

## MERO Access Floor Systems – heating and cooling

### Innovative solution out of one hand

Development	Access floor
Consultation	Hollow floor
Project management	Loose covering tiles and
Production	Laying
Installation	Change of applied coverings



# Access floor and hollow floor with floor heating and cooling

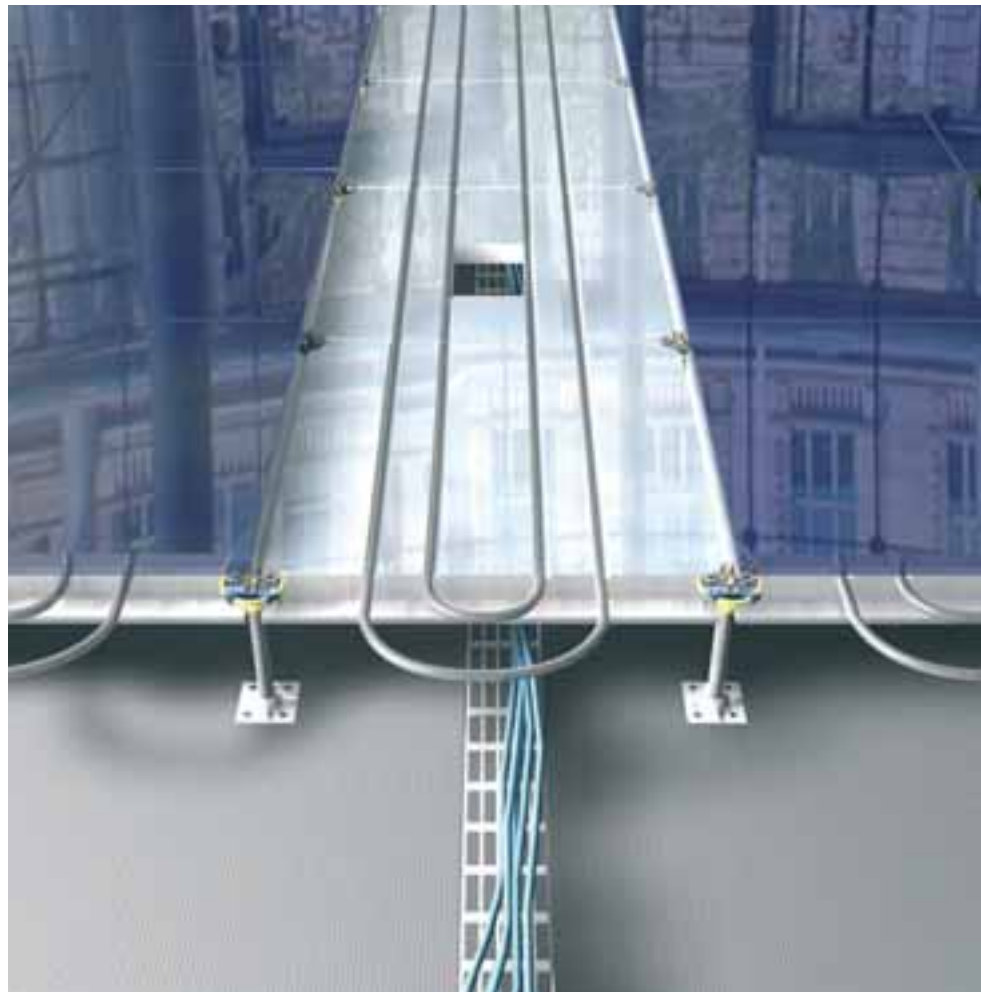
## Floor Heating and Cooling

MERO-TSK floor systems have proved its worth for the installation of service lines for many years. From now on MERO access and hollow floor can be combined with MERO floor heating and cooling.

Hereby, the advantages of a floor heating/cooling with those of a MERO floor system are combined.

Floor areas such as large bank lobbies, foyers and production plants can now be provided with floor heating/cooling in critical areas too. The floor types 4/anhydrite and 6/calcium sulphate as well as the hollow floors Combi A and Combi T have proved as high thermal conductors respectively as storage for heat and cold.

