

PERFORATED BEARING TYPE Z

Steel-reinforced elastomeric bearing loadable up to 35 N/mm²

SECURELY AND PERMANENTLY BEDDED

ENHANCING LIVING COMFORT WITH CALENBERG

Premium grade rubber material and a high quality standard in our elastomeric bearings guarantee freedom from maintenance, a long service life and, consequently, a completely damage-free structure.

KNOW



Prevention of structural damage

Deformations in structural components are caused by 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. 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 will need to be repaired at considerable expense in terms of time and cost.

The structural bearings' elastic effect transfers forces into connections between structural elements centrally while also compensating for deviations in plane parallelism. Elastomeric bearings systematically absorb shear deformations caused by non-permanent horizontal impacts.

Advantages for our customers

The bearings' extremely high load capacities allow cost-effective, filigree structural designs to be built. Elastomeric bearings do not require maintenance and do not need to be replaced if dimensioned and installed correctly. The designers also ensure there is extra capacity in the material to absorb any unforeseen loads. 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 preventing structural damage and eliminating renovation and maintenance costs. The static elastomeric bearings permanently transmit forces, twists and displacements into adjacent components without causing damage.

Product features

- Simple dimensioning
- Maintenance-free
- Weather- and ozone-resistant
- Extremely durable
- Very low creep behaviour
- Premium grade material (CR)
- Approved by building authorities

Perforated bearing type Z

Product description

The steel-reinforced perforated bearing type Z is a heavy-duty bearing which can be used in any place where strong forces need to be transmitted into relatively small surfaces. It comprises several elastomer layers (6 mm thick) based on the synthetic rubber chloroprene (CR) with a hardness of 65 ± 5 plus intermediate layers made of WTSt 52-3 weatherproof steel (cross force sheets 3 mm thick). The round hole grid allows the bearing to adapt effectively to imprecisions arising during installation and manufacture of the adjacent components. This helps to avoid stress concentrations. Splitting and splitting tensile forces are reduced compared to homogeneous elastomeric bearings. Both large angular rotations and strong vertical forces can be absorbed thanks to variable bearing heights.

Use and areas of application

Calenberg perforated bearings type Z are used in all areas of construction as permanently elastic articulating connection elements. The elastomeric bearing is used for structural elements subject to high stress loads.

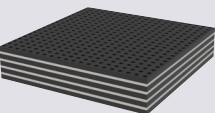
Building authority approval

The approval for use as a construction bearing in building construction is regulated by the standard building authority certification Z-16.33-481, issued by the German Center of Competence in Civil Engineering (DIBt).

Fire behaviour

Fire safety report no. 3799/7357-AR by the Technical University (TU) of Braunschweig must be taken into account for fire safety requirements. The report describes minimum dimensions and other measures that fulfil the requirements specified in DIN 4102-2.

EXCERPT FROM THE TECHNICAL DATA

	Bearing designation	Type of bearing	Bearing thickness [mm]	Compressive stress	Approval
	Perforated bearing type Z	Steel-reinforced elastomer bearing	15	$\sigma_{R,d} = 35 \text{ N/mm}^2$	Z-16.33-481
			24		
			33		
			42		
			51		

Delivery forms

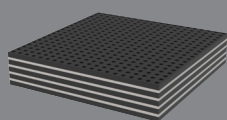


Perforated bearings type Z can be supplied in almost any size to meet your project's requirements. The bearings can be provided with holes, cut-outs, slots and similar.

The bearings are embedded in polystyrene in the factory and equipped with a water-repellent plastic cover for in-situ concrete construction.

A Ciflamon fire protection board with a width of at least 30 mm is provided if necessary to meet fire protection requirements.

STANDARD CUT-OUTS



Hole



Slot



Slit notch



Diagonal cut



Corner notch



Rectangular notch



Rectangular hole

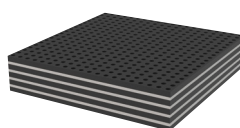
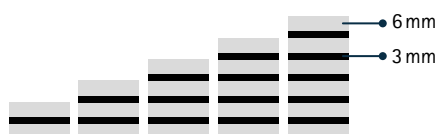


DIMENSIONS

Bearing thickness	Maximum cut size	Minimum cut size
15, 24, 33, 42, 51 mm	600 mm x 600 mm	120 mm x 120 mm; Ø = 120 mm for round bearings

