

iac acoustics

FLOOR DAMPING, WALL MOUNTS AND CEILING HANGERS 2019
The Vibration Department



making the world a quieter place

MARKET-LEADING SPECIALISTS IN ACOUSTICS, NOISE AND VIBRATION



AUDIOMETRIC SOUND ROOM



ANECHOIC CHAMBER



VIBRATION MOUNTS



ROOMS WITH SPECIAL ACOUSTIC REQUIREMENTS



RECORDING STUDIOS AND CONTROL ROOMS



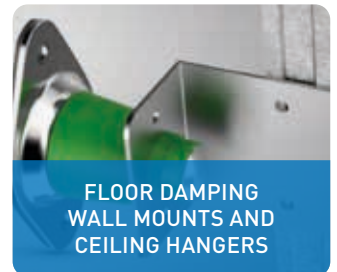
SHOCK MOUNTS



PANEL SYSTEMS AND NOISE ENCLOSURES



SILENCERS



FLOOR DAMPING WALL MOUNTS AND CEILING HANGERS



NOISE SCREENS



SOUNDPROOF DOORS AND SOUNDPROOF WINDOWS



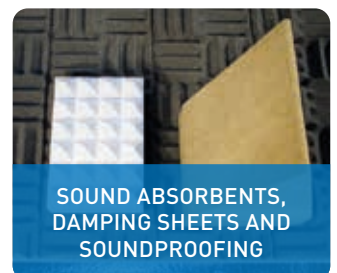
VIBRATION-DAMPING SHEETS



ACOUSTIC GRATINGS/ ACOUSTIC LOUVRES



ROOM ACOUSTICS



SOUND ABSORBENTS, DAMPING SHEETS AND SOUNDPROOFING



TEST FACILITIES FOR AIRCRAFT



JET WAKE BARRIERS AND BLAST BARRIERS



STAINLESS STEEL MOUNTS

We can solve almost any task within the areas of audiometry, recording studios, machine noise, test facilities, etc.

The department, located in Hvidovre, Denmark, has approx. 15 employees and is responsible for the Nordic market.

IAC Acoustics A/S is an independent company and part of the IAC Greentec Acoustics Group. The company is a leading international provider of acoustics, noise and vibration-control products, with offices in Denmark, Germany, the United Kingdom, Australia and China.

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LOH



CHCE



CHCS

Acoustic solutions for floors, walls and ceilings

Floating floors are designed to reduce the impact of noise and vibration, thereby increasing the degree of comfort in rooms adjacent to noisy or vibrating activities such as fitness centres, bowling alleys, restaurants, cafes, discos and industrial halls.

Floating floors are also suitable for areas which require a low level of background noise, such as recording studios, cinemas, concert halls, anechoic chambers, rooms for precision measurements and buildings with offices where there is also industrial production.

A floating floor system consists of a floor made of two layers, separated by elements of a flexible material. The intermediate layer insulates the floor from the underlay, thereby providing soundproofing, as well as step sound isolation. Sound-absorbing material in the cavity further increases the soundproofing.

A floating floor can be a part of a room in a room solution, combined with the wall mount and ceiling mount. In situations with little flanking transmission, flexible

suspended ceilings or flexible supported walls provide excellent independent solutions for soundproofing. Flexible ceilings and wall mounts are also used. In order to achieve an optimum degree of isolation, consideration is made in each case of the nature of the stresses and the requirements to be met.

The principle behind IAC floating floors provides excellent soundproofing compared to other types of floor construction.

The R_w declaration for airborne sound isolation and the L_{n,w} declaration for step sound noise level are weighted values, wherein the low-frequency noise is weighted very low. This information is therefore not descriptive in situations where loud, modern music is being played with a high content of deep tones.

The advantages of a floating floor at these low frequencies, can, therefore, be substantially greater than the weighted standard indications suggest. This can be very important, as deep tones easily migrate long distances in buildings.

Product description

VIKAFOAM is a cellular elastomer and made from a special type of polyether urethane elastomer. The product is used in mechanical engineering and the building industry as vibration isolation. Floating floors are made up of VIKAFOAM and concrete or wood, which together dampen sound and isolate vibrations particularly effectively. The system can be used for both large and small tasks, and is very flexible

Application

VIKAFOAM is often used as a structure-borne noise damping material in buildings, both under individual building elements and when removing entire buildings from their foundations.

Damping

The VIKAFOAM material provides uniform and well-defined damping. The internal damping for VIKAFOAM is determined by the mechanical loss factor. For VIKAFOAM, this value depends on the density, which can be from 0.1 to 0.3.

Fire properties

VIKAFOAM has been tested according to DIN 4102 and is in fire class B2 (normally flammable). In case of fire, no corrosive/caustic flue gases will occur. VIKAFOAM can be considered like wood and wool in terms of its composition.

Resistance to weather and chemicals

VIKAFOAM is resistant to substances such as water, concrete, oil, grease, dilute acids and alkalis.



SEE THE FULL RANGE UNDER
VIBRATION-DAMPING SHEETS



Project photos



Product description

VIKACELL is a microcellular elastomer, which is extra flexible and can handle up to 75 %-80 % compression without damaging the material.

Application

VIKACELL 400 is typically used for floating floors with high requirements for soundproofing. The material can also be used for the installation of machinery on a floating foundation, as well as the general setup of machines. The material has been developed for the automotive industry, where it is used as a mount in the suspension system, and it therefore can handle wide dynamic loading.

Damping

The transmission of structure-borne noise with low frequencies through a floating floor can only effectively be dampened by designing the floating floor to have a very low natural frequency.

