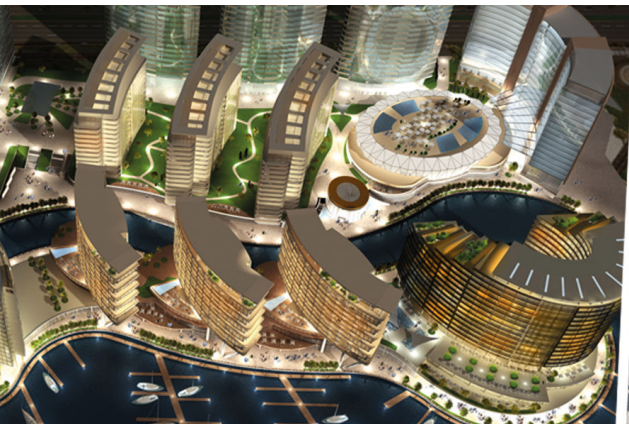




COMPANY PROFILE 2023



Issue 4, 2023

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Static elastomeric bearings
Dynamic elastomeric bearings

Sub-ballast mats
Mass-spring systems
Rail pads and plate pads
Special products

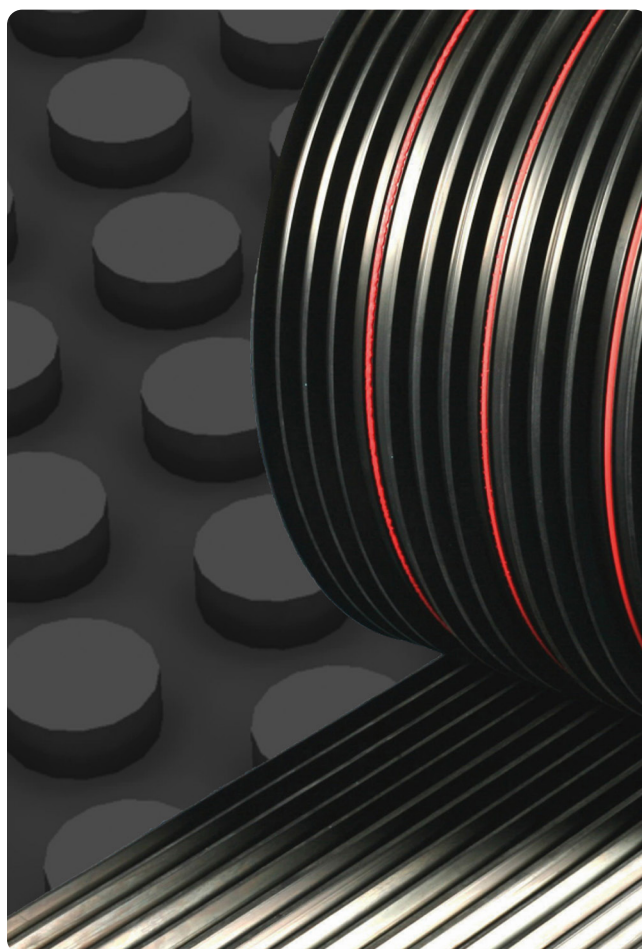
Environmental protection
Noise control

Calenberg has been working in the field of elastomeric materials since 1973.

We operate as a solutions provider for static component bearings, vibration isolation and structure-borne sound control worldwide. In construction and industry, our aim is to protect construction works against vibrations, reduce vibrations and increase living comfort.

Besides construction and industry, we also focus on railway systems and environmental applications. Made of synthetic and natural rubber, our railway systems products deliver enhanced elasticity in track bed structures and protect the overall track bed system due to their material characteristics. What's more, they also reduce wear in such components. Special products in our Environment Division allow us to provide optimal noise control with our noise barrier as a flexible sound insulation solution and our OIL-EX absorption mat ensures subsoils are effectively protected from contact with harmful substances.