The material as e.g. the die-formed steel pan and the fine grain homogeneous anhydrite allow an even transmission of heat. The non-combustibility of the floor panels and pedestals complies with fire regulations. The construction allows quick alterations of temperature.



### Installation of heating circuits with access floor

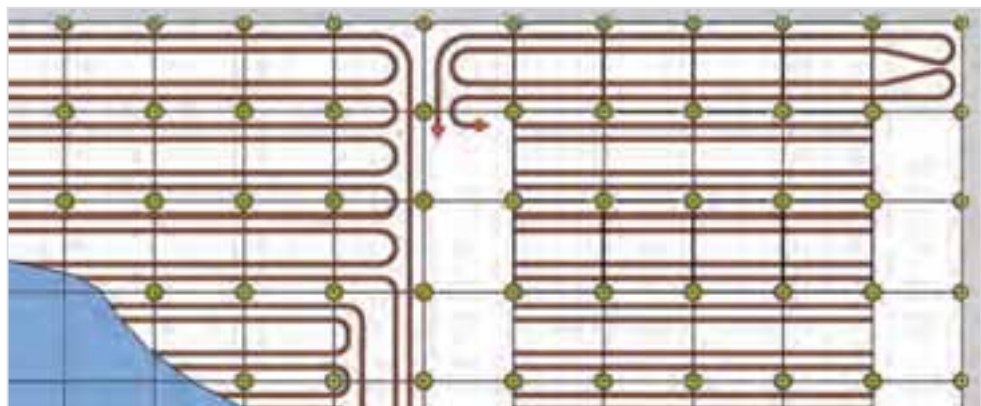
**The high thermal conductivity of the access floor panel is used for fast transmission of heat/cool from the pipe system to the floor surface.**

The arrangement of the heating circuits between pedestal rows means that the heating circuit is laid under each row of panels. No heat-conductive sheet is used below the turning point of the heating pipes as they are laid directly on the insulation. No sheet is necessary either below panels with electric sockets. The connection of the water supply to the distributor

batteries has to be done by the building contractor. The connections of the heating/cooling circuits (flow pipe/reflux) and the tightness check is done by local heating engineers.

### Advantages of the MERO floor heating/cooling

- huge installation space
- extremely high preventive fire protection properties
- optimal air conditioning of large halls possible



# Air conditioning from below – access from top

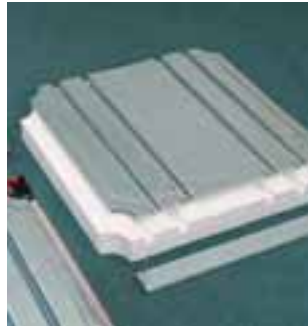
## Mode of installation with flexible access floor



1. Removing of panel rows for the installation of the floor heating/cooling



2. Installation of the supporting profiles for the thermal insulation



3. Prefabricated dry elements



4. Lay in of thermal insulation tray with heat-conductive sheet



5. Installation of the service lines



6. Connection of the heating/cooling pipe with the distributor battery



7. Flow pipe and reflux are led next to each other

## Easy access to the access floor plenum

- Access to the installation and media pipes at any time possible by removing the floor panels
- Later rebuilding/modernization or complete change of the heating/cooling system possible by dismantling of the construction parts



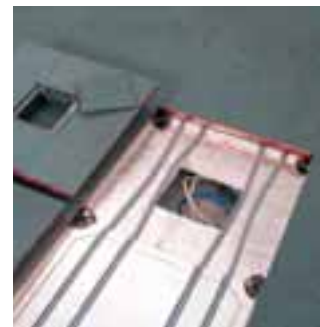
1. Remove panel by lifting device.



2. Remove at least three adjacent panels.



3. Unclip media pipes and hold them up with the spacing device. Take out the insulating tray with transmission sheet by tilting it upwards. Service lines are now accessible.



4. Panels for electric sockets can later be removed and installed again wherever needed. You only have to remove the transmission sheet and to make a cutout into the insulation according to the size of the socket.

