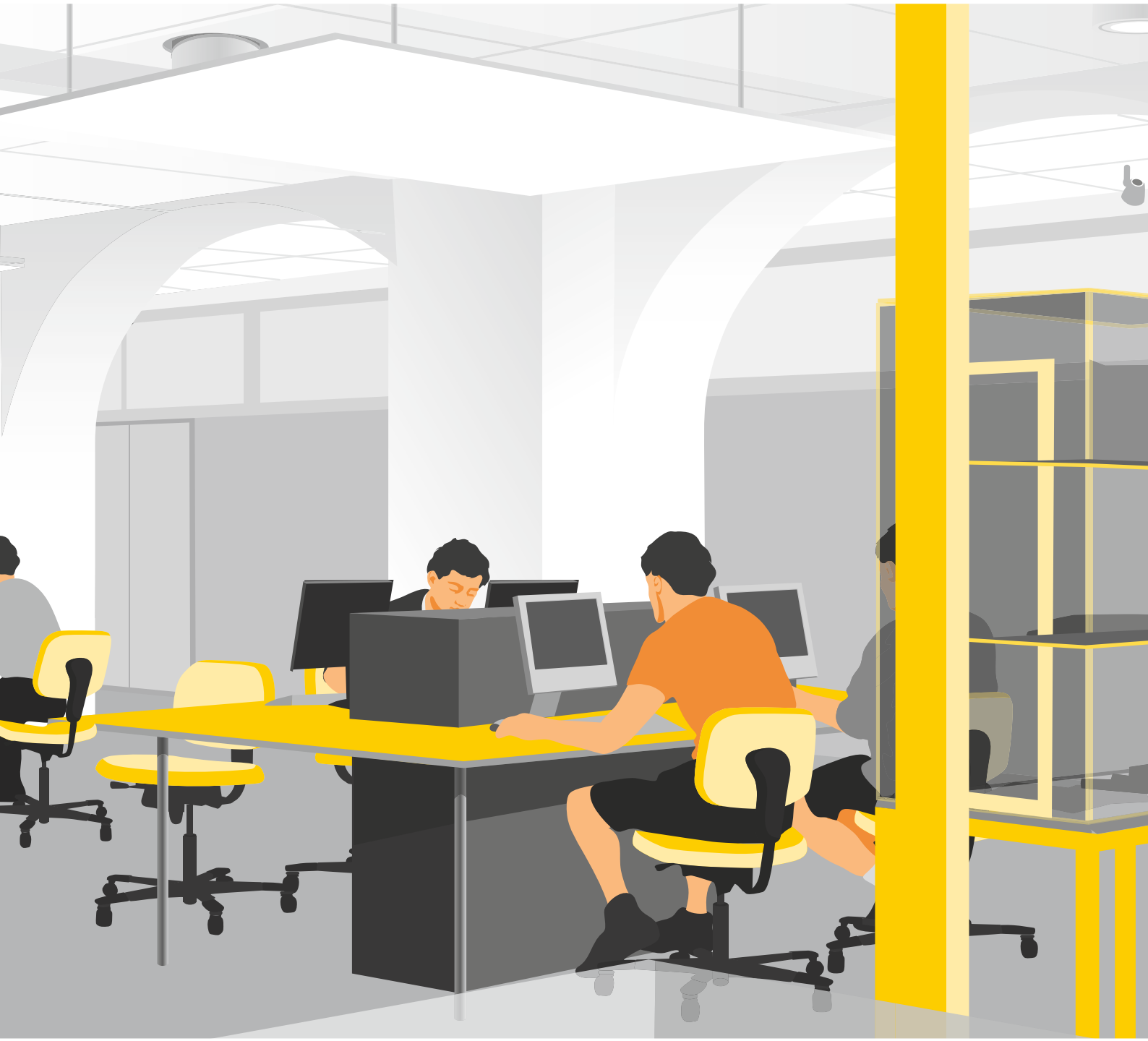
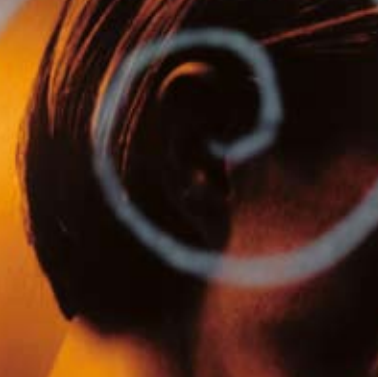
Ecophon®

CEILING SYSTEM

Overview





Ecophon

"wherever people work and comunicate"

Our mission

Our mission is to contribute to a good working environment for the eye, the ear and the mind.
We do this by supplying sound absorbing ceiling and wall absorber systems with well devised functions, attractive design and excellent sound absorption.
Our business is to create a good sound environment in all workplaces for example offices, educational and health care premises, high tech industry and public areas.
A good working environment does much to promote people's wellbeing and performance. Many factors work together here – the sound environment being one of them.

Ecophon the company

SAINT-GOBAIN Ecophon is part of the Saint-Gobain Group and a leading, global supplier of sound absorbing ceilings and wall absorber systems.
An innovative approach combined with long experience. Ecophon systems and products are marketed globally through wholly or partly owned sales companies and through selected partners and distributors. This means that you can get personal support from skilled personnel and representatives all over the world. The Ecophon head office is situated in Sweden. Here we also have our main production unit.

Global presence - worldwide service on www.ecophon.com

Via our website we bring you acoustic support and updated product information 24 hours a day.

DESCRIPTIVE ILLUSTRATIONS

Modern and descriptive illustrations help you to understand the benefits of our information, products and systems.

Read more about Akutex™ Surface Technology on the web. On all pages with this symbol, the products are available with Akutex™ surface.

SOUND EXAMPLES

By comparing different acoustic environments we give you the possibility to understand how sound affects people.

3D ANIMATIONS

Experience our product installations in a quick and inspiring way.

INSPIRATIONAL SLIDESHOW

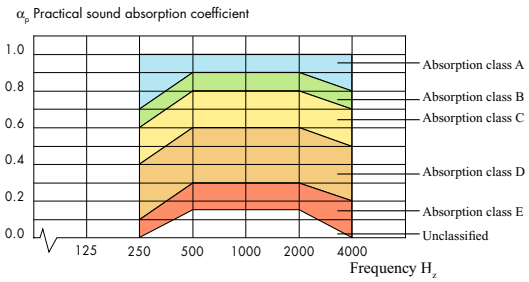
Get some ideas of how our products can be applied combining design with acoustics.

INTERACTIVE COLOUR SELECTOR

Create your own colour combinations of Wall Panels on the web before they are installed.

Functional demands

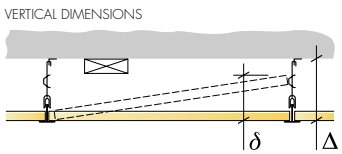
The physical requirements of buildings and the demands put on them span many technical areas and can differ considerably from one environment to another as well as between various applications. To make buildings function as intended, with user-friendly environments, high demands are placed on the building materials and technical solutions used.
The functional demands placed on ceilings are often considerable. Properties and performance must conform to building standards, regulations and individual specifications, which take into consideration both present and future activities in the premises.



The absorption classes are designated A-E, where absorption class A has the highest sound absorption. A specified overall dept of system (o.d.s) must always be stated for a given absorption class.
A high Articulation Class (AC) gives some privacy, a lower AC means lower privacy. Ecophon recomend a minimum AC of 180.

ACOUSTICS

Room acoustics describes the way sound behaves in a room and how we as humans perceive different acoustic phenomena. The field of building acoustics covers sound insulation too.
The shape, size, surface finish and furnishings of a room all determine its acoustic properties. Room acoustic design involves controlling these factors, thus influencing sound absorption, reflection, propagation and diffusion in order to support a certain type of function or activity.
In many of the commonly occurring types of rooms, a sound-absorbing ceiling is a practical aid for achieving Room Acoustic Comfort™.
The ceiling's sound-absorbing properties are described in sound absorption classes (A-E) in an international standard (EN ISO 116 54). Class A is the highest level of sound absorption. A majority of the Ecophon systems meet the highest class, Class A. The corresponding NRC/SAA value, according to ASTM C 423, is between 0.85 and 1.0. The maximum value that can be achieved is 1.0.



Δ= Minimum overall depth of system
Δ= Minimum depth for demountability

ACCESSIBILITY

An important function of a suspended ceiling is to conceal installations in the ceiling void. In order to have easy access to the installations, e.g. for service, it is a great advantage if the ceiling tiles are demountable. The edge design of the tiles and the installation method give different degrees of demountability. Most Ecophon systems, even those with concealed suspensions, are fully demountable.

CLEANABILITY

For a long lasting ceiling with economical maintenance the visible surface should be dirt and dust repellent and easy to keep clean. Ecophon tiles with Akutex T and Akutex FT are a good choice as they have a coating that prevents dust and dirt from adhering and also are designed to withstand cleaning if necessary.

LIGHT EFFICIENCY

Lighting has a major impact to the overall look and feel of a room. A key factor is how the ceiling reflects and spreads the light. It should not cause glare or irritating reflections. A white Ecophon ceiling with Akutex T surface reflects 84% of the incident light and 99% of the reflection is diffuse. The corresponding figures for Akutex FT are 85% and 99% respectively. The Akutex FT surface has another important property; an optimum retro reflection coefficient. This means that it has the same appearance whether if the light comes from the same or the opposite direction in relation to the observer, when looking at the ceiling surface.

Ecophon™ Edge: **Mediafin Tour und Taxis**, Belgium, **Architect**: Proscos CVBA, Antwerp, **Photografer**: Studio Schuurmans Fotografie

INFLUENCE OF CLIMATE

The core material of Ecophon ceiling tiles is water repellent glass wool. The absorption of moisture from the air is negligible, most Ecophon ceiling panels, withstand a relative humidity of 95% at 30 °C without warping, deflecting or delaminating.

