



ENG Installation / service instructions

Abbreviations

| | |
|-----------|----------------------------|
| TKM | Compact mixing circuit |
| WK | Wall-mounted boiler |
| UC | Unmixed heating circuit |
| MC | Mixed heating circuit |
| MT | Male thread |
| FT | Female thread |
| FL | Heating flow line |
| RL | Heating return line |
| UN | Union nut |
| CSA | Clamping ring screw union |
| HE | High-efficiency |
| STM | Safety temperature monitor |
| 6KT | Hexagonal |
| H x W x D | Height x width x depth |

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1. Safety instructions



Please follow these safety instructions carefully to prevent hazards and injury to persons and property.

Please follow these safety instructions carefully to prevent hazards and injury to persons and property.

These operating instructions are primarily designed for the safe use and installation of the device and make no claims to completeness.

These operating instructions describe the functionality of the device and are intended to provide information about the required safety instructions and to draw attention to possible hazards. Further technical information can be found in the other applicable documents.

These operating instructions are valid only for the described device and are not subject to the manufacturer's revision service. The sketches and drawings they contain are not suitable to scale.

- Keep the operating instructions within easy reach of all employees instructed to carry out work on the device so that they can refer to them as required.
- Keep the operating instructions in a clean, complete and legible condition throughout the entire period of use.
- Read the operating instructions before working on the device for the first time and consult them whenever uncertainties or doubts arise as to how the device should be handled.
- Should you come across any discrepancies when reading these operating instructions or should anything remain unclear, please contact the manufacturer.

Target group

These instructions are intended exclusively for authorised trained experts.

Only trained experts/installers authorised by the respective competence authority are permitted to work on heating systems, domestic water, gas and electrical circuits.

Regulations

When carrying out work, you must comply with:

- The legal regulations concerning accident prevention and legal regulations regarding environmental protection.
- The German Employer's Liability Insurance Association regulations,
- The pertinent safety requirements of DIN, EN, DVGW, TRGI, TRF and VDE,
- ÖNORM, EN, ÖVGW-TR Gas, ÖVGW-TRF and ÖVE,
- SEV, SUVA, SVGW, SVTI, SWKI and VKF
- and all current region- or country-specific regulations and standards

Instructions for working on the system

- Disconnect the system from the mains and monitor it to ensure that no voltage is being supplied (e.g. at the separate cut-out or a main switch).
- Secure the system from restarting / switching to auxiliary power supply.
- WARNING! Risk of scalding at media temperatures: $>60^{\circ}\text{C}$

Permissible mains supply and operating parameters

| | | |
|---------------------------------------|------------------------------------------------------------------------------------------|---------------------------|
| Heating side: | Max. permissible operating pressure: | 6 bar |
| | Max. permissible operating temperature: | 100°C |
| Max. permissible ambient temperature: | | 5...50°C (non-condensing) |
| Approved medium (cf. DIN EN 12828): | Heating water according to VDI 2035 (non-corrosive), not for drinking water applications | |

- The devices must be installed in enclosed, frost-free spaces
- Any noise emissions or radiant heat from the pump group must be taken into account in the choice of installation site.
- Prevent oxygen from entering the medium.
- Installation of the pump group in areas with high ambient humidity must be avoided

1.1 Intended use

1.1.1 Intended use

Pump groups are generally used to distribute heat energy from the heat generator to the heat consumers.

Pump groups may only be used for this purpose in compliance with the maintenance and operating instructions and all relevant standards and regulations. All instructions in the operating instructions must be followed and the maintenance schedule adhered to.

Any deviation from the intended use may cause unintended hazards and is fundamentally not permitted.

The components listed in the following instructions are intended for use in heating systems according to DIN EN 12828. Operation with a contaminated heat transfer medium is prohibited - this includes, among other things, foreign particles, substances that cause scaling and oxygen. The power supply for the recirculation pumps is managed on demand by an external controller - as is the control of the speed regulation.

The TKM compact pump group distributes heat especially from wall-mounted boilers and supplies mixed and unmixed heating circuits. Any additional or alternative use is not permitted and regarded as an unintended use.

Appropriate use in heating and domestic water systems must be in accordance with the applicable DIN and local standards. Installing and operating the assembly incorrectly will invalidate any warranty claims. The shut-off valves may only be closed by an approved specialist when servicing, otherwise the safety valves will not work.

The TKM compact pump group is not suitable for installation in adjacent recreation rooms or bedrooms. Care must be taken to avoid sound transmission to adjacent walls or rooms!



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

Instructions concerning the place of use:

Before using our products, they must be checked regarding their suitability for the respective application.

In particular for heating systems, please take into account the properties of the heating water in accordance with VDI 2035 to protect the heating system and, for domestic water applications, the water quality at the place of use.

Furthermore, in Germany all applicable norms, regulations and guidelines specific to the federal states must be taken into consideration, alongside the instructions in the applicable installation and operating manuals.

Further information can be found in the download section of www.flamcogroup.com.

1.1.2 Improper use

Using the device in any way that does not correspond to the intended use may be hazardous and is therefore prohibited.

In particular, the following is not allowed:

- The use of liquids other than water with the described properties
- Use of the device without prior knowledge of the operating instructions
- Use of the device without legible warning and information signs
- Use of the device in a faulty condition

1.2 Device designations

Designation: TKM compact pump group

Function: Distribution of thermal energy for the supply of heat to mixed and unmixed heating circuits

Type: Flow line temperature control of the mixing circuit with thermostatic valve or with various servomotors

Manufacturer: Meibes System-Technik GmbH, Gerichshain

1.3 Information on hazards



The safety and warning information draws attention to residual hazards that cannot be avoided due to the design and construction of the device. Please always observe the measures shown for avoiding these hazards.

Never alter or modify the pump group by yourself. Such work may only be carried out by **trained, specialist personnel**. This also applies to the electrical installation.

When the system is in operation, water-regulating components will be hot. Touching these system components can lead to scalding. The interface station and its heat-carrying components must be operated with permanent thermal insulation. This thermal insulation not only prevents unnecessary thermal dissipation, but also protects against accidental contact and burns. The insulation may only be removed for maintenance/repair purposes and must be properly replaced immediately after completion.

The system is operated using hot, high-pressure water, which can cause scalding on contact. You should therefore open the bleed or drain valves carefully and not work on pressurised parts.

The control components (controller, servomotors, pumps, etc.) are powered by mains voltage.

Therefore, always ensure the station is disconnected from the mains electrical supply when carrying out any maintenance or repair work. Secure the system against unauthorised operation.

Life-threatening electric shocks can be caused by spraying or splashing water. Escaping water may also disable the safety devices.

Any changes made to the pump group that have not been authorised by the manufacturer will invalidate any warranty claims.

