

ESZ profile bearings



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INFORMATION REGARDING THE USE OF BEARINGS AND TYPES OF DELIVERY

1. Use objective

The ESZ profile bearing is a profiled elastomeric material and is intended for the static and structure borne noise damping support of components, particularly precast components of reinforced and prestressed concrete. Use takes place acc. to the provisions of DIN 4141 Part 3 for bearing class 2.

2. Deformation

Due to a high degree of initial bearing cushioning, the bearing compensates contact surface irregularities well. Due to the highly elastic deformation behaviour, the ESZ profile bearing shows excellent insulation properties at average compression $< 1 \text{ N/mm}^2$. The bearing cushioning is $< 50 \%$, even under the maximum permissible vertical load.

3. Mating surfaces

The dimensioning information applies for the use of the bearings between mating surface of reinforced concrete. The bearings should be laid within the reinforcement to prevent concrete spalling. Deviations may occur, particularly when used between steel mating faces (poor frictional adhesion). Please contact us in case of the use of other than reinforced concrete mating faces.

4. Temperature range of use

The bearing is intended for use within a temperature range of -30° C to $+50^\circ \text{ C}$.

5. Fire resistance classes

Dimensions $\geq 150 \times 150 \text{ mm}$ are to be classified in fire resistance class F 90-B acc. to DIN 4102. Smaller formats must be protected by corresponding edge strips.

6. Tests/Quality Assurance

The ESZ profile bearing has a General Building Authority Test Certificate for use in accordance with DIN 4141-3, bearing class 2.

7. Delivery types

– for prefab construction

As cut-to-size elements for all usual elastomeric footprint areas in reinforced and prestressed concrete construction with drillholes, cutouts, oblique sections, etc. Rolls with widths of 50, 100, 150 and 200 mm (roll widths $> 50 \text{ mm}$ have a tear seam every 50 mm).

Bearing thicknesses: 5, 10, 15 and 20 mm.

– for in-situ application

The bearing can be supplied for in-situ concrete applications, ready for pouring with permanent formwork.

The permanent formwork can be made for strip and point bearings.

This applies to all bearing thicknesses of 5, 10, 15 and 20 mm.

8. RFQ and order text

-for use as in-situ concrete point bearing

Delivery and installation of ESZ profile bearings

Bearing thickness: 5/10/15/20 mm

Format of elastomer bearings: $a \times b \text{ mm}$

Format incl. blind formwork: $a_G \times b_G \text{ mm}$

– for use as in-situ concrete strip bearings

Delivery and installation of ESZ profile bearings

Bearing thickness: 5/10/15/20 mm

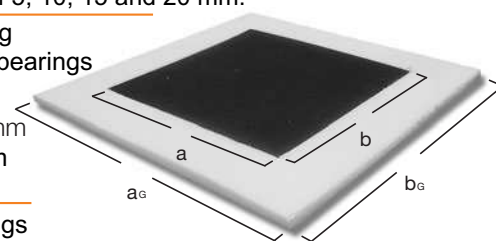
Elastomer bearing width: $a \text{ mm}$

Width incl. blind formwork: $a_G \text{ mm}$

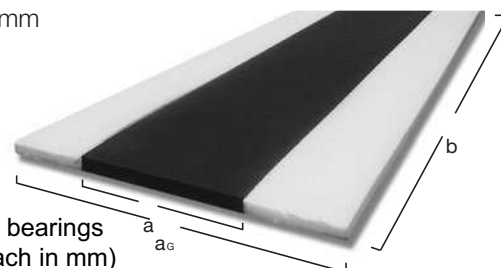
Length b: metres

– for use between prefab parts

Delivery and installation of ESZ profile bearings
 $a \times b \times t$ (width x length x thickness, each in mm)



Principle sketch



ESZ profile bearings

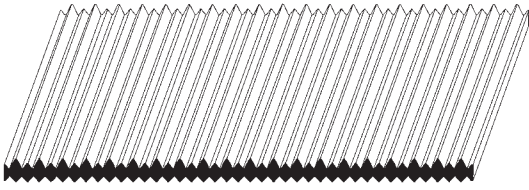


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Design profile bearing t = 10 mm

