MB Dry Floor
TRB-17

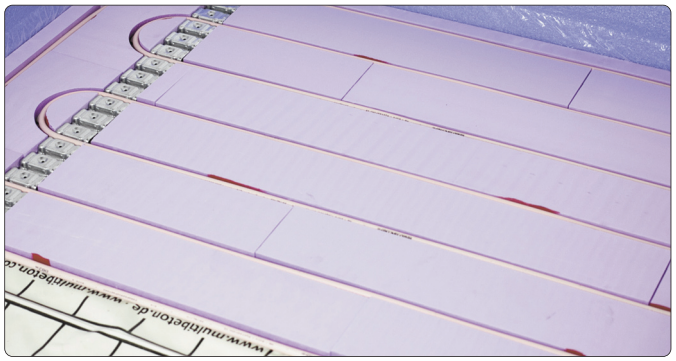
Applications
TRB-17 is a heating and cooling system for general residential and office buildings, particularly for renovating and remodelling existing buildings for high loads with a minimal installation height and weight.

Technische Daten

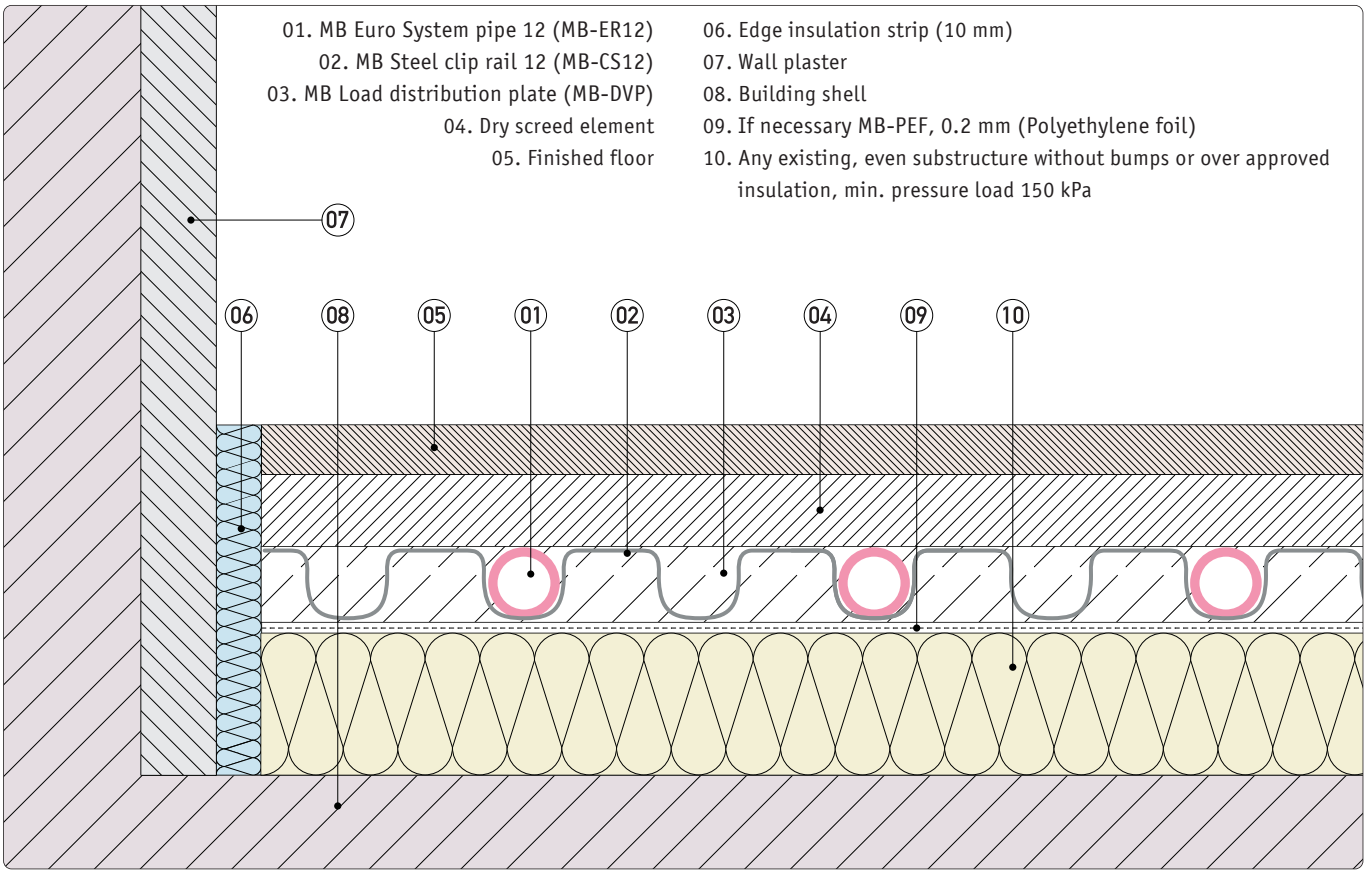
Construction height	17 mm
Construction mass	5 kg/m²
Traffic load	min. 3.0 kN/m²
Overall construction height	17 mm + selected cover panel
Overall construction mass	5 kg + selected cover panel
Ready to walk on	varies by cover plate selection
Flooring installation	varies by cover plate selection