Calenberg has formed part of the potent LISEGA SE consolidated group of companies since 2017 and makes use of the group's global structure to advise customers efficiently on a local level and develop and offer customer-specific elastomeric solutions.



Key info

1972	Company established; founders had previously worked in application engineering or research and development at the Continental rubber works
1973 – 1977	Patents for profiled elastomeric bearings and the first track mat
1998	Successful increase in international activities
1999	Cisilent® noise barrier patented
2001	ContiTech/Clouth track systems portfolio taken over
2006	First successful underwater bearing system with newly developed Cimax® elements
2008	First successful bearing system in a tunnel with track mats in the Siberian permafrost
2011	BG RCI advancement award for Cisilent®
2016	The Losheim production facility for EPDM rail pads and plate pads goes into production
2017	Taken over by the LISEGA Group
2020	The new Ciflex product range is introduced
2021 – 2023	New Ciprotec, Cisador®, Cigular®-slab bearing EcoLine product ranges are introduced

FOUNDATION

1972

EMPLOYEES

50

ANNUAL TURNOVER (MIO.)

2018:	11.7
2019:	12.9
2020:	14.7
2021:	16.5

EXECUTIVE DIRECTORS

Byung-Yong Jang
Peter Vogt

CORE EXPERTISE

Development and production
of elastomeric components
made of NR, CR and EPDM

HEADQUARTERS

Salzhemmendorf

PRODUCTION FACILITIES

Salzhemmendorf, Losheim,
Zeven, Ballenstedt

PRESENCE WORLDWIDE

Europe, Asia, Oceania

MATERIALS

Chloroprene (CR), ethylene propylene diene
monomer rubber (EPDM), natural rubber
(NR), polytetrafluoroethylene (PTFE),
acrylonitrile butadiene rubber (AB), mixed-
cell polyurethane (PUR)

REGISTERED TRADEMARKS

bi-Trapez Bearing®, Cigular® slab bearing, Ciparall® sliding bearing, Civalit® sliding bearing, Cipolon® edge protection, Cires®, Cibatur®, Cipremont®, Cimax®, Cisilent® Type E, Cisador®, Citrignon®, Civicell® (rail pad), Ciplacell® (base plate pad)

BENEFITS OF ELASTOMERIC COMPONENTS

Elastomeric bearings for static component bearings increase living comfort and structural element stability. Effective vibration isolation in buildings, machines, industrial components and railway lines reduces vibrations, ground tremors and structure-borne sound. When it comes to environmental protection, elastomeric materials with a high proportion of recycled material counter subsoil contamination. A flexible noise barrier provides efficient sound insulation in noise control.

Optimum construction work quality guaranteed

Elastomeric structural bearings for static applications

Permanent loads, such as a structure's dead load, variable influences, such as wind, and constraining forces due to factors such as temperature changes, creep, component tolerances or settling cause deformations in structural components. Without the use of suitable elastomeric bearings, the aforementioned impacts will cause damage to structures. Besides cracks and spalling, they can also inflict major permanent damage to adjacent components, which need to be repaired at considerable expense in terms of time and cost.

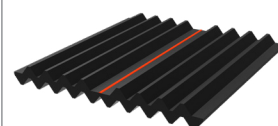
The elastic effect of the structural bearings transfers forces centrally in structural connections while also compensating for deviations in plane parallelism. Elastomeric bearings systematically absorb shear deformations from non-permanent horizontal impacts.

Advantages for our customers

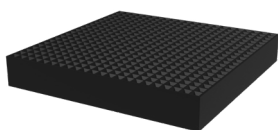
The bearings' extremely high bearing capacities allow cost-effective, filigree structural designs to be built. Elastomeric bearings do not require maintenance and do not need to be replaced if correctly dimensioned and installed. The designers also ensure there is extra capacity in the material to absorb in the event of unforeseen load conditions. The service life of the construction bearings is equal to the service life of adjacent components as a minimum.

Our elastomeric bearings increase the value of the building by avoiding structural damage and eliminating renovation and maintenance costs. The static elastomeric bearings permanently transmit forces, twists and displacements into adjacent components without causing damage.