Residual hazards

The device has been built in accordance with the most relevant and recognised safety regulations. The following residual hazards may arise during installation, commissioning, maintenance and disassembly:

Warning: Risk of scalding from high media temperature

- Work with particular caution.
- Use personal protective equipment PPE (e.g. heat-resistant protective gloves).
- If necessary, the surface temperature must be measured before commencing any work.
- Use only designated and appropriate tools.

Hazard: Risk of injury from electrical voltage

- Only instructed, qualified electricians are permitted to work on electrical equipment.
- Electrical installation spaces must always be kept locked.

Warning: Risk of cuts and scratches due to the possibility of sharp edges

- Work with particular caution.
- Use personal protective equipment PPE (e.g. protective gloves).

Warning: there is a risk of impact/crushing if the pump group falls over

- Wear personal protective equipment PPE (such as protective work shoes).

1.4 What to do in the event of breakdown or leaks

- Close any media lines using the appropriate valve.
- Contact a suitably trained expert or the customer service department of the manufacturer.

The device will only be cleared for operation again when the trained engineer has remedied the fault and restored the device to its intended condition.

1.5 Spare parts

All spare parts to be used, must correspond to the technical requirements defined by Meibes System-Technik GmbH. This is guaranteed only by using genuine spare parts. The manufacturer is not liable for damage caused by the use of unapproved spare parts or ancillary materials.

Appropriate spare parts can be found in our documentation.

1.6 Requirements on trained engineers

A qualified professional must have undergone advanced technical training and have sufficient experience to independently perform complicated tasks or work associated with residual hazards. Each experience refers to a certain speciality, e.g. Maintenance, Electrical and/or HVAC Technician. In preparation for impending work, a qualified professional must be able to correctly estimate the feasibility, risks and hazards of the work as well as the equipment required. A qualified professional is expected to understand complex plans and descriptions of minimum preparation, and to obtain missing and required detailed information by suitable means.

The qualified professional must be able to restore and verify the intended/original state of the system. A worker can be a trained expert in several fields. For the performance of electrical works, only trained electricians according to DGUV Regulation 3 may be used.

1.7 Liability and copyrights

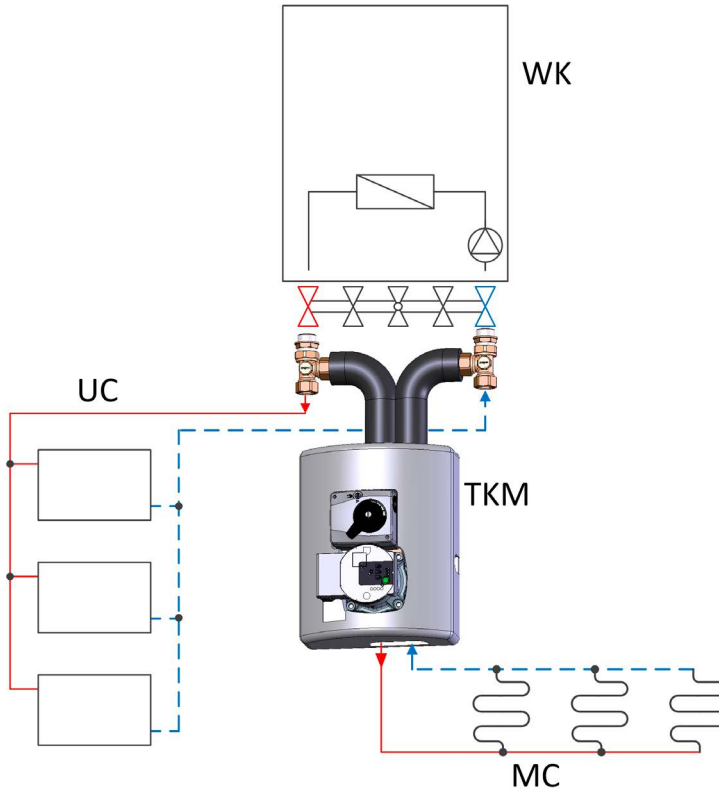
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This original operating manual may not be reproduced or distributed, either in part or in its entirety, without the express permission of the manufacturer. This also applies to translations of this document and storage on other media. This document must not be used outside its intended purpose.

These installation and operating instructions must be given to the customer. The technician carrying out and/or authorising the work (e.g. installer) must explain the function and operation of the system to the customer in a comprehensible way.

2. Functional descriptions of the TKM

System example:



2.1 Description

The brass TKM compact block is a mixed pump group designed for direct connection to a wall-mounted boiler for the distribution of heat with the following properties:

- Possible variant with thermostatic valve or with various servomotors (3-point control)
- With integrated primary and secondary bypass (adjustable)
- Immersion sleeve for mounting the flow line temperature sensor
- HE pump with connecting plug
- Venting stoppers, sealing set, wall bracket and EPP thermal insulation shells
- Pump group fully pre-installed and checked for leaks
- Connection set (included in the scope of supply) for installation below the wall-mounted boiler (WK) comprising:
 - Two T-pieces, also allowing the connection of an unmixed heating circuit (UC), as well as two flexible connecting pipes made of stainless steel.
- Safety temperature monitor and flow rate limiter available as optional accessories

2.2 Technical data

| | |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Connectable heat generator (wall-mounted boiler) with a heating capacity up to: | 17 kW (where $\Delta T = 10 \text{ K}$, $\Delta p = 0.2 \text{ bar}$) |
| Max. positive operating pressure | 6 bar |
| Max. operating temperature | 100°C |
| Kvs value | 2.8 m ³ /h |
| Dimensions (TKM basic design) HxWxD | Approx. 280x225x155 mm |
| Axial distance (FL/RL) | 42 mm |
| Top connection (heat generator) WK | ¾" MT |
| Bottom connection (mixed HC) MC | ¾" MT Euro cone |
| Connection (unmixed HC) UC | 22 mm clamping ring screw union (via T-pieces) |
| Components are made of: | steel, brass, sealing materials: EPDM O-ring, thermal insulation: EPP (with fire protection class B2 - normal flammability) |

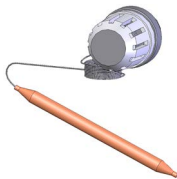
Warning!


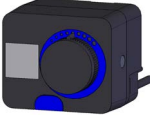

When using the TKM basic version at operating temperatures (primary side) above 55°C, the TKM safety module is required as an optional accessory (see Section 3.7.1).

Note

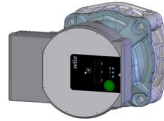
To regulate the required flow rates in combination with various heating circuits (MC/UC), an optional installation kit with two flow rate limiters plus display is available (see Section 3.7.2).