For any building material constantly exposed to hot and humid conditions there is a risk of mould growth, so adequate cleaning regimes must be considered.

MILJÖMÄRKT
310 007

ENVIRONMENTAL INFLUENCE

Almost 80% of the basic material in Ecophon ceiling tiles consists of recovered household glass and recycled glass wool. Most Ecophon products satisfy the Nordic Swan Environmental labelling criteria (The Swan). This standard covers the external and internal environmental impact of a product from raw material to recycling/deposit.

Nordic Swan Environmental labelling criteria:

- Recycling
- Transportation
- Ergonomics
- Life-Span

Akutex™ Surface Technology by Ecophon®

INDOOR CLIMATE

The indoor environment has a major impact on people's health. Building materials that release particles and chemical emissions should be avoided.
Most Ecophon products are certified by the Indoor Climate Labelling (DIM) and the Building Material Emission Clasification M1 and pass the highest requirements. They are also recommended by the Swedish Asthma and Allergy Association.

FIRE SAFETY

The fire safety demands on suspended ceilings can vary depending on both the type of room and building where they are installed.
However, two general performance requirements are always crucial:

- Ceilings should have a negligible contribution to fire and smoke development
- Ceilings should not collapse during the early stages of the fire when evacuation and rescue operations still can be carried out

All Ecophon ceiling systems fulfil these demands.

In a burning building the circumstances can quickly become such that there is imminent risk of personal injury. Within the parameters of safe evacuation, consideration must be given to fire gases, visibility, heat radiation and temperature. E.g. in order to evacuate safely, the air temperature in rooms through which people are escaping should not exceed approx. 80°C.

- The surface linings of walls and ceiling are crucial for the early development of a room fire
- Flash over occurs at a temperature of about 600°C
- The maximum air temperature for safe evacuation is approx. 80°C

EUROPE	EN 13501-1	**US**	ASTM E 1264
Class	Products	Class	Products
A2-s1,d0	Focus, Gedina, Advantage, Sombra, Master, Master S Solo Combison Duo, Access, Super G, Hygiene, Wall Panel,	Class A	Focus, Gedina, Advantage, Sombra, Master, Access, Super G, Hygiene, Wall Panel
B-s1,d0	Focus S-line, Focus Quadro, Focus L-line, Focus Flexiform,		

MECHANICAL PROPERTIES

Mechanical properties embrace load bearing capacity and impact resistance. The tiles and grid of a ceiling system are subjected to different loads. All of these possible loads must be considered during the process of planning and designing a ceiling.

The ceiling tiles can only take small loads, such as the load from a small spotlight.

Static load
The weight of the ceiling itself and the weights of items attached to the ceiling e.g. light fittings, loudspeakers, ventilation grills, signs and so on.

Dynamic load
Mechanical impacts, for example contact from balls in gymnasiums or water pressure when the ceiling is being cleaned with high pressure hoses.

Live load
All loads added to the "naked" ceiling system. Live loads can be static or dynamic.

Design load
The own weight of the suspended ceiling and the actual live loads the ceiling is designed for.

INSTALLATION

The structure of glass wool is such that the ceiling tiles have excellent mechanical properties relative to their weight. This means that the tiles are stable and can withstand handling, but are nonetheless pliable and very easy to work with. An ordinary craft knife is used for cutting perimeter tiles and holes for installations, pipe-works and cables. Installation guides can be down loaded from the Ecophon home page www.ecophon.com.

- Install the ceiling late in the building process to avoid soiling.
- Always use clean cotton gloves when handling ceiling panels.

Ecophon Sombra/Focus Ds: **AFG Arena**, Shoppingcenter, St.Gallen Switzerland **Architect:** Ramseier & Associates Ltd

Application Guide

This guide is intended to help you find a suitable ceiling solution for a specific type of area. The recommendations are based on our long experience of meeting the general demands and requirements upon acoustic ceilings in selected areas. However, occasionally specific conditions could mean that an alternative solution to the ones shown suits your application.
We have suggested the best products for each area also indicating good alternative systems where appropiate.

In the section for Functional demands you will find detailed descriptions of the demands and standards for ceilings.
For information on the performance of each system, please refer to the system description. Should you have any special requirements or require further information please contact us, www.ecophon.com.

Banque populaire Toulouse,France
Architect: Majorelle
Photographer: Patrick Salaün

	FOCUS	FREE HANGING UNITS	MASTER	COMBISON	GEDINA	ADVAN-- TAGE	ACCESS	SOMBRA	HYGIENE	SUPER G	WALL-PANEL
Office											
Reception/Entrance	• • •		• •		• •						• • •
Corridor	• •						• • •				
Open plan solution	• •	• • •	• • •	• • •	• •						• • •
Quiet zone		• •	• • •								• • •
Quiet room	• •		• • •		• •						• • •
Rest area	• • •				• •						
Cellular office	• • •				• •						
Room with movable partitions				• • •							
Meeting room	• •	• •	• • •								• • •
Conference and lecture room		• •	• • •								• • •
Copying and printing room	• •		• • •			• •					• • •
Kitchen									• • •		
Canteen	• • •		• •		• •						
Educational Premises											
Entrance/Communal area/Cloak room	• • •									• •	• • •
Corridor/Stairs	• •						• •			• • •	
Classroom			• • •		• •						• • •
Open-plan teaching environment	• •		• • •								• • •
Conference room/Group study room	• •		• • •		• •						
Lecture theatre/Assembly hall/ uditoriumstudy room	• •		• • •								
Workshop					• •					• • •	
Music room/Drama room/Dancing room			• • •								• • •
Library/Multimedia resource centre/ Study room/Staff room	• •		• • •								
Cellular office/Reception	• • •				• •						
Canteen/Cafeteria/Restaurant	• •		• • •								
Kitchen									• • •		
Changing room					• •					• • •	
Gymnasium/Sports hall*										• • •	• • •
Swimming pool*	• • •								• • •	• •	
Play and activity room			• •							• • •	• • •
Health care premises											
Ward room/Patient room	• •								• • •		
Entrance hall	• • •				• •						
Circulation area/Corridor	• •				• •		• • •				
Consultation Room/Treatment Room									• • •		
Operating theatre									• • •		
Laboratory									• • •		
Hygiene room									• • •		
Waiting room/Library	• • •				• •						
Restaurant/Café	• • •				• •						
Intensive care/Recovery room									• • •		
Kitchen									• • •		
Cellular office	• • •				• •						
Office room with movable partitions				• • •							
Cinema											
Entrance hall	• • •		• •								
Movie theatre								• • •			• • •
Projector room			• •					• • •			
Corridor	• • •				• •						
Rest room	• • •				• •						
Sports and leisure											
Tennis hall										• • •	• •
Sports hall*										• • •	• • •
Swimming pool*	• • •								• • •	• •	
Restaurants											
Dining room	• • •	• • •	• •		• •						
Kitchen									• • •		
Commercial											
Shop	• • •				• • •	• •					
Shopping mall	• • •				• •						
Industry											
Pharmaceutical									• • •		
Food preparation									• • •		
Electronic									• • •		

• • • = recomendation • • =good alternative

Ecophon ceilings together with wall panels are an excellent way to achieve Room Acoustic Comfort™. We recommend a combination of Master Solo S with wall panels, when Concrete Core Activation is an issue.

FOCUS
Meets the strictest demands
of form and structure

FREE HANGING UNITS
Design units for
acoustic purpose

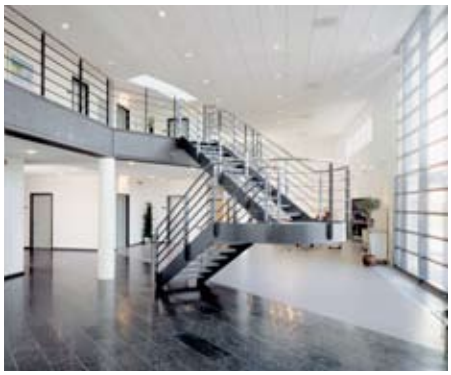
LIGHTING
Intergrated with
Ecophon ceiling