DESIGN INFORMATION

Use as a bearing for structure-borne noise and vibration insulation

Design table

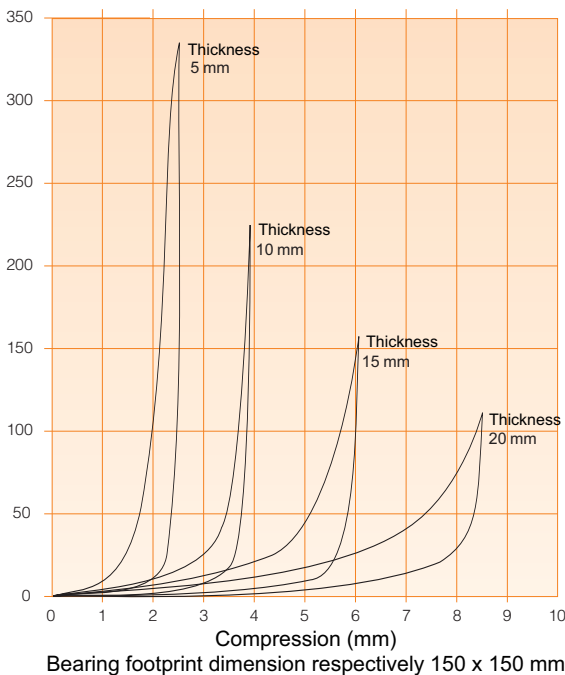
Bearing thickness [mm]	5	10	15	20
Structure-borne noise insulation ΔL [dB]	12	19,5	20	22
Insulation effect [%]	> 80	> 90	> 90	> 90
Natural frequency [Hz]	34-38	26-30	26-28	21-22
TSMB	12-14	20-26	21-27	22-28
L'n,w,B	49-51	37-43	36-42	35-41

The ESZ profile bearing is ideally suitable for structure-borne noise insulation. The average compression for this field of application should be $< 1 \text{ N/mm}^2$. The occurrence of sound bridges caused by installation errors is to be prevented.

The table represents the expected structure-borne noise insulation for a load range of $0.2\text{-}0.6 \text{ N/mm}^2$ with a broadband stimulation of acc. to DIN 52210.

Pressure compression curves ESZ profile bearings

Pressure load (kN)



Use as a bearing for static component bearing systems

Evaluation table for bearings t = 10 mm
(Permissible loads from characteristic exposure)

Width a [mm]	Length b [mm]	average compression σ_m [N/mm ²]	perm. load F [kN]	perm. α [%] right-angle to a	perm. α [%] right-angle to b
100	100	10	100	30	30
	150	10	150	30	20
	200	10	200	30	15
	250	10	250	30	12
	300	10	300	30	10
	400	10	400	30	7,5
150	1000	10	1000	30	3
	150	10	225	20	20
	200	10	300	20	15
	250	10	375	20	12
	300	10	450	20	10
	350	10	525	20	8,5
200	400	10	600	20	7,5
	1000	10	1500	20	3
	200	10	400	15	15
	250	10	500	15	12
	300	10	600	15	10
	350	10	700	15	8,5
	400	10	800	15	7,5
	450	10	900	15	6,5
	1000	10	2000	15	3

The linear interpolation of intermediate values is allowed.

Design principles:

Thickness t unloaded [mm]	Thickness t loaded [mm ²]	perm. σ_m [N/mm ² **]	\pm perm. u [mm]	perm. α Radian measure
5 ***	3	15	3	0,2 x 3 mm/a
10	6	10	5	0,5 x 6 mm/a
15 ***	9	7	6	0,2 x 9 mm/a
20 ***	11	5	7	0,2 x 11 mm/a

* see Pressure compression curves ESZ profile bearings

** Format-independent, condition: $a \leq b \leq 100 \text{ mm}$

*** Identical with ESZ pyramid bearings in thickness values of 5, 15 or 20 mm