2.3 TKM variants

| Mode of operation | TKM variant with the following main components | Controller Fig. (Spare part No.) | TKM pump group Art. No. |
|------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------|
| Thermostatic injection valve | Thermostatic head with remote sensor, adjustment range 25 ... 50°C (see Section 3.6.1) |  ME-80580.14 | M27409.6 |

| | | | |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------|
| Electrical 3-point mixing circuit control, 230V AC, 50 Hz (see corresponding manufacturer specifications) | Servomotor, 6 Nm, running time: 140s 90°, with manual adjustment option |  ME-66341.5 | M27401.7 |
| | Servomotor with temperature control, type MeiFlow fixed-value controller MFR3 with FL temperature sensor |  M66341.37 | M27401.5 |
| | Servomotor with weather-controlled controller, type MeiFlow MWR3 with FL and outside temperature sensor |  M66341.12 | M27401.6 |

All variants are equipped with a HE pump, type Wilo Para HU 15/6-43/SC-3 (for further information on the heating circuit pump, see Section 2.4).

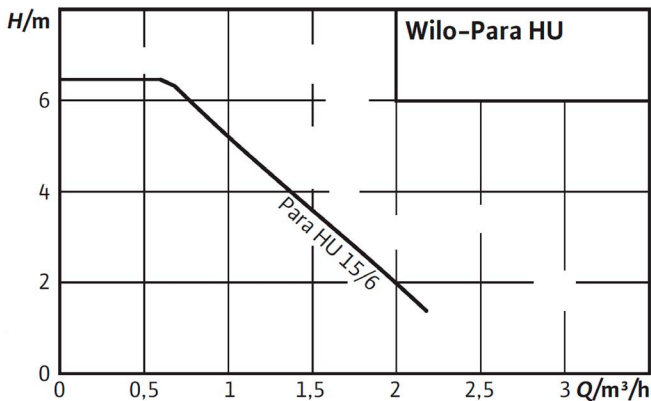


ME-26900.010

Note

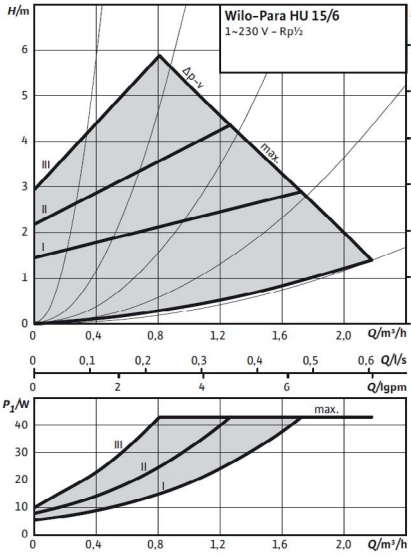
Please also see the separate instructions and manufacturer specifications for the HE pump, thermostatic head and/or the servomotor used when carrying out installation, commissioning and maintenance / service.

2.4 Recirculation pump, type Wilo-Para HU 15/6-43/SC-3

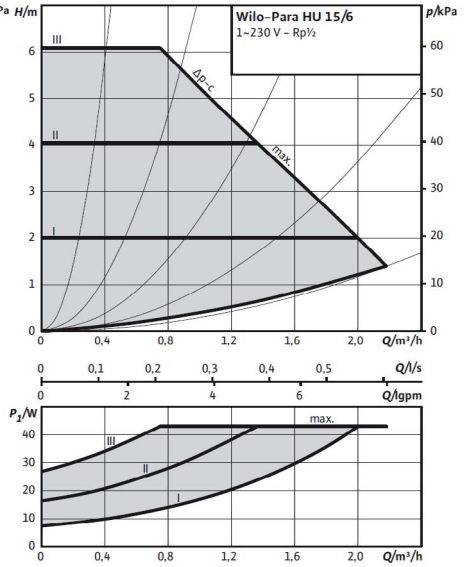


Pump characteristic curves and dimensions:

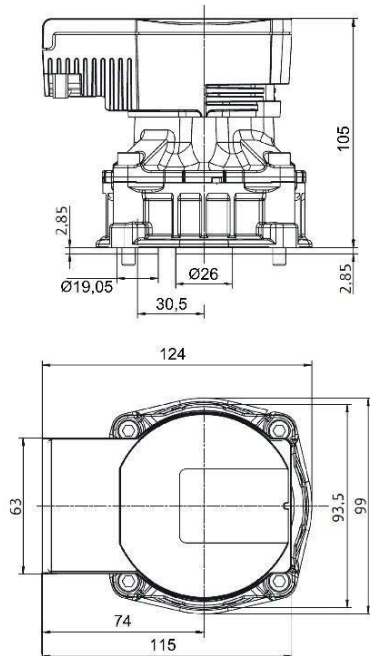
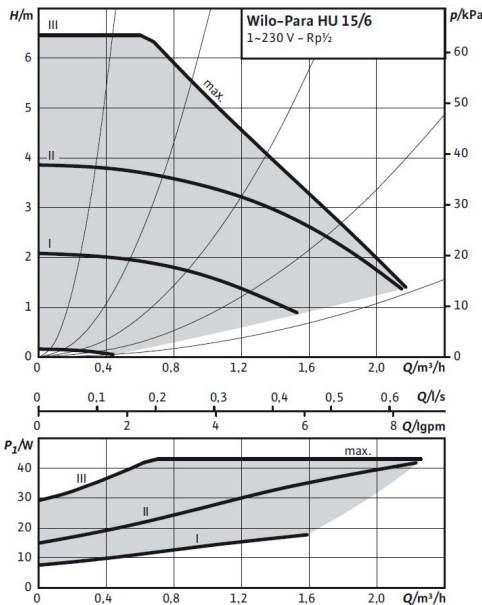
$\Delta p-v$ (variable)



$\Delta p-c$ (constant)



Constant speed I, II, III



Technical data for the pump:

High-efficiency pump for heating applications, type Wilo-Para HU 15/6-43/SC-3

| DN | Head height where $Q=0 \text{ m}^3/\text{h}$ | Speed | EEl | Power consumption 1~230V | Electricity At 1~230V | Motor protection |
|----|-------------------------------------------------|-------------|------------|-----------------------------|--------------------------|---------------------|
| | [m] | n [rpm] | | P1 (W) | I [A] | |
| 15 | 6.5 | 2430...4300 | ≤ 0.2 | 3...43 | 0.04...0.44 | Integrated |

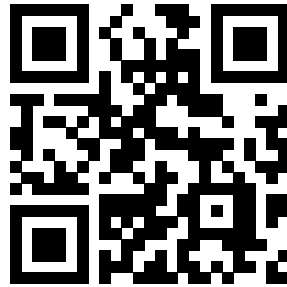
Further information about the heating circuit pump can be found via the pump manufacturer's external link below:

