KNAUF CEILING Solutions

KNAUF CEILING SOLUTIONS

PRODUCT SELECTOR

knaufceilingsolutions.com

Armstrong CEILING SOLUTIONS

AMF

ACOUSTICS

Meet all expections of acoustical comfort with Knauf Ceiling Solutions.

Knauf Ceiling Solutions provide three densities of ceiling tiles to achieve high absorption, high attenuation or a good balance between the two of to meet all requirements in every space.

BALANCED ACOUSTICS

Standard range provides a unique combination of good sound absorption and sound attenuation that enhance intelligibility for workplace effectiveness.

HIGH ATTENUATION

Our range offers excellent sound attenuation and good sound absorption that enhances privacy and confidentiality.

CAC: 25dB - 47dB

HIGH ABSORPTION

Products with high absorption levels are recommended when concentration is needed. They dramatically improve the acoustic comfort in open spaces, call centres, etc.

NRC: up to 1.00

TECHNICAL PERFORMANCE DEFINITIONS

SOUND ABSORPTION

A single-number rating for random incidence sound absorption coefficients as calculated by reference to EN ISO 11654 (α_w) or to ASTM C 423 (NRC).

SOUND ABSORPTION CLASS

A classification for sound absorption (A – E) based upon the sound absorption α_w value.

SOUND REDUCTION

A single-number rating for airborne sound transmission (single pass) as calculated by reference to EN ISO 717-1.

SOUND ATTENUATION

A single-number rating for flanking sound transmission between adjacent rooms, as calculated by reference to EN ISO 717-1 (D_{nfw}) and/or ASTM E413-10 (CAC).

NOISE REDUCTION COEFFICIENT, NRC

Defined in ASTM C423 as the arithmetical average, to the nearest multiple of 0.05, of the measured sound absorption coefficients for the four one-third octave band centre frequencies of 250, 500, 1,000 and 2,000 Hz.

WEIGHTED SOUND REDUCTION INDEX, R_w

A single-number rating of the laboratory measurement of (vertical) airborne sound reduction of a suspended ceiling.

FIRE REACTION/RESISTANCE

STRUCTURAL FIRE PROTECTION

Knauf Ceiling Solutions ceilings achieve building component classifications of **REI30** to **REI120**, depending on the type of soffit. Regular fire testing is carried out to ensure the highest up to date system quality and built in safety for our customers.

REI30 to REI120

INDEPENDENT FIRE RESISTANCE

Independent fire rated ceilings provide fire protection both from above (ceiling void) as well as from the underside of the ceiling. Fittings, such as lighting, loudspeakers and signage etc. as well as the connection to light-weight partition systems, bulkheads etc. are tested and classified as well.

Fire resistant certificates are available on request.

BUILDING REGULATIONS

Fire reaction performance for suspended ceilings is shown using the Euroclass fire reaction classification.

Most Knauf Ceiling Solutions products are reaching A2-s1,d0 according to EN 13501-1.

For more information, please contact us or visit www.knaufceilingsolutions.com

TECHNICAL PERFORMANCE DEFINITIONS

FIRE REACTION

Reaction to fire classification in accordance with EN 13501-1 expressed as Euroclass (A1 – F). Additionally in accordance with 123-FZ, expressed as KM0 – KM2.

'CLASS A' FIRE CLASSIFICATION

Reaction to fire classification in accordance with ASTM E84, expressed as Class A.

[Cover] Armstrong PERLA OP 0.95 Board (Zuiderzeeland Water Board, Lelystad, Netherlands, ©Intermontage, Bjorn Kiezenberg) • Armstrong METAL D-H 700, triangular shaped, Rg 0701, RAL 9010 (Austria Center Vienna, Austria, © Ludwig Schedl) • HERADESIGN® Superfine (SER Solutions, Pasching, Austria, ©Stefan Mayerhofer)
[Left page] HERADESIGN® Superfine Plus (Primary School, Lublin Poland, ©Szymon Polański)
[Right page] Armstrong Mineral Solutions (Sint Clara College, Arendonk, Belgium, ©Michael van Oosten)

QUIET PROMOTES HEALING AND CONCENTRATION

Hospitals and clinics are not per se quiet places. Activities from early morning until late into the evening create a constant sound level which can become excessive noise.

However, patients require a lot of peace to heal quickly. Medical staff are also dependent on a quiet workplace to concentrate and work efficiently. Here, sound absorption plays an essential role during the acoustic design and planning stage to create comfortable spaces.

For example, noise from corridors should not transmit into patients' rooms; confidential conversations in doctors' rooms are private and shouldn't be heard in adjoining rooms.

KNAUF CEILING SOLUTIONS:

- achieve low or very low VOC and formaldehyde emission levels.
- have all been classified E1 for formaldehyde (best test result possible).
- for a large majority, achieve A+ (the best performance level under the stringent French VOC labelling system).
- have a large range anti-microbial solutions tested against NF S 90-351:2013 focussed on the control of airborne contaminatin in healthcare premises.

IN CERTAIN INDOOR SPACE SUCH AS LABORATORIES

It is essential to limit the number of airborne particles by creating a **Clean Room-type environment** using products certified in accordance with ISO 14644-1.

Knauf Ceiling Solutions offers solutions for areas requiring minimal to the most stringent requirements.

TECHNICAL PERFORMANCE DEFINITIONS

INDOOR AIR QUALITY

The Eurofins Indoor Air Comfort (Gold) certification ensures that all product-related health criteria on product emissions are sufficiently fulfilled.

AIR PERMEABILITY

Tested in accordance with DIN 18177, the air permeability rating indicates the cubic metres of air leakage per hour per square metre.

RECYCLED CONTENT

The recycled content of the product, as calculated in accordance with ISO 14021:2016.

VOC

The VOC emission performance in accordance with the French labelling requirements.

FORMALDEHYDE

Formaldehyde emission level (E1 = lowest test result possible).

ISO CLEAN ROOM

From ISO 5 to ISO 1 Clean Room performance (tested against ISO 14644-1) our mineral solutions for hygiene and healthcare environments are available with fully painted edges to provide the best guarantee for a clean room environment.

[Left page] Armstrong METAL Q-Clip, Rg 0701 (Emergency Center, Novo Mesto, Slovenia, ©Szymon Polański) • **[Right page]** Armstrong PERLA OP 0.95 (IBM Client Innovation Center, Brno, Czech Republic, ©U1)

VISUAL COMFORT & SUSTAINABILITY

The light reflectance of the ceiling, floor and wall surfaces play the second most important role for overall illumination of the room, directly affecting working comfort, wellbeing and productivity.

Specifying high light reflectance ceilings contribute to LEED®, BREEAM, HQE, DGNB and Well Building Standard credits. A well-design ceiling with high light reflectance:

- Improves space illumination, allowing for fewer light fixtures.
- Reduces electrical light output and lowers maintenance costs.
- Reduces cooling load.

High light reflectance ceilings return up to 88% of the light back into the space.

Rafts and canopy ceilings installed over a working place improve the light reflection for better comfort for the end-user.

TECHNICAL PERFORMANCE DEFINITIONS

LIGHT REFLECTANCE

Light reflection is the proportion of incident light that is reflected back off the product, when tested in accordance with EN ISO 7724-2 and 3.

HUMIDITY RESISTANCE

Maximum relative humidity conditions for installation and lifetime of ceiling.

BLUE ANGEL

The Blue Angel ecolabel is awarded by an independent Jury to environmentally friendly products. Each label specifies that the product meets a list of criteria considering environmental and health-related aspects.

CRADLE TO CRADLE CERTIFIED®

Products with this icon are C2C Certified®, providing a transparent mechanism to compare the sustainability performance of products, showing that they are designed for recycling and can help protect and sustain our environment.

