ESZ type 150 | for static component bearing
Technical documentation

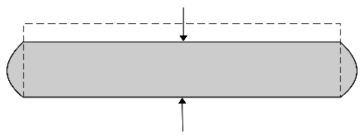

Figure 1

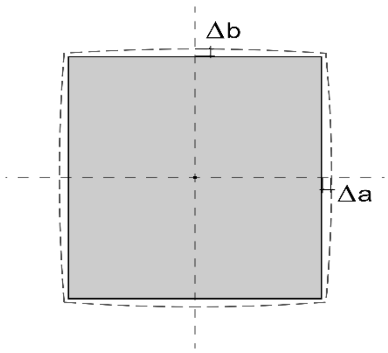

Figure 2

The following pages show **pressure compression characteristic curves** and **the bulging behaviour** for selected bearing formats in diagram form.

The orientation diagrams make it possible to estimate the deflection as a function of the existing compressive stress. The characteristic curves were determined on reinforced concrete contact surfaces and with centric load application. The diagrams each show the evaluation at the third load on the bearing. In construction practice, the deflection may deviate from the values of the compressive compression characteristics given here as examples, depending on the characteristic of the substrate, deviations of the contact surfaces from plane parallelism and any rotations/offsets that occur.
The deflection decreases with increasing bearing footprint sizes.

The bulging behaviour depends on the nominal bearing thickness and the permissible design compressive stress. The expansion dimensions in the diagrams shown refer to one side of the bearing, as shown in Figure 2.

The bearing thicknesses 10 mm and 20 mm are each summarised in a diagram, where t = 10 mm is shown in green and t = 20 mm in red.

The bulging behaviour is largely dependent on the **roughness** of the contact surfaces. The roughness of the concrete contact surfaces from these tests was analysed in accordance with DIN EN ISO 4287.
The arithmetic mean roughness value Ra was determined from 4 individual measurement strips > Ra = 808.5µm.

Typical roughness values are
Concrete (200-900 µm); steel (1-50 µm)

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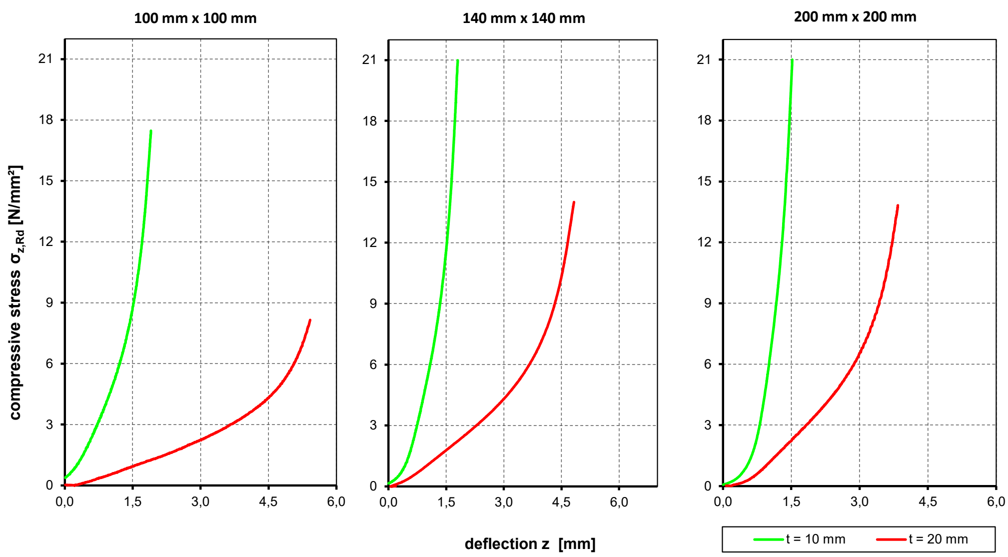
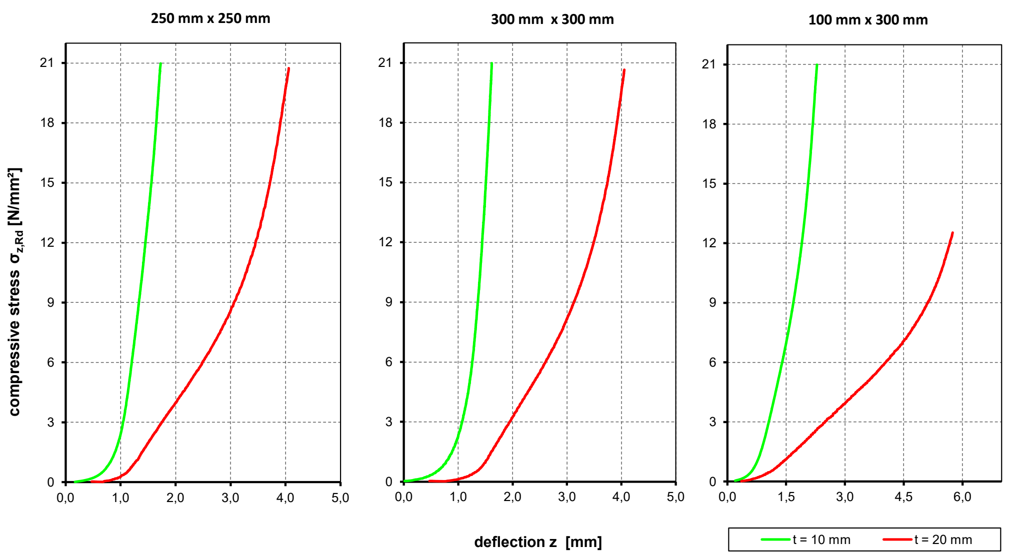
t = 10 mm and 20 mm
(exemplary formats, concrete contact surface)