<http://www.wilo-oem.com>

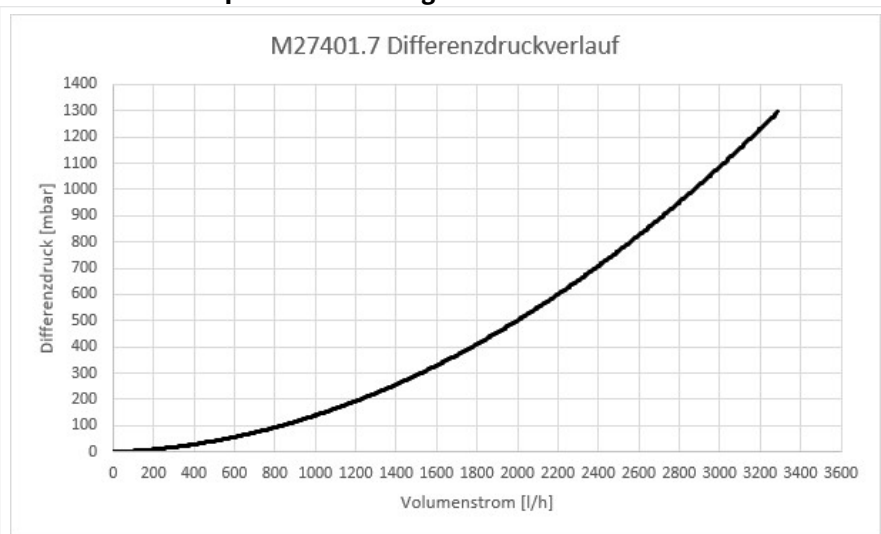


Note:

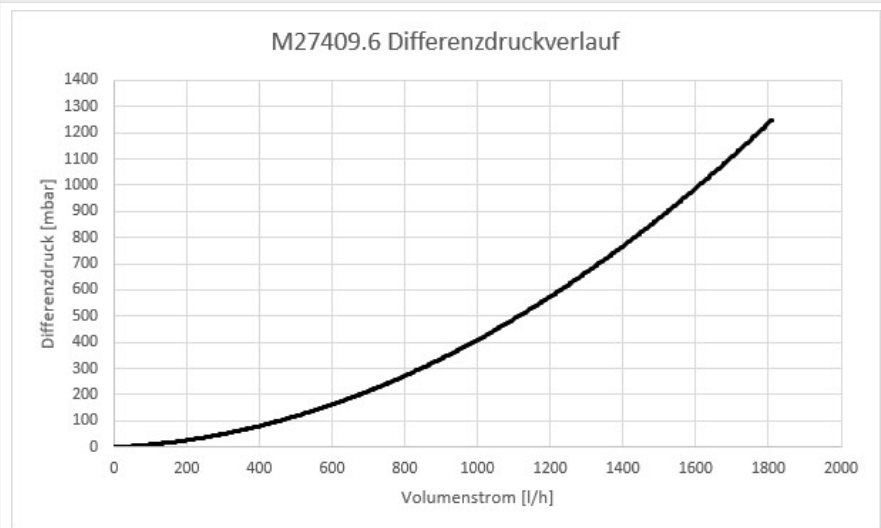
This link (via QR code) can also be found on the pump head.



2.5 TKM flow and pressure loss diagrams



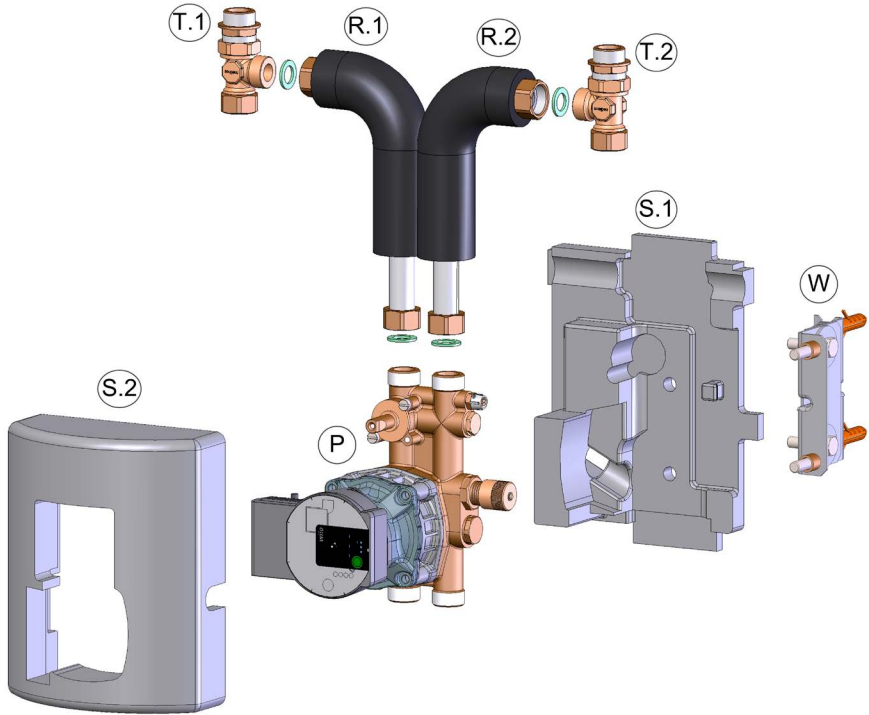
- A) TKM
- B) Pressure loss [mbar]
- C) Flow rate [l/h]



- A) TKM with thermostatic head
- B) Pressure loss [mbar]
- C) Flow rate [l/h]

3. Structure, components and setting options

3.1 Scope of supply and summary of the TKM structure

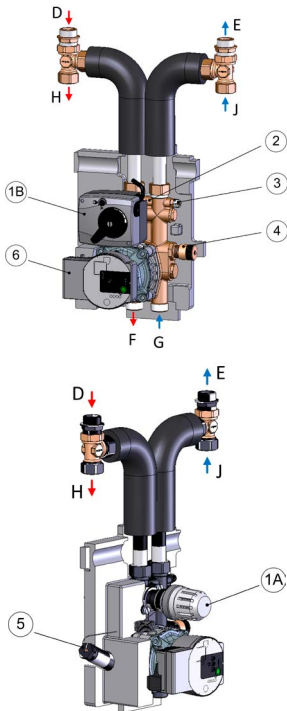


Legend

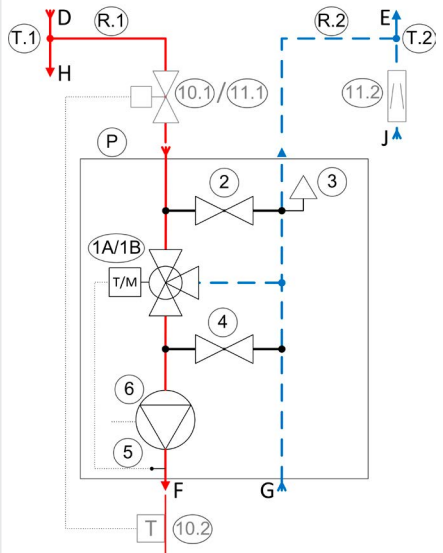
| Item | Component | Notes |
|--------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| P | Pump group compact mixing circuit | Brass compact block with various components |
| R.1 | FL connecting pipe | Stainless steel corrugated tubes with thermal insulation, DN 16, each 2 x ¾" union nut with FT (see Section 4.2) |
| R.2 | RL connecting pipe | |
| S.1 | Rear thermal insulation shell | Material: EPP |
| See 2 | Front thermal insulation shell, correspondingly with separate insert (according to variant) | |
| T.1 | T-piece for FL | ¾" MT x 22 mm clamping ring screw union (see Section 3.3) |
| T.2 | T-piece for RL | |
| W | Wall bracket | Contains: Bracket plates W1, W2, screws, washers, sleeves, nuts and dowels (see Section 4.1) |

