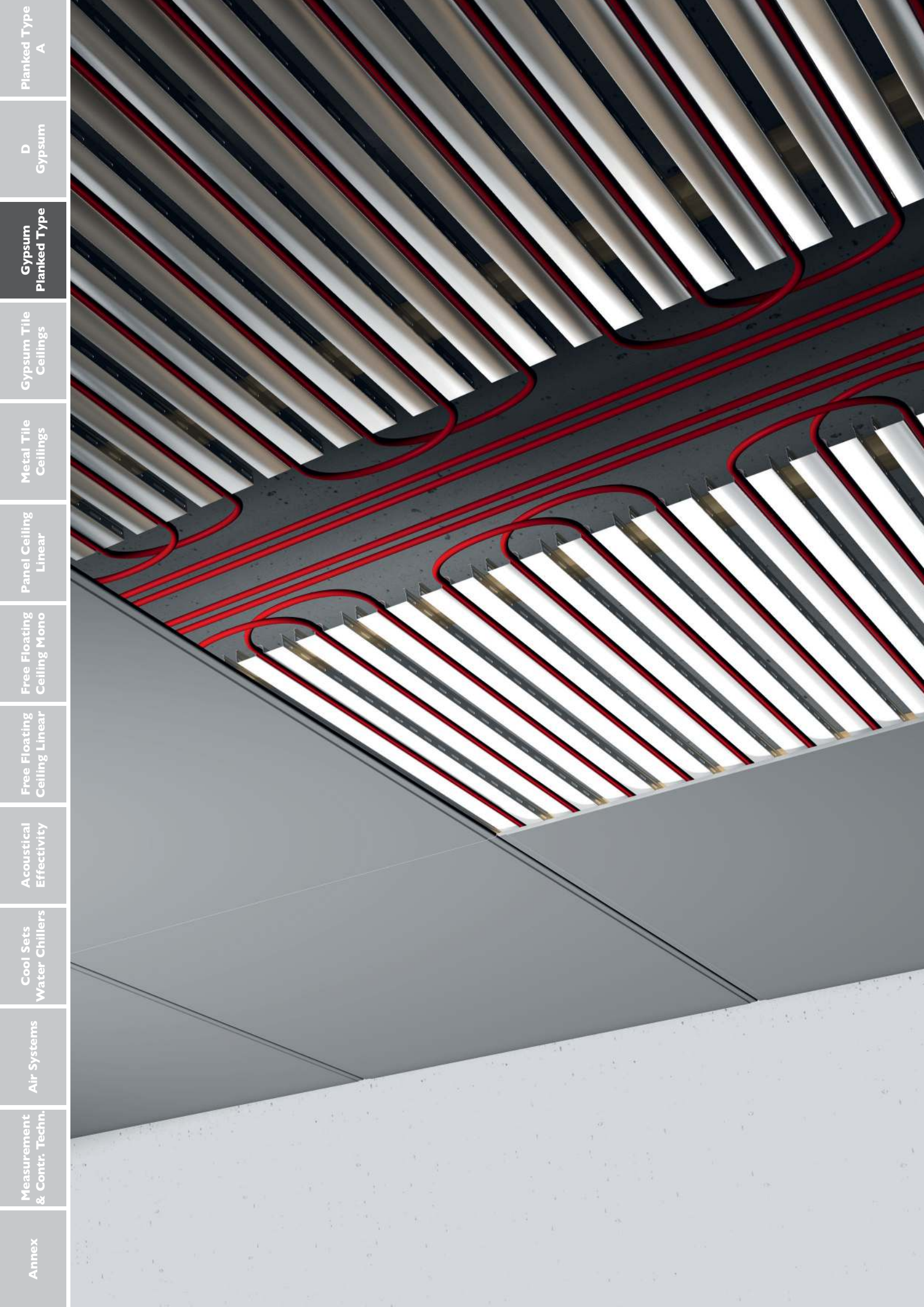


CLIMALINE Gypsum Planked Type D Direct Assembly

**Smooth, perforated,
acoustic plaster**

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System Components	30
Assembly Tools	30
Assembly Instructions	31
Performance Data	34
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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 screwed onto a levelling batten that was previously mounted directly onto the solid part. The height of the groove in the climate profile leaves room for screw head and pipe. Then comes the piping with the CLIMALINE composite pipe. The ceiling is then planked and ultimately filled.

Product Advantages

Easy assembly
Clear separation of drylining and HVAC
Joint and directionless
Low installation height
Diffusion-closed

Areas of Application

Office and sales areas
Training/seminar rooms
Attics
Residential buildings
Sports halls

Technical Data

Planking	gypsum board
Operational weight	approx. 20.0 kg/m ²
Water content	approx. 1.0 l/m ²
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





Ball impact resistance according to DIN EN 18032







EN 13964

According to DIN 18168

System Components

Item	Designation	Art. no.	Material per m ²		Illustration
			Unit	Quantity*	
5	Wooden batten	*****	m	0.9	
8	CLIMALINE climate profile Type D 100/27/0.7 mm aluminium, length: 4000 mm	185053	m	8	
9	CLIMALINE composite pipe 16 x 2 mm, diffusion-closed Quantity: 200 m 500 m	317791 317792	m	9.5	
11	Drywall screw according to manufacturer's information	*****	pieces	24	

Assembly Tools

Item	Designation	Art. no.	Illustration
W 1	Pipe cutting tool	162784	
W 2	Pipe deburrer, consisting of deburring bit and interchangeable handle	162787	
W 3	Pipe bending tool	162785	
W 4	Pipe uncoiler 4-arm, specially designed for the use of composite pipes	163231	

* 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.

