



# aquatherm black system

High-performance modules for cooling ceilings

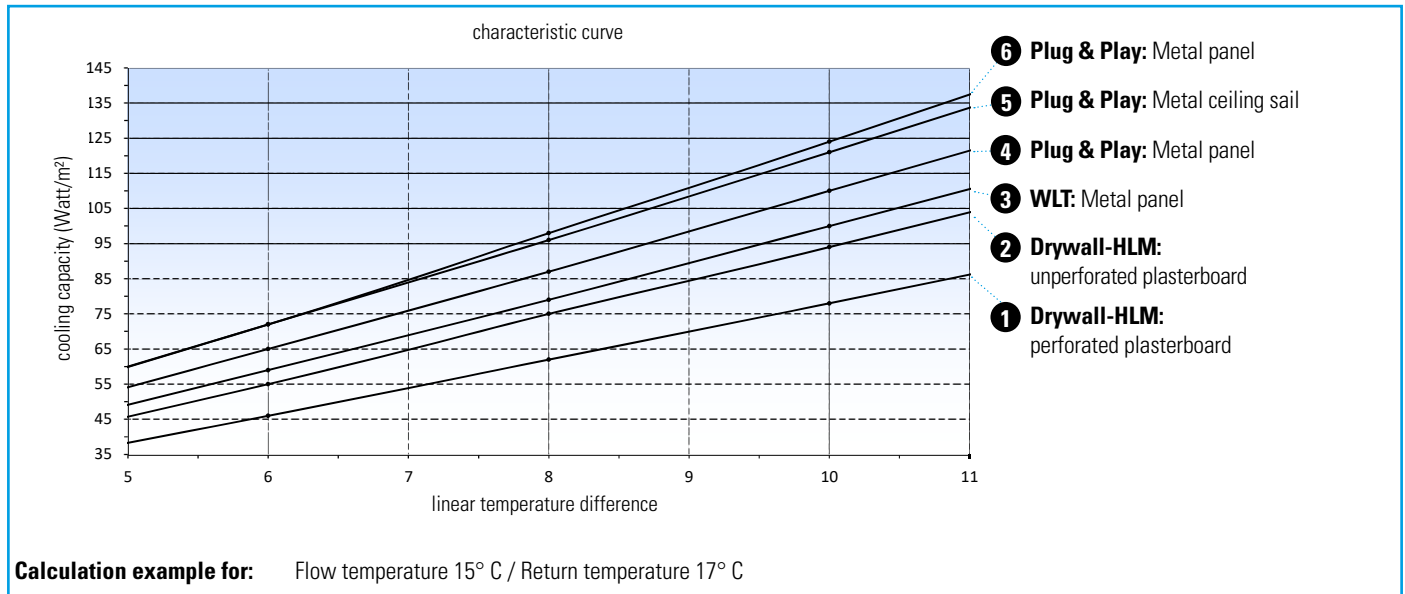


**aquatherm**  
state of the pipe



## Performance data

### Performance values of ceiling system high-performance modules. Standard cooling performance according to DIN EN 14240: 2004-04



**Calculation example for:** Flow temperature 15° C / Return temperature 17° C

| Linear temperature difference K |  | 6  | 8  | 10  |
|---------------------------------|--|----|----|-----|
| Room temperature °C             |  | 22 | 24 | 26  |
| 1                               | Drywall-HLM perforated plasterboard with graphite content 10 mm 8/18R  | 46 | 62 | 78  |
| 2                               | Drywall-HLM unperforated plasterboard with high graphite content 10 mm | 55 | 75 | 94  |
| 3                               | WLT Metal panel, with acoustic fleece                                  | 59 | 79 | 100 |
| 4                               | Plug & Play Metal panel, with acoustic fleece                          | 65 | 87 | 110 |
| 5                               | Plug & Play Metal ceiling sail, with acoustic fleece                   | 72 | 96 | 121 |
| 6                               | Plug & Play Metal panel, without acoustic fleece                       | 72 | 98 | 124 |

