www.variotherm.at

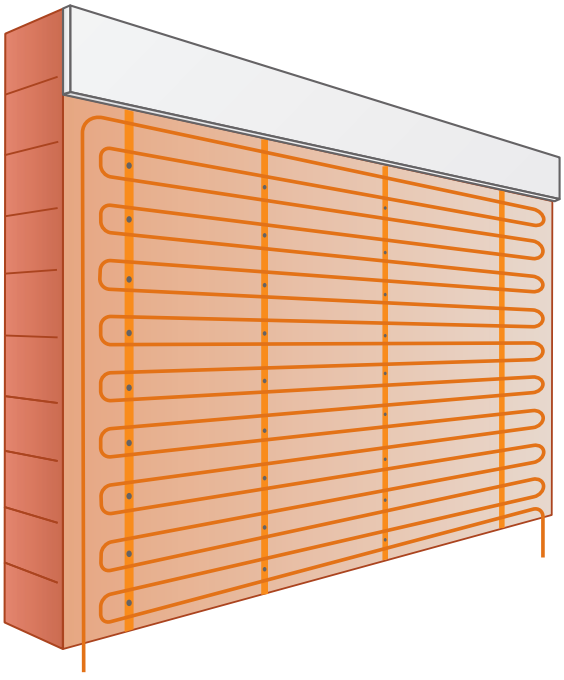
WALL HEATING/COOLING SYSTEMS UNDER PLASTER

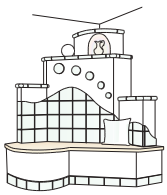
EasyFlexWall.

Installation

VARIOTHERM

HEATING. COOLING. COMFORT.





Designer heating

Installation instructions

e72514

1. Safety information

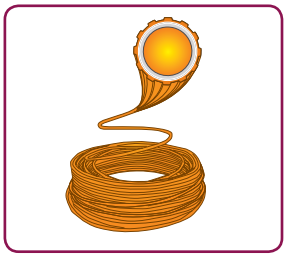
1.1 Regulations

These installation instructions are intended for authorised specialist personnel.
Observe locally applicable provisions and standards for electrical installations and cooling/heating systems as well the cleaning guidelines.

1.2 Guarantee conditions

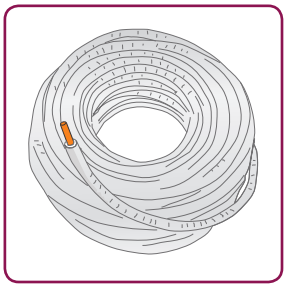
If the heating system is installed or commissioned incorrectly, all claims on the basis of the manufacturer's warranty and guarantee become void. Our currently applicable installation instructions are an integral part of our guarantee!

1.3 VarioProFile pipe 11.6x1.5 Laser



The VarioProFile pipe 11.6x1.5 Laser is an aluminium multi-layer composite pipe (100% oxygen-tight). In order to prevent the VarioProFile pipe from being damaged by drilling or chiselling during the construction phase, high-visibility warning signs should be placed at appropriate locations. In terms of weather resistance, the same instructions apply to the VarioProFile pipe 11.6x1.5 Laser as to the pre-insulated Variomodular pipe 16x2 (see section 1.4).

1.4 Pre-insulated 16x2 Variomodular pipe Laser



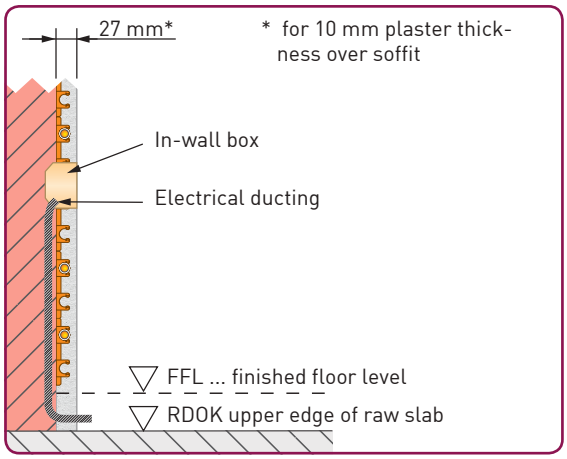
As a supply pipe to the EasyFlexWall, the pre-insulated Variomodular pipe 16x2 Laser is only weather-resistant to a limited extent and must be shielded from direct sunlight. The Variomodular pipe should not be stored outdoors.
The interaction of the air's oxygen with UV rays damages the pipes. Normal temporary storage on the construction site for a few days is permissible.

1.5 Avoiding damage during the installation work

All tradesmen are to be informed that floor heating has been installed. A warning sign in a suitable location helps to prevent damage resulting from subsequent installation work – signs are available at www.variotherm.at (service / info centre).

2. Laying instructions

2.1 Preparation for domestic electrical installation



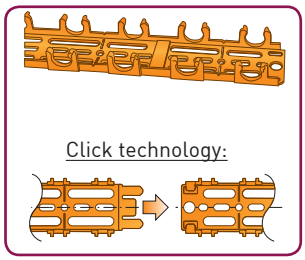
Before installing the EasyFlex wall heating, electrical ducting must be carried out. When installing the in-wall boxes, pay attention to the respective height level of the plaster.

