PERFORMANCE CEILINGS

More scope for innovation

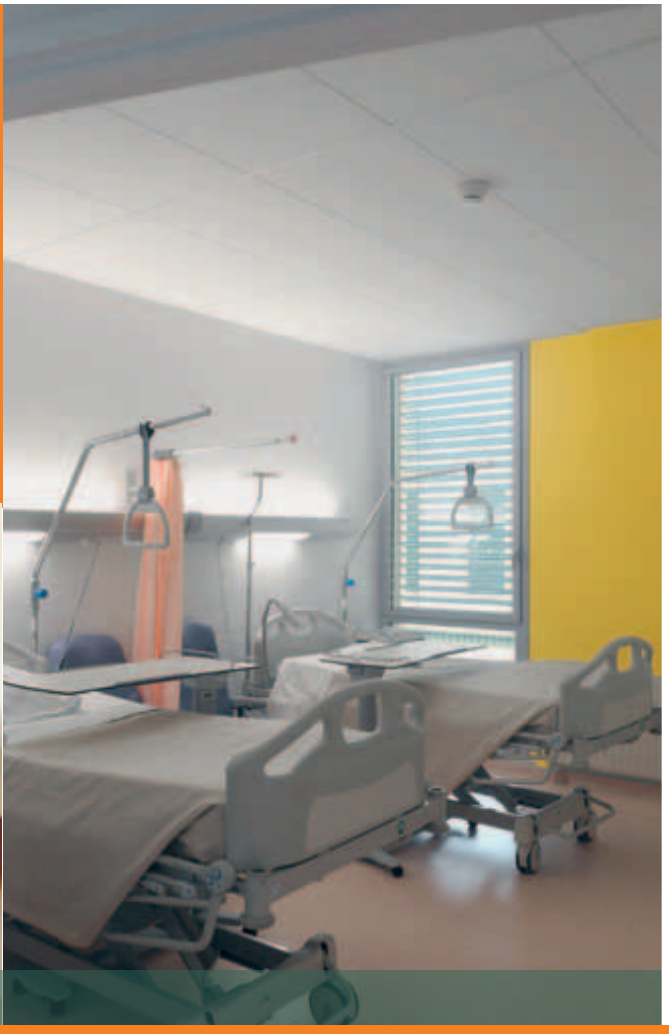
HEALTHCARE

MADE IN GERMANY

INNOVATIVE CEILING TECHNOLOGY FOR HEALTHCARE ENVIRONMENTS

CONTENTS

The AMF Literature is divided into a number of separate brochures. This brochure contains information specifically for Healthcare Environments. To request the other brochures, simply fill out the reply card at the back of this catalogue or they can be downloaded from www.amfceilings.com



Healthcare Facilities

Hygiene levels and infection control are critically important factors when considering the design and construction of healthcare facilities.
Healthcare facilities include, amongst others

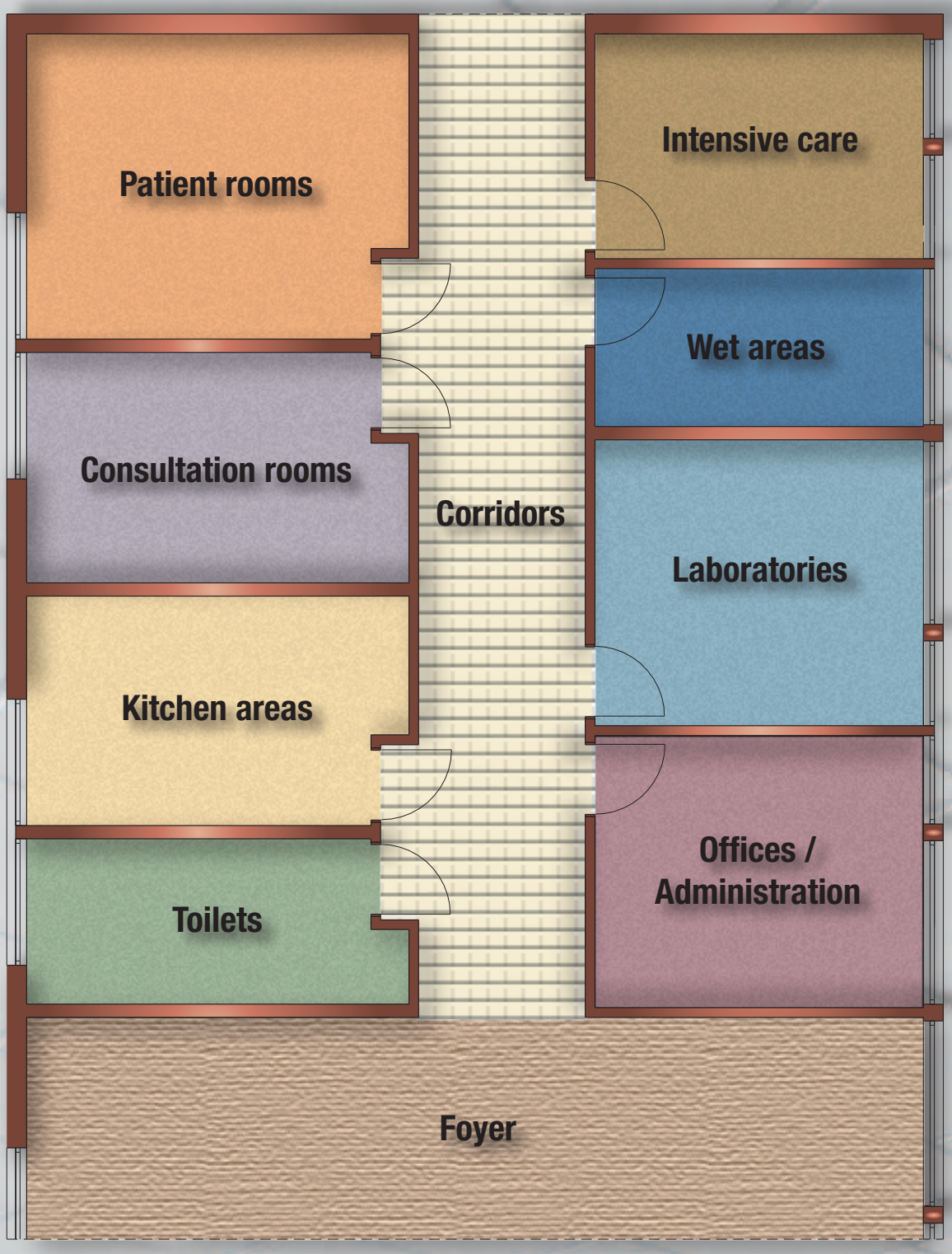
- Hospitals and out-patient clinics
- Laboratories
- Doctors' surgeries
- Care homes
- Rehabilitation centres

All of these facilities have an increased demand for performance ceilings with hygienic properties to provide infection control.
During planning, there are many national and international standards and regulations to consider such as the guidelines for hospital hygiene and infection prevention, BS EN ISO 14644, HTM 60 or DIN 1946 (ventilation).
Other factors that need to be considered include acoustics (HTM 08-01) and fire protection.

The correct ceiling for a healthcare application would need to consider the following requirements.

- Clean Room classification
- Resistance to bacteria and fungi
- Cleanability
- Humidity resistance
- Acoustics
- Fire protection
- Accessibility and maintenance

TYPE OF ROOMS IN HEALTHCARE FACILITIES



AMF Ceilings for Healthcare Facilities

The room types and recommendations below are based on the typical requirements and infection risk

- Hygiene rooms (e.g. patients' rooms, recovery rooms etc.)
- Rooms with increased hygiene requirements (e.g. Intensive care areas, sterile areas, wound care stations etc.)
- Operating theatres and other rooms for interventional procedures (special-purpose solutions for ceilings and ventilation)

AMF ceiling systems offer solutions for the following application areas in healthcare facilities:

Application	Requirement	Suggested product	Page
Intensive care	Clean Room class ISO 6-9, Cleanability	THERMATEX Thermaclean S	17
Laboratories	Clean Room Class ISO 6-9, Acoustics	THERMATEX Thermofon Hygena	20
Consultation rooms	Acoustics and sound insulation	THERMATEX Silence	19
Patient rooms	Acoustics, anti-microbial surfaces	THERMATEX Alpha Hygena	18
Toilets	Cleanability, cost effectiveness	THERMATEX Schlicht Hygena	20
Kitchen areas	Cleanability, robustness	THERMATEX Kombimetall plain	21
Wet areas	Cleanability, robustness	THERMATEX Aquatec	17
Offices/Administration	Acoustics, possibly sound insulation	THERMATEX Alpha or THERMATEX Acoustic	18/19
Foyer	aesthetics, acoustics	THERMATEX Kombimetall perforated	21
Corridors	Fire protection, access to ceiling void	System F30 Uno	28

The recommended products mentioned are only examples. Products should be specified according to the specific requirements of each individual space. We are always available to advise you on your product choice (see contacts at back of catalogue).

CLEAN ROOM REQUIREMENTS

A clean room creates a defined space where it is possible to work in „sterile conditions“. These conditions are required in the health sector, especially in operating theatres and laboratories.

Clean rooms provide control of contamination by air circulated particles to a specific measured level. Therefore all elements intended for clean room use, including ceiling systems, must comply with stringent particle emission standards. The biggest “interference factor” in clean rooms is the people themselves. Most particles are released into the air from people, irrespective of protective clothing.
The air can also be contaminated by machines (abrasion) or by the smallest holes in filters. Differences in temperature, vibrations and electrostatic influences can all disturb the air flow and can have a negative effect on the room. In healthcare environments incorrect or uncontrolled ventilation could cause infections in wounds.

CLASSIFICATION

The air purity classification EN ISO 14644 is the benchmark standard for clean room technology. It classifies clean rooms into classes from ISO 1 - 9, with class 1 being the highest specification for air purity.

TEST NOTES

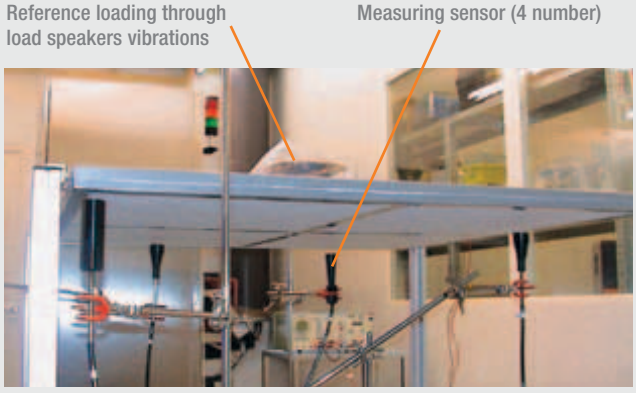
Although suspended ceilings are usually only found in clean rooms with turbulent airstreams, AMF ceilings have been tested to higher standards for clean room classifications to ensure maximum safety in terms of emissions.