## Acoustic values of a drywall ceiling with aquatherm black system

### High-performance cooling ceiling and perforated gypsum plasterboard with insulation

Dry construction ceiling with proportional perforation of 19,8%, type 8/18 Q

| Frequency (Hz)   | 125  | 250  | 500  | 1000 | 2000 | 4000 |
|--|------|------|------|------|------|------|
| $\alpha_p$   | 0,63 | 0,69 | 0,61 | 0,51 | 0,44 | 0,66 |
| Sound absorption coefficient for a drywall ceiling with proportional perforation of 19,8%, type 8/18 Q |      |      |      |      |      |      |
| Evaluation according to ISO 354<br>Practical sound absorption coefficient according to ISO 11654       |      |      |      |      |      |      |
| $\alpha_w = 0,50$ (LH)   |      |      |      |      |      |      |
| Sound absorption class D   |      |      |      |      |      |      |

Dry construction ceiling with proportional perforation of 15,5%, type 8/18 R

| Frequency (Hz)   | 125  | 250  | 500  | 1000 | 2000 | 4000 |
|--|------|------|------|------|------|------|
| $\alpha_p$   | 0,57 | 0,62 | 0,55 | 0,46 | 0,41 | 0,67 |
| Sound absorption coefficient for a drywall ceiling with proportional perforation of 15,5%, type 8/18 R |      |      |      |      |      |      |
| Evaluation according to ISO 354<br>Practical sound absorption coefficient according to ISO 11654       |      |      |      |      |      |      |
| $\alpha_w = 0,45$ (LH)   |      |      |      |      |      |      |
| Sound absorption class D   |      |      |      |      |      |      |

Dry construction ceiling with proportional perforation of 23%, type 12/25 Q

| Frequency (Hz)  | 125  | 250  | 500  | 1000 | 2000 | 4000 |
|---|------|------|------|------|------|------|
| $\alpha_p$  | 0,63 | 0,75 | 0,65 | 0,54 | 0,47 | 0,64 |
| Sound absorption coefficient for a drywall ceiling with proportional perforation of 23%, type 12/25 Q |      |      |      |      |      |      |
| Evaluation according to ISO 354<br>Practical sound absorption coefficient according to ISO 11654      |      |      |      |      |      |      |
| $\alpha_w = 0,55$ (LH)  |      |      |      |      |      |      |
| Sound absorption class D  |      |      |      |      |      |      |

Dry construction ceiling with proportional perforation of 18,1%, type 12/25 R

| Frequency (Hz)  | 125  | 250  | 500  | 1000 | 2000 | 4000 |
|---|------|------|------|------|------|------|
| $\alpha_p$  | 0,57 | 0,62 | 0,56 | 0,47 | 0,42 | 0,63 |
| Sound absorption coefficient for a drywall ceiling with proportional perforation of 18,1%, type 12/25 R |      |      |      |      |      |      |
| Evaluation according to ISO 354<br>Practical sound absorption coefficient according to ISO 11654        |      |      |      |      |      |      |
| $\alpha_w = 0,45$ (LH)  |      |      |      |      |      |      |
| Sound absorption class D  |      |      |      |      |      |      |



### **Metal panel ceiling as clamping system**

Thanks to the rear self-adhesive aluminium supporting plate, the aquatherm black system high-performance modules can be affixed quickly and easily into the metal panel on site. The modules can be integrated into both new and existing grid ceilings.



### **Thermal active metal ceiling sail**

aquatherm black system high-performance modules are affixed to ceiling sails with the self-adhesive back. Metal ceiling sails offer architects and planners great creative freedom: the ceiling elements can be individually adapted to any room geometry in terms of shape and dimension.



