Technical data - mixing valve

Connections G and G1:	1"
Max. operating temperature:	110°C
Max. operating pressure:	10 bar

Technical data - servomotor

Electrical connection:	~50 Hz / 230 V
Power consumption:	2.5 VA
Torque:	6 Nm
Running time:	140 s/90°
Connection line:	3 x 0.5 mm
Protection class:	II
Protection code:	IP40

4.3 Ball valve with gravity break

The backflow preventers (RV) in the system are indicated separately. They are integrated in the ball valves. They are marked with "RV" on the rotating handle. The RV can be opened manually by turning the rotating handle by approx. 45° to the "end position".

Note:

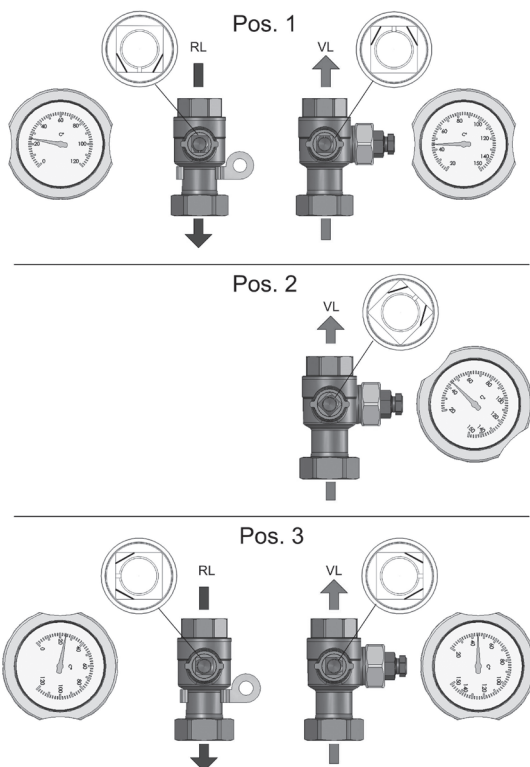
Shut-off valves must always remain open and be secured against unintentional closure. They must only be activated by qualified specialist personnel! The ball valves must be fully open in order for the system to operate.

Shut-off fittings

The shut-off fittings are fitted with integrated, manually adjustable backflow preventers. Pay careful attention to the direction of flow, otherwise the backflow preventer may work against the intended direction of flow and thus block the flow.

Ball valve settings and operating states

Pos. 1) Setting 0°;	Ball valve open;	Backflow preventer active
Pos. 2) Setting 45°;	Ball valve open;	Backflow preventer inactive
Pos. 3) Setting 90°;	Ball valve closed	



Note:

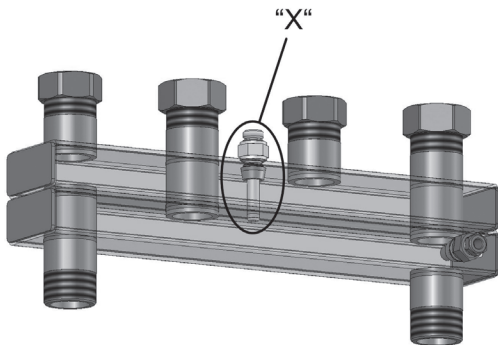
Pos. 2 may be used for flushing, bleeding and draining purposes. Grip elements can be dismantled and should be aligned according to the operating state (Pos. 1 - 3). Observe the direction of flow in the supply (VL) and return line (RL). Thermometer colour: Return line: blue/red, Supply line: red

4. Components

4.4 Diverter valve

In distribution bars, the "X" diverter valve can be used to alter the hydraulic properties of the heating circuit distributor according to the required function:

- Standard: Supply and return lines are hydraulically separated
- Low differential pressure: Supply and return lines are hydraulically connected via an opening