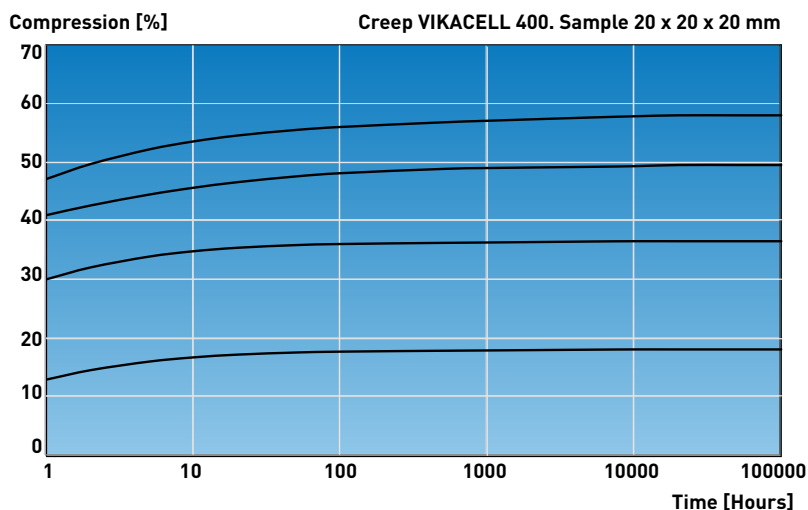
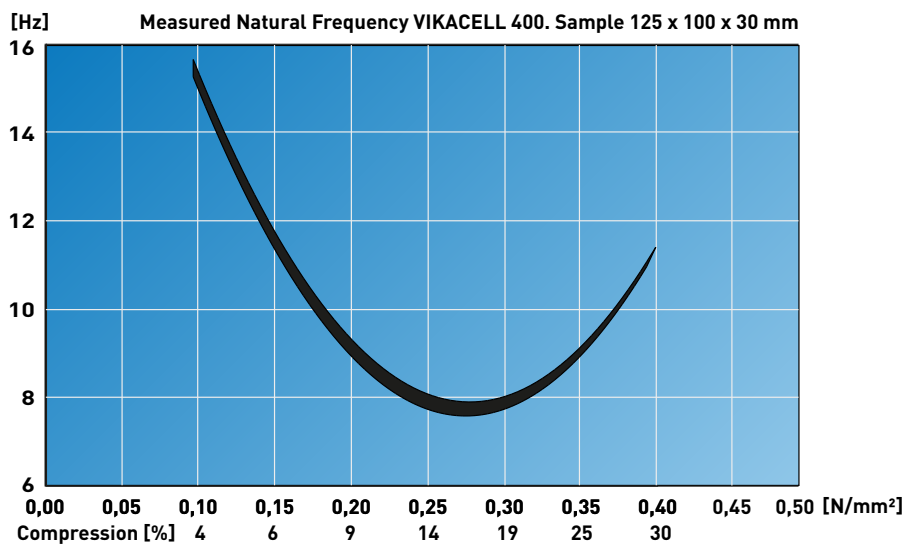
Advantages

VIKACELL can be dimensioned to have a dynamic natural frequency of 8 Hz at a height of just 30 mm, which is less than half the height that other materials require to achieve the same natural frequency.



Assembly

VIKACELL is typically used in blocks with the bearing capacity requirements and the requirements for the effectiveness of the isolation. Normal maximum static load 0.45 N mm².



Product description

FZH Jack Up System for concrete floors can be used in the recording studio, the office landscape and in the production hall. There may also be other locations where it is desired to reduce the nuisance from step sounds or other structure-borne noise coming into a room. The system also works the other way, so that step sounds or the sound of a drum set inside a studio is dampened optimally from the rest of the building.

Application

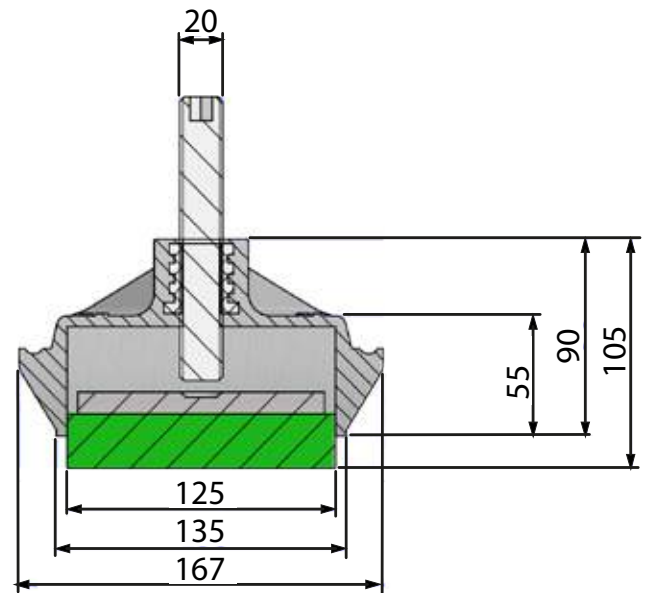
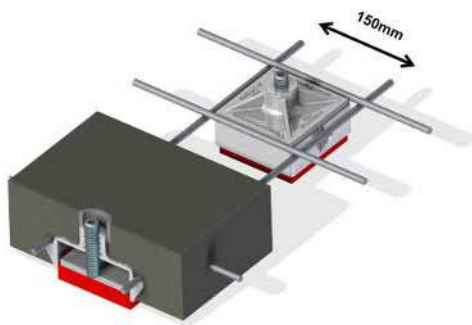
You can choose between 10 different mounts depending on the load they will be exposed to and the natural frequency of the floor you want. See the table of mounts below.

Consumption

The consumption is about 1.12 damping per m², which varies slightly relative to the concrete thickness and amount of reinforcement.

Advantages

The system's clear advantage is that it ensures that there are no short circuits, because once the floor has been raised, there is no contact with the subfloor.



Type	Load [Kg]	Natural frequency [Hz]
FZH140-25	140	11.3
FZH140-37	140	8.9
FZH240-25	240	11.2
FZH240-37	240	8.6
FZH490-25	490	10.5
FZH490-37	490	8.2
FZH800-25	800	11.9
FZH800-37	800	9.1
FZH965-25	965	11.7
FZH965-37	965	8.4