3.2 Components and connections

Figures



Visual representation

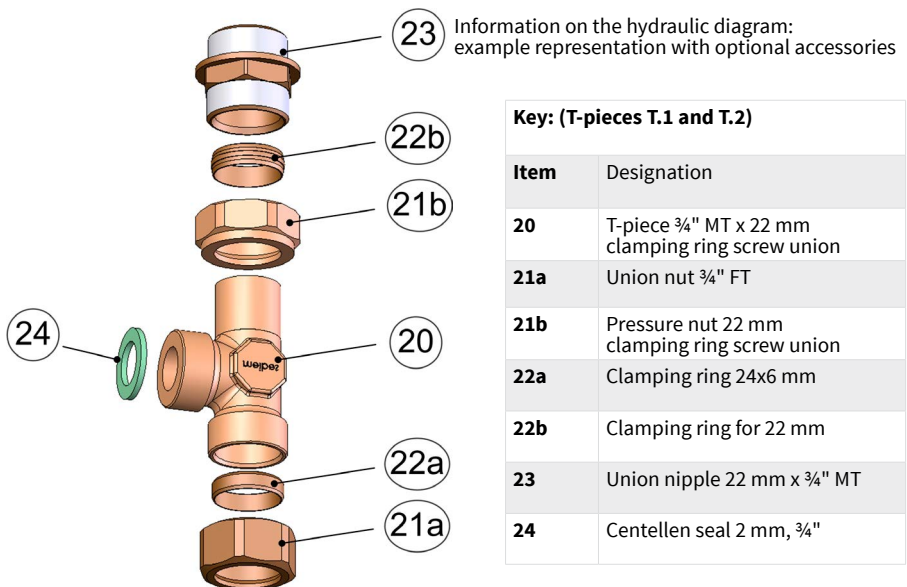


Legend

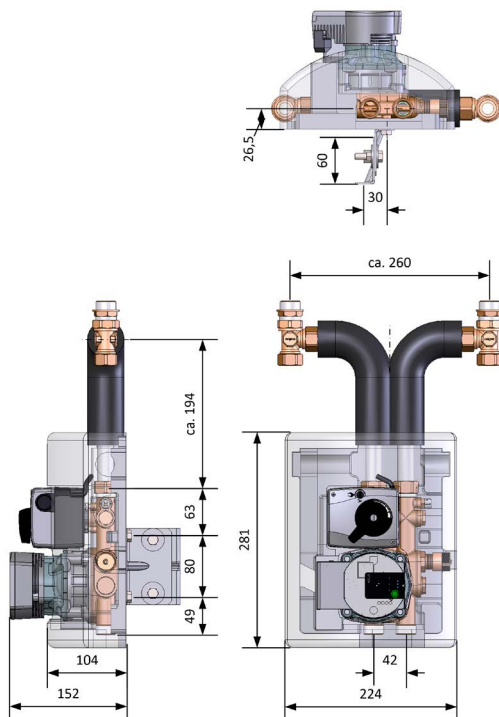
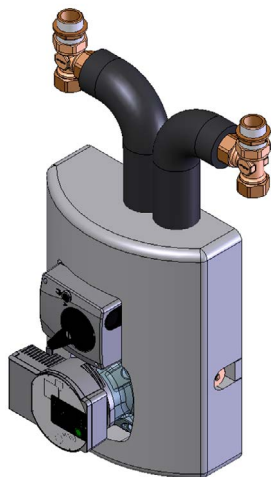
| Item | Component | Notes |
|------|-----------------------------------------------------------|------------------------------------------------------------------------------------|
| 1 A | Thermostatic head with immersion sensor | FL temperature adjustment range approx. 25 ... 50°C |
| 1 B | Electronic (3-point) servomotor 230V, AC 50 Hz | Depending on variant: controlled with FL temperature or outside temperature sensor |
| 2 | Primary bypass | For low differential pressure mixing circuit |
| 3 | Ventilation plugs 1/8" | |
| 4 | Secondary bypass | Continuously adjustable |
| 5 | immersion sleeve for FL temperature sensor | |
| 6 | High-efficiency heating circuit pump with connecting plug | |

| | | | |
|-----------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------|
| 10.1 | Valve ¾" with thermal actuator 230V (NC) 90N | Safety module as optional accessory | |
| 10.2 | Mounted thermostat 16 (2.5) A/230V, adjustable internally 20 ... 90°C, as STM for FL temperature | | |
| 11.1, 11.2 | DN15 balancing valve for flow display 2 ... 8 L/min, note: be aware of the direction of flow! | 2 units (for FL and RL) in the set with connecting pipe as optional accessory | |
| Connections: | | | |
| D | Heating supply from heat generator | WK | ¾" MT |
| E | Heating return to heat generator | | |
| F | Heating supply to the mixed heating circuit | MC | ¾" MT Euro cone |
| G | Heating return from the mixed heating circuit | | |
| H | Heating supply to the unmixed heating circuit | UC | 22 mm clamping ring screw union |
| J | Heating return from the unmixed heating circuit | | |

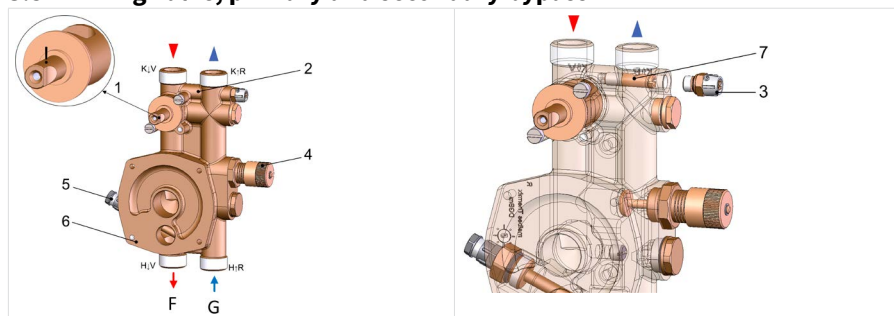
3.3 Setup and connections of the T-pieces



