CEILING SYSTEMS MADE OF METAL MESH

ACOUSTIC | REFLECTIVE | FUNCTIONAL CEILINGS

INTERWEAVING EXCELLENCE FROM CONCEPT TO COMPLETION

GKD METALFABRICS®

New Interpretation of Ceiling Systems

As a leading technical weaving company we have established metal mesh worldwide in the sophisticated architectural arena. We have realized design visions with future-oriented technical innovations for the past 20 years. This is also reflected in numerous ceiling design projects. Well-known references such as the Bibliothèque Nationale de France, the Tonhalle in Dusseldorf, the airports in Athens, Dusseldorf, Paris, Zurich and Singapore, as well as the European Court of Justice in Luxembourg, and the J. P. Morgan Chase Newport Office Center in Jersey City are all prominent examples of our work. We have systematically built on our expertise in designing the most diverse free-form ceiling solutions from metal mesh and bundled our know-how in the development of dedicated ceiling systems. We now offer full-scope support for acoustically and visually optimizing rooms with tailor-made functional ceilings from a single source.

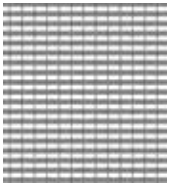
Range of Services

- Substructures
- Installation planning
- Full assembly/fitting
- Maintenance
- Functional mesh
- Mesh selection
- System design

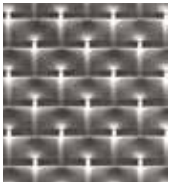
La Suisse Assurance, Lausanne, Switzerland
Architect: ASS Architectes LSA | Mesh: Sambesi (1)

Heimbs Café, Braunschweig, Germany
Architect: Despang Architekten | Mesh: Lamelle/Omega (2)

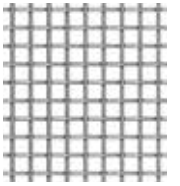
Types of Mesh (other types of metal mesh available on request)



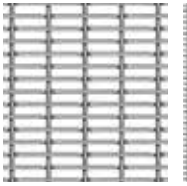
Atlantic



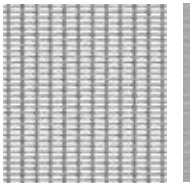
Atlantic Glow



Delta 30



Ellipse 14

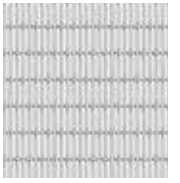


Ellipse 52

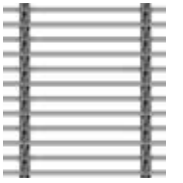
Omega 1510 PC

Omega 1520 PC

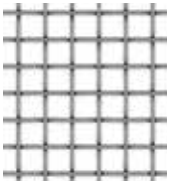
Omega 1530 PC



Omega 216



Tigris PC



Tucana

Mounting Systems and Methods

- Cut panels for visible lay-in mounting with T-rails
- Concealed mounting using T-rails
- Concealed mounting using torsion springs

Advantages of our Systems Portfolio

- Matched components from a single source
- Sophisticated complete solutions
- Certified systems
- Optimized logistics
- One contact throughout all project phases

Fitting of lights, Mesh: Atlantic (3)

Beautifully Framed Function

Modern ceiling design establishes a sense of creative harmony between form and function. With our systems, we therefore place as much emphasis on the effect and atmosphere of a room as on room acoustics. Ceiling systems with GKD METALFABRICS metal mesh are extremely flexible and can follow any architectural idea in terms of size, shape and design. They are available as element, grid or custom-shaped ceilings. The extraordinary aesthetics of the metal mesh turn ceilings into a visual experience. In its interaction with light, the high-grade surface creates targeted accents or lends the Silentmesh acoustic ceiling a kind of monolithic presence.

