

Acoustic Systems

Expansion systems based on most recent research and development create space- and future value for people and property.

Highlights

To solve all your noise problems, our acoustic program has once again been expanded:

The new mounting/bracket with hook fastener reduces installation time, in some cases to only 5 minutes. Unpack. Install. Silence!

The new assembly line production enables a price decrease of up to 30%.

Implementing the latest results of research creates an increase in the absorption level and the frequency-response curves of 10 to 45%; in individual cases it may even double.

As an energy source for our air conditioning element we also offer, in accordance with our partners, geothermal systems.

The production range was again considerably expanded:
Absorption strength in 45, 50, 60, 80, 100 and 130 mm:
Absorber with free edges, plate-/ and cassette formats;
a special highlight in this connection: absorber construction as a 5-mm disc with a beveled edge.

For the highest design requirements, borderless hole punch designs on all sides are also available.

The thermo-active absorbers for concrete ceilings are now also available in all housing variants.

All compact absorbers are available with connection fittings for flat wall mounting.

Printed fabric facings are available as standard production or with an individual custom design.

The new powder coating system enables an even larger color variety with a 100% material recycling.

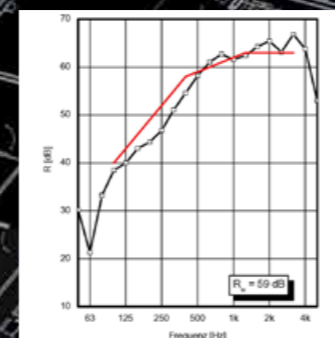
All standard absorbers are based on biologically tested materials, such as natural polyester- / mineral wool in fire protection class B1, alternatively in A2 / non-flammable (except CPR type 2.5).

All glass-acoustic sound shields are now also available without frames; in this case the absorbers are mounted directly on the glass surface.

Noise control zones without doors are available from 40 dB to over 50 dB.

After the great success with the wall cooling elements, we extended the program to include a ceiling cooling element.

All ceiling elements are available with built-in lights, both as LED systems, as well as in Opal-technology and with an indirect ceiling floodlights.



Product Overview

Acoustic Modules

High Performance Compact Absorber	6
Broadband Compact Absorber	8
Broadband Compact Absorber	10
Acoustic Wall Panels	12
Custom Integrated Absorber Cassettes	14



Acoustic Ceiling Panels

16



Glass Acoustic Systems

Glass Acoustic Noise Shields	18
Glass Acoustic Partition Systems	20



Acoustics in Wall Systems

Wall Systems with Absorbers	22
Noise Control Absorbers	24



Acoustics in Furniture Systems

Absorbers for Acoustic Furnishings	26
Absorbers for Full-Spectrum Absorption Furnishings	28



Integrated Air Conditioning Systems

Thermo-active High Performance Edge Absorbers	30
Modular Recirculating Air Conditioners	32
Cooling Panels	38



Integrated Lighting Systems

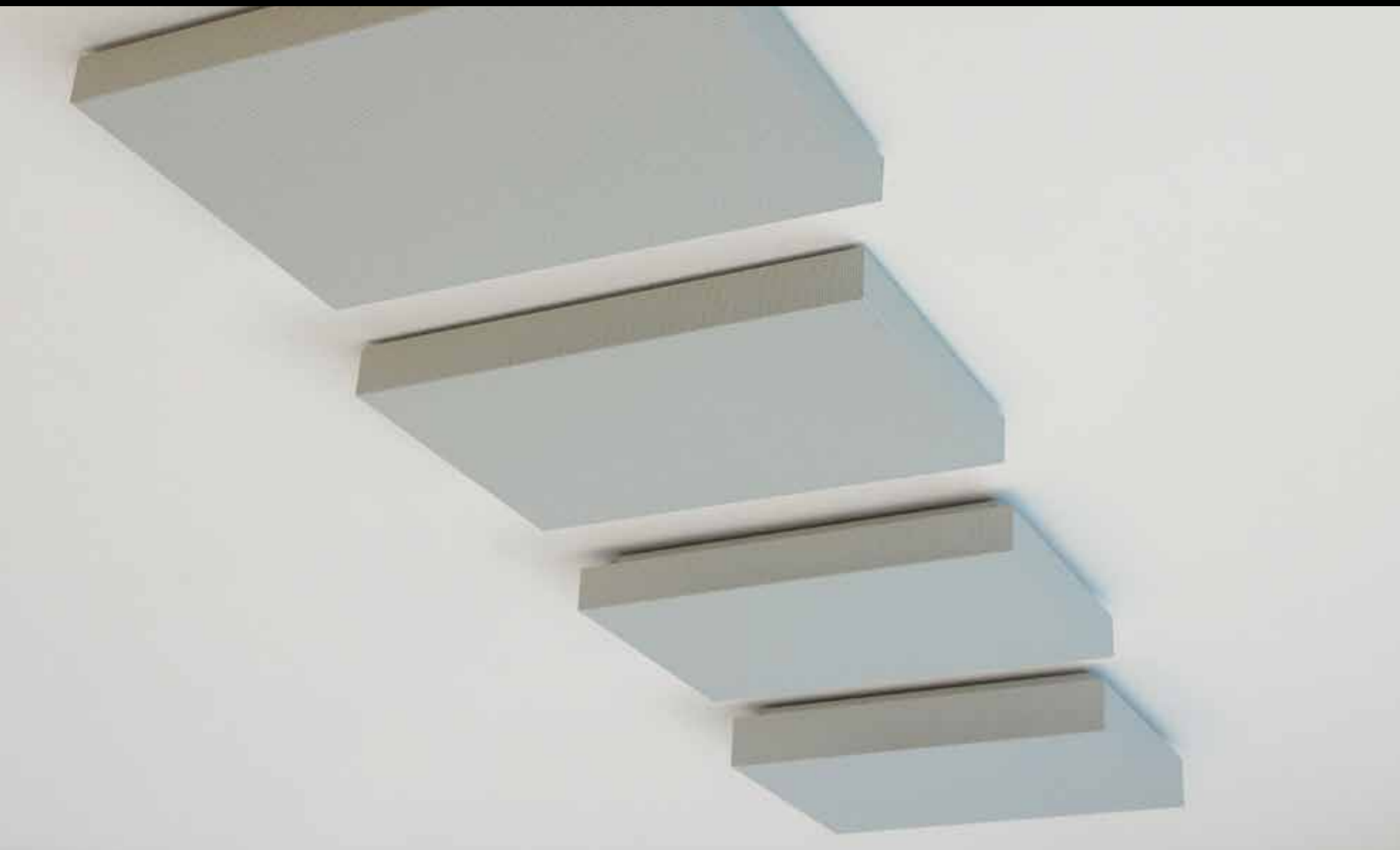
Sound Screen lights	40
Floor Lamps	42
Wall Lamp Fixtures	44
Acoustic Light Panels	46
Indirect Reflector System Absorber Light Fixtures	52



Surfaces

54

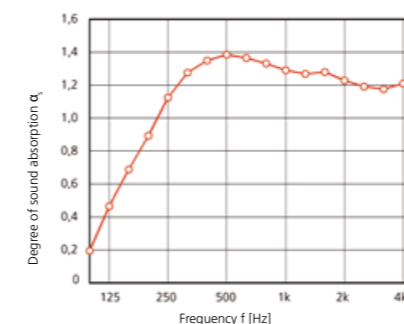
High Performance Compact Absorber HPCA



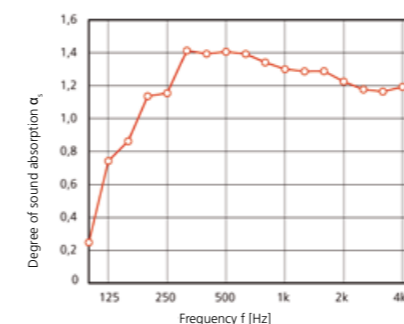
The high-performance compact absorber is the all-rounder among the compact absorbers. In accordance with the motto „Unpack, install, silence!“ and with an assembly time for the wall element of only a few minutes, the HPCA presents the ideal solution for a variety of acoustic problems: as a single element, in a coupled construction as wall paneling, in room corners with increased efficiency, inconspicuously but highly efficient in the ceiling edge, from the inexpensive all-rounder to the individual product; it comes in all colors and finishes.

Owing to the unique multi-layer structure, the levels of absorption for the standard module 100 mm lie well above 1.0. As a case in point, when optimally positioned, the type 130 can achieve an effective degree of sound absorption of over 1.6 alpha w for hundreds of workplaces, as has been verified by experts. Only in the low frequency range can the HPCA be topped, and that by the Broadband Compact Absorber.

Absorption Curve

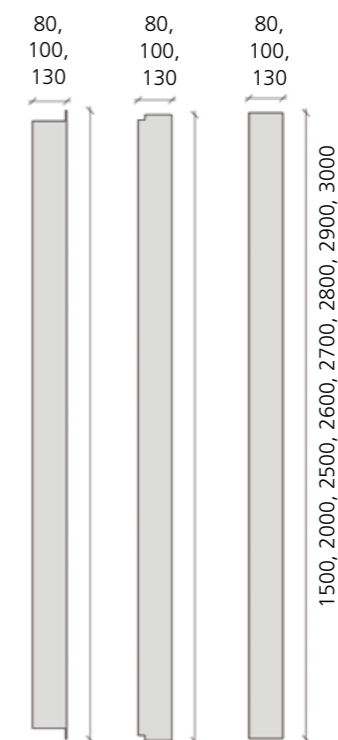


HPCA Type 1, visible application*



HPCA Type 2, visible application*

Dimensions



Construction

4 to 7 layer element construction with perforated sheet metal, fleece, damper, damper or variations. Visible cassette with fine punch holes, 5-sided frame construction with quick mounting hardware. Hidden construction as above, but without housing, mounting with Z-profiles.

Dimensions

Standard Length: 1500, 2000, 2500, 2600, 2700, 2800, 2900, 3000 mm
 Standard Width: 1000 or 850 mm
 Standard Depth: 130, 100, 80 mm
 Special Dimensions: on request

Material

Steel sheet metal for the housing. Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials.

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant. Fire protection class A2 on request.

Sound Absorption

Absorption levels in accordance with test certification.

Variations

As an option, the high-performance compact absorber can be outfitted with perforated wood, fabric coverings, and expanded metal mesh, etc.

* All data for 6 standard elements from a reverberation chamber. All dimensions in mm.

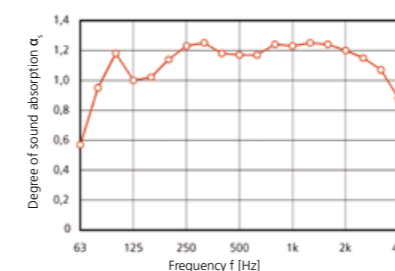
Broadband Compact Absorber BCA



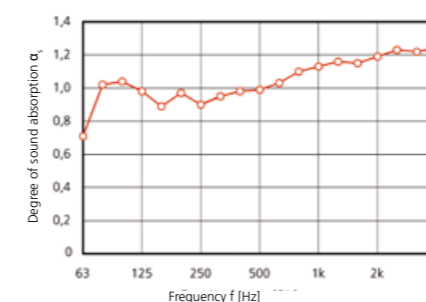
A completely new operating principle is the basis for the compact wideband absorber, developed jointly by the Fraunhofer Institute and renz: a combination of a highly efficient plate resonator and an equally effective porous absorber. With this element, for the first time absorption can be achieved in an almost evenly throughout the whole relevant frequency band. The level of absorption obtained and the nearly constant rate of absorption of 63 to 8000 Hertz are setting new dimensions in room acoustics. This acoustic effectiveness principle has become the basis for the best and most innovative product developments in the area of sound absorption in recent years. If the absorber is visible, the front of the

BCA is then constructed of a powder-coated perforated sheet metal in the standard version. Upon request, we can also deliver elements made of perforated wood structures, fabric coverings, expanded metal mesh, etc. Another frequent application is to hide the elements in hollow spaces of walls or ceilings or behind acoustically transparent coverings. The strength of the overall structure and the oscillating plate type can be designed according to the required level of absorption and the frequency-related absorption curve. Hence, the compact broadband absorber is available from type 1 to type 2.5, according to your particular requirements.

Absorption Curve



BCA Type 1, visible application*



BCA Type 1, hidden application*

Dimensions



Construction

5 layer element construction with perforated sheet metal, fleece, damper, oscillating plate, damper. Visible cassette with fine punch holes, 5-sided frame construction with quick mounting hardware. Hidden construction as above but without housing, mounting with Z-profiles.

Dimensions

Standard Length: 1500, 2000, 2500, 2600, 2700, 2800, 2900, 3000 mm
 Standard Width: 1000 or 850 mm
 Standard Depth: 100 or 80 mm
 Special Dimensions: on request

Material

Fine steel sheet for the housing and oscillating plate. Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials. Type 2.5 with special construction.

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant. Fire protection class A2 on special request. Type 2.5 with special construction.

Sound Absorption

In accordance with test certification from the Fraunhofer Institute for Building Physics.

Variations

The fronts / surfaces of the compact broadband absorber are also available, on request, with perforated wood, fabric coverings and expanded metal mesh, etc.

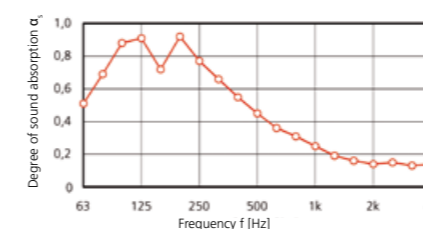
* All data for 6 standard elements from a reverberation chamber. All dimensions in mm.

Composite Plate Resonator CPR

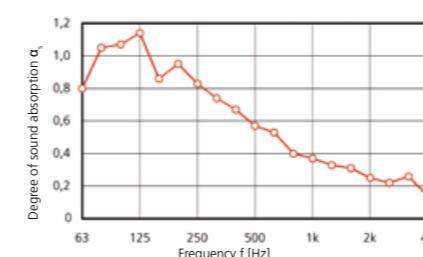
The composite plate resonator, jointly developed in its current form by renz and the Fraunhofer Institute, is, just like the compact broadband absorber, an exceptional high-performance absorber. With its principal degree of absorption in the range of 63 to 500 Hertz, the CPR was specifically designed for the lack of absorption in the lower frequency range of traditional acoustic elements. Completed projects with a combination of existing medium- and high-frequency standard absorbers and additional composite-plate resonators achieve an exceptionally high level of user satisfaction. A second application lies in technical acoustics, where an un-muffled low-frequency noise level is a common cause of complaints. A third application is in musical acoustics: theatres and concert halls, as well as sound and film studios. The dimension of the overall structure and the oscillating plate type is manufactured according to the predetermined degree of absorption and the frequency-related absorption curve. The composite-plate resonator can therefore be obtained as Type 1 or 2.5, depending on the required specifications. The elements can be used either as visible surface mount technology or hidden in the hollow spaces of walls or ceilings.