M1 CLASSIFICATION

The Finnish emission label for building products is one of the leading test labels in the Scandinavian region. M1 is the best category and stands for "low emission".

ENVIRONMENTAL PRODUCT DECLARATION

are independently verified and registered documents that communicate transparent and comparable information about the life-cycle environmental impact of products.

SHAPES & SYSTEMS
MINERAL | METAL | WOOD & WOOD WOOL

CEILING EXPOSED GRID

Exposed ceiling systems provide a modular aesthetic and are available in a variety of edge details.

CEILING CONCEALED GRID

Concealed ceiling solutions create a continuous, monolithic look by concealing all of the grid system.

OPEN CELL

Open cell metal tiles mask the plenum and provide 100% accessibility to lighting, ventilation and sprinklers with an homogeneous appearance.

FLOATING CEILING CANOPIES

Open up an almost endless range of dramatic design possibilities with canopies that can be suspended from any soffit.

VERTICAL BAFFLES

Express a new narrative with vertical baffles and create a look to visually tell a story with a solution that will spark your imagination.

FREE SPAN CORRIDOR SOLUTIONS

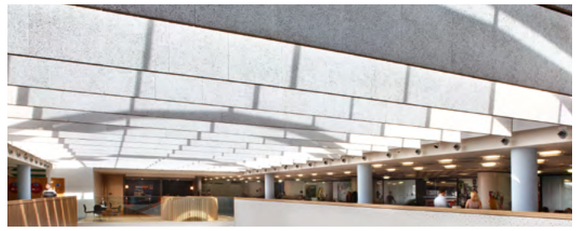
With easy installation and access to services, wall-to-wall corridor solutions require functionality to handle high traffic and design flexibility to connect key spaces seamlessly.

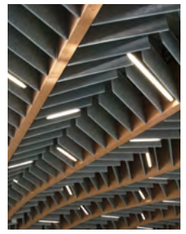
WALL SOLUTIONS

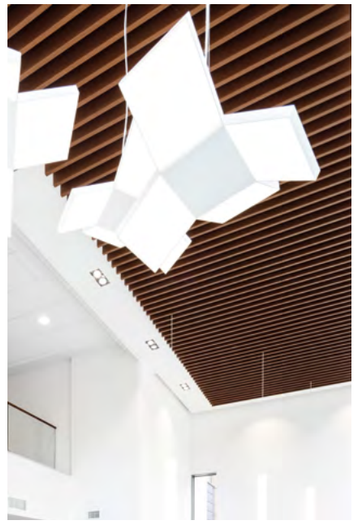
Wall solutions come in a variety of designs to provide a stunning visual durable enough for high-impact or high traffic areas. Coordinate with ceilings and other interior finishes to create signature spaces.

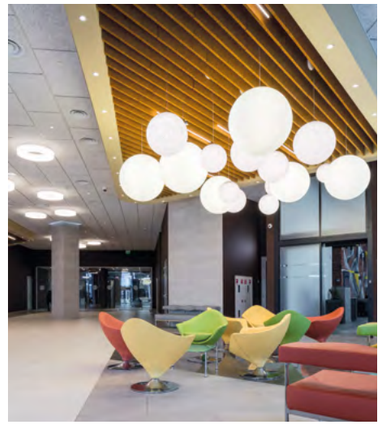
[Left page, top to bottom] Armstrong METAL Tegular 8, Rd 1522, RAL 9010 (Centre for Medical Simulation, Medical University of Lublin, Poland, ©Szymon Polański) • Armstrong METAL R-Clip (Trumpf, Warsaw, Poland, ©Szymon Polański) • Armstrong METAL Cellio C49, RAL 9010 (MOX Furniture Shop, Kolobrzeg, Poland, ©Szymon Polański) • Armstrong METAL D-H 700, Rd 1511, RAL 9016 (Rorschacherstrasse Training Center Hospital, St. Gallen, Switzerland, ©Foto Lautenschlager) • Armstrong METAL V-P 500, Rd 2535, RAL 7016 (Firstral AG, Friedberg-Derching, Germany, ©David Güntsch) • Armstrong METAL F-L 601, Rg 0701, RAL 7016 (MOXY Hotel, Warsaw, Poland, ©Szymon Polański) • Armstrong METAL W-H 1000, custom laser perforations, RAL 9010 (FANUC R&D Center, Skolkovo District, Moscow, Russia, ©German Lepekhin)

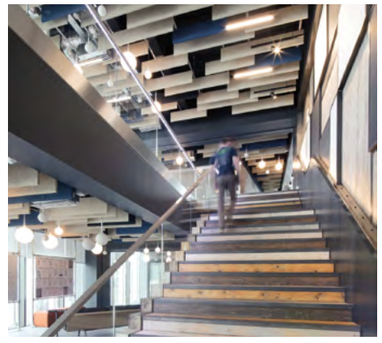
FLOATING SOLUTIONS RANGE
MINERAL | METAL | WOOD & WOOD WOOL











[Right page, top to bottom] HERADESIGN® Superfine (Bartle Hegarty HQ, London, UK) • HERADESIGN® Superfine (Lublin University, Poland) • Armstrong METAL V-P 500, American Walnut wood effect (Blake House, Uxbridge, UK, ©Philip Durrant) • Armstrong METAL R-H 200 curved panels (Univerexport, Novi Sad, Serbia, ©Marko Cvetkovic Cvele) • Armstrong METAL D-H 700, triangular shaped, Rg 0701, RAL 9010 (Austria Center Vienna, Austria, ©Ludwig Schedl) • Armstrong METAL V-P 500 (E&Y, Warsaw, Poland, ©Szymon Polański) • Armstrong MESH, hexagonal shaped, R835, NCS S2020-R80B (Zagreb Airport Ltd. General Aviation Terminal, Croatia, ©Miljenko Hegedić) • Armstrong METAL V-P 500, RAL 5001 & RAL 5009 (Klimahaus®, Bremerhaven, Germany, © Bettina Meckel – Fotodesign) • HERADESIGN® Baffle basic (Astarta Business Center, Kiev, Ukraine) • Armstrong METAL V-P 500, Rd 1511, RAL 9016 (Rorschacherstrasse Training Center Hospital, St. Gallen, Switzerland, ©Foto Lautenschlager) • HERADESIGN® Baffle basic (Cirrus Logic, Edinburgh, UK, ©McAteer Photography)

