

### Applications

The FEW-33/28 is a dry heating and cooling system for general residential and commercial buildings and is used as a stand-alone heating solution where underfloor heating/cooling cannot be used due to the building characteristics. The FEW-33/28 is even an optimal solution for floors exposed to particularly high thermal or for special requirements.

#### Technical data: MB Euro System pipe 17 (MB-ER17)

Construction height	min. 32.5 mm
Pipe covering	min. 12.5 mm
Construction mass	approx. 15.0 kg/m <sup>2</sup>

#### Technical data: MB Euro System pipe 12 (MB-ER12)

Construction height	min. 27.5 mm
Pipe covering	min. 12.5 mm
Construction mass	approx. 15.0 kg/m <sup>2</sup>

### Installation

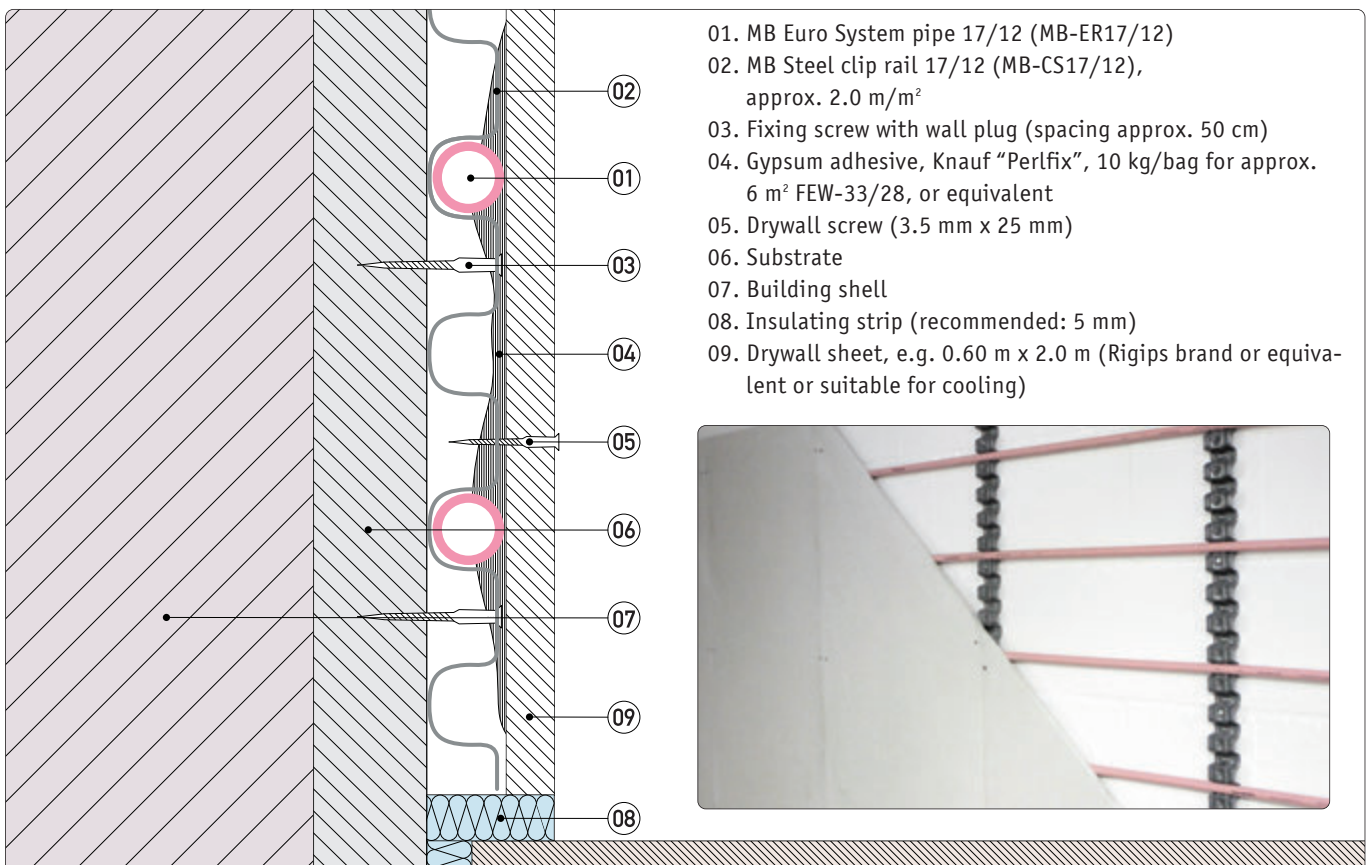
MB Steel clip rails (MB-CS17/12) are fixed vertically on the wall, spaced 0.60 or 0.65 m apart, using wall plugs and screws. The MB- Steel clip rails (MB-CS17/12) require modified fixing at the ends of the wall. The MB Euro system pipes (MB-ER17/12) are installed horizontally from the flow from the floor up.