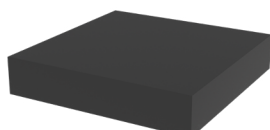
BI-TRAPEZ BEARING®



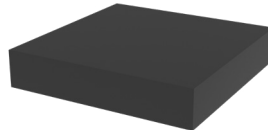
COMPACT BEARING CR 2000



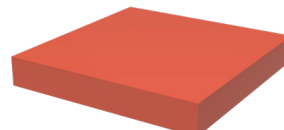
COMPACT BEARING S 65



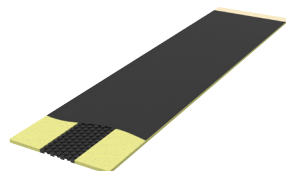
COMPACT BEARING S 70



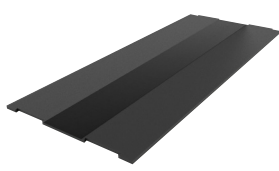
COMPACT CORE BEARING



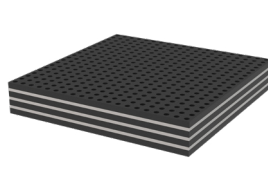
CIGULAR® SLAB BEARING



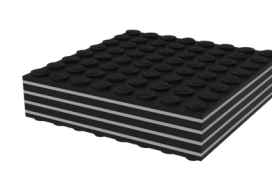
CIGULAR® SLAB BEARING ECOLINE



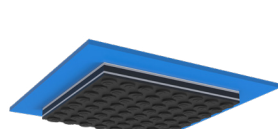
PERFORATED™ BEARING TYPE Z



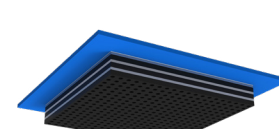
SANDWICH BEARING Q



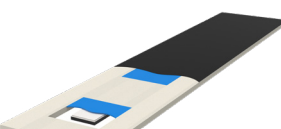
CIPARALL® SLIDING BEARING



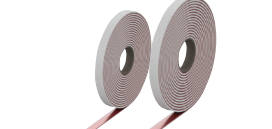
PERFORATED™ SLIDING BEARING TYPE Z



CIVALIT® SLIDING BEARING



CIPOLON® EDGE PROTECTION



Reduce vibrations and noise

Elastomeric bearings for dynamic applications

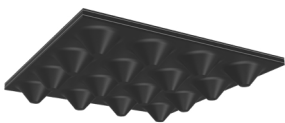
Elastomeric bearings with their insulating properties have proven their worth wherever people and buildings require protection from vibrations. Vibrating machines or road or rail traffic can have an enormous impact on people inside buildings. Bearing systems for machines and buildings can feature as a point, strip or surface design.

Calenberg vibration bearings are extremely effective over a broad load range at almost constant low natural frequencies. In addition to the resulting vibration isolation, the elastomeric bearings also have material-induced damping.

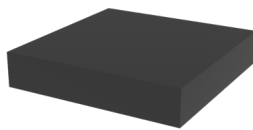
Benefits

- Reduction of noise and tremors
- Reduction of airborne and structure-borne sound
- Greater living and work quality
- Value of real estate increases thanks to building bearing system
- Maintenance-free
- Reduction of wear on components and machines

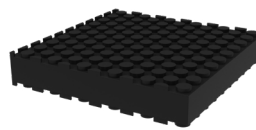
CIBATUR®



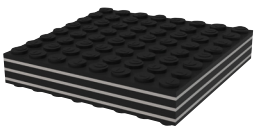
CISADOR®



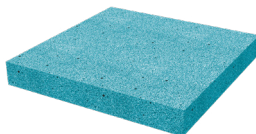
CIPREMONT®



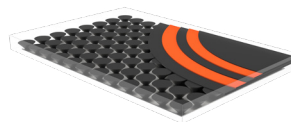
CITRIGON



CIFLEX



CIMAX®



Elastic components protect track bed structure

Calenberg synthetic and natural rubber products deliver enhanced elasticity bed structures and protect the overall track bed system thanks to their material characteristics. This means a significant cost reduction for servicing and maintenance for our customers.