3.4 Dimensions



3.5 Mixing valve, primary and secondary bypass



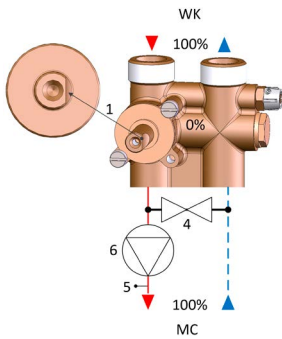
Key:

- 1) Shaft of the mixing valve for servomotor variants (note: their flattening indicates the closed path!)
- 2) Primary bypass
- 3) Ventilation stoppers
- 4) Secondary bypass
- 5) Immersion sleeve for flow line temperature sensor
- 6) High-efficiency pump
- 7) Threaded pin (primary bypass)

F) Heating supply for mixed heating circuit
 G) Heating return for mixed heating circuit

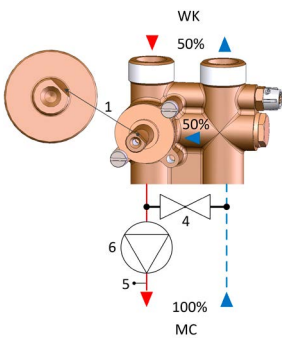
3.5.1 Examples of shaft positions on the servomotor mixing valve

Open, no RL mixing

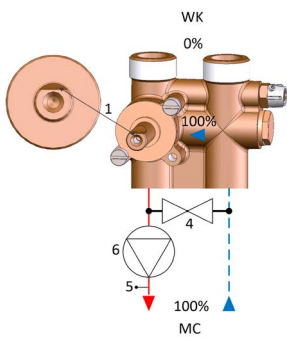


Note: Factory setting of the mixer: Open position

50% open, 50% RL mixing



Closed, 100% RL mixing



3.5.2 Primary bypass (for all variants)

The primary bypass (item 2) is non-functioning in its delivered state. Activation is only recommended in the case of TKMs with mixer and high FL temperatures.

To commission:

- Unscrew the ventilation stoppers (item 3) (using a size 13 open-ended wrench)
- Unscrew the threaded pin (item 7) (using a 3 mm hexagon socket wrench)
- Screw the ventilation stoppers (item 3) back in

3.5.3 Secondary bypass (for all variants)

The bypass (item 4) is set to closed at the factory.

- The settings allow constant pre-mixing.
- The settings can be found in the following table (open by rotating to the left):

| Opening the bypass (rotations) | 0 | 0.5 | 1 | 1.5 | 2 | 3 | 4 | 5 | 6 |
|--------------------------------|----|-----|-----|-----|-----|-----|-----|-----|------|
| Flow rate | 0% | 30% | 44% | 71% | 82% | 92% | 96% | 98% | 100% |

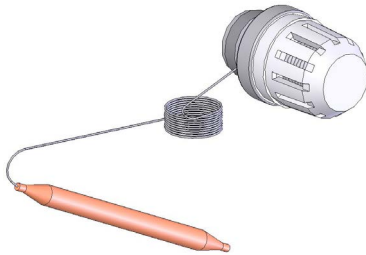
3.6 Settings for the different variants

Note:

For the HE pump (item 6), please also consult the separate instructions and latest manufacturer specifications (see Section 2.4).

3.6.1 Mixing circuit with thermostatic temperature control and remote sensor

The settings for the thermostatic head (item 1A):

| | | |
|-------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------|
|  | Thermostatic head setting | approx. flow temperature in [°C] of the mixed heating circuit |
| | * | approx. 25 |
| | 1 | approx. 30 |
| | 2 | approx. 35 |
| | 3 | approx. 40 |
| | 4 | approx. 45 |
| 5 | approx. 50 | |

Warning!

The primary bypass must remain closed to function correctly (as a thermostatically controlled injection valve).

3.6.2 Mixing circuit with electronic temperature control

Note:

For the TKM variants with electronic servomotor (item 1B), please be aware of the separate instructions and current manufacturer specifications.

3.7 Optional accessories

Note

When installing the individual components, the directions of flow must be noted!
(for further details and key, see also Section 3.1 to 3.4)

3.7.1 TKM safety module for installation in the FL

STM function:

The TKM safety module prevents a prohibited temperature increase in the mixed heating circuit (MC) in the event of a fault. If the temperature set on the temperature monitor (10.2) is exceeded, the valve (10.1) integrated into the flow line closes and the hot water inlet from the wall-mounted boiler (WK) to the mixed heating circuit is interrupted.

Components:

(10.1)

Straight-way valve with thermally-activated setting attachment, closed when currentless

- Voltage: 230 V AC / DC
- Protection code: IP 43
- Protection class: insulated

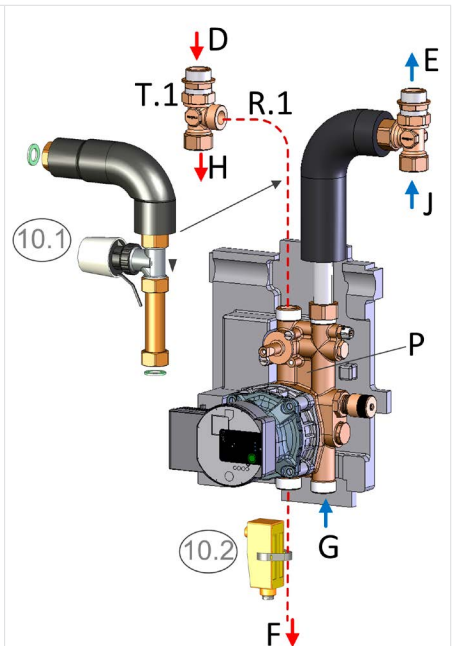
(10.2)

Bimetallic contact thermostat for attaching on pipe (up to 2") using tension strap, toggle function (changer)

- Adjustable: 20...90 °C
- Switching load: 16 (2.5) A, 250 V
- Temperature gradient: ≤ 1 K/min
- Protection code: IP 20
- Dimensions: 112 x 46 x 55 mm
- Cable grommet: M20 x 1.5

Note:

Regarding the electrical connection, see also Section 4.3 and please also note the separate instructions and manufacturer specifications for the valve and thermostat



(Art. No. M27410.6)

3.7.2 Flow rate limiter with display

Components:

(11.1), (11.2)

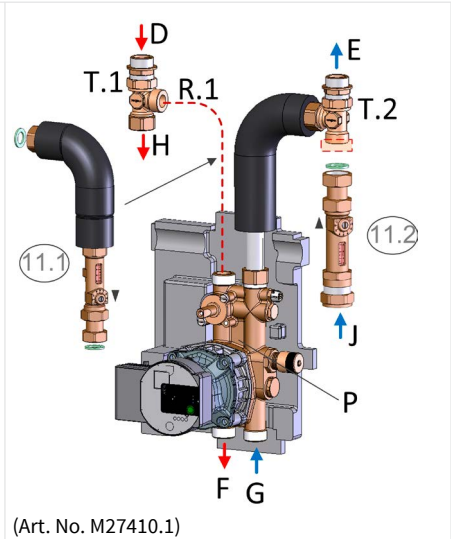
Installation set consists of: 2 flow rate limiters (2 ... 8 L/min) with 3/4" FT union nut screw fittings, seals and flexible connecting pipe

Installation instructions:

When using the flow rate limiter installation set, the FL connecting pipe (R.1) must be swapped for a flow rate limiter with connecting pipe (11.1). Connect this to the TKM with a flat seal and screw it tight. On the RL T-piece (T.2), remove the lower clamping ring screw union (union nut and clamping ring) from the T-piece (see Section 3.3). Insert an additional press-in bushing and connect the second flow rate limiter (11.2) with a flat seal to the T-piece (T.2).