Metal Mesh

- Available in either stainless steel or aluminum (other materials on request)
- Mesh-typical transparencies
- Non-combustible
- Corrosion-resistant
- Easy care
- Fully adjustable
- Recyclable

Advantages of Metal Mesh Ceiling Systems

- Freedom of design
- Ease of installation
- Elegant aesthetics
- Selectable, sprinkler-compatible structure depending on the mesh
- Maximum functionality
- Virtually unlimited service life
- Low maintenance costs

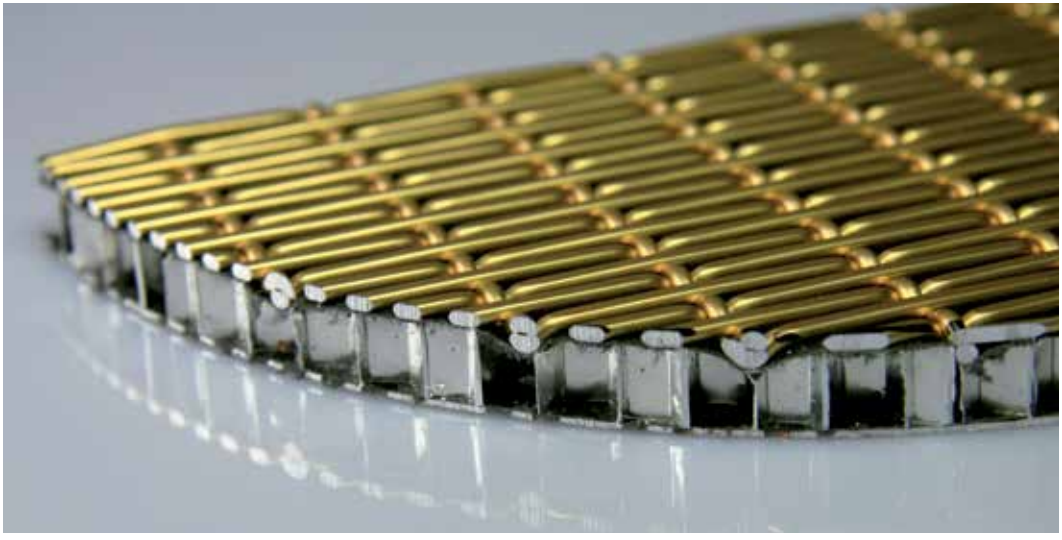
Chilled ceiling, Hotel Steigenberger Drei Mohren, Augsburg, Germany
Architect: Alpstein | Mesh: Atlantic (4)

Hilton Frankfurt Airport Hotel, Frankfurt, Germany
Architect: JOI–Design | Mesh: Mandarin (5)

Intelligently Realized Effect

Composite mesh (CMP mesh) made of metal mesh and aluminum honeycomb plate guarantees sag-free structures for large, grid-free ceiling solutions. The visible surface layer made of metal mesh utilizes the visual advantages of the woven material. On customer request, an intermediate layer of acoustic fleece is integrated to improve room acoustics. Thanks to their design, metal mesh ceilings made of composite mesh are extraordinarily stable and resistant to bending. They allow the design of precisely shaped ceilings with a flat surface, even in large dimensions. The butt joint design underlines the homogeneous effect of the ceiling structure. Depending on the application, two-plate thicknesses are available.

"König von England" (King of England) Ministry Building, Stuttgart, Germany
Architect: zsp architekten | Mesh: CMP Omega 216 (6)



CMP Omega 216 ceiling elements made of the mesh and aluminum honeycomb (7)

Module Size

- Min. 20" x 20"
- Max. 96" x 48"
- 1/2" - 1" thick

Mounting System

- Torsion Springs

Advantages of Metal Mesh Composites

- Large format
- High level of stability
- No sagging
- Precisely shaped ceilings
- Monolithic effect
- Ease of installation

Trouble-free CMP torsion spring system with $1^{3/8}$ T grid

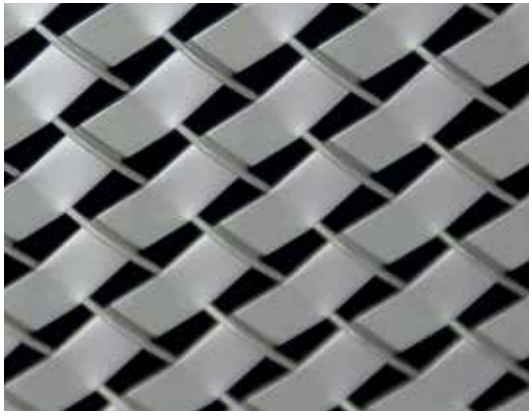
Optimum Lighting With Atlantic Glow

Atlantic Glow – woven aluminum for even light distribution in modern offices. When good interior lighting performance needs to be combined with sound absorption, conventional ceiling materials quickly reach their limits. Although they may offer effective sound absorption, their light distribution leaves much to be desired (bottom picture on the left). Bartenbach GmbH, one of the world's leading lighting designers, and GKD AG therefore chose to collaborate and develop Atlantic Glow. Combining our experience of metal fabric with the lighting-related expertise of Bartenbach, we have developed lightweight, highly reflective aluminium ceiling cladding. Our metal fabric offers improved and more even daylight distribution (bottom picture on the right) and can thereby help reduce the amount of energy required for artificial lighting.