Absorption Curve

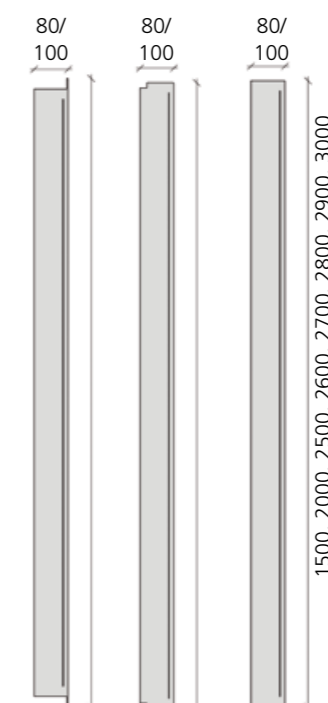


CPR Type 1, visible application*



CPR Type 1, hidden application*

Dimensions



Construction

4 layer element construction with perforated sheet metal/fleece/oscillating plate/damper. Visible cassette with fine punch holes, 5-sided frame construction with quick mounting hardware. Hidden construction as above but without housing, mounting with Z-profiles.

Dimensions

Standard Length: 1500, 2000, 2500, 2600, 2700, 2800, 2900, 3000 mm
 Standard Width: 1000 or 850 mm
 Standard Depth: 100 or 80 mm
 Special Dimensions: on request

Material

Fine steel sheet for the housing and oscillating plate.
 Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials.
 Type 2.5 with special construction.

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant.
 Fire protection class A2 on special request.
 Type 2.5 with special construction.

Sound Absorption

In accordance with test certification from the Fraunhofer Institute for Building Physics.

Variations

As an alternative to the standard surface finish we also have paints, varnishes, emulsion paints, wood and fabric coverings available. The application possibilities range from a visible assembly to flush integration to concealed mounting in the cavity behind the hole punch-, slotted- and fabric covered panels etc.

* All data for 6 standard elements from a reverberation chamber. All dimensions in mm.

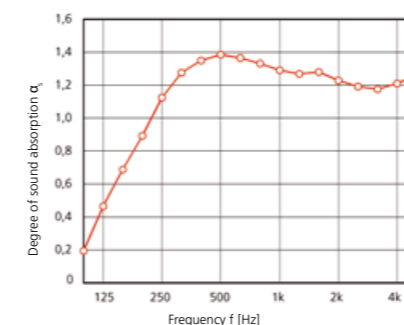
Acoustic Wall Panels



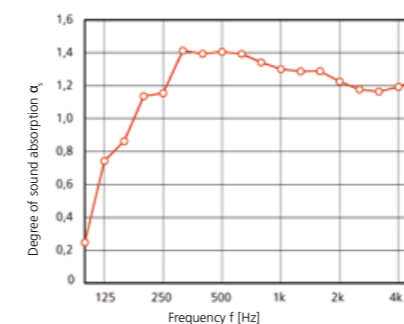
Wall panels demand, next to the best possible acoustical function, a design appropriate for the room. renz has developed a wide range of system components specifically for this task with different edge designs and quick mounting brackets. Fine hole punch patterns are particularly suitable for use with borderless edge designs. Choosing the border specification with a Z-design and shadow joint, offers the impression of a panel floating in front of the wall. Through the extremely high precision of the modern manufacturing process, elements can be made 100% flat, without an additional visible seam.

The impression of the area so obtained creates a particularly aesthetic image and a sophisticated room ambience. In the standard version wall panels are available with fabric covering, expanded metal mesh, and wood covering. As a special highlight, while maintaining their optical characteristics the components of the paneling can also be equipped with an active air conditioning element, a convection fan. All three acoustic module types (HPCA, BCA and CPR) are available for the acoustic wall paneling.

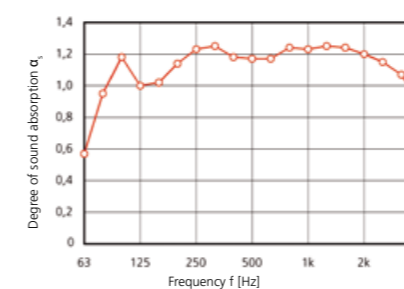
Absorption Curve



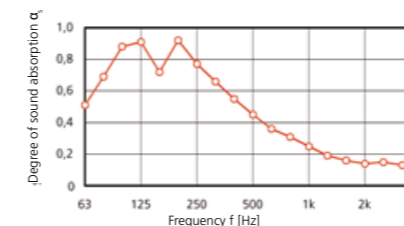
HPCA Type 1, visible application*



HPCA Type 2, hidden application*

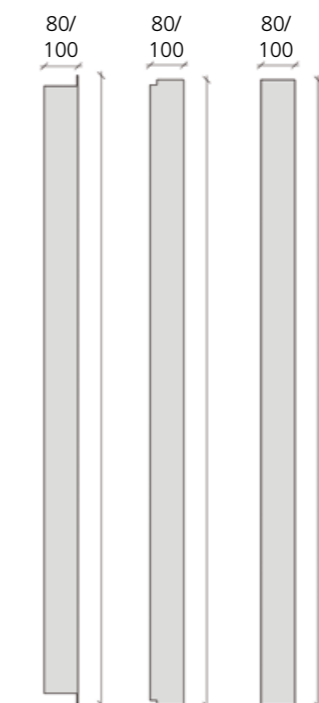


BCA Type 1, visible application*



CPR Type 1, visible application*

Dimensions



Construction

Element construction according to the selected acoustic module type (HPCA, BCA, or CPR) with perforated sheet metal/fleece/damper and/or oscillating plate, depending on the absorber type. Cassette with fine punch holes, frame construction, and quick mounting hardware.

Dimensions

Standard Length: 1500, 2000, 2500, 2600, 2700, 2800, 2900, 3000 mm
 Standard Width: 1000 or 850 mm
 Standard Depth: 100 or 80 mm
 Special Dimensions: on request

Material

Fine steel sheet for the housing and/or oscillating plate, depending on the absorber type. Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials. Type 2.5 with special construction.

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant. Fire protection class A2 on special request.

Sound Absorption

Absorption levels in accordance with test certification.

Variations

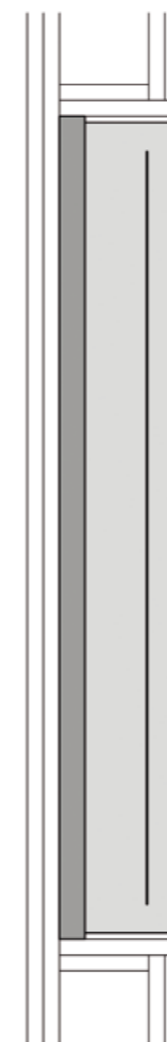
Optional are coverings made of high-quality textiles or expanded metal and wood surfaces possible. The acoustic wall panels can also act as a climatic element with the integration of a convection fan convector: available on request.

Custom Integrated Absorber Cassette



Another frequently used acoustic product from the renz program system is the compact absorber cassette. It is possible to fit this cassette into the hollow spaces of lightweight construction walls or behind wall panels. The cassette is available in the different construction variations: as a High-Performance Compact Absorber, Broadband Compact Absorber, or Composite Plate Resonator, according to the respective requirements. The absorber cassette is manufactured to fit the wall cavity and can be mounted flush with the wall or behind a panel, as desired. The cassette is also easily retrofitted. For this, the front panel of the lightweight construction wall will be cut out appropriately to accommodate the enclosed, finished absorber cassette.

Detail



Construction

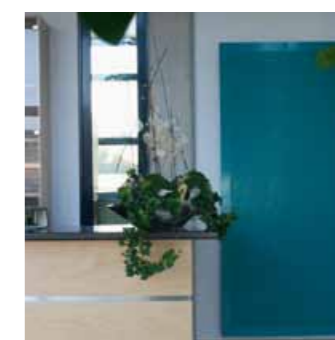
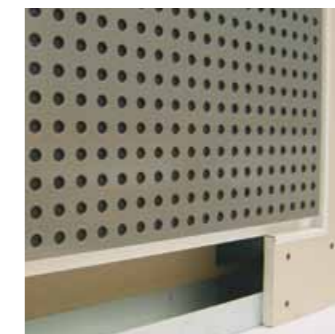
4 to 7 layer element construction with perforated sheet metal, fleece, damper, damper or variations. Cassette with fine punch holes and 5-sided frame construction.

Dimensions

Standard Length: 1500, 2000, 2500, 2600, 2700, 2800, 2900, 3000 mm
 Standard Width: 1000 or 850 mm
 Standard Depth: 100 or 80 mm
 Special Dimensions: on request

Material

Fine steel sheet for the housing. Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials.



Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant. Fire protection class A2 on request. Type 2.5 with special construction.

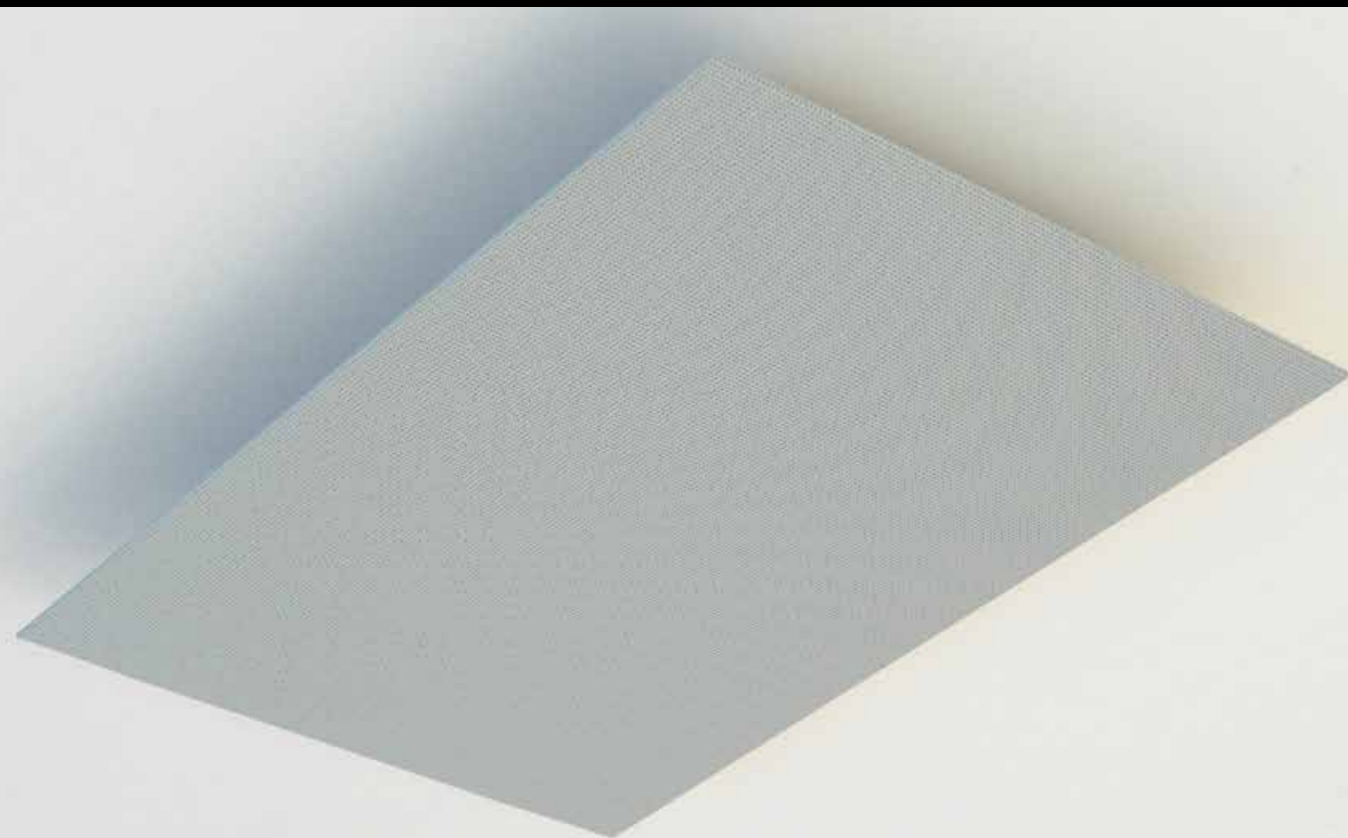
Sound Absorption

In accordance with test certification from the Fraunhofer Institute for Building Physics.

Variations

The fronts / surfaces of the integrated custom absorber cassette are also available, on request, with perforated wood, fabric coverings and expanded metal mesh, etc.

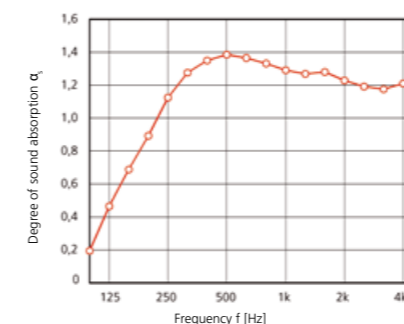
Acoustic Ceiling Panels



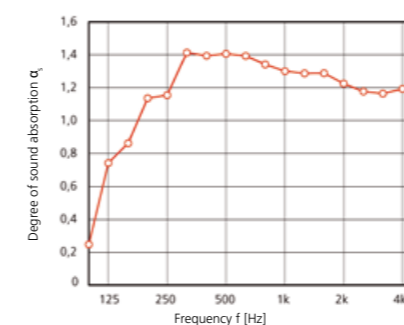
Ceiling panels are particularly suitable as an acoustic measure where an extensive acoustic ceiling allows no other solution due to inadequate room height or equipping of the ceiling area with lights or a component-activated cooling system. Ceiling panels are available in standard sizes with standard edges as well as in special cases with numerous other edge treatments, hole patterns, and sizes. Design of the room should be considered during the concept phase; positioning the ceiling panels plays a significant role in the level of their effectiveness. Acoustic energy density is much higher in room corners and at surface edges in comparison to the middle of the room. The same product will achieve a considerable higher level of effectiveness when positioned at a room corner. Great benefits result from the application of the 160% absorber. This solution generally halves the number of needed

elements. If tall acoustic partitions separate workplaces, it may make sense to improve the noise level reduction of the partitions by mounting acoustic ceiling panels above these partition walls. If the ceiling is component activated / cooled, then ceiling panels specifically manufactured for thermo-active ceiling cooling can enhance the effect. Either by routing the radiant cooling over a surrounding metal housing or positioning elements near a window with a defined distance to the placement of a convective cooling component. In this situation, the performance of a cooled concrete ceiling can be even further enhanced. A particular highlight is the application of an active air conditioning element and an air circulating fan in combination with the ceiling panels. With these elements, spaces can be very comfortably and effectively air conditioned, either initially, or upgraded easily later.