Image: cross-section of the EasyFlexWall with ducting for electrical installation

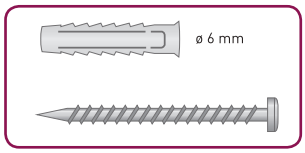
2.2 Specific requirements to the brickwork

Areas in which the EasyFlex wall heating/cooling systems are to be installed must be even and dry. Their evenness must lie within the permissible range. Any uneven areas must be chipped off or evened out with an undercoat. As standard, the EasyFlexWall is installed up to a height of 2 m above the finished floor level (FFL).

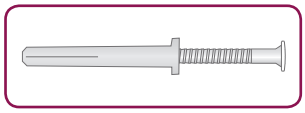
2.3 Installation of VarioBar 11.6/77



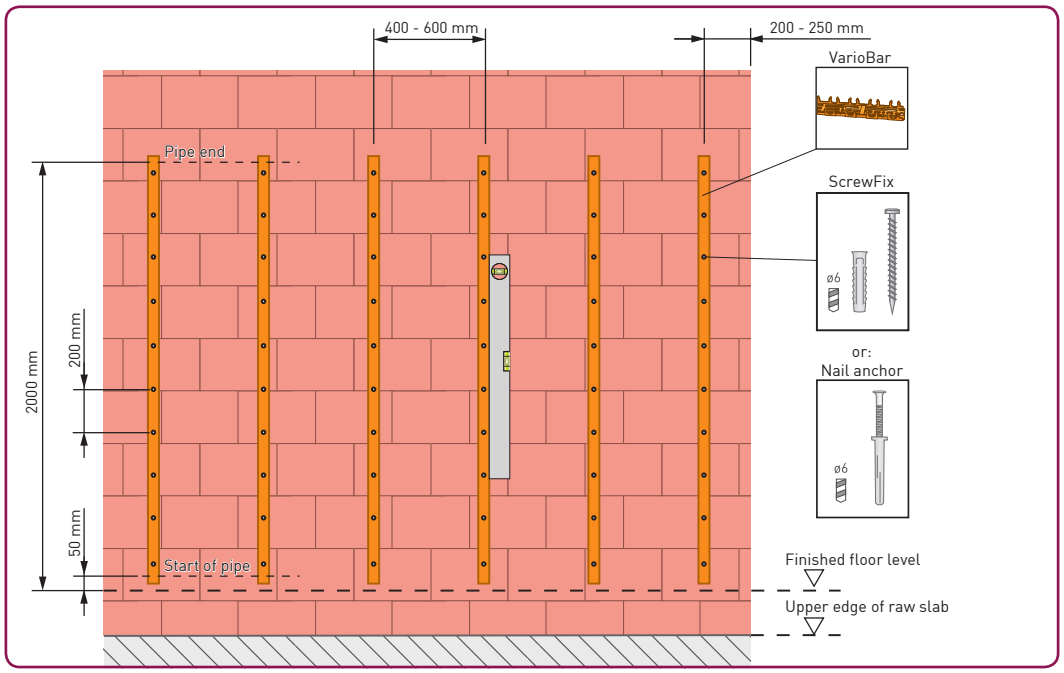
VarioBar 11.6/77



ScrewFix for concrete masonry, vertically perforated brick (porous brick) and aerated concrete brick

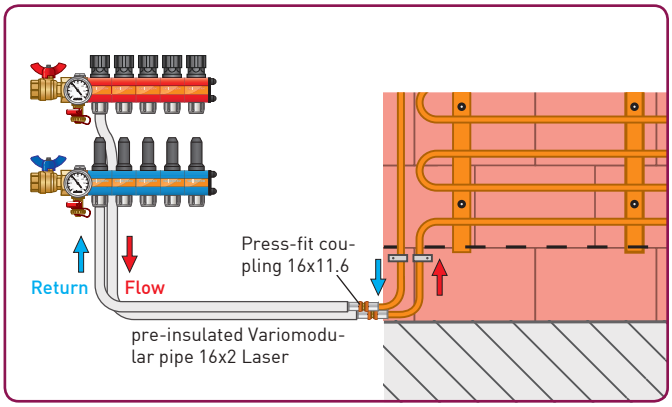


Nail anchor for concrete and solid bricks

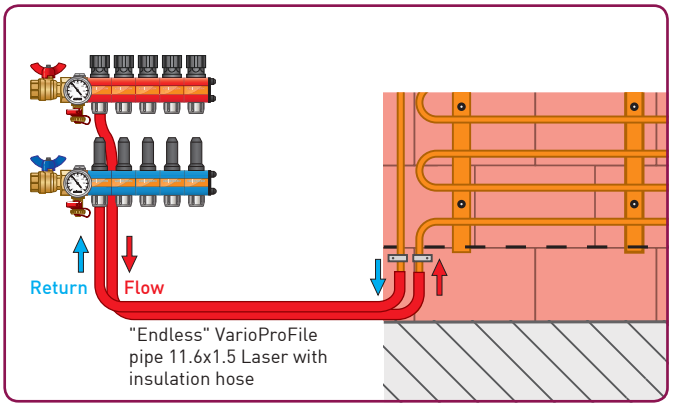


2.4 Supply pipe

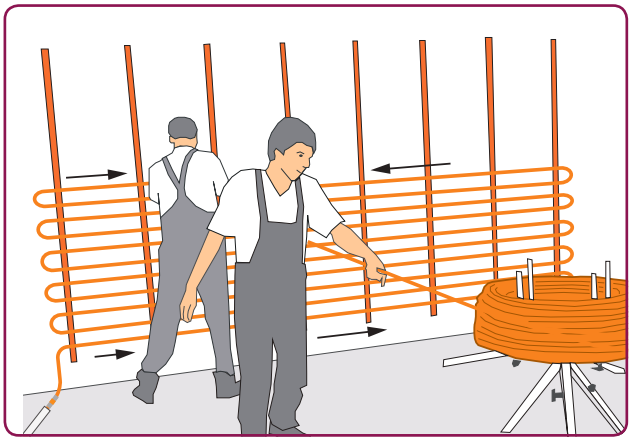
Pre-insulated Variomodular pipe 16x2 Laser
Press-fit coupling connection 16x11.6



