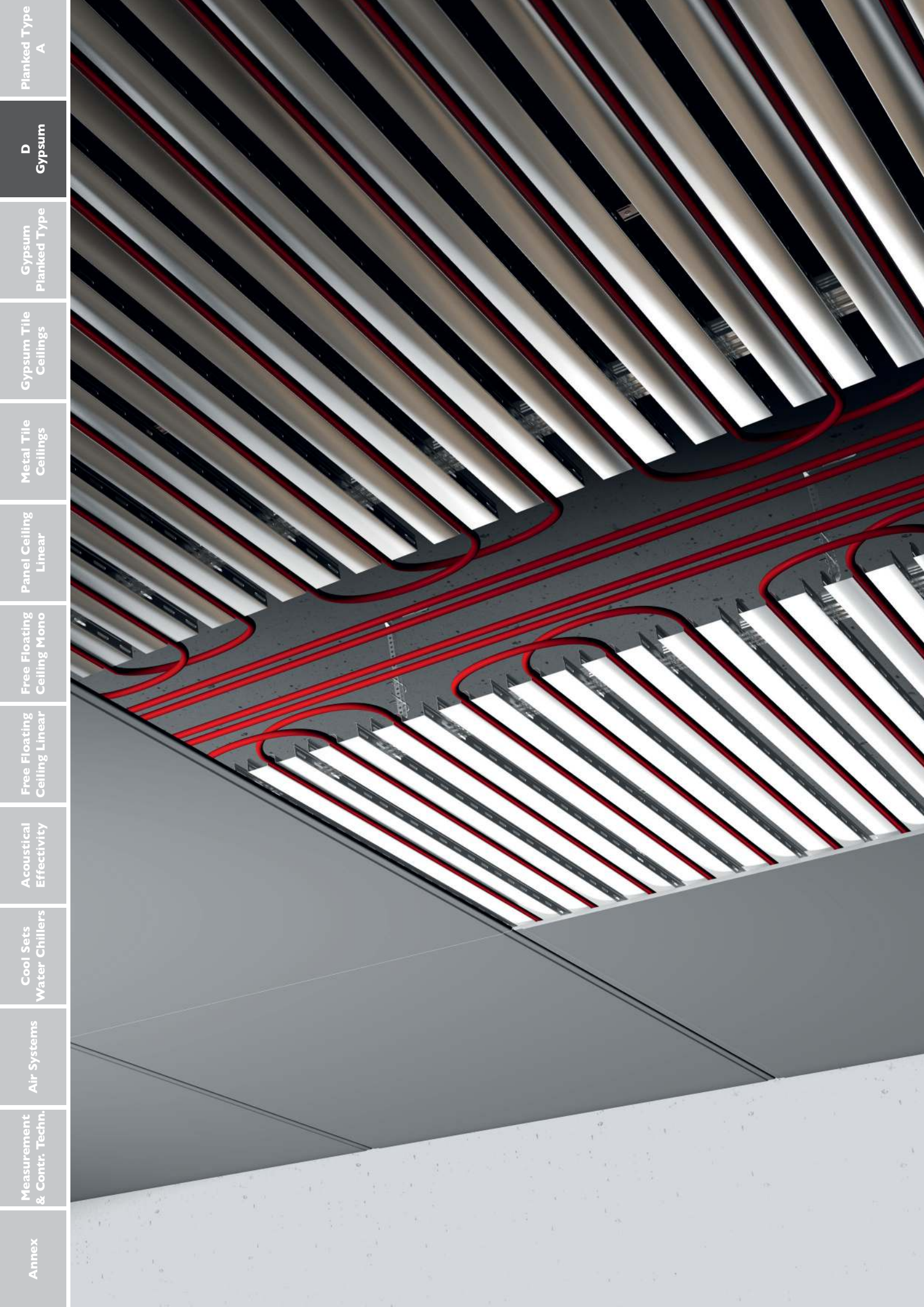


# CLIMALINE Gypsum Planked Type A Suspended Assembly

Smooth, perforated,  
acoustic plaster

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Annex

Measurement  
& Contr. Techn.