	ISO 14644-1
Laminar flow	1
	2
	3
	4
	5
Turbulent flow	6
	7
	8
	9

Requirements for Clean Rooms

Test Method

Highly sensitive measuring equipment can calculate the number of particles present in the ambient air of clean rooms. Determining the number of airborne particles enables the classification of materials. Clean rooms are classified according to the number of particles measured per cubic metre. The only particle groups to be considered are those with between the critical particle sizes (lower limit) of 0.1 µm and 5 µm.



Clean room classification

ISO-Class as per ISO 14644-1

ISO 3	ISO 4	ISO 6
THERMATEX Aquatec THERMATEX Thermaclean S	THERMATEX Alpha THERMATEX Alpha ONE THERMATEX Acoustic THERMATEX Schlicht*	THERMATEX Kombimetall plain* THERMATEX Thermofon
Medicine production in open areas and handling of hazardous substances. Clean rooms for personnel with protective clothing, manufacture of semi-conductors, CD manufacturing and supply rooms for micro-technology.		Operating theatres and the pharmaceutical industry Precision engineering, electronic finishing and medicine production in unoccupied rooms.

NOTE: these are examples. The appropriate **clean room classification** for a specific application must be defined by the **clean room designer.** The type and state of air flow as implied by the clean room class must be preserved.

*(Acrylic sealed joints)

RESISTANCE TO BACTERIA AND FUNGI

Due to the high capacity of healthcare facilities and the increasing danger of pathogens spreading and infecting already ill people, the issue of hospital hygiene is becoming more important than ever. Through the use of innovative materials and infection control practices, hygiene can be improved and the risk of the spread of infection reduced.

The installation of appropriate suspended ceiling systems can meet the various regulatory requirements and support the routine infection control hygiene measures to help provide better outcomes for patients.

EPA ENERGIE- UND PROZESSTECHNIK AACHEN GMBH

BERATUNG · PLANUNG · BAULEITUNG · GUTACHTEN

Gutachtliche Stellungnahme

Widerstandsfähigkeit der Farbe **„AMF-HYGENA"** der Knauf AMF GmbH & Co. KG gegenüber Pilzen und Bakterien

Die Farbe **„AMF-HYGENA"** wurde nach ASTM G 21/G 22 auf die Wirksamkeit der antimikrobiellen Ausrüstung untersucht. Die hier vorliegende gutachtliche Stellungnahme beruht auf dem Prüfbericht **6001/2012**, in dem eine ausführliche Begründung der Beurteilung vorliegt. Der Prüfbericht ist gültig bis zum 11.04.2014.

In der Untersuchung wurden Bakterienstämme von *Bacillus subtilis, Escherichia coli, Staphylococcus epidermidis und Saccharomyces cerevisiae*, sowie Pilzstämme von *Aspergillus niger, Paecilomyces variotii, Gliocladium virens, Penicillium funiculosum* und *Chaetomium globosum* verwendet.

Die Farbe **„AMF-HYGENA"** ist gegenüber allen getesteten Pilzen beständig und besitzt eine antifungistische Wirkung.

Die Farbe **„AMF-HYGENA"** ist gegenüber allen getesteten Bakterien beständig und besitzt eine antibakterielle Wirkung.

Die Farbe **„AMF-HYGENA"** wird unter den Testbedingungen weder von Pilzen noch von Bakterien verwertet und ist beständig gegen einen mikrobiellen Befall.

In Räumen mit erhöhten Ansprüchen an die Vermeidung von Pilz- und Bakterienwachstum ist die Farbe **„AMF-HYGENA"** besonders gut einzusetzen.

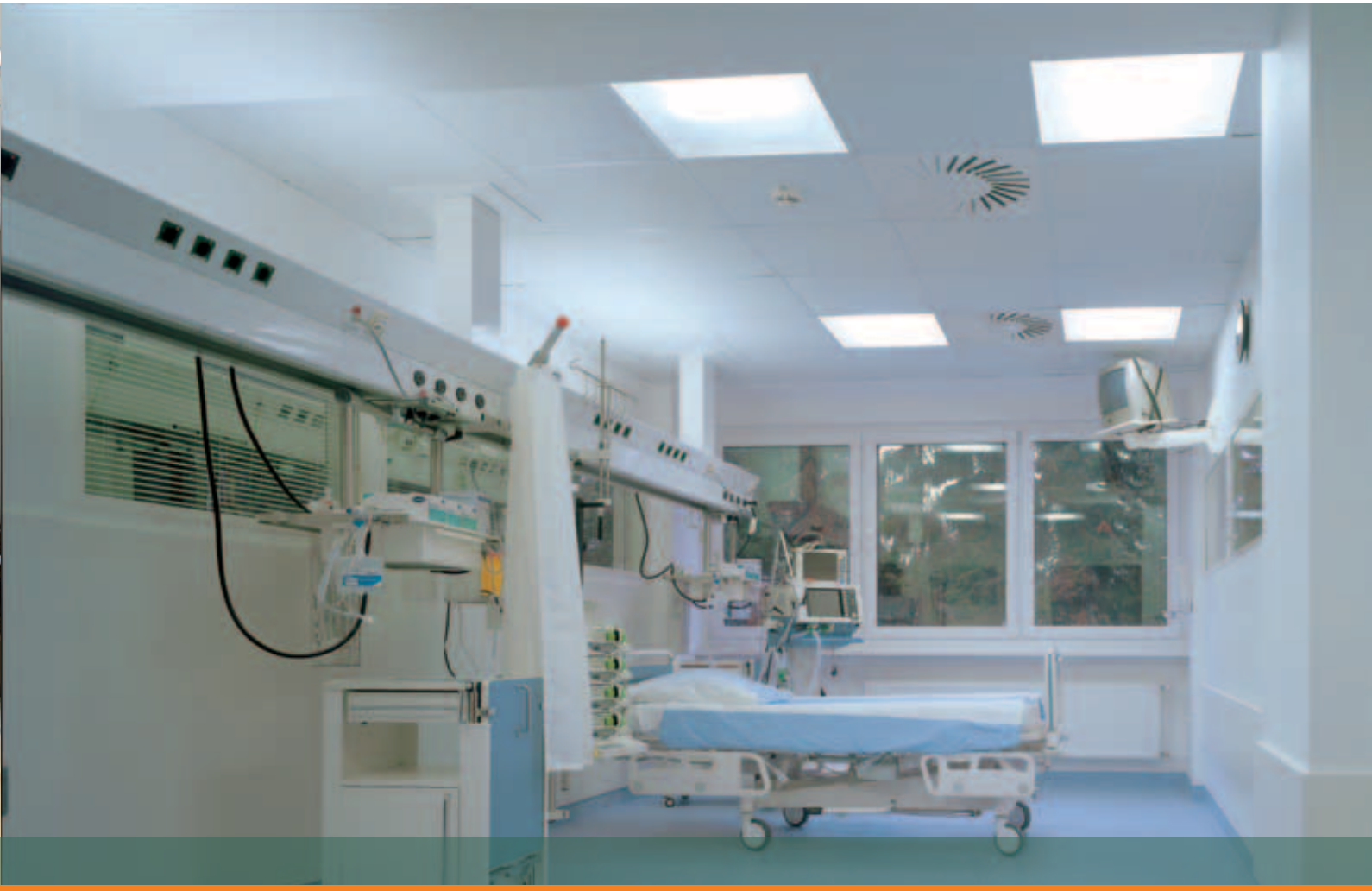
Die Stellungnahme ist gültig bis zum 11.04.2014.

Aachen, 13.04.2012

Dr.-Ing. H. J. Ettinger
(Prüfsachverständiger)

Frederik Stolz
(BoA)

AMF Hygena ceiling tiles have been specifically developed to resist against bacteria and fungi.
The anti-bacterial and anti-fungal treatment of the tile prevents the uninhibited growth of micro-organisms making THERMATEX Hygena an ideal solution for use in hospitals, clinics, surgeries, laboratories and pharmaceutical facilities.
Hygena is available as an option on all THERMATEX surface patterns and is particularly effective in combination with all plain surface tiles including THERMATEX Plain and THERMATEX Alpha.



Determination of the resistance to a variety of fungi, bacteria and yeast strains in accordance with the ASTM G21/G22 standard.

The images show very clearly the effectiveness of the test specimens treated with Hygena finish and proves that the Hygena treatment provides resistance to both bacterial and fungal attack.

E. coli (Inhibited)

Bacillus subtilis (Inhibited)

S. epidermidis (Inhibited)

HUMIDITY RESISTANCE

Air humidity

Humidity

Humidity has a significant influence on the stability and structure of a mineral ceiling and therefore its longevity. High levels of humidity could lead to a loss of dimensional stability and deformation. The amount of water vapor air can hold is dependent on temperature.