Warning:

Note the directions of flow in each case!



Note

To set flow rates for the hydraulic balancing between the MC/UC, see Section 5.3.

4. Installation

General assembly instructions:

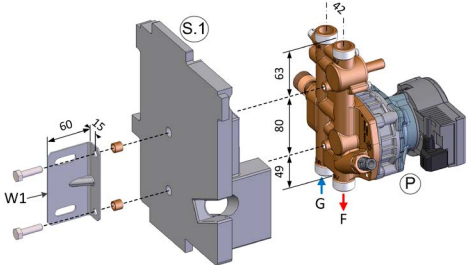
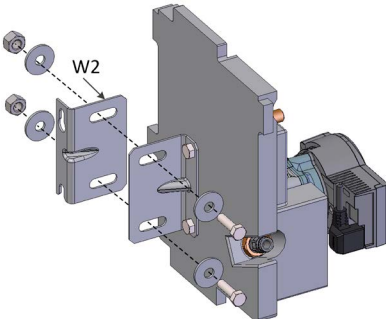
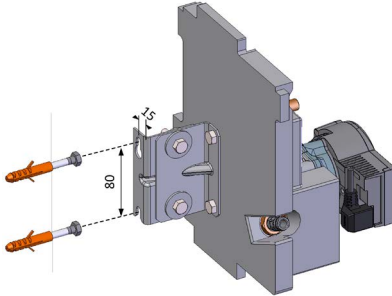
- Provide sufficient space for installation, commissioning, maintenance and service
- Tighten all screw fittings if necessary during a pressure test or following the initial heating

General instructions for protecting the recirculation pump:

(When installing the pump group, the instructions from the pump manufacturer must also be followed)

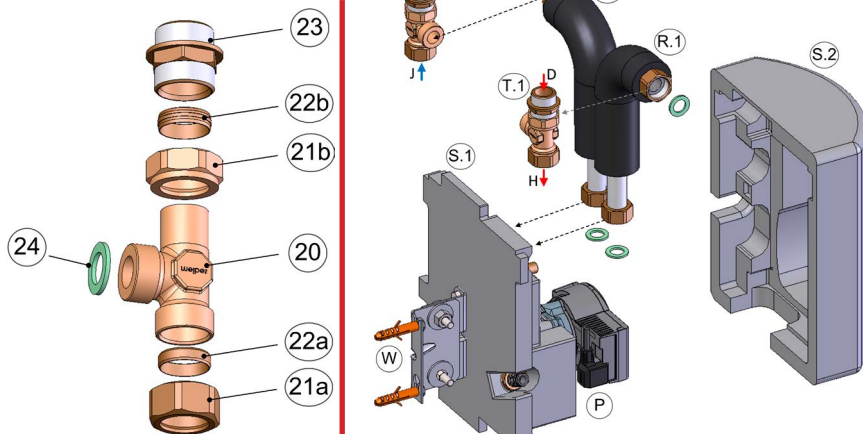
- Only install a pump shaft horizontally
- Note the minimum head height (to avoid cavitation): e.g. 0.5/4.5 m at 50/95°C
- Only operate the pump when filled and bled
- Do not additionally insulate electrical connection boxes since the pump electronics must be kept cool.

4.1 Installation steps for wall mounting

| | | |
|---|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 |  | <p>Attach the angled bracket (W1) on the TKM (S.1 and P) from the rear using two 6KT screws (M8x20). You must use the two spacer sleeves supplied (with L=10, Di=9, Da=12 mm) for this. (See 1st Fig.)</p> |
| 2 |  | <p>Connect the angled bracket with keyhole opening (W2) to the angled bracket already on the TKM (W1) twice using screws (M10x20), 2 x washers and nuts, align them and screw them tight.</p> |
| 3 |  | <p>After installing the two angled brackets, the TKM can be hung on two screws on a stable and load-bearing wall. To do this, the two dowels (10x50 mm) and 6KT wood screws (8x50 mm) included in the scope of supply can be used, for example. Then tighten the screws.</p> |

4.2 Installation steps for connecting pipes

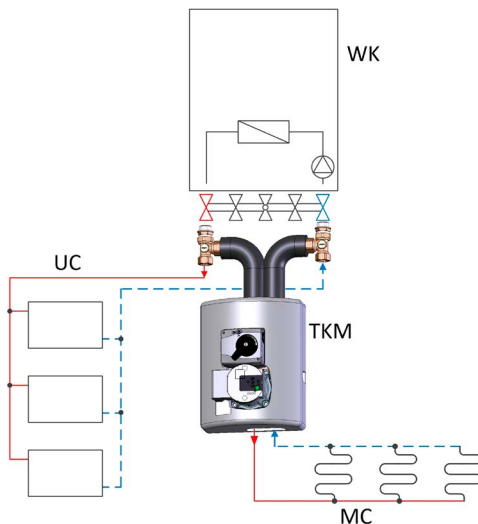
Detailed illustration for connecting the T-pieces (T.1, T.2):



Key to the T-pieces: see also Section 3.3

When installing the TKM under a wall-mounted boiler, the following steps must be carried out to attach the connecting pipes:

1. Seal the union nipple (23) into the corresponding shut-off valves of the wall-mounted boiler (WK).
2. Insert the T-piece (20) into the union nipple (23) and gently clamp it shut.
3. Drill the wall holes (W) as shown (see Section 4.1).
4. Remove the TKM from the thermal insulation shells (S.1, S.2) and first connect the connecting pipes (R.1, R.2) at the top (connections to the wall-mounted boiler) to the TKM compact block (P) with a flat seal and screw them tight.
5. Attach the wall bracket (W) as described in Section 4.1.
6. Bend the connecting pipes into the desired position and connect them to the appropriate T-piece (T.1, T.2) with a flat seal.
7. Tighten all connections.
8. Before attaching the front thermal insulation shell (S.2), cut out the pre-punched intended break points (especially for the connecting pipes). If necessary, make subsequent openings for electrical cable grommets.