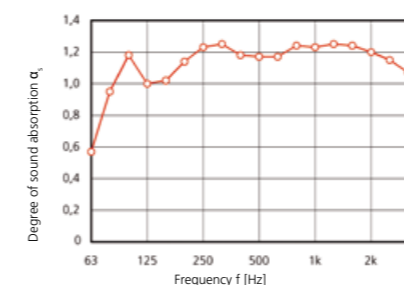
Absorption Curve



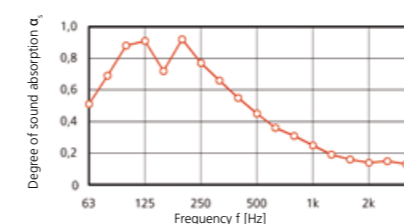
HPCA Type 1, visible application*



HPCA Type 2, visible application*



BCA Type 1, visible application*



CPR Type 1, visible application*

Dimensions



Construction

System housing of finely perforated sheet steel. Suspension in many variations, such as cables, hooks, clips, or threaded sleeves.

Dimensions

Standard Length: 1500, 2000, 2500, 2600, 2700, 2800, 2900, 3000 mm
 Standard Width: 1250, 1000 or 850 mm
 Standard Depth: 60, 80, 100, 130 oder 85 mm
 Special Dimensions: on request

Material

The absorption fill material follows either the High-Performance Compact Absorber (HPCA), Broadband Compact Absorber (BCA), or Composite Plate Resonator (CPR) construction principles.

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Sound Absorption

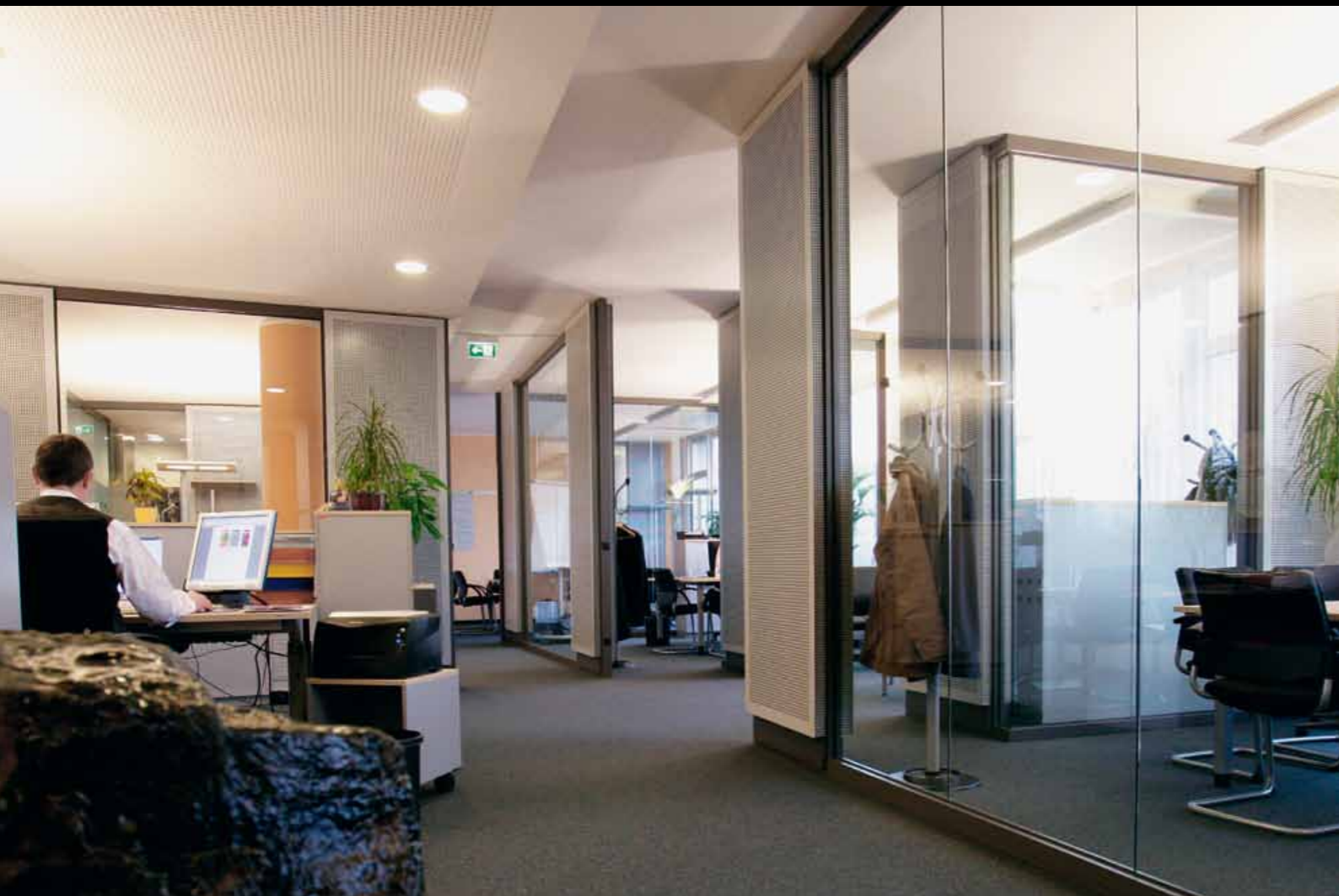
Absorption levels in accordance with test certification.

Variations

The fronts / surfaces of the ceiling panels are also generally available on request with perforated wood, fabric covering, or expanded metal mesh, etc. Integration of the cooling element VKW is also possible starting with dimensions of 1250 x 1250 mm.

* All data for 6 standard elements from a reverberation chamber. All dimensions in mm.

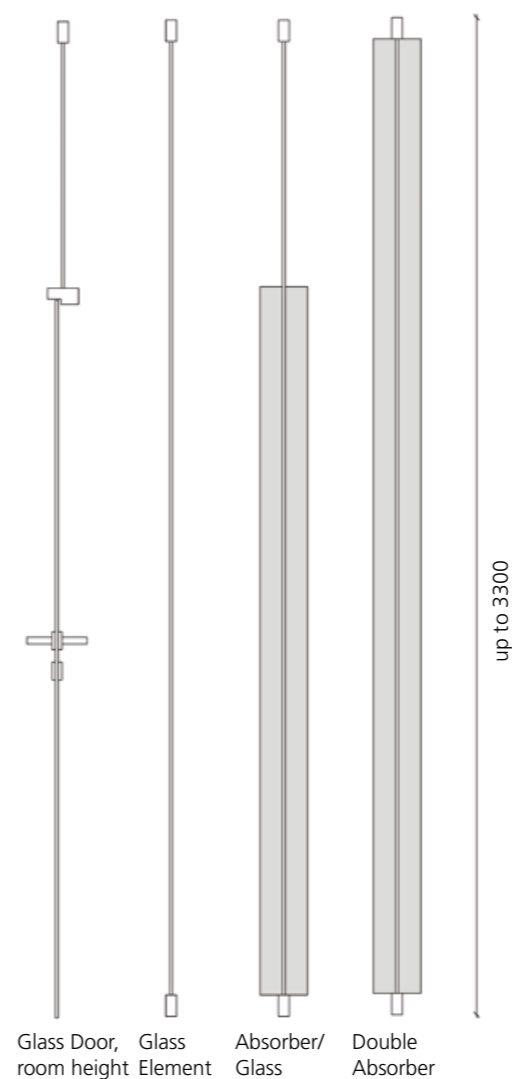
Glass Acoustic Noise Shields



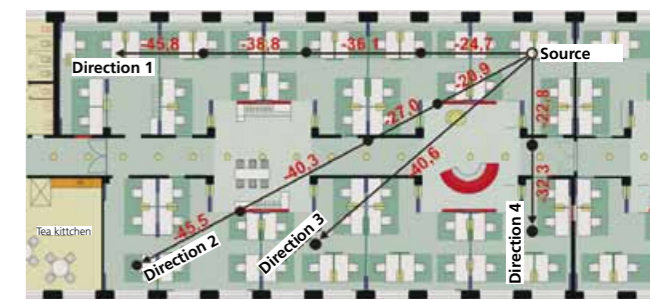
While visual disturbances in the workday routine can be completely avoided through the use of simple space arrangement systems, acoustic problems require more complex solutions. The half-height room partitions commonly used are known to have a low ability to reduce noise levels in the office environment. A workable solution to this problem can be based on a combination of unobtrusive shielding glass surfaces with highly effective acoustic absorbers at the ends of the glass elements. Noise is therefore limited to its source and can be effectively absorbed before it extends into other work spaces. The resulting zoning is also seen from the user side as a very positive gain in privacy. Through

the use of the transparent glass surfaces the image of a spacious, open plan office can be retained despite the generated zoning. Depending on placement of the acoustic screens, noise level reductions of 20, 30, 40, 50 dB or more are possible. The glass portion of the noise buffer should not be specified too small, as the element width as well as the height significantly influences its effectiveness. Acoustic noise screens can be perfectly matched to existing building structures: whether for team or group offices, call centers or individual work spaces, there is an optimal solution in an attractive design and with a high efficiency for all conceivable work place configurations.

Variations



All dimensions in mm.



Example: Noise level reduction of an open-space structure with glass-acoustic sound screens.

Construction

Whole glass panels with integrated high-performance absorber cassettes structured as an acoustic sound shield. Fastening by means of connection profiles. Base and ceiling connection profiles are prepared to receive customer's cables. Easily opened cable channels are available as finishing elements on the sides. Electrical/IT cover plates for needed outlet socket bore holes are available.

Dimensions

Sound screens are available in any number of widths and heights.

Standard Width Absorber: 850 or 1000 mm.

Standard Height Sound Screens: up to 3300 mm.

Special Dimensions: on request

Material

Absorber front with finely perforated sheet steel. Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials. Glass panels made of safety glass 8, 10 or 12 mm, edges polished, glass joint with open seam (closed seam for increased sound insulation requirements).

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant.

Fire protection class A2 on request.

Sound Absorption

Absorption levels of the absorber in accordance with test certification.

Variations

Glass-acoustic sound screens can be executed in different configurations (linear, angled, T-, cross-or star-shaped). Suspended shelves and lights adapted for computer workplaces are optional. A multitude of individual design possibilities may be realized through different material and color scheme variants for the absorber fronts, as well as alternative glass surface designs by use of printing or adhesive film application. The absorbers can also be used as a bulletin board elements due to their magnetic surface. A particular highlight is the possibility of an invisible integration of convection air-conditioning units in the absorption cassettes for a draft-free workplace in accordance with the fresh air ventilation principle.

Glass Acoustic Partitioning Systems



Glass walls bring light and transparency into buildings and are the basis for modern team structures. In this way colleagues, employees, and supervisors can grow into close working units. Until now, however, there was a serious flaw in the use of glass walls in a modern office space development, that being the acoustic hardness of the glass surfaces in connection with design oriented, though insufficient sound-absorbing room boundary areas. The solution to this requirement profile can now be delivered through the combination of glass walls with high-performance absorbers as a system unit. For instance, two absorbers integrated in glass walls for small rooms with average requirements, or four integrated absorbers for higher requirements, allow a communication-intensive use of a previously problematic space. A major advantage of the compact high-performance

absorber is the substantial reduction of the needed panels versus conventional products, and their easy integration into partitions. This also allows unlimited subsequent possibilities for re-use. Nowadays, especially in properties with a high-quality interiors, not only are the optics and the design of great importance, but as a rule there are also high demands made as to the multifunctional utilization and thus the quick modifiability of the rooms. On one hand, the room acoustics must provide for a predetermined amount of noise level dampening, while, on the other hand, fulfilling design requirements. The absorbers come in many different design variations as a matter of course to cover all of these various requirements. Surfaces in lacquer or with a spatula technique, with fabric covers, hole-, slot- and wood- structures, expanded metal mesh, etc.

Construction

Glass wall elements are attached with floor and ceiling connecting profiles made of steel or aluminum, with an adjustable sliding hardware to compensate for floor or ceiling surface irregularities. Glass panels can be assembled on one or both sides with system absorbers. Between the absorbers there are floor-to-ceiling glass panels. Door elements as full glass doors are available with or without a frame. Solid wood doors with frames. Optional, highly soundproofed full glass doors with surrounding frame. Corner-, wall-, and connection-fitting hardware as required. Base and ceiling connection profiles can be prepared to include customer's cables. Cover plates with prepared outlet socket bore holes are available for the installation of electrical/IT connections.

Dimensions

The glass wall elements are available in almost any size. Base, ceiling and wall connections are available in different profile series; Standard widths in this case 30, 50 or 66 mm. Standard absorber width 850 or 1000 mm. Standard glass wall element heights up to 3300 mm. Special Dimensions on request.

Material

Absorber front with finely perforated sheet steel. Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials. Glass-wall elements according to required sound protection, depending on the requirements from single-pane safety glass up to multilayered high-sound insulation special glass 28-54 dB (A). Beveled edges are standard for glazing.