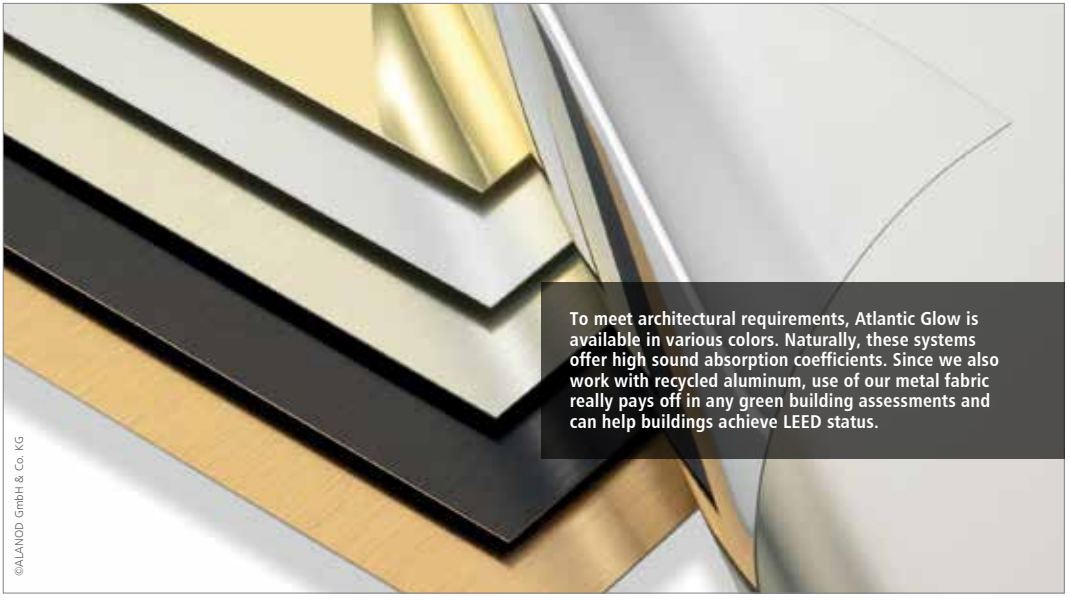
Distribution of light with conventional ceiling materials

Distribution of light with Atlantic Glow

Atlantic Glow, 2% open



Atlantic Glow, 17% open



To meet architectural requirements, Atlantic Glow is available in various colors. Naturally, these systems offer high sound absorption coefficients. Since we also work with recycled aluminum, use of our metal fabric really pays off in any green building assessments and can help buildings achieve LEED status.

Atlantic Glow Facilitates LEED and DGNB Certification

Any building that has façades sitting directly in the sun and employs activated solar protection faces challenges as to how to use daylight most effectively in its interior spaces. A large proportion of the daylight dispersed by the solar protection shutters is reflected toward the ceiling. A standard plasterboard ceiling does not offer any options for deflecting this light deeper into the room. Most of the light remains in the direct vicinity of windows, while areas further into the heart of the building remain unlit.