### System installation

Installation follows the MULTIBETON plan. Then follow the MULTIBETON installation and technical guidelines. Planning and creating the MULTIBETON surface heating/cooling must further comply with the relevant laws, regulations, directives and standards. Additional instructions of manufacturers for other trades and the recognised rules of technology and proper trade workmanship must be observed. The FEW-33/28 must be heated once prior to installing the finished wall surface to relieve the system.

### General wall construction

MULTIBETON develops and produces energy-efficient heating and cooling systems for a vast variety of applications. When planning the wall construction, the respective laws, regulations, directives and standards must be observed. The MB Euro System pipes (MB-ER17/12) and MB Steel clip rails (MB-CS17/12) allow the planner to choose from two different sized and diffusion resistant heating components. The MB Euro System pipe (MB-ER17/12) is installed warm and therefore strainless and twist-free in the MB Steel clip rail (MB-CS17/12). It's very important the planner/architect/specialist company coordinate the cut points to ensure successful installation of the wall heating/cooling system. The construction process is coordinated in these meetings.



The illustration and design are non-binding and only exemplary.

**Underfloor heating combined with wall heating**

Using only an additional 2 m<sup>2</sup> of wall heating in a 6 m<sup>2</sup> bath can lower the flow temperature of the entire heating system by approx. 3 °C. This is of course beneficial for energy use.

**Insulation**

For exterior walls and interior walls the insulation must be checked in accordance with the laws and standards. The insulation prevents uncontrolled heat emission from the wall heating. The exterior wall insulation is installed on the outside to virtually rule out the risk of moisture (dew point shift) or frost inside the exterior wall.

**State of construction**

Windows and exterior walls should be installed before installing the FEW-33/28. Building service installations are completed and pipe openings have been sealed. Before installing the wall heating/cooling system, electrical installations such as flush sockets should be installed or at least their location in the wall determined.

**Load-bearing surface**

The walls should on principle meet the following requirements:

1. Adequate statics and load-bearing capacity to hold the wall heating/cooling,
2. Comply with angle and flatness tolerances,
3. The wall heating must also be interrupted in different building parts separated by building joints.

**Plaster base**

The fitter will verify the plaster base is adequate before applying the plaster. This will determine if the plaster base needs to be treated. Brick, natural stone, lime sandstone, clay brick, rigid insulation and gypsum fibreboard are suitable substrates for the wall system. The plaster base must be smooth, sound and firm, adequately rigid, not be water-repellent, homogeneous, rough, dry, dust-free, evenly absorbent, clean and free from frost.

**Drywall**

The drywall sheet is fixed to the MB Steel clips rails (MB-CS17/12) using standard drywall screws with drillhead. Double covering is not permitted due to high thermal resistance. Please also be careful not to damage the MB system pipes (MB-ER17/12) when installing the drywall sheets. ATTENTION: In the case of "silent cooling", the drywall panel for damp rooms is used.

**Finished wall surface**

Coverings such as wallpaper, paint, ceramic tiles, textured plaster and ashlar can be used if approved by the manufacturer of the wall treatment. The adhesive for the coverings must also be suitable for underfloor heating/cooling.

**Joints**

The FEW-33/28 has a typical expansion similar to wall plaster. Joints must be placed to allow for this expansion and contraction without damaging the drywall. A joint plan showing the type and location of joints must be drawn. The joint plan is drawn by the building planner and must be submitted to the installer as part of the technical specifications.

**Silent cooling**

MULTIBETON surface heating is ideal as "Silent cooling". These systems are inexpensive, as they only require a cooling unit or a reversible heat pump with the corresponding control unit. The maximum output (30 - 50 W/m<sup>2</sup>) of "Silent cooling" comes from the dew point calculation, the calculated lowest cooling flow temperature and the user's comfort level. The design of the cooling components, including the insulation of the heating circuit manifolds, must be carried out in proper trade workmanship.