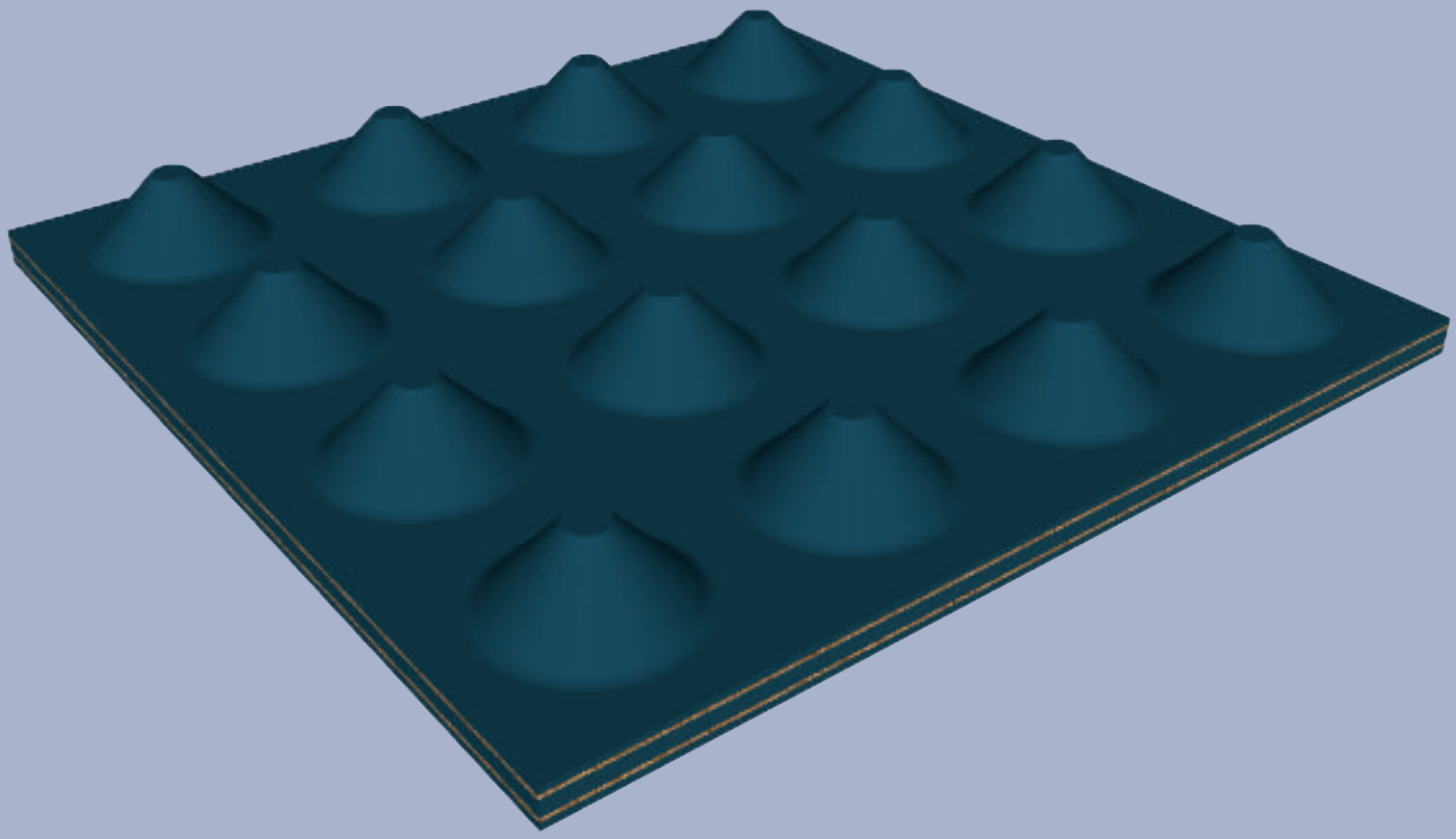
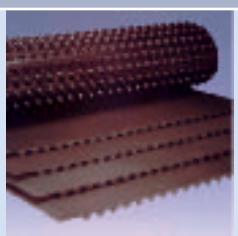
CALENBERG INGENIEURE