Product description

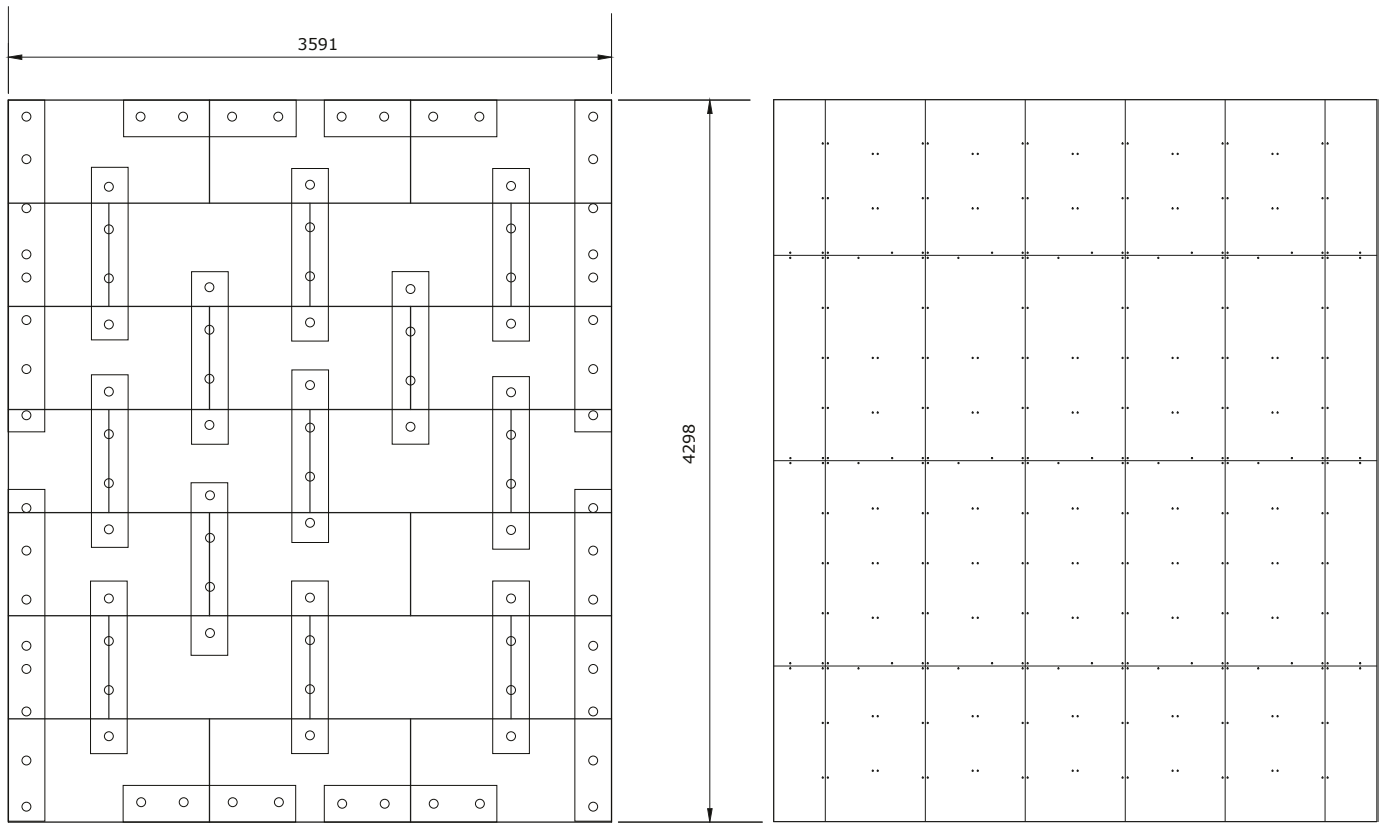
Low-profile steel floor made of 2 x 6 mm thick steel plates separated by neoprene rubber which rest on either VIKAFoAM or VIKACELL vibration mounts. These ensure that the floor is vibration-isolated against noise from the building's concrete floor. The noise from the building's concrete floor might originate in vibrations from step sounds or machines located in other parts of the building. The noise might also come from nearby train or subway lines or roads with heavy traffic.

The floating steel floor prevents airborne and structure-borne noise from penetrating the room.

Use

The total flooring construction has a height of 50 mm and the resonant frequency of vibrations of the rooms is less than 11 Hz. Damping at 60 Hz is at least 30 dB, and at 120 Hz it is more than 45 dB. The floor height can be raised to achieve a lower resonant frequency.

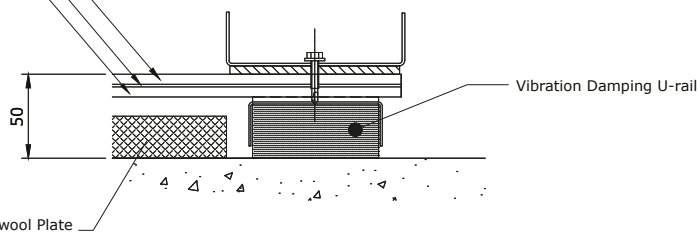
The floor's relatively low installation height makes it easier to customise access for wheelchair users, and it can be installed in most rooms while maintaining comfortable headroom.



Lower Floor Layout

Upper Floor Layout

6mm Steel Plate
Neoprene Plate
6mm Steel Plate



Product description

Sound-absorbing wall mount. The suspensions are made of galvanised steel with a vibration isolator made of thermoplastic elastomer.

Application

The wall bracket is used in securing the sound-absorbing secondary wall. The suspension is not designed to carry the wall, but to support it.

They are designed to work for both push and pull:

- Push: under varying loads up to 40 kg.
- Pull: under varying loads up to 30 kg.

Mechanical fire protection

Damping

A sound-absorbing secondary wall reduces impact sounds by 8-12 dB, depending on the existing wall structure.

Advantages

The wall mount isolates well in the midrange. A special version of the spring steel is optimal in the isolation of lower frequencies.

The wall mount is easy and quick to mount and can be used with different types of steel profile.