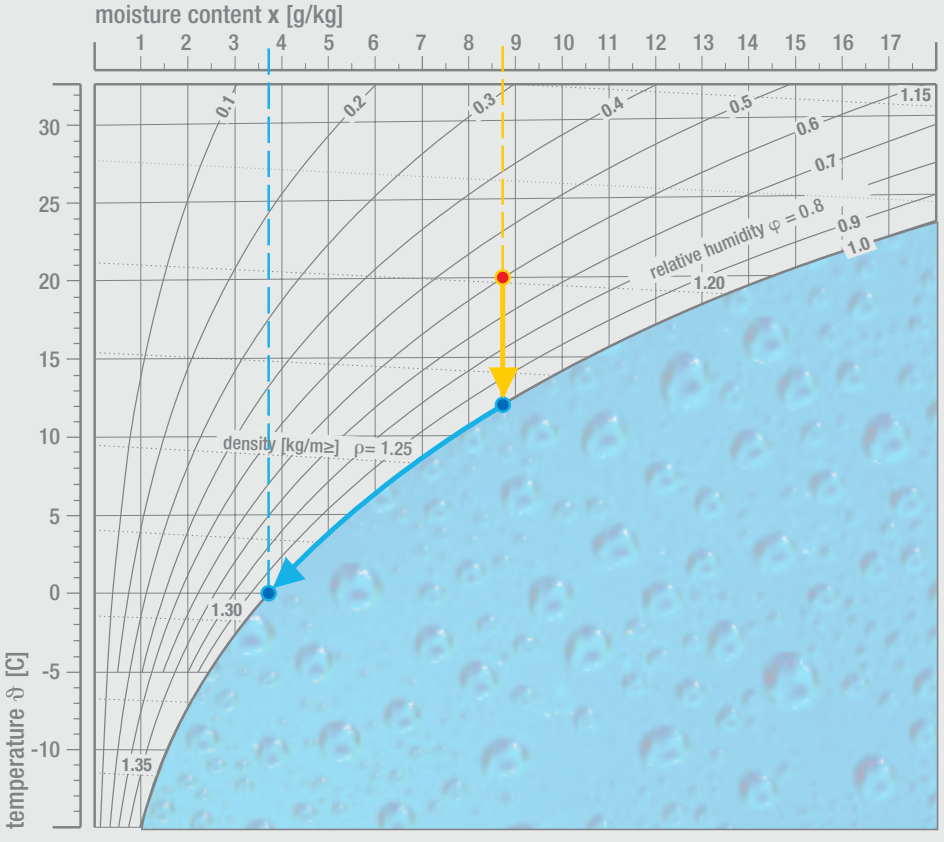
Example with 1 bar air pressure

At 20°C the total absorption capacity of air is approximately 14.7g/kg. If instead, an actual water content was 8.7g/kg, this would result in a relative humidity of 60%. If this air were then cooled, the water content does not change, however the absorption capacity of the air reduces. As a consequence the relative humidity increases to an extent, that at approximately 12°C, saturation is reached, beyond which no more water vapour can be absorbed (this is also called the dew point). By further cooling, the excess water vapour condenses and leads to water droplet formation.
Air at 0°C, can in comparison only absorb a maximum of 3.7g/kg water until it reaches saturation.

ϑ = 20°C	x = 14.7g/kg	φ = 100%
ϑ = 20°C	x = 8.7g/kg	φ = 60%
ϑ = 0°C	x = 3.8g/kg	φ = 100%

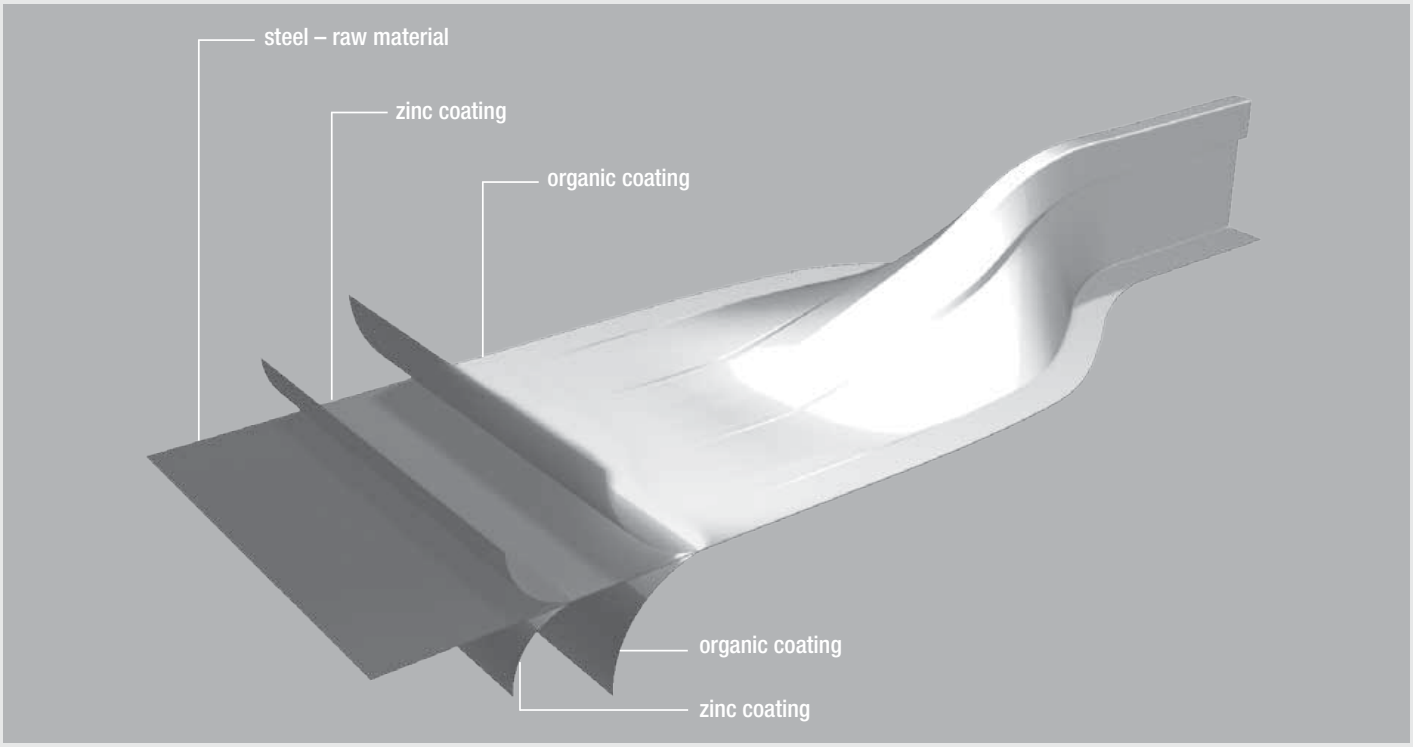
If unsuitable materials are used in areas with increased humidity, it can lead in many cases to adverse visual effects or even structural damage.

THERMATEX Aquatec can be used under these conditions without any problems.



Corrosion resistant grid

When installing THERMATEX Aquatec in rooms with increased humidity (above 90% RH or corrosive pollutants), a special grid with enhanced protection against corrosion should be used.



Exposure classes according to EN 13964

CLASS	CONDITIONS	APPLICATION EXAMPLES	RECOMMENDED SUBSTRUCTURE
A	Building components exposed to varying relative humidity up to 70% and varying temperature up to 25°C, but without corrosive pollutants.	Offices, shops, schools, hotels, sports halls, storage areas	Conventional grid system e.g. ***VENTATEC***
B	Building components exposed to varying relative humidity up to 90% and varying temperature up to 30°C, but without corrosive pollutants.		
C	Building components exposed to varying relative humidity up to 95% and varying temperature up to 30°C and accompanied by a risk of condensation.	Shower rooms, food production (e.g. dairies, breweries…), laundries	Grid system with corrosion protection
D	More severe than the above.	Swimming pools, chemical plants	

CLEANABILITY AND CHEMICAL RESISTANCE

Chemical Resistance

The AMF ceiling tile THERMATEX Thermaclean S was tested for surface resistance to chemicals (cleanability) from cleaning, process and disinfection reagents in accordance with the DIN 53168 test procedure A.
The disinfectants were selected to include all basic types of chemical compounds found within disinfectants.
The following substances were tested:

Reagents:
- Formalin
- Ethanol
- Isopropanol
- Ultrapure water
- Hydrogen peroxide
- Hydrochloric Acid (5%)
- Sodium hydroxide

Cleaning agents:
- Elma Clean 100
- Puranal
- Microbac Forte

Please contact us for information regarding any other particular cleaning agents (see contact details at back of catalogue)

The material was exposed to the disinfectants for the following time periods:
- constantly, for a period of 60 minutes
- constantly, for a period of 20 hours
- repeated at short intervals (similar as would be in practice)

After the given exposure times, the surface was washed off with water, dried and then assessed.

Result:
THERMATEX Thermaclean S is resistant to the chemicals tested.

Cleaning options

Dry cleaning
- with a soft cloth, soft brush or vacuum cleaner

Damp cleaning
- with a well wrung-out cloth or sponge
  You should ensure that the edges and the reverse sides of the tiles do not come into contact with humidity.
  Following cleaning, the surface should be dried with a soft cloth.

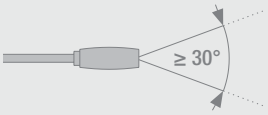
Wet cleaning
- with lukewarm water (up to 40°C), a sponge and mild cleaning agent (pH value between 7 and 9)

The ceiling tile THERMATEX Thermaclean S it is also resistant to the following cleaning agents:
- Elma Clean 100
- Puranal
- Ethanol
- Specialist mild cleaning agents

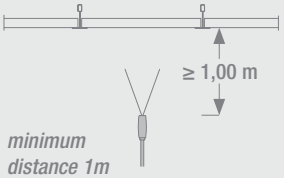
Pressure cleaning
- THERMATEX Aquatec can be cleaned weekly with a high pressure cleaner. The entire ceiling should be cleaned at the same time and the surface must be dried after cleaning. Pressure cleaning is only possible for ceilings installed on exposed grid (SK edge detail) and with a corrosion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

max. 40°

max. working pressure 80 bar



spray angle at least 30°



minimum distance 1m

Cleaning guidelines and installation instructions should be adhered to.

Plattentypen

Nicht alle MF-Oberflächen eignen sich für z.B. Nassreinigung oder Hochdruckreinigung. Die geeigneten Reinigungsmaßnahmen sind nachstehender Tabelle zu entnehmen:

AMF Surface finish	Type of cleaning				Cleaning cycle
	dry	damp	wet	pressure	
THERMATEX plain - e.g. Schlicht, Laguna	✓	✓			daily
THERMATEX structured - e.g. Fine Stratos micro, Star	✓	✓			daily
THERMATEX perforated - e.g. Mercure, Fresko	✓	✓			daily
THERMATEX Symetra	✓	✓			daily
Fleece-coated e.g. THERMATEX Alpha, Thermofon	✓	✓			daily
Metall / Kombimetall perforated	✓	✓			daily
Metall / Kombimetall plain	✓	✓	✓		once a week
THERMATEX Thermaclean S	✓	✓	✓		once a week
THERMATEX Aquatec	✓	✓	✓	✓	once a week

ACOUSTICS IN HYGIENE AREAS

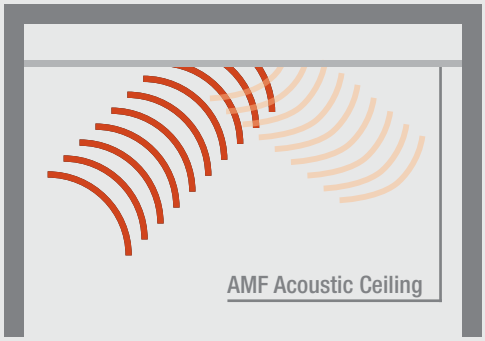
In healthcare facilities, the acoustics need to be considered alongside the hygiene aspects. The acoustic quality is determined by the physical location of the building, the construction and the internal finishes including the ceilings. Comfortable room acoustics can contribute to the healing process this is recognized in several standards including HTM 08-01.
Optimum noise control is also important for those working in busy hospitals, nursing homes and laboratories, too much noise can disturb concentration and even lead to symptoms of illness.