The bearing thicknesses 10 mm and 20 mm are each summarised in a diagram, where t = 10 mm is shown in green and t = 20 mm in red.

On request, we will be happy to determine the deflection and the bulging of not shown bearing formats according to our technical capabilities.

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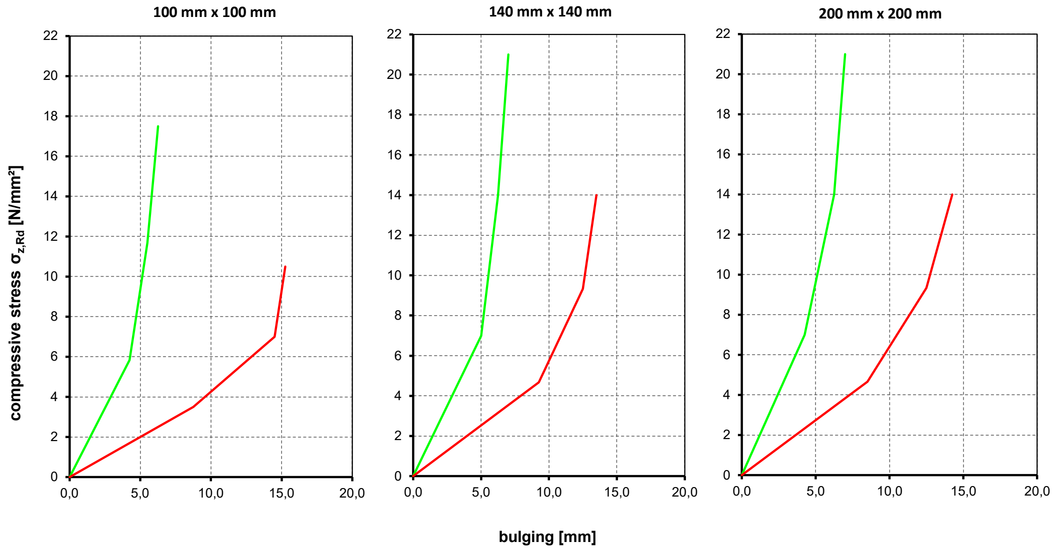