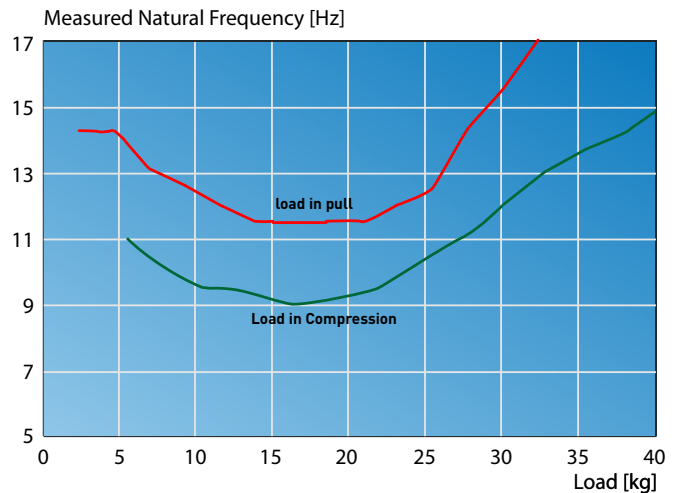
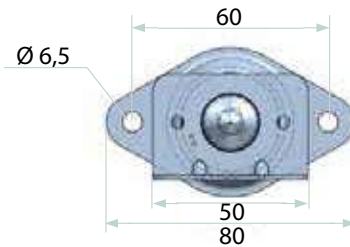
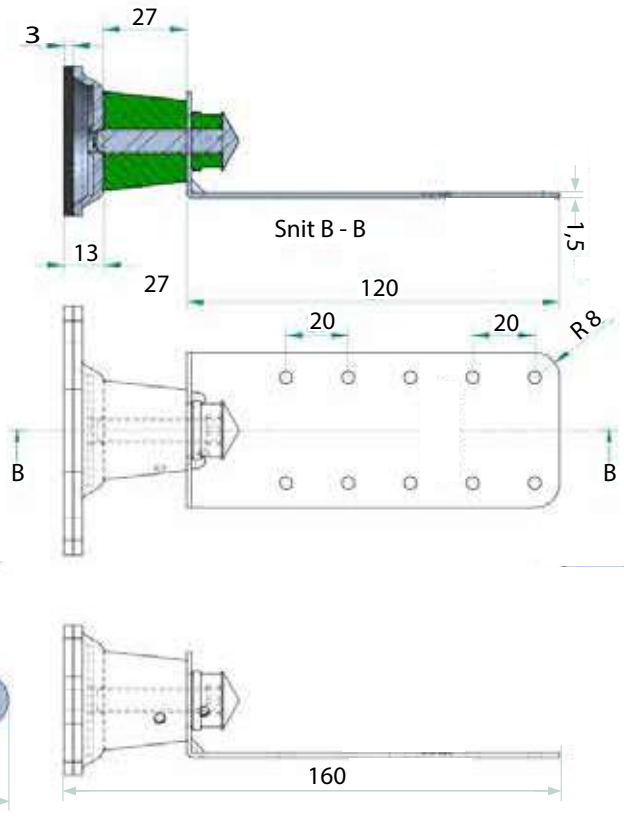
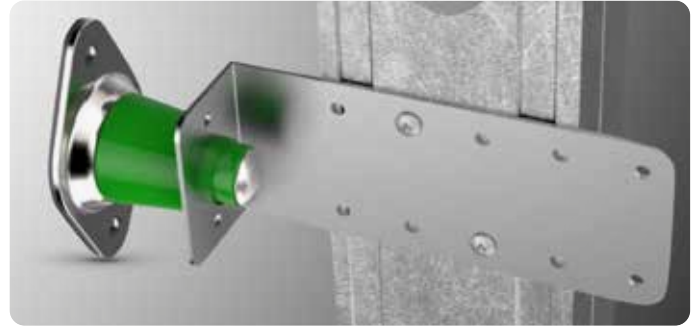
Assembly

The wall can be established at WH (3 mm thick wall strips, p13) without a fixed connection to the existing walls and ceilings, as well as piping, etc.

During assembly areas between the acoustic ceiling and walls, pipes, wires, etc. are sealed with a flexible jointing compound (acoustic jointing compound).

Consumption

Approx. Six wall mounts per running metre of wall with a ceiling height of 2.4-3.2 m



Wall strips

RR

Product description

Acoustic isolation for wall base rails. Wall strips are self-adhesive on one side, and are made of SBR fibres and granular rubber.

Wall strips provide good structure-borne noise isolation with a relatively small thickness.

Application

Wall strips are used as a structure-borne noise damping material in buildings under plaster walls. Wall strips separate the plaster wall's base rail acoustically from the floor.

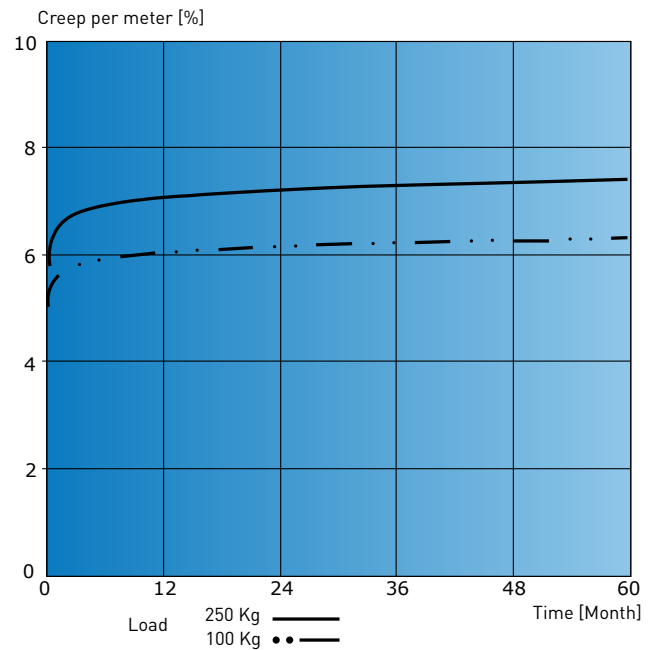
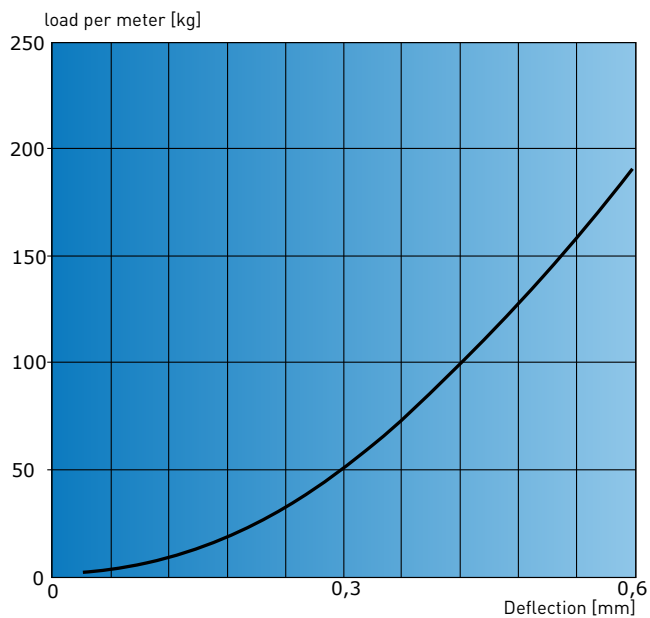
Wall strips are bonded under the plaster wall's base rail.

