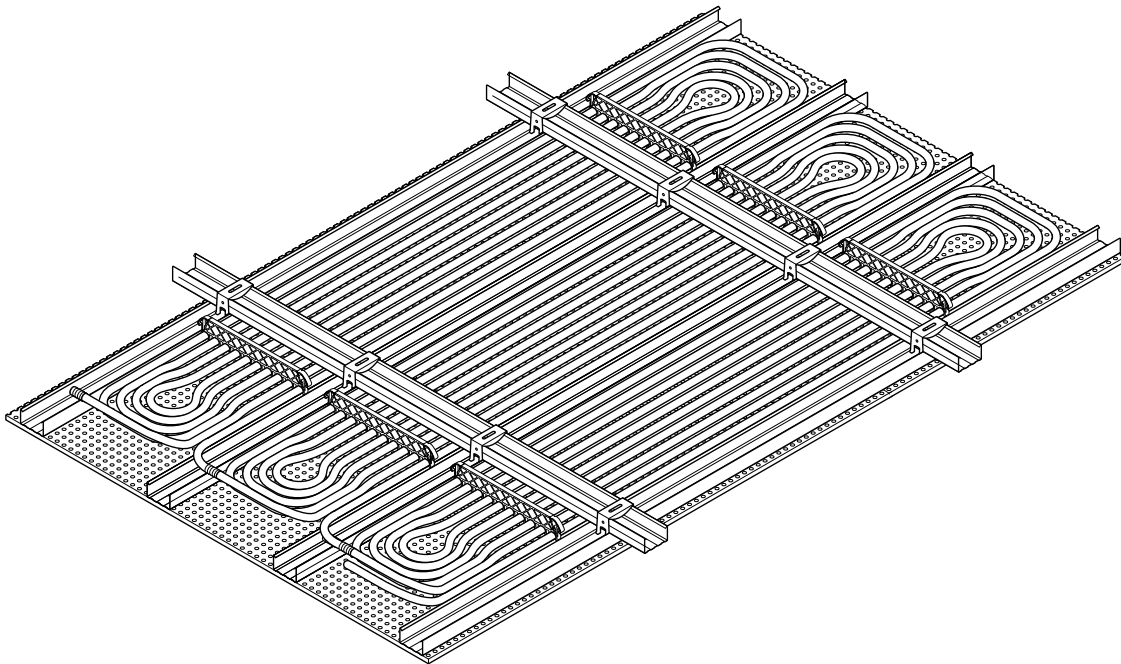




# Uponor Thermatop M

## Mounting instructions



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# Safety

## 1.1 Safety instructions and hints

These mounting instructions use the following symbols:



**Danger!** Danger of injury/crushing possible. Non-observance can result in serious damage to health and property.



**Caution!** Important note on the use. Non-observance can cause malfunctions.



**Information:**  
Application hints and important information.



**Information:**  
Read and observe the instructions.

## 1.2 Proper use

Uponor Thermatop M is a water-based heating and cooling ceiling system that operates primarily according to the radiation principle and is characterised by a variety of application and design options.

With this design, seamless and directionless ceiling surfaces can be created for special architectural demands. The construction method adjusts itself to the requirements for flexible room design and difficult room geometries with unvarying functionality. The Thermatop M heating/cooling ceiling system allows a comfortable room climate and excellent room acoustic. Illumination elements and further components, such as loudspeakers, sprinklers, etc., can be integrated into the ceiling. Quick and tool-free installation of the standardised registers by clicking the fixing rails into the CD profiles of the ceiling substructure.

The constructional and climatic conditions have to correspond to the specified fields of application. The ceiling elements are to be operated with the heating/cooling medium water in the temperature range of 15°C to 38°C. Deviating medium temperature only after agreement with the manufacturer.

The ceiling elements may not be soaked, soiled or subjected to strong mechanical stress, since this can result in damage. Any usage beyond this or any deviating usage is only permitted after written confirmation by the manufacturer. Any claims to damages resulting from improper use are excluded.



