



**WILFRIED BECKER GMBH**  
Elastomer Service Zentrale

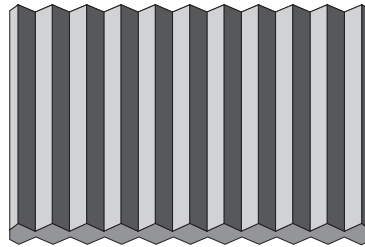
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# Pyramid bearings

Pyramid bearings  $t = 10$  mm  
non-reinforced elastomer bearing



Supervisory approval no. Z 16.3-195. With marking.

## Function and Use

The pyramid bearing (or pyramid band) is a non-reinforced elastomer system. Due to its profiled section, it has "spring elastic" properties and many uses.

It is suitable for both **component support** (individual bearing or linear bearing) and for **vibration insulation** and **structure-borne sound insulation**.

## Material

The pyramid bearing consists of vulcanisate based on EPDM (ethylene propylene ter-rubber). The production is subject to official quality control.

## Defining the permissible static stresses

1. Definition of the bearing class to DIN 4141, part 3 (according to the conditions of use)
2. Determination of the bearing size (edge-to-edge distances to DIN 4141 part 15, para 5.3 shall be complied with)
3. Proving the bearing  
The permissible stresses can be taken from the design table.

## Design table

| Dimensions |          | perm. stresses          |            |                                    |     |                                    |     |
|------------|----------|-------------------------|------------|------------------------------------|-----|------------------------------------|-----|
| Depth      | Width    | mean pressure           | perm. load | Torsion angle $\Delta a$           |     |                                    |     |
|            |          |                         |            | Bearing 1 class for torsion above: |     | Bearing 2 class for torsion above: |     |
| a mm       | b mm     | $s_m$ N/mm <sup>2</sup> | F KN       | a ‰                                | b ‰ | a ‰                                | b ‰ |
| 50         | 100      | 4.8                     | 24.0       |                                    |     | 60                                 | 30  |
|            | 150      | 5.4                     | 40.5       |                                    |     | 60                                 | 25  |
|            | 200      | 5.7                     | 57.0       |                                    |     | 60                                 | 20  |
|            | 250      | 6.0                     | 75.0       |                                    |     | 60                                 | 17  |
|            | 300      | 6.1                     | 91.5       |                                    |     | 60                                 | 15  |
|            | 350      | 6.2                     | 108.5      |                                    |     | 60                                 | 12  |
|            | 400      | 6.3                     | 126.0      |                                    |     | 60                                 | 10  |
|            | 1000     | 6.8                     | 340.0      |                                    |     | 60                                 | 4   |
|            | $\infty$ |                         |            |                                    |     | 60                                 | 0   |
| 100        | 100      | 7.1                     | 71.0       | 23                                 | 23  | 30                                 | 30  |
|            | 150      | 8.6                     | 129.0      | 20                                 | 14  | 30                                 | 25  |
|            | 200      | 9.6                     | 192.0      | 18                                 | 10  | 30                                 | 20  |
|            | 250      | 10.0                    | 250.0      | 17                                 | 8   | 30                                 | 17  |
|            | 300      | 10.0                    | 300.0      | 17                                 | 7   | 30                                 | 15  |
|            | 350      | 10.0                    | 350.0      | 17                                 | 6   | 30                                 | 12  |
|            | 400      | 10.0                    | 400.0      | 17                                 | 5   | 30                                 | 10  |
|            | 1000     | 10.0                    | 1000.0     | 17                                 | 2   | 30                                 | 4   |
|            | $\infty$ |                         |            |                                    |     | 30                                 | 0   |
| 150        | 150      | 10.0                    | 225.0      | 14                                 | 14  | 25                                 | 25  |
|            | 200      | 10.0                    | 300.0      | 14                                 | 10  | 25                                 | 20  |
|            | 250      | 10.0                    | 375.0      | 14                                 | 8   | 25                                 | 17  |
|            | 300      | 10.0                    | 450.0      | 14                                 | 7   | 25                                 | 15  |
|            | 350      | 10.0                    | 525.0      | 14                                 | 6   | 25                                 | 12  |
|            | 400      | 10.0                    | 600.0      | 14                                 | 5   | 25                                 | 10  |
|            | 1000     | 10.0                    | 1500.0     | 14                                 | 2   | 25                                 | 4   |
|            | $\infty$ |                         |            |                                    |     | 25                                 | 0   |
|            | 200      | 200                     | 10.0       | 400.0                              | 10  | 10                                 | 20  |
| 250        |          | 10.0                    | 500.0      | 10                                 | 8   | 20                                 | 17  |
| 300        |          | 10.0                    | 600.0      | 10                                 | 7   | 20                                 | 15  |
| 350        |          | 10.0                    | 700.0      | 10                                 | 6   | 20                                 | 12  |
| 400        |          | 10.0                    | 800.0      | 10                                 | 5   | 20                                 | 10  |
| 450        |          | 10.0                    | 900.0      | 10                                 | 4   | 20                                 | 8   |
| 500        |          | 10.0                    | 1000.0     | 10                                 | 4   | 20                                 | 7   |
| 1000       |          | 10.0                    | 2000.0     | 10                                 | 2   | 20                                 | 4   |
| $\infty$   |          |                         |            |                                    |     | 20                                 | 0   |

**Bearing thickness:** unloaded:  $t = 10$  mm; loaded:  $t_D = 7$  mm

Maximum displacement distance:  $\Delta w = \pm 5$  mm

\*Intermediate values may be interpreted linearly.