Fire properties

Wall strips are in fire class B2 according to DIN 4102.

Specifications

- | | |
|-------------------------------|-----------|
| • Thickness | 3 mm |
| • Width | 50 mm |
| • Roll length | 20 m |
| • Dynamic stiffness per metre | 3500 N/mm |
| • Typical bottom rail | MSK 45 |



Product description

Two galvanised steel fittings separated by an anti-vibration mount. The ceiling mount and wall bracket isolate effectively against vibrations/audio transmission in the audible frequency range.

Application

The ceiling mount can be used for sound insulation in association with suspended plaster ceilings.

The mount is designed to "support" and vibration-isolate the plaster ceiling against vibrations from the existing ceiling.

The wall bracket is used in securing the sound-absorbing secondary wall.

Damping

The field measurements indicate that sound-absorbing ceilings improve sound absorption in the storey partition by up to 10 dB.

The R_w reduction value is typically 58-60 dB for a correctly fitted ceiling, but it depends on the existing ceiling construction.

A sound-absorbing secondary wall reduces impact sound by 8-12 dB, depending on the existing wall construction.

Advantages

- The ceiling mount and wall bracket provide optimal isolation against airborne noise.
- Fireproof construction. Covering class 1 (DS 1065.2)
- Easy to install and can adjust for differences between the existing ceiling and wall

Note

Dimension X can be from 65 to 1200 mm



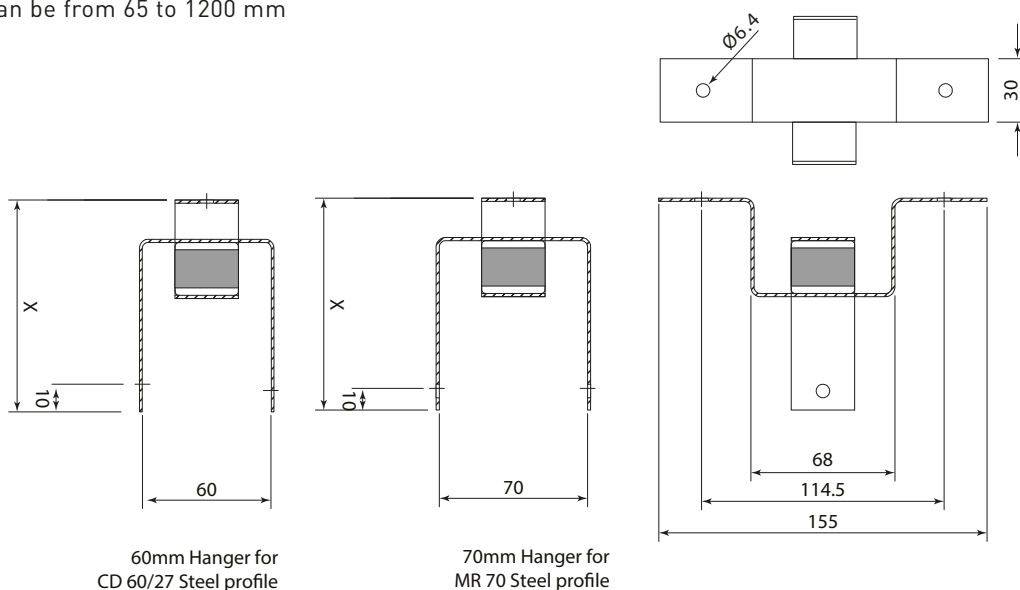
Assembly

The acoustic ceiling must be freely suspended without direct connections to the existing walls, ceiling and piping, etc. The soundproof wall is mounted without fixed connections to existing walls, ceiling and piping, etc.

Seal between the acoustic ceiling and the wall, pipes, wires, etc. with a flexible jointing compound.

Consumption

- Approx. 1.4 ceiling mounts per m² of ceiling for two layers of plaster (~ Stress: approx. 18 kg/mount).
- Approx. 1.5 ceiling mounts per m² of ceiling for three layers of plaster (~ Stress: approx. 23 kg/mount).
- Approx. 4.5 wall brackets per running metre of wall (ceiling height 2.5-3.1m).



General

The brackets are delivered unassembled and are comprised of the following parts:

