ELASTOMER SERVICE ZENTRALE
WILFRIED BECKER GMBH

ESZ deformation bearing | Fire protection and fire behaviour

Explanations

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General information:

The introduction is intended to provide an overview of the applicable building regulations with regard to the fire protection classification of elastomer bearings. In order to be able to correctly classify the elastomer bearing building product in terms of fire protection, the specifications contained in the Model Building Regulations, the Building Product Regulations and the technical rules/standards are relevant.

In part 3 "General requirements for the building implementation" of the Model Building Regulations (Musterbauordnung [MBO]; revision 13/05/2016), the following requirements are set out in §14 Fire protection:

> *"Structural systems must be arranged, erected, modified and maintained in such a way that the development of a fire and the spread of fire and smoke (fire propagation) are prevented and the rescue of people and animals as well as effective extinguishing work are possible."*

Basic qualitative protective goals of fire protection are thus defined. The specific implementation of these protective goals is defined in the respective state building regulations.

In part 4 of the MBO, the following requirements are defined in § 26 Requirements for the fire behaviour of building materials:

> *"Building materials that are not at least normally flammable (easily flammable building materials) may not be used if they are not easily flammable in conjunction with other building materials."*

This means that proof of the fire behaviour is necessary for the elastomer bearings. This requirement is to be found in the majority of the state regulations.

In addition to the regulations there are directives which, from a legal point of view, do not have the same significance. They contain detailed specifications for the implementation of the requirements set out in the state building regulations. One example of this is the industrial/ school construction directives. Of the numerous fire protection standards, the standard series DIN 4102 (national) and EN 13501 (European) are relevant to elastomer bearings. In these standards building materials are subdivided into building material classes according to their fire behaviour. Both standards are currently valid. Through the European harmonisation, standardised classes for building products were created on the basis of the Building Products Regulations (BauPVO) so that they can be brought onto the market

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throughout Europe. The newly developed classification system differs from the national system. Hence, in addition to the building material classes or fire behaviour classes, the smoke development (s1, s2, s3) and the flaming droplets (d1, d2, d3) are also classified.

An overview of the classes on the national and European standards is shown in the following table. The corresponding classification standard EN 13501-1 has been adopted into the Building Regulation List as a valid verification.

German supervisory reqirement	no flaming droplets		EN 13501-1	DIN 4102-1
	no smoke	no flaming droplets		
not combustible without combustible components	x	x	A1	A1
not combustible with combustible components	x	x	A2-s1, d0	A2
fire retardant	x	x	B; C-s1, d0	B1
		x	A2; B; C-s2, d0	
		x	A2; B; C-s3, d0	
	x		A2; B; C-s1, d1	
	x		A2; B; C-s1, d2	
			A2; B; C-s3, d2	
normally flammable	x	x	D-s1, d0	B2
		x	D-s2, d0	
		x	D-s3, d0	
	x		D-s1, d2	
			D-s2, d2	
			D-s3, d2	
		x	E	
			E-d2	
easily flammable			F	B3

Identification	Requirement
s1	no / hardly any smoke development
s2	limited smoke development
s3	unrestricted smoke development

Identification	Requirement
d0	no dripping
d1	limited dripping
d2	heavy dripping

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Fire resistance class:

The term "fire resistance classes" originates from DIN 4102-2. With the different fire resistance classes components are classified according to their fire resistance duration.
The identifying letter F is followed by the fire resistance duration in minutes. The fire resistance classes are defined in DIN 4102-2 as follows:

Feuerwiderstandsklassen F	Feuerwiderstandsdauer in Minuten
F30	≥ 30
F60	≥ 60
F90	≥ 90
F120	≥ 100
F180	≥ 120

Für Elastomerlager ist die Zuordnung in eine Feuerwiderstandsklasse nicht möglich, da sich Feuerwiderstandsklassen auf Bauteile beziehen und nicht auf einzelne Baustoffe. Die DIN 4102-2, Abschnitt 1 definiert Bauteile wie folgt:

> *„...Als Bauteile im Sinne dieser Norm gelten Wände, Decke, Stützen, Unterzüge, Treppen usw...."*

Auf europäischer Ebene wird der Feuerwiderstand von Bauteilen in der DIN EN 13501-2 geregelt. Teil 2: Klassifizierung mit den Ergebnissen aus den Feuerwiderstandsprüfungen, mit Ausnahme von Lüftungsanlagen, 13501-2:2007A1:2009.

Diese Norm befasst sich mit der Klassifizierung der Ergebnisse aus Feuerwiderstandsprüfungen an Bauteilen. Auch in dieser Norm wird der Begriff Bauteil im Kapitel 3 klar beschrieben als:

> *„definiertes Teil eines Bauwerks, z. B. Wand, Trennwand, Decke, Dach, Balken oder Stützen (EN 1363-1:1999)."*

Demnach können Elastomerlager auch nach europäischer Norm nicht als Bauteil im Sinne der Norm behandelt werden. Die Firma ESZ Wilfried Becker lässt das Brandverhalten von Bauprodukten gemäß europäischer Norm 13501-1 prüfen. Ergebnisse dieser Brandverhaltenstests sind dem Klassifizierungsbericht Nr.: 3107080304-A zu entnehmen.

Konstruktiver Brandschutz:

Sollten Auflagerpunkte in der Konstruktion brandschutztechnisch relevant werden, so sind konstruktive Brandschutzmaßnahmen notwendig um das Lager gegen Brandeinwirkung zu schützen. Der konstruktive Brandschutzkamm mit ausgewiesenen Brandschutzprodukten wie folgt umgesetzt werden:

- durch Ummantelung der Elastomerlager mit geeigneter Mineralwolle
- durch Versiegelung der Bauteilfuge
- durch einbringen von Brandschutzschnüren

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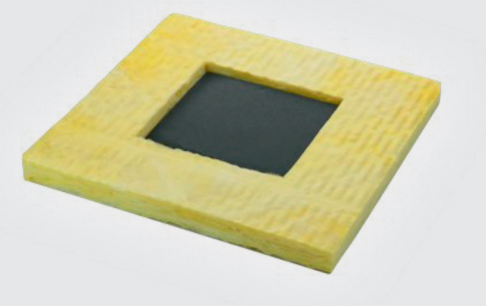
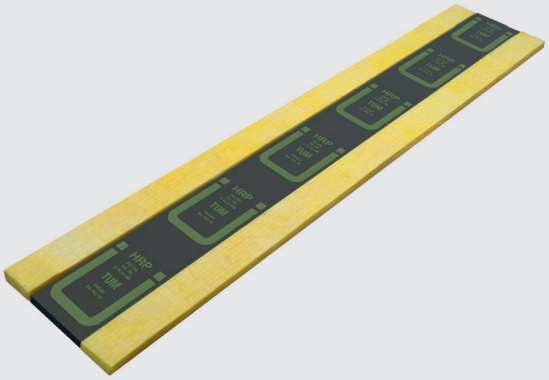
ESZ-Verformungslager | Brandschutz und Brandverhalten

Erläuterungen





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