Air Systems

Cool Sets  
Water Chillers

Acoustical  
Effectivity

Free Floating  
Ceiling Linear

Free Floating  
Ceiling Mono

Panel Ceiling  
Linear

Metal Tile  
Ceilings

Gypsum Tile  
Ceilings

Gypsum  
Planked Type

D  
Gypsum

Planked Type  
A

The climate profiles (heat flux profiles) of the CLIMALINE gypsum board ceiling are simply fixed with cross connectors under ceiling C-profiles. Pipe installation then follows with the CLIMALINE composite pipe. Plasterboards are then screwed to the ceiling and finally the joints are filled.

## Product Advantages

Simple assembly  
Clear separation of drylining and HVAC  
Joint and directionless  
Sound-absorbing  
Diffusion-closed

## Areas of Application

Office and sales areas  
Training/seminar rooms  
Hospital rooms  
Canteens  
Gyms

## Technical Data

Planking	gypsum board
Operational weight	approx. 22.5 kg/m <sup>2</sup>
Water content	approx. 1.0 l/m <sup>2</sup>
Pipe meander	composite pipe 16 x 2.0 mm
Heat flux profile width	100 mm
Heat flux profile height	27 mm
Centre distance	125 mm
Material	0.7 mm aluminium

## Technical Properties

### Building material class

Planking A2-s1, d0 according to EN 13501-1  
Plastic meander B2 DIN 4102-4

### Sound absorption

According to DIN EN ISO 354

### Durability

Stress class A according to DIN EN 13964  
Diffusion resistant according to DIN 4726

### Performance

Heating output according to DIN EN 14037  
Cooling output according to DIN EN 14240

### Ball impact resistance (i.e. sports halls)

Ball impact resistance according to DIN EN 18032



EN 13964

According to DIN 18168

## System Components

Item	Designation	Art. no.	Material per m <sup>2</sup>		Illustration
			Unit	Quantity*	
1	Ceiling anchor (metal knock-in anchor)	*****	pieces	1.2	
2	Nonius – upper part, available lengths: 200 / 300 / 400 / 500 / 600 / 700 / 800 / 900 / 1000 / 1100 mm	*****	pieces	1.2	
3	Nonius – lower part for gypsum board 40 kg	*****	pieces	1.2	
4	Nonius – safety splint	*****	pieces	2.4	
5	Ceiling C-profile 60 / 27 / 0.6 mm	*****	m	0.9	
6	CLIMALINE cross connector for CLIMALINE climate profile, packing unit: 75 pieces	184765	pieces	8	
7	CLIMALINE longitudinal connector for CLIMALINE climate profile, packing unit: 100 pieces	164078	pieces	1	
8	CLIMALINE climate profile Type A 100 / 27 / 0.7 mm aluminium, length: 4000 mm	177974	m	8	
9	CLIMALINE composite pipe 16 x 2 mm, diffusion-closed Quantity: 200 m 500 m	317791 317792	m	9.5	
10	Inspection hatch for CLIMALINE ceiling with prefabricated gypsum plasterboard inlay	s. page 22			
11	Drywall screw according to manufacturer's information	*****	pieces	24	
12	Assembly aid for CLIMALINE climate profile Type A	Instal- 125 mm lation 150 mm distance: 175 mm 200 mm 250 mm	293716 293717 293718 316993 293716		

Helpful installation tools, see the chapter CLIMALINE Gypsum Planked Type D on page 30.

\* for maximum spans (distances)

\*\*\*\*\* please check in your CLIMALINE branch

## Assembly Instructions

Assembly of the CLIMALINE gypsum ceiling does not differ substantially from the assembly of a standard plasterboard ceiling. The materials comply with the production standards of drylining profile technology.

### Substructure

Ceiling C-profiles are suspended with 40 kg Nonius hangers at a maximum distance of 1000 mm. The maximum hanger distance is 800 mm. We recommend to choose a suspension height of not less than 120 mm. As the assembly is based on the DIN standard for light-weight suspended ceilings (DIN 18168), the manufacturing guidelines of the leading gypsum board manufacturers apply.