Ceiling mount

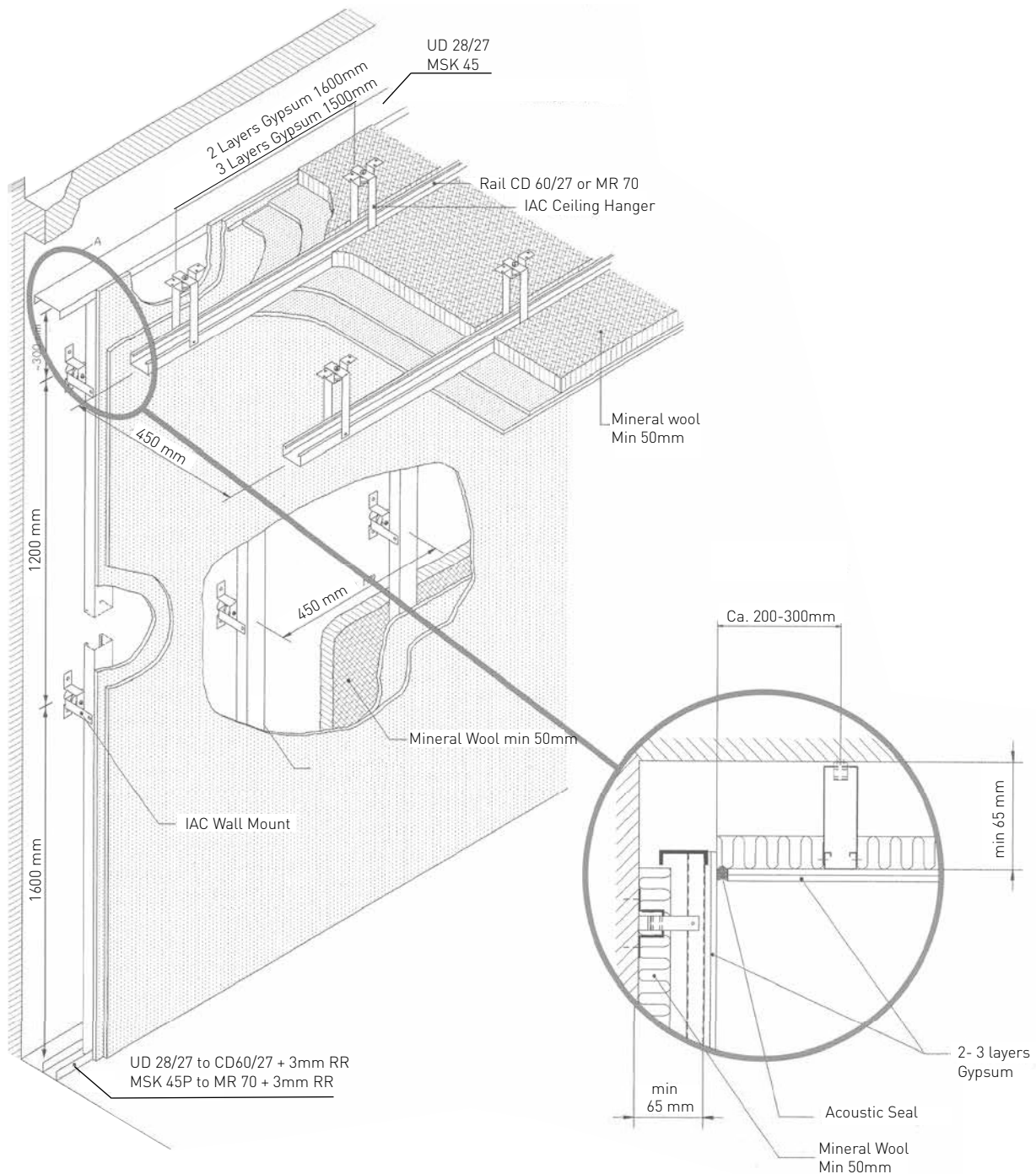
1 hat profile, anti-vibration mount incl. 2 screws and strap. Available in lengths from 65–1200 mm

Wall mount

1 hat profile, 2 anti-vibration mounts incl. 1 screw, 1 pinol screw and strap. Available in lengths from 65–1200 mm

It is also important to include the following in the design:

- 1 All joints, walls and penetrations must be soundproof. A flexible jointing compound must be used to seal.
- 2 Light fixtures etc. which penetrate the ceiling must be fitted with a soundproof superstructure.
- 3 If heavier things are suspended from the ceiling, additional ceiling mounts must be installed to accommodate the increased load. (Each mount must be loaded with a max. of 28 kg.)
- 4 If the secondary wall is loaded by hanging heavier objects, etc., it must be fitted with extra wall mounts.



Product description

Ceiling Hanger type Click bracket for suspended plaster ceilings. The Hangers are made of galvanised steel with a vibration isolator made of thermoplastic elastomer.

There are two types of Click brackets:

- GREEN for loads between 10 kg and 32 kg.
- BLUE for loads between 22 kg and 57 kg.

There are Click brackets for M6 and M8 threaded rods. The safety device can withstand loads higher than 326 kg. The service life is 30 years. EN 13964-2006.

Application

The Click bracket is used for soundproofing in connection with suspended planar plaster ceilings. The bracket is designed to bear and vibration-isolate the plaster ceiling from the existing ceiling. They are suitable for loads of between 17 and 57 kg.

Damping

Field measurements indicate that soundproof ceilings improve soundproofing in storey partitions by up to 10 dB. The R' reduction value is typically 64-70 dB for a correctly-mounted ceiling, but this depends on the existing ceiling construction.

Advantages

The Click bracket isolates well in the middle tone range. A special version with steel springs is optimal in isolating lower frequencies. The click bracket is easy and quick to mount.

Assembly

Assembly with the Click system is simple and fast. The brackets are mounted at the right height on threaded rods and the profiles click on. The fastening device is pushed into place with your finger, and the ceiling is completed.

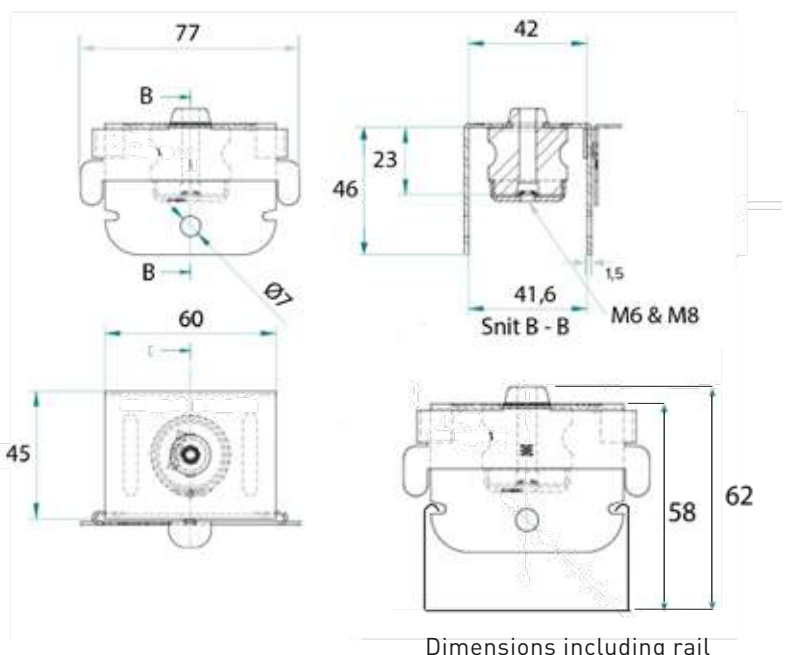
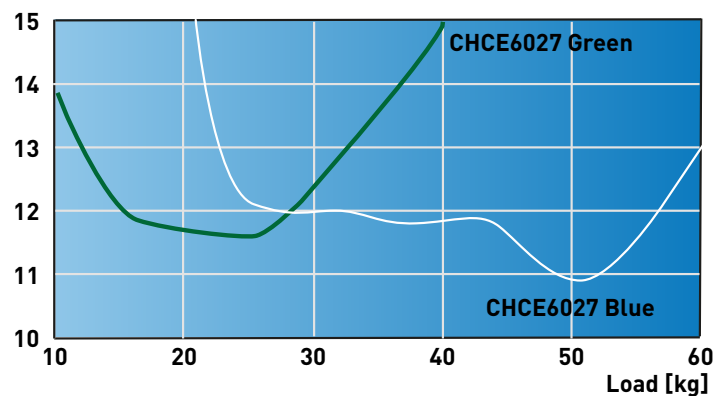
The acoustic ceiling must be freely suspended and without direct connections to the other walls, ceiling and piping, etc.