MASTER
When acoustics
are vital

COMBISON
Sound insulation plus
soundabsorbtion

GEDINA
Standard solutions
for high demands

ACCESS
For full accessibility



ADVANTAGE
For the basic demands

SOMBRA
The black acoustic
ceiling

HYGIENE
Good acoustics where
hygiene is vital

SUPER G
Impact resistant
ceilings

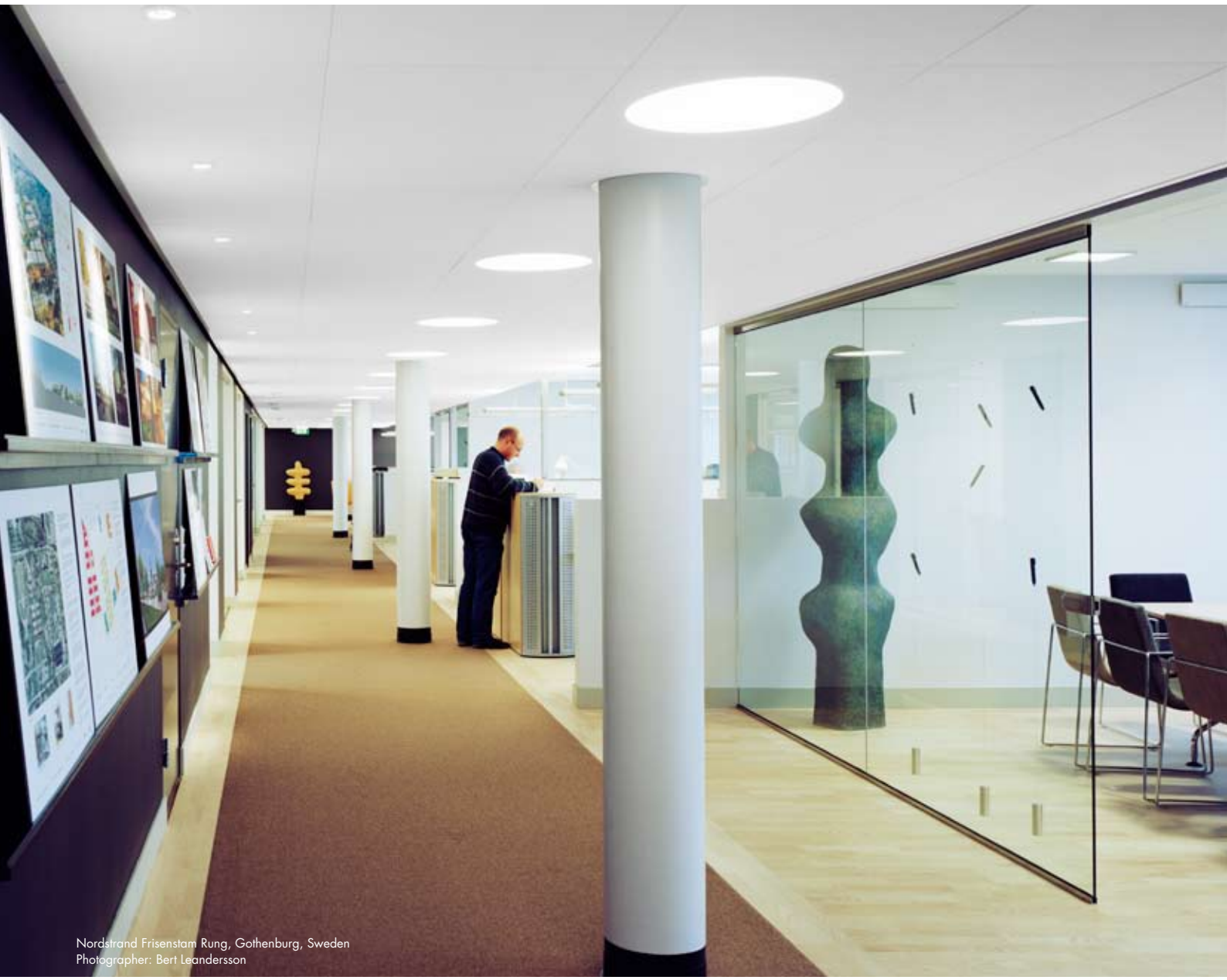
WALL PANEL
Alternative or complement
to the acoustic ceiling

Ecophon system descriptions

The Ecophon range comprises of various system families. All of these families have a number of systems which fulfil different demands with regard to performance characteristics, edge designs, sizes and surfaces. Each system family has its own specific features and has been developed to be ideal for particular areas, although they may also be suitable in other situations.

Ecophon Focus™

Meets the strictest demands of form and function



Nordstrand Frisenstam Rung, Gothenburg, Sweden
Photographer: Bert Leandersson

The Ecophon Focus family provides comprehensive tools to create a wide variety of ceiling designs - and still meet the strict requirements for first-class acoustics. An extensive range of edge designs, forms and levels gives you the freedom to create an environment that attains high standards in sound, light, comfort and ambience.

Eight edge designs for appearance and functionality
The systems are available with a variety of edge designs for concealed or visible grid or for direct fixing. Not only will the edge design affect the overall appearance of the ceiling, but they will enable you to meet different requirements for demountability and access to installations in the ceiling void.

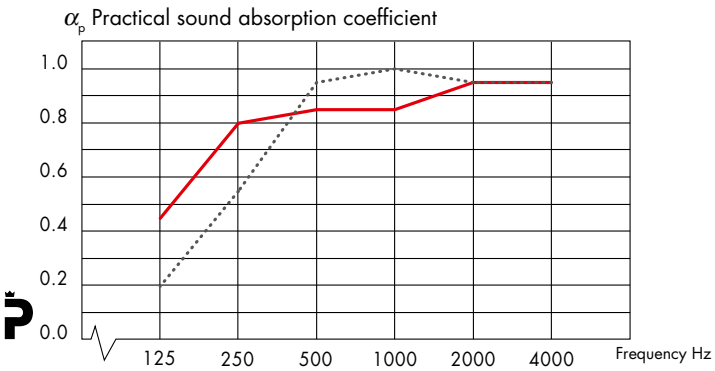
Section of Focus Ds system

Section of Focus B sytem

Focus Dg with Connect T24 Ultra Matt black

Focus F is installed by screw fixing

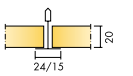
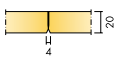
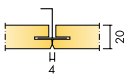
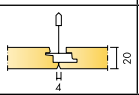
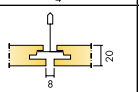
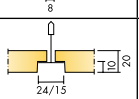
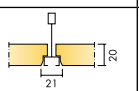
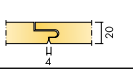
ACOUSTICS:



Frequency, Hz
— Ecophon Focus Ds 200 mm o.d.s.
– Ecophon Focus Ds 50 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354. Classification according to EN ISO 11654.

SOUND PRIVACY: AC according to ASTM E 1111 and E 1110.

			Size in mm	Absorption Class/AC	Min depth of system
Focus A		Visible grid Easy demountable tiles.	600x600, 1200x600, 1200x1200, 1600x600,1800x600, 2000x600, 2400x600	A /190	50/100 mm
Focus B		For direct fixing with glue.	600x600	C /-	23 mm
Focus C		Concealed grid. Non demountable tiles.	600x600, 1200x600	A /180	23/135 mm
Focus Ds		Concealed grid. Easily demountable tiles. Symmetric edge.	600x600, 1200x600, 1200x1200, 1600x600,1800x600, 2000x600, 2400x600	A /180	65/135 mm
Focus Dg		Unique edge design. Floating appearance. Easily demountable tiles.	600x600, 1200x600, 1200x1200, 1600x600,1800x600, 2000x600, 2400x600	A /180	65/115 mm
Focus E		Recessed visible grid. Easily demountable tiles.	600x600, 1200x600, 1200x1200, 1600x600,1800x600, 2000x600, 2400x600	A /180	60/110 mm
Focus Ebx		Visible grid of box type with flush apparence. Easily demountable tiles.	600x600	A /180	110 mm
Focus F		For direct fixing with screws.	600x600, 1200x600	C /-	20 mm

Ecophon Focus™

Unique additional systems

Basen Rozana, Warsaw, Poland

The Ecophon Focus range provides a number of additional systems that present new design and functional possibilities to enhance or complete the acoustic ceiling.

Focus 3-Dimensional ceilings
Ecophon Focus™ S-line, Focus™ Quadro, Focus™ L-line and Focus™ Flexiform curved ceiling panels enable you to vary the heights of different parts of the ceiling. They provide an easy way to adapt the ceiling to installations and the structural features that are inherent to the building. Raising and lowering the ceiling in this way can produce an innovative and exciting ceiling design.

Ecophon Focus™ frieze
The sound absorbers in the ceiling perimeter are extremely important as in that they absorb both the sounds coming directly from the sound source and those reflected from the upper part of the walls. The Focus frieze system is used to create a smooth interface between the wall and the suspended ceiling without any visible wall-trims.

Focus S-Line E panel

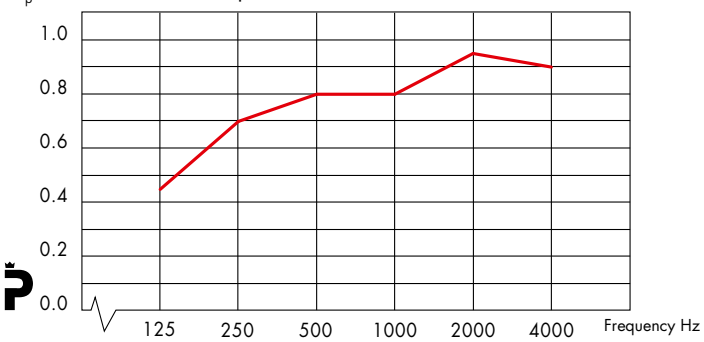
Focus L-Line E system

Section of Focus Quadro E system

Focus Flexiform panel

ACOUSTICS:

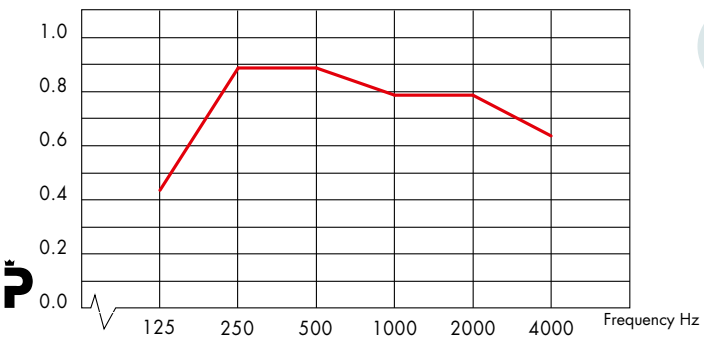
α_p Practical sound absorption coefficient



Frequency, Hz

— Ecophon Focus S-line E, Focus L-Line E, Focus Quadro E, Focus Frieze 200 mm o.d.s.

o.d.s = overall depth of system

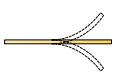
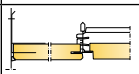


Frequency, Hz

— Ecophon Focus Flexiform 200 mm o.d.s.

o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

			To be best combined with Focus				Size mm	Absorption Class/ AC	Min depth of system
			A	Ds	Dg	E			
Focus S-line E		S-shaped panels creating a level change, h=210 or 310 mm.				•	1200x600 1200x1200	B	-
Focus L-line E		L-shaped panels creating a level change.				•	1200x600	B	-
Focus Quadro E		Quartered circle shaped panels creating a level change,convex or concave shape.				•	1200x300 1200x450	B	-
Focus Flexiform		Flexible panels formed on site.	•				1200x600 1600x600 2000x600 2400x600	B	-
Focus Frieze		Creating a smooth transition between ceiling and wall.				•	2400x600	A/ 190	60

Ecophon Free Hanging Units

Ecophon Office, Basingstoke, UK,
Photographer: Jeff Faraday, Faraday Fotographic Limited

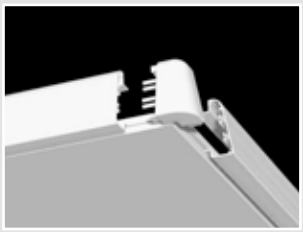
Ecophon Focus™ Wing
Ecophon Focus Wing provides a whole new dimension to the acoustic ceiling. With this additional system, the ceiling becomes more than just a surface – it becomes a design element and a focal point. Focus Wing can be used as a free-hanging unit over a meeting place or a workstation. It can also be used for level changes or transitions to other construction elements.