CIBATUR





Isolation of Vibration and Insulation against Structure-borne Noise of Machines and Structures with Large Foundations

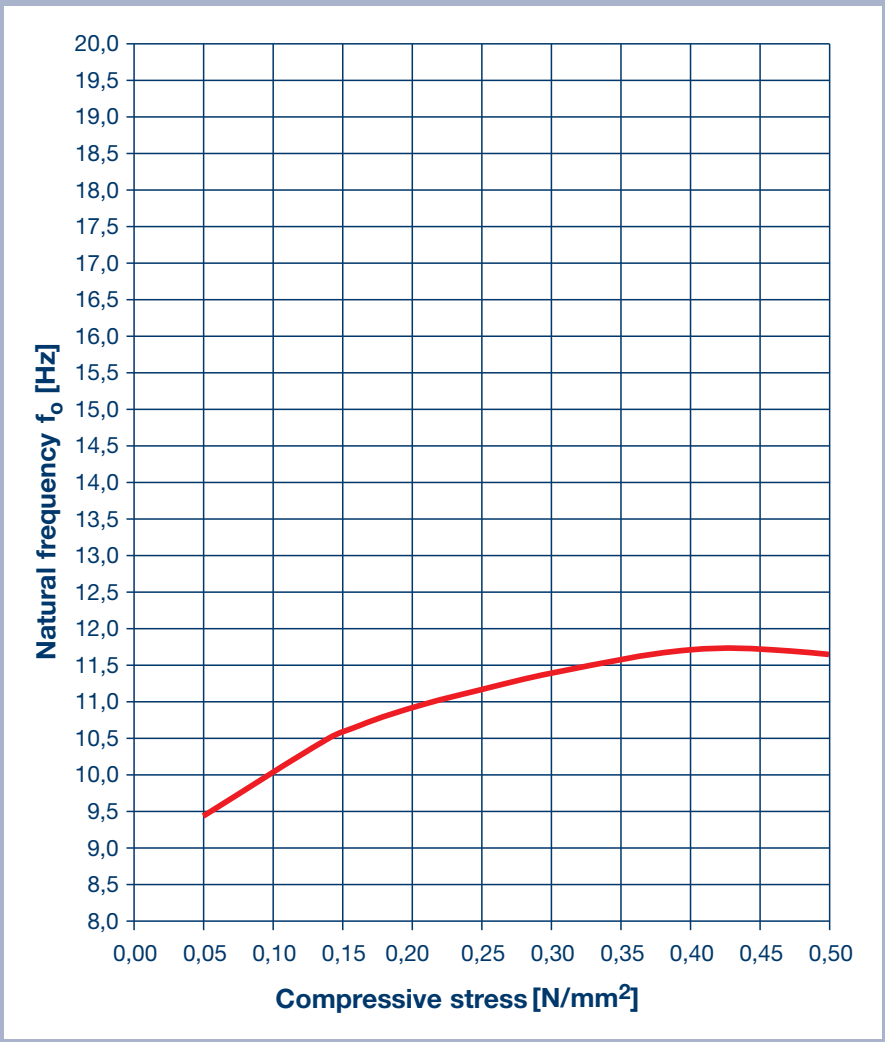
planmäßig elastisch lagern

Natural Frequency

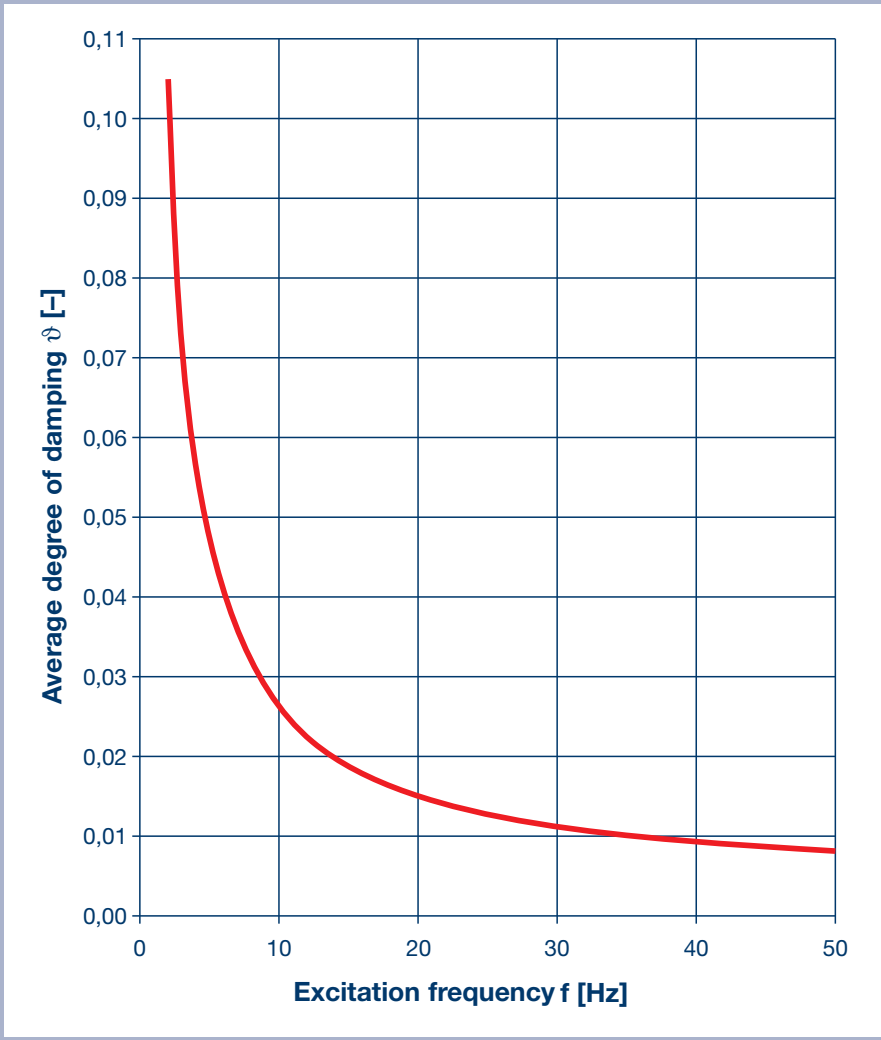
Content

Product Description

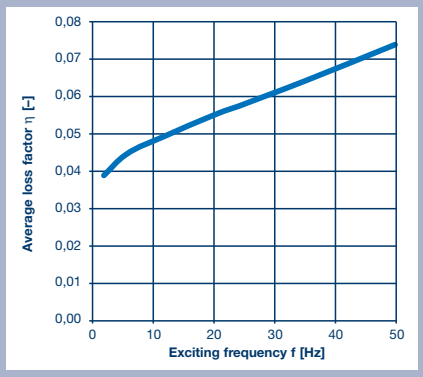
The profiled Cibatur mat consists of a fabric reinforced elastomeric plate (sandwich method) that has underneath truncated cone shape spring elements. The surface of the top layer is not only insensitive to weather but also resistant to abrasion, oil and ozone. Natural rubber of high quality is used for the spring elements which have excellent dynamic properties. Cibatur has attached a vulcanised overlapping strip which covers the longitudinal joints. The mat is resistant to temperatures ranging from -40°C up to +70°C. The water absorption is way below 1 %.



Amplitude of speed of vibration 1 mm/s



Amplitude of speed of vibration 1 mm/s



Degree of Damping
Loss Factor
Angular Loss

The damping factor ϑ (frequently given as a percentage and previously referred to as Lehr damping factor D = ϑ) is a measure of the decrease in amplitude of a free decay process. Alternative and equivalent characteristics to describe the damping of a system are:

– Loss factor $\eta \approx 0{,}5\ \vartheta$

– Angular loss ζ (phase angle between force and deformation, to be determined for $\eta = \tan \zeta$)

It generally applies: the larger ϑ, the smaller are the maximum increase $Ü_{max}$ and the insulation effect of the excitation frequencies larger than 1,4 times the resonance frequency.

