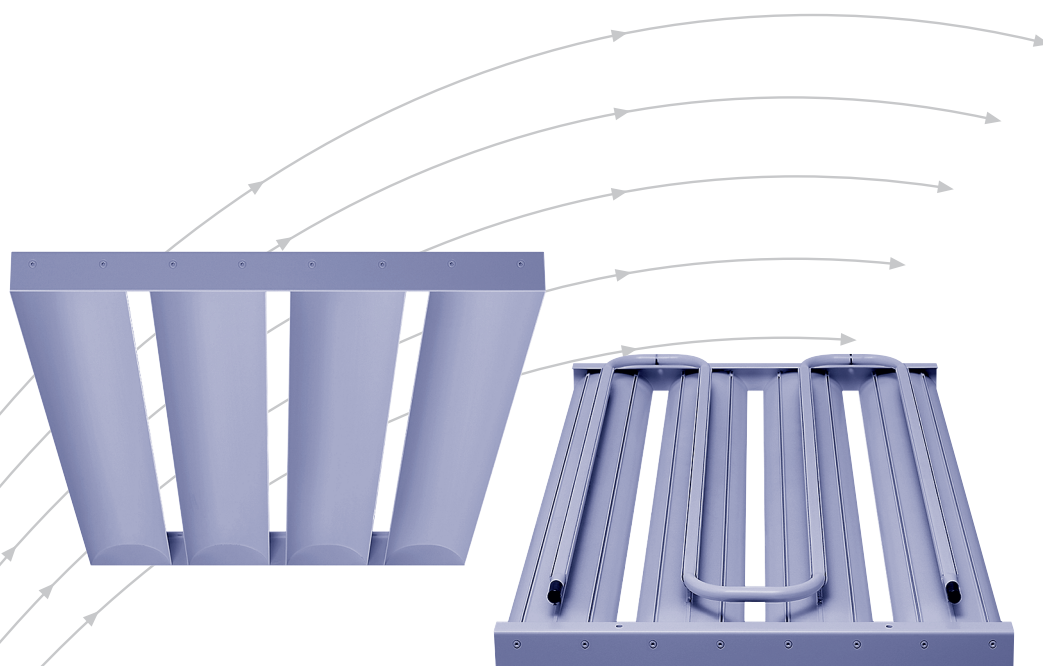


Chilled ceiling system

- Type WK-D-EL
- Elliptical cooling fins



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Description

The elliptical cooling ceiling elements of the WK-D-EL series can be used for a cooling ceiling as an open installation or in conjunction with open ceiling grids. The convection share is around 70% and the radiation around 30%. Due to the high convection, very large heat loads can be discharged, whilst the heat capacity advantage of water is used to full effect.

For an additional suspended open ceiling grid, the effective free profile must be as large as possible to retain the high efficiency of the chilled ceiling.

Depending on the maximum pressure losses required and the on-site conditions, cooling elements of the appropriate length are created and assembled into modules.

The connections of the individual cooling fins to each other are made via a single copper pipe shaped into a meander and pressed into the fins.

The connections between the modules and distribution lines are made via flexible metal oxygen-diffusion-resistant hoses with stainless steel sheathing and a plug or screw fixing.

After installation, the entire system must be checked for leaks. This monitoring is carried out according to the pressure drop method using air or water.

The cold water inflow temperature should be selected so that this never falls below the dew point.

Special design options such as folding modules, combinations with air intake etc., are available.

Safety instructions

CAUTION!

Risk of injury from sharp edges and corners, ridges and thin-walled sheet metal parts!

- Proceed carefully with all work.
- Wear protective gloves, safety shoes and protective helmet.

WARNING!

Risk of injury due to insufficient qualifications!

Improper handling may lead to considerable personal harm or material damage.

- All activities may only be carried out by suitably qualified staff.

WARNING!

Danger from incorrect use. Misuse of the product may lead to dangerous situations.

The product must not be used:

- in areas subject to explosion hazards;
- in the open air without sufficient protection against weather effects;
- in atmospheres that may have a damaging and/or corrosive effect on the product due to scheduled or unscheduled chemical reactions.

CAUTION!

Damage to the product due to improper handling. Check the device for damage and contamination prior to operation!

Improper handling may lead to considerable material damage of the product.

- Do not use any acid or abrasive cleaning agents.
- Adhesives from sticky tape may lead to colour damage.
- Excessive moisture may lead to colour damage and corrosion.
- Use only cleaning agents, greases and oils that are expressly specified.

Realisation · Performance · Rapid definition

Structural description

The cooling fins consist of heat conducting rails made from aluminium extruded profiles, press-fitted with copper pipe. The hollow domed shape of the fin creates an attractive ceiling design and a particularly high cooling capacity.

Acoustics

Room noise absorption can be set up according to requirements. For example, using mineral fibre plates coated on one side and placed over the cooling fins.

Surfaces

The visible surfaces of the fins and the sealing plate are powder-coated using RAL 9010 (other colours upon request).

Assembly and water connections

The fins are prefabricated in the factory as a module and are supplied ready for installation. The water connections are made using flexible, diffusion-resistant hoses, which are protected with stainless steel sheathing. The hoses are fitted for connection to the copper pipe with quick couplings, and for the connection to the water supply with an internal thread of 1/2" and flat seals.