Studies show, that patients and staff in intensive care units can experience a feeling of disruption when exposed to noise arising from monitoring systems, background conversations and corridor noise.

The products within the THERMATEX Acoustic Range, with their smooth, white surface finish, are particularly suited for use in healthcare facilities and are available with the Hygena finish.

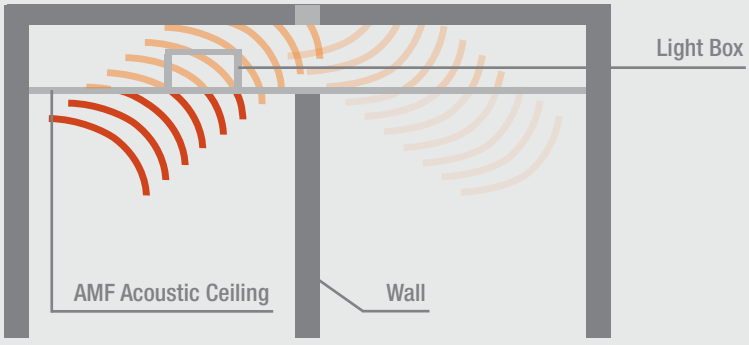
Sound absorption

The acoustic performance within a room is controlled by several factors including the loudness of noise sources, the room construction, room size, room shape and the internal finishes.
Acoustically absorbent materials - including people and materials within the room can absorb sound which then reduces reverberation times and noise levels.
Put simply, sound absorbent finishes produce a quieter and more comfortable environment. Due to the hygiene requirements of healthcare environments there are very few finishes that can meet both the hygiene requirements and provide sound absorption, this means suspended ceilings are an ideal finish for many healthcare situations.



Sound attenuation

In a situation where two rooms are separated by wall that stops at the ceiling height, the suspended ceiling is the only barrier to the sound.
AMF ceilings have products that can provide up to 44 dB of sound attenuation whilst also providing high levels of sound absorption.



AMF HEALTHCARE SOLUTIONS

AMF ceilings have developed a number of products that are ideal for use in a variety of healthcare environments. The range includes products that are certified for use in Clean rooms up to ISO Class 4 and products that can be supplied with the Hygena anti-bacterial and anti-fungal treatment. The range also includes products with outstanding acoustic performance, resistance to chemical cleaning and high humidity. This means that AMF can provide ideal solutions for most areas in hospitals, care homes, laboratories and other healthcare environments.

AMF mineral suspended ceilings are manufactured from mineral wool, clay, starch and perlite using a state of the art wet-felt process, this provides an extremely high performance product.
The mineral board is then finished in different ways to meet different performance requirements. For example the products can be perforated, painted, fleece covered or used as a core in a steel panel. This means that the AMF performance ceilings can provide high sound absorption, sound insulation and sound attenuation together with excellent fire resistance and handling properties .

THERMATEX	Aquatec (thickness 19 mm)	Thermaclean S (thickness 15 mm)	Alpha ONE Hygena (thickness 24 mm)	Alpha Hygena (thickness 19 mm)	Silence Hygena (thickness 43 mm)	Thermofon Hygena (thickness 15 mm)	Acoustic Hygena (thickness 19 mm)	Schlicht Hygena (thickness 15 mm)	Kombimetall plain (thickness 21 mm)	Kombimetall perforated (thickness 21 mm)
Antimicrobial equipment	HYGENA	BIOPRUF	HYGENA	HYGENA	HYGENA	HYGENA	HYGENA	HYGENA		
Clean Room classificaton	ISO 3	ISO 3	ISO 4	ISO 4		ISO 6	ISO 4	ISO 4*	ISO 6*	
Cleanability	Pressure cleaning	wet washable	damp washable	damp washable	damp washable	damp washable	damp washable	damp washable	wet washable	damp washable
Chemical Resistance							yes, tested			
Humidity resistance	100% RH	95% RH	95% RH	95% RH	95% RH	95% RH	95% RH	95% RH	90% RH**	90% RH**
Sound Absorption	α_w = 0,90 *NRC* = 0,90	on request	α_w = 1,00 *NRC* = 1,00	α_w = 0,95 *NRC* = 0,90	α_w = 0,85 (H) *NRC* = 0,90	α_w = 0,80 (H) *NRC* = 0,85	α_w = 0,65(H) *NRC* = 0,70	α_w = 0,10 (L) *NRC* = 0,10	α_w = 0,25 (L) *NRC* = 0,25	α_w = 0,65 (H) *NRC* = 0,70
Sound attenuation	28 dB	34 dB	29 dB	28 dB	44 dB	28 dB	38-40 dB	34 dB	42 dB	42 dB
Fire reaction and resistance	A2-s1,d0	A2-s3,d0 REI30 - REI120	A2-s1,d0	A2-s1,d0 REI30 - REI90	A2-s1,d0	A2-s1,d0	A2-s1,d0 REI30 - REI120	A2-s1,d0 REI30 - REI120	A2-s1,d0 F30 - F120	A2-s1,d0 F30 - F120

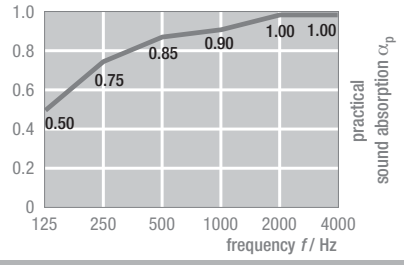
Hygienic properties	
Clean room certification	ISO 3 as per ISO 14644-1 (according test report)
Anti-microbiological treatment	**Hygena**
Cleanability	Pressure cleaning
Chemical resistance	100% RH

NEW FROM AMF

THERMATEX Aquatec

SYSTEM	C	Exposed system, demountable ceiling *1
	A	Concealed system, panels demountable AW/GN / not demountable GN *1
Building material class		A2-s1,d0 as per EN 13501-1
Sound absorption		as per EN ISO 354
Sound attenuation		$D_{n,f,w}$= 28 dB as per EN 10848 (under test conditions)
Humidity		up to 100% RH
Light reflectance		up to c. 88%
Thermal conductivity		λ = 0.040 W/mK as per EN 12667
Dimensions		For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight		19 mm (c. 4.7 kg/m²)
Colours		white similar to RAL 9010

Sound absorption
Value for
THERMATEX Aquatec
19 mm
α_w = 0.90
as per EN ISO 11654
NRC = 0.90
as per ASTM C 423
extremely absorbing



Hygienic properties	
Clean room certification	ISO 3 as per ISO 14644-1 (according test report)
Anti-microbiological treatment	**Biopruf**
Cleanability	wet washable
Chemical resistance	Yes (for more details please see test certificate)

THERMATEX Thermaclean S

SYSTEM	C	Exposed system, demountable ceiling *1
Building material class		A2-s3,d0 as per EN 13501-1
Fire protection		REI30 - REI120 as per EN 13501 part 2 up to 60 minutes as per BS 476: parts 20-23 (under test conditions)
Sound absorption		as per EN ISO 354, values on request
Sound attenuation		$D_{n,c,w}$= 34 dB as per EN 20140-9 (15 mm thickness, under test conditions)
Humidity		up to 95% RH
Light reflectance		up to c. 81%
Thermal conductivity		λ = 0.052-0.057 W/mK as per DIN 52612
Dimensions		For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight		15 mm (c. 4.5 kg/m²) / 19 mm (c. 5.7 kg/m²)
Colours		white similar to RAL 9010

*1 For details please see systems solutions. With regards to technical data please see important notice on page 48.

AMF HEALTHCARE SOLUTIONS

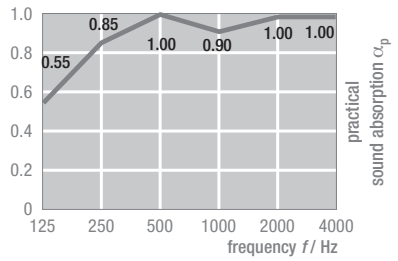
Hygienic properties
Clean room certification — ISO 4 as per ISO 14644-1 (according test report)
Anti-microbiological treatment — **Hygena**
Cleanability — damp washable

THERMATEX Alpha ONE Hygena

SYSTEM — C — Exposed system, demountable ceiling *1

Building material class — A2-s1,d0 as per EN 13501-1
Sound absorption — as per EN ISO 354
Sound attenuation — $D_{n,f,w}$= 29 dB as per EN 10848 (under test conditions)
Humidity — up to 95% RH
Light reflectance — up to c. 88%
Thermal conductivity — λ = 0.040 W/mK as per EN 12667
Dimensions — For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight — 24 mm (c. 3.8 kg/m²)
Colours — white similar to RAL 9010

Sound absorption
Value for
THERMATEX Alpha ONE Hygena
24 mm
α_w = 1.00
as per EN ISO 11654
NRC = 1.00
as per ASTM C 423
extremely absorbing



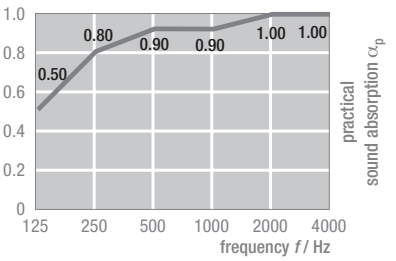
Hygienic properties
Clean room certification — ISO 4 as per ISO 14644-1 (according test report)
Anti-microbiological treatment — **Hygena**
Cleanability — damp washable

THERMATEX Alpha Hygena

SYSTEM — C — Exposed system, demountable ceiling *1

Building material class — A2-s1,d0 as per EN 13501-1
Fire protection — REI30 - REI90 as per EN 13501 part 2 up to 60 minutes as per BS 476: parts 20-23 (under test conditions)
Sound absorption — as per EN ISO 354
Sound attenuation — $D_{n,f,w}$= 28 dB as per EN 10848 (under test conditions)
Humidity — up to 95% RH
Light reflectance — up to c. 88%
Thermal conductivity — λ = 0.040 W/mK as per EN 12667
Dimensions — For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight — 19 mm (c. 3.0 kg/m²)
Colours — white similar to RAL 9010

Sound absorption
Value for
THERMATEX Alpha Hygena
19 mm
α_w = 0.95
as per EN ISO 11654
NRC = 0.90
as per ASTM C 423
extremely absorbing



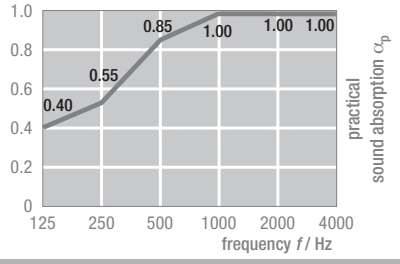
*1 For details please see systems solutions. With regards to technical data please see important notice on page 48.