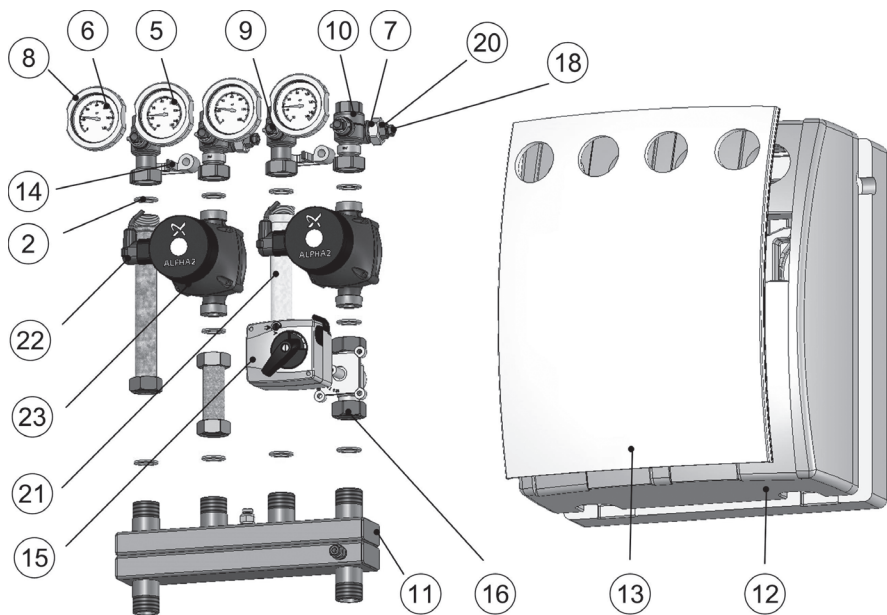


For low differential pressure installation: Disassemble valve and reassemble rotated by 180°.

Note:

For layout diagram with flow via bypass, see Chapter 6.1

5. Piece parts

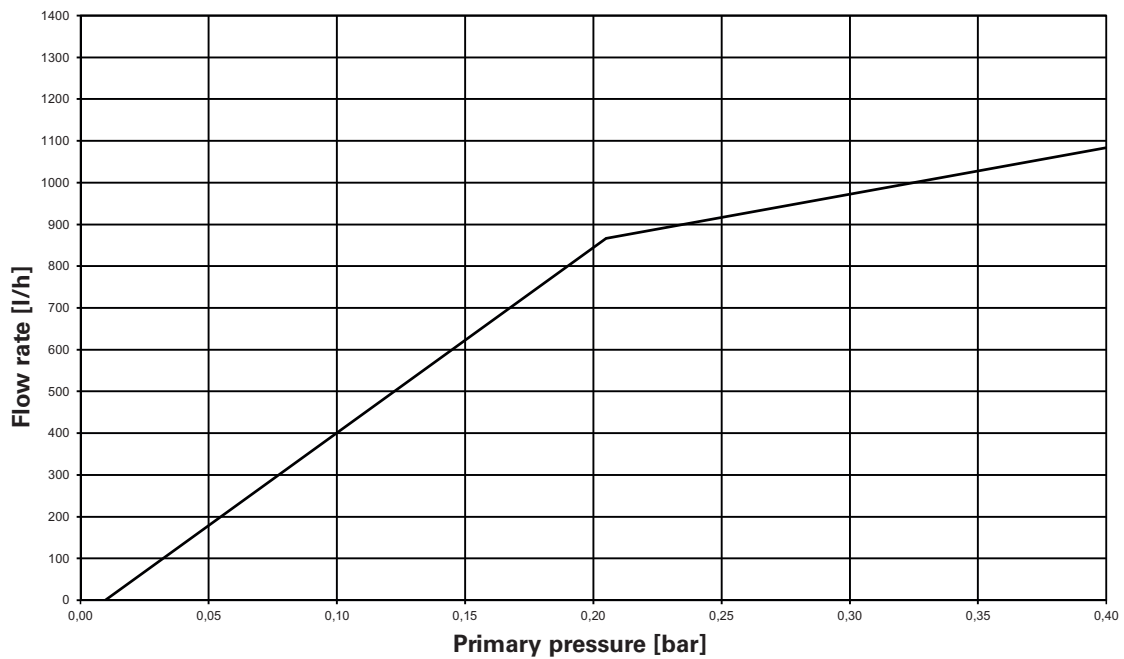


Legend

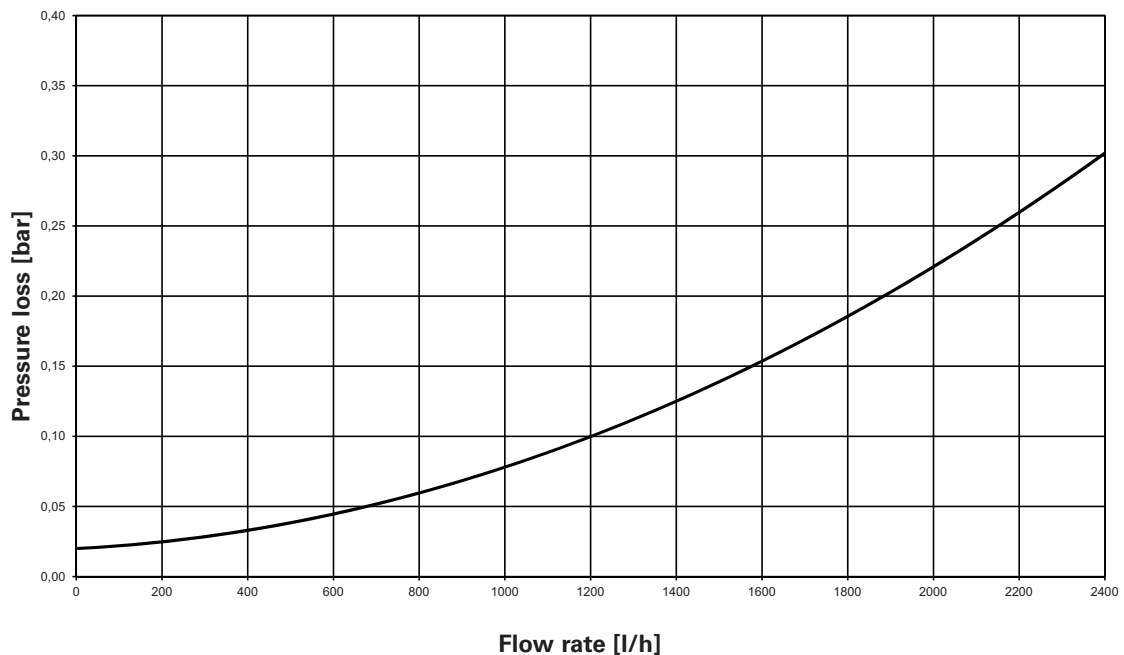
Item No.	Name
2	Seal 1"
5	Thermometer, blue 0-120
6	Thermometer, red 20-150
7	Union nut 3/4"
8	Ball valve handle
9	Ball valve 3/4"
10	Three-way ball valve 3/4"
11	Kombimix distributor
12	Thermal insulation
13	Front panel
14	Retaining clip 1x25 mm
15	Servomotor
16	Three-way mixer 1"
18	Clamping screw for thermowell
20	Thermowell 1/4" AG, L=35 mm
21	T-piece
22	Pump plug
23	Pump

6. Layout diagram

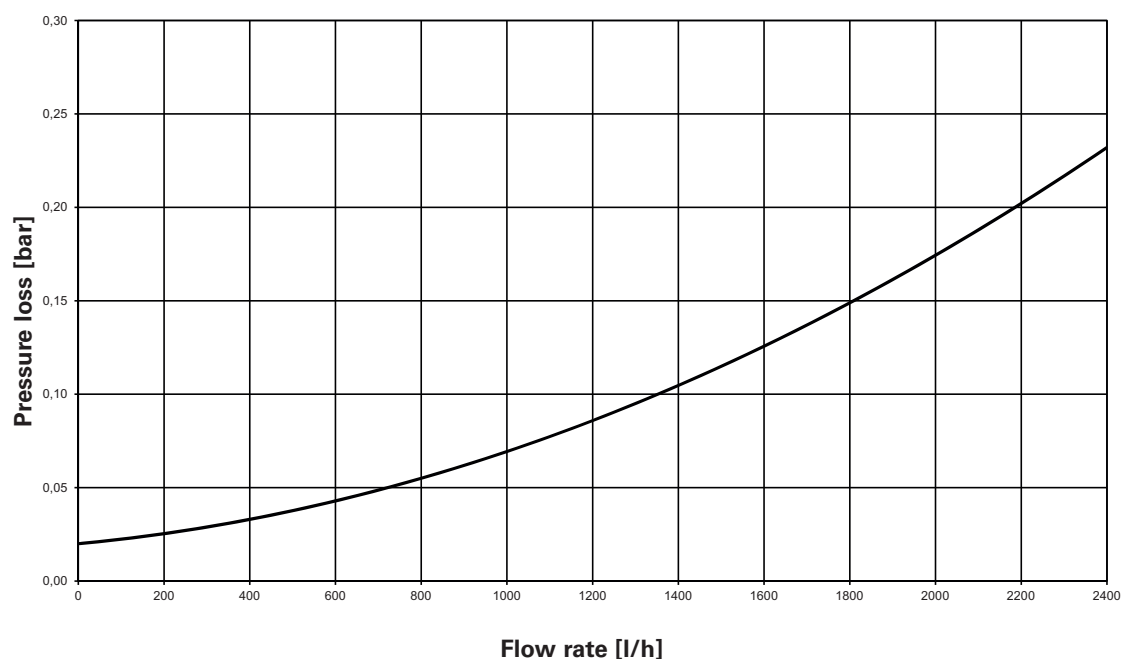
6.1 Flow via opened bypass or consumer



6.2 Flow and pressure loss: MK including distributor; bypass closed Mixer channel



6.3 Flow and pressure loss: UK including distributor; bypass closed



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