Insulation hose 4 mm
"Endless" VarioProFile pipe with insulation hose



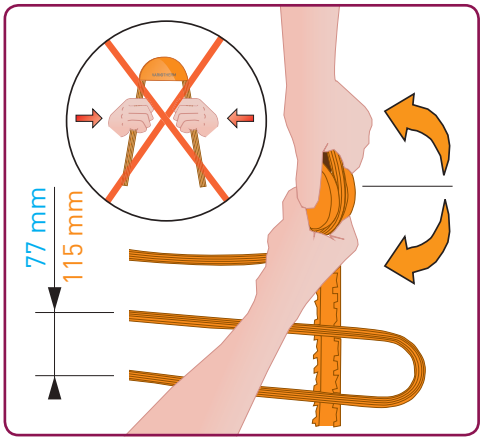
2.5 VarioProFile pipe 11.6x1.5 Laser



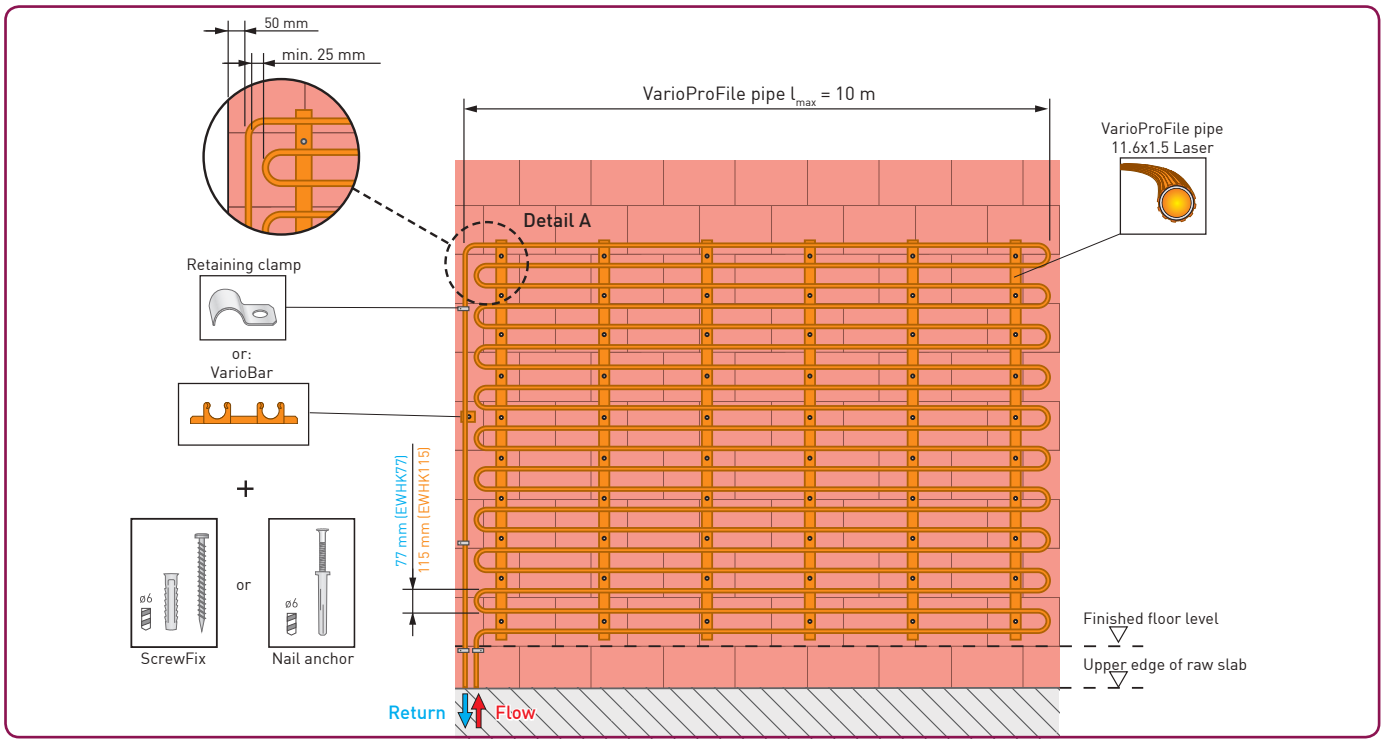
- Starting below, insert VarioProFile pipe into VarioBar
- Distance between pipes: 77 or 115 mm (exceptions: windows, ... - see chap. 2.6)
- 1 m² EWHK77 ≙ 13 m VarioProFile pipe
- 1 m² EWHK115 ≙ 8.7 m VarioProFile pipe
- **Max. total length per heating circuit: 80 m** (e.g. EWHK77, 5 m² heating/cooling surface area + 15 m supply pipe)
- Keep a distance of approx. 50 mm to bordering walls (see drawing page 6)

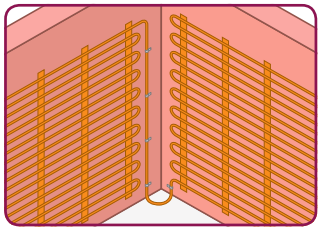
When the vertical pipe loops are completed, the pipe is led back down on one side towards the manifold. The return line is attached within the wall heating system with the supplied retaining clamps.