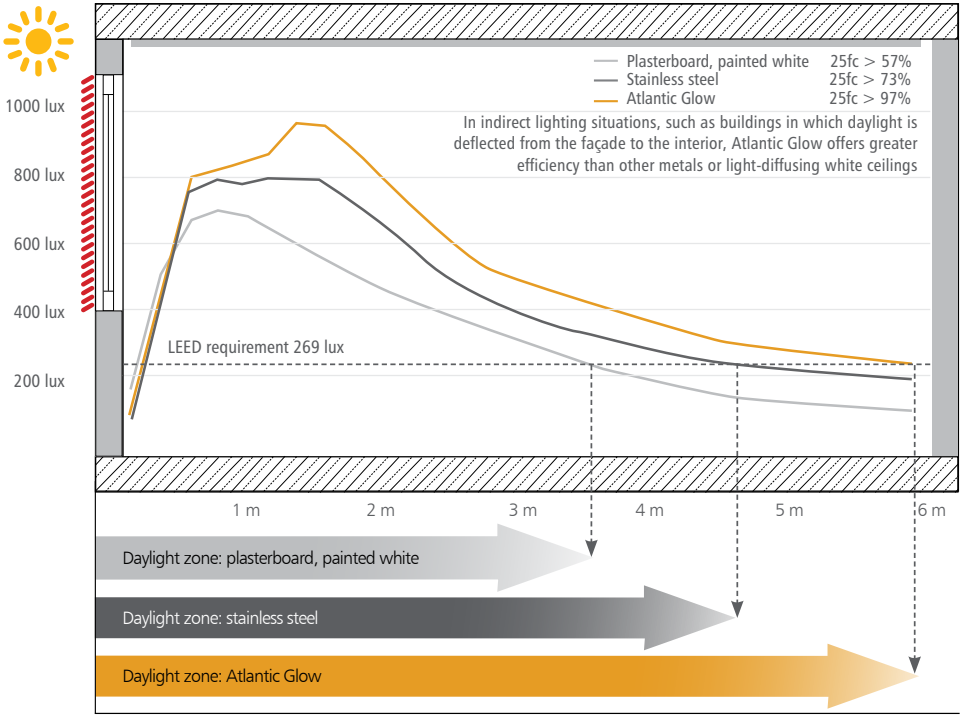
The high degree of reflection and the targeted reflection offered by the aluminum material in Atlantic Glow significantly improves daylight transport. This allows areas further away from windows to enjoy natural lighting, thereby reducing the need for artificial lighting. Not only does this reduce a building's energy consumption, it also provides rooms that are bright and flooded with natural daylight.

Certifications such as LEED and DGNB require evidence of effective natural lighting across the room depth. The simulation (graphic on the right) shows that Atlantic Glow with a highly reflective aluminum material fulfills the requirements more easily than conventional ceiling solutions, such as plasterboard or stainless steel fabric. It is possible to supply the requisite levels of light to room depths of up to 6 meters. Not only is more light transported across the room depth, it is also distributed more effectively. Most of the daylight does not remain within the areas of the windows, but rather supplies the core area of the workplaces near the façade.

Advantages at a Glance

- Suitable for daylight and artificial light
- High degree of reflection
- Targeted reflection or partially diffused reflection
- High-quality material and design
- Available in a large choice of colors
- Three different surface finishes
- Two different weave types (2% and 17% open area)
- Lightweight
- Energy-saving thanks to enhanced light dispersion
- Manufactured from recycled aluminum
- Sound-absorbing with cover layer
- Products are made from recycled aluminum

ATLANTIC GLOW – An Active Contribution to LEED IEQ 8.1/8.2 Certification



Simulation Parameters

Room dimensions: L= 4.8 m x W = 5 m x H = 3 m, 70/50/20
East façade with activated solar protection (external blinds, 40º position, rho = 50%, 2 panes)
Date: 21 September 2014, 9:00 am
Location: Berlin
Maintenance factor 1
Plasterboard, rho = 70%
Steel, rho = 65%
Aluminum, rho = 95%

Daylight deflection into the heart of rooms using Atlantic Glow with active solar protection

Creatively Optimized Acoustics

The Silentmesh acoustic ceiling system, available with stainless steel or aluminum mesh, opens up virtually limitless design options. Ceiling panels made of standard products and grid ceilings or custom shaped ceilings characterize our portfolio of complete solutions for a high level of room-based acoustic comfort. Silentmesh lends a room pleasant acoustics through a highly effective sound-absorption layer or certified acoustic fleece matting. Ceiling fittings, such as lights, downlights or sprinklers, are easy to integrate. On request, we can also incorporate tailor-made openings and trimmed sections when preparing the meshing at our facility. Silentmesh can also be removed and refitted easily for maintenance purposes.