Hygienic properties
Anti-microbiological treatment — **Hygena**
Cleanability — damp washable

THERMATEX Silence Hygena

SYSTEM	C	Exposed system, demountable ceiling *1
Building material class		A2-s1,d0 as per EN 13501-1
Sound absorption		as per EN ISO 354
Sound attenuation		$D_{n,f,w}$= 44 dB as per EN 10848 (under test conditions)
Humidity		up to 95% RH
Light reflectance		up to c. 88%
Thermal conductivity		λ = 0.052 - 0.057 W/mK as per DIN 52612
Dimensions		For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight		43 mm (c. 10.8 kg/m²)
Colours		white similar to RAL 9010

Sound absorption
Value for
THERMATEX
Silence Hygena
43 mm
α_w = 0.85 (H)
as per EN ISO 11654
NRC = 0.90
as per ASTM C 423
extremely absorbing

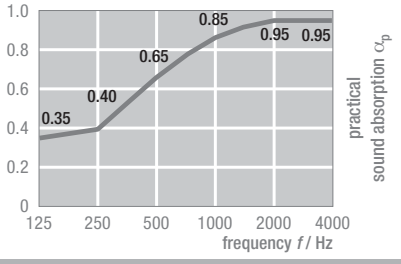


Hygienic properties
Clean room certification — ISO 4 as per ISO 14644-1 (according test report)
Anti-microbiological treatment — **Hygena**
Cleanability — damp washable

THERMATEX Acoustic Hygena

SYSTEM	C	Exposed system, demountable ceiling *1
	F	Free span system with exposed or concealed suspension *1
	I	Bandraster system, concealed cross sections *1
	A	Concealed system, panels demountable AW/GN / not demountable GN *1
Building material class		A2-s1,d0 as per EN 13501-1
Fire protection		REI30 - REI120 as per EN 13501 part 2 up to 60 minutes as per BS 476: parts 20-23 (under test conditions)
Sound absorption		as per EN ISO 354
Sound attenuation		$D_{n,c,w}$= 38-40 dB as per EN 20140-9 (under test conditions)
Humidity		up to 95% RH
Light reflectance		up to c. 88%
Thermal conductivity		λ = 0.052 - 0.057 W/mK as per DIN 52612
Dimensions		For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight		19 mm (c. 4.6 kg/m²)
Colours		white similar to RAL 9010

Sound absorption
Value for
THERMATEX
Acoustic Hygena
19 mm
α_w = 0.65 (H)
as per EN ISO 11654
NRC = 0.70
as per ASTM C 423
highly absorbing



*1 For details please see systems solutions. With regards to technical data please see important notice on page 48.

AMF HEALTHCARE SOLUTIONS

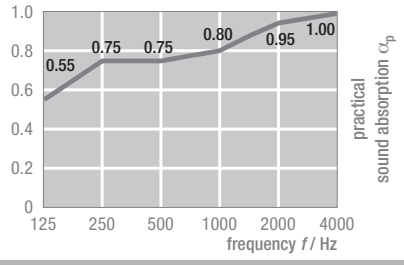
Hygienic properties

Clean room certification	■	ISO 6 as per ISO 14644-1 (according test report)
Anti-microbiological treatment	■	**Hygena**
Cleanability	■	damp washable

THERMATEX Thermofon Hygena

SYSTEM	C	Exposed system, demountable ceiling *1
Building material class	■	A2-s1,d0 as per EN 13501-1
Sound absorption	■	as per EN ISO 354
Sound attenuation	■	$D_{n,c,w}$= 28 dB as per EN 20140-9 (under test conditions)
Humidity	■	up to 95% RH
Light reflectance	■	up to c. 88%
Thermal conductivity	■	λ = 0.038 W/mK as per EN 12667
Dimensions	■	For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight	■	15 mm (c. 2.4 kg/m²)
Colours	■	white similar to RAL 9010

Sound absorption
Value for
THERMATEX
Thermofon Hygena
α_w = 0.80 (H)
as per EN ISO 11654
NRC = 0.85
as per ASTM C 423
extremely absorbing



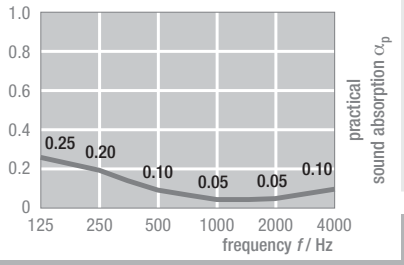
Hygienic properties

Clean room certification	■	ISO 4 as per ISO 14644-1 (according test report)
Anti-microbiological treatment	■	**Hygena**
Cleanability	■	damp washable

THERMATEX Schlicht Hygena

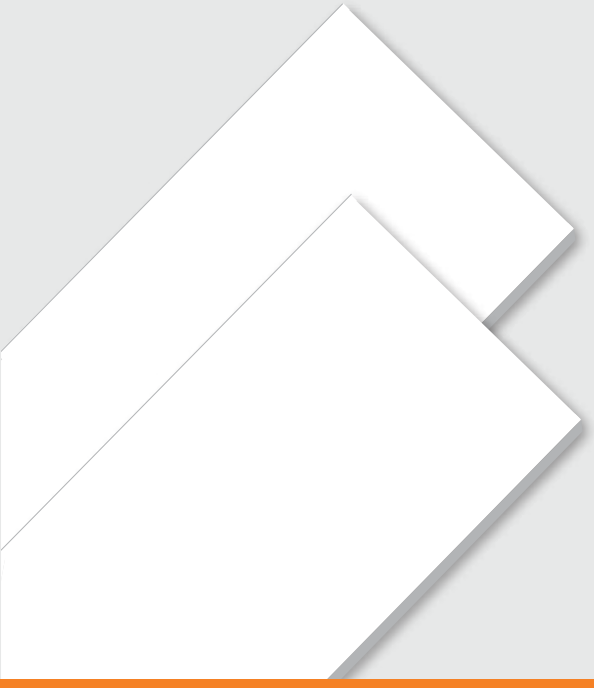
SYSTEM	C	Exposed system, demountable ceiling *1
	F	Free span system with exposed or concealed suspension *1
	I	Bandraster system, concealed cross sections *1
	A	Concealed system, panels demountable AW/GN / not demountable GN *1
Building material class	■	A2-s1,d0 as per EN 13501-1
Fire protection	■	REI30 - REI120 as per EN 13501 part 2 up to 60 minutes as per BS 476: parts 20-23 (under test conditions)
Sound absorption	■	as per EN ISO 354
Sound attenuation	■	$D_{n,c,w}$= 34 dB as per EN 20140-9 (15 mm thickness, under test conditions)
Humidity	■	up to 95% RH
Light reflectance	■	up to c. 92%
Thermal conductivity	■	λ = 0.052 - 0.057 W/mK as per DIN 52612
Dimensions	■	For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight	■	15 mm (c. 4.5 kg/m²) / 19 mm (c. 5.7kg/m²)
Colours	■	white similar to RAL 9010

Sound absorption
Value for
THERMATEX
Schlicht Hygena
α_w = 0.10 (L)
as per EN ISO 11654
NRC = 0.10
as per ASTM C 423
reflecting



*1 For details please see systems solutions. With regards to technical data please see important notice on page 48.

Hygienic properties	
Clean room certification	ISO 6 as per ISO 14644-1 (according test report)
Anti-microbiological treatment	**Hygena**
Cleanability	wet washable

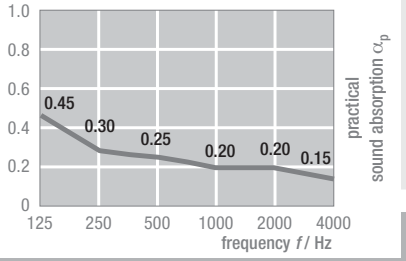


THERMATEX Kombimetall plain

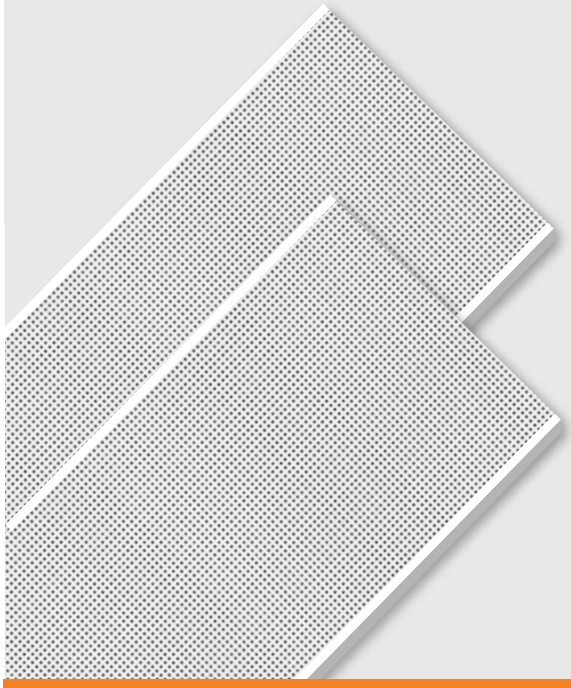
SYSTEM	F Free span system with exposed or concealed suspension *1
	I Bandraster system, concealed cross sections *1
Building material class	A2-s1,d0 as per EN 13501-1
Fire protection	F30 - F120 as per DIN 4102 part 2 (under test conditions)
Sound absorption	as per EN ISO 354
Sound attenuation	$D_{n,c,w}$= 42 dB as per EN 20140-9 (planks, under test conditions)
Humidity	up to 90% RH (for varying humidity, up to 30°C)
Dimensions	For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight	21 mm (c. 9.5 kg/m²) for planks
Colours	white similar to RAL 9010