Bending (small radii)
Use the pipe bending tool 11.6/77 (EWHK77) or 11.6/115 (EWHK115) for the 180° return loops and 90° corners. During bending, the pipe must be securely positioned in the groove of the pipe bending tool. Manual bending without heating is possible at room temperatures above +5 °C. At lower temperatures, the VarioProFile pipe 11.6x1.5 Laser is stored in a warm place before installation.

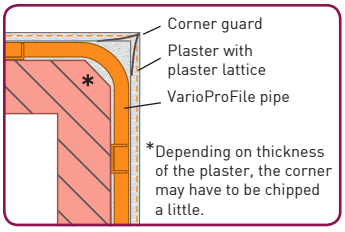


Caution! During bending, the technician's hands must be as close as possible to the pipe bending tool in order to prevent kinks from forming (visual inspection)!

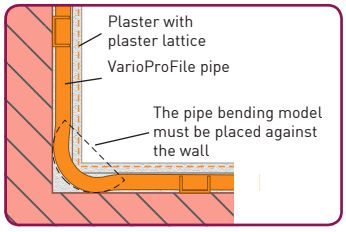




Example inner corner



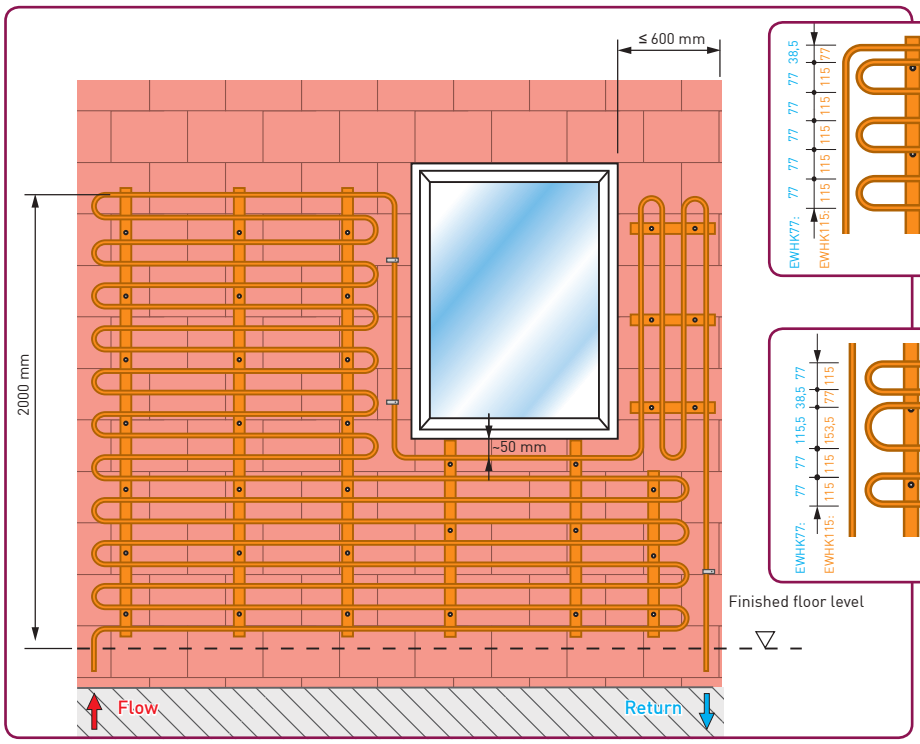
Special case outside corner



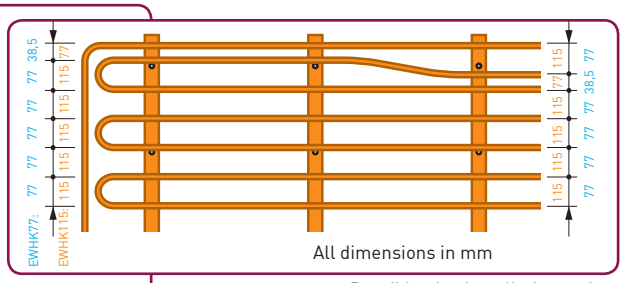
Special case inner corner

2.6 Pipe installation with assemblies (sockets, windows, etc.)

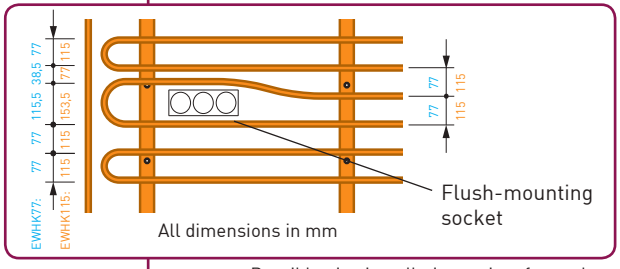
A section-wise spacing of 50 or 150 mm is permissible for assemblies (sockets, windows, etc.).