General floor construction
MULTIBETON develops and produces energy-efficient heating and cooling systems for a vast variety of applications. Planning the floor construction must comply with the relevant laws, regulations, directives and standards. The MB Euro System pipe (MB-ER12) is installed warm and therefore strainless and twist-free in the MB Steel clip rail (MB-CS12).

System installation
Installation follows the MULTIBETON plan. Then follow the MULTIBETON installation and technical guidelines. Planning and creating the MULTIBETON underfloor 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 system is installed over the solid existing floor. The TRB-17 must be heated prior to installing the finished floor to relieve the system.



01. MB Euro System pipe 12 (MB-ER12)
02. MB Steel clip rail 12 (MB-CS12)
03. MB Load distribution plate (MB-DVP)
04. Dry screed element
05. Finished floor
06. Edge insulation strip (10 mm)
07. Wall plaster
08. Building shell
09. If necessary MB-PEF, 0.2 mm (Polyethylene foil)
10. Any existing, even substructure without bumps or over approved insulation, min. pressure load 150 kPa



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

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Cover plate
For TRB-17, a dry screed element with gypsum fibre board or cement binder is used. Dry screed elements from various manufacturers suitable and approved as floor cover plate over underfloor heating. When selecting the elements, ensure the lambda value is adequate. The cover plates must be installed per manufacturer specifications. This also applies with respect to selection and flooring installation.

Examples of possible cover panels

	d (mm)	λ (W/m·K)	R_λ (m^2·K/W)
Knauf Aquapanel Cement	22	0.79	0.028
Amroc cover panels	16	0.35	0.046
Cetris PD	16	0.25	0.064
Fermacell gypsum fibre 2E22	25	0.32	0.078
Fermacell Powerpanel TE	25	0.17	0.147

Thermal and impact sound insulation
Wood fibre insulation boards (> 150 kPa) up to 40 mm thick can be used for insulation. Wood fibre insulation boards (> 150 kPa) up to 7 mm can be used as impact sound insulation. Other thermal insulation systems are not approved and must first be tested to ensure they are equivalent.

Edge insulation strip
The edge insulation strip must be fixed when installing the cover panels to prevent it from shifting. The edge insulation strip must be at least 10 mm thick. Once the flooring has been laid, the protruding edge insulation strips can be cut. For textile and elastic flooring, do not cut the edge insulation strip until the spackle/adhesive has cured.

State of construction
Windows and exterior doors should be installed before installing the MB-Trockenboden (Dry floor). Building service installations and wall plaster have been completed and pipe slits sealed. If there are building services supply lines where the underfloor heating is being installed, a solid levelling course must be installed. Levelling courses must be flush once installed.
Fills may be used if their viability has been established.

Load-bearing surface
The load-bearing floor must be sufficiently dry to hold the load distribution layer and be even. The flatness tolerances according to DIN 18202 must be observed. The substrate must not have bumps, pipes or similar or the finished floor will show these.
On principle, the load-bearing capacity and insulating properties of the existing subfloor must be suitable. In the case of flexible surfaces, movement, sound transmission and noise generation must be expected. Carry out preliminary tests if unsure. In the case of existing PVC flooring, install a PE uncoupling layer (e.g. MB-PEF, Polyethylene film) must be installed between the PVC and the MB-Load distribution plate (MB-DVP) to prevent plasticiser migration.

Construction waterproofing
Building parts in contact with the ground must be sealed in compliance with the standards. These are floors on the ground floor in buildings without basement, or basement floors. The need and form is determined by the structural design. This seal must be installed before the radiant heating is installed.

Joints
The TRB-17 has a typical contraction and expansion similar to cement screed. Joints must be placed to allow for this expansion and contraction without damaging the screed. 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.

Flooring
Since underfloor heating is quite common, the builder has vast flooring options to choose from. Almost all manufacturers offer flooring suitable for underfloor heating/cooling. Flooring such as textile flooring, natural stone, elastic flooring, ceramic flooring, parquet, laminate and of course wood flooring may be installed. For ceramic flooring it's important to consider the flex of the dry screed elements. If the flex in the dry screed elements is too high, cracks may occur, particularly with larger tile sizes. We recommend consulting the manufacturer of the cover plates used before installing the tile.

Silent cooling
MULTIBETON underfloor 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^2) 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.

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