Sound absorption

Value for **THERMATEX Kombimetall plain**
α_w = 0.25 (L)
as per EN ISO 11654
NRC = 0.25
as per ASTM C 423
low absorbing



Hygienic properties	
Cleanability	damp washable

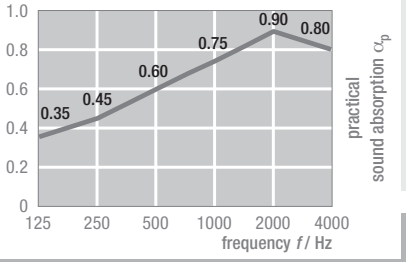


THERMATEX Kombimetall perforated

SYSTEM	F Free span system with exposed or concealed suspension *1
	I Bandraster system, concealed cross sections *1
Building material class	A2-s1,d0 as per EN 13501-1
Fire protection	F30 - F120 as per DIN 4102 part 2 (under test conditions)
Sound absorption	as per EN ISO 354
Sound attenuation	$D_{n,c,w}$= 42 dB as per EN 20140-9 (planks, under test conditions)
Humidity	up to 90% RH (for varying humidity, up to 30°C)
Dimensions	For sizes as well as supply categories please consult the price list or www.amfceilings.com
Thickness / weight	21 mm (c. 9.5 kg/m²) for planks
Colours	white similar to RAL 9010

Sound absorption

Value for **THERMATEX Kombimetall 2.0 mm**
α_w = 0.65 (H)
as per EN ISO 11654
NRC = 0.70
as per ASTM C 423
highly absorbing



*1 For details please see systems solutions. With regards to technical data please see important notice on page 48.

VENTATEC
... bear and square!

MADE IN GERMANY

You have the choice -
Choose the design that meets your requirements

VENTATEC combines the highest quality with flexibility in construction and logistics, to save you time and money.

Precision manufactured using state of the art machinery and top quality materials, to ensure that the grid has a consistently high quality.

As a full system manufacturer, we provide both ceiling tiles and supporting grid.

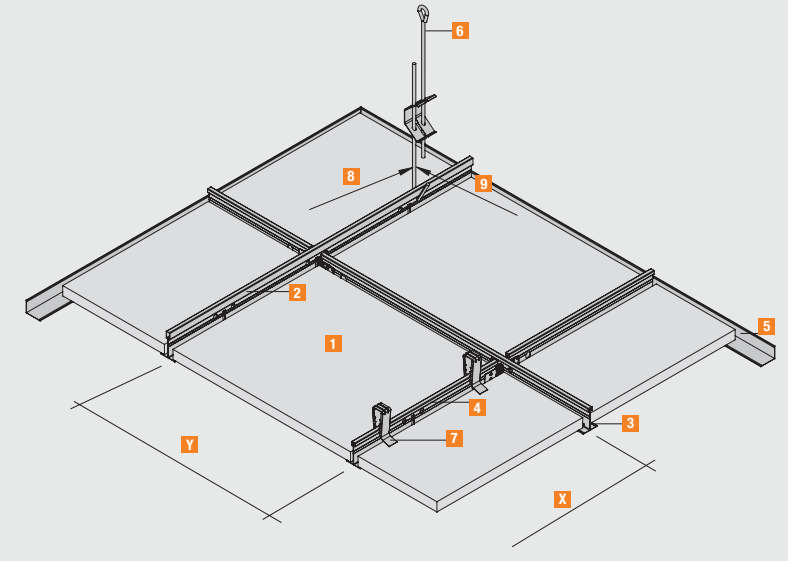
- from a single source
- with the highest possible combined technical performance
- to optimise logistics

- Technical advantages
  - Quality System „Made in Germany“
  - Highly stability due to stitching and ribbing on grid sections
  - Strong and stable connection between main runner and cross tee with stainless steel connector
- Benefits for installation
  - Easy to handle and simple to install
  - Click-System - audible click confirms secure connection
  - Both hook and click systems have been engineered to be simple and easy to remove

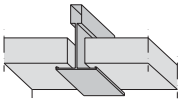
Quality for all applications – feel it, see it, hear it

If you like to get more information about our new exposed grid system please have a look on our website www.amfceilings.com or contact us to receive a brochure.

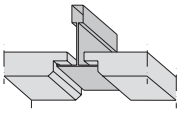
SYSTEM C Exposed Grid



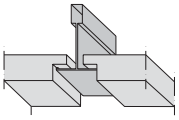
Edge details



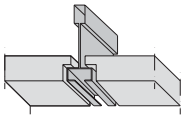
SK



VT 15 / 24



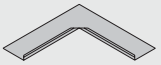
VT - S15 / 24



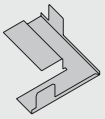
VT - S15F

Accessories

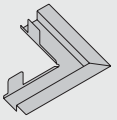
JS - 15
Outer mitre for RWL 24 / 24



JS - 17
Inner mitre for RWL 24 / 24

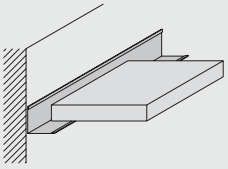


JS - 24
Outer mitre for SRW 25 / 15 / 8 / 15

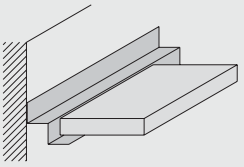


JS - 28
Inner mitre for SRW 25 / 15 / 8 / 15

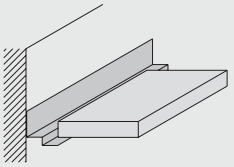
Other wall angles and accessories are available on request.



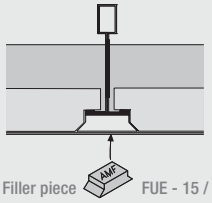
Wall angle RWL 24 / 24



Shadow trim SRW 20 / 20 / 20 / 20



Shadow trim SRW 25 / 15 / 8 / 15



VT Filler piece FUE - 15 / 24

Exposed System

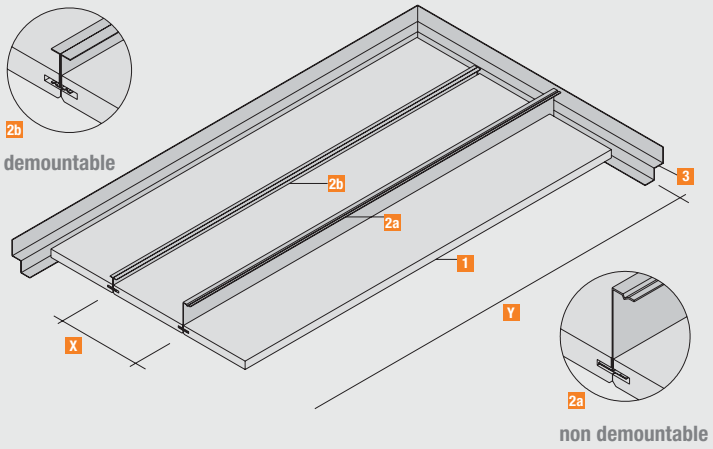
Wall angle

Grid sizes in mm	Y / X		600 x 600	625 x 625	600 x 1200	625 x 1250	300 x 1200	312.5 x 1250	400 x 1200
AMF-Mineral ceiling panels	1	pcs	2.78	2.56	1.39	1.28	2.78	2.56	2.09
VENTATEC T-Main runner T24/38-3600 or 3750	2	lin.m	0.84	0.80	0.84	0.80	0.84	0.80	0.84
VENTATEC T-Cross Tee T24/33 -1200 or 1250	3	lin.m	1.67	1.60	1.67	1.60	3.34	3.20	2.50
VENTATEC T-Cross Tee T24/33 -600 or 625	4	lin.m	0.84	0.80	-	-	-	-	-
RWL perimeter trim	5	lin.m	0.60	0.60	0.60	0.60	0.60	0.60	0.60
SoS hanger or alternatives	6	pcs	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Locking hold down clip (optional)	7	pcs	5.56	5.12	2.78	2.56	5.56	5.12	4.16
Distance between hangers	8	m	1.25	1.20	1.25	1.20	1.25	1.20	1.25
Distance between main runners	9	m	1.20	1.25	1.20	1.25	1.20	1.25	1.20

SK: square edge, VT: recessed, GN: concealed, AW: shiplap. For installation guidelines please see page 48.
For further tile sizes please see the price list. Additional accessories are also itemised in the price list.

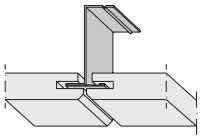
System C uses the popular exposed suspension grid. Square edged (SK) ceiling panels are laid into the grid and give a flush visual appearance. Tiles with recessed edges (VT) provide a choice of design options with both 24 and 15 mm wide tee sections. System C is quick and easy to install and allows simple access for maintenance to the ceiling void.

Free Span Type F1



Edge Details

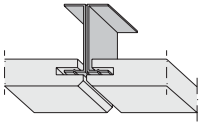
non- demountable



Z section, long edge concealed GN

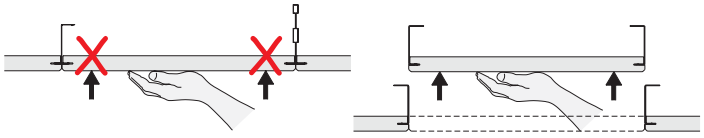
Short edge square SK | Short edge recessed VT

demountable



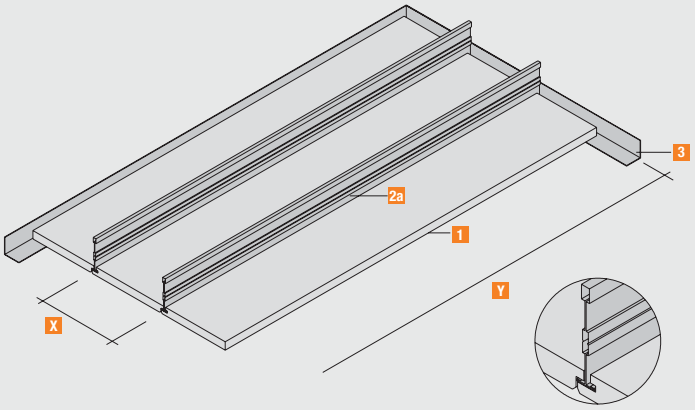
Alternative: C section, long edge concealed GN