All the instructions and information given in these mounting instructions must be observed when using Thermatop M.



Conversion or modifications are only permissible on agreement by the manufacturer. The manufacturer is not liable for any damage arising from the improper use of Thermatop M.

## 1.3 Sources of danger



Thermatop M can have sharp edges and may therefore only be handled and mounted when wearing protective gloves.

## 1.4 Mounting personnel

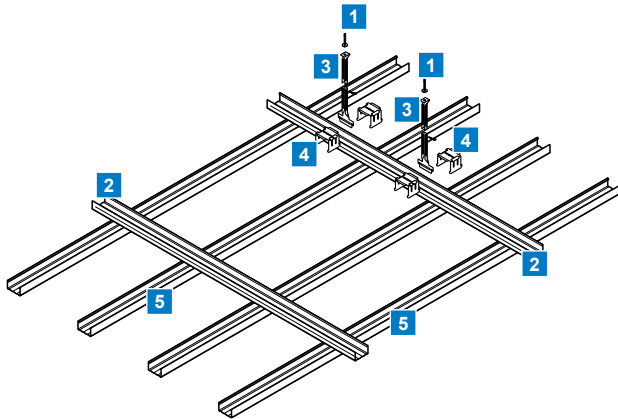


Thermatop M may only be mounted and commissioned by competent trained personnel. Personnel to be trained may only carry out work on the product under the supervision of an experienced person.



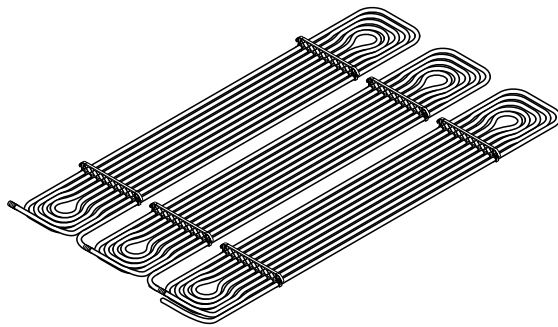
Persons carrying out mounting must read, understand and observe the mounting instructions. In accordance with the with the statutory provisions, liability of the manufacturer exists only under the abovementioned conditions.

## 2 Thermatop M components

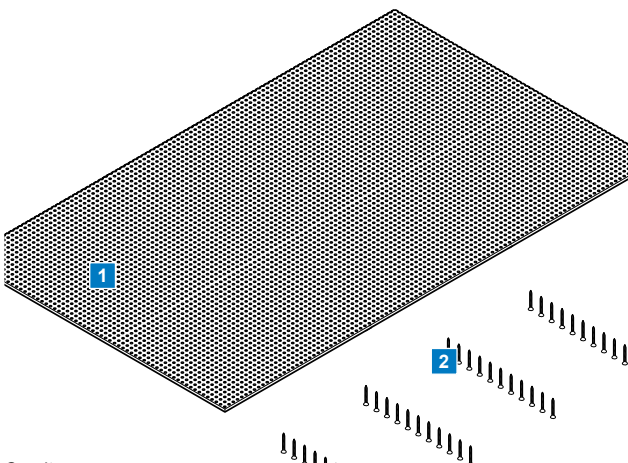


On site:

- |                                      |                                         |
|--------------------------------------|-----------------------------------------|
| <b>1</b> Fastening means             | <b>4</b> Quick intersection connector   |
| <b>2</b> CD profile (base structure) | <b>5</b> CD profile (furring structure) |
| <b>3</b> Complete Nonius suspender   |                                         |

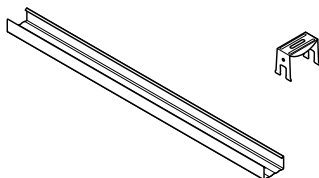


*Thermatop M cooling register*



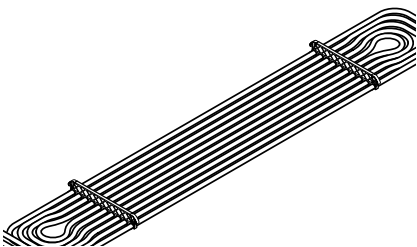
On site:

- |                                                                                                      |
|------------------------------------------------------------------------------------------------------|
| <b>1</b> Plasterboards as thermal boards without/with graphite content, perforated or non-perforated |
| <b>2</b> Dry wall screws                                                                             |



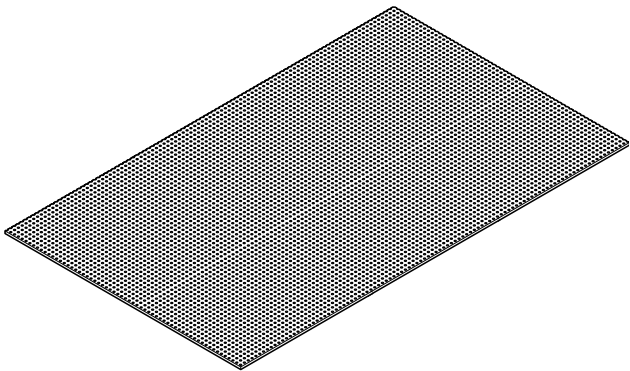
### 2.1 Substructure (on site)

Only components fulfilling DIN 18182 and DIN EN 14195 are approved for the substructure.  
The suspension must be carried out rigid to compression.



### 2.2 Cooling register

The cooling registers are factory-made meanders made from Ø 16 x 2.0 mm multilayer composite pipes.  
The meanders consist of 10 rows of pipes with an average distance between pipes of 27.7 mm.  
For fixing the pipes, and to aid installation and ensure safety in transit, the cooling registers are fitted with fixing rails.



### 2.3 Plasterboards (on site)

Only plasterboards that comply with DIN EN 520 and DIN EN 14190 must be used.

The following versions are particularly suitable:

- Knauf Thermoboard
- Knauf Thermoboard Plus
- Rigips Vario 10
- Rigips Climafit 10
- Vogl Thermotec

Screwing must be done using only the screws listed below.

Panelling	Screw
Thermoboard/Rigips Vario 10/Vogl non-perforated	XTN 3.9 x 23 mm (manufactured by Knauf) Item No. 00216603 TN Gold without/with 3.5 x 23 drill bit (manufactured by Rigips)
Thermoboard/Rigips Vario 10/Vogl perforated	TB 3.9 x 23 mm (manufactured by Knauf) Item No. 46839 TN Gold without/with 3.5 x 23 drill bit (manufactured by Rigips)
Thermoboard Plus perforated/non-perforated (graphite content)	XTN 3.9 x 23 mm (manufactured by Knauf) Item No. 00216603 TN Gold with 3.5 x 23 drill bit (manufactured by Rigips)
Rigips Climafit perforated/non-perforated	TN Gold with 3.5 x 23 drill bit (manufactured by Rigips)

# 3 Mounting the Thermatop M

## 3.1 Basics



Planning is the basis for the installation of the Thermatop M ceiling system. This is done by a specialist planner or Uponor GmbH. In the planning phase, the positioning of the substructure and register, the installation direction and the hydraulic connections are determined.

### Storage



- The registers must be stored flat in their boxes.
- Improper storage (e.g. upended) will lead to deformations, which will affect the proper installation and functioning of the Varicool Eco S register.
- The register and accessories must be protected from humidity.
- Plaster products must always be stored in a dry place.
- Perforated plasterboards must be stored on site at least 24 hours before installation.

### Building climate conditions



- Only carry out installation work in the range of 35-70% relative humidity.
- After installation, the plasterboard systems must be protected from humidity.
- Sufficient ventilation must be ensured within buildings also after mounting work has been completed.
- Filling work may not be carried out until no greater changes are to be expected in the length of the gypsum boards resulting from changes in the humidity and/or temperature.
- The room temperature may not lie below +10 °C for the filling work (DIN 18181).