### Climate profile

The CLIMALINE climate profile is mounted at a centre distance of 125 mm and attached to the C-profile with special cross connectors. The use of assembly aids offered in all common centre distances guarantees that the climate profiles are parallel.

To reinforce the structure in itself, it makes sense to fix a screw onto the C-profile around every third cross connector.

The head sides of the climate profiles end approximately 250 mm in front of the adjacent wall. Another C-profile running parallel to the wall is mounted between the adjacent wall and the ends of the climate profiles once the piping has been laid.

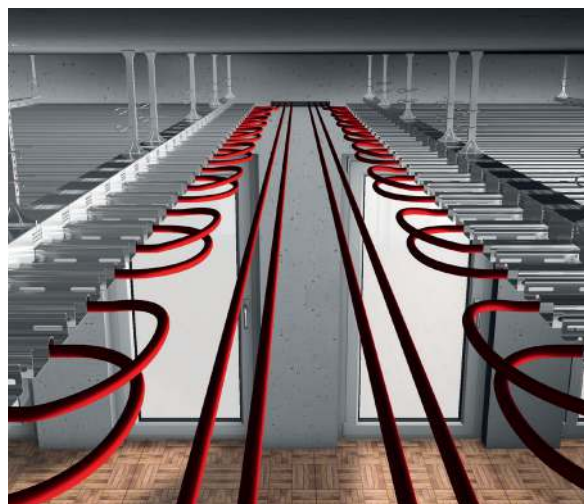


### Pipe installation

It is initially advisable to attach only every second profile and to provide the free profiles in-between with the next circuit.

Approximately 10 m<sup>2</sup> (for exact length of pipe see hydraulic calculation page 21) of pipe are installed for each circuit.

Therefore various circuits are created, which are subsequently connected to appropriately dimensioned circuit distributors using plug-ins.



### Planking

The planking is made with commercially available gypsum boards, plasterboards with optimized heat conductivity or expanded glass granulate boards.

Each profile is screwed in alternation on both sides of the pipe at a distance of 400 mm. This means that the total number of screws needed is no more than in a conventional gypsum ceiling.

It is important not to strike the pipe when screwing the profile. However, if the pipe is struck, the damaged spot can easily be repaired with CLIMALINE VR connectors (see below).

Please ensure that special screws are used in modified graphite boards in accordance with the manufacturer's instructions. Expansion joints are installed according to the information provided by the manufacturer of the plasterboards used.

### CLIMALINE VR connector and adapter

If the fitter has screwed into the pipe, if there is a kink in the pipe or if the composite pipe has ended, the pipe can be reconnected at any time easily and safely.

The connecting fitting consists of either a VR longitudinal or an angle connector and two VR adapters. The adapters are just plugged on the connector and the pipes can easily be plugged in then. Immediate after the pipe is plugged into the adapter the connection is absolutely leak and not demountable any longer without destroying the fitting.

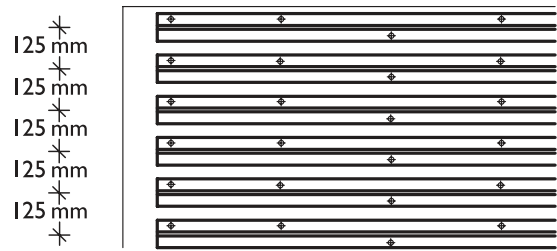
The pipe has to be deburred and graduated inside and outside. We offer a tool which does both necessities in one.

### Connection of the control circuit distributor

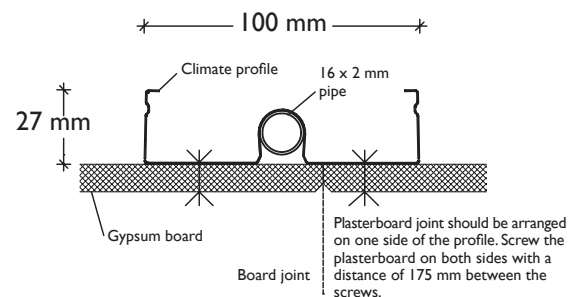
We stockpile control circuit distributors of 2 – 12 control circuits. The distributors can be easily connected to each other.