Degree of Damping

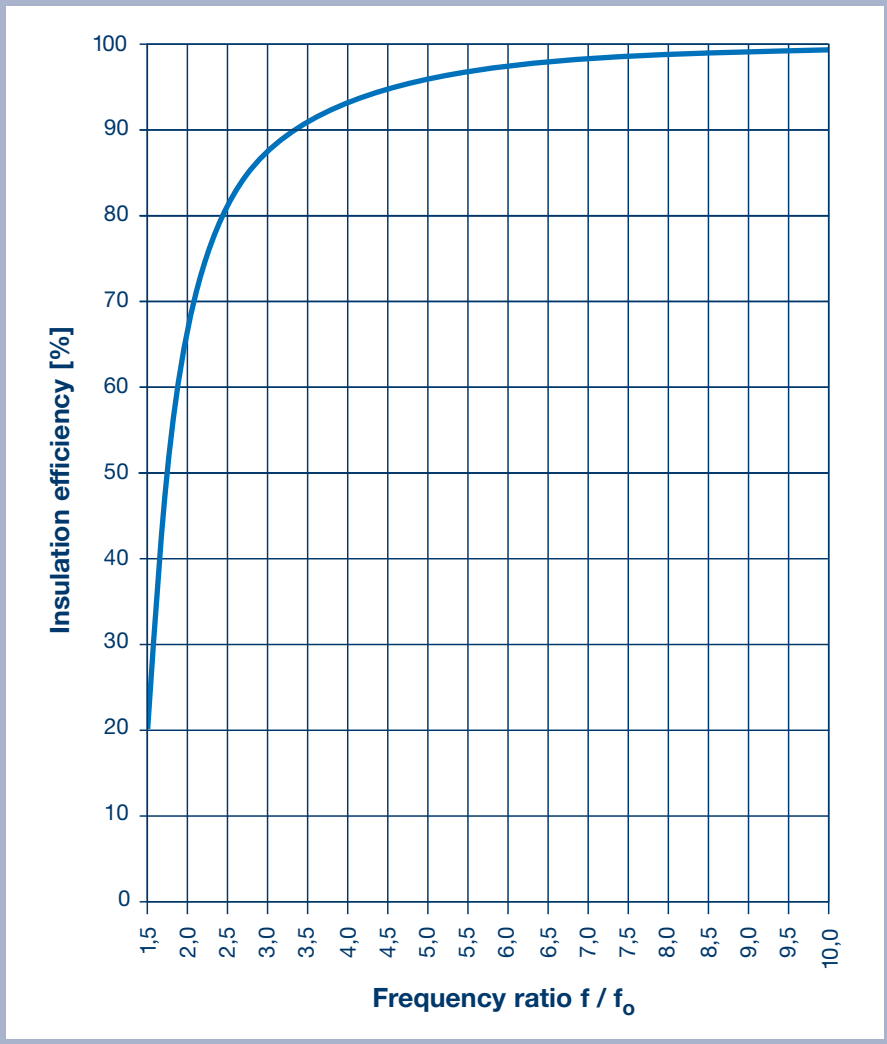
Insulation efficiency

Field of Application

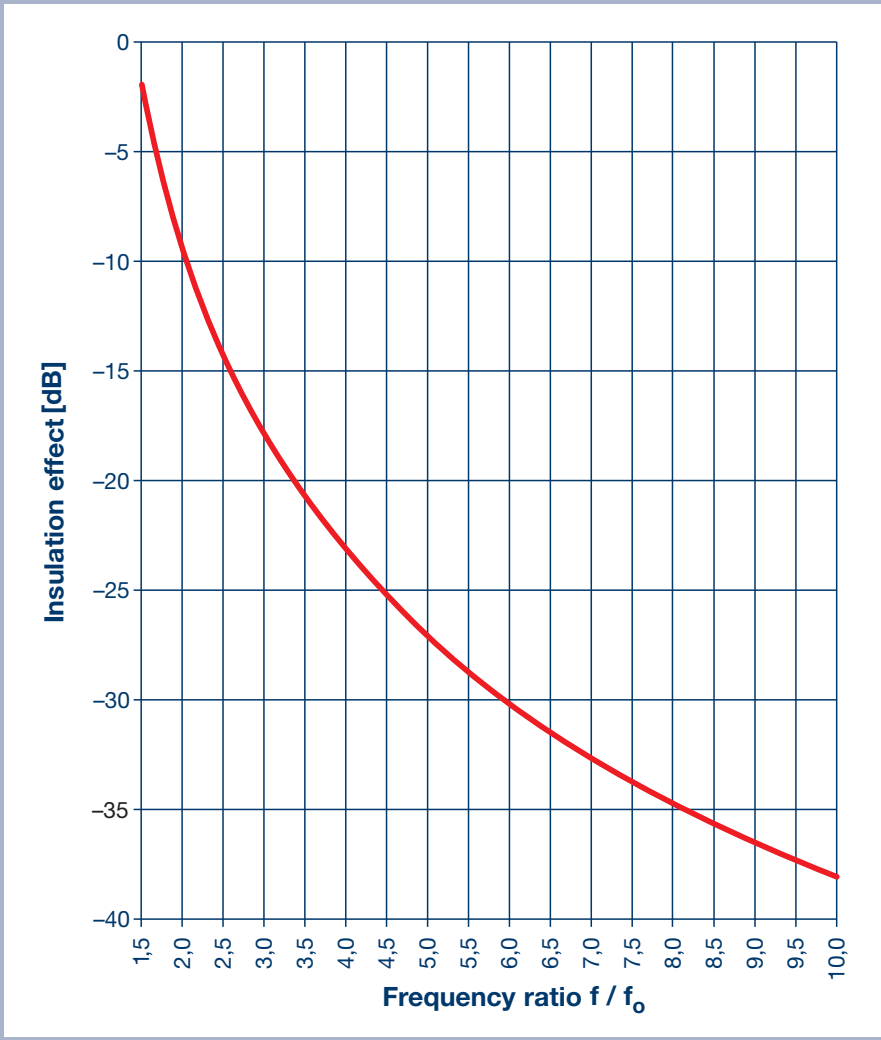
Compressive stress: 0,05 – 0,50 N/mm²

Cibatur is used as an elastic component so as to reduce the forces which act on bearings or foundation. That way the transmission of vibration and structure-borne noise will be reduced. Due to the special composition it is possible to achieve very high efficiencies of the protective measures. The natural frequencies remain nearly constant over a large range of compressive stresses. Owing to the cone-like structure, Cibatur acts like a surface drainage system under the foundation slab of the building in the case of non-ponding ground and seepage water. The functionality is guaranteed for the whole services life due to the use of high quality elastomers and synthetic indecomposable fabrics.

Note:
The tests were carried out for speeds of vibration of 1 mm/s and 2 mm/s. However, the results of the tests with speed of vibration of 2 mm/s deviate on average by a maximum of 10 % from the values shown.



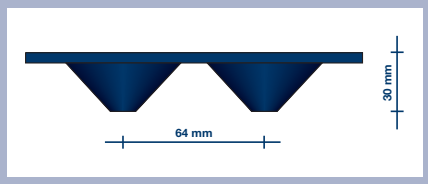
Amplitude of speed of vibration 1 mm/s



Amplitude of speed of vibration 1 mm/s

Dimensions and Weights

Width approx. [mm]	1536
Total thickness approx. [mm]	30
Thickness of top layer approx. [mm]	10
Length max. [mm]	50
Weight approx. [kg/m²]	14



Text of Tender Document

Type: Calenberg Cibatur, with truncated cones made of NR, profiled, vulcanised elastomer mat, modular dimensions of cones: 64 mm, total thickness: 30 mm, with double fibre-reinforced protective and abrasion layer made of chloroprene rubber.