Surfaces

Absorbers with polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

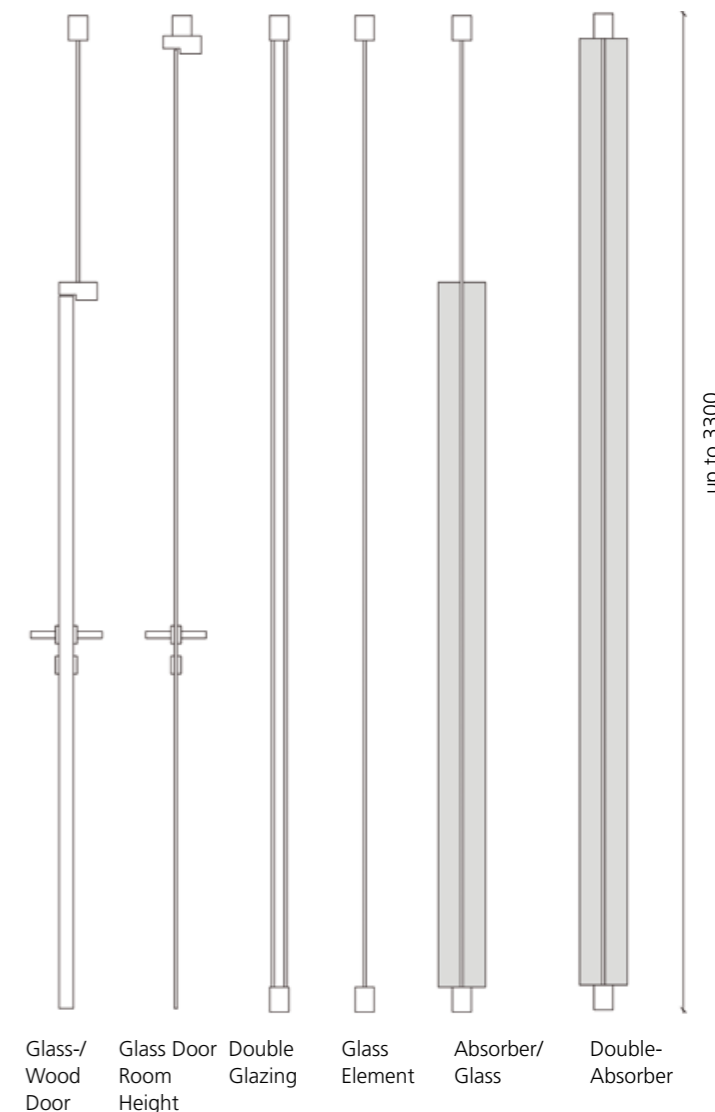
Standard fire protection class B1, flame resistant. Fire protection class A2 on request.

Sound Absorption

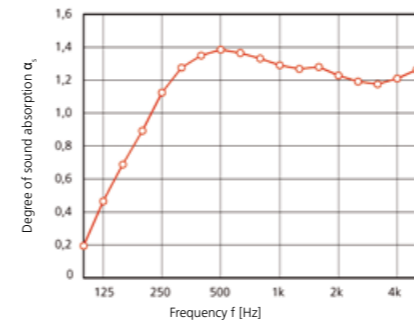
Absorption levels of the absorber in accordance with test certification of the fill material (HPCA, BCA, or CPR).

Variations

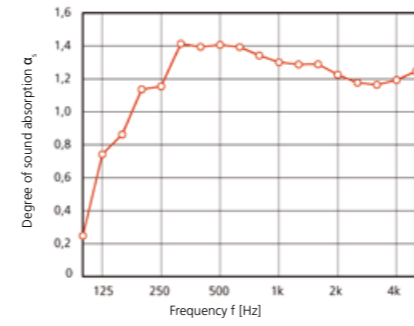
Cable routing in base / ceiling profiles of the glass-acoustic wall is an option as are electric panels in the base area of the absorber elements, adjustable shelves, special surface treatments with fabric and wood for absorbers, and the inclusion of lighting suitable for computer workplaces. Even high sound insulation requirements are perfectly doable with the new glass-acoustic partition system; the possibilities here range from 28-54 dB. Visual disturbance through eye contact with the surroundings can easily be countered in various ways: high-quality foil coatings solve this issue as well as reflective glass techniques or louvered blinds. There is also a lot to be said on the subject of ambient climate: it is possible to integrate convective air movers in the absorber cassettes to create a draft-free workplace environment based on a principle of fresh air ventilation.



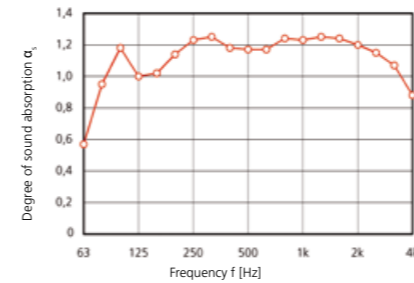
Wall Systems with Absorbers



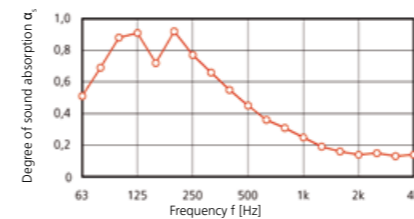
HPCA Type 1, visible application*



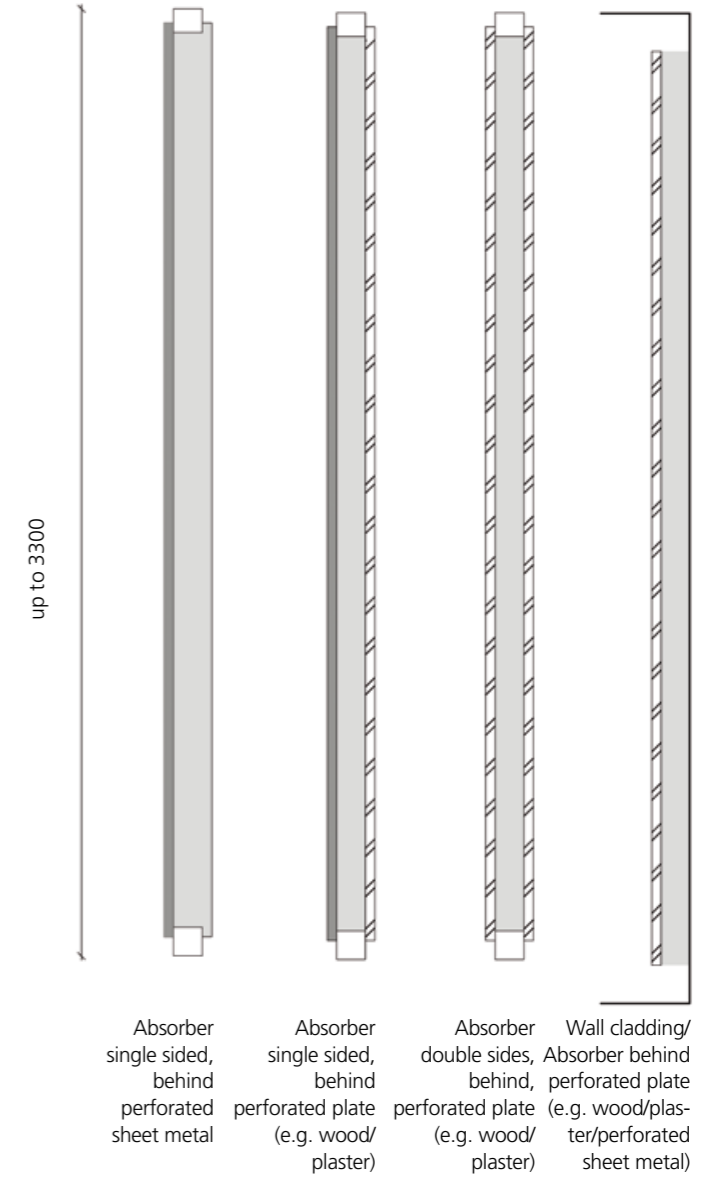
HPCA Type 2, visible application*



BCA Type 1, visible application*



CPR Type 1, visible application*



Construction

Absorber cassette per choice as HPCA, BCA or CPR wall system integrated element. The system wall absorbers are available in a design variant flush with the wall, or protruding to increase the level of absorption. The absorber cassette is integrated into a noise shield frame with a high sound-absorbing, multi-layered noise shield backing. Integration is effected with single or double sided quick assembly systems.

Dimensions

The standard partition grid width is 1000 mm with adapter connection elements in widths of 1200, 800, 600 and 400 mm; with the heights corresponding to the respective room dimensions. Standard width absorber 850 or 1000 mm; standard height 2500 to 3000 mm. Special dimensions on request.

Material

Absorber: Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials. Wall system: Substructure consisting of composite steel frame and connection profiles. Wall panels made from quality controlled, multi-layered wood fiberboard, thickness 19 mm, material class V20/E1.

* All data for 6 standard elements from a reverberation chamber. All dimensions in mm.

Surfaces

Metal surfaces with polyester powder coating according to color chart, with RAL/NCS colors on request. Partitioning panels as wall board with melamine plastic coating in standard colors white, gray white, cream white, or light gray, or in a genuine wood veneer version. Special colors on request.

Fire Protection

Absorber in standard fire protection class B1, flame resistant. Fire protection class A2 on request. Partition wall fire protection in accordance with specifications: whole wall F0 to F90, doors T0 to T30, glazing G0, G30, or F30.

Sound Proofing

According to the desired version between 38 and 60 dB.

Sound Absorption

Absorption levels of the absorber panel corresponding to test certification.

Variations

The absorber elements are available, on request, furnished with perforated- or slotted- wooden grills, expanded metal mesh, or fabric coverings. Diverse surface treatments for the wall partitions can be chosen from various decors including genuine wood and high quality plastic coatings.

This product with its exceptional features was developed for the large number of rooms in which the dampening of an acoustic ceiling is insufficient, or because the installation of such a solution is not possible due to an existing exposed-concrete ceiling with integrated cooling. The objective here was the particularly efficient reduction of troubling noise levels. The development was focused on a modular design in order to respond flexibly to existing acoustic

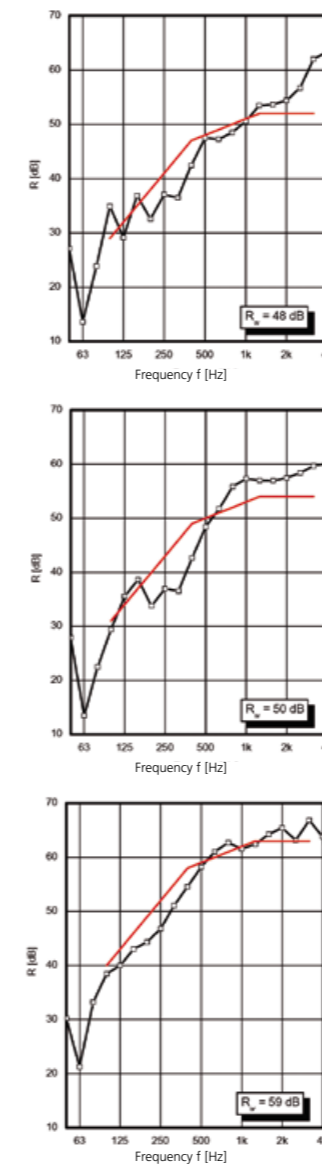
requirements, and to enable particularly easy and cost-saving assembly / disassembly operations. From an architectural view point, the surfaces and colors should also offer a variety of implementation options. The program system is based on the proven high-performance sound absorbers HPCA, BCA and CPR. The integrated absorbers are available in all standard wall element sizes plus, for a high level of effectiveness, sizes 80 and 100 mm.

Noise Control Absorbers

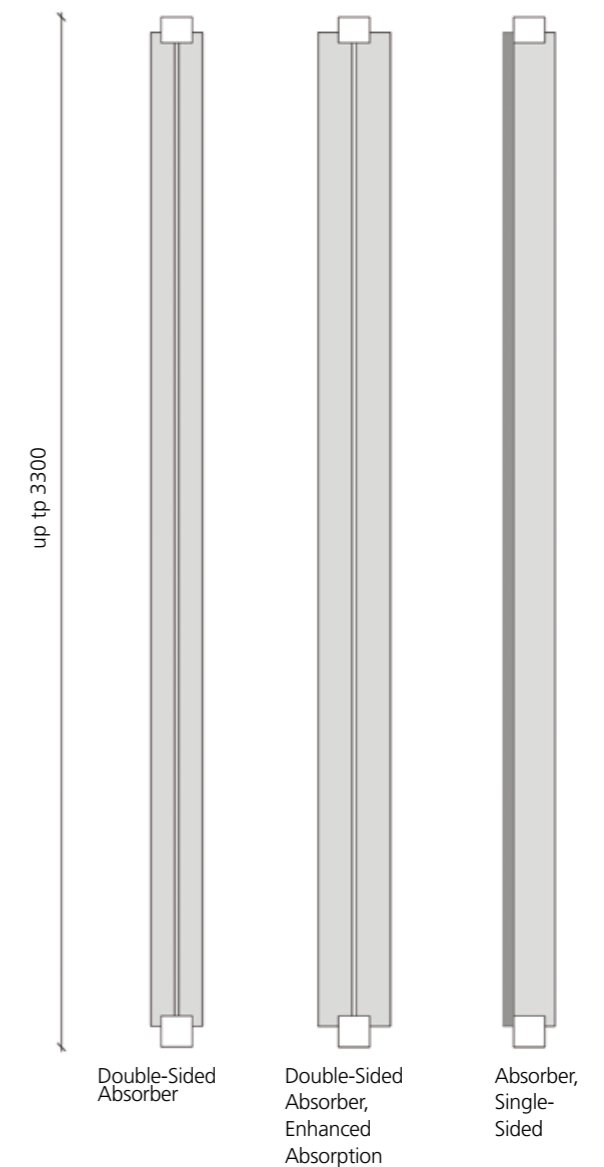


The extraordinary success of the wall system absorbers has led to a necessary and useful supplement program: the noise control absorber. After intensive development and testing phases, we succeeded in equipping one-sided and double-sided built-in wall-absorber systems with appropriate sound insulation. Originally deliverable with noise control ratings from 48 to 50 dB, now tested absorber cassettes are available with up to 59 dB protection. This allows their use even in the most demanding installation situations,

such as in highly sound-absorbing pleated sliding partitions for conference and meeting rooms, or generally in areas requiring a high level of confidentiality. The noise control absorbers are, of course, available in all the standard wall panel sizes. The surfaces are the usual for the HPCA, BCA and CPR absorbers: standard is perforated sheet metal, optional are also front grill designs with wood, perforated panels, slotted panels, acoustical materials, acoustical plaster, etc.



Sound reduction level of a standard cassette



Construction

High-performance absorber cassette based on plate resonators for wall system integration. Thickness of the overall structure 80 or 100 mm, as well as custom-made in 50, 60 or 70 mm. The integration is carried out single- or double-sided with a quick assembly system consisting of sub-structure, connecting profiles, and system racks. For maximum versatility and practicality the element technology is easy to dismantle and can just as easily be re-used.

Dimensions

The standard partition grid is 1000 mm with adapter connection elements in 1200, 800, 600 and 400 mm width; with the height corresponding to the respective room dimensions. Standard width absorber 850 or 1000 mm; standard height 2500 to 3000 mm. Special dimensions on request.

Material

Fine steel sheet for the housing and oscillating plate. Damper material made of tested biological building fibers like Polyester/Viscose or mineral-based materials. Type 2.5 with special construction.

Surfaces

Metal surfaces with polyester powder coating according to color chart, with RAL/NCS colors on request. Partitioning panels as wall board with melamine plastic coating in standard colors white, gray white, cream white, or light gray, or in a genuine wood veneer version. Special colors on request.

Fire Protection

Absorber in standard fire protection class B1, flame resistant. Fire protection class A2 on request.