The distributors come with handovers at all return

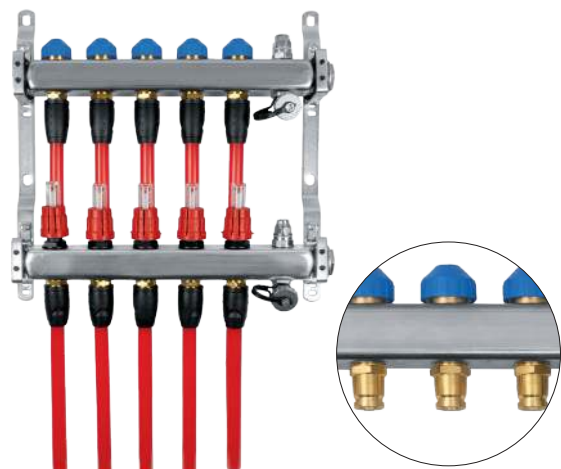
✱ 400 mm ✱ 400 mm ✱ 400 mm ✱



Screwing scheme (centre distance 125 mm)



Screw connection plasterboard on profile



and supply circuits. VR adapters have to be plugged onto these fittings and finally the composite pipes are plugged into the VR adapters. Here, to deburr and graduate the pipe with a special tool is an obligation as well.

At the same time, the distributor is the interface to the HVAC competence, where the dryliner passes the ceiling, like a baton, to the plant installer. Each control circuit is equipped with a mass flow indicator, which makes the commissioning of the ceiling much easier for the HVAC installer.

### Planking with perforated gypsum board

Commercially available plasterboards as well as heat conduction optimized plasterboards are available for the system in all common hole patterns (regularly perforated and scattered holes).

The guidelines of leading manufacturers in the gypsum board industry again apply to assembly.

Please ensure climate profiles are arranged in such a way that the board joint can be screwed on one side of the climate profile through different formats, depending on the hole pattern (see diagram no. 2 on page 18).



### Acoustic plaster

Smooth surfaces are increasingly favoured in the design. The acoustic efficiency of such surfaces is often not aligned with the usage requirements. For this reason, the CLIMALINE gypsum ceiling is also tested with a spray-on acoustic plaster surface. Both the thermal and acoustic values decrease only slightly with the approximately 3 mm thick layer of plaster.

A perforated gypsum board, whose rear side is fitted with a thin plastic sheet and the front with a plaster base fleece, serves as a baseboard. The plaster manufacturer processing guidelines apply to application of the plaster.



### Safety instructions

Use stable ladders or scaffolding at a sufficient height.

## Performance Data with 0.7 mm Aluminium Profile Type A

### Cooling output according to DIN EN 14240

Graphite-modified gypsum board	
Planking thickness	10 mm
Centre distance between profiles	125 mm
$\Delta t$	10 Kelvin
Cooling output*	69 Watt
Active area ratio	1.0

Gypsum board 12.5 mm	
Planking thickness	12.5 mm
Centre distance between profiles	125 mm
$\Delta t$	10 Kelvin
Cooling output*	56 Watt
Active area ratio	1.0

Gypsum board with slightly increased heat flow	
Planking thickness	10 mm
Centre distance between profiles	125 mm
$\Delta t$	10 Kelvin
Cooling output*	59 Watt
Active area ratio	1.0

Lahnau Micropore G FWA cool	
Planking thickness	18 mm
Centre distance between profiles	125 mm
$\Delta t$	10 Kelvin
Cooling output**	65 Watt
Active area ratio	1.0

### Heating output according to DIN EN 14037

Graphite-modified gypsum board	
Planking thickness	10 mm
Centre distance between profiles	125 mm
$\Delta t$	15 Kelvin
Heating output**	85 Watt
Active area ratio	1.0

Gypsum board 12.5 mm	
Planking thickness	12.5 mm
Centre distance between profiles	125 mm
$\Delta t$	15 Kelvin
Heating output**	73 Watt
Active area ratio	1.0

Gypsum board with slightly increased heat flow	
Planking thickness	10 mm
Centre distance between profiles	125 mm
$\Delta t$	15 Kelvin
Heating output**	75 Watt
Active area ratio	1.0

Lahnau Micropore G FWA cool	
Planking thickness	18 mm
Centre distance between profiles	125 mm
$\Delta t$	15 Kelvin
Heating output**	82 Watt
Active area ratio	1.0

\*These values are proved by certificates issued by HLK Stuttgart.

