

High-Resilient Bearing HRB HS 3000

Material Closed cellular polyetherurethane
Colour Dark-green

Standard dimensions on stock

Thickness: 12.5 mm with HRB HS 3000 - 12
25.0 mm with HRB HS 3000 - 25
Dimensions: max 1.5 m wide, up to 1.2 m long

Other dimensions as well as punched parts available on request.

Area of application	Compression load	Deflection
	depending on form factor, values apply to form factor q=3	
Static range of use (static loads)	up to 3.0 N/mm ²	approx. 12 %
Dynamic range of use (static and dynamic loads)	up to 4.5 N/mm ²	approx. 16 %
Load peaks (short term, infrequent loads)	up to 12.0 N/mm ²	approx. 30 %

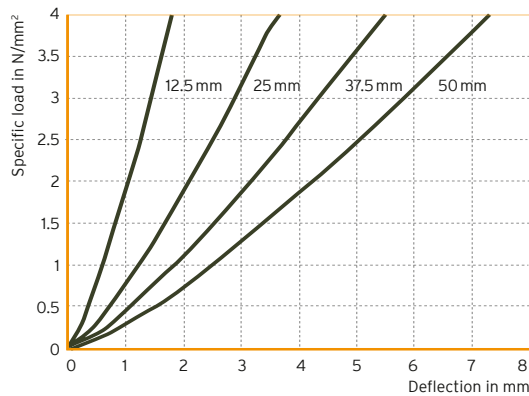
Material properties		Test methods	Comment
Mechanical loss factor	0.06	DIN 53513 ¹	depending on frequency, specific load and amplitude
Compression set ²	< 5 %	DIN EN ISO 1856	25 % deformation, 23 °C, 72 h, 30 min after unloading
Static shear modulus	2.4 N/mm ²	DIN ISO 1827 ¹	at preload of 3 N/mm ²
Dynamic shear modulus	2.8 N/mm ²	DIN ISO 1827 ¹	at preload of 3 N/mm ² , 10 Hz
Coefficient of friction (steel)	0.6	Getzner