Sound Proofing

Standard is 40 dB, on request up to 59 dB.

Sound Absorption

Absorption levels of the absorber in accordance with test certification of the fill material (HPCA, BCA, or CPR).

Variations

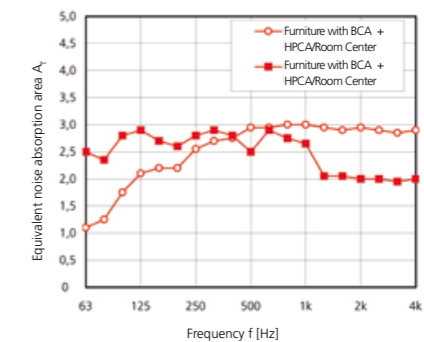
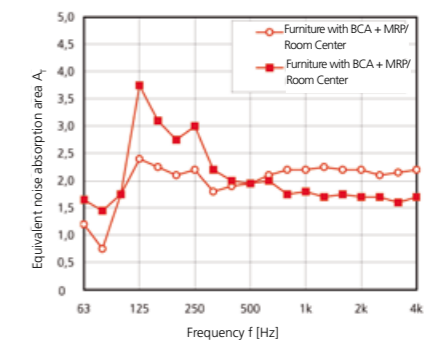
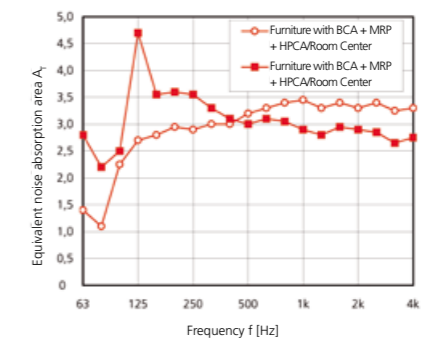
The absorber fronts are available optionally with perforated wooden grills, fabric coverings, expanded metal mesh, or treated with a oil-based paint, varnish or water-based latex paints.

Absorbers for Acoustic Furnishings

Within the framework of a research project, the renz development team succeeded in devising a completely new and effective acoustical application: First, the back of a cupboard, side- or high- board is covered with a high performance absorber. Then with the furnishings placed in the middle of the room the degree of absorption as measured in a test laboratory and afterwards compared with the same measurements when the furnishings are placed against a wall in such a way that the integrated absorber is in the space between the rear wall of the cabinet and the testing room wall. In this circumstance an unexpectedly high degree of sound absorption is achieved through the use of the hidden application. This new application principle has been implemented as „Integra-Absorber“ in the mature production stage. A conventional acoustic high board with 1.5 m front area (absorption coefficient α_w of 0.7) up to now achieved only about 1 square meter of equivalent absorption area. But with the new Integra-level of efficiency 3.5 times (that is, 3.5 sqm) of the equivalent absorption area is possible. In the illustrated case the equivalent absorption area was increased through the use of additional lateral absorbers and an acoustic front. The level of effectiveness is multiplied and adds the possibility of furniture placement either in the middle of the room or in front of a wall, offering new solutions for increasingly acute noise problems in today's working world - to both users as well as the planners of a project.



Sound absorption



Construction

System enclosure with integrated BCA- or HPCA-absorbers adapted as a cabinet rear wall or cabinet side wall. Thickness of the overall construction 60 to 100 mm.

Dimensions

Compatible with the furniture system.

Material

Fine steel sheet for the housing and oscillating plate. Dampener material made of tested biological building fibers like Polyester/Viscose or mineral-based materials.

Surfaces

Polyester powder coating according to color chart, with RAL/ NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant. Fire protection class A2 on request.

Sound Absorption

Absorption coefficients corresponding to application specifics.

Variations

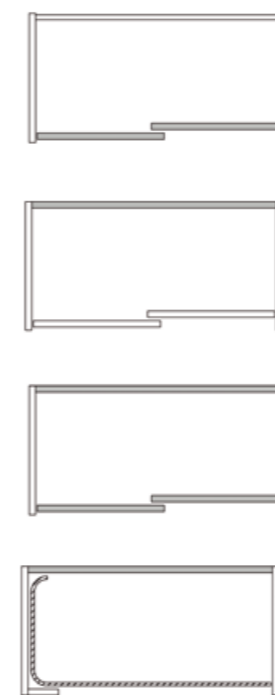
Integra-absorber furniture can be configured in a variety of designs: with or without side absorbers and with or without front absorbers. In addition, different options for cabinet door designs are possible: absorbers for sliding doors, revolving doors, or even absorbers for roller shutter. The right product type is available for any utilization requirement.

Absorbers for Full-Spectrum Absorption Furnishings



Analog to the function of the Integra-Absorber we developed a further acoustic component for use in side- and high boards in team and group offices. This further development allows 3 or more square meters equivalent absorption area with a conventional high board when equipped with double-sided absorber batting on the front and rear of the cabinet. Using a novel 5 to 7-layer membrane structure, these components provide the highest absorption degree, even for versions with sliding or rolling shutter doors. The special highlight here is the level of effectiveness over the entire frequency range, from a lows to high tones. While traditional acoustic components with 20 to 40 mm thickness yielded only a small reduction in noise level, mainly because of the

decrease of absorption in the frequency range of the highest noise level from 250 Hz and decreasing, the new full-range membrane absorbers demonstrate their outstanding characteristics already with the use of only a few components. For concepts with a target of a 20 dB noise level reduction in the near area of 3 meters, the double-sided equipped 40H-high board is the essential core component for achieving the target, naturally in conjunction with the corresponding effective ceiling and wall absorbers. The accomplished performance of major projects documents the extraordinary success of this system very vividly.



Construction

Multi-layer membrane absorbers in cabinet doors in the design of a sliding- or folding door, and for the integration into the back wall of a cabinet.

Dimensions

Standard Height: 2 to 5 OH
Standard Width: 800, 1000, 1200, 1600 mm

Material

Fine steel sheet for the housing and oscillating plate. Dampener material made of tested biological building fibers like Polyester/Viscose or mineral-based materials.

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Fire Protection

Standard fire protection class B1, flame resistant. Fire protection class A2 on special request.

Sound Absorption

Absorption levels in accordance with test certification.

Variations

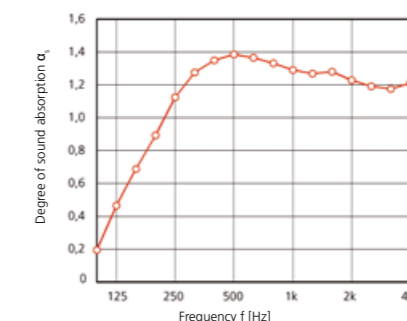
The full-spectrum absorption furniture also offers a variety of possible designs. Both acoustically functional sliding doors and revolving doors are available. As an option, both the cabinet back walls and the sides can each be designed with or without the effective acoustic damping characteristics. Fabrics and decorative wood panels are also alternatives for surfaces.

Thermo-active High Performance Edge Absorbers

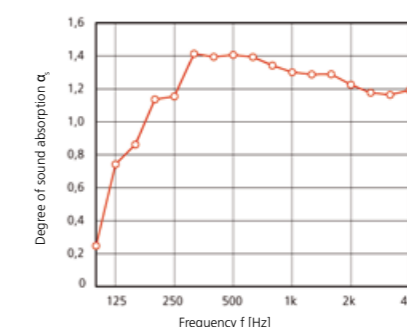
The high demands placed on cost-saving construction and project development for energy efficient use have led to today's concrete ceiling air conditioning systems. Building objects constructed in this manner, however, have a common problem: the ceiling area is no longer available for conventional acoustic noise protection measures. The noise levels in spaces designed for teams and groups become unbearably high and the content of any conversation can be spread undisturbed through the room. For just such an issue the renz research team developed a highly efficient thermal product. The „thermo-active“ high performance edge absorber swallows sound energy with exceptional effectiveness in the area of the ceiling near a window, without appreciably reducing the cooling effect of the ceiling. The edge absorbers are available for various frequency ranges: as a High-Performance Compact Absorber, a Broadband Compact Absorber, or a Composite-Plate Resonator. The absorber modules are attached to the activated component ceiling surface, leaving some space in between so as to not reduce the cooling effect, thus ensuring an excellent work atmosphere and the ability to concentrate.



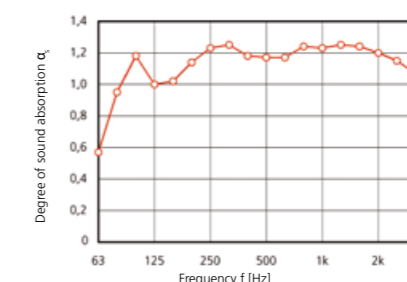
Sound absorption



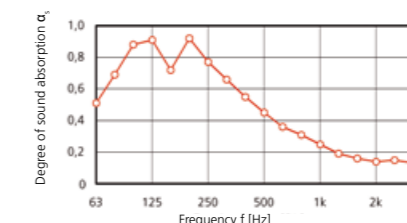
HPCA Type 1, visible application*



HPCA Type 2, visible application*



BCA Type 1, visible application*



CPR Type 1, visible application*

Construction

System housing with finely perforated sheet steel. Suspension in many variations, such as wire hanger, hook, clip, or threaded sleeves.

Dimensions

Standard Length: 1250 to 2000 mm
 Standard Width: 850, 1000, 1250 mm
 Standard Depth: 80 or 100 mm
 Special dimensions: on request

Material

Absorption fill material according to either the action principles of the High-Performance Compact Absorber (HPCA), the Broadband Compact Absorber (BCA), or the Composite Plate Resonator (CPR).

Surfaces

Polyester powder coating according to color chart, with RAL/NCS colors on request.

Sound Absorption

Absorption levels in accordance with test certification.

Variations

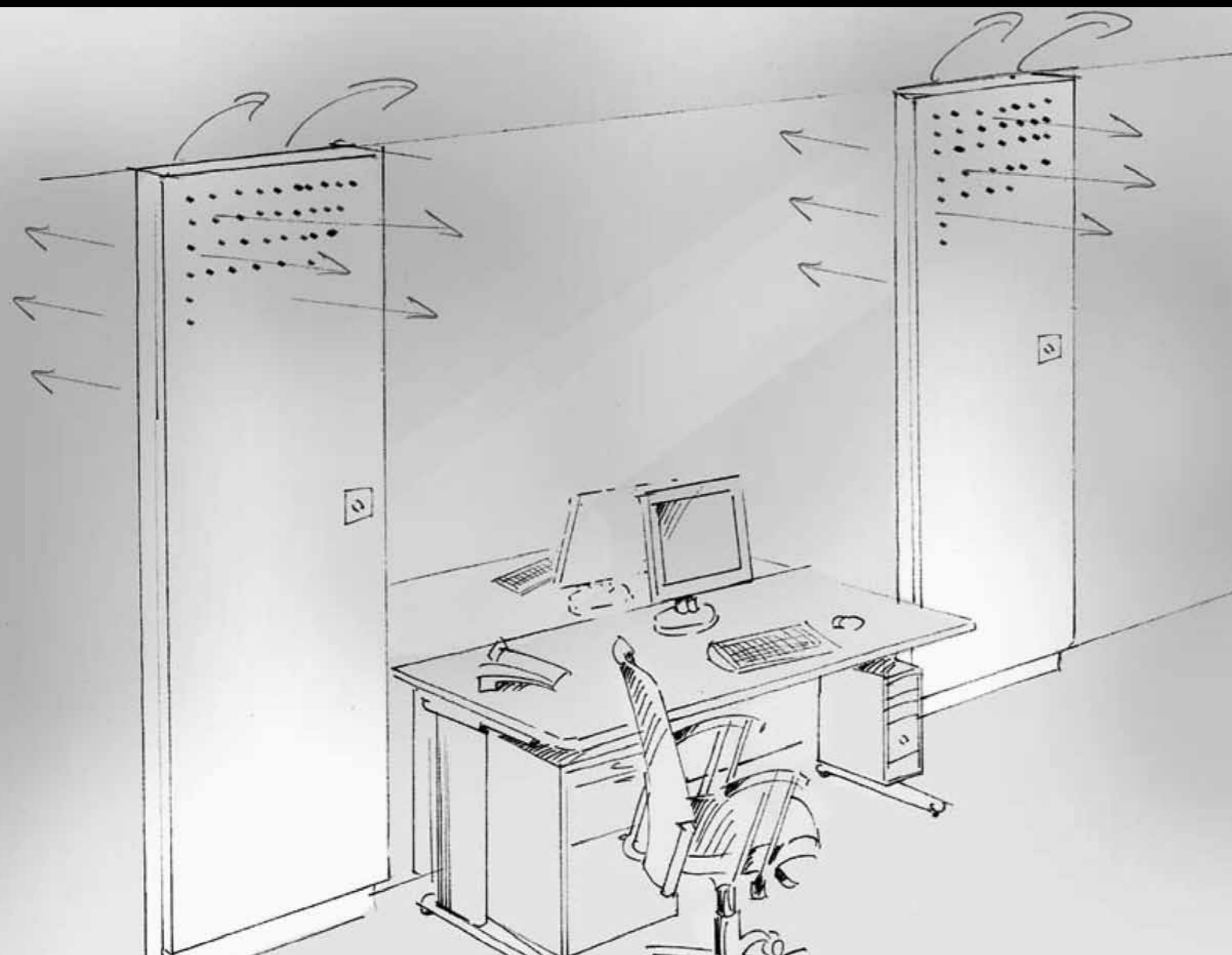
Front surface treatments are also available optionally with perforated wood, fabric coverings, and expanded metal mesh, etc.

Contribution to cooling power through		Variant 1	Variant 2	Variant 3
Air mass flow in the rear absorber gap	[W/m ²]	18,0	18,2	17,1
Convection and radiation on visible side of absorber	[W/m ²]	8,4	8,9	12,8
Sum	[W/m ²]	26,4	27,1	29,9
Percentage value of untreated ceiling	[%]	75	77	85

Computation path of the convective gain

* All data for 6 standard elements from a reverberation chamber. All dimensions in mm.

Modular Recirculating Air Conditioners for Acoustic and System Walls



This new climate- / cooling concept is the guarantee for good working conditions even on hot summer days. Conventional air conditioning systems require a large amount of air circulation for a high cooling capacity; this, however, leads inevitably to the common occurrence of drafts. Based on this issue, renz, together with its industrial and research partners, developed draft-free high performance air conditioning modules. In this, the development team succeeded in integrating the new cooling elements into the wall- and noise shield absorbers which have become the standard in modern office spaces in an ideal way. The air conditioning modules can be individually controlled, and depending on changing

requirements, can also be separately retrofitted. The highly effective performance can be explained as follows: space cooling is generated on a fresh air principle by guiding and swirling air through a large-area air outlet. This produces air movement velocities between 0.05 and 0.2 m/sec. per single module at cooling rates of up to 2 KW. In today's customary space optimizations of 7-10 square meters per workplace, these easily integrated climate modules are the ideal solution for the spiraling increase in cooling loads in modern office environments.