Consumption

Crucial to the choice of type and number of ceiling Hangers will often be the deflection of the 60/27 profiles. The choice will often fall on the green type.



Measret Eigenfrequency [Hz]



Dimensions including rail

Product description

Hanger for soundproofing ceilings like with plaster board ceilings suspended in 60/27 profiles. The Hangers are made of galvanised steel with steel springs and thermoplastic elastomer for vibration isolation.

The Click suspensions come in four types:

- GREY for loads between 3 and 15 kg
- GREEN for loads between 15 and 30 kg
- BLUE for loads between 30 and 51 kg
- RED for loads between 50 and 76 kg

There are Click mounts for M6 and M8 threaded rods. The safety device can withstand loads higher than 326 kg. The service life is 30 years. EN 13964-2006.

Application

The Ceiling Hanger is used for soundproofing in connection with suspended planar plaster ceilings. The Hanger is designed to support and vibration-isolate the plaster ceiling against vibrations from the existing ceiling. They are suitable for loads between 3–76 kg.

Damping

Laboratory measurements show that soundproof ceilings in a spring mount improve soundproofing in storey partitions by as much as 30 dB.

The R_w reduction value is typically 68-74 dB for a correctly fitted ceiling, but this depends on the existing ceiling construction.

In practice, the improvement will be somewhat less dependent on the ceiling construction and flanking transmission through walls.

Advantages

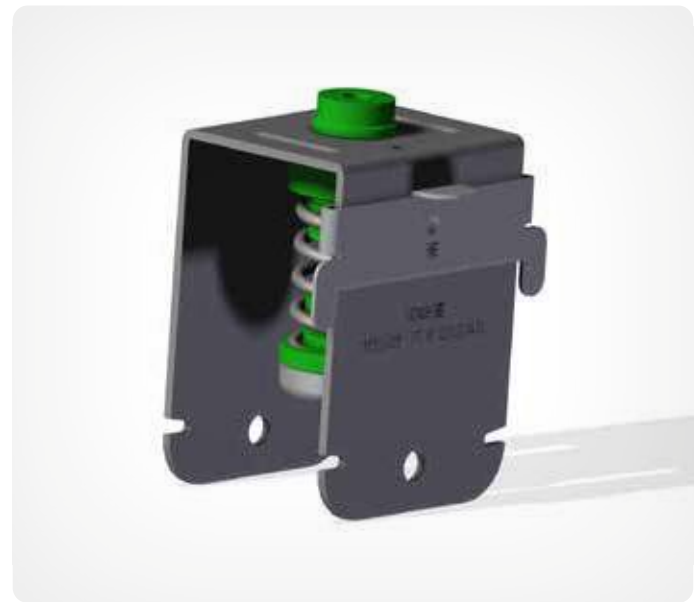
The ceiling mount isolates well throughout the entire audible frequency range – even for low tones. The ceiling mount is simple and quick to install.

Assembly

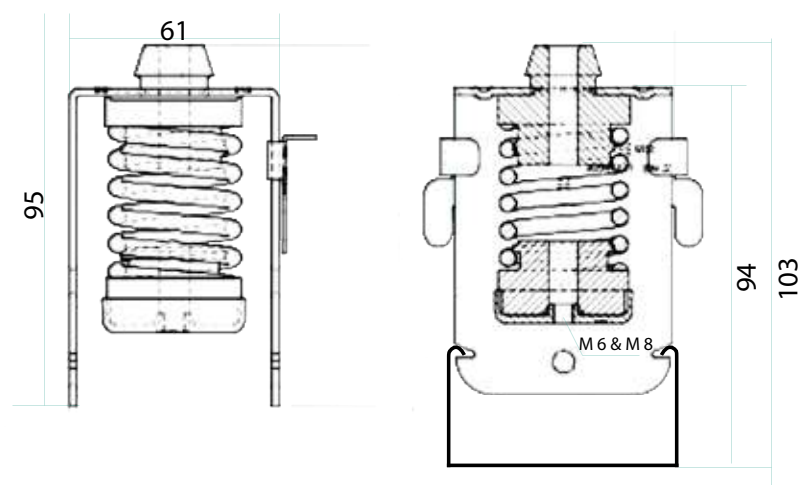
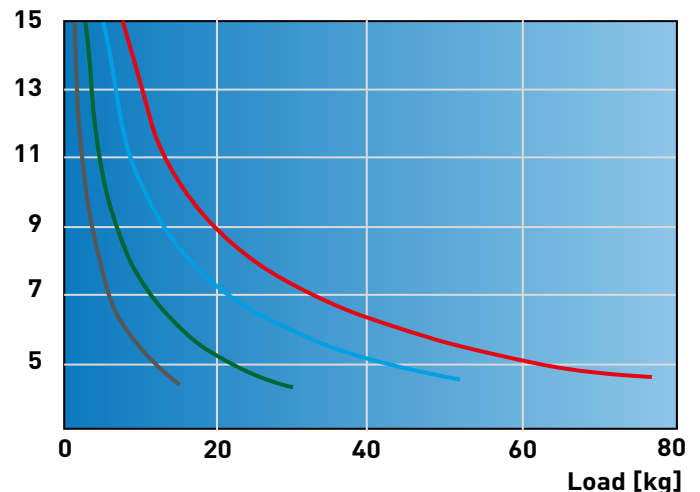
Assembly with the click system is simple and fast. The suspensions are mounted at the correct height on threaded rods and the profiles click on.