4.3 Electrical connection

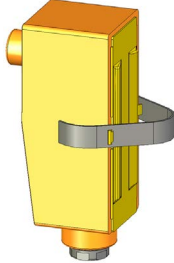
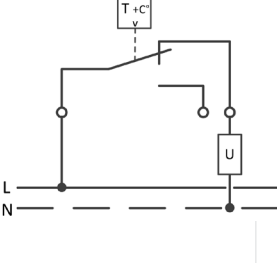
Electrical connection work may only be carried out by qualified electricians. The VDE guidelines and the provisions of the responsible energy utility company must be observed. The separate manufacturer's instructions and notes should be observed. Connect the recirculation pump and if necessary the mixer servomotor properly to the power supply.

Note: The pump must only be operated on demand, with it usually being controlled via the boiler control unit.

Information on the optional STM (see Section 3.7.1):

If the primary temperature is expected to exceed 55°C, the temperature controller for maximum temperature limitation must be installed properly at least 1m after the mixer and the heating circuit pump in the direction of flow on a piece of pipe with good thermal conductivity and connected electrically.

Installation steps for a contact thermostat (Art. No.: M45160.01) as the STM:

| | | |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|  | <ol style="list-style-type: none">1. Use the tightening strap to fasten the contact thermostat to the FL pipe MC so that it guarantees a good contact for heat transfer.2. After loosening the bolts, remove the cover.3. Make the electrical connection.4. Fix the cable to the strain relief clamp.5. Fit the cover and fasten with the bolts. |  |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|

5. Commissioning

Before using our products, they must be checked for suitability for the respective planned application. Further information can be found in the "Docfinder" area at: www.flamcogroup.com

After installation or maintenance work and before commissioning, all media lines must be connected according to the existing plans and the intended condition must be established. Ensure that all materials, tools and other equipment required for the execution of the work have been removed from the device's working area.

5.1 Flushing and filling

Note for the installer

Heating systems must be flushed before commissioning in accordance with local regulations, such as DIN EN 14336, VOB ATV C DIN 18380 or VDI 2035. After the system has been filled for the first time, the recirculation pump must be left to run for about 1 hour before it can be switched off for a longer period.

Before filling, the system must be flushed carefully

All connections must be checked and re-tightened if necessary.

Ensure all threaded joints are locked tight.

Once the system has been filled, bleed the station and refill the heating system as required.

5.2 Commissioning

Only commission the station once it has been flushed, filled and a pressure test carried out.

All heating and domestic hot water installation work must be complete.

Vent the system every so often during the station commissioning process.

Commissioning must be carried out by a trained expert and the settings must be recorded in a log (for subsequent maintenance work).

The actuators must be connected to the power supply at all times when the system is full, especially for the pumps.

The following requirements must be met for successful commissioning:

- All components of the system are installed and assembled.
- The entire system is leak free.
- All necessary electrical connections have been made.

5.3 Setting the flow rates for MC/UC hydraulic balancing

Prerequisite for the pre-adjustment of both flow rates:

1. All valves on the radiators and e.g. underfloor heating must be set to maximum throughput.
2. The mixer in the TKM is fully open (no mixing), the bypass is closed (see Section 3.5).
3. The pump in the TKM is switched on.
4. The wall-mounted boiler is operational.

the required flow rates for the unmixed and mixed circuit, as well as the required pump output on the boiler and TKM pump can be taken from the heat demand, e.g. from the planning instructions.

The flow rates at the individual flow meters (see Section 3.7.2) are set as follows:

1. Set the desired pump phases on the boiler and TKM pump.
2. Set the determined flow rate for the underfloor heating with the balancing valve.
3. Carry out fine adjustment using both balancing valves until the required flow rates are achieved.

Note

All changes to the heating circuit's heat demand (e.g. enlargement of the underfloor heating circuit) require a further readjustment of the flow rate.

6. Maintenance and service

Inspection, maintenance and service work on the station and heating system must be carried out and documented (in accordance with the relevant inspection guidelines) by a trained expert (installation company or Flamco customer service).

The condition of parts must be checked and these must be replaced if necessary.

The pump group must be checked regularly for leaks.

During maintenance work, the safety instructions and residual dangers mentioned (see Section 1) must be observed!

For recommissioning, please observe the points in Section 5.

7. Decommissioning, dismantling, disposal, environmental protection and disposal of electrical and electronic equipment

During dismantling, the safety instructions and residual dangers mentioned (see Section 1) must be observed!

Removal and disposal:

Removal and disposal of the device should only be carried out by suitable trained experts.

When disposing of the auxiliary and operating materials, always observe the specifications in the safety data sheets, which must be provided by the suppliers of the auxiliary and operating materials.

No environmental damage must be caused during disposal.

If the device is intended for scrapping, care must be taken to ensure that the individual components are of the correct type when disposing of them. It is necessary to check which way the materials can be recycled properly.

Information according to the Electrical and Electronic Equipment Act (ElektroG)*:



Disposal of electrical and electronic equipment

The "crossed-out wheeled bin" symbol means that you are legally obliged to dispose of these devices separately from unsorted municipal waste. Disposal via household waste, such as the residual waste bin or the yellow bin, is prohibited. Avoid misdirected waste by disposing of it correctly at special collection and return points.

As a matter of principle, waste prevention measures take priority over waste management measures. Waste prevention measures for electrical and electronic equipment include, in particular, extending their service life by repairing defective equipment and selling functioning used equipment instead of sending it for disposal.

*Please observe the country-specific national implementation of the European WEEE Directive 2012/19/EU on waste electrical and electronic equipment that is currently in force.

Options for returning old devices

Owners of old devices can return or collect them free of charge within the framework of the possibilities for returning or collecting old devices set up and provided by public waste management authorities. In addition, returns are also possible to distributors under certain conditions.

The distributor must take back the device free of charge when a new device of the same type is purchased (1:1 take-back). There is also the possibility to return old devices to the distributor free of charge if the external dimensions do not exceed 25 centimetres and the return is limited to three old devices per type of device (0:1 take-back).

Retail: Distributors who have a sales area for electrical and electronic equipment of at least 400 square metres are obliged to take back old electronic equipment. Food retailers who have a total sales area of at least 800 square metres and who also offer electrical and electronic equipment several times a calendar year or on a permanent basis and make it available on the market are also obliged to take it back.

Distance selling market: Distributors who sell their products using means of distance communication are obliged to take back old devices if the storage and dispatch areas for electrical and electronic equipment are at least 400m².

Removal of batteries and lamps

If the products contain batteries and rechargeable batteries or lamps that can be removed from the old device without destroying it, these must be removed before disposal and disposed of separately as batteries or lamps.

Data privacy

We would like to point out to all end users of electrical and electronic equipment that you are responsible for deleting personal data on the electrical and electronic equipment to be disposed of.



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