\*\*These values arise from simulations on the basis of test certificates issued by HLK Stuttgart.



## Design with 0.7 mm Aluminium Profile Type A

The following tables show examples of the heating and cooling capacity per m<sup>2</sup> for predetermined systems and system temperatures.

**These tables do not obviate the statutory requirement to have a hydraulic calculation prepared by a specialist company according to DIN 18380.**

### Cooling System: Aluminium Type A GKG 10 mm with graphite-modified gypsum board

System temperature						
Supply temperature	15 °C	15 °C	15 °C	16 °C	16 °C	16 °C
Return temperature	17 °C	18 °C	19 °C	18 °C	19 °C	20 °C
Room temperature	26 °C	26 °C	26 °C	26 °C	26 °C	26 °C
Cooling output per m <sup>2</sup>	69.00 W	65.55 W	62.10 W	62.10 W	58.65 W	55.20 W
Maximum pipe length per circuit	57 m	76 m	94 m	62 m	82 m	100 m

### Heating System: Aluminium Type A GKG 10 mm with graphite-modified gypsum board

System temperature						
Supply temperature	38 °C	38 °C	38 °C	35 °C	35 °C	35 °C
Return temperature	35 °C	33 °C	31 °C	32 °C	30 °C	28 °C
Room temperature	20 °C	20 °C	20 °C	20 °C	20 °C	20 °C
Heating output per m <sup>2</sup>	94.60 W	88.86 W	83.13 W	77.40 W	71.66 W	65.93 W
Maximum pipe length per circuit	61 m	85 m	107 m	68 m	100 m	131 m






**VDI directive 6034 must be observed.**

**The active area of the CLIMALINE gypsum ceiling corresponds to 100 % of the installed surface.**

Please compare this occupancy rate with the other climate ceiling systems.

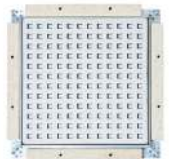

## Hydraulic Components\*

Our patented plug-ins provide safety for the hydraulic connection.

Designation	Art. no.	Material	Dimension	Illustration
CLIMALINE composite pipe, diffusion-closed	317791 317792	Plastic/ aluminium	16 x 2 mm, length: 200 m 16 x 2 mm, length: 500 m	
CLIMALINE VR adapter	317807	Plastic	16 mm	
CLIMALINE VR longitudinal connector	317808	Plastic	for VR adapter 16 mm	
CLIMALINE VR angle connector	317809	Plastic	for VR adapter 16 mm, radius: 90°	
CLIMALINE circuit distributor	for 2 circuits 317793 for 3 circuits 317794 for 4 circuits 317795 for 5 circuits 317796 for 6 circuits 317797 for 7 circuits 317798 for 8 circuits 317799 for 9 circuits 317800 for 10 circuits 317801 for 11 circuits 317802 for 12 circuits 317803	Stainless steel	for VR adapter 16 mm	

## Inspection Hatches for CLIMALINE

Inspection hatches tailored to CLIMALINE ceiling systems with different gypsum climate board inserts in all available hole patterns and plain.