The fastening device is pushed into place with your finger, and the ceiling is completed.

The acoustic ceiling must be freely suspended and without direct connections to the other walls, ceiling and piping, etc.



Measret Natural Frequency [Hz]



Dimensions including rail

Case

Floating floors shield staff against noise

IAC Nordic got involved from the design phase of Amager Bakke. The consultative body of the building asked IAC Nordic for advice in relation to noise control in the building. The two parties started a dialogue about which floors could be developed to achieve minimal noise for the staff who have to do their daily work at the Waste to Heat plant.

☞ We were contacted to clarify whether this was possible due to a very low installation height. In collaboration with the consultant we determined that it was, but it would put extreme demands on the material, says Jens Junker, project manager at IAC Nordic.

IAC Nordic specialises in developing customised solutions. The company therefore won the contract with their design of a floating floor which could dampen vibrations/noise from the Waste to Heat plant's production and keep the sound out of the part of the building where the staff work. IAC Nordic chose to use the Vikacell material, which is a material that can cope with up to 80 % compression without damaging the material. For comparison, other known materials can cope with approximately 10 %, and Vikacell can therefore achieve the same natural frequency as other materials but with a substantially smaller material height.

IAC Nordic had to lay almost 3700 km² of floor, spread across eight floors. It was the first time IAC Nordic had used Vikacell in such a big project, and the company chose to

test the material in a test laboratory in Germany before the project began.

☞ Because the task at Amager Bakke was so complicated, we tested the material in-house and in Germany to identify the dynamic properties and to be sure that it behaved as we had expected, says Jens Junker.

Vikacell proved to be such a good material to work with that IAC Nordic has now decided to use it as an integral part of the company's portfolio.

IAC Nordic worked on the construction for just over three years, which is the longest time the company has been assigned to the same project.

☞ We went back and forth from the construction site many times. It's a big building, so it takes a lot of coordination to make sure all the contractors can work without being in each others' way. That's why it took a long time for us to lay the last of the floor on the 10th floor, says Jens Junker and continues:

☞ But it was a great experience to be a part of and to see the building take shape. It's a fantastic building, and you can't help but be impressed with the complexity of the structure inside and with the building's general look, says Jens Junker.



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Opening hours

Monday–Thursday: 08.00–16.00
Friday: 08.00–15.00

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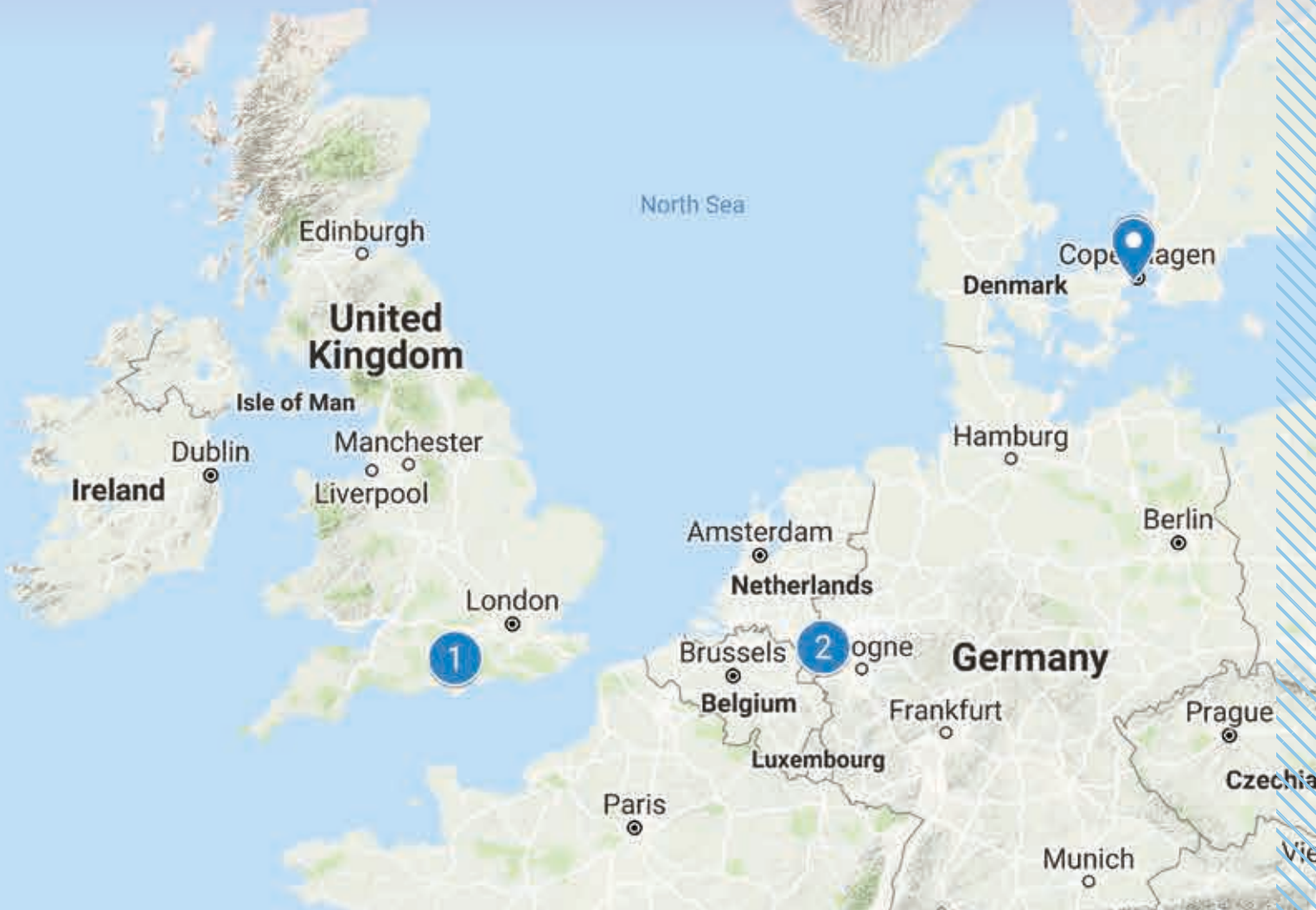
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