Construction

The air conditioning modules are available in combination with absorber cassettes in single- or double sided design variations and in capacity levels of ca. 1200 to 2000 watts.

Dimensions

Design variation 1200 watts: The recirculation cooling module with the single device dimensions of 1806 x 770 mm can be incorporated in integration elements (wall absorber / noise shield absorber) with a standard width of 850 mm and a standard height from 2200 mm on up.
Design variation 1700 / 2000 watts: The recirculation cooling module with the single device dimensions of 1806 x 770 mm can be incorporated in integration elements (wall absorber / noise shield absorber) with a standard width of 1000 mm and a standard height from 2200 mm on up.

Material

The standard delivery includes: integrated measurement-, control-, and regulating unit, regulating unit with on/off switch, and three fan speeds.

Surfaces

Visible surfaces of the climate module according to the selected integration element in polyester powder coating.

Dimensioning

The size and number of the cooling elements are determined by the required cooling load.
The performances indicated are based on a temperature difference between room temperature/cooling water inlet flow of 11 ° C (26 / 15).

Onsite Requirements

For the cooling elements to function, necessary on-site installations consist of a routing network for inlet- and return flows, the cooling unit, circulating pump, etc., plus electrical connections.

Visualizing Currents with Oil Mist

Capacity 500-700 watts:

At a low to moderate cooling capacity air is blown out with an under temperature up to 10 °K at a low velocity on the front- and side surfaces of the absorber. Due to the temperature difference, the air sinks to the floor along the absorber. There it mixes with the warm room air, reducing air flow speed and the under temperature. On the floor a cooling fresh air current is established with a small temperature gradient. The cooled air is distributed evenly throughout the occupied space. The air blending is so well accomplished that the air temperature is only slightly lower at the unit's output vent than the average room temperature.



Capacity 800-1000 Watt:

At a medium cooling capacity the momentum of the air within the absorber is such that a substantial portion of the air exits at the top of the absorber. The cold air passes toward the ceiling about 70 cm into the room, blending strongly with the room air and flowing with a low under temperature as a broad layer from the absorber into the occupied space. According to the mixed-fresh air principle, a high layer of cool air with a minor temperature gradient 0.5 K/m forms at ground level. Here, too, the cool air is distributed evenly throughout the occupied space.

Capacity 1000-1300 Watt:

At a high cooling power a large portion of the air infiltrates the room via the ceiling. Special air directing elements swirl the air at the outlet so much that the under temperature in this blending zone by the ceiling is moderated well above the space occupied by people. After penetrating the room for 1 or 2 meters, the air streams in a broad layer as a fountain of fresh air uniformly into the occupied space.

Area utilization and warmth in the office and administration area:

The increasing need to use space economically and the related occupancy densities in modern office and administration buildings inevitably lead to continually rising cooling loads. Modular air conditioners, adaptable to the occupancy and assigned tasks, are the ideal building block for sustainable and viable building concepts.

Cooling-concrete ceilings are not sufficient:

Component activated concrete ceilings with a cooling power of 25 to 40 watt, as a rule, are no longer sufficient to meet the cooling loads in multi-person offices. An ideal addition to the traditional cooling method is the use of the integrated cooling modules.

Global Concept:

Performance, motivation, and health do need a suitable work environment. Conventional air conditioning systems, with their sluggish air dissemination, high investment cost, and associated energy consumption, are no longer an opportune choice. Work- and use-specific solutions with individual control units ensure user-friendly conditions and motivated workers.

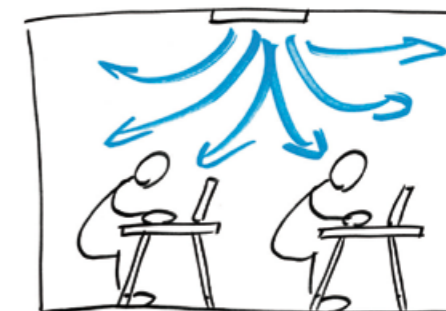
Specification and Function

The recirculation convection ventilator was designed specifically for installation in absorber cassettes. The device is a recirculation ventilator and serves to cool reception and work areas. Even at high cooling capacities the special ventilation concept guarantees exceptional thermal comfort without drafts in the vicinity of the absorber. A low-noise cross flow ventilator enables low inherent noise in occupied spaces in conjunction with two baffles integrated in the device. Warm indoor air is drawn in at the floor level of the sound absorbing wall element and is carried by a cross-flow ventilator to a large area 2-liter heat exchanger. Ambient air is cooled while passing through the cold water-cooled heat exchanger. Condensation at the heat exchanger is avoided with an on-site dew point regulator. Air leaves the element via the front, sides, and top of the absorber. Special air guide elements guide the direction of the flow and assure a low indoor air velocity in front of the absorbers.

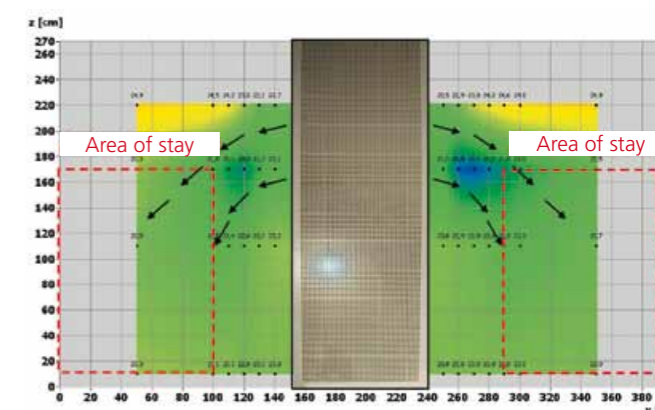
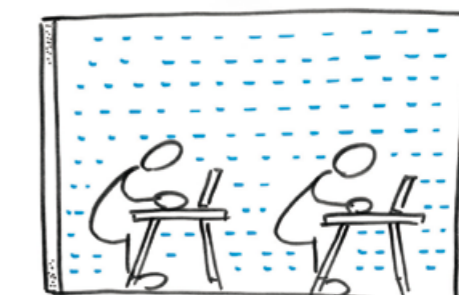
Application Advantages

- Compared to conventional systems, lower energy consumption is achieved through the use of coolant or water instead of air as an energy source.
- Integrated measurement and control technology in each cooling unit allows for maximum individuality, thus lowest energy consumption and the highest user satisfaction; each team selects its own temperature.
- The need-based use and performance-based construction allow cost-effective and flexible solutions. Cooling and energy consumption are not categorically sustained, rather only when called for by the user.
- Maximum comfort is achieved through minimal air flow velocities combined with high cooling performance.
- High operational reliability is ensured by using time-tested and proven components.
- The uniform and draft-free temperature distribution guarantees a performance-optimized healthy workplace.
- It is the ideal complement for component-activated cooling ceilings with 25 to 40 watts per square meter cooling capacity, achieving values of 80, 100, or more, watts per square meter floor space.
- Integration into existing building-space structure is possible at any time without major construction work.
- The individual executable unit is the basis for low investment costs.
- The modular application in wall and acoustic elements is the basis for economical, safe and sustainable area utilization.

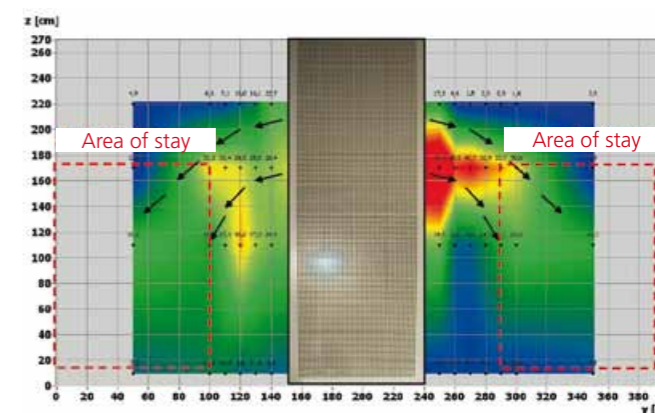
Conventional Air Cooling



renz Solution: Large-Scale Air Source



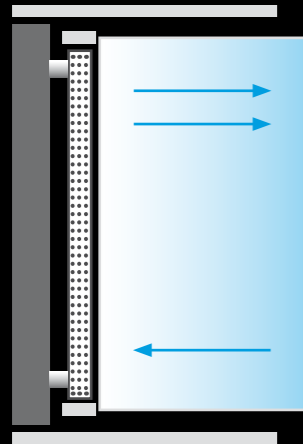
Depiction of the Air Flow Dynamics



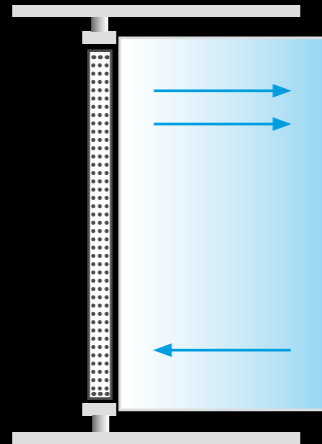
Depiction of the Temperature Gradients

System diagram

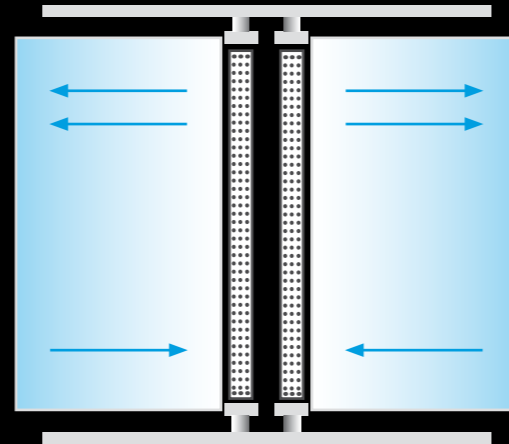
In front of a wall, one-sided operation



Free standing, one-sided operation



Free standing, two-sided operation

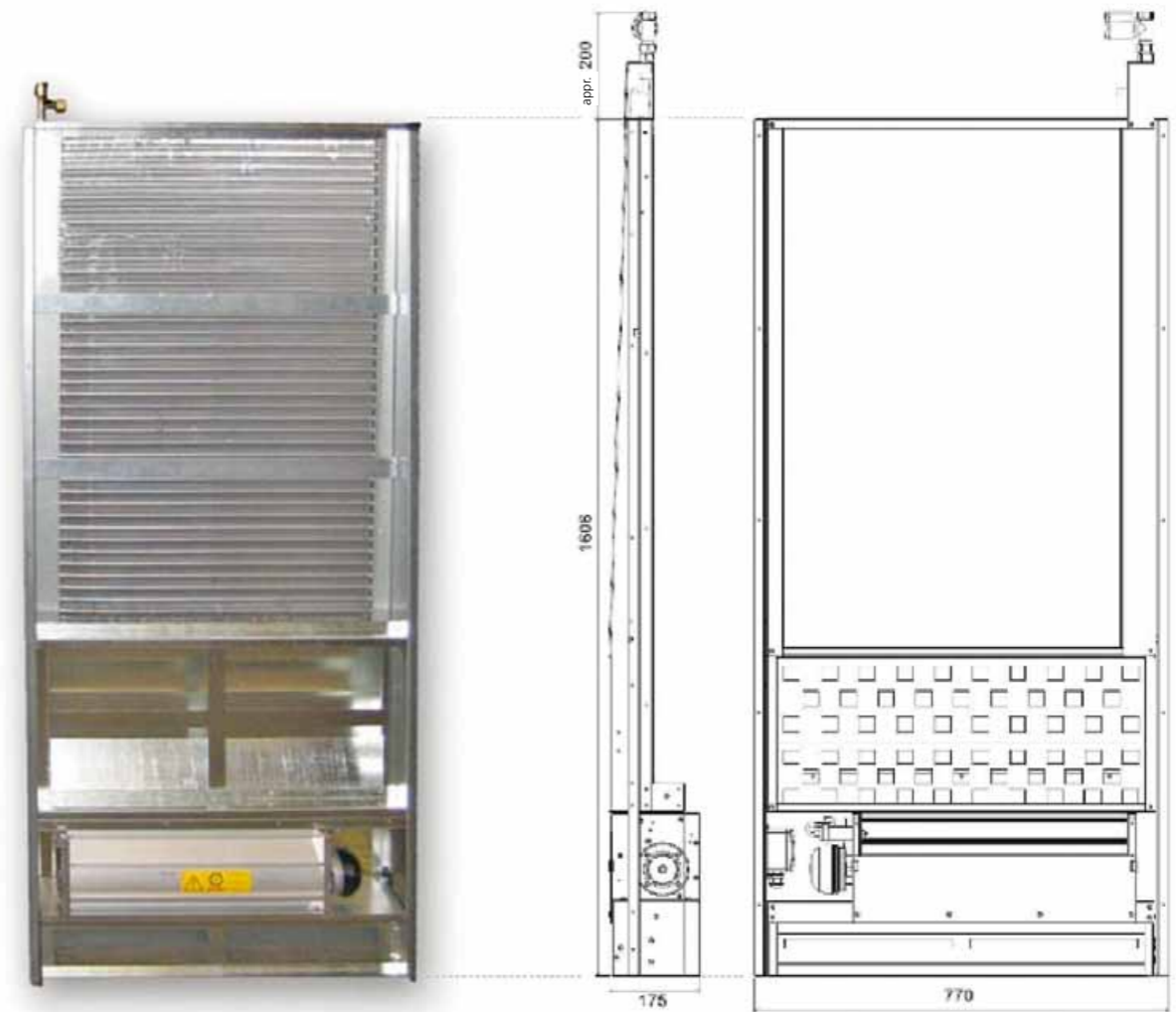
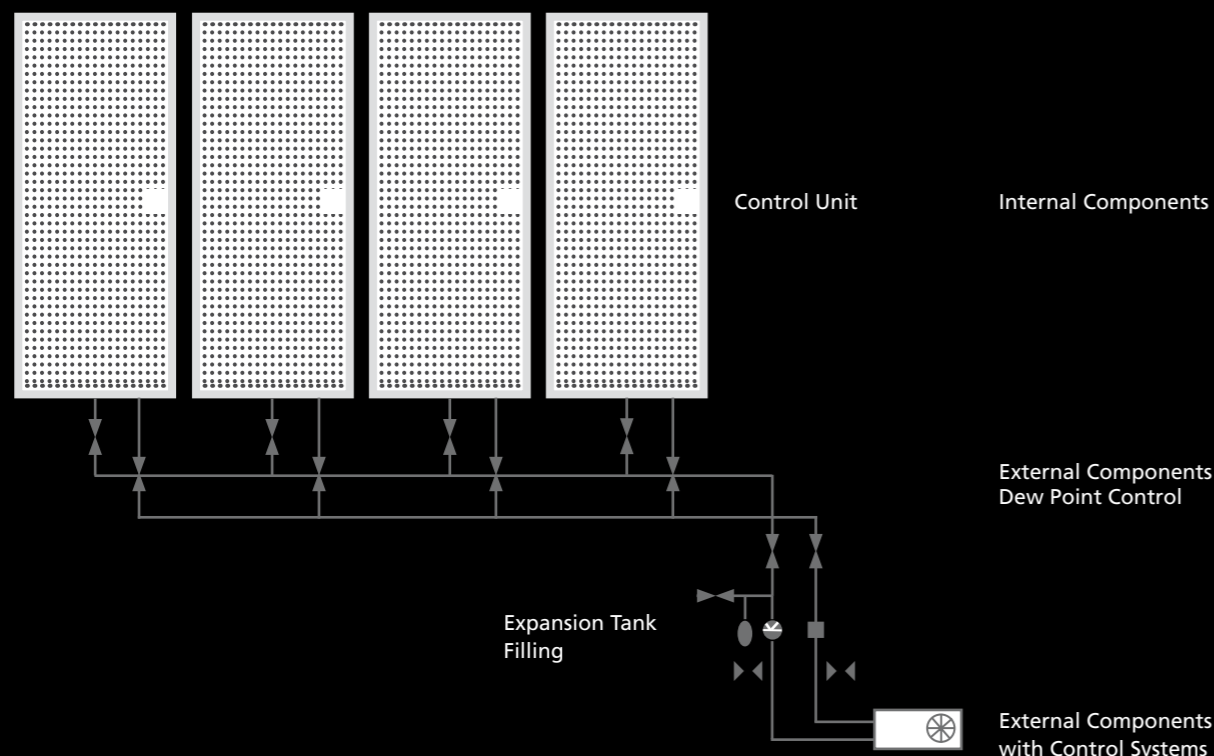