* Customised sizes are available on request

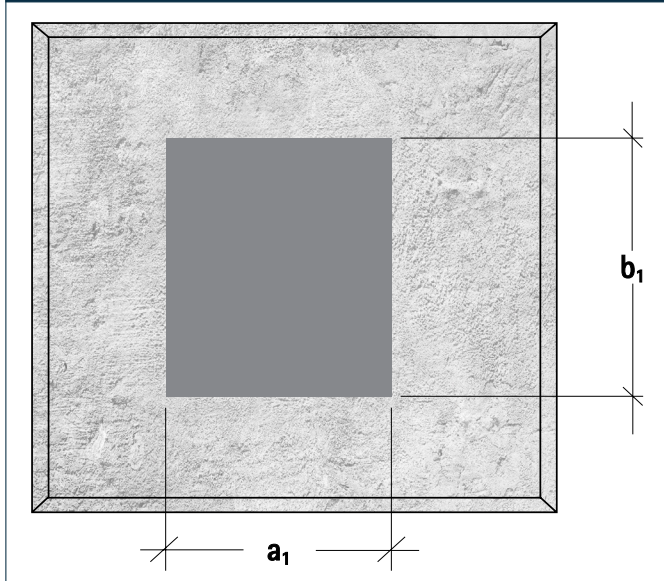
Model types



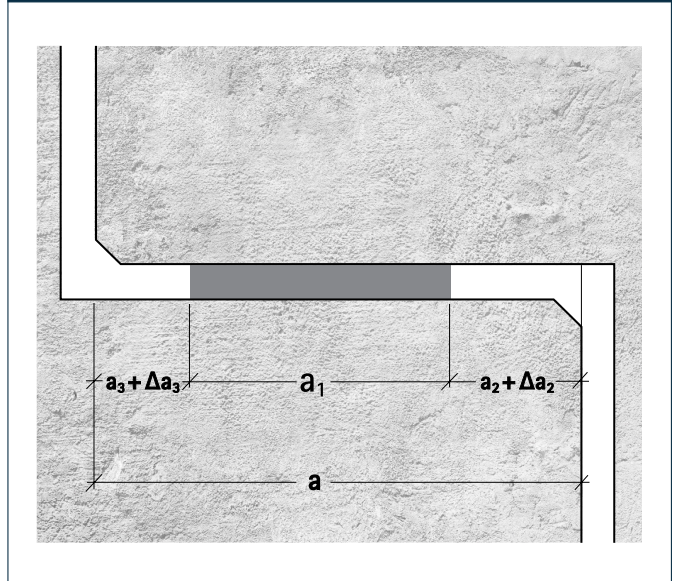


The bearing sections must be designed in accordance with the structural specifications and standards. The required edge distances must be taken into account in accordance with EN 1992-1-1 (2011-01). The elastomeric bearing must be located within the reinforcement to allow the bearing to deform as designed and prevent spalling at the edge.

EDGE DISTANCE TOP VIEW



EDGE DISTANCE SIDE VIEW



LEGEND

Values for determining the required edge distances according to DIN EN 1992-1-1

a | a_1 | a_2 | Δa_2 | a_3 | Δa_3 | b_1

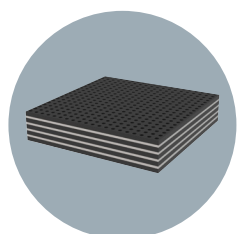
Installation



Prior to installation, it must be ensured that the elastomer bearings and bearing surfaces are free of dirt, ice, snow, grease, solvents, oils or separating agents.

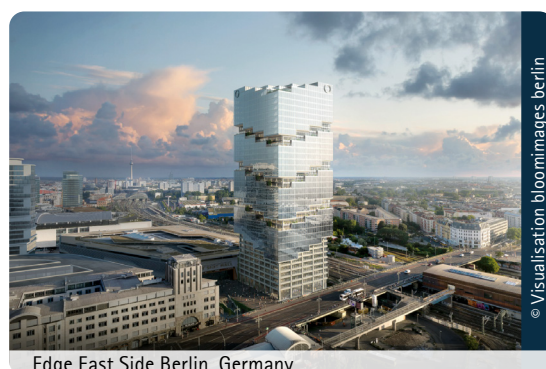
In the case of in-situ concrete construction, the bearing joints must be filled and covered so that no concrete slurry can penetrate them. The bearing's spring effect must be guaranteed.

Extract from our client reference projects



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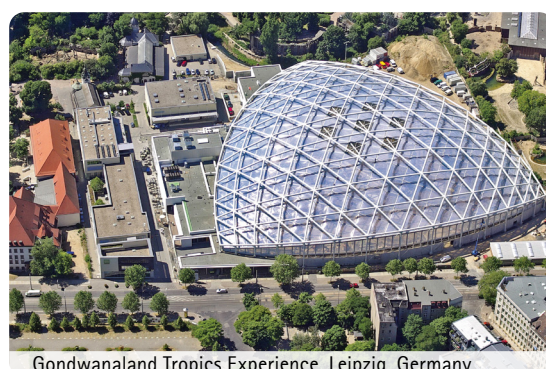
- Edge East Side Berlin, Berlin, Germany
- Mercedes Benz Museum, Stuttgart, Germany
- Gondwanaland Tropics Experience, Leipzig, Germany
- Daimler AG Factory 56 production workshop, Sindelfingen, Germany
- Münchner Volkstheater, Munich, Germany
- Koelnmesse 3.0 Hall 1, Cologne Trade Fair, Cologne, Germany
- Byldis, London, United Kingdom
- Zurich Zoo, Zurich, Switzerland
- Naturalis Biodiversity Center, Leiden, Netherlands
- Aluminium Recycling Center, Nachterstedt, Germany
- Ikea Hamburg Altona, Germany
- CERN Nuclear Research Center, Geneva, Switzerland
- Fire and ambulance station, Potsdam, Germany
- Airbus Hamburg, Germany
- Hanover Trade Fair Hall, Germany
- DESY Research Centre, Hamburg, Germany



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Mercedes Benz Museum, Stuttgart, Germany



Gondwanaland Tropics Experience, Leipzig, Germany



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