Quantity:	..... m²
Length:	..... mm
Width:	..... mm
Price:	..... €/m²

Supplier:
Calenberg Ingenieure GmbH
Am Knübel 2–4
D-31020 Salzhemmendorf
Phone +49 (0) 51 53 / 94 00-0
Fax +49 (0) 51 53 / 94 00-49

Insulation Effect

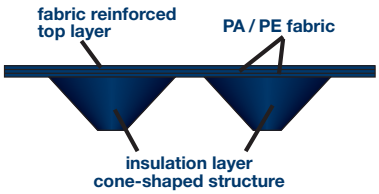
Dynamic Foundation Modulus

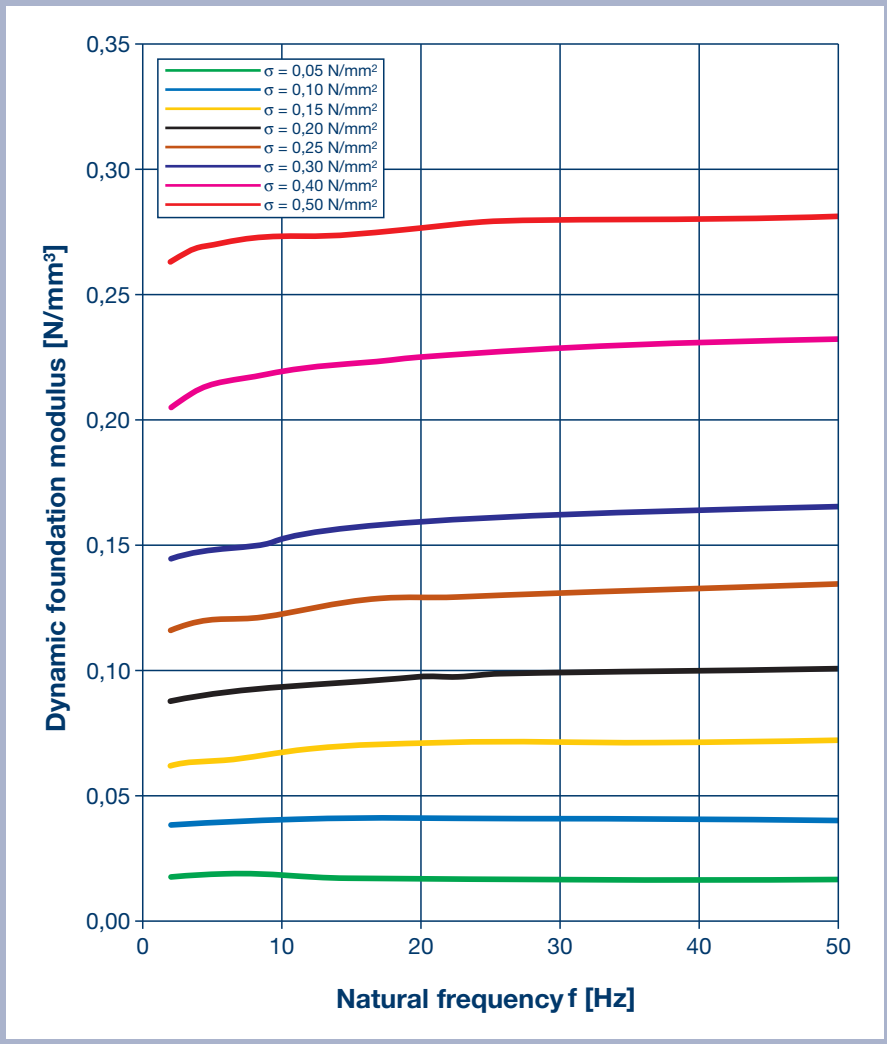
Assembly Details

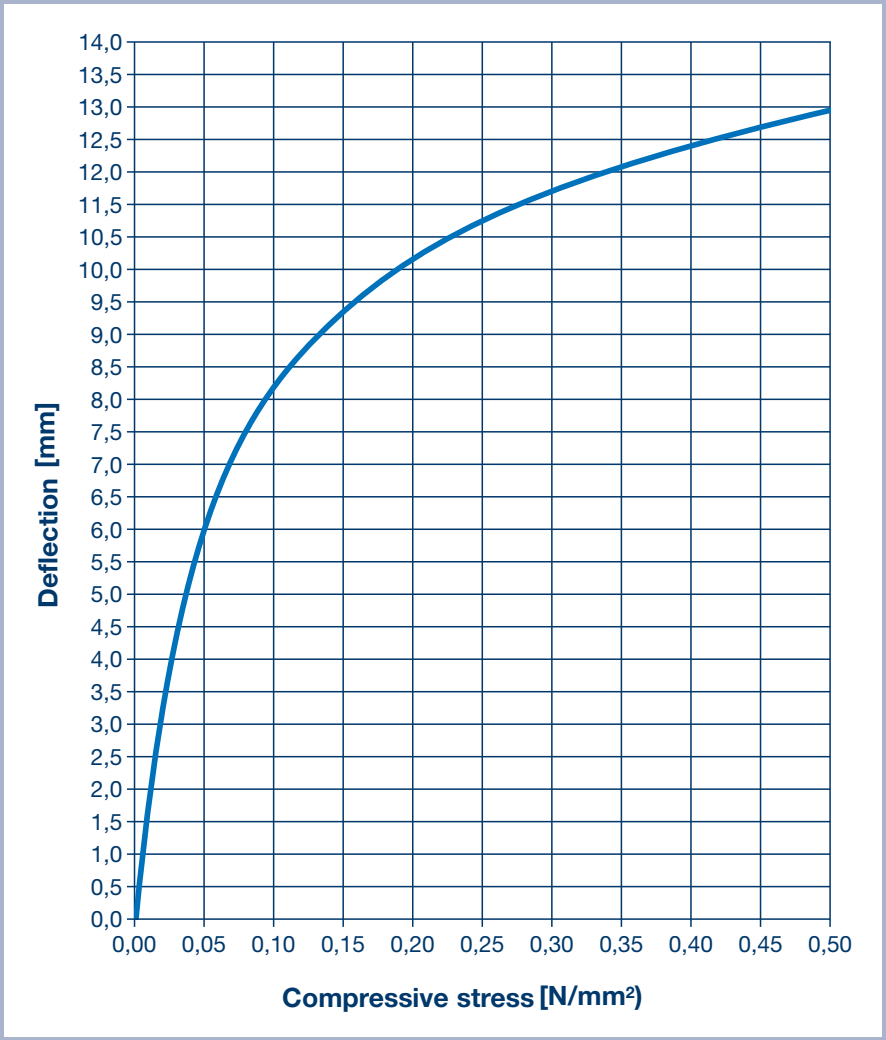
Calenberg Cibatur is laid loosely on a correctly levelled blinding layer with adequate load bearing capacity. It is important to note that the protection and wear surface faces upwards.

To guard against ingress of concrete slurry it is necessary to glue the overlapping strips together or to cover the whole area completely with foil. At the free edge overlapping strips are used to seal the joint. For the vertical vibration isolation we offer a wide range of products according to the requirements.

Free deformation of the foundation has to be guaranteed at all times so as to avoid the transmission of structure-borne noise.







References

– The Charles Hotel, Munich

– Office building Parexel, Berlin

– Post office area, Salzburg

– Opera house, Hangzhou, China

– 6 cement mills, Nigeria

– Arkadia shopping centre, Warsaw, Poland

– Combined heating and power station, Warsaw, Poland

– Daimler Chrysler, Warsaw, Poland

– University library, Wroclaw, Poland

– Belgian brewery, Zabrze, Poland

– Ball mill, Poland

Static Deflection

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Laying

Test Certificates Verifications

Standard building authority approval no. P-2005.1110, Accredited Testing Authority for Materials in Mechanical Engineering and Technical Plastics at the Institute for Material Science, University of Hanover, 2005

"Determining the Static and Dynamic Material Behaviour of Elastic Continuous Support Type Cibatur "
Research Report 28/08
Technical University Dresden, 2008

Cibatur has been checked/tested by:
Technical University of Munich, Technical University of Berlin,
RWTH Aachen,
Deutsche Bahn AG, Munich,
SNFC, Technical Inspection Authority Rheinland, Hoechst AG, Müller-BBM / Munich, imb-dynamik / Inning

Test reports are available on request.

Figure 1: Cutting of mats

Figure 2: Laying of mats

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