There are different types of track structure – ballasted track and ballastless track – in which different components are used to prevent wear and possibly provide vibration protection. Sub-ballast mats are suitable as a protective measure against vibrations and sound transmission caused by passing trains. Made of bound rubber fibres or granulate, Calenberg's recyclable sub-ballast mats are designed in different versions for different axle loads and are used for all types of rail systems from tram, light rail and underground networks through to

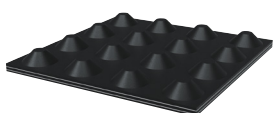
freight transport and long-distance and high-speed rail networks. All Calenberg sub-ballast mats conform to DIN 45673-5 and will soon be extensively tested in compliance with the new EN 17282 standard.

Using elastic rail pads and base plate pads in special rail fastening systems exploits the load-transferring effect of rails. Acting forces are distributed across several support points of the applied wheel load, so that stress is greatly reduced on the directly affected rail support point.

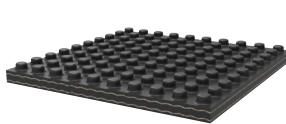
USM 1000 W



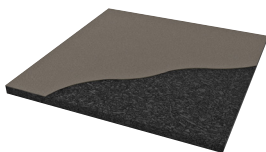
USM 2000 + 3000



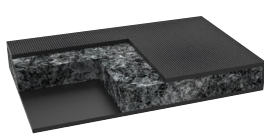
USM 4000



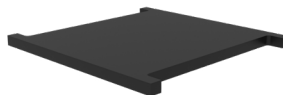
CIPROTEC



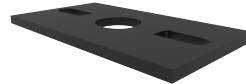
CIPROTEC G 1015



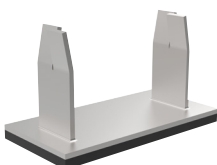
CIVICELL® (RAIL PADS)



CIPLACELL® (BASE PLATE PADS)



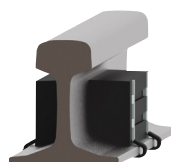
DIRECTIONAL CONTROL BEARING



EPDM SHEAR CAM PAD



RAIL DAMPERS

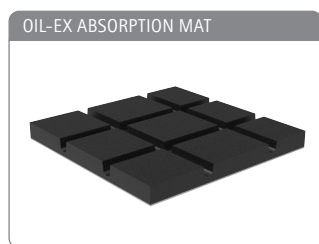


Effective components to protect the environment

OIL-EX absorption mat for effective environmental protection

The OIL-EX absorption mat absorbs liquid hydrocarbons such as oils, low-viscosity lubricants, fuels and organic solvents and selectively binds the hydrocarbons from emulsions. The liquids are distributed over the surface of the mat thanks to the absorption layer's shape and are subsequently bound in the material matrix.

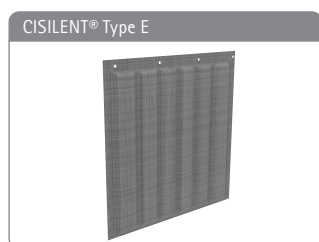
Surface water is not bound and drains off. The absorbed liquids remain in the mat and cannot be squeezed or rinsed out.



- Absorption effect regardless of weather and temperature
- Short absorption time
- Full pedestrian access and restricted vehicular access
- Absorbed media cannot be extruded or flushed out
- Can be used on unpaved surfaces
- Easy handling (installation, cutting to size)
- Suitable for mobile use
- Shock absorbing effect
- Noise and thermal insulation
- High proportion of recycled raw material
- Long service life

Noise reduction with Cisilent® Type E for effective sound insulation

The patented flexible noise barrier Cisilent® achieves a sound reduction index of $R_w = 21$ dB and ensures improved airborne sound insulation. Its special design concept, low transport weight and easy installation mean it can also be used in mobile structures. Now also available as a rental option.