Possible pipe installation in the area of windows



Possible pipe installation variant



Possible pipe installation variant for sockets

2.7 Trimming and connecting the Variotherm pipes (press-connection)

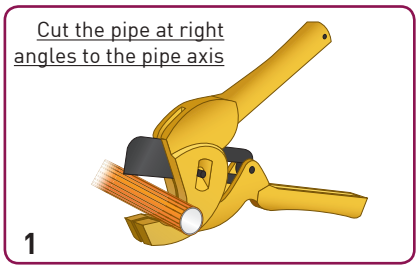
Caution: A lasting, tight connection is only guaranteed if original Variotherm system components are used:

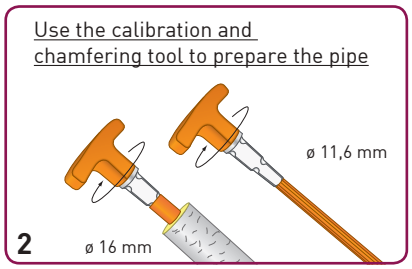
- VarioProFile pipe 11.6x1.5 Laser or pre-insulated Variomodular pipe 16x2 Laser
- Variotherm calibration and chamfering tool
- Variotherm press-fit couplings and Variotherm pressing tool

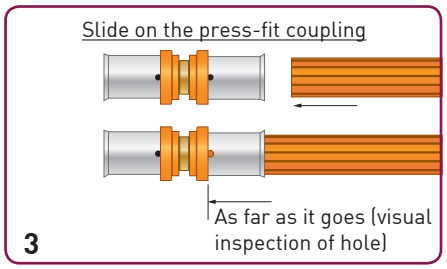
Maintenance

The press-fitting jaws and pressing tool must be checked at least once a year for correct operation by REMS or an authorised REMS customer service workshop.

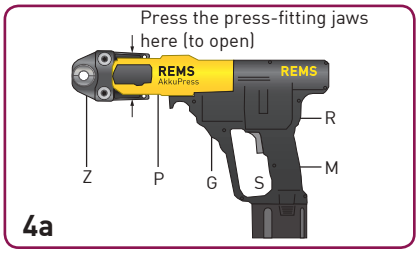
Preparation

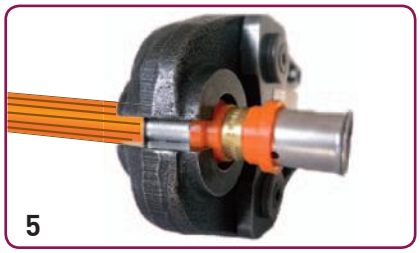


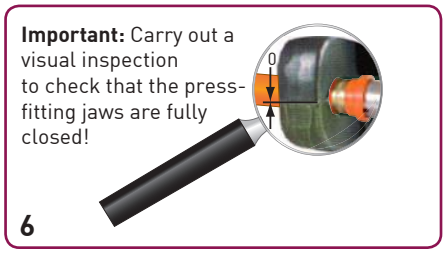




Pressing procedure for AkkuPress **4a**

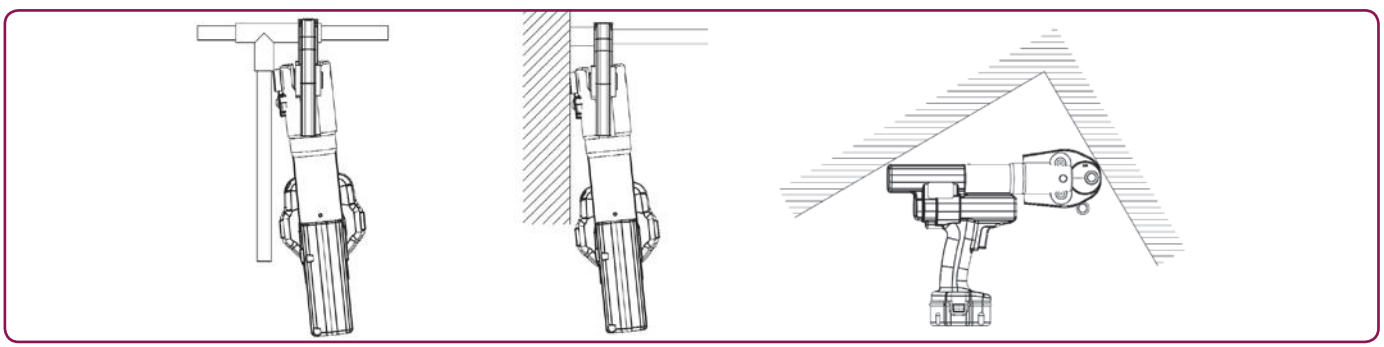




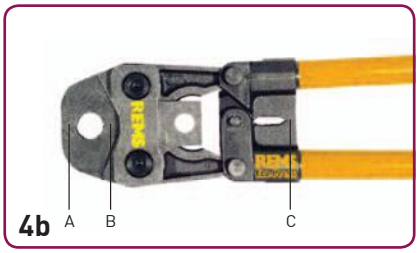


- Push the press-fitting jaws (Z) together by hand (causing the press-fitting jaws to open) far enough so that the press-fitting jaws can be placed over the press-fit coupling **(5)**. Place the pressing tool with press-fitting jaws on the press-fit coupling at a right angle to the pipe axis.
- Release the press-fitting jaws so that they close around the press-fit coupling **(5)**.
- Hold the pressing tool at the housing grip (G) and at the motor grip (M). When using an REMS AkkuPress, hold the switch (S) pressed until the press-fitting jaws are fully closed. This is made apparent by an audible click **(6)**.
- Press the reset lever (R) until the pressing rollers (P) have retracted completely. Press the press-fitting jaws (Z) together by hand so that the jaws can be removed from the press-fit coupling (see also the REMS AkkuPress operating manual).