Acoustic blanket
Mesh: Omega 1520

Tonhalle, Dusseldorf, Germany
Architect: HPP Hentrich-Petschnigg & Partner
Mesh: Omega 1540 Bronze (special mesh) (8)

Tonhalle, Dusseldorf, Germany
Architect: HPP Hentrich-Petschnigg & Partner | Mesh: Omega 1540 Bronze (special mesh) (9)

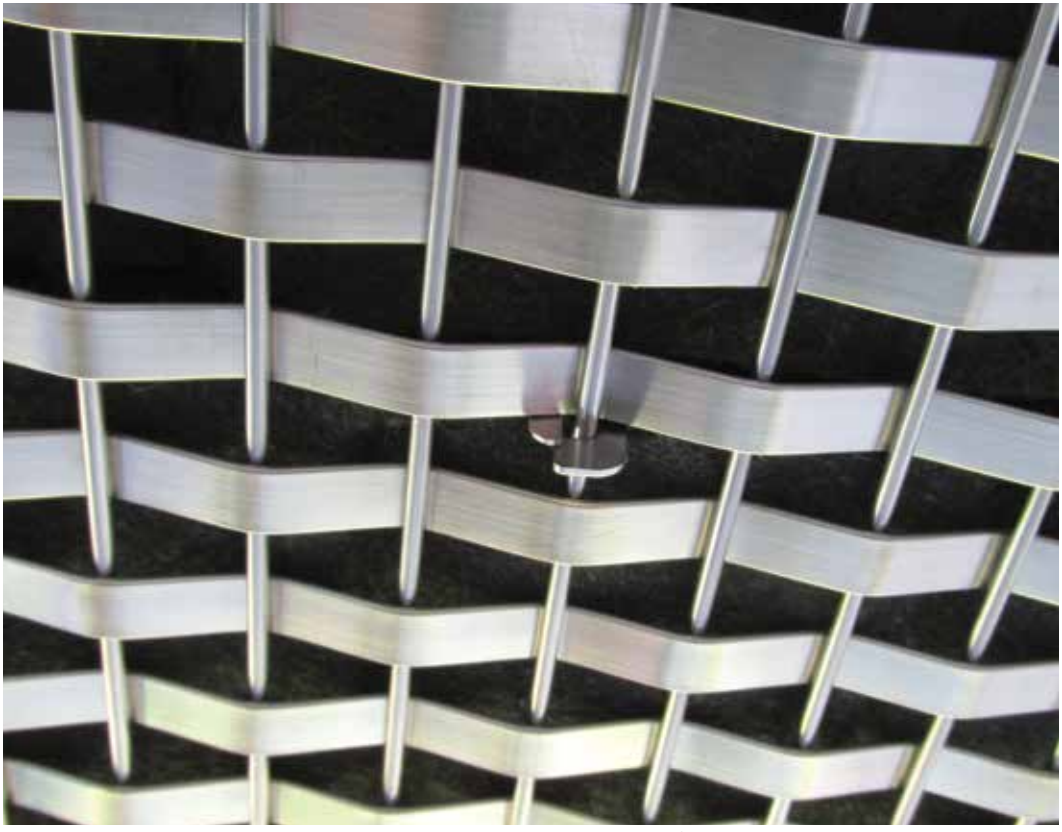
RECOMMENDED FABRIC/INSTALLATION COMBINATIONS (other types of metal fabric available on request):			
METAL FABRIC DESIGN	LAY-IN PANELS	ACCESSIBLE CEILING CLIP IN	COMPOSITE CEILING (CMP)
ATLANTIC	✔	✔	X
ATLANTIC GLOW	✔	✔	X
DELTA 30	✔	✔	X
ELLIPSE 14	✔	✔	X
ELLIPSE 52	✔	✔	X
OMEGA 216	✔	✔	✔
OMEGA 1510 PC	✔	X	X
OMEGA 1520 PC	✔	X	X
OMEGA 1530 PC	✔	X	X
TIGRIS PC	✔	✔	X
TUCANA	✔	✔	X

Atlantic fabric with clip attachment and T grid mounting

SOUND ABSORPTION		
METAL FABRIC DESIGN	NRC	APPLICABLE NOTES
ATLANTIC	.6 - 1.0	1,2
ATLANTIC GLOW	.6 - 1.0	1,2
DELTA 30	.6 - .85	2
ELLIPSE 14	.6 - .85	2
ELLIPSE 52	.6 - .85	2
OMEGA 216	.6 - .85	2
OMEGA 1510 PC	.6 - .85	2
OMEGA 1520 PC	.6 - .85	2
OMEGA 1530 PC	.6 - .85	2
TIGRIS PC	.6 - .85	2
TUCANA	.6 - .85	2

[1] Applies only to CMP honeycomb elements, t = 25 mm: acoustic fleece embedded between fabric/honeycomb and back/honeycomb, element offers independent sound absorption without additional insulation materials in the ceiling cavity.