# Three different Systems

## Access floor type 4 or 6

The access floor panels type 4 consists of a die-formed steel pan filled with synthetic anhydrite AB20.  
Panel thickness: 33 mm

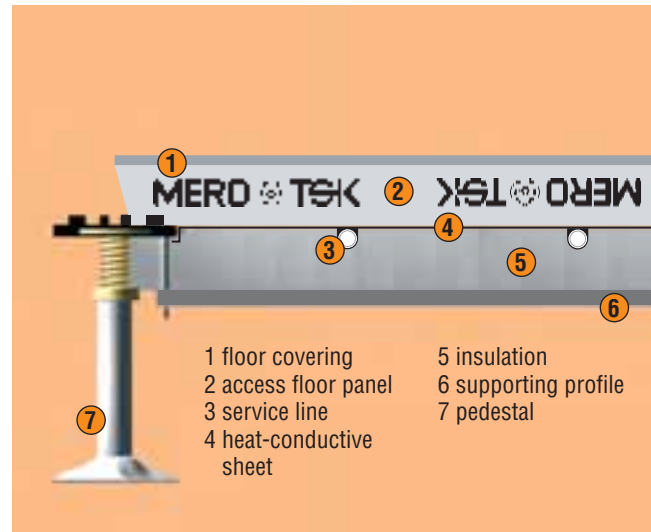
or

Access floor panel type 6 consisting of fibre reinforced calcium sulphate which can be provided with steel sheet on the panel bottom depending on required concentrated load.  
Panel thickness: 28 to 36 mm

The substructure in the module of 600 x 600 mm consists of steel pedestals adjustable in height and glued to the subfloor. All steel parts are galvanized. The material of the floor panels is non-combustible.

The floor heating/cooling system is constructively separated from the floor panels and consists of:

- Service lines
- Transmission sheet
- Insulation
- Supporting profile for the insulation



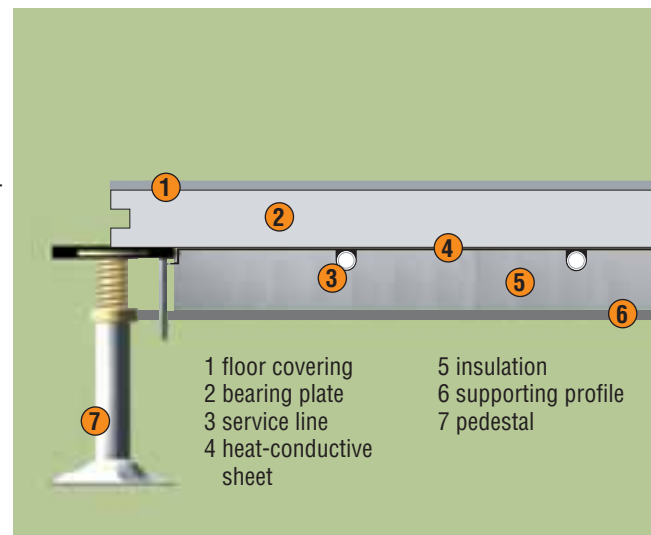
## Hollow floor Combi T

The bearing plates consist of high density calcium sulphate.  
Panel size 1200 x 600 mm (standard) or 600 x 600 mm.  
Panel thickness: 28-36 mm

The substructure in the module of 600 x 600 mm consists of steel pedestals adjustable in height and glued to the subfloor. All steel parts are galvanized. The material of the bearing plates is non-combustible.