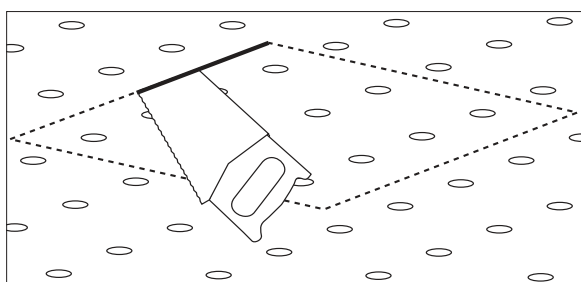
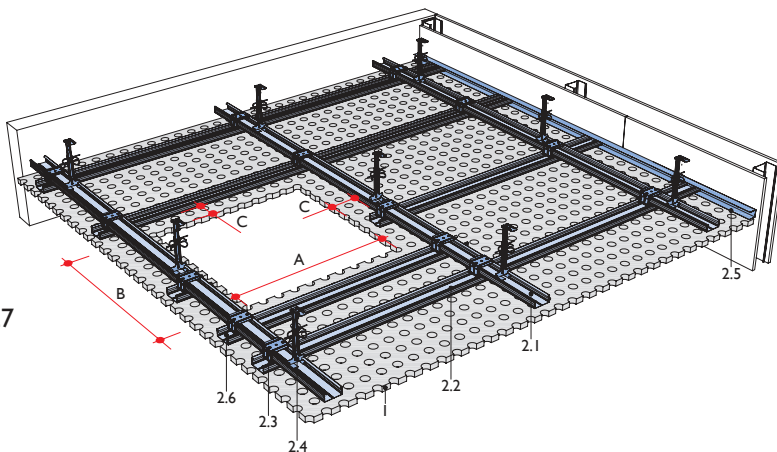
Designation	Art. no.	Insert	Nominal size	Illustration
Inspection hatch for CLIMALINE with Knauf insert	227600	Thermoboard, 10 mm	300 x 300 mm 400 x 400 mm 500 x 500 mm 600 x 600 mm 600 x 400 mm  <i>Additional sizes available on request.</i>	
	227601	Thermoboard Plus, 10 mm		
Inspection hatch for CLIMALINE with Rigips insert	227602	Climafit, 10 mm		
	227603	Climatop, 10 mm		
Inspection hatch for CLIMALINE with gypsum board insert	227604	Gypsum board according to DIN 18180, 12.5 mm		

\* Helpful installation tools, see the chapter CLIMALINE Gypsum Planked Type D on page 30.

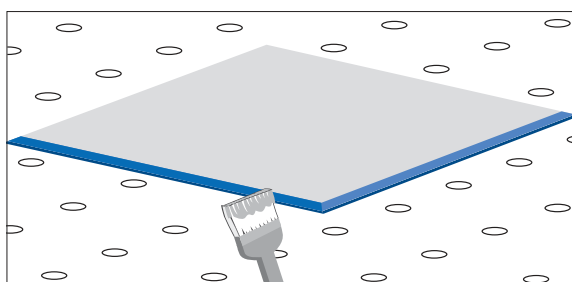
**Mounting the inspection hatch**

- 1 Perforated gypsum board
- 2.1 Basic C-profile 60/27
- 2.2 Support C-profile 60/27
- 2.3 Cross connector
- 2.4 Nonius hanger
- 2.6 Replacement ceiling C-profile 60/27

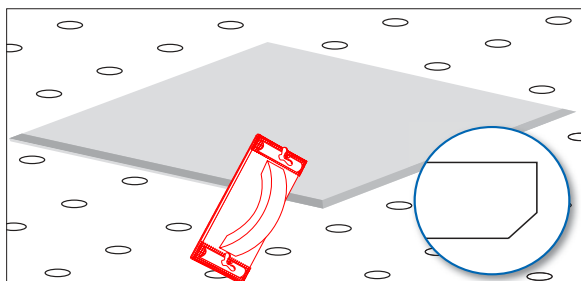
A/B Cut-out dimension (see page 25)  
C 45 – 100 mm



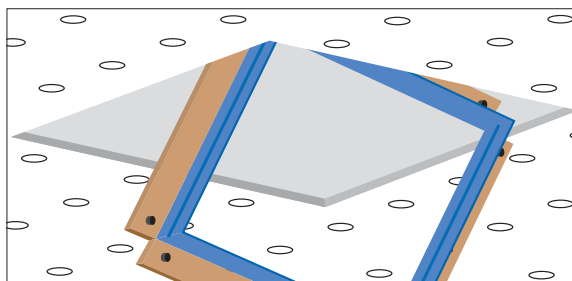
1. Mark and saw out with hand saw in accordance with section drawing