MINERAL & SOFT FIBRE RANGES
CEILINGS | FLOATING SOLUTIONS

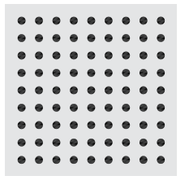
		Product	Edge Details									Acoustics						Fire Reaction		Light Reflectance	Air Permeability	Humidity Resistance	Clean Room	Indoor Air Quality			Sustainability					
			Board	Tegular 24	Tegular 15	Tegular 24/90	Tegular 15/90	Vector	K2C2	K4C4	SL2	Finesse	α_w	Class	NRC	$D_{n,f,w}$	CAC	R_w	Euroclass	ASTM E 84					VOC	Formal-dehyde	IAC/IACG	Recycled Content	EPD	Biosoluble Wool	M1	Blue Angel	Cradle to Cradle
CEILING PANELS																																
MINERAL FIBRE	DESIGN	AMF THERMATEX® Alpha Colour	✔										0.95 - 1.00	A	0.90	28 dB	29 dB	14 dB	A2-s1, d0	*	–	PM1	95%	–	A+	E1	–	43%	–	✔	–	✔	–
	SMOOTH WHITE ACOUSTIC	AMF THERMATEX® Alpha	✔			✔	✔						0.95	A	0.90	28 dB	29 dB	14 dB	A2-s1, d0	Class A	88%	PM1	95%	ISO 4	A+	E1	IACG	43%	✔	✔	✔	✔	Bronze
		AMF THERMATEX® Alpha One	✔			✔	✔						1.00	A	1.00	29 dB	–	17 dB	A2-s1, d0	Class A	88%	PM1	95%	ISO 4	A+	E1	IACG	43%	✔	✔	✔	✔	Bronze
		AMF THERMATEX® Alpha HD 19mm									✔	✔	0.90 - 0.95	A	0.85 - 0.95	34 dB	35 dB	17 dB	A2-s1, d0	Class A	88%	PM1	95%	ISO 4	A+	E1	IACG	38%	✔	✔	✔	✔	Bronze
		AMF THERMATEX® Alpha HD 30/35mm	✔			✔	✔						0.90	A	0.90	40 - 42 dB	41 - 44 dB	22 - 25 dB	A2-s1, d0	*	88%	PM1	95%	ISO 4	A+	E1	IACG	39%	✔	✔	✔	✔	Bronze
		Armstrong PERLA	✔	✔			✔						0.65(H)	C	0.70	36 dB	37 dB	18 dB	A2-s1, d0	*	88%	PM1	95%	ISO 5	A+	E1	IACG	39 - 41%	✔	✔	✔	✔	Bronze
		Armstrong PERLA dB	✔	✔			✔						0.60(H)	C	0.65	41 dB	42 dB	21 dB	A2-s1, d0	*	88%	PM1	95%	ISO 5	A+	E1	IACG	39%	✔	✔	✔	✔	Bronze
		Armstrong PERLA OP 0.95	✔	✔			✔						0.95	A	0.90	25 dB	25 dB	12 dB	A2-s1, d0	Class A	85%	–	95%	ISO 5	A+	E1	IACG	44 - 66%	✔	✔	–	–	Bronze
		Armstrong PERLA OP 19mm	✔								✔		0.90	A	0.85	34 dB	35 dB	–	A2-s1, d0	*	85%	PM1	95%	ISO 5	A+	E1	IACG	38%	✔	✔	✔	✔	Bronze
		Armstrong PERLA OP 1.00	✔	✔			✔						1.00	A	0.95	25 dB	25 dB	12 dB	A2-s1, d0	*	85%	–	95%	ISO 4	A+	E1	IACG	73%	✔	✔	–	–	Bronze
		AMF THERMATEX® Acoustic	✔	✔	✔		✔	✔			✔	✔	0.65(H)	C	0.70	38 - 40 dB	39 dB	22 dB	A2-s1, d0	Class A	88%	PM1	95%	ISO 3	A+	E1	IACG	41 - 49%	✔	✔	–	–	Bronze
		AMF THERMATEX® dB Acoustic	✔	✔	✔								0.65(H)	C	0.70	41 - 43 dB	43 dB	24 - 25 dB	A2-s1, d0	Class A	88%	PM1	95%	ISO 4	A+	E1	IACG	39%	✔	✔	✔	✔	Bronze
		AMF THERMATEX® Antaris	✔			✔	✔						0.90	A	0.90	28 dB	28 dB	13 dB	A2-s1, d0	Class A	86%	–	95%	ISO 5	A+	E1	IACG	43%	✔	✔	✔	✔	–
		AMF THERMATEX® Antaris C	✔	✔	✔								0.70	C	0.70	30 dB	30 dB	18 dB	A2-s1, d0	*	86%	–	90%	ISO 5	A+	E1	IACG	43%	✔	✔	✔	✔	–
		AMF THERMATEX® Thermofon	✔			✔	✔						0.80(H)	B	0.85	28 dB	29 dB	13 dB	A2-s1, d0	Class A	88%	–	95%	ISO 4	A+	E1	IACG	42%	✔	✔	✔	✔	–
	HEALTHCARE & HYGIENE	Armstrong BIOGUARD ACOUSTIC OP	✔	✔			✔						0.95	A	0.95	25 dB	25 dB	–	A2-s1, d0	Class A	85%	–	95%	ISO 3	A+	E1	IACG	70%	✔	✔	–	–	–
		Armstrong BIOGUARD ACOUSTIC	✔	✔	✔								0.60(H)	C	0.60	36 dB	37 dB	18 dB	A2-s1, d0	*	85%	–	95%	ISO 4	A+	E1	IACG	42%	✔	✔	–	–	–
		Armstrong SANIGUARD	✔	✔			✔						0.95	A	0.90	25 dB	25 dB	–	A2-s1, d0	*	85%	–	95%	ISO 5	A+	E1	IACG	66%	✔	✔	–	–	–
		AMF THERMATEX® Aquatec	✔			✔	✔					✔	0.90	A	0.90	29 dB	29 dB	16 dB	A2-s1, d0	Class A	88%	PM1	100%	ISO 3	A+	E1	IACG	35%	✔	✔	–	✔	–
		AMF THERMATEX® Aquatec Hygena	✔										0.90	A	0.90	29 dB	29 dB	16 dB	A2-s1, d0	Class A	88%	PM1	100%	ISO 3	A+	E1	IACG	35%	–	✔	–	–	–
		AMF THERMATEX® Thermaclean	✔										0.10(L)	–	0.15	34 dB	36 dB	19 dB	A2-s3, d0	*	81%	PM1	95%	ISO 4	A+	E1	–	45%	–	✔	–	–	–
		AMF THERMATEX® Alpha Hygena	✔										0.95	A	0.90	28 dB	29 dB	14 dB	A2-s1, d0	*	88%	PM1	95%	ISO 4	A+	E1	–	43%	–	✔	–	–	–
		AMF THERMATEX® Acoustic Hygena	✔	✔	✔		✔	✔			✔	✔	0.65(H)	C	0.70	38 - 40 dB	39 dB	22 dB	A2-s1, d0	Class A	88%	PM1	95%	ISO 3	A+	E1	IACG	41 - 49%	✔	✔	–	–	–
		AMF THERMATEX® Thermofon Hygena	✔										0.80(H)	B	0.85	28 dB	29 dB	13 dB	A2-s1, d0	*	88%	–	95%	ISO 4	A+	E1	–	42%	–	✔	–	–	–
		PLAIN Hygena	✔										0.20(L)	E	0.20	34 dB	35 dB	–	A2-s1, d0	*	88%	–	95%	ISO 4	A+	E1	–	48%	–	✔	–	–	–
		Armstrong NEWTONE	✔										0.10(L)	–	0.10	37 dB	–	–	A2-s1, d0	*	84%	–	100%	–	A+	E1	–	–	–	–	–	–	–
	CLASSIC PLAIN	PLAIN	✔	✔	✔								0.20(L)	E	0.20	34 dB	35 dB	–	A2-s1, d0	Class A	88%	–	95%	ISO 4	A+	E1	IACG	31 - 48%	✔	✔	–	–	–
	CLASSIC SANDED	Armstrong DUNE Supreme	✔	✔	✔								0.55	D	0.50	34 dB	35 dB	17 dB	A2-s1, d0	Class A	85%	–	95 - 99%	–	A+	E1	IACG	42 - 43%	✔	–	–	–	–
		Armstrong DUNE Max	✔	✔									0.70	C	0.70	38 dB	38 dB	21 dB	A2-s1, d0	Class A	85%	PM1	90%	–	A+	E1	IACG	40%	✔	✔	–	✔	–
		AMF THERMATEX® Feinstratos	✔	✔	✔			✔		✔	✔		0.20	E	0.15	34 - 38 dB	35 - 38 dB	21 dB	A2-s1, d0	*	85%	–	95%	–	A+	E1	IACG	37 - 43%	✔	✔	–	–	–
		AMF THERMATEX® Feinstratos Micro	✔	✔	✔			✔		✔	✔		0.60	C	0.60	34 - 38 dB	35 - 38 dB	21 dB	A2-s1, d0	Class A	85%	–	95%	–	A+	E1	IACG	37 - 43%	✔	✔	–	–	–
		AMF THERMATEX® Feinstratos Micro Complete	✔	✔	✔								0.70	C	0.70	34 dB	35 dB	21 dB	A2-s1, d0	*	85%	–	95%	–	A+	E1	IACG	40%	✔	✔	–	✔	–
	CLASSIC FISSURED/ PERFORATED	AMF THERMATEX® Star 15mm	✔	✔	✔			✔					0.60	C	0.60	34 dB	35 dB	21 dB	A2-s1, d0	Class A	88%	–	95%	–	A+	E1	IACG	37 - 48%	✔	✔	–	–	–
		AMF THERMATEX® Star 19mm		✔					✔	✔			0.60	C	0.55	38 dB	38 dB	21 dB	A2-s1, d0	Class A	88%	PM1	95%	–	A+	E1	IACG	37 - 48%	✔	✔	–	✔	–
		AMF THERMATEX® Star Complete	✔	✔	✔								0.70	C	0.70	34 dB	35 dB	21 dB	A2-s1, d0	Class A	88%	PM1	95%	–	A+	E1	IACG	43%	✔	✔	–	✔	–
		AMF THERMATEX® Mercure	✔	✔	✔								0.60	C	0,60	32 dB	32 dB	21 dB	A2-s1, d0	Class A	85%	–	95%	–	A+	E1	IACG	37 - 48%	✔	✔	–	–	–
		AMF THERMATEX® Mercure Complete	✔	✔	✔								0.70 - 0.75	C	0.75	34 - 38 dB	36 dB	21 dB	A2-s1, d0	Class A	85%	PM1	95%	–	A+	E1	–	43%	✔	✔	–	✔	–
		Armstrong FINE FISSURED	✔	✔	✔								0.60(H)	C	0.60	32 - 38 dB	32 - 38 dB	–	A2-s1, d0	*	85%	–	95%	–	A+	E1	IACG	43 - 48%	✔	✔	–	–	–
		AMF THERMATEX® Feinfresko	✔	✔									0.60(H)	C	0.60	32 dB	32 dB	21 dB	A2-s1, d0	*	83%	PM1	90%	–	A+	E1	IACG	37 - 48%	✔	✔	–	–	–
MINERAL WOOL	SMOOTH WHITE ACOUSTIC	AMF TOPIQ® Prime	✔			✔	✔						0.95	A	0.90	24 dB	24 dB	13 dB	A1	Class A	88%	–	100%	ISO 5	A	E1	IAC	32 - 33%	–	✔	✔	✔	–
		AMF TOPIQ® Efficient Pro	✔			✔	✔						1.00	A	0.95	25 dB	25 dB	15 dB	A1	*	88%	–	100%	ISO 4	A	E1	IAC	33%	–	✔	✔	✔	–
		Armstrong OPTIMA	✔	✔			✔	✔					–	–	0.90 - 0.95	–	–	–	–	Class A	88%	–	95%	–	–	–	–	≤ 85%	–	–	–	–	–
	HEALTHCARE & HYGIENE	AMF TOPIQ® Prime Hygena	✔			✔	✔						0.95	A	0.90	24 dB	24 dB	13 dB	A1	Class A	88%	–	100%	ISO 5	A	E1	–	33%	–	✔	–	–	–
		AMF TOPIQ® Efficient Pro Hygena	✔			✔	✔						1.00	A	0.95	25 dB	25 dB	15 dB	A1	*	88%	–	100%	ISO 4	A	E1	–	33%	–	✔	–	–	–