Short edge square SK | Short edge recessed VT

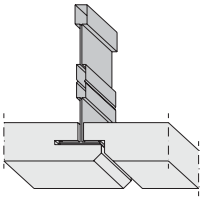


Long edge concealed GN / short edge square SK or recessed VT demountable / non-accessible

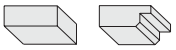
Free Span Type F2



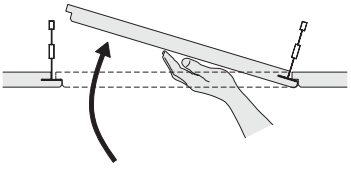
Edge Details



T section, long edge recessed SK



Short edge square SK | Short edge (optional) recessed VT



Long edge shiplap AW / short edge square SK or recessed VT demountable

Grid size in mm	Y / X		300 x 1600	300 x 1800	300 x 2000	300 x 2500	312.5 x 1600	312.5 x 1800	312.5 x 2000	312.5 x 2500	400 x 1600	400 x 1800	400 x 2000	400 x 2500
AMF-Mineral panel	1	pcs	2.08	1.85	1.67	1.34	2.00	1.78	1.60	1.28	1.56	1.39	1.25	1.00
Main runner PQT and PQZ for types F1. F2. F3	2a	lin.m	3.34	3.34	3.34	3.34	3.20	3.20	3.20	3.20	2.50	2.50	2.50	2.50
Alternative main runner PQU for type F1	2b	lin.m	6.68	6.68	6.68	6.68	6.40	6.40	6.40	6.40	5.00	5.00	5.00	5.00
Wall angle	3	lin.m	1.50	1.33	1.20	0.96	1.50	1.33	1.20	0.96	1.50	1.33	1.20	0.96

To choose the correct long edge section for the panel size, please consult the profile span table.
The table is applicable to construction types F1 to F3.

SK: square edge, VT: recessed, GN: concealed, AW: shiplap. For installation guidelines please see page 48.
For further tile sizes please see the price list. Additional accessories are also itemised in the price list.

System F, free span system can span 2.5 m, making it the ideal solution for corridors. The system requires no hangers, the tiles and supporting grid are simply supported on both sides on the perimeter trim. This makes system F fast and efficient to install and maintain. The system provides an clean homogenous appearance particularly when using AW/SK edge detail which has a concealed joint between the tiles, the ceiling tiles and supporting structure are also fully demountable making the ceiling void completely accessible.

ADDITIONAL REQUIREMENTS

Fire Protection

In addition to the hygiene performance, fire protection also plays a significant role in healthcare facilities. Patients' rooms and the adjacent corridors need to be protected as escape routes.

The independent fire protection ceilings

- **F30 Uno / + Metal**
- **F30 Dual + Metal**
- **F30 Mono**

offer very high levels of safety and functionality, are maintenance friendly and offer good acoustic performance along with pleasing aesthetics.

These independent systems provide both protection for people against fire in the ceiling void and also protection for services in the ceiling void in case of fire in the corridor for at least 30 minutes. In addition, AMF independent fire protection ceilings are also tested for smoke density and therefore offer a substantially higher level of fire protection.

SYSTEM F30 Uno

The biggest advantage of System F30 Uno is its fire protection capacity from above and below. When a fire attack occurs from above, i.e. from the ceiling void, the lifesaving escape routes remain free of smoke and heat. When a fire attack occurs from below, the services in the ceiling void are protected.

AVAILABLE FORMATS

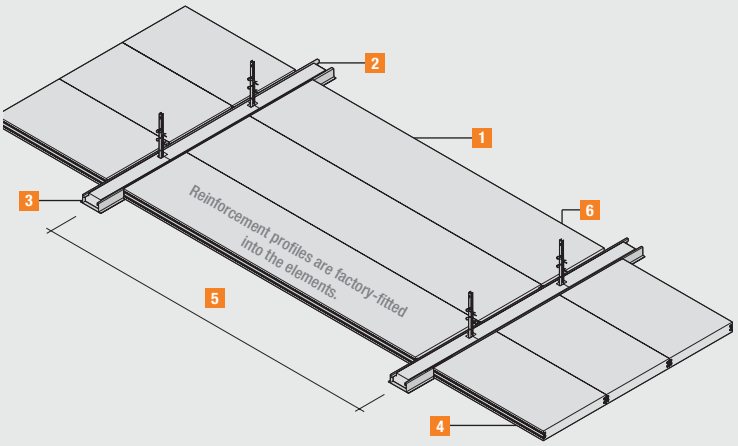
- **600 x 1400 mm**
- **300 x 1800 mm, further formats available on request**

AVAILABLE SURFACE PATTERNS

THERMATEX

- **Fine Stratos**
- **Fine Stratos micro perforated**
- **Star**
- **Metal in white similar to RAL 9010, plain**
- **Metal in white similar to RAL 9010, perforated**

For further information regarding surfaces please refer to the AMF programme brochures parts 1 and 2.



1. 300 x 1800 x 40 mm Uno element
2. 40 mm THERMACOR panel
3. 50 or 100 mm bandraster
4. Reinforcement profile
5. Bandraster at 1882 mm centres
6. Nonius hangers every 700 mm

SK: square edge, VT: recessed, GN: concealed, AW: shiplap. For installation guidelines please see page 48.
For further tile sizes please see the price list. Additional accessories are also itemised in the price list.

AMF Soundmosaic

AMF Soundmosaic is a flat-panel (membrane) loudspeaker in a modular ceiling format, that works on the principle of wave conversion. The mineral tile itself acts as a loudspeaker and looks identical to the rest of the AMF ceiling. The resulting sound, for both speech and music, is of very high quality and offers significant advantages over conventional speakers.

AMF Soundmosaic is ideally suited for use in hospitals, care homes, rehabilitation clinics and other healthcare environments. For installation in corridors and rooms the AMF Soundmosaic can be operated with up to 80 watts for emergency announcements and signal tones without damaging the system. In contrast to conventional conical speakers, the AMF Soundmosaic speakers have no edges or gaps in which dust can collect. AMF Soundmosaic also requires no direct openings in the ceiling, maintaining its integrity for fire protection and acoustic properties.

Use the AMF Soundmosaic for a hygienic and aesthetically pleasing solution!

Beamex System

Modern media technology is now part of everyday life, even in hospitals. Projectors and screens are integrated into the suspended ceiling with remote control lift systems. This protects them from damage, theft or vandalism when not in use. When required, they are simply lowered and are immediately ready for use.

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Knauf AMF GmbH & Co. KG
Postal address: Postfach 1263, D-94476 Grafenau
Business address: Elsenthal 15, D-94481 Grafenau

Knauf AMF Headquarters Grafenau

Sales		Code +49
Central / Northern Sales Region		
(Germany, Austria, Switzerland, Scandinavia)		
Carsten Pohl	Mobilee:	(0) 170 - 8 31 52 75
Karl-Heinz Kuhn	Mobilee:	(0) 171 - 6 12 36 30
Eduard Schönberger	Tel.:	(0) 85 52 - 422 26
Roland Biebl	Tel.:	(0) 85 52 - 422 14
Thomas Moser	Tel.:	(0) 85 52 - 422 78
Sandra Stockinger	Tel.:	(0) 85 52 - 422 56
Michael Lentner	Tel.:	(0) 85 52 - 422 57
Anja Gutsmidl	Tel.:	(0) 85 52 - 422 972
Stefanie Weber	Tel.:	(0) 85 52 - 422 906
Western Sales Region		
(Western Europe, America, Middle East, Africa)		
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	Tel.:	(0) 85 52 - 422 982
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	Tel.:	(0) 85 52 - 422 54

Knauf AMF Technical Offices

Central / Northern Sales

Knauf AMF Germany		Code +49
Knauf AMF - Office Hamburg	Mobile:	(0) 171 - 617 30 83
	e-mail:	reimer.lars-eric@knaufamf.de
Knauf AMF - Office Bremen / Oldenburg	Mobile:	(0) 160 - 96 88 73 54
	e-mail:	seehafer.stefan@knaufamf.de
Knauf AMF - Office Hannover	Mobile:	(0) 170 - 438 59 71
	e-mail:	sprenger-pieper.antonius@knaufamf.de
Knauf AMF - Office Berlin	Mobile:	(0) 175 - 578 93 84
	e-mail:	bierhoff.martin@knaufamf.de
Knauf AMF - Office Düsseldorf	Mobile:	(0) 171 - 315 45 40
	e-mail:	schons.manuel@knaufamf.de
Knauf AMF - Office Dresden	Mobile:	(0) 171 - 23 58 300
	e-mail:	streubel.lars@knaufamf.de
Knauf AMF - Office Leipzig	Mobile:	(0) 171 - 612 03 36
	e-mail:	zenk.rainer@knaufamf.de
Knauf AMF - Office Frankfurt	Mobile:	(0) 171 - 612 03 53
	e-mail:	helfenbein.fridolin@knaufamf.de
Knauf AMF - Office Mannheim	Mobile:	(0) 171 - 30 22 652
	e-mail:	baehrle.ivo@knaufamf.de
Knauf AMF - Office Nürnberg	Mobile:	(0) 171 - 45 865 77
	e-mail:	veith.christian@knaufamf.de
Knauf AMF - Office Karlsruhe	Mobile:	(0) 171 - 613 36 49
	e-mail:	lemler.stefan@knaufamf.de
Knauf AMF - Office Stuttgart	Mobile:	(0) 160 - 90 98 6463
	e-mail:	kaufmann.marcus@knaufamf.de
Knauf AMF - Office München	Mobile:	(0) 151 - 17 41 05 73
	e-mail:	jahnel.bernhard@knaufamf.de

Knauf AMF Austria		Code +43
Knauf AMF - Office Austria	Mobile:	(0) 664 - 344 53 50
	e-mail:	schiffauer.norbert@knaufamf.at

Western Sales

Knauf AMF Belgium / Luxembourg		Code +32
Knauf AMF Plafonds bvba	Tel.:	(0) 3 - 887 85 48
Antwerpsesteenweg 124	Fax:	(0) 3 - 887 95 12
B- 2630 Aartselaar/België	e-mail:	infobenelux@knaufamf.com
	web:	www.amfceilings.com

Knauf AMF Netherlands		Code +31
Knauf AMF Plafonds bvba	Tel.:	(0) 30 241 54 45
Mesonweg 8-12	Fax:	(0) 30 241 07 37
NL - 3542 AL Utrecht	e-mail:	info@knaufamf.nl
	web:	www.amfceilings.com