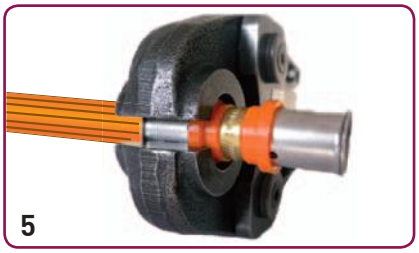
The following situations must be avoided (danger of gearbox breakage!)



Pressing procedure for Eco-Press **4b**



4b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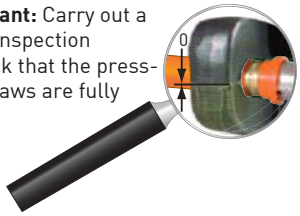
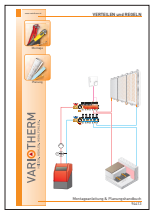


6

- The pressing tool's lever length can be adjusted to suit the pressing force and the available space on site. Use the provided pipe arms with sleeve sockets for extension. Always screw pipe arms tight before use (danger of accidents!). Secure the selected press-fitting jaws with plug-in bolts.
- Pull the pipe arms far enough apart (press-fitting jaws open) so that the press-fitting jaws can be slid over the press-fit coupling **(5)**. Place the pressing tool with press-fitting jaws on the press-fit coupling at a right angle to the pipe axis.
- Push pipe arms together until they reach the stop position (C) (audible click when they reach the stop). Only if the press-fitting jaws are fully closed at (A) and at (B) has a correct press connection been carried out. → Visual check **(6)**.
- Re-open the pipe arms so that the jaws can be removed from the press-fit coupling (see also the REMS Eco-Press operating manual).

2.8 Control and pressure test

Once all circuits have been connected to the heating/cooling distribution manifold, the system can be filled downstream of the manifold and pressurised. The pipes are to be kept under water pressure prior to or during plastering so that any damage becomes immediately visible.

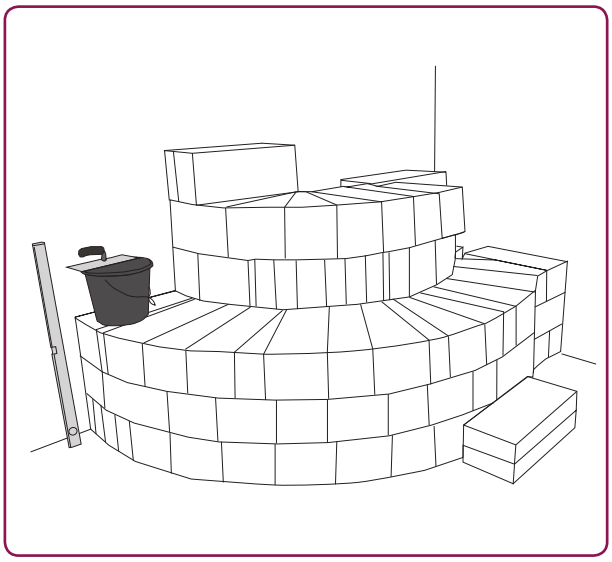


"DISTRIBUTION and CONTROL"

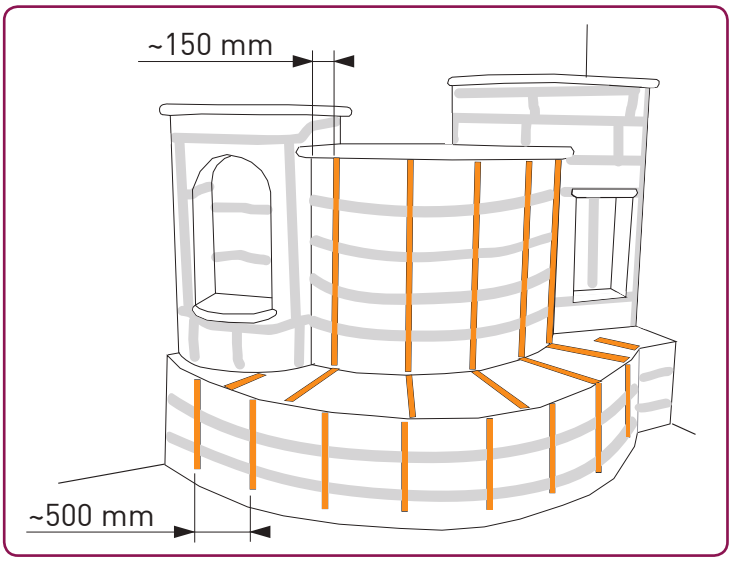
Details regarding the system and heating circuit pipes and the room temperature control are provided in the "DISTRIBUTION and CONTROL" planning and installation instructions.