* Not tested against ASTM E84

		Product	Acoustics									Fire Reaction		Light Reflectance	Air Permeability	Humidity Resistance	Clean Room	Indoor Air Quality			Sustainability					
			α_w	Class	NRC	Frequency f (Hz) 125	250	500	1000	2000	4000	Euroclass	ASTM E 84					VOC	Formal-dehyde	IAC/IACG	Recycled Content	EPD	Biosoluble Wool	M1	Blue Angel	Cradle to Cradle
FLOATING SYSTEMS																										
MINERAL FIBRE	DESIGN	AMF THERMATEX® Sonic Arc	–	–	–	0.50	1.70	2.20	3.00	3.60	3.80	–	–	≤ 88%	–	90%	–	–	–	–	–	–	✔	–	–	–
		AMF THERMATEX® Sonic Modern	–	–	–	0.50 - 0.90	1.10 - 2.00	1.50 - 2.80	2.10 - 3.90	2.40 - 4.30	2.30 - 4.30	–	–	≤ 88%	–	95%	–	–	–	–	–	–	✔	–	–	–
		AMF THERMATEX® Sonic Sky	–	–	–	0.35	0.85	1.15	1.80	1.95	1.95	–	–	≤ 88%	–	95%	–	–	–	–	–	–	✔	–	–	–
		AMF THERMATEX® Baffle	0.60(MH) - 0.65 (MH)	C	0.65	0.35	0.35 - 0.40	0.55 - 0.75	0.90 - 1.00	0.90 - 1.00	0.90 - 1.00	A2-s1, d0	–	–	–	95%	–	–	–	–	–	–	✔	–	–	–
		AMF THERMATEX® Line Modern	–	–	–	0.20 - 1.10	0.60 - 2.20	1.00 - 3.10	0.90 - 3.10	0.80 - 3.00	0.90 - 3.10	–	–	≤ 88%	–	95%	–	–	–	–	–	–	✔	–	–	–
MINERAL WOOL	DESIGN	AMF TOPIQ® Sonic Element	–	–	–	0.40 - 0.80	1.00 - 2.70	1.70 - 4.20	1.80 - 4.40	2.00 - 4.50	1.90 - 4.30	A2-s1, d0	–	≤ 88%	–	95%	–	–	–	–	–	–	✔	–	–	–
		Armstrong OPTIMA L Canopy	–	–	–	0.20 - 1.10	0.40 - 2.30	0.70 - 4.10	1.10 - 5.80	1.00 - 5.70	1.00 - 5.40	B-s1, d0	–	87%	–	90%	–	A	E1	–	80%	–	–	–	–	–
		Armstrong OPTIMA Canopy	–	–	–	0.20 - 0.70	0.50 - 1.70	0.90 - 2.80	1.30 - 4.10	1.40 - 4.00	1.20 - 3.60	B-s1, d0	–	87%	–	90%	–	A	E1	–	80%	–	–	–	–	–
		Armstrong OPTIMA Curved Canopy	–	–	–	0.70	1.30	2.40	3.20	3.30	2.80	B-s1, d0	–	87%	–	90%	–	A	E1	–	80%	–	–	–	–	–
		Armstrong OPTIMA Baffle	0.60(MH)	C	0.65	0.15	0.40	0.55	0.85	0.80	0.75	B-s1, d0	–	87%	–	90%	–	A	E1	–	80%	–	–	–	–	–
WALL PANELS																										
FABRIC	DESIGN	AMF LINE Style	–	–	–	0.30	0.90	1.90	1.90	1.80	1.60	–	–	–	–	95%	–	–	–	–	–	–	–	–	–	–

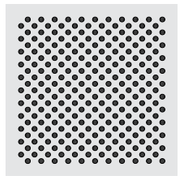
METAL RANGE
PERFORATIONS

Predefined modules are available in 3 popular perforations.