[2] Acoustic Blanket Addition: 1" = NRC .6; 1.5" = NRC .7; 2" = NRC .85



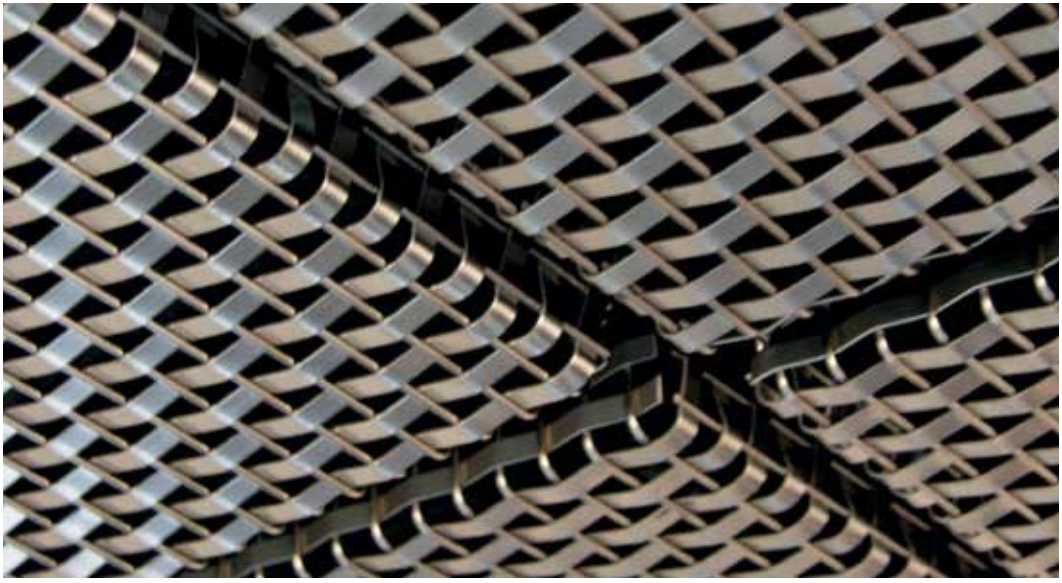
Atlantic fabric with clip attachment and acoustic blanket lay-in

Holistically Designed Systems

Silentmesh is an acoustic ceiling system with metal mesh for visible lay-in mounting using a system of T-rails or concealed clip mounting with standard 15/16" T grid. Wall connections are established with wall anchors (with or without shadow gap), wall friezes or are butt-jointed.

The system is attached to the load-bearing bare ceiling using 12 gauge galvanized wire approved by the building authorities. The substructure consists of standard 15/16" T grid in line with ASTM C 636. Mounting profiles for lay-in mounting are available in high-gloss chrome, natural aluminum, black, white or colored on request. The sound absorption mat is a non-woven fiber material that is black in color. The surface layer consists of stainless steel or aluminum mesh. The modules are available for all common grid sizes/rasters (EN, DIN, Imperial). Freely sculpted forms are also available on request. All components are technically and visually matched. The system is then delivered with a fully dimensioned sub-structure and installation plans. The openings and trimmed sections required for ceiling fittings, such as lights, down-lights or sprinklers, are prepared and implemented at our facility prior to delivery. Silentmesh can also be removed and refitted easily for maintenance purposes.

Lay-in mounting



Lateral upstands for an impressive joint pattern | Mesh: Atlantic (10)

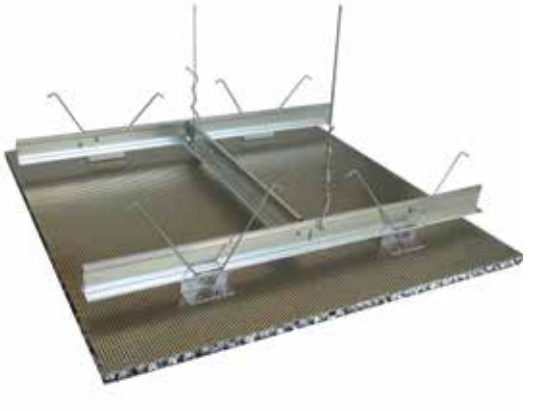
System Description:

- Installation of the load-bearing substructure using metal anchors approved by the building authorities, load capacity ≥ 5 kN per anchor. Suspended using adjustable, galvanized brackets, spacing as per static requirements.
- Substructure, base frame consisting of galvanized 15/16″ T grid in line with ASTM C 636 as base and supporting profile.
- Mounting profiles for lay-in mounting (standard 15/16″ high-gloss chrome). Alternatively, clip and suspended installation options are also available.
- Black fiber sound absorption layer, 1″ thick per ASTM C 553. $1^{1/2}$″ - 2″ also available.
- Surface layer made of metal mesh. Module sizes: 24″ x 24″ or 48″ x 24″ standard.
- Lights, downlights, sprinklers etc. can be fitted using dedicated recesses made during production.
- The ceiling systems can be demounted without any tools.

Clip System Specifications

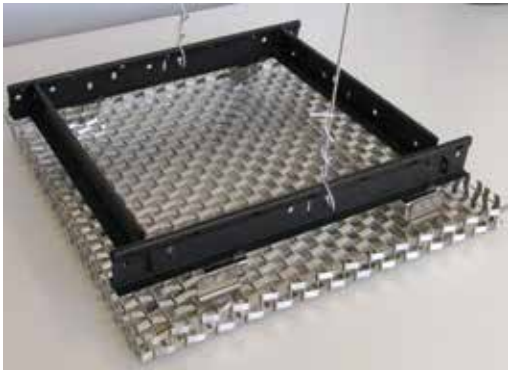
System Description:

- Installation of the load-bearing substructure using metal anchors approved by the building authorities, load capacity ≥ 5 kN per anchor. Suspended using adjustable, galvanized brackets, spacing as per static requirements.
- Substructure, base frame/raster consisting of galvanized 15/16" T grids per ASTM C636 as the support profile.
- Surface layer made of metal mesh with surrounding upstand of 90° / 2". The surface layer is attached to the clamping profiles using GKD metal mesh suspension brackets.
- Module sizes: 24" x 24" and 48" x 24" with other sizes available depending on the maximum spans of the individual mesh types. The pattern repeat is to be considered.
- Black fiber sound absorption layer, 1" thick per ASTM C 553. 1 1/2" - 2" also available.
- Openings for downlights, sprinklers, vents, etc., to be factory-provided according to plans.
- The ceiling systems can be demounted without any tools.

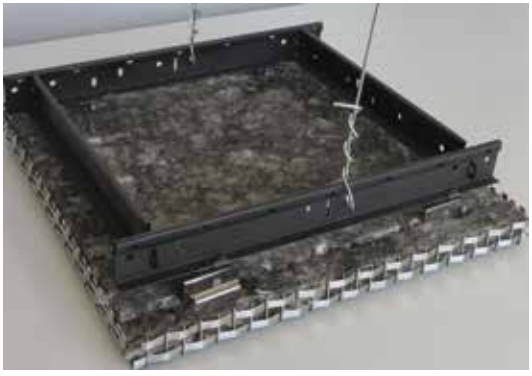


CMP torsion spring **clamped** system with 1 3/8" grid

CMP torsion spring **accessible** system with 1 3/8" grid



Clip system with 15/16" grid



Clip system with 15/16" grid with acoustic blanket

CMP (Composite) Clamping System Specifications

System Description:

- Installation of the load-bearing substructure using metal anchors approved by the building authorities, load capacity ≥ 5 kN per anchor. Suspended using adjustable, galvanized brackets, spacing as per static requirements.
- Substructure, base frame/raster consisting of galvanized $1^{3/8}$" T grids and galvanized torsion springs.
- Surface layer made of metal mesh. The surface layer is attached to the clamping profiles using a mounting bracket on the back.
- Module sizes: freely selectable from min. 20" x 20" to max. 120" x 60". The pattern repeat is to be considered.
- Openings for downlights, sprinklers, vents, etc., to be factory-provided according to plans.
- The ceiling systems can be demounted without any tools.

Picture credits: GKD: (7/8/10); GKD/Thomas Holtkötter: (3/4/6); GKD/Thomas Riehle: (9); metallpfister: (1); Baumann: (2); JOI - Design: (5)

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