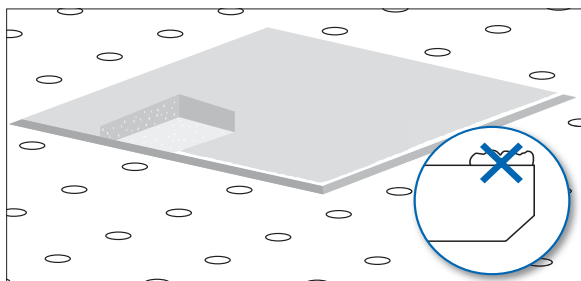
4. Prime cut edges



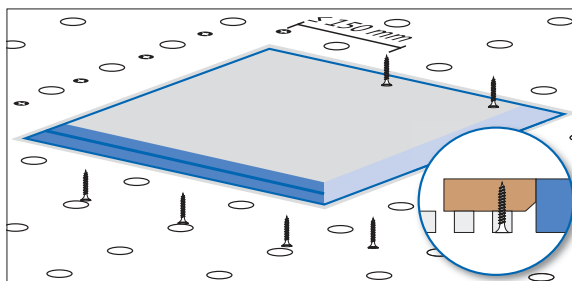
2. Break board edges



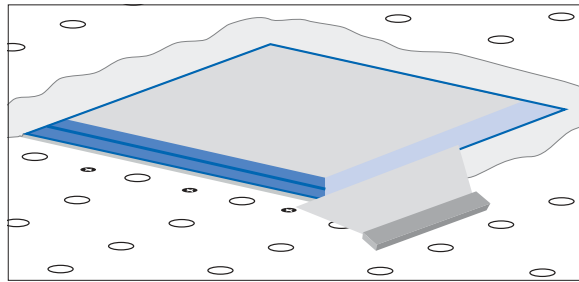
5. Detach inspection hatch from the frame, insert frame and align with bolt



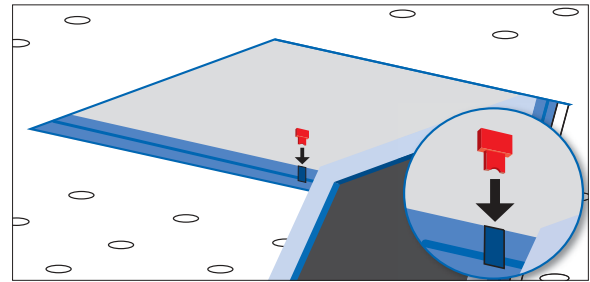
3. Clean top of plaster dust



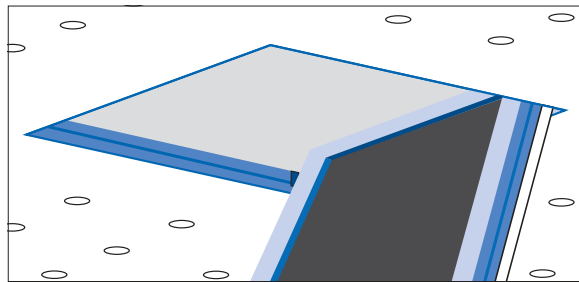
6. Screw the frame; use the screws recommended by gypsum board manufacturer



7. Grout frame

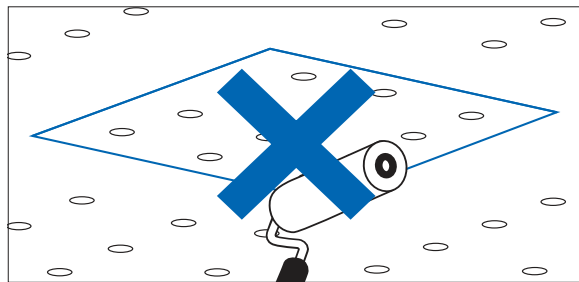


9. Important: mount the fall safety device and close the hatch

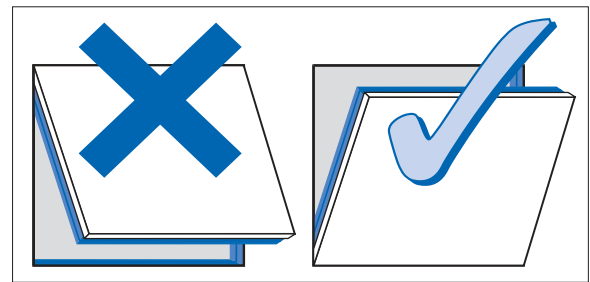


8. Hook in hatch and push back

### Special notes



Only paint the inspection hatch in the dismantled state



Install the inspection hatch when vertical so that the pressure opening is on top (not as a door!)