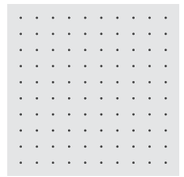
Standard perforation
Rg 2516

Hole diameter: 2.5mm
Open area: 16%



Micro-perforation
Rd 1522

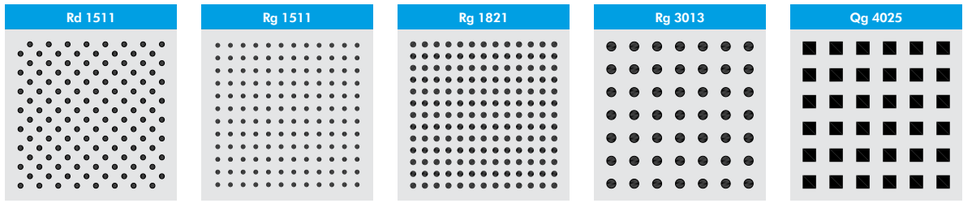
Hole diameter: 1.5mm
Open area: 22%



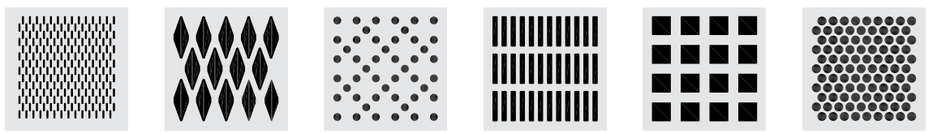
Extramicro perforation
Rg 0701

Hole diameter: 0.7mm
Open area: 1.5%

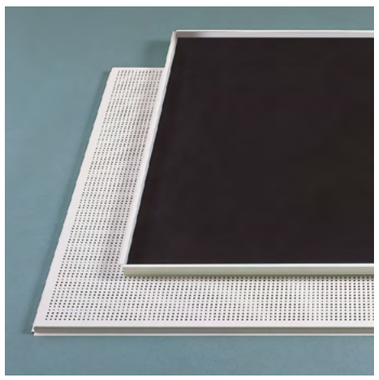
With 5 additional Vario Design Perforations.



Knauf Ceiling Solutions extensive range of more than 50 perforations gives a wide choice of aesthetic options: large apertures for specialised uses such as airflow or loudspeakers to slotted perforations for a more linear appearance. Hereunder is a sample of the possibilities at your reach. For more information, please get in touch with us.



ACOUSTIC SOLUTIONS



STANDARD BLACK ACOUSTIC FLEECE

Non-woven acoustic fleece provides a cost effective solution for general sound absorption requirements. As a solution that is bonded to the reverse of the metal tile it helps eliminate pattern staining issues that may occur with loose laid solutions.

Perforations	D_{nfw}	NRC	Class
Rg 2516 Standard perforation	**18 dB**	**0.80**	**C**
Rd 1522 Microperforation	**16 dB**	**0.70**	**C**
Rg 0701 Extramicro perforation	**21 dB**	**0.65**	**D**

In addition to the standard acoustic fleece, Knauf Ceiling Solutions offers a range of Vario Design acoustic solutions: Premium OP19 for a high absorption, Premium B15 for high absorption and attenuation, as well as acoustic pads.

For more information, please get in touch with us.

COLOURS

Knauf Ceiling Solutions standard colour for metal ceilings RAL 9010 (Pure White) and 6 additional Vario Design colours and 7 wood effects.

Further colours and wood effects available on request.

PERFORMANCE COATINGS

METAL BIOGUARD*

Metal BioGuard metal tiles' coating is designed for applications where suspended ceilings are required, and hygiene and cleanliness are of the utmost importance.

Metal BioGuard is more effective in the control of bacteria than a standard powder coating because it prevents the settlement of bacteria on the surface of the tile.

Metal BioGuard gives good cleanability and resistance to disinfectants as well as cleanroom performance.

For more information, please get in touch with us.

METAL TRIOGUARD™*

Metal TrioGuard™ dirt-resistant coating protects the ceiling from dirt build-up and colour fading, maintaining its original look for longer. Available in several metal designs.

- Unique dirt-resistant powder-painted finish with a lasting "*just like new*" appearance.
- Lower maintenance costs and easy to clean.
- Colour stable, keeping its original colour for up to 10 years[(1)].

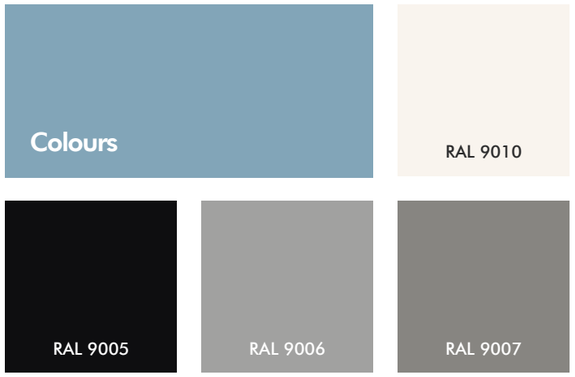
[(1)] Tested using ASTM D4674 Standard Practice for Accelerated Testing for Colour Stability (10-year simulation).

*BioGuard and TrioGuard™ coatings are only available for concealed grid solutions, unperforated, in RAL 9010 or Global White, without acoustic infill or gasket.

[Left to right] METAL Clip-In, Unperforated, BioGuard (Antoni Jurasz University Hospital, Bydgoszcz, Poland, ©Szymon Polański) • METAL B-H 300 (East London Line, London, UK, ©John Sturrock)

MESH RANGE
COLOURS

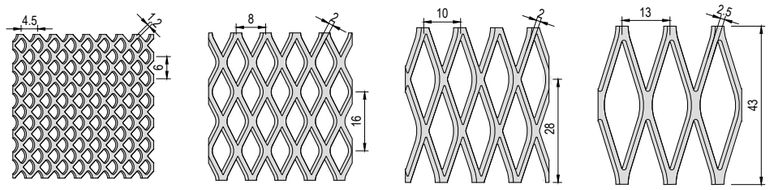
Knauf Ceiling Solutions standard colour for mesh ceilings RAL 9010 (Pure White) and 3 additional Vario Design colours.



Further colours available on request.

PATTERNS

Standard - Steel Mesh Types



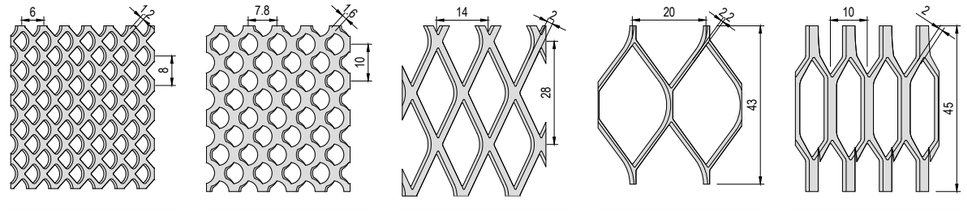
KD100 Open area: 35%

RB25 Open area: 50%

RB35 Open area: 58%

RB55 Open area: 62%

Vario Design - Steel Mesh Types



KD200 Open area: 54%

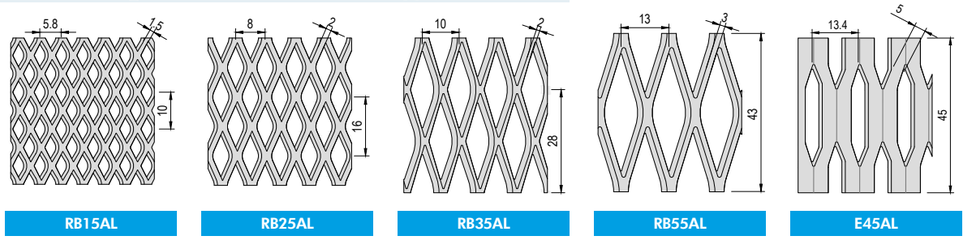
TAU30 Open area: 55%

RB35XL Open area: 71%

RB55XL Open area: 79%

E45 Open area: 68%

Vario Design - Aluminium Mesh Types



RB15AL Open area: 45%

RB25AL Open area: 47%

RB35AL Open area: 55%

RB55AL Open area: 55%

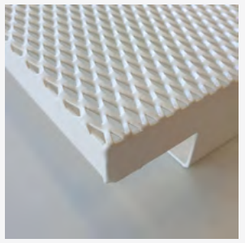
E45AL Open area: 33%

[Previous page] MESH Board, RAL 9005 (Univerexport, Novi Sad, Serbia, © Marko Cvetkovic Cvele)

MESH VS. MESH MT

MESH
Visible side with 90° upturn on all four edges and welded stiffening profiles inside.