Ecophon Edge™ 500
Ecophon Edge is a free hanging system with its own special character since the section of the Connect Edge Profile 500 and the Connect Edge Corner has a slight vertical slope. The floating ceiling, installed in rectangular islands, becomes a design element with a soft and balanced appearance thanks to the moulding Connect Edge 500. The outer edges are angled slightly upwards and outwards or downwards and outwards, as required.

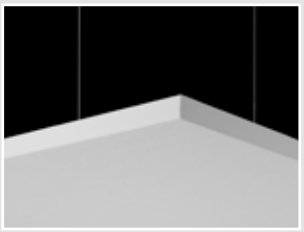
Ecophon Master™ Solo S
Ecophon Master Solo S is a horizontal element with painted edges and without profiles, giving this single unit a very clean, minimalist appearance. The product is available in 1200x1200x40 mm or 2400x1200x40 mm with the Akutex FT surface in White Frost.

Ecophon Master™ Baffle
For applications where a wall-to-wall ceiling is not possible or desired. Such applications are, for example when concrete core activation is used or installations that do not allow a full coverage of the ceiling. Ecophon Master Baffle is an easily demountable system with a distinct gap between the baffles created by the Connect guide pin.

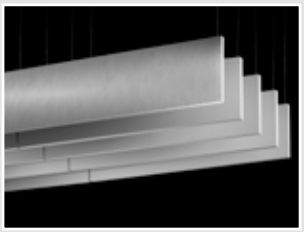
Focus Wing external corner.
Also available as internal corner



Section of Focus Edge 500 system



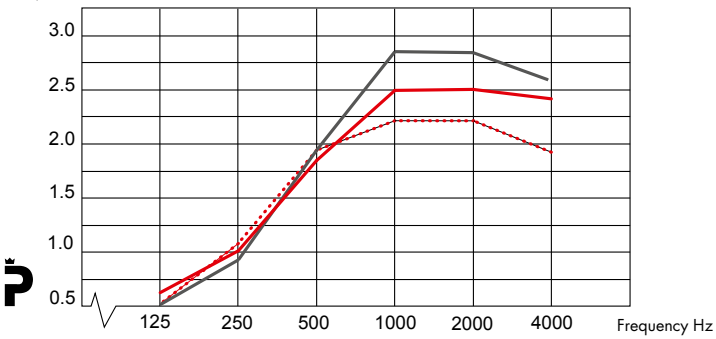
Master Solo S



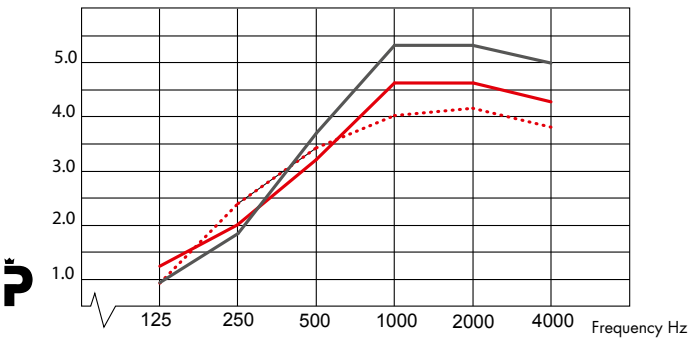
Master Baffle

ACOUSTICS:

A_{eq} Equivalent absorption area per unit, m^2



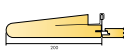
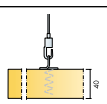
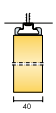
Frequency, Hz
— Ecophon Master Solo S 1200x1200 / 1000 mm o.d.s
— Ecophon Master Solo S 1200x1200 / 400 mm o.d.s.
– Ecophon Master Solo S 1200x1200 / 200 mm o.d.s.
o.d.s = overall depth of system



Frequency, Hz
— Ecophon Master Solo S 2400x1200 / 1000 mm o.d.s
— Ecophon Master Solo S 2400x1200 / 400 mm o.d.s.
– Ecophon Master Solo S 2400x1200 / 200 mm o.d.s.
o.d.s = overall depth of system

Comment: The values in the diagram refer to measurement on a single unit. If the units are arranged in a cluster with distances between units less than 0.5 meters, the A_{eq} per unit will be somewhat reduced.

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

			To be best combined with Focus			Size mm	Absorption Class	Min depth of system
			Ds	Dg	E			
Focus Wing		Wing-shaped elements for free hanging ceilings.	•		•	1200x200	-	135
Edge 500		Slight vertical sloped moulding for free hanging units.	•	•	•	2400x80	-	135
Master Solo S		A free hanging unit with a clean appearance and easy to install. Discreet, adjustable wire hangers with no visible profiles.	Individually suspended units			1200x1200 2400x1200	(A)	140 140
Master Baffle		Suspended with Baffle profile.	Individually suspended units			1194x200 1194x300	D	220 320

Ecophon integrated lighting

Ecophon Office, Basingstoke, UK,
Photographer: Jeff Faraday, Faraday Fotographic Limited

Ecophon Illuminated Level Change
Ecophon Illuminated Level Change is effectively an open Ecophon Light Coffer. By combining several lengths and shapes of level change, special size Light Coffers are created. The level change can be used to allow creative use of available height and room space, emphasising and strengthening the identity of large scale rooms or leading the way on directional walkways.
Illuminated level change creates an even and harmonious illumination with its indirect lighting while controlling shadows in the room.

Ecophon Light Coffer
Ecophon Light Coffer can be used for general lighting, for lighting in a special area, or as an aesthetic part of the ceiling. The Light Coffer creates an even and harmonious illumination with its indirect lighting while controlling shadows. If coffers are used for general lighting in large rooms with many workstations, they should be supplemented with luminaires around the coffers.

Ecophon Dot™, Square™ and Line™
Fully integrated luminaires developed for Ecophon ceilings with Akutex FT surface. These luminaires are designed to achieve an exciting lighting effect and suitable for a number of room types. They are primarily for mood or general lighting and work well as a specific feature or simply enhancing the character of the room. The lower part of the luminaire is easily demountable.

Ecophon Hygiene™ Lavanda T5
A luminaire used together with Ecophon Hygiene Ceilings. Ecophon Hygiene Lavanda T5 is equipped with a high frequency ballast, is flush mounted in the ceiling to avoid pockets of dirt and dust that could accumulate, and can also withstand high pressure washing (IP65).

Luminar in extusion

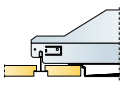
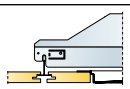
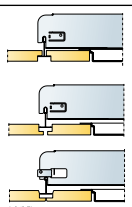
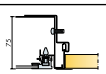
Uplight extusion hanger

Ecophon Dot with Focus Ds system

Section of Hygiene lavanda with Protec C

ELECTRICAL DATA: 230-240V, 50 Hz, power factor cos ϕ>0,9.

APPROVALS: IP20, Class 1. CE

			To be best combined with Focus				Size mm	Required aprox.nos luminaires/m² per100 lux
			C	Ds	Dg	E		
Ecophon Illuminated Level Change		Combinations of level changes and lighting.	•*)	•*)	•*)	•	1200x600	-
Ecophon Light Coffer		Available in 8 standard sizes.	•	•	•	•	from 2400x2400 to 4800x6000	-
Ecophon Dot		Fully integrated luminaire.		•	•	•**)	600x600	0.074
Ecophon Square 43		Fully integrated luminaire.		•	•	•**)	600x600	0.066
Ecophon Line		Fully integrated luminaire.		•	•	•	1200x600	0.074
Hygiene Lavanda T5		Recessed luminaire. Withstand frequent high pressure hosing.	To be installed with Hygene ceiling system				600x600 1200x300	PS 0.037 PTP 0.027 PS 0.025 PTP 0.019

*)Not recommended with 135 degree corners
**)Also to be combined with Master E

Ecophon Master™

When acoustics are vital

Walkenried Kindergarten, Walkenried, Germany
Architect: Probst, Herzberg am Harz
Photographer: Åke E:son Lindman

When information is being communicated to an audience it is very important that the speaker can be heard clearly.

Developed for classrooms and open-plan offices
If you are looking for a ceiling that promotes speech intelligibility, tests have shown that Master/alpha is in a class of its own. It has excellent sound absorption for frequencies above 250 Hz and also provides high absorption for low frequencies. Therefore, Ecophon Master/alpha is particularly well suited for rooms where maximum absorption throughout the frequency range is desirable, such as classrooms and open-plan offices. It is also ideal in areas where there is low-frequency disturbance from ventilation systems or external sources such as traffic noise.

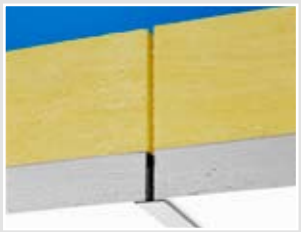
Ecophon Master™ variations for different situations
All Ecophon Master systems are available with three different sound absorption characteristics, which can be used separately or in combination depending on the room type.

alpha - the surface that produces the highest sound absorption - class A - used for wall-to-wall ceilings in open-plan offices, lecture rooms and conference halls with floor areas up to about 100 m², possibly combined with Master gamma.