Ceiling level

Direct assembly is possible in the attic, under a wood-beamed ceiling or under a solid ceiling.

Ideally, the construction is levelled using planed battens (minimum of 22 mm).



Climate profile

The CLIMALINE heat flux profile is screwed into the previously installed levelling battens at a centre distance of at least 125 mm.

Please screw through the groove in the batten.

The use of assembly aids offered in all common centre distances guarantees that the climate profiles are parallel.

The head sides of the climate profiles end approximately 250 mm in front of the adjacent wall.

A climate profile (without piping) running parallel to the wall is mounted directly between the adjacent wall and the ends of the climate profiles.



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 m² (for exact length of pipe see hydraulic calculation page 35) 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. Immediately after the pipe is plugged into the adapter the connection is absolutely leak and not demountable any longer without destroying the fitting.

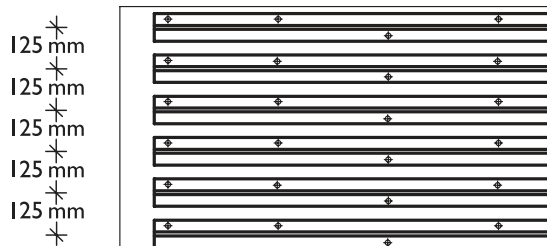
The pipe has to be deburred and graduated inside and outside. We offer a tool which does both necessities in one.

Connection of the control circuit distributor

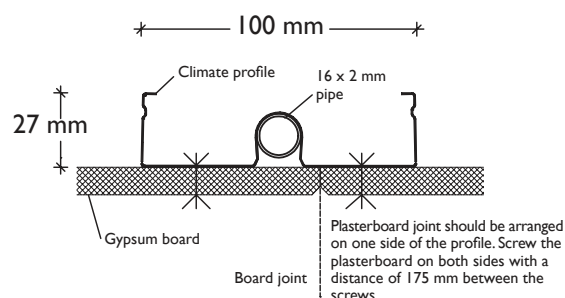
We stockpile control circuit distributors of 2 – 12 control circuits. The distributors can be easily connected to each other.

The distributors come with handovers at all return

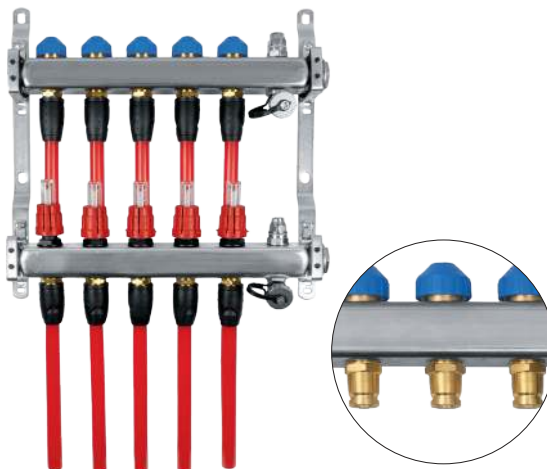
✱ 400 mm ✱ 400 mm ✱ 400 mm ✱



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 32).



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 D

Cooling output according to DIN EN 14240

Graphite-modified gypsum board	
Planking thickness	10 mm
Centre distance between profiles	125 mm
Δt	10 Kelvin
Cooling output*	55 Watt
Active area ratio	1.0

Gypsum board with slightly increased heat flow	
Planking thickness	10 mm
Centre distance between profiles	125 mm
Δt	10 Kelvin
Cooling output**	50 Watt
Active area ratio	1.0

Gypsum board 12.5 mm	
Planking thickness	12.5 mm
Centre distance between profiles	125 mm
Δt	10 Kelvin
Cooling output**	49 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
Δt	15 Kelvin
Heating output**	71 Watt
Active area ratio	1.0

Gypsum board with slightly increased heat flow	
Planking thickness	10 mm
Centre distance between profiles	125 mm
Δt	15 Kelvin
Heating output**	65 Watt
Active area ratio	1.0

Gypsum board 12.5 mm	
Planking thickness	12.5 mm
Centre distance between profiles	125 mm
Δt	15 Kelvin
Heating output**	63 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 D

The following tables show examples of the heating and cooling capacity per m² 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 D 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 ²	55.00 W	52.30 W	49.50 W	49.50 W	46.80 W	44.00 W
Maximum pipe length per circuit	77 m	98 m	118 m	80 m	105 m	127 m

Heating System: Aluminium Type D 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 ²	78.50 W	73.40 W	68.60 W	63.90 W	59.20 W	54.50 W
Maximum pipe length per circuit	81 m	111 m	139 m	91 m	124 m	158 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	

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

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/m²
- ☐ Cooling load calculation
 ☐ available
☐ required*
☐ fixed value: _____ watts/m²

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.