MESH MT
(MicroTack Technology) Flat visible side, without upturn, with welded stiffening profiles on all edges.



MESH patterns are directional.

FOCUS
AMF THERMATEX® Aquatec

In rooms with permanent high humidity, such as swimming pools, sanitary facilities or large professional kitchens, special demands are placed on the ceiling in terms of humidity resistance.

Due to its special composition, **AMF THERMATEX® Aquatec** resists humidity levels up to 100% RH. This means that it is dimensionally stable when exposed to high humidity and temperatures from 0° to 40°C.

AMF THERMATEX® Aquatec is the optimal solution for high humidity areas of up to 100% RH with:

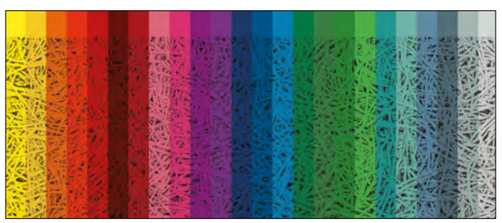
- Excellent sound absorption (0.90 α_w / NRC = 0.90)
- $D_{n,f,w}$ = 29 dB
- Excellent light reflectance (88%)
- ISO 3 as per ISO 14644-1
- Ideal for healthcare environments, laboratories, treatment rooms, locker rooms or shower areas.

AMF THERMATEX® Aquatec can be cleaned weekly with a high pressure cleaner. The entire ceiling should be cleaned at the same time and the surface must be dried after cleaning. Pressure cleaning is only possible for ceilings installed on exposed grid and with a corrosion resistant grid system.
The full cleaning guidelines need to be adhered to.

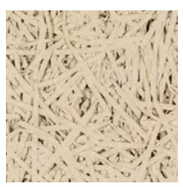
Product Range								Product Range A2	
			macro	fine	superfine	micro	plano	fine A2	superfine A2
Nominal size (mm) (further sizes on request)		600 x 600	✓	✓	✓	✓	✓	✓	✓
		625 x 625		✓	✓	✓	✓		
		1200 x 600	✓	✓	✓	✓	✓	✓	✓
		1250 x 625		✓	✓	✓	✓		
Panel thickness	1-layer	15 mm		✓	✓			✓	✓
		25 mm	✓	✓	✓	✓	✓	✓	✓
		35 mm		✓	✓	✓			
	2-layer	40 mm (15/25)							
		50 mm (25/25)							
		65 mm (25/40)							
Reaction to fire according to EN 13501-1: B-s1, d0			✓	✓	✓	✓	✓		
Reaction to fire according to EN 13501-1: A2-s1, d0								✓	✓
Sound absorption value									
Weighted sound absorption coefficient α_w			up to 0.70	up to 0.90	up to 1.00	up to 0.55	up to 0.35	up to 0.75	up to 0.95
Noise reduction coefficient NRC			up to 0.75	up to 0.95	up to 1.00	up to 0.60	up to 0.35	up to 0.75	up to 1.00
Product declaration									
WW-EN 13168-L3-W2-T2-S3-P2-CS(10)200-CI3			✓	✓	✓	✓	✓	✓	✓
WW-EN 13168-L3-W2-T2-S3-P2-CS(10)20-TR5-CI3									
Certificate of constancy of performance			0751-CPR-209.0-01						
Standard colours			White, similar to RAL 9010 / beige – natural tone 13 (further shades available from colour systems such as RAL, NCS, BS or StoColor)						
Areas of application			Suitable for rooms with constant relative humidity of up to 90%. Application in rooms with relative humidity higher than 80% should be discussed with a structural engineer.						

Product Range *plus*				
micro plus	fine plus	superfine plus	micro plus	plano plus
✓	✓	✓	✓	✓
	✓	✓		
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
	✓	✓		
up to 0.75	up to 0.85	up to 0.95	up to 0.35	up to 0.40
up to 0.85	up to 0.85	up to 0.95	up to 0.35	up to 0.45
✓	✓	✓	✓	✓
0751-CPR-209.0-02				

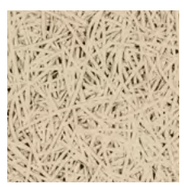
Colours



Surface Patterns



HERADESIGN®
Macro
3mm fibre



HERADESIGN®
Fine
2mm fibre

HERADESIGN®
Superfine
1mm fibre

HERADESIGN®
Micro
finely pored

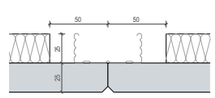
HERADESIGN®
Plano
smooth texture

Product Range *plus*

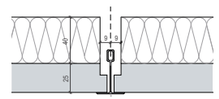
Composite product consisting of a magnesite bonded wood wool acoustic panel and a mineral wool absorber.

- Excellent sound absoprtion values
- Trickle protection
- Easier and faster installation

Available in the following edge designs:

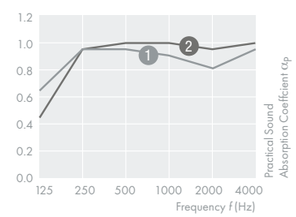


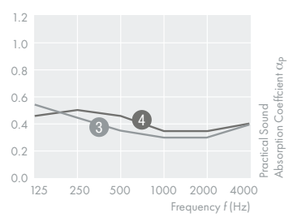
AK-01 plus
Thickness: 25 mm



SK-04 plus
Thickness: 25 mm

Sound Absorption Values





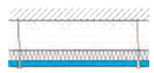
1 HERADESIGN® Fine plus
25+25 mm TCH 200 mm
α_w 0.90 (L) *NRC* = 0.90
Sound Absorption Class A

suspended with acoustic lining

3 HERADESIGN® Micro plus
25+25 mm TCH 200 mm
α_w 0.35 (L) *NRC* = 0.35
Sound Absorption Class D

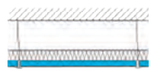
suspended with acoustic lining

2 HERADESIGN® Superfine plus
25+25 mm TCH 200 mm
α_w 1.00 *NRC* = 1.00
Sound Absorption Class A



suspended with acoustic lining

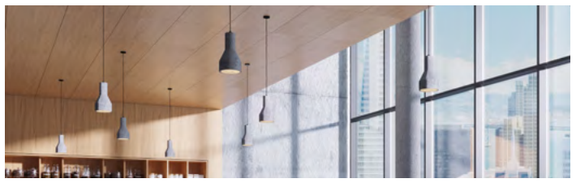
4 HERADESIGN® Plano plus
25+25 mm TCH 225 mm
α_w 0.40 (L) *NRC* = 0.45
Sound Absorption Class D



suspended with acoustic lining

WOOD RANGE

CEILINGS | FLOATING SOLUTIONS | WALLS

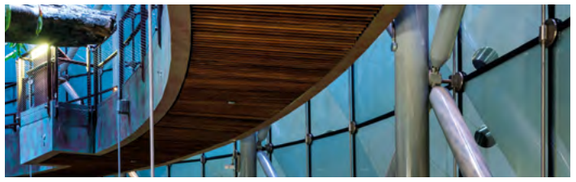


EXPOSED GRID

Wood ceilings combine the beauty of natural wood in a versatile range of panels available in standard and custom options.