## Assembly

In precast reinforced concrete construction, the ESZ pyramid bearing (or pyramid band) is placed in the centre of the supported position, without special assembly measures. As regards edge-to-edge distances, the rules of DIN 4141 part 15, para. 5.3 shall be observed.

## Fire resistance grading

Due to its thickness and material, based on a test by the Institut für Baustoffkunde [Institute of Construction Material Science] at Braunschweig University, the pyramid bearing can be assigned to fire resistance grading F90 B without further measures.

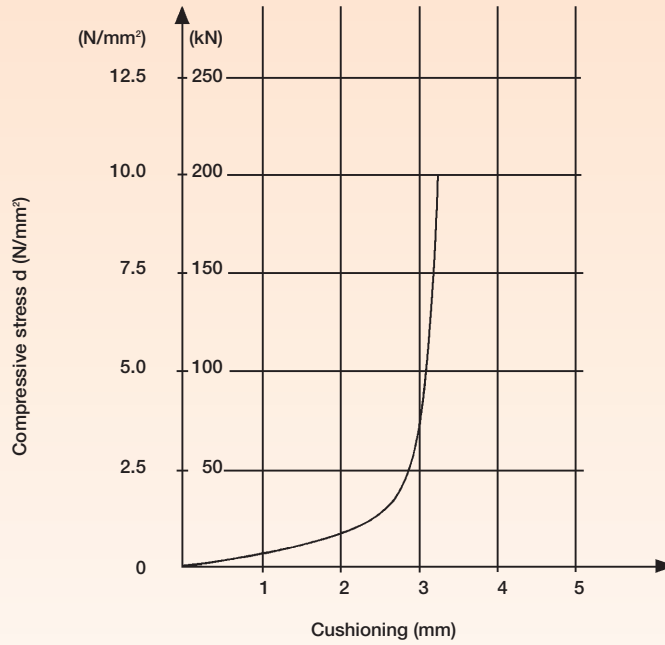
Conditions:

$a \times b \geq 150 \times 150 \text{ mm}^2$

Report no. 3166/1589

## Static central loading on ESZ-PYRAMID BAND

non-load thickness = 10 mm



## Dimensions/supplied as

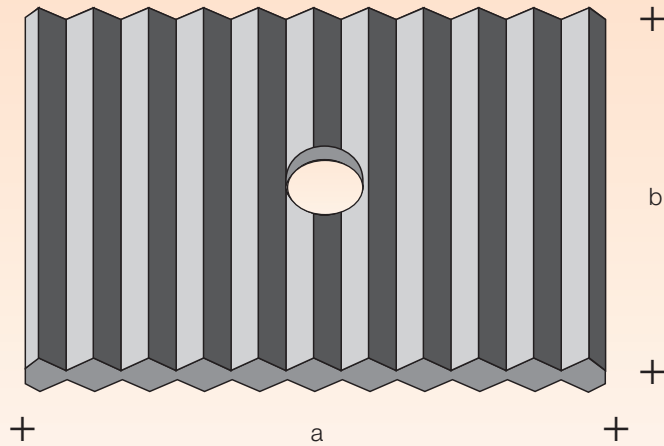
### 1. Ready and cut to size

We cut the pyramid bearing to the dimensions required and, if necessary, provide them with a mandrel hole.

#### Order text:

Pyramid band:  $a \times b \times t$   
with/without mandrel hole

$\emptyset$  \_\_\_ centrally/  
or dimensional chain



Ready and cut to size, with mandrel hole

### 2. Rolls

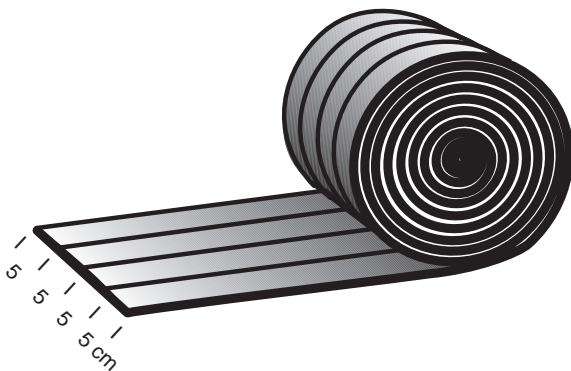
A tear-off seam every 5 cm.

#### Rolls – order text:

ESZ pyramid band on rolls

\_\_\_ rolls à \_\_\_ m length,

\_\_\_ mm wide x \_\_\_ mm thick



| Thickness/mm | Width/mm | Length/m | m <sup>2</sup> /roll |
|--------------|----------|----------|----------------------|
| 5*           | 50       | 20       | 1.0                  |
|              | 150      | 20       | 3.0                  |
|              | 200      | 20       | 4.0                  |
| 10           | 50       | 10       | 0.5                  |
|              | 100      | 10/20    | 1.0/2.0              |
|              | 150      | 10/20    | 1.5/3.0              |
|              | 200      | 10/20    | 2.0/4.0              |
| 15*          | 200      | 10       | 2.0                  |
| 20*          | 200      | 10       | 2.0                  |

\* These thicknesses do not have supervisory approval. They were developed for footstep sound and vibration protection. Please consult us regarding the use as a construction bearing for general building construction.