Since we are always striving to offer the best possible solutions, we reserve the right to make changes due to application or manufacturing improvements. Any pictures of work to be carried out that are included are not execution instructions, unless they are explicitly marked as such. Please note that the information cannot replace necessary structural planning. We require that the adjacent trades perform their work in a professional and proper manner.

**Technical data**

Nominal dimensions of the cut-out openings, inspection hatch openings and minimum suspension heights

Perforated gypsum board	300 x 300 mm			400 x 400 mm		
	Required cut-out size (A+B)	Inspection hatch opening size	Minimum suspension height	Required cut-out size (A+B)	Inspection hatch opening size	Minimum suspension height
6/18	322 mm	305 mm	160 mm	412 mm	395 mm	150 mm
8/18	320 mm	303 mm		410 mm	393 mm	
10/23	334 mm	317 mm		426 mm	409 mm	
12-25	335 mm	318 mm		410 mm	393 mm	
15/30	337 mm	320 mm		427 mm	410 mm	
8-12/50	312 mm	293 mm		412 mm	393 mm	
12-20/66	330 mm	315 mm		396 mm	381 mm	
8-15-20	356 mm	343 mm		406 mm	393 mm	
8-15-20 super	315 mm	300 mm		415 mm	400 mm	
12-20-35	315 mm	300 mm		415 mm	400 mm	
8/18 Q	320 mm	303 mm		410 mm	393 mm	
12/25 Q	335 mm	318 mm		410 mm	393 mm	

Perforated gypsum board	500 x 500 mm			600 x 600 mm		
	Required cut-out size (A+B)	Inspection hatch opening size	Minimum suspension height	Required cut-out size (A+B)	Inspection hatch opening size	Minimum suspension height
6/18	520 mm	503 mm	140 mm	610 mm	593 mm	120 mm
8/18	518 mm	501 mm		625 mm	609 mm	
10/23	518 mm	501 mm		610 mm	593 mm	
12-25	510 mm	493 mm		610 mm	593 mm	
15/30	517 mm	500 mm		637 mm	620 mm	
8-12/50	512 mm	493 mm		612 mm	593 mm	
12-20/66	528 mm	513 mm		594 mm	579 mm	
8-15-20	506 mm	493 mm		606 mm	593 mm	
8-15-20 super	515 mm	500 mm		615 mm	600 mm	
12-20-35	515 mm	500 mm		615 mm	600 mm	
8/18 Q	518 mm	501 mm		625 mm	609 mm	
12/25 Q	510 mm	493 mm		610 mm	593 mm	

## CLIMALINE Ceiling Systems Checklist

### 1. System selection

- Gypsum ceiling system   
  Metal ceiling system   
  Free floating ceiling   
  Thermo Panel 4T

### 2. System

- Suspended assembly   
  Heating → System temperature: supply: \_\_\_\_\_ return: \_\_\_\_\_  
 Cooling → System temperature: supply: \_\_\_\_\_ return: \_\_\_\_\_
- Direct assembly   
  Heating → System temperature: supply: \_\_\_\_\_ return: \_\_\_\_\_  
 Cooling → System temperature: supply: \_\_\_\_\_ return: \_\_\_\_\_

### 3. Building

- Floor plan   
  PDF format   
  DWG format
- Heating load calculation   
  available  
 required\*  
 fixed value: \_\_\_\_\_ watts/m<sup>2</sup>
- Cooling load calculation   
  available  
 required\*  
 fixed value: \_\_\_\_\_ watts/m<sup>2</sup>

### 4. Measurement and control technology

- Climate control   
  wired →  Comfort     Object  
 wireless →  Comfort     Object
- Accessories   
  Zone valve  
 Automatic mass flow limiter

\*A list of components with U-values and a floor plan in DWG format are required to calculate heating and cooling loads.