## 3.2 Preparation



Anchors must have building-authority approval for anchoring mounted ceilings to DIN EN 13964 for the found surface and must be dimensioned sufficiently.

The substrate must be checked. Only suitable fixings and anchors may be used. For the substructure, only materials conforming to DIN 18182 may be used.

The materials must be stored on the building site in locations where they cannot be damaged.

## 3.3 Mounting the suspenders



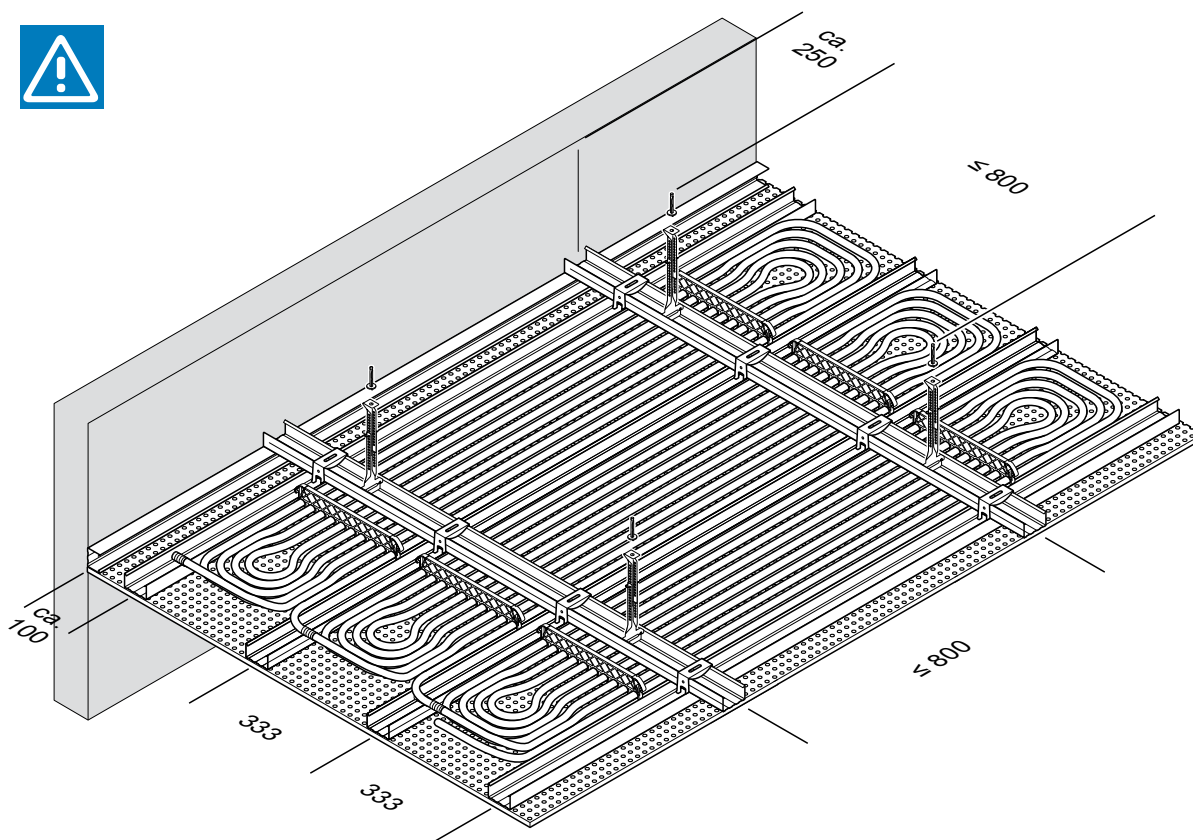
Anchoring of the substructure is effected with screws or anchors with building-authority approval on the raw ceiling. The raw ceiling must have sufficient load-bearing capacity. Only pressure-resistant suspenders such as Nonius or direct suspenders may be used. The max. suspender space amounts to  $\leq 800$  mm. The layout of the profiles is determined by the planning. The mounting direction of the overall structure results from the layout of the profiles.