CONCEALED GRID

Concealed solutions provide a continuous, monolithic appearance by covering the suspension system.

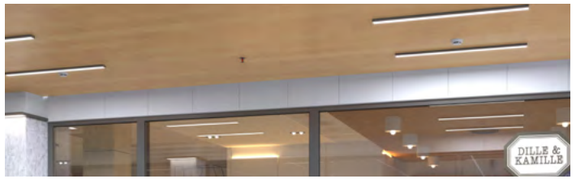


BAFFLES & GRILLE

Baffle and Grille solutions create dramatic lines adding a unique perspective to your design.

FLOATING CEILING CANOPIES

Floating elements offer limitless possibilities in standard and configurable sizes, formats and layouts.

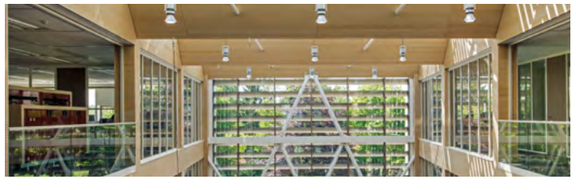


CHANNELLED

Create a jointless ceiling for a unique effect with a versatile range of channelled planks available in standard and custom options.

LINEAR

Easy-to-install wood veneer planks offer a wide variety of installation options including seamless wall to ceiling transitions.



WALL

Wall systems are available in a large range of finishes with standard, custom and channelled perforations that improve sound quality and reverberation time.

[Current page, top to bottom] WOOD Exposed Grid (© Knauf Ceiling Solutions) • WOOD Concealed Grid (© Knauf Ceiling Solutions) • WOOD Baffle & Grille (Green Planet, Dubai, © Daniel Cheong) • WOOD Floating Ceiling Canopies (© Knauf Ceiling Solutions) • WOOD Channelled (© Knauf Ceiling Solutions) • WOOD Linear (Amsterdam Academic Hospital, Netherlands, © Johan Carlier) • WOOD Wall (Rabobank, Netherlands, © Fedde de Weert)

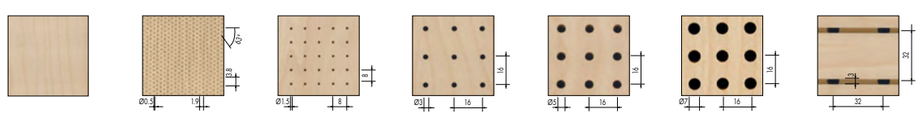
Standard Veneers (custom veneers & colour matching available on request)

Ash | Natural Bamboo | Caramel Bamboo | Maple | Oak | American Cherry | America Walnut

All veneers have a matt finish. Variation between wood veneer tiles may occur due to the natural characteristics of the wood and grain.

Standard Perforations (custom perforations available on request)

LAY-IN
STANDARD PERFORATION PATTERNS
% = Open Area



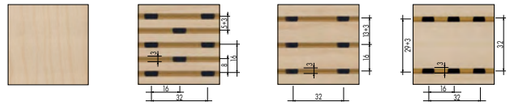
Unperforated | Rv 0505d (5%) | Rg 1503d (3%) | Rg 3003d (3%) | Rg 5008 (8%) | Rg 7015 (15%) | G 33202 (2%)

EN ISO 354 & EN ISO 11654

	α_w	NRC
Unperforated	**0.10(L)**	0.10
RV 0505d	**0.60(LM)**	0.70
Rg 1503d	**0.35(LM)**	0.50
Rg 3003d	**0.40(L)**	0.50
Rg 5008	**0.55(L)**	0.55
Rg 7015	**0.70(L)**	0.70
G 33202	**0.40**	0.40

Channelled Perforations

CHANNELLED
STANDARD PERFORATION PATTERNS
% = Open Area



Unperforated | G 30809 (9%) | G 31604 (4%) | G 33204 (4%)

EN ISO 354 & EN ISO 11654

	α_w	NRC
Unperforated	**0.10(L)**	0.10
G 30809	**0.80(LM)**	0.80
G 31604	**0.65(LM)**	0.65
G 33204	**0.60(L)**	0.60

Performance & Sustainability

FIRE REACTION

EEA Euroclass B-s1, d0 - Unperforated
EEA Euroclass B-s2, d0 - Perforated
EN ISO 354

OTHER PERFORMANCES & FEATURES

≤ 70% RH

≈ 12.5 kg/m² - Unperforated
≈ 10.6 - 12.3 kg/m² - Perforated (depending on perforation)

SUSTAINABILITY

Up to 90%

Unperforated: A+
Perforated: A

E1

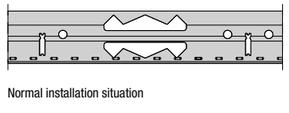
SUSPENSION SYSTEMS OVERVIEW

KNAUF CEILING SOLUTIONS | ARMSTRONG CEILING SOLUTIONS | AMF

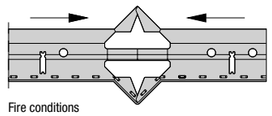
AMF VENTATEC®

A range of standard 15 and 24mm exposed grid suspensions systems.

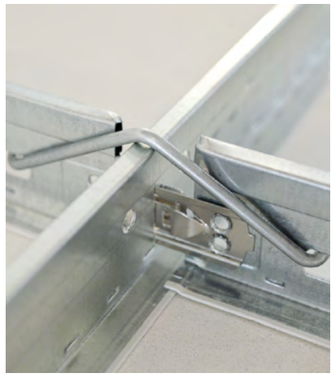
- The combination of stitching and ribbing delivers very high stability and torsional strength
- The riveted stainless steel Click-connector audibly clicks in place and can be easily removed when required.
- Butt cut Cross Tee system preferred for precise flush connection of the grid face.
- Joggled Cross Tees override the Main Runners; preventing twisting of the Cross Tees.

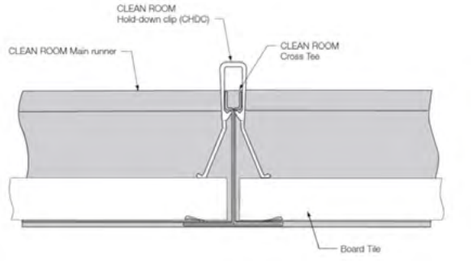


Normal installation situation



Fire conditions





Armstrong PRELUDE

A range of standard 15 and 24mm exposed grid suspensions systems.

- Peakform: patented design for strength, stability and easier to cut.
- Superlock clip: secure Main Runner connection for better alignment and easier to connect.
- Unique steel based XL² ("click" installation) or TL² ("hook" installation) clips for strength, fire performance and better alignment.
- Rotary stitched: strength and extra stability.

FIRE EXPANSION NOTCH

The AMF VENTATEC® profiles are provided with a fire expansion notch that enables the metal to expand in the case of fire.

The tiles remain lay in the grid due to the controlled distortion of the fire expansion notch.

SEISMIC

The AMF VENTATEC® Seismic grid system has been tested at the University of Buffalo in New York State under simulated extreme earthquake conditions. The AMF VENTATEC® Seismic grid system was tested together with lighting and ventilation units, in order to replicate a typical suspended ceiling.