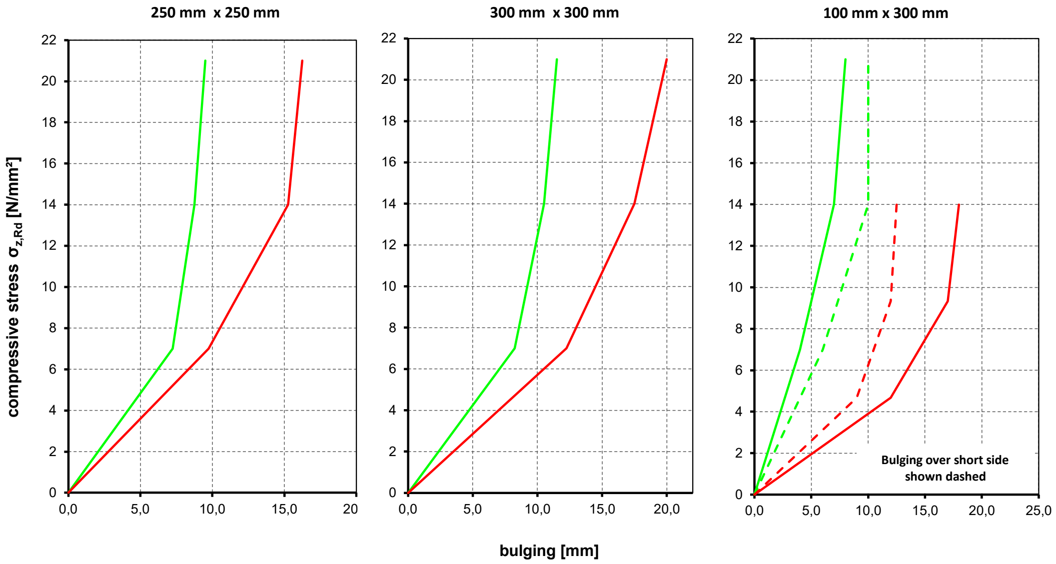

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ESZ type 150 | with national technical approval
General information and calculation basis

Initial assumptions

$F_{z,max,d}$	=	200	kN
f_{tRd}	=	Formula	N/mm²
a	=	130	mm
b	=	150	mm
t	=	15	mm
G	=	1.2	N/mm²
$\alpha_{Statics}$	=	5.2	‰
$\alpha_{Obliqueness}$	=	10	‰
$\alpha_{Unevenness}$	=	4.8	‰
$\alpha_{bd\ total}$	=	20	‰
η_2	=	0.215	

In this calculation example, a rotation around the axis parallel to the bearing side b (α_{bd}) is calculated. The bearing has no holes.

Calculation way

$$S = \frac{130 \cdot 150}{2 \cdot 15 \cdot (130+150)} = \mathbf{2.32}$$

$$R_{\perp d} = 7.22 \cdot S - 3.39 = 17.22 \cdot 2.32 - 3.39 = \mathbf{13.36\ N/mm^2}$$

$$f_{tRd} = \frac{13.36}{0.215} \cdot \frac{15}{130} = 7.18\ \mathrm{N/mm^2}$$

$$\sigma_{z,Rd} = \left[7.18 - 0.02 \cdot \frac{1.2}{2} \cdot \left(\frac{130}{15}\right)^2 - 0 \cdot \frac{1.2}{2} \cdot \left(\frac{150}{15}\right)^2\right] \cdot \frac{130}{15} \cdot 0.215 = \mathbf{11.70\ N/mm^2}$$

$$\sigma_{z,m} = \frac{200.000}{130 \cdot 150} = \mathbf{10.26\ N/mm^2}$$

$\sigma_{z,Rd} = \mathbf{11.70\ N/mm^2} \geq \sigma_m = \mathbf{10.26\ N/mm^2}$ **> Proof provided!**

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