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Elastomeric seismic-protection isolators —

Part 3: Applications for buildings — Specifications

Appareils d'appuis structuraux en élastomère pour protection sismique —

Partie 3: Applications pour bâtiments — Spécifications



Reference number ISO 22762-3:2010(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in Haison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22762-3 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*.

This second edition cancels and replaces the first edition (ISO 22762-3:2005), which has been technically revised. It also incorporates the Technical Corrigendum SO 22762-3:2005/Cor.1:2006.

ISO 22762 consists of the following parts, under the general title Elastomeric seismic-protection isolators:

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— Part 1: Test methods

- Part 2: Applications for bridges Specifications
- Part 3: Applications for buildings Specifications



Introduction

ISO 22762 (all parts) consists of two parts related to specifications for isolators, i.e. ISO 22762-2 for bridges and ISO 22762-3 for buildings. This is because the isolator requirements for bridges and buildings are quite different, although the basic concept of the two products is similar. Therefore, ISO 22762-2 and the relevant clauses in ISO 22762-1 are used when ISO 22762 (all parts) is applied to the design of bridge isolators whereas this part of ISO 22762 and the relevant clauses of ISO 22762-1 are used when it is applied to building isolators.

The main differences to be noted between isolators for bridges and isolators for buildings are the following.

- a) Isolators for bridges are mainly rectangular in shape and those for buildings are circular in shape.
- b) Isolators for bridges are designed to be used for both rotation and horizontal displacement, while isolators for buildings are designed to horizontal displacement only.
- c) Isolators for bridges are designed to perform on a daily basis to accommodate length changes of bridges caused by temperature changes as well as during earthquakes, while isolators for buildings are designed to perform only during earthquakes.
- d) Isolators for bridges are designed to whistand dynamic loads caused by vehicles on a daily basis as well as earthquakes, while isolators for buildings are mainly designed to withstand dynamic loads caused by earthquakes only.

For structures other than buildings and bridges (e.e. tanks), the structural engineer uses either ISO 22762-2 or ISO 22762-3, depending on the requirements of the structure.



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Elastomeric seismic-protection isolators —

Part 3: Applications for buildings — Specifications

1 Scope

This part of ISO 22762 specifies minimum requirements and test methods for elastomeric seismic isolators used for buildings and the rubber material used in the manufacture of such isolators.

It is applicable to elastomeric exismic isolators used to provide buildings with protection from earthquake damage. The isolators covered consist of alternate elastomeric layers and reinforcing steel plates. They are placed between a superstructure and its substructure to provide both flexibility for decoupling structural systems from ground motion, and damping capability to reduce displacement at the isolation interface and the transmission of energy from the ground unto the structure at the isolation frequency.

2 Normative references



ISO 630, Structural steels — Plates, wide flats, bars, sections and profiles

ISO 1052, Steels for general engineering purposes

ISO 22762-1:2010, Elastomeric seismic-protection isolators — Part 1: Test methods

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

breaking

rupture of elastomeric isolator due to compression (or tension)-shear loading

3.2

buckling

state when elastomeric isolators lose their stability under compression-shear loading

3.3

compressive properties of elastomeric isolator

Kγ

compressive stiffness for all types of rubber bearings