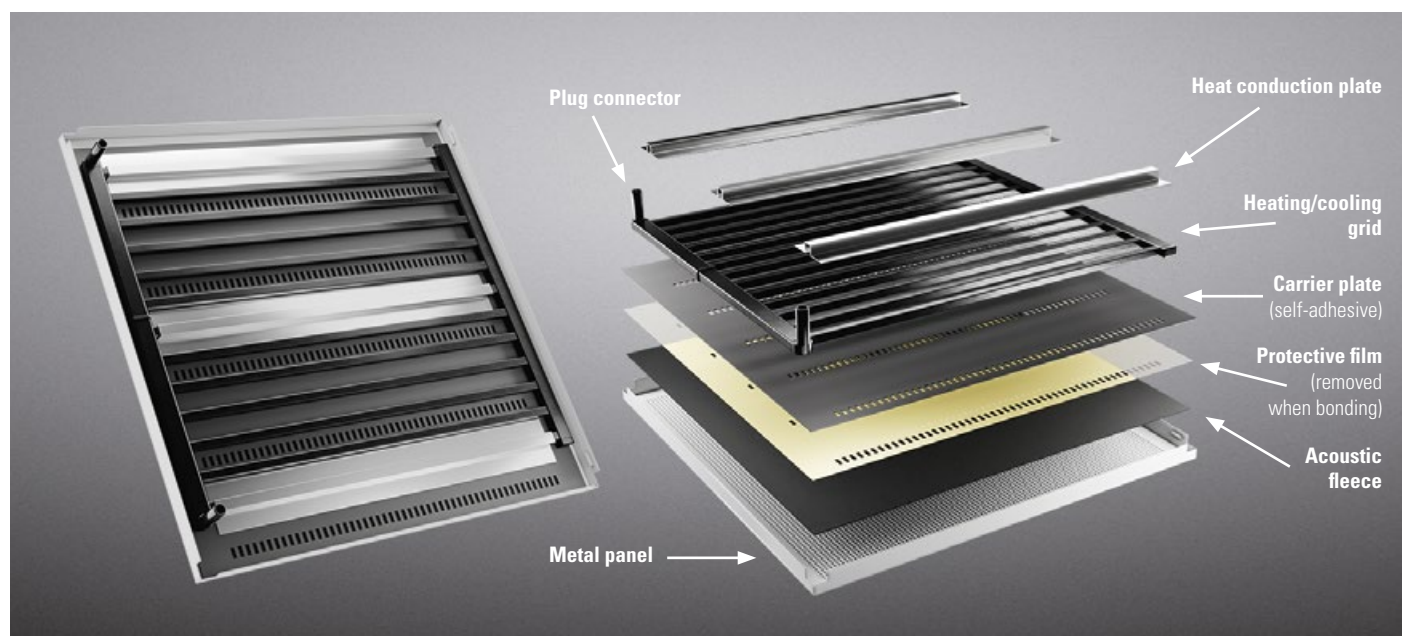
## aquatherm black system high-performance modules for cooling ceilings

aquatherm black system high-performance modules combine aquatherm's proven heating and cooling grids with heat conduction plates and aluminium carrier plates. The modules take advantage of the pressure drop and fluidics of the grids and the very good thermal conductivity of the aluminium. Full-surface bonding guarantees easy and quick installation. And thanks to reduced-connection technology, assembly time is minimized and the cost per square meter of installed ceiling is decreased.

The surface temperature of aquatherm black system high-performance modules is only a few degrees above or below the desired room temperature. Thus, the modules are ideal for heating systems using renewable energies, such as heat pumps. The uniform heat or cold transmission by means of radiation ensures increased comfort. In addition, there are no draughts created or dust raised, as can be the case with blower-driven heating and cooling systems.

### Advantages

- *High heating and cooling performance due to excellent transmission surface contact*
- *Short assembly times thanks to pre-fabricated, self-adhesive modules*
- *Soundless and invisible*
- *No draughts or airborne dust blowing around*
- *Ideally suited for use with heat pump and condensing boiler technology due to low flow and return temperatures*
- *High sound absorption in metal ceiling panels with micro perforation or in perforated plasterboard plates*
- *Retrofittable into existing metal ceiling systems*





### **Metal panel ceiling as strip grid system**

The aquatherm black system high-performance modules are equipped with a self-adhesive aluminium carrier plate on the back. This ensures a simple and quick attachment to a metal panel. Retrofitting into existing grid ceilings is possible at any time.



### **Ceiling system with metal substructure and planking with building boards**

The assembly of the aquatherm black system high-performance modules is very simple: the modules are suspended in the supporting profiles of the substructure, then the ceiling is planked with building boards (for example, plasterboard or perforated gypsum plasterboard). Boards with different thermal conductivities can be used.



## MORE INFORMATION

**aquatherm black system** High-performance modules - technical information

**Order-No.:** E20115

**aquatherm black system** Surface heating and cooling system for ceiling, wall, floor

**Order-No.:** E97060

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Management  
System  
ISO 9001:2015  
ISO 14001:2015  
ISO 50001:2011  
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