- Highly sound-absorbent
- Low weight at about 5.5 kg/m^2
- Versatile use
- Easy installation
- Easy to transport
- Long service life
- Suitable for mobile use
- Suitable for scaffolding, construction site fencing and similar load-carrying structures
- Weatherproof and heat- and ozone-resistant
- Stable element structure

Quality management

National technical approvals, certifications, proof of suitability

Our products undergo strict in-house and external quality inspections as per national and international standards on a regular basis.

Our products are classified as per their fire safety report. The use of our products is regulated by national technical approvals. This allows us to provide our customers with consistent quality and meet all types of requirements.

- DIN EN ISO 9001 :2015
- DIN EN 13481
- DIN EN 13146-9
- DBS 918235:2017
- DIN 45673-5



State-of-the-art in-house test equipment

The new 160 kN servo-hydraulic test machine at our Losheim location can perform static and dynamic tests on EPDM elastomers at temperatures between -40 °C and +100 °C.

The test machine features a special thermal cabinet, meaning all relevant material properties can be reliably tested and documented.

It is mandatory for us to have technical universities and testing institutions perform comparative measurements on a rotating basis.



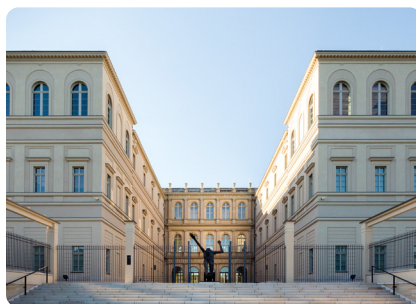
CONSTRUCTION AND INDUSTRY

OLYMPIC STADIUM, BERLIN, GERMANY



bi-trapez bearing®

BARBERINI PALACE, POTSDAM, GERMANY



Ciparall® sliding bearing

OPERA HOUSE, HANGZHOU, CHINA



Cibatur®

ELBE PHILHARMONIC HALL, HAMBURG, GERMANY



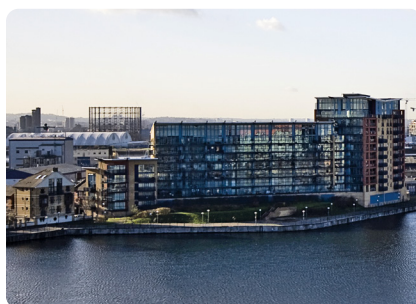
Cipremont®

ARNHEM STATION, NETHERLANDS



Ciparall® sliding bearing

BYLDIS, LONDON, UNITED KINGDOM



Compact bearing S 70

REICHSTAG, BERLIN, GERMANY

bi-trapez bearing®
Sandwich bearing Q

BERLIN CENTRAL STATION, GERMANY



Compact bearing S 65

RAILWAYS

COLOGNE CATHEDRAL & CENTRAL STATION, GERMANY



USM 1000 W

THE HAGUE METRO, NETHERLANDS



Rail pads
Base plate pads

ULSAN HIGH-SPEED LINE, POHANG, SOUTH KOREA



Rail pads
Base plate pads

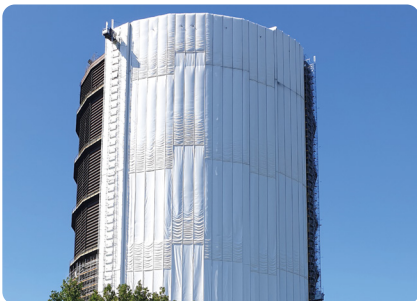
KARLSRUHE TRIANGULAR JUNCTION, GERMANY



USM 2020

ENVIRONMENT

GASOMETER, OBERHAUSEN, GERMANY



Cisilent® Type E

HAMBURG PORT, GERMANY



OIL-EX
absorption mat



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