2.9 EasyFlexWall as 'designer heating'

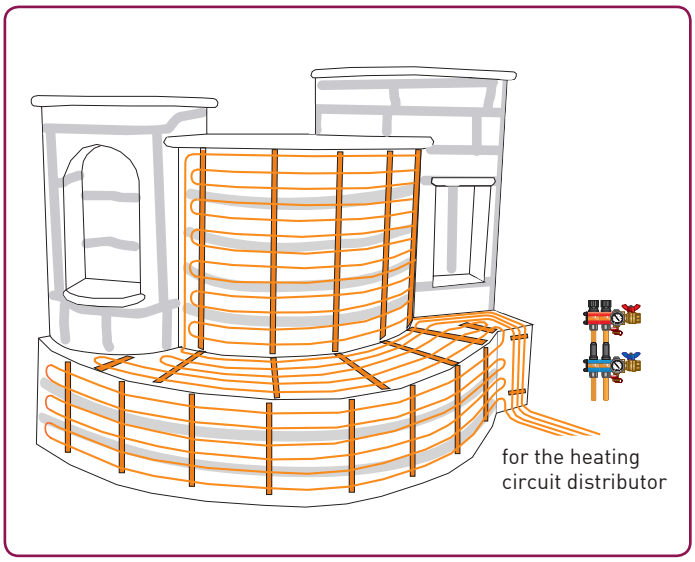
The EasyFlexWall can also be used to heat centrally heated tiled stoves.



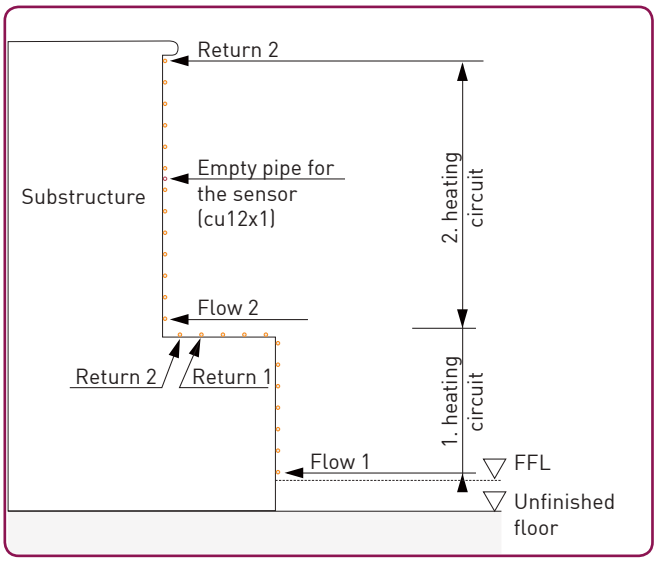
First, build the substructure (e.g. with porous concrete)



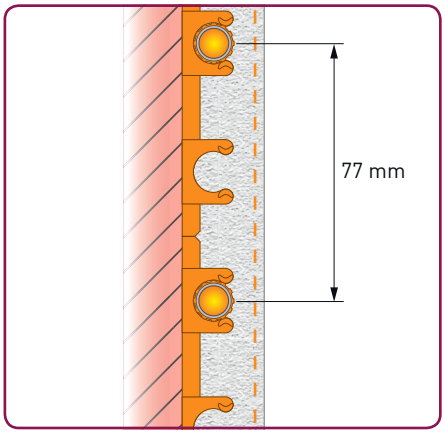
Then install the VarioBars

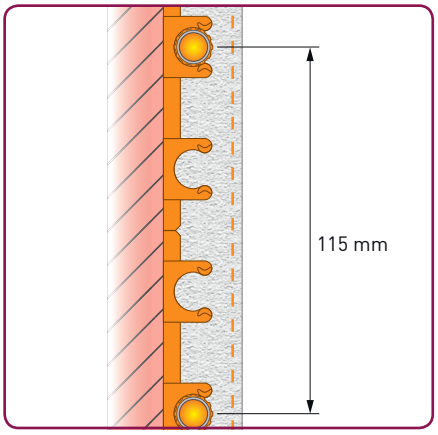


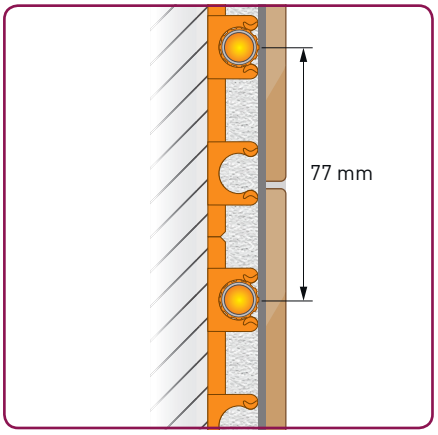
Now install the VarioProFile pipe 11.6x1.5 Laser



Cross-section view







Caution: The plaster must be compatible with the planned flow and surface temperature of the EasyFlex-Wall in the long term!

3. Plastering

3.1 General information

Plaster work is carried out as a multi-layer plaster (flush-mounting and finishing coat) or a single-layer plaster. Observe the following standards:

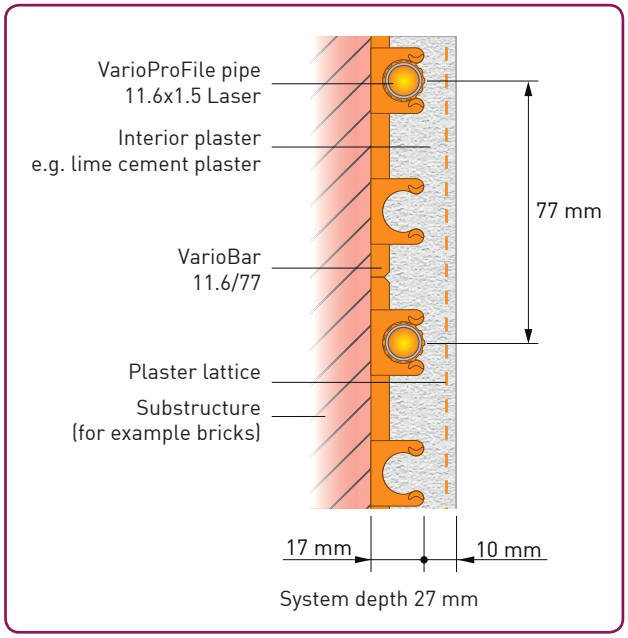
- **ÖNORM B2210** Work contract standard for plaster work
- **ÖNORM B2206** Work contract standard for brickwork and fixing work
- **EN 13914-2** Design, preparation and application of external rendering and internal plastering - Part 2: Design considerations and essential principles for internal plastering
- **ÖNORM B3346** Rendering and plastering mortar - Rules for use and processing - Complementary provisions to ÖNORM EN 13914-1 and -2
- **EN998-1** Specification for mortar for masonry - Part 1: Rendering and plastering mortar
- **EN 1996-1** Eurocode 6: Design and construction of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry structures - National regulations for ÖNORM EN 1996-1-1
- **ÖAP guidelines** WHS 06/2004

3.2 Plaster base inspection

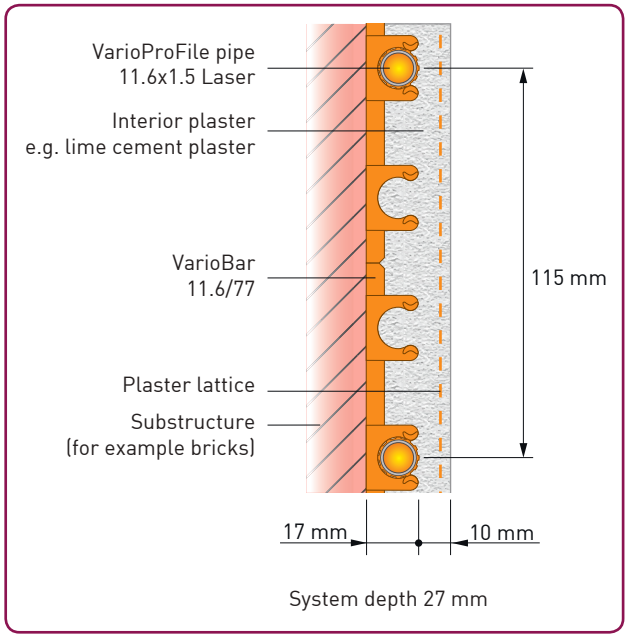
The plaster base inspection has to comply with the ÖNORM B3346, EN 13914-2 guidelines. The plaster base must be free of dust, frost and efflorescences, it may not be water-repellent, and must be free of loose parts.

3.3 Notes on suitable plaster

- Single-layer plasters require the manufacturer's approval for use with wall heating systems.
- Observe the manufacturer's guidelines for plastering
- Oven-dry density (28d): ≥ 1250 kg/m³
- Pipe covering ≥ 10 mm
- The plaster must be compatible with the planned flow and surface temperature of the EasyFlexWall in the long term!



EWHK77 cross-section



EWHK115 cross-section

4. Leak-tightness test & preheating protocol

Construction project: _____

Building owner/Occupant: _____

Client: _____

Heating installation technician: _____

Architect: _____

Other: _____

Leak-tightness test

The Variotherm EasyFlexWall circuits are to be tested for leak-tightness using a water pressure test after they have been laid and before plaster work is carried out. The test pressure should be min. 4 bar and max. 6 bar. If there is a risk of freezing, appropriate measures should be taken, e.g. use of antifreeze and controlling the building's temperature.

→ Installation of pipe connections finished on: _____

→ Pressure test started on: _____ with test pressure ____ bar

→ Pressure test completed on: _____ with test pressure of ____ bar

→ Plaster work started on: _____

→ System pressure during the completion work was _____ bar

→ The system water was treated (e.g. per ÖNORM H5195-1) ☐ Yes ☐ No

→ Antifreeze was added to the system water ☐ Yes ☐ No

→ The system was checked for leak-tightness on: _____ and approved

Approval:

Building owner/Occupant/Client	Construction management/Architect	Heating installation technician

Preheating protocol / first preheating operation

The EasyFlex wall heating system and the plaster may not be baked out! Prior to the first heating, a drying period of at least 14 days after completion of the finishing coat must be observed.
Prior to painting, the wall must be heated to the max. calculated flow temperature.

Plaster base: ☐ Heraklit panels ☐ Vertically perforated bricks, bricks ☐ Other: _____

☐ Single-layer plaster: _____, or

☐ Multi-layer plaster: Flush-mounting or undercoat: _____ Finishing coat: _____

Heating the Variotherm EasyFlexWall (also in the summer):

→ Completion of plaster work (single-layer plaster) on: _____

→ Completion of plaster work (flush mounting or undercoat) on: _____, Finishing coat on: _____

→ Heating started on: _____

→ Set flow temperature to 25 °C and maintain this value for 3 days ☐ Completed

→ Set to max. permissible flow temperature and maintain for 4 days ☐ Completed

→ Maximum flow temperature reached: _____ °C

→ Heating finished on: _____

Approval:

Building owner/Occupant/Client	Construction management/Architect	Heating installation technician

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