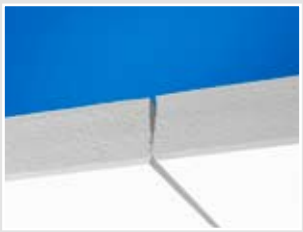
beta - suitable for installation as a full ceiling in music rooms with floor areas up to 100 m². Due to its reduced high-frequency sound absorption - class C - it offers greater tone richness.

gamma - has a sound absorption capacity for low frequencies only and is otherwise a sound reflector - sound absorption class E. Master gamma can be used with Master alpha in lecture halls with floor areas of more than 100 m². It can also be used to give fast feedback to the speaker.

extra bass - is a complement to Master/Alpha when increased sound absorption is required, especially in the low frequencies. It is very important for people with a hearing impairment.



Section of Master A system with Extra bass



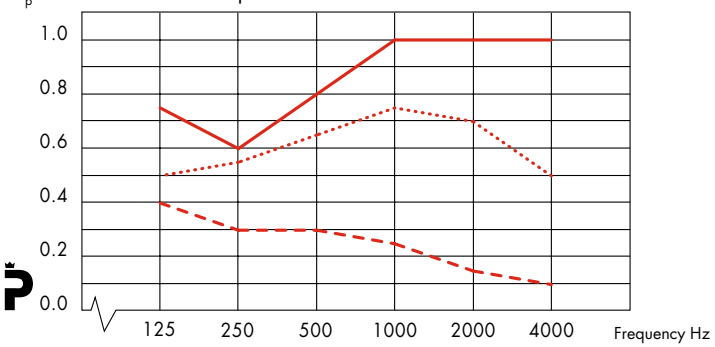
Section of Master B system

Section of Master C system

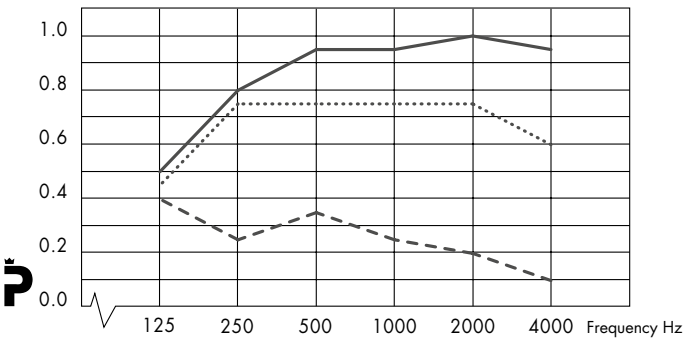
Master Ds, the individual tiles are easyliy demountable

ACOUSTICS:

α_p Practical sound absorption coefficient



Frequency, Hz
— Ecophon Master Ds/alpha 200 mm o.d.s.
···· Ecophon Master Ds/beta 200 mm o.d.s.
– Ecophon Master Ds/gamma 200 mm o.d.s.
o.d.s = overall depth of system



Frequency, Hz
— Ecophon Master Ds/alpha 95 mm o.d.s.
···· Ecophon Master Ds/beta 105 mm o.d.s.
– Ecophon Master Ds/gamma 95 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

SOUND PRIVACY: AC according to ASTM E 1111 and E 1110.
Master A/beta and A/gamma are not suitable.

		Size in mm	Absorption Class/AC	Min depth of system
Master A	Visible grid. Easily demountable tiles.	600x600, 1200x600, 1200x1200	A /200	50/100 mm
Master B	For direct fixing with glue.	600x600	A /-	43 mm
Master C	Concealed grid. Non demountable tiles.	600x600	A /190	43/155 mm
Master Ds	Concealed grid. Easily demountable tiles.	600x600	A /190	95/150 mm
Master E	Recessed visible grid. Easily demountable tiles.	600x600, 1200x1200	A /190	60/110 mm
Master F	For direct fixing with screws.	600x600, 1200x600	A /-	40 mm

Ecophon Combison™

Sound insulation plus sound absorbtion

JM Stockholm, Sweden
Architect: FFNS Arkitekter AB
Photographer: Åke E:son Lindman

Many modern buildings are designed in such a way that they are easily adaptable to the needs of different people. Room divisions are flexible, installations are movable and interior fittings, walls and ceilings are easy to modify. Moveable partitions can either butt up against the suspended ceiling or break through it. In both cases sound can pass from room to room through the ceiling void.

Other applications where Ecophon Combison™ is an appropriate solution are:

- Sound insulation against noise from installations in the void between the structural soffit and the suspended ceiling.
- Airborne sound insulation between floors.
- Impact sound insulation (such as footstep sound) between floors.

Combison Uno A edge

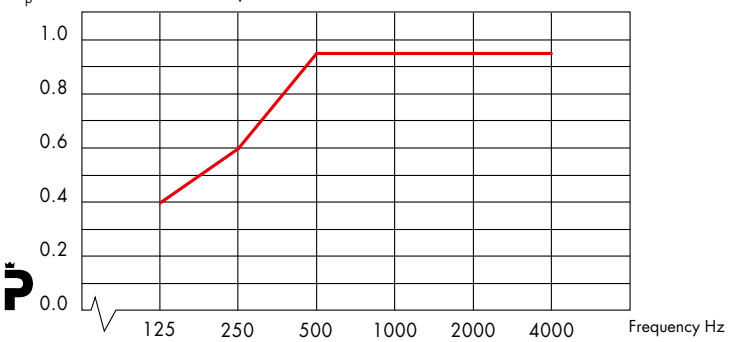
Section of Combison Uno Ds system

Combison Duo E system

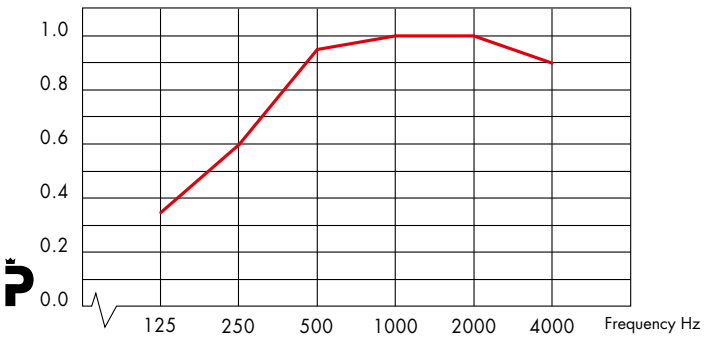
Section of Combison Duo E system

ACOUSTICS:

α_p Practical sound absorption coefficient



Frequency, Hz
— Ecophon Combison Duo A 200 mm o.d.s.
o.d.s = overall depth of system

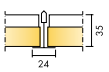
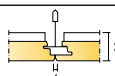
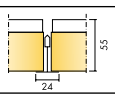
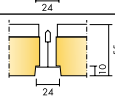


Frequency, Hz
— Combison Duo E 200 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

SOUND INSULATION: $D_{n,f,w}$=40 dB according to ISO 10848-2
and evaluation according to EN ISO 717.

SOUND PRIVACY: AC according to ASTM E 1111 and E 1110.

			Size in mm	Absorption Class/AC	Min depth of system
Combison Uno A		Visible grid. Demountable tiles.	600x600x, 1200x600	C /-	50/100 mm
Combison Uno Ds		Concealed grid. Demountable tiles.	600x600	C /-	135 mm
Combison Duo A		Visible grid. Demountable tiles.	600x600	A /190	80/100 mm
Combison Duo E		Recessed visible grid. Demountable tiles.	600x600	A /190	90/110 mm

Ecophon Gedina™

Standard solutions for high demands

Friskis och Svettis, Helsingborg, Sweden
Photographer: Georg van der Weyden

Ecophon Gedina™ is a classic safe choice for architects, ceiling contractors and end-users. Continuous product development ensures that Ecophon Gedina can meet the growing demands being made on the ceiling in terms of flexibility, ease of handling and environmental issues. Besides this Ecophon Gedina continues to maintain its reliable sound absorption characteristics.

Fast and robust solution
Ecophon Gedina A and Gedina E are installed in Connect T24 or T15 grids. Installation is quick and easy and produces a robust ceiling structure for everyday environments.

Section of Gedina A system

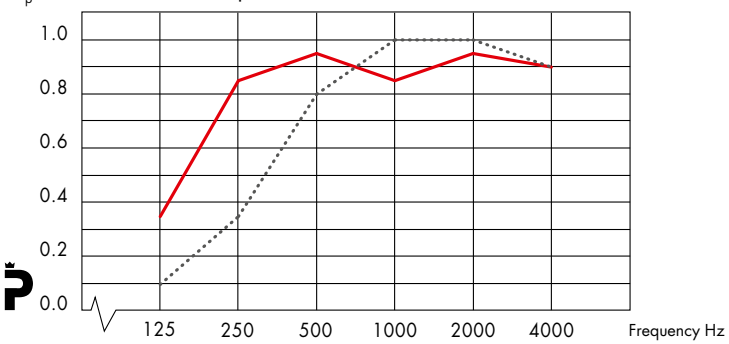
Gedina A system

Gedina E Edge

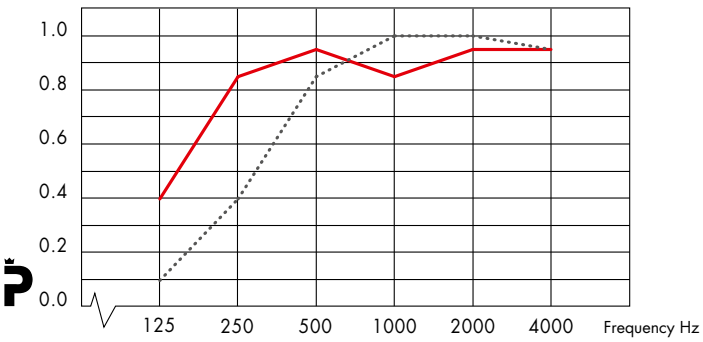
Section of Gedina E system

ACOUSTICS:

α_p Practical sound absorption coefficient



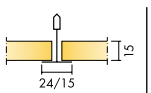
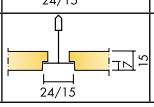
Frequency, Hz
— Ecophon Gedina A 200 mm o.d.s.
– Ecophon Gedina A 50 mm o.d.s.
o.d.s = overall depth of system



Frequency, Hz
— Ecophon Gedina E 200 mm o.d.s.
– Ecophon Gedina E 60 mm o.d.s.
o.d.s = overall depth of system

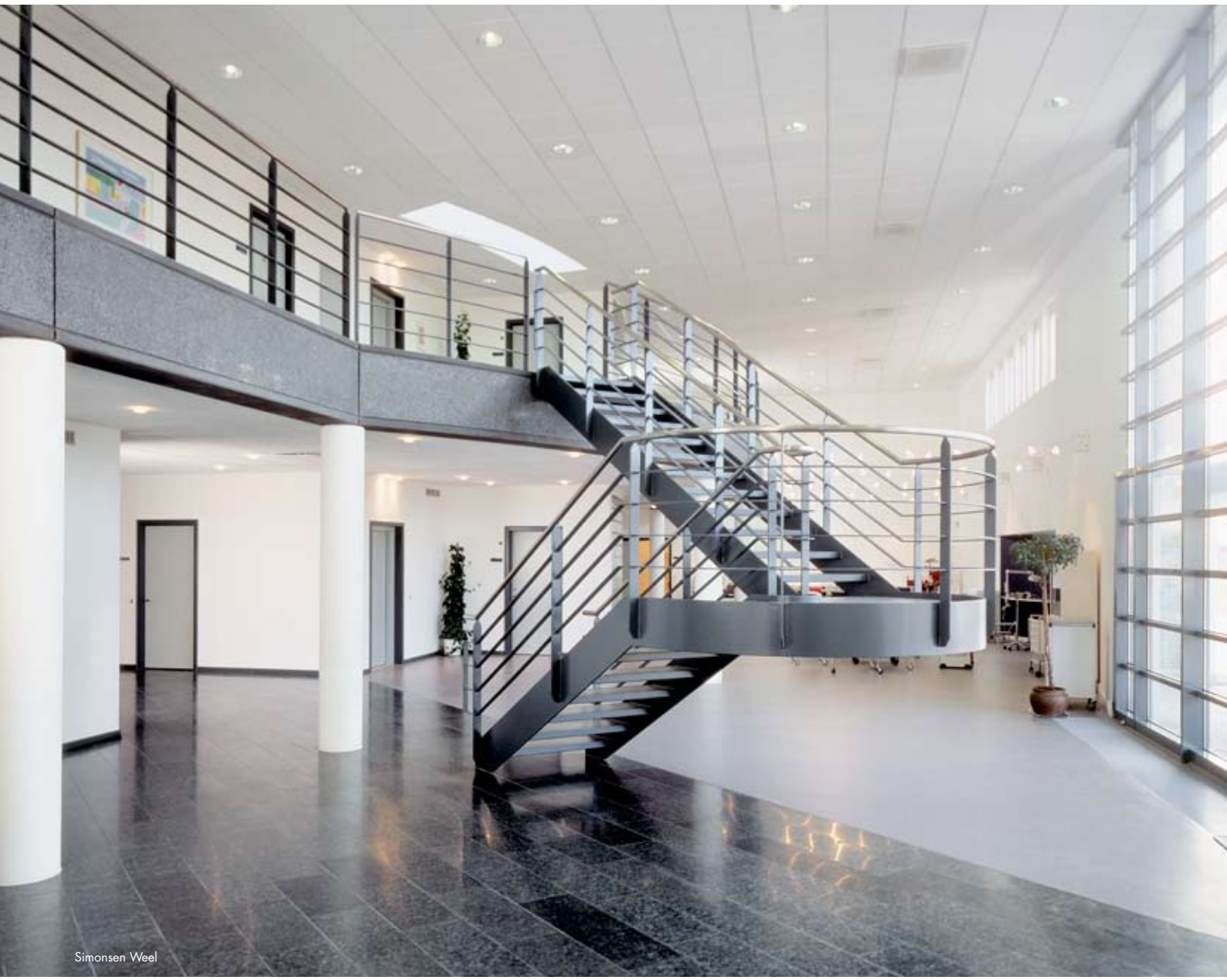
SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

SOUND PRIVACY: AC according to ASTM E 1111 and E 1110.

			Size in mm	Absorption Class/AC	Min depth of system
Gedina A		Visible grid. Easily demountable tiles.	600x600x, 1200x600, 1200x1200	A /190	50/100 mm
Gedina E		Recessed visible grid. Easily demountable tiles.	600x600x, 1200x600, 1200x1200	A /180	60/110 mm

Ecophon Advantage™

For the basic demands



Simonsen Weel

Ecophon Advantage™ offers good value-for-money and meets essential requirements with regard to acoustics, moisture resistance and mechanical strength. The tiles are easy to handle and are available in a limited number of sizes

Batch painted surface
The batch painted surface of Advantage has, however, certain functional limitations when it comes to life-span, resistance to soiling, cleaning properties etc, compared to Ecophon systems with Akutex T and Akutex FT.

Section of Advantage A system

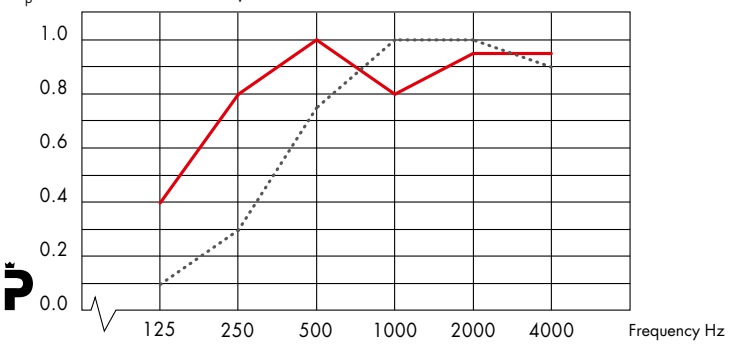
Advantage A system

Section of Advantage E system

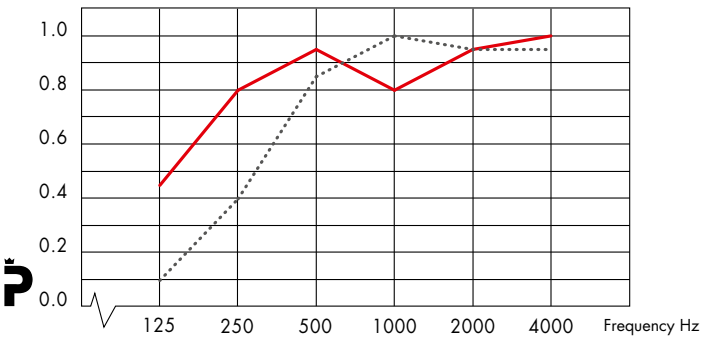
Advantage E system

ACOUSTICS:

α_p Practical sound absorption coefficient

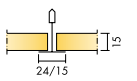
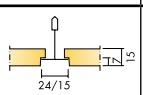


Frequency, Hz
— Ecophon Advantage A 200 mm o.d.s.
– Ecophon Advantage A 50 mm o.d.s.
o.d.s = overall depth of system



Frequency, Hz
— Ecophon Advantage E 200 mm o.d.s.
– Ecophon Advantage E 60 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

			Size in mm	Absorption Class	Min depth of system
Advantage A		Visible grid. Easily demountable tiles.	600x600x, 1200x600	A	50/100 mm
Advantage E		Recessed visible grid. Easily demountable tiles.	600x600x, 1200x600	A	60/110 mm

Ecophon Access™

For full accessability


Kungliga Husgerad

Modern establishments are being built to suit the needs of many different people. The ceiling void is often used to accommodate a range of services, such as ventilation and other climate equipment, electrical wiring, cabling for computers, alarms and communication systems. Therefore easy access to these services for maintenance and/or alteration is vital, sometimes even on a daily basis.

Ecophon Access™ panels can be lowered fully from both ends and there are no obstructing cross tees. The panels can also be opened fully in long "lanes" for servicing and other work.

Additional system - Ecophon Access frieze for margins
The margin of a suspended ceiling is generally used for taking up tolerances, carrying light fittings or as a design feature. In terms of acoustics, sound absorbers in the margins along the walls in a room are particularly important in preventing undesirable sound reflections.

Access A edge

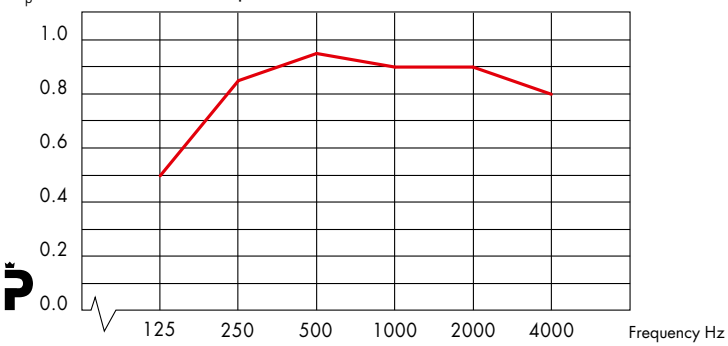
Section of Access A with Frieze

Section of Access C

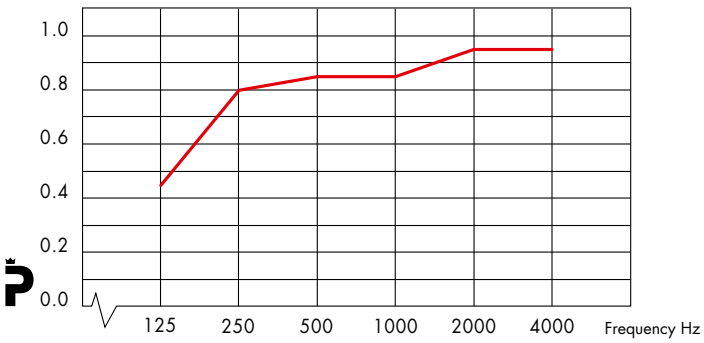
Access E system

ACOUSTICS:

α_p Practical sound absorption coefficient

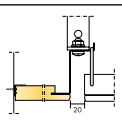


Frequency, Hz
— Ecophon Access A 200 mm o.d.s.
o.d.s = overall depth of system



Frequency, Hz
— Ecophon Access C 200 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

			Size in mm	Absorption Class	Min depth of system
Access A		Panels with visible frame covering edges and corners.	(800-2000)x600, (800-2000)x1200	A	120mm
Access C		Panels with concealed frame.	(800-2000)x600, (800-2000)x1200	A	130 mm
Access E		Panels with recessed visible frame.	(800-2000)x600, (800-2000)x1200	A	130 mm
Access Frieze		Creating a smooth transition between Access system and wall.	2400x600	A	230 mm

Ecophon Sombra™

The black acoustic ceiling

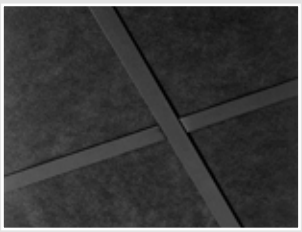
Kino MAX Skalica, Slovakia
Architect: Peter Štrpka - DARK BLUE studio
Photographer: Martina Jansová

In some premises, such as cinemas, restaurants and nightclubs, a dark ceiling is either a necessity or desirable.

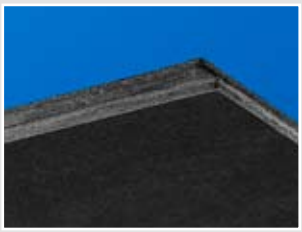
Movie sound provides the total experience
Sound is becoming a major factor in modern cinemas. The improvement of sound effects in film and the high quality of theatre sound equipment means that cinema acoustics have a more important part to play than ever before in the total movie experience.

Ecophon Sombra™ systems offer the tiles, grid and accessories that fulfill the demands for black matt ceiling surfaces as well as the requirements for top class acoustics. Sombra systems are installed in many THX certified cinemas around the world.

Section of Sombra A system



Sombea A system

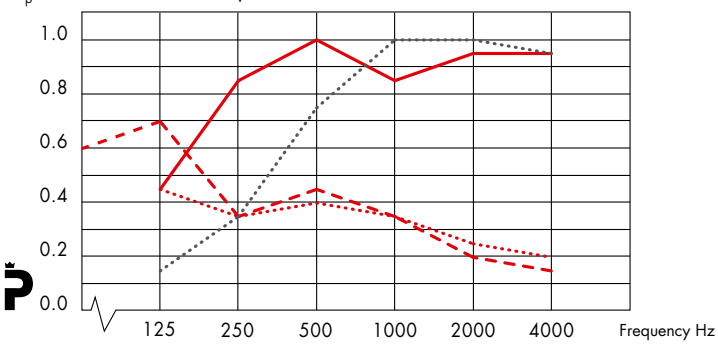


Sombra Ds Edge

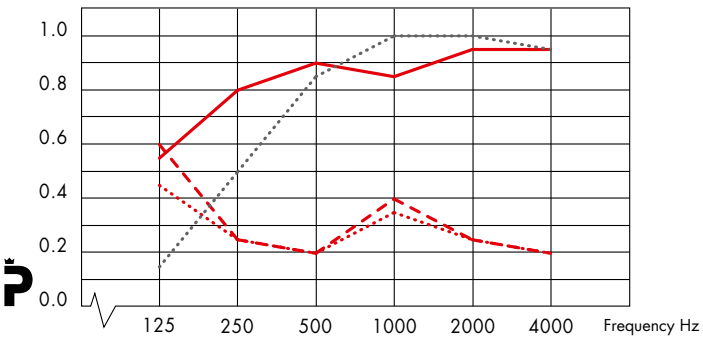
Section of Sombra Ds Section

ACOUSTICS:

α_p Practical sound absorption coefficient



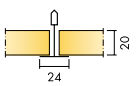
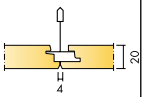
Frequency, Hz
— Ecophon Sombra A 200 mm o.d.s.
···· Ecophon Sombra A/gamma 200 mm o.d.s.
– Ecophon Sombra A/gamma + Sombra X-bass 200 mm o.d.s.
··· Ecophon Sombra A 50 mm o.d.s.
o.d.s = overall depth of system



Frequency, Hz
— Ecophon Sombra Ds 200 mm o.d.s.
···· Ecophon Sombra Ds/gamma 200 mm o.d.s.
– Ecophon Sombra Ds/gamma + Sombra X-bass 200 mm o.d.s.
··· Ecophon Sombra Ds 50 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

SOMBRA

			Size in mm	Absorption Class	Min depth of system
Sombra A		Visible grid. Easily demountable tiles.	600x600x, 1200x600	A	50/150 mm
Sombra Ds		Concealed grid. Easily demountable tiles.	600x600x, 1200x600	E	65/135 mm

Ecophon Hygiene™

Good acoustics where hygiene is vital

Szpital Sw Zofii (St. Sophie Hospital), Warsaw, Poland
Architect: Tomasz Mach
Photographer: Szymon Polanski

Smooth, glossy and hard materials are traditionally associated with a high degree of cleanability and hygiene. Soft and porous materials are usually needed for efficient sound absorption. With Ecophon Hygiene™ systems we have successfully combined high cleanability properties with good acoustic performance.

Tested and classified for different requirements

Different environments require different levels of hygiene. Washability may sometimes be a vital requirement; whereas in other cases, the number of particles in the air is particularly important. In certain areas the absorbers must be able to withstand chemical disinfection; in other areas the ambient humidity may be constantly high. The Ecophon Hygiene range includes systems that are tested and certified to suit such environments. Examples include: institutional kitchens, food processing industries, abattoirs, laboratories, breweries, chemical engineering, pharmaceutical manufacture, hospitals, operating theatres, high tech production plants and more.

Section of Hygiene Advance A 40 mm system

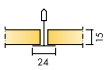
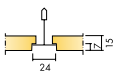
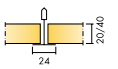
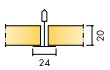
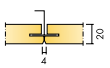
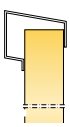
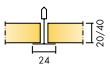
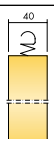
Manual wet cleaning of Meditec A

Section of Hygiene Protec C system with Connect Z-profile

Hygiene Lavanda T5 PS

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

For more detailed information, please look at our web site: www.ecophon.com

			Size in mm	Absorption Class/AC	Min depth of system
Hygiene Meditec A		Visible grid. For the healthcare sector. Withstands disinfecting chemicals.	600x600, 1200x600	A /-	50/150 mm
Hygiene Meditec E		Recessed visible grid. For the healthcare sector. Withstands disinfecting chemicals.	600x600, 1200x600	A /-	60/160 mm
Hygiene Performance A		Visible grid. Withstands disinfecting chemicals and high pressure hosing.	600x600, 1200x600	A / 20 mm:190 40 mm: 170	Thickness 20 mm: 150 mm 40 mm: 170 mm
Hygiene Protec A		Visible grid. Withstands disinfecting chemicals and high pressure hosing. Can be wet cleaned on all surfaces.	600x600, 1200x600	A /170	150 mm
Hygiene Protec C		Concealed grid. Withstands high pressure hosing.	600x600, 1200x600	A /-	135 mm
Hygiene Protec Baffle		Vertical hanging absorber. Withstands disinfecting chemicals and high pressure hosing.	1200x600	A /-	
Hygiene Protec Wall Baffle		Vertical absorber. Withstands disinfecting chemicals and high pressure hosing.	1800x1200	A /-	
Hygiene Advance A		Visible grid. Withstands disinfecting chemicals and high pressure hosing.	600x600, 1200x600	B-A /-	Thickness 20 mm: 150 mm 40 mm: 170 mm
Hygiene Advance Baffle		Vertical hanging absorber. Withstands disinfecting chemicals and high pressure hosing.	1200x600	A-B /-	
Hygiene Lavanda T5		Recessed luminaire. Withstands frequent high pressure hosing.	600x600,1200x600		

Ecophon Super G™

Solutions for impact and noise

Dulwich College,UK
Architect: Tim Hickmoth Lee Evans Architects
Photographer: Faraday Fotographic

The Super G family has been designed for environments where mechanical impact occurs. The systems are therefore classified according to Annex D of the European standard EN 13964:2004 and DIN 18 032 part 3. In EN 13964 three classes of impact resistance are defined; 1A, 2A and 3A, where 1A is the best.

Tough environments – high demands...
In areas such as multipurpose halls or sports halls where high energy ball games are played, the demand on impact resistance is high.
We recommend Ecophon Super G™ Plus, as it has been developed specifically for these types of environments and have the best classification according to the standard – 1A.
Ecophon Wall Panel™ C/Super G has also been tested according to EN 13964 and DIN 18 032 and have also achieved a result corresponding to the criteria for class 1A.

...medium demands...
Ecophon Super G™ (35 mm) are recommended for gymnasiums where low energy ball games are played. The systems are classified as 2A.

...low demands
In areas such as corridors in schools and day-care centres the every day activity (sometimes unsupervised) might mean occasional impact on ceilings and walls. The Ecophon solution is Super G (20 mm). The system is classified as 3A.

Note!
Behind goals or other areas where there is a risk for frequent and extreme mechanical impact, the absorbers should be protected by a net, wall bars or similar.