Schematic Representation in Building Cross Section



- Single Element Climate Control Unit
- Routing Network Inlet Flow / Outlet Flow
- External Unit / Heat Exchanger alternative mounting/integration

System diagram



n	V [m³/h]	L _{pk} [dB _A]	Q _k /Δt [W/K]	Q _{sens} [W]	W _{ok} /Δp _w [kg/h]/[kPa]	P _{el} [W]
1	290	29,5	52	572	200	16
2	365	35,5	64	704	200	20
3	430	37	80	880	200	23
4	510	39	90	990	200	25
5	660	42	105	1155	200	31
5*	800	42	127	1400	200	37
5**	970	42	154	1700	200	45
5***	1020	42	175	1980	200	50

- n Rotational speed level
- V Volume Flow Rate (+/- 10%)
- L Sound pressure level at 1 m distance from the absorber without integrated baffle
- Q_k Aggregate Cooling Capacity
- Δt Temperature difference between room air and cold water inlet temperature
- Q_{sens} Sensitive cooling capacity at 15 °C water inlet temperature, 26 °C air inlet temperature, and 50% relative humidity
- W_{ok} Nominal amount of water in cooling output
- P_{el} Electrical Power Consumption
- ΔP_w Water pressure loss of the heat exchanger without valve pressure drop

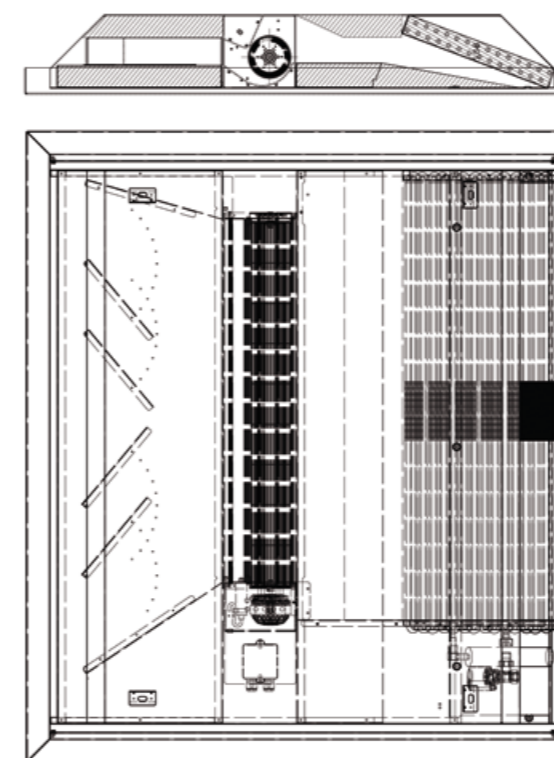
The data are based on measurements on the standard element and vary depending on the installation situation.

Cooling Panels



Great successes with the convection ventilator wall cooling elements were the basis for further development of this system for use in acoustic ceiling panels. It is an exceedingly simple way to implement air conditioning/cooling concepts of high economy and low energy consumption. As original equipment or as a partial upgrade, these components are ideal. The convection ventilator was designed specifically for installation in acoustic ceiling panels. The device is a recirculating air convector for use in cooling lounge or work areas. A special ventilation concept allows good thermal comfort without drafts in front

of the absorber even at a high cooling output. A low-noise cross flow ventilator, in conjunction with two integrated sound absorbers, allows for low sound pressure levels. The cooling cassettes are mounted directly on the ceiling or suspended from it and connected by flexible hoses in the element's shadow to the cooling conduit. At the end the acoustic ceiling panel covers the cooling element in an elegant form. With the integrated valve, each element can be operated separately or interconnected room by room for group use.



Technical Data

n	V [m³/h]	L _{WA} [dB _s]	Q _{k,t} /Δt [W/K]	Q _{sens,k} [W]	W _{ok} /Δp _w [kg/h]/[kPa]	P _{el} [W]
1	290	29,5	52	572	200	16
2	365	33	64	704	200	20
3	430	35	80	880	200	23
4	510	38	90	990	200	25
5	660	42	105	1155	200	31

The data are based on measurements on the standard element and vary depending on the installation situation.

- n Rotational speed level
- V Volume Flow Rate (+/- 10%)
- L_{WA} Sound Power Level
- Q_k Aggregate Cooling Capacity
- t Temperature difference between intake- and water inlet temperature
- Q_{sens,k} Sensitive cooling capacity at 15 ° C water inlet temperature, 26 ° C air inlet temperature, and 50% relative humidity
- W_{ok} Nominal amount of water in cooling output
- P_{el} Electrical Power Consumption
- P_w Water pressure loss of the heat exchanger without valve pressure drop

Construction

Air conditioning module integrated with ceiling panel as a convector ventilator with a complete valve- control unit. The heat exchanger is available as a 2-lead and 4-lead component for heating and cooling. The cross-flow blower ensures quiet running and low sound pressure level. The intake and discharge damper reduce the flow noise effectively even when running at full load. Adjustable air guide elements ensure a rapid temperature reduction, increase in the turbulence intensity, as well as possible correction of the air distribution.

Dimensions

Matching the ceiling panels 1250 x 1250 x 170 mm. Length and width can be expanded modularly. Linked and more powerful components are available for larger ceiling panels.

Material

Scope of standard delivery includes: integrated measurement-, control-, and regulating unit, regulating unit with on/off switch and three fan speeds.

Surfaces

Cooling unit housing analog to the ceiling panels in polyester powder coating.

Dimensioning

The size and number of the cooling elements are determined by the required cooling load. Performances indicated are based on a temperature difference room temperature/ cooling water inlet flow of 11 ° C (26 / 15).

Application Advantages

- High level of cooling performance with no condensation.
- Low noise levels through integrated twin sound dampers.
- Easy use through an integrated valve and a compact measurement, control, and regulating module.
- Regulation of the cooling output through water.
- High thermal comfort in front of the absorber by load-dependent distribution of the cooled air.

Onsite Requirements

For the cooling elements to function, necessary on-site installations consist of a routing network for inlet- and return flows, the cooling unit, circulating pump, etc., plus electrical connections.

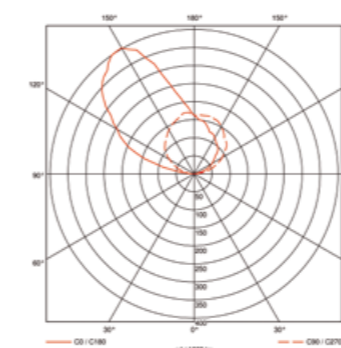
Sound Screen Lights



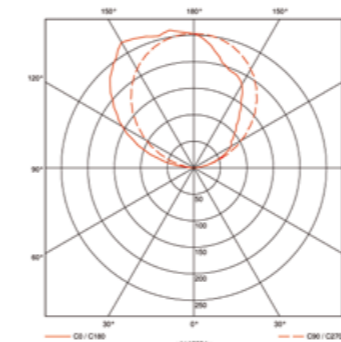
With this lighting system the successful concept of the acoustic sound shields and acoustic glass walls is rounded out with a line of lights especially suited for computer work. The intention here was to make the lighting adapt to the glass-acoustic elements as unobtrusively as possible in a timeless classical design. It goes without saying that the integrated lighting technology adheres to the highest standards and freedom from glare and reflections to reduce operator vision fatigue. The multi-watt system electronics, integrated as a standard, allows for various light bulb types and hence is an optimal solution for visual tasks

using a minimum of energy, thus forming the basis for maximum sustainability. The lighting system is prepared for installation on glass-acoustic sound shields and acoustic glass walls. For this, the lamp base is attached directly to the glass surface by means of an adapter; thus it creates the impression of a lamp „floating in the glass“. The employed lighting application with its especially wide-beam reflector system guarantees low ceiling light density with a limit of max. 1000 cd/sqm and very highly effective use of space.

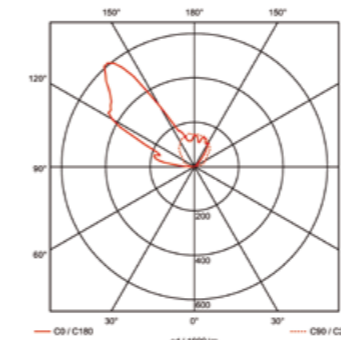
Lighting Distribution Curves



Fitting 1 x TC-L



Fitting 2 x TC-L



Fitting 1 x CDM-TD

Dimensions



Illumination Technology

Purely indirect, asymmetric distribution with a highly effective Miro 3-reflector.

Light Fixture Housing

Extruded aluminum profile prepared with reflector system for mounting on glass acoustic walls, acoustic sound screens or masonry walls or linked in the design as a floor lamp.

Dimensions

Profile height 55 mm, profile width 160 mm. Length of the light fixture housing depending on light bulb types, 600 mm, 1200 mm or 1800 mm.

Fittings

Possible light bulb types are:
 1 x 55 or 80 Watt TC-L
 2 x 55 or 80 Watt TC-L
 2 x 1 x 55 or 80 Watt TC-L
 2 x 2 x 55 or 80 Watt TC-L
 3 x 1 x 55 or 80 Watt TC-L
 3 x 2 x 55 or 80 Watt TC-L
 1 x 150 Watt CDM-TD without ignition time bridging.
 1 x 150 Watt CDM-TD und 1 x 60 Watt ignition time bridging

Colors

Standard color is aluminum white similar to RAL 9006; special colors on request at additional costs.

Connection

Furbished with quick-assembly clamps.

Options

Dimmable control, occupancy sensors/light sensors, control gear for bus systems.

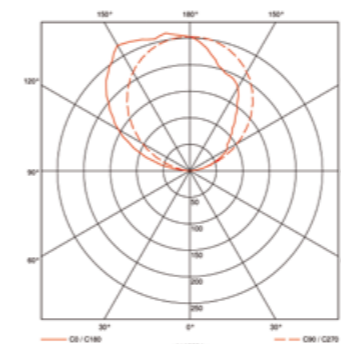
Floor Lamps



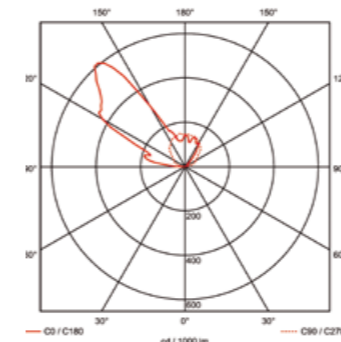
The basis for this floor lamp model is the timeless, precisely designed housing profile; well-known already from the noise shield lights. The same high performance reflector is used for this illumination technology. Two housing profiles are arranged side by side for the floor lamp version and then fitted off-center with a rectangular profile stand. A uniform and highly efficient light distribution in the room is achieved through this doubling of the lamp heads. The flat steel lamp base allows for unusual positioning of the floor lamp; for instance directly next

to a rolling file container or desk. The fitting possibilities are also very adaptable: either TC-L bulbs in 55 or 80 watts, as well as the highly efficient metal-halogen vapor lamp in 150 watts are possible. The highly effective reflector technology with a very wide emission field for floor lamps offers an outstanding energy-efficient use with only one floor lamp per double workplace. One floor lamp, depending on the kind of ceiling, can be enough for the typical '4 tables in a block' set-up.

Lighting Distribution Curves

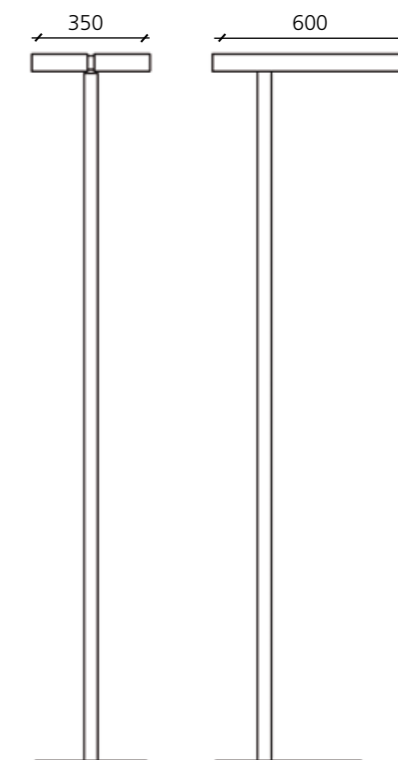


Fitting 2 x TC/L (per light fixture head)



Fitting 1 x CDM-TD (per light fixture head)

Dimensions



Illumination Technology

Purely indirect, 2 x asymmetrical distribution with a highly effective Miro 3-reflector.