Performance

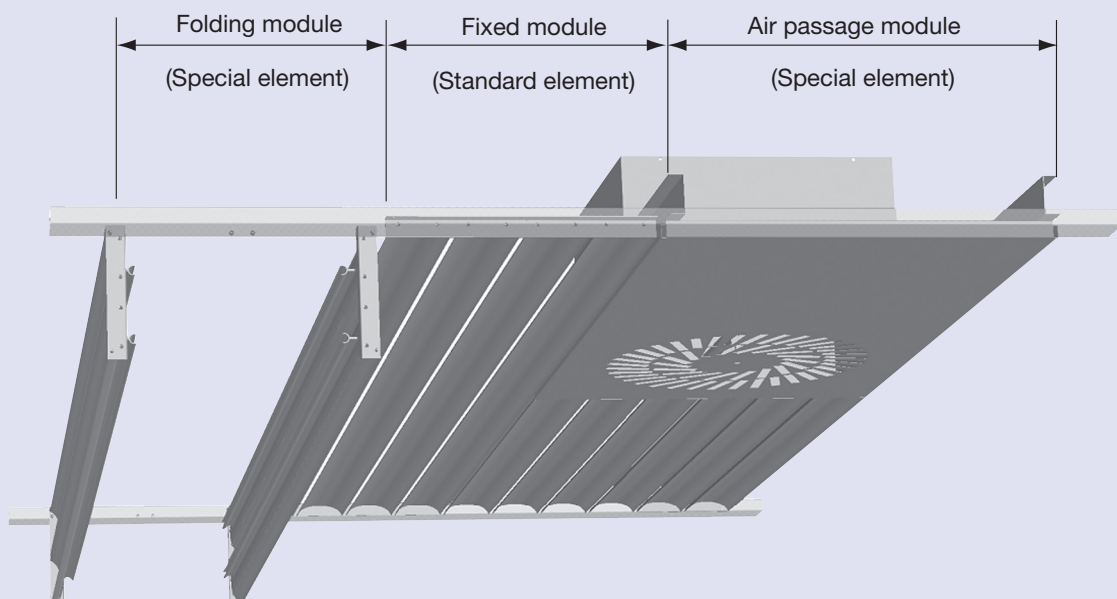
135 W/m² according to DIN 4715 ($\Delta t = 10$ K)

Rapid definition and layout

Performance according to DIN 4715

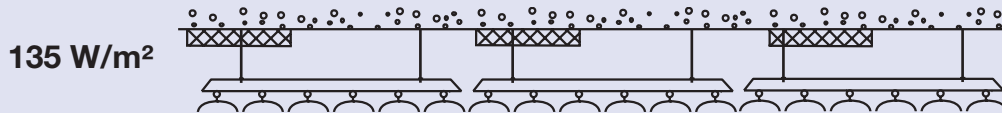
All the ceiling systems we offer have been checked according to DIN 4715. The standard defines the test sequence as well as the layout of the heat loads. The measurements were carried out in a DIN test area with a water temperature difference of 2K and a temperature difference between room temperature and average water temperature of 10K.

Design example

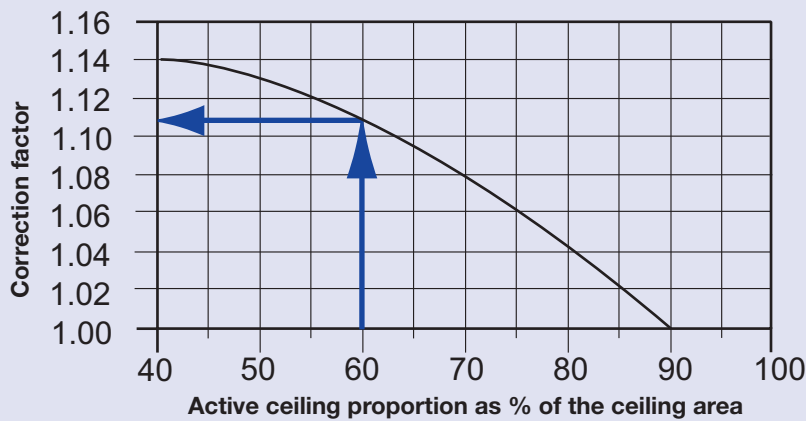


Rapid definition

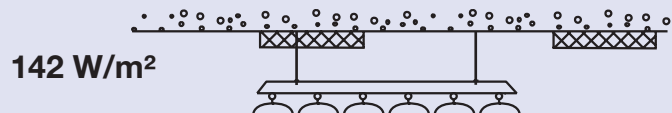
Installation of active ceiling cooling module



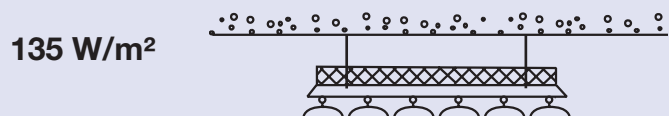
Correction factor with regard to the active proportion of chilled ceiling, provided the active ceiling is not made of metal.



Installation as chilled ceiling sail.

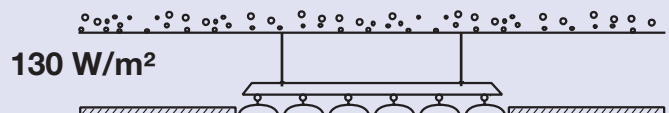


Installation as chilled ceiling sails with overlying acoustic mat.



For chilled ceiling sails, no increase in output should be calculated with regard to active proportion.

Installation as a cooling field in a closed ceiling system.



Given

Active ceiling cooling module, $\Delta t = 10 \text{ K}$ 135 W/m^2
 K active ceiling area to floor area 60%
 Remaining ceiling made of inactive EL modules

Solution

Increase in output with proportion of activation $60\% \Rightarrow$ Factor 1.11

$$Q = 135 \text{ W/m}^2 \times 1.11 \times 60\% = 90 \text{ W/m}^2$$

with regard to floor area

Required

Actual performance

Please contact us and we will support you with your product from its inception.