The floor heating/cooling exists separately from the floor panels and consists of:

- Insulation with integrated transmission sheet and service lines
- Supporting profile for the insulation



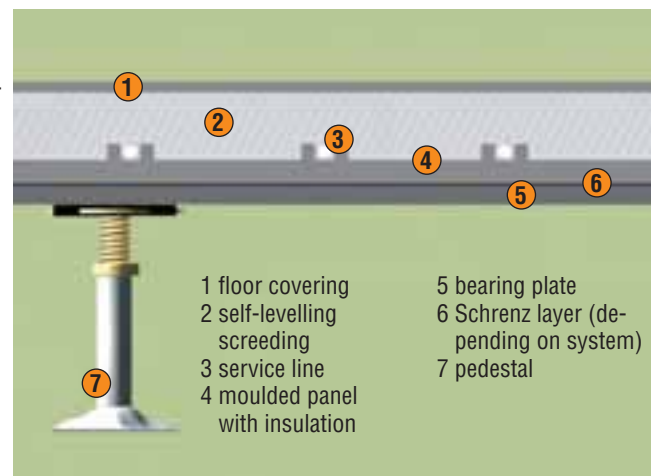
## Hollow floor Combi A

The double-layer system consists of a GK-bearing plate and a self-levelling screeding.  
System thickness: 65-85 mm.

The substructure in the module of 600 x 600 mm consists of steel pedestals adjustable in height and glued to the subfloor. All steel parts are galvanized. The material of the GK-bearing plates is non-combustible.

The floor heating/cooling is installed onto the bearing plates and moulded together with the self-levelling screeding. The system consists of:

- Moulded panel with integrated insulation
- Service line





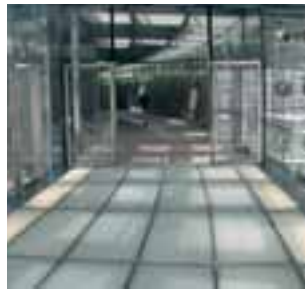
# Floor heating/cooling for the headquarter of Bayer Leverkusen



**On a total area of 12.000 sqm the MERO-TSK access floor provides sufficient space for all assemblies of technical services and communication technology.**

For the entrance hall of approx. 1.000 sqm the elegant granite "Nero Assoluto" has been selected as floor covering. The air conditioning of the foyer is done by a floor heating/cooling system in connection with MERO type 4. This system is using the high heat transmission ability of the steel trays filled with anhydrite.

The selected construction guarantees utmost flexibility. The pedestal heads are additionally provided with deep-set supporting profiles for the insulation trays. The top of the insulation tray is covered by a heat-conductive sheet with longitudinal locking beading. The plastic pipes of the heating system are clipped into the locking beading. For inspection or installation of additional ser-



vice lines remove floor panels, unclip the heating pipes and take out the insulation tray. The easy access also allows to install the heating circuit distributors under the access floor as it has been done in the mentioned project. The advantage is to have a considerably reduced heat loss and a high cooling efficiency of 40-42 W/m<sup>2</sup> which corresponds to a total cooling efficiency of 32 KW related to the total area.

The reception with permanent passenger traffic received its own heating circuit with increased flow pipe temperatures and separate cooling technique.



# Technical diagrams for thermal calculation

**MERO-TSK system floors with integrated floor heating/cooling meets all requirements. Rooms can be air conditioned by access floors and hollow floors as well. The insulation material of all systems guarantees utmost energy utilization.**

Plastic pipes of high density polyethylene are used.

The heating pipes of the floor system Combi T - the dry hollow floor of MERO-TSK – are made of copper.

Depending on the floor system preferably following floor coverings are used:

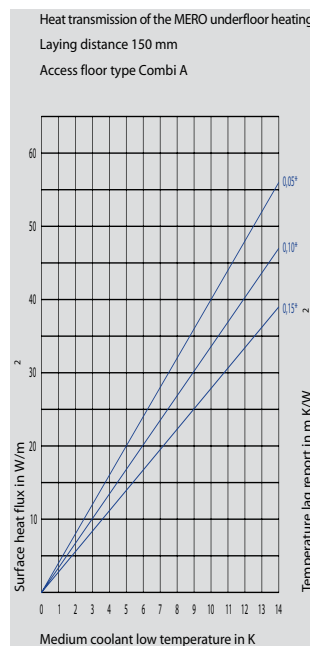
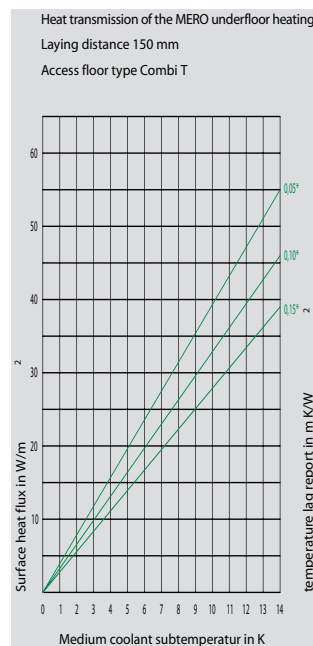
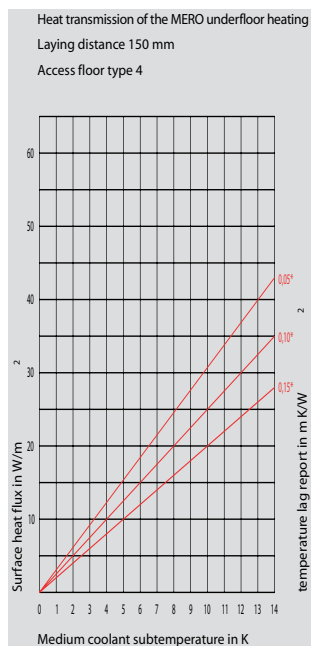
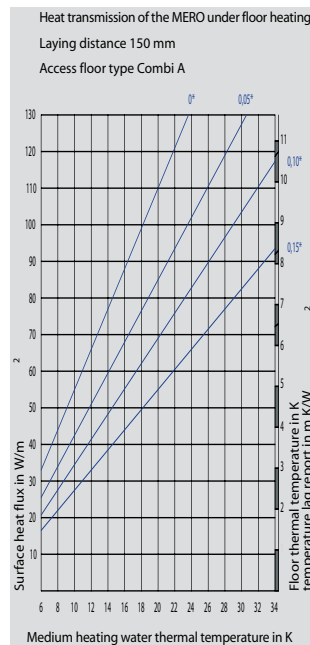
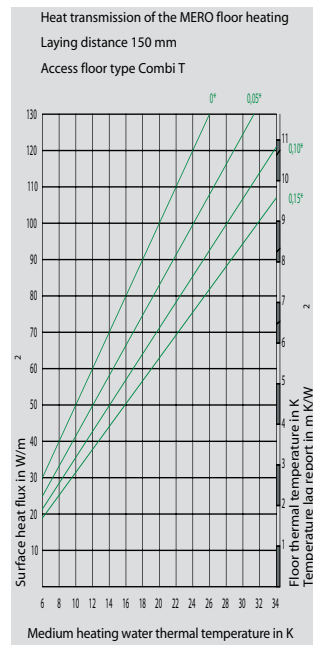
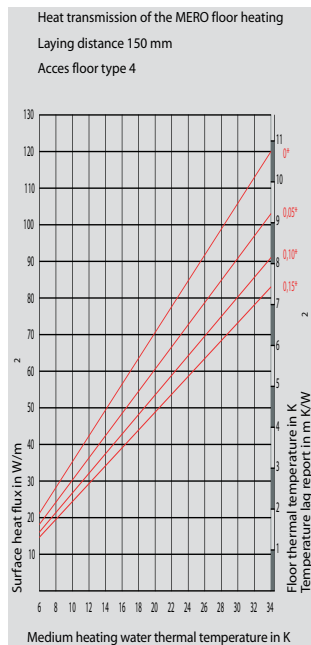
- Stone and ceramic coverings
- Textile coverings
- Elastic coverings with dimension accuracy (pay attention to the surface temperature)
- Parquet coverings provided the initial conditions are clarified.

The exemplary diagrams are to be considered for a room air temperature of

- 20° C during heating period
- 26° C during cooling period

and a laying distance of 150 mm.

For the cooling period temperature sensors have to be installed in order to avoid condensation.



*For advisory service and further information please do not hesitate to contact us.*

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