Section of Super G NE System

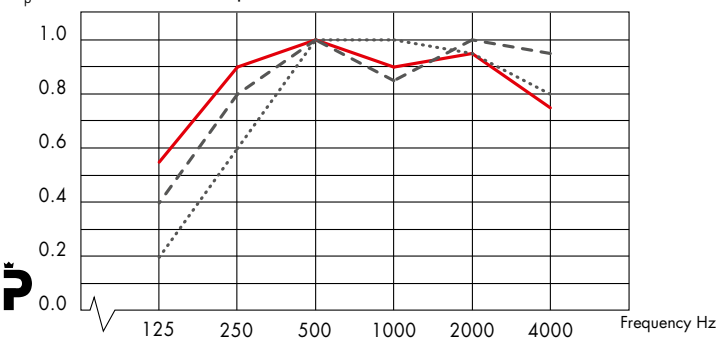
Super G System

Section of Super G Plus PE System

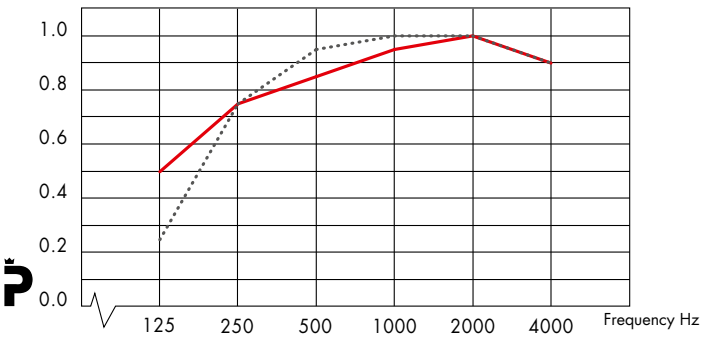
Super G Plus System

ACOUSTICS:

α_p Practical sound absorption coefficient

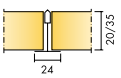
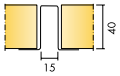


Frequency, Hz
— Ecophon Super G 35mm, 200 mm o.d.s.
···· Ecophon Super G 35 mm, 50 mm o.d.s.
— Ecophon Super G 20 mm, 200 mm o.d.s.
o.d.s = overall depth of system



Frequency, Hz
— Ecophon Super G Plus 200 mm o.d.s.
···· Ecophon Super G Plus 40 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

			Size in mm	Absorption Class	Min depth of system
Super G		Classified as 2A (35 mm)/3A(20mm) for mechanical impact according to EN 13964.	600x600x, 1200x600, 1600x600, 1800x600, 2000x600, 2400x600	A	200 mm
Super G Plus		Classified as 1A for mechanical impact according to EN 13964.	1200x600	A	42/300 mm

Ecophon Wall Panel™

Vertical acoustics as alternative or complement to the acoustic ceiling

Kinnarp, Sweden
Architect: Ulrika Mårtensson
Photographer: Patrick Klemm

The traditional way to add sound absorption to a room is to install a suspended acoustic ceiling. This, however, is not always possible or it may be that only some parts of the ceiling area can be treated with sound-absorbing material. There may be different reasons for this - buildings may have attractive ceiling details, such as stucco work, which you don't want to hide or which may even be protected by law. The designer may want to expose all the installations or the roof structure, or it may be that the concrete joists have been designed for exposure as part of the room's thermal regulation. In cases such as these, vertical absorbers can be an alternative way or method of ensuring a sufficient quantity of sound-absorbing material.

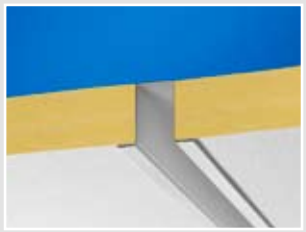
Different demands, different surface
Ecophon offers Wall Panel systems with different types of surfaces and profiles. The choice of system depends on the kind of premises in which it is to be installed. In schools for instance, a surface with high impact resistance is recommended while, in a prestigious office, a surface and profile with high aesthetic qualities would be preferable.

Extensive design possibilities
Wall absorbers in different colours and finishes together with a system of profiles and corner details in matching or contrasting shades, present a wealth of design possibilities. If wall absorbers are used when renovating a room, the preparatory work on the walls is minimized.

Wall Panel C system with Connect WP profile and internal corner

Wall Panel C system with Connect WP profile and external corner

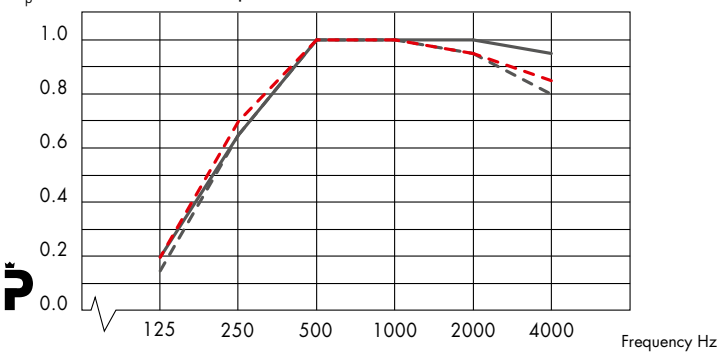
Wall Panel A system with Connect Channel trim and Connect T24 Main Runner



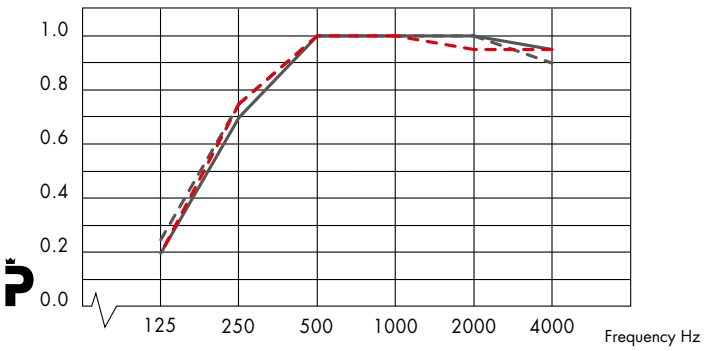
Section of Wall Panel A system with Connect Recessed profile

ACOUSTICS:

α_p Practical sound absorption coefficient



Frequency, Hz
···· Ecophon Wall Panel A/Texona 40 mm o.d.s
– Ecophon Wall Panel A/Super G 40 mm o.d.s
— Ecophon Wall Panel A/Akutex FT 40 mm o.d.s
o.d.s = overall depth of system

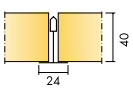
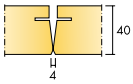


Frequency, Hz
··· Ecophon Wall Panel C/Texona 40 mm o.d.s.
– Ecophon Wall Panel C/Super G 40 mm o.d.s.
— Ecophon Wall Panel C/Akutex FT 40 mm o.d.s.
o.d.s = overall depth of system

SOUND ABSORPTION: Test results according to EN ISO 354.
Classification according to EN ISO 11654.

Ecophon Wall Panel System is what you want it to be. Let us provide the components – and then you can create an attractive, acoustic composition in the room.

Texona is the surface to use when creating expressive solutions for walls. With an extensive colour range and a textured finish in combination with a well designed profile system the possibilities are numerous. **Super G** is a glass fibre fabric with high impact resistance. **Akutex**™ **FT** provides optimal sound absorption when used on wall absorbers. To prevent damage to the surface of the absorbers, they should be installed out of reach.

			Size in mm	Absorption Class
Wall-Panel A		Visible profiles.	2700x1200	A
Wall-Panel C		Concealed vertical profiles.	2700x600	A

Ecophon Connect™

Grid systems and accessories

Engineered for your convenience
Connect grid system is based on a small number of engineered components for use in many different **on-site situations**. It is a **robust**, time saving system that provides flexible, aesthetically pleasing ceiling solutions. Connect quality material and an effective logistical flow contributes to an efficient, **cost controlled installation process**.

Modern ceiling installations require access and servicing during their entire life span. Connect accessories permit ready access to the ceiling void without any necessary interference to the system.

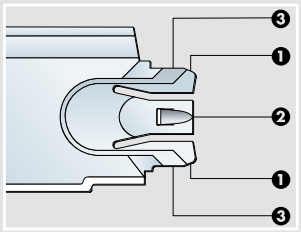
Every single component has a well adjusted bearing capacity so that the system as a unit meets stringent demands.

Ecophon Connect™ offers unique solutions for concealed, semi concealed and 3D ceiling systems, as well as systems for direct installation and Hygiene applications.
Choosing grid and accessories from the same supplier ensures that everything works together, making a quick and safe installation.

The profiles
The T-profiles are roll-formed with a body of galvanized steel, capped with galvanized steel, finished in white (standard). Thanks to the patented Cross tee coupling the Connect profiles are safely connected and easy to demount.

- Developed in accordance with international standards
- Patented Cross-tee coupling
- Unique Main runner spine design
- CE-marking according to EN 13964
- Standard colours white, grey and ultra matt black
- Other sizes, punching and colours available on request

The accessories
Hangers, brackets, fixing devices and connectors are also required to complete the grid system. Choosing grid and accessories from the same supplier ensures that everything works together. Ecophon Connect has a comprehensive range of accessories for suspended ceilings with T24 and T15 grid as the main products. The accessories are CE-marked according to EN 13964.



Unique coupling design (patented)


Connect Shadow line trim


Connect Wall Panel internal corner profile


Connect Direct fixing bracket

Three good reasons for using the Ecophon Connect system:

Connect Main runner

- Narrow, V-shaped spine allows quick installation of lay-in tiles, resulting in less damage
- Rigid with extra torsional strength and stability for safe installation
- Tight tolerances and excellent load bearing capacity
- Unique spine design for safe attachment of Hanger clip

Connect Cross tee

- Long support lip for quick fixing. Gives firm, safe and non-twist coupling
- Safe fixing of single as well as double profile
- Audible click when profile is in position
- Easy to demount including in the centre of a ceiling area
- Butt-end available as an alternative

Connect Hanger clip

- Quick installation and easy adjustment of construction height
- Allows 10° deviation force and approved for 233N
- Provides increased free space and reduces tile damage during installation
- Slides easily along Main runner, achieving pure vertical force

Ecophon®

www.ecophon.com

SAINT-GOBAIN
ECOPHON

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