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Elastomeric Bridge Bearings

Trelleborg Infrastructure

Introduction

Since 2005 the European standard EN 1337-3 has applied to elastomeric bearings for architectural and civil-engineering applications. Besides the functional requirements, the standard describes the design rules, the material properties, the production tolerances and the acceptance tests. Trelleborg Infrastructure designs and manufactures elastomeric bridge bearings in accordance with this standard.

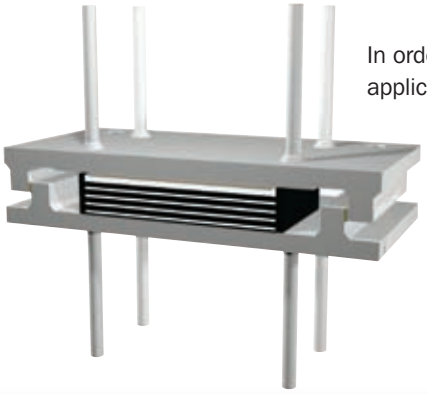
Functional requirements

Elastomeric bearings need to transmit loads and accommodate horizontal movements and rotations around each axis that can occur between two structures. Design analyses will determine the scale of the forces and deformations. Forces, rotations and deformations can be used to start the selection procedure. Experience shows that, under normal circumstances and with regular maintenance, structural bearings can function for decades.

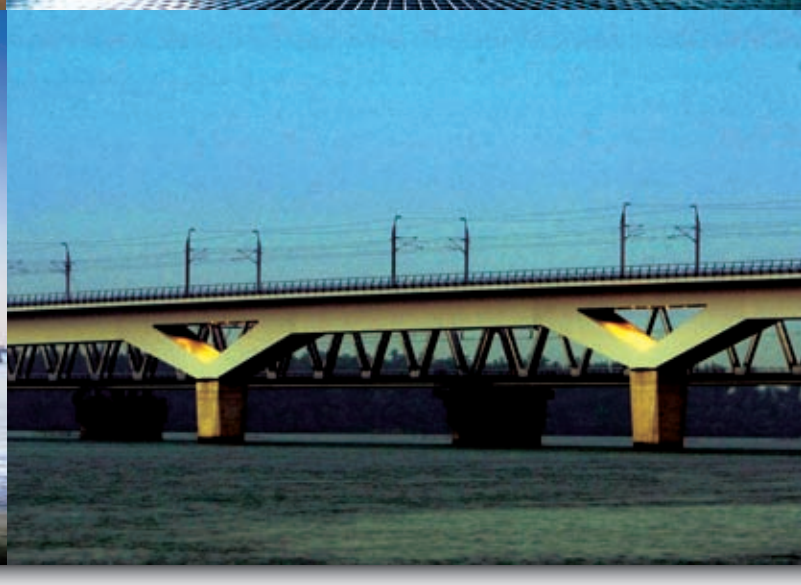
Design

The type of bearing will need to be determined for each support point in accordance with the functional requirements. Small spans can usually suffice with conventional laminated structural bearings: rectangular or circular. Larger spans may require bearings with complementary bearing devices.

The design calculations will be made based on the functional requirements and the type of bearing selected. The allowable surface pressure and the area available largely determine the length and width of the bearing. The thickness of the rubber layer depends on the rotation to be absorbed. The expected horizontal movements strongly influence the thickness of the total rubber package.



In order to change their field of application the elastomeric bearings can be combined with complementary bearing devices, such as a restrain system or a sliding system. The restrain type prevents movements in all horizontal directions. Sliding systems, with or without guides, allow movements bigger than the shear capacity in plane surfaces. The guide type is a sliding element which restrains movements in direction. The sliding systems are provided with a PTFE sheet in combination with a lubricant in order to reduce the sliding resistance. The design and manufacture of sliding bearings are defined in the European Standard EN 1337-2.



Production

Trelleborg Infrastructure's elastomeric bearings are all manufactured from rubber and steel that meet EN 1337 requirements.

The quality of each consignment is checked following production. Compression and shear tests are carried out in accordance with the standard and the test results are presented to the client.

Company

Trelleborg Infrastructure is a member of the Trelleborg group - a global industrial group offering leading-edge expertise in polymer technology combined with advanced industrial know-how in respect of functional solutions and systems to meet our customers' requirements. The Group has approximately 20,000 employees in some 40 countries. The Group's Headquarters are located in Trelleborg, Sweden.

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