Knauf AMF Italy		Code +39
Knauf AMF	Tel.:	(0) 2 - 870 334 30
Italia Controsoffitti S.r.l.	Fax:	(0) 2 - 870 334 31
Via Morimondo, 26	e-mail:	amfitalia@knaufamf.it
20143 Milano	web:	www.knaufamf.it

Knauf AMF France		Code +33
Knauf AMF France SARL	Tel.:	(0) 1 - 646 760 80
Plafonds et Systèmes	Fax:	(0) 1 - 646 760 81
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Knauf AMF Hellas EPE	Tel.:	210 - 361 56 45
	Fax:	210 - 361 56 45
	e-mail:	sinodinos.aggelos@knaufamf.gr
	web:	www.amfceilings.com

Knauf AMF UK		Code +44
Knauf AMF Ceilings Ltd.	Tel.:	(0) 20 - 889 232 16
Thames House,	Fax:	(0) 20 - 889 268 66
6 Church Street,	e-mail:	info@knaufamf.co.uk
Twickenham,	web:	www.amfceilings.co.uk
Middlesex TW1 3NJ		

Knauf AMF Spain / Portugal		Code +34
Knauf AMF	Tel.:	91 - 541 34 20
Sistemas de Techos S.L.	Fax:	91 - 542 10 05
Gran Via 43, 2° A	e-mail:	info@knaufamf.es
E - 28013 Madrid	web:	www.amfceilings.com

Knauf AMF Middle East		Code +971
Knauf AMF Dubai	Tel.:	(4) 609 - 1805
Phase 5 East, A Block,	Fax:	(4) 609 - 1806
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Knauf AMF Turkey		Code +90
Knauf AMF Tavan Sistemleri	Mobile:	533 4308768
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No:17 K: 3 D: 13 Şişli/İstanbul		

Knauf AMF Iran		Code +98
Knauf AMF	Tel:	21 88 55 30 23
Valiye Asr Str., Nr. 3007	Fax:	21 88 70 44 26
Sepehr e Saee Building	e-mail:	miraliakbar.saeed@knaufamf.ir
8th Floor, Appt. 808	web:	www.amfceilings.com
Teheran		

Knauf AMF Brasil	Code +55
Knauf AMF Forros **Forros do Brasil Ltda.** Rua Princesa Isabel, 94 Sala 84 Brooklin Paulista - São Paulo-SP CEP 04621-000 - Brasil	Tel.: 11 3539 - 3930 Fax: 11 3539 - 3930 e-mail: info@knaufamf.com.br web: www.knaufamf.com.br

Knauf AMF Chile	Code +56
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Knauf AMF Algeria	Code +213
Knauf AMF BP N° 02, 31240 Boufatis - Oran	Tel.: 41 52 10 50 - 51 Fax: 41 52 14 62
02, Lot Ben Heddadi Said BP 16002 CHERAGA	Tel.: 21 36 87 00 Fax: 21 36 77 17 e-mail: mohamed.hocine@knaufalgerie.com web: www.knaufamfalgerie.com

Eastern Sales

Knauf AMF Czech Republic	Code +420
Knauf AMF s.r.o. Chlumčanského 5/497 CZ - 180 21 Praha 8	Tel.: 222 247 413 Tel.: 266 790 130 Fax: 222 246 981 Fax: 266 790 143 e-mail: info@knaufamf.cz e-mail: fitzner.petr@knaufamf.cz web: www.amf-cz.cz

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Knauf AMF s.r.o. P.O. BOX 53 SK - 018 41 Dubnica nad Váhom	Tel.: +420 266 790 130 Tel.: (0) 911 324 267 Fax: +420 222 246 981 Fax: +420 266 790 143 e-mail: surovy.tomas@knaufamf.com web: www.amf-cz.cz

Knauf AMF Poland	Code +48
Knauf AMF Sp.z.o.o. Al. Jerozolimskie 195b PL - 02-222 Warszawa	Tel.: (0) 22 - 873 40 85 Fax: (0) 22 - 873 40 86 e-mail: info@knaufamf.pl web: www.knaufamf.pl

Knauf AMF Latvia / Estonia	Code +371
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Knauf AMF Slowenia / Bosnia	Code +386
Knauf AMF d.o.o. Turnovše 44 SI - 1360 Vrhnika	Tel.: (0) 1 - 75 57 480 Fax: (0) 1 - 75 57 485 e-mail: gabrovsek.ales@knaufamf.com web: www.amfceilings.com

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Knauf AMF d.o.o. Bul.kralja Aleksandra 296/I SRB - 11000 Belgrad	Tel.: (0) 11 - 344 16 13 Fax: (0) 11 - 344 16 20 e-mail: popovic.dejan@knaufamf.com web: www.amfceilings.com

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Knauf AMF d.o.o. Tehnički ured Zagrebačka 119 HR - 10410 Velika Gorica	Tel.: (0) 1 - 626 37 89 Fax: (0) 1 - 626 37 90 e-mail: cvek.igor@knaufamf.com web: www.amfceilings.com

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Knauf AMF EOOD Universitetska Str. 2 BG - 1164 Sofia	Tel.: (0) 2 - 988 71 75 / 76 Fax: (0) 2 - 96 33 236 e-mail: otaschlijski.jawor@knaufamf.bg web: www.amf.bg

Knauf AMF Romania / Moldova	Code +40
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Knauf AMF Ukraine	Code +380
Knauf AMF Verwaltungs-GmbH Surikova Str. 3, Korp. 8-B Officegebäude „Increastar“ UA - 03035 Kiev	Tel.: (0) 44 - 501 9282 Fax: (0) 44 - 501 9293 e-mail: info.ukraine@knaufamf.com web: www.amfceilings.com

Knauf AMF South East Asia	Code +886
Knauf AMF Südostasien 3F., No. 407, Sec. 4, Sinyi Rd Sinyi District, Taipei City 11051 Taiwan (R.O.C.)	Tel.: 2 87 86 28 68 Fax: 2 87 86 28 66 Fax: 2 87 86 28 66 e-mail: hugo.chang@amfceilings.com.tw web: www.amfceilings.com

Knauf AMF India	Code +91
Knauf AMF India Pvt Ltd. B/107 Navkar Chambers Opp S M Centre, A K Road, Andheri East Mumbai - 400 059, India	Tel.: (022) 329 440 32 Fax: (022) 667 565 85 e-mail: sales@amfceilings.co.in web: www.amfceilings.com

Knauf AMF Australia	Code +61
Knauf AMF Australia, New Zealand and Papua New Guinea Suite 103, Jones Bay Wharf Lower Deck, 26-32 Pirrama Road Pyrmont NSW 2009, Australia	Tel.: (02) 8198 9900 Fax: (02) 8198 9911 e-mail: propoggia.fabian@knaufamf.com.au web: www.amfceilings.com.au

Russia / North Asia / China Sales

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000 Knauf AMF Novoaleksejevskaja Str. 21 Geb. 1 RUS - 129626 Moskau	Tel.: 495 - 933 36 54 Fax: 495 - 933 36 54 e-mail: info@knaufamf.ru web: www.knauf-amf.ru

Knauf AMF China	Code +86
Knauf AMF Verwaltungsges.mbH Room 2009, 129 Yan'An West Road Overseas Chinese Mansion Shanghai 200040.P.R. China	Tel.: 21 62 49 97 87 Fax: 21 62 49 90 55 e-mail: amfchina@126.com web: www.amfceilings.com

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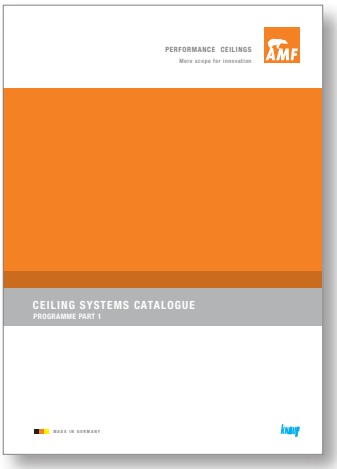

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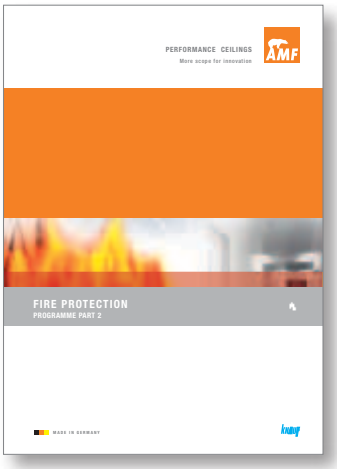

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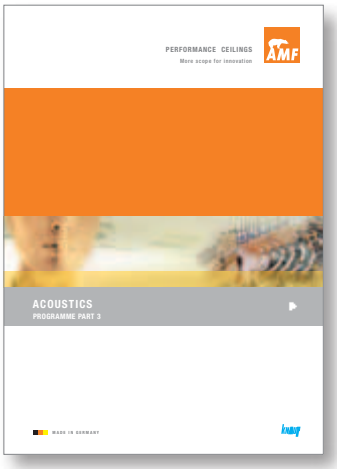

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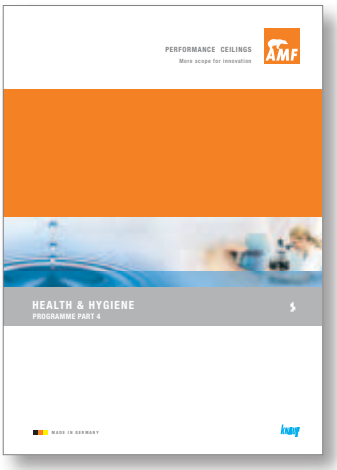

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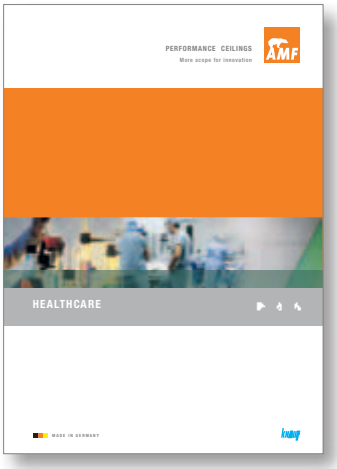

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Knauf AMF GmbH & Co. KG
Elsenthal 15
D-94481 Grafenau
Germany
Tel.: +49 (0) 85 52 / 422 - 0
Fax: +49 (0) 85 52 / 422 - 32
E-mail: info@knaufamf.de
http://www.amfceilings.com

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