Light Fixture Housing

Extruded aluminum profile with reflector system. Supporting stand of rectangular tubing with a flat steel base.

Dimensions

Profile height 55mm, profile length 600 mm, profile width 2 x 160 mm. Standard height ca. 1860 mm.

Fittings

Possible light bulb types are:
 1 x 55 or 80 Watt TC-L
 2 x 55 or 80 Watt TC-L
 2 x 150 Watt CDM-TD without ignition time bridging
 2 x 150 Watt CDM-TD und 1 x 60 Watt ignition time bridging

Colors

Standard color is aluminum white similar to RAL 9006; special colors on request at additional costs.

Connection

Connecting cable 2 meters with safety plug in black. Male connector in the riser. With rocker switches for separate switching of the lamp groups.

Options

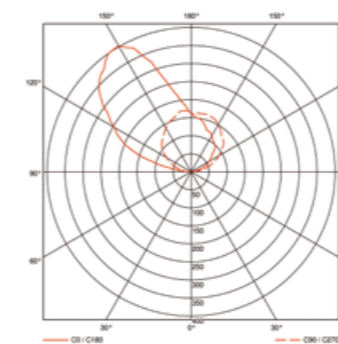
Dimmable control, occupancy sensors/light sensor, control gear for bus systems.

Wall Lamp Fixtures

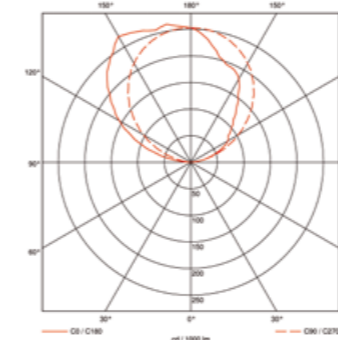
Another possible variant of the noise shield lamp is its use as a wall lamp. With the help of a special adapter it can easily be attached to masonry walls or room dividers. In this way, it functions as a conventional room or hallway light. This variant allows for fittings with 1 or 2 illumination elements. This lamp type can also be ordered as a lighting strip in various lengths. Coupling adapters or continuous profiles allows the standard light fixture housing to turn into a 2-, 3-, or 4-length light fixture combination.



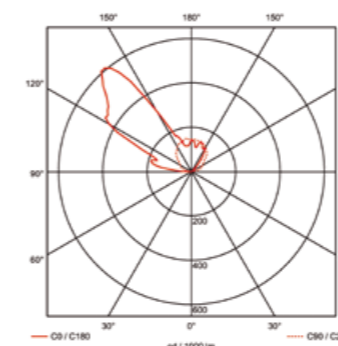
Lighting Distribution Curves



Fitting 1 x TC-L

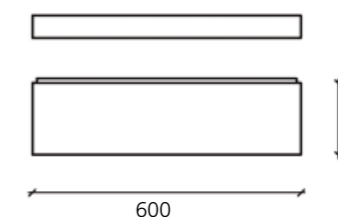


Fitting 2 x TC-L



Fitting 1 x CDM-TD

Dimensions



Illumination Technology

Purely indirect, asymmetric distribution with a highly effective Miro 3-reflector.

Light Fixture Housing

Extruded aluminum profile with reflector system prepared for mounting on glass acoustic walls, acoustic sound screens or masonry.

Dimensions

Profile height 55mm, profile length 160 mm. Length of the fixture housing depends on fitting and can be 600 mm, 1200 mm, or 1800 mm.

Fittings

Possible light bulb types are:

- 1 x 55 or 80 Watt TC-L
- 2 x 55 or 80 Watt TC-L
- 2 x 1 x 55 or 80 Watt TC-L
- 2 x 2 x 55 or 80 Watt TC-L
- 3 x 1 x 55 or 80 Watt TC-L
- 3 x 2 x 55 or 80 Watt TC-L
- 1 x 150 Watt CDM-TD without ignition time bridging
- 1 x 150 Watt CDM-TD und 1 x 60 Watt ignition time bridging

Colors

Standard color is aluminum white similar to RAL 9006; special colors on request at additional costs.

Connection

Furnished with quick-assembly clamps.

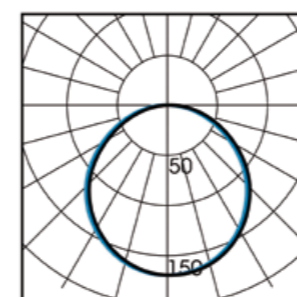
Options

Dimmable control, occupancy sensors/light sensors, control gear for bus systems.

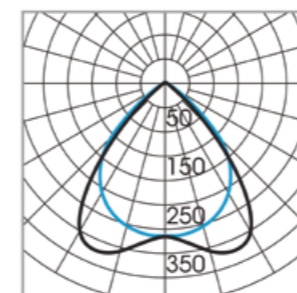
Acoustic Light Panels



Lighting Distribution Curves



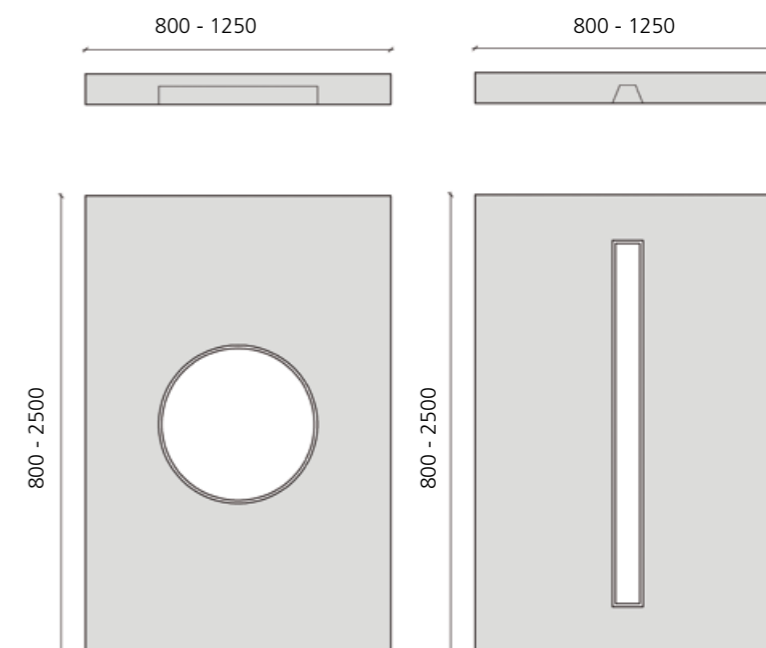
Round-Shaped Lights



Linear Tube Forms



Dimensions



In this lighting system almost any shape and size can be realized: linear tube forms, round, rectangular or polygonal. In combination with acoustic ceiling panels (HLA) it is an ideal symbiosis for buildings with sound-reflecting concrete ceilings. Just as variably as the sizes and shapes of these panels is the fitting of different light bulbs. Depending on the size and application, there are light inserts with compact fluorescent bulbs, linear tubes or LEDs, when you need high performance in small areas.

Illumination Technology

Light bulbs according to size and shape of the lamp.

Light Fixture Housing

Extruded aluminum profile with opal glass covering or sheet metal housing with opaque satin, depending on the size and shape of the housing.

Dimensions

Round shapes ca. 300 / 500 / 600 / 900 mm. Fluorescent Light-Forms in lengths from 400 to 3000 mm.

Fittings

Possible light bulb types: 1 x 22 and 1 x 40 watts T5R, as well as multiples above 18 to 80 watts T5. LED inserts are also available.

Colors

Standard color white, similar to RAL 9016 or aluminum white similar to RAL 9006; special colors on request at additional costs.

Connections

Furnished with quick-assembly clamps.

Options

A 2-light bulb fitting with T5 / TC-L light bulbs is also possible.

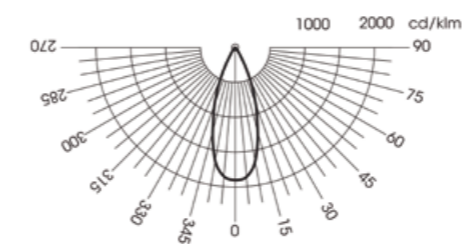
All dimensions in mm.

Ceiling Panel Downlights



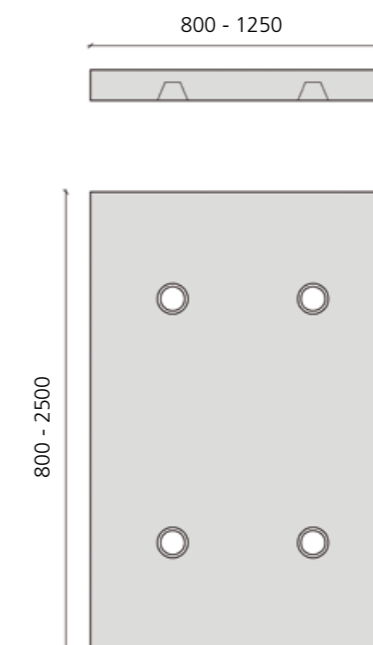
Employing an acoustic ceiling panel as a light source is particularly useful when, for example, it is to be mounted above meeting tables or conference table systems. The most modern LED light inserts are here the guarantee for excellent illumination with minimum power consumption, and this without the usual heat generated by halogen lighting technology. This illumination technology can achieve appropriate solutions for any kind of application.

Lighting Distribution Curves



Light Distribution Curve, LED 13 watts

Dimensions



Illumination Technology

Direct radiating reflector-LED 2 x 20 °

Light Fixture Housing

Quick assembly light insert for use with flat bar clamping for hole diameter 73 mm, height 90 mm.

Dimensions

Diameter 80/73/90 mm

Fittings

Possible light bulbs are:
5 Watt / 8 Watt / 13 Watt.
Alternatively 3 to 13 watts.

Colors

Mounting frame chrome-plated, reflector anodized aluminum.

Connections

Furnished with quick-assembly clamps.

Options

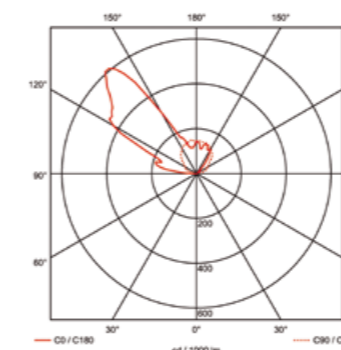
Lighting arrangement and number of lighting elements appropriate to the lighting task. Dimmable version is possible as an alternative.

Lighted Ceiling Panels, indirect asymmetric



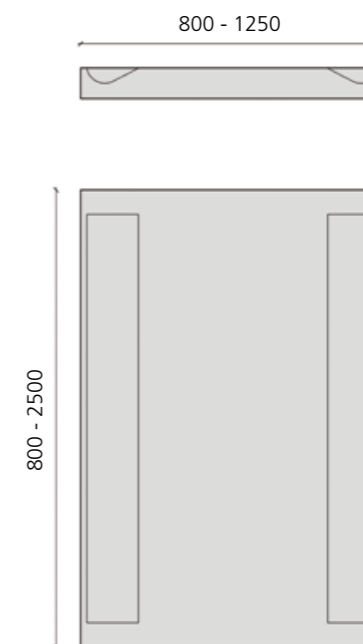
Equipped with light reflectors arranged asymmetrically, this lighting system has a wide range of applications. It is ideal for the standard lighting of computer workstations as well as in the use over meeting- and conference tables, reception desks, hallways etc. With this system each side can be activated individually or together with another light source. In combination with integrated LED down lights, it opens up a virtually unlimited variety of applications. The basis for this system is the successful High Performance Compact Absorber (HPCA) acoustic ceiling panel. A minimum suspension height of 300 mm is required for a light density limit which conforms to the standard for computer workstation lighting.

Lighting Distribution Curves



Fitting 1 x CDM-TD

Dimensions



Illumination Technology

Indirect, asymmetric distribution with a highly effective Miro 3-reflector.

Light Fixture Housing

Light insert for adaptation to the ceiling panel, sheet metal housing with reflector unit.

Dimensions

400 x 160 x 55 mm to 3000 x 160 x 55 mm.

Fittings

Possible light bulb types are:
 1 x 36 or 54 or 80 Watts T5
 Alternatively in multiple lengths:
 1 x 36 or 55 or 80 Watts TC-L
 1 x 150 Watts CDM-TD without ignition time bridging
 1 x 150 Watt CDM-TD und 1 x 60 Watt ignition time bridging

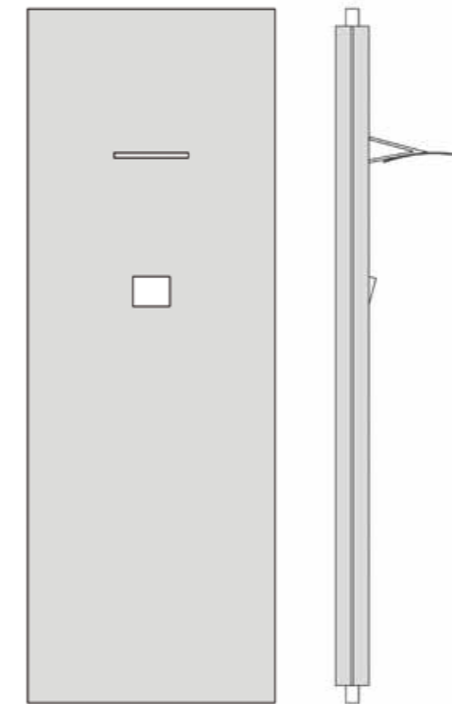
Connection

Furnished with quick-assembly clamps.

Absorber Light Fixtures, Indirect Reflector System



This system sets a new standard with 30 watts and 500 lux illumination per workplace. There is a very noticeable power saving and a markedly reduced cooling load on hot summer days compared with the previously normal 120 to 180 watts per workplace. As a rule this lighting system amortizes itself completely in 5 years. On top of that it stands out through its unique design, while the direct component with its perforated reflector contributes to the fundamental brightening of the room. The components are integrated in the initial equipment, for subsequent installation they are also available as an adaptation system.



Illumination Technology

Direct/ indirect reflector system with spotlights.

Light Fixture Housing

Light fixture adapted to acoustical element. Reflector made of high quality Miro 3, faceted and perforated.

Dimensions

Size of the components depending on the lighting task.

Fittings

Possible light bulb types are:

HIT DE 30 Watts

HIT DE 50 Watts

LED 20 to 40 Watts

Colors

Standard color is aluminum white similar to RAL 9006/ Miro-silver.

Connection

Furnished with quick-assembly clamps.

Options

Different reflectors for different lighting tasks (different widths/depths, different spotlights).

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