Different system configurations are available to fulfil the respective regional requirements – taking into account applicable local building regulations, ground conditions as well as the expected intensity of the earthquake.

CLEAN ROOM

Clean Room 24 is an aluminium construction with an unique co-extruded flexible PVC gasket to create a better seal between tile and grid for clean room applications and "non-magnetic" environments.

- Aluminium construction: non-magnetic system with high corrosion resistance.
- Co-extruded gasket: better seal between tile and grid.
- Class 3 performance as per ISO standard 14644-1.
- Durability Class B (EN 13964).

A SELECTION

OF MIDDLE EAST PROJECTS

U.A.E.

- Al Ain Hospital
- Al Amal Psychiatric Hospital
- Al Mamoura School
- Al Noor Hospital Extension
- Al Silaa Hospital
- Amazon Falcon Office
- Arcadia School
- Arzanah Medical Complex
- Bollywood Theme Park
- Burjeel Medical City
- Citibank
- Cleveland Clinic Oncology Centre
- Co Ex Campus Expo 2020
- Dar Al Shifa Hospital
- DHCC Hotel
- Dubai International Airport – Concourse D
- Dubai International Airport – Expansion
- Dubai School College
- Dubai Silicon Oasis
- Etihad Stadium
- Facebook Office
- First Gulf Bank Arena
- Ghayati Community Hospital
- Global Gateway
- Gulf News Building
- Horse Quarantine – Airport Expansion
- IKEA Distribution Center at DWC
- Iranian School
- Julius Baer
- KEO Office at Rolex Tower
- KINGS College Hospital
- Loucie Lois School
- Master Training Facility
- National Rehabilitation Centre (NRC)
- One Za'abeel Louvers
- Palm Tower Jumeirah
- Repton School
- Royal Atlantis Resorts & Residences
- Secondary Technical School
- Sobha Hartland School
- Sparkle Tower
- Supreme Council
- Tawam Hospital
- University of Dubai
- Warner Bros Theme Park

QATAR

- ABM Military College
- Al Huwaila Tower
- Al Jabor Office Building
- Al Meera Store
- Al Thumama Stadium
- Al Udeid Air Base
- American Air Base
- Andalus School
- Armed Forces Combined Clinic
- Armed Forces
- Ashghal School
- Asset Affairs Office Building
- Business Incubation Park QFZ
- D.C Foxhill
- Doha Metro Line North
- Doha North Sewage Treatment
- Doha Port Redevelopment
- Dohalive Hotel
- Dream Hotel
- Emiri Naval Base
- Emiri Signal Corp
- Falcon 5
- Family Consulting Centre
- FDTA Facility at Hamad
- Frequent Flyer Lounges
- German Embassy
- Ghuwairiyah School
- Globex
- Harvey Nichols
- Health and Wellness Centre
- Health is Weath
- HMC Orthopedic Clinic
- Intercontinental Hotel
- ISF Correctional Facilities
- ISF Shooting Range
- Lusail Iconic Stadium
- Lusail Katara Tower
- Lusail Real Estate REEF
- Lusail Tower
- Marriott Hotel Renovation
- Ministry of Defense
- Ministry of Interior
- Mixed Use Development
- MOI Police College
- Musherieb Downtown Phase 4
- Naufar
- North Node Lounge & Hotel
- Palestinian School
- Panorama Tower
- Qatar Academy Future School
- Qatar Health Centres
- Qatar Olympic Sports Museum
- Qatar Petroleum District
- Qatar Petroleum Headquarters
- Qatar Petroleum PS 4 Offshore Drilling
- Qatar Shell Pearl
- Qatar University
- Qetaifan Package 5 Hotel
- Qetaifan Water Park Package 1
- Ras Laffan
- Rasgas
- Royal Plaza
- Senior Club at Ras Gas at Al Khor
- Shiled 1
- T.B. Unit
- Tenbek Hospital
- United School
- Vox Cinema, DFC
- West Bay Medical Clinic

SAUDI ARABIA

- Abalkhair Business Centre
- Abdul Aziz A.Aba Alkhail Commercial Offices
- Abha University
- Al Bustan & Emaar (5th Floor)
- Al Dara Hospital & Medical Center
- Al Rajhi Bank
- Dammam University
- IKEA Store
- ITCC Towers (Phase 1 & 2)
- King Abdul Aziz University (Phase 1)
- King Abdullah Project (KAP-2B)
- King Abdullah Project (KAP-2)
- King Abdullah Project (KAP-4)
- King Fahad Military Hospital
- King Faisal University
- King Khalid Air Base
- Mayasem Primary School
- Misk School
- Petrokemia
- Royal Commission School
- SAMA Headquarters
- SANG Hospitals
- SEC HQ Building Complex
- Security Unit & Security Forces (Package 4)
- Tabuk Air Base
- Tarouk Hospital
- Technical & Vocational Training Corporation
- Technical College (Phase 1 & 2)

OMAN

- American British Academy
- Bowsher College
- Cheltenham School
- City Centre Cinema
- Construction of TRA HQ
- Data Centre – Suhail Bahwan Group
- Jabal Al Akhdar Resort Hotel
- Kempinski Hotel
- Knowledge Of Muscat (KOM)
- Military Training College
- Ministry of Education
- Ministry of Legal Affairs
- Ministry of Manpower
- Muscat Grand Mall
- Muscat International Airport
- Oman Botanical Garden
- Oman LNG International School
- Oman Maritime Security Centre
- Oman Medical College
- Oman Oil
- Oman Oil Refinery & Petroleum
- Permanent Accommodation for Contracting
- Royal Oman Police, Thumrait Prison
- Saraya Bandar Jissah
- Sultan Qaboos University

BAHRAIN

- AL Rabeeh Medical Center
- Al Ruwad School – Hamala
- Bahrain Financial Harbor
- Bahrain The Avenues
- EWA Pump stations
- GEMS Building at HIDD
- Gulf Aviation
- Hawar International School – Riffa
- HIDA
- IBN Khaldoun School Expansion
- Kempinski Hotel at Bahrain City Centre
- Noor Al Diyar
- Saint Christopher School (Phase 1 & 2)
- Sofitel Resort Hotel
- Sofitel Resort Hotel – Zallaq
- Sorting Post Office at HIDD
- Standard Charted Bank
- Water Treatment Plant
- WWTP – BAPCO – Awali

KUWAIT

- 3600 Mall
- Academic Support Facility
- Al Hamra & Firdous Mixed Use Development
- American International University
- Bader Al Mulla Secondary School
- BMW Showroom
- British Council
- Coast Guard Headquarters
- College for Business
- College for Women
- College of Law, Sharia – Kuwait University
- Criminal Evidence
- Ghernata Rehabilitation Centre
- Hawalli Police Complex
- Infection Disease Hospital
- Kazma Camp
- KNPC
- Kuwait Cancer Centre
- Kuwait International Airport – Terminal 2
- LSC Offices
- Mussaed Al-Saleh Health Center (MOH)
- National Guard
- New Al Jahra Hospital
- Palace of Justice
- Safat American Hospital
- Secondary Schools
- Union Co-operative Society
- V W Showroom

JORDAN

- Clemenceau Medical City (CMC)
- KADDB
- Ministry of Finance
- Ritz Carlton Hotel & Residences
- Rosary School
- School For A Knowledge Economy (USAID)

LEBANON

- BCD Cinemas
- Hotel-Dieu de France
- University of Alba

IRAQ

- Kuwait Surgical Complex Hospital, Basra

KNAUF CEILING Solutions

[Photography] Armstrong METAL W-H 1100 (Dubai International Airport, UAE, © Beppe Raso)

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