The maximum space from the first suspender to the wall may not exceed 250 mm.

### 3.4 Mounting the substructure

The substructure is made from CD 60/27 ceiling profiles according to DIN 18182 and DIN EN 14195. Connection of the base profiles with the bearing profiles is effected by means of quick intersection connectors. The maximum distance of the base profile is  $\leq 800$  mm. Replacements for fittings are possible while considering the profile distances.

The maximum overhang of the base profile to the last hanger must not exceed 250 mm. The centre distance of the furring profile is a maximum of 333 mm for Varicool Eco S. The construction of the substructure essentially corresponds with that of standard plasterboard ceilings. An example structure is shown in the figure below.



### 3.5 Mounting of the Thermatop M register

The registers are hung into the CD profile of the furring construction. Because of the flexible spring clips on the fixing rail, the registers can just be slid (Image 1) and snapped (Image 2) between the two CD profiles. Moving the on-site substructure is not necessary. The mounted register can now be slid into the exact position. By pushing apart the spring clip, the registers can be slid along the CD profile again, and repositioned. The location and positioning of the registers is determined at the planning phase.

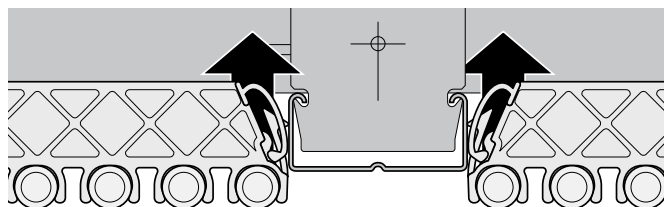


Image 1

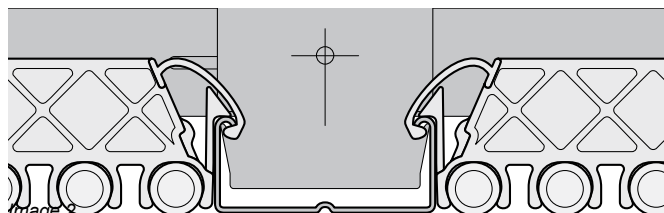


Image 2

### 3.6 Connecting the registers

The registers can be hydraulically connected using push-in connectors or press connectors. Care must be taken here to ensure that sufficient pipe length is available for the formation of an open bend (if necessary), as otherwise the pipe will be kinked at the connections and destroyed. Attention must also be paid here to ensure that the Thermatop M is not misshapen when the pipe bend is formed. Under no circumstances must the connection be warped or kinked. The connection must not be subjected to any external tensile or compressive stresses, either during installation or during operation.

When under pressure or when heated, there may be slight changes in length. Connections laid in a straight line must be installed such that any changes in length can be absorbed.

Generally, the installer is responsible for ensuring the connections do not leak.

The nominal width should be selected so as to ensure that no sound insulation or hydraulic problems occur.

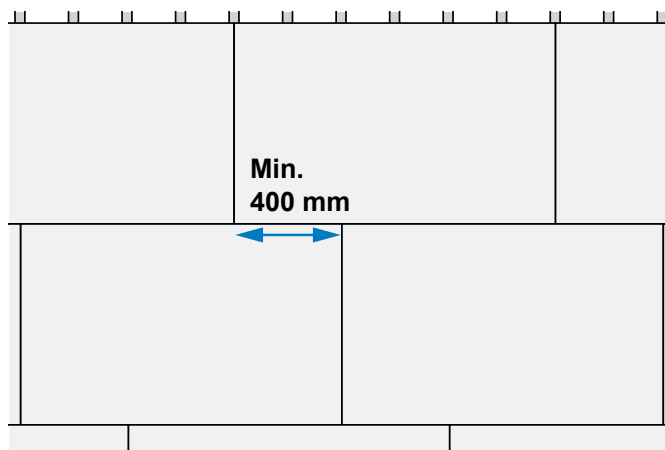
It is recommended that the registers and pipe network are filled in the room before panelling.



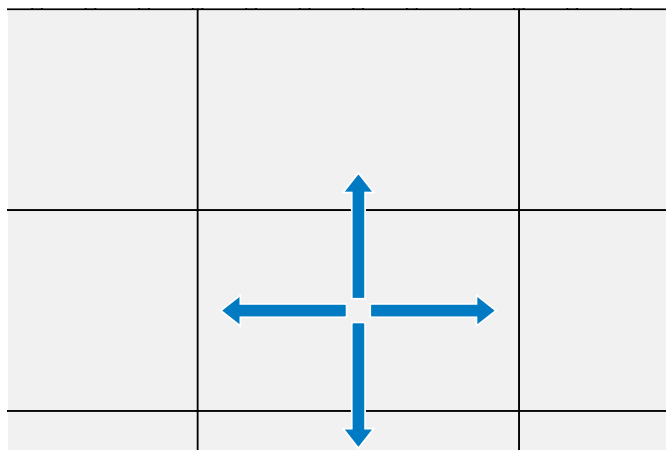
### 3.7 Panelling

Only thermal plasterboards that comply with DIN EN 520 and DIN EN 14190 must be used. The regulations in accordance with BVG guidelines must be observed. When panelling, the specifications of the plasterboard industry (expansion joints, edging, screw spacing, etc.) must be observed.

The filling of the joints between the panels is governed by the current dry wall construction guidelines. The maximum plasterboard projection must not exceed 100 mm.



Positioning of non-perforated plasterboard (according to dry wall regulations)



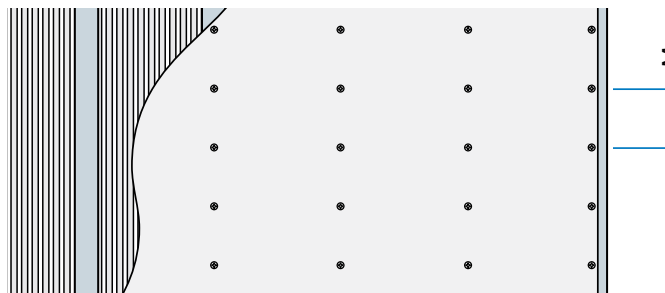
Positioning of perforated plasterboard (according to dry wall regulations)

#### Screwing

The specifications of the plasterboard industry apply for screw spacing. The boards must be screwed in the direction of the furring profile, with a maximum distance of 170 mm.

When using perforated plasterboard, the first row of screws in the first profile must be positioned after the first row of perforations.

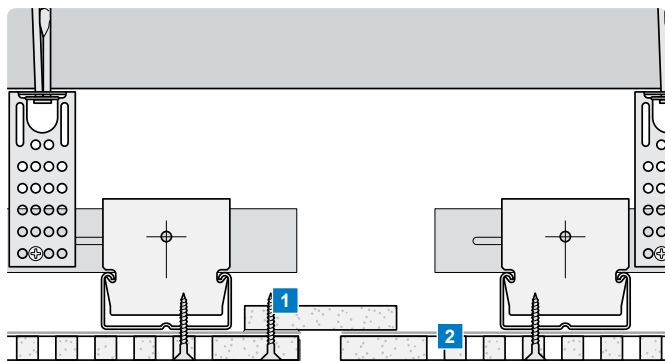
Screws must be screwed in with a dry wall limit stop. The special processing guidelines and Mounting instructions of the plasterboard industry must be observed.



Screw spacing

#### Expansion joints

Expansion joints must be provided according to DIN 18181 after a maximum field length of 15 m, as well as in the area of the shell construction expansion joints. In addition, they must also be provided in constricted areas, which are often found in hallways, for example. For cooling ceilings of max. 100 m<sup>2</sup>, length per side 15 m, heating max. 75 m<sup>2</sup>, length per side 7.5 m.



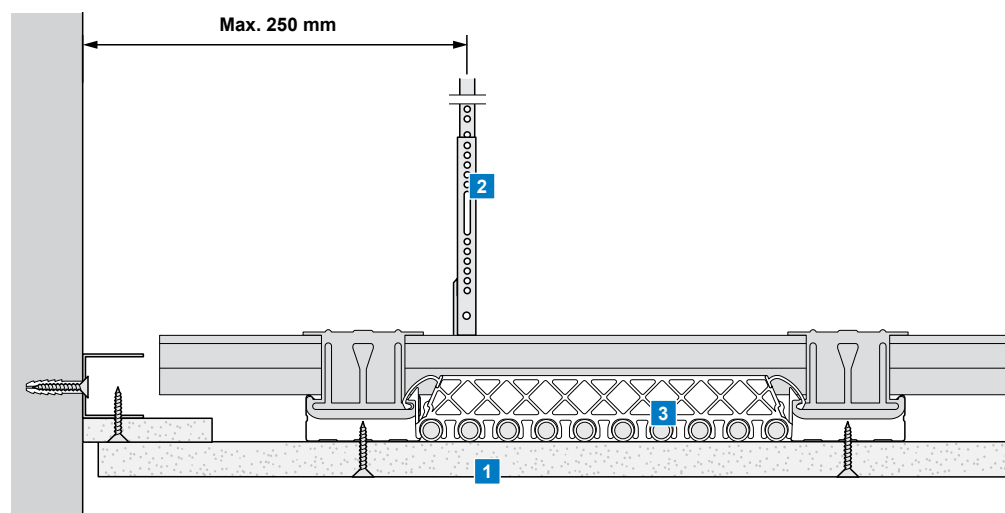
Expansion joints

- 1 Simply glue the panel strips on one side with joint filler, or screw in
- 2 Furring profile CD 60x27 perforated acoustic thermal board with non-perforated edge and V-milling

## Wall connections

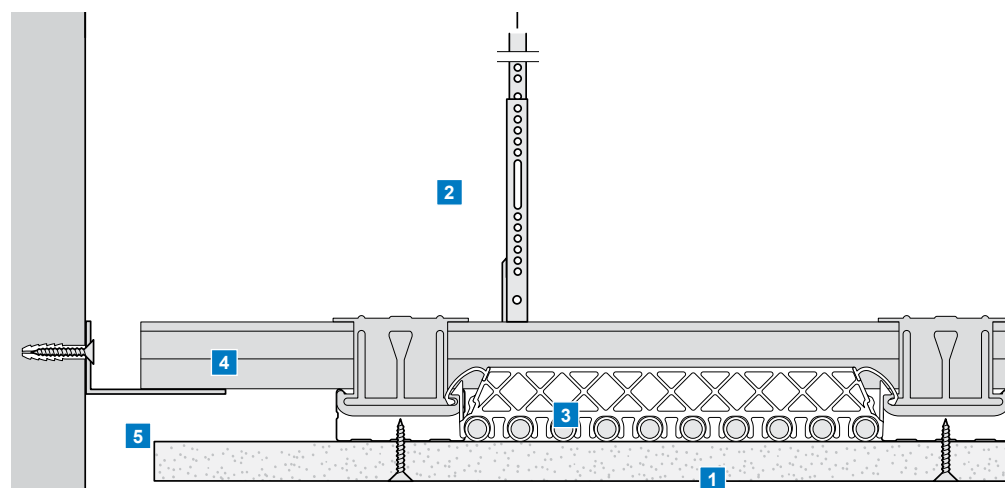
Wall connections must be installed in accordance with the valid specifications of the plasterboard manufacturer.

The projection after the last screwing point may amount to a maximum of 100 mm.



*Gypsumboard wall connection, dull*

- 1 gypsum plasterboard
- 2 Nonius suspender
- 3 Thermatop M



*Gypsumboard wall connection, open*

- 1 gypsum board ceiling
- 2 Nonius suspender
- 3 Thermatop M
- 4 CD profile
- 5 Aluminium edge protector

### Supplementary loads



Supplementary loads may not be connected to the Thermanop M elements.

Mounted parts such as lamps or ventilation outlets must be placed in the gypsum board areas. The guidelines of the plasterboard manufacturer and the profile manufacturer must also be observed here. For fixtures which are larger than the clear profile distances, the openings in the ceiling surfaces must be supplemented by replacing the substructure.

### 3.8. Filling - principles



In order to avoid cracks later on the building site conditions in accordance with the BVG Instruction sheet 1 are to be observed, meaning mainly that filling work may not be carried out until no greater changes are to be expected in the length of the gypsum boards resulting from changes in the humidity and/or temperature.

DIN 18181 additionally specifies a room and substructure temperature of more than 10° C for filling work.

With regard to the filling of plasterboard, different quality levels must be differentiated according to BVG Information Sheet 2, "Joining of plasterboard surface finishes".

- Quality level 1 (Q 1)
- Quality level 2 (Q 2)
- Quality level 3 (Q 3)
- Quality level 4 (Q 4)

If special lighting conditions – for example side lighting as natural light or artificial illumination – are to be used for the assessment or the inspection and approval of the filled surface, the customer has to ensure that comparable lighting conditions already exist during the execution of the filling work.

Since the lighting conditions are not constant as a rule, a clear assessment of the drywall construction work can only be carried out for a light situation defined before filling work begins. The light situation must therefore be agreed contractually.

### 3.8.1 Filling - compound joint



The regulations and Mounting instructions of the plasterboard manufacturer and the filler manufacturer must be observed and complied with.

The general dry wall construction guidelines must also be observed.

### 3.8.2 Filling - Vogl joint



The regulations and Mounting instructions of the plasterboard manufacturer and the filler manufacturer must be observed and complied with.

The general dry wall construction guidelines must also be observed.

For finishing a join following the VoglFuge® (Vogl join) principle, a System Kit is required, comprising the necessary materials, the tools required and the detailed Mounting instructions.

## Pressure test record

Project number

<b>Building project:</b>	Name	<input type="text"/>
	Street	<input type="text"/>
	ZIP/Post code	<input type="text"/>
	City	<input type="text"/>
	Unit	<input type="text"/>
	Floor	<input type="text"/>
	Construction section/phase	<input type="text"/>
	Customer	<input type="text"/>
	Date of test	<input type="text"/>
	Max. permissible operating pressure	<input type="text"/>

### Test medium

- ☐ Air  
☐ Drinking water  
☐ Water to VDI

All the lines have to be closed through metal plugs, covers, gaskets or blind flanges.

Apparatuses, pressure vessels or water heaters have to be disconnected from the piping.

A visual inspection of all pipe connections for correct implementation was carried out.

In the case of drinking water being used the system is to be drained completely after the pressure test and subsequently to be flushed and filled with conditioned water to VDI 2035.

### Leak test

Test pressure

Test period  (to manufacturer specification or ZVHSK instruction sheet)

The temperature compensation and steady states must have been reached. This can take up to 30 minutes depending on the temperature difference (>10 K) between the ambient temperature and the filling medium.

Then the test begins.

The valves have been set to their setpoints	<input type="checkbox"/> Set <input type="checkbox"/> Not set
---------------------------------------------	------------------------------------------------------------------

The shut-off valves at the transfer points are	<input type="checkbox"/> Open <input type="checkbox"/> Closed
------------------------------------------------	------------------------------------------------------------------

[illegible]

☐ No leak was found during the test period

☐ No pressure drop was found during the test period

Client/Customer  
Date/Stamp/Signature

Construction management/Architect  
Date/Stamp/Signature

Installation company \_\_\_\_\_  
Date/Stamp/Signature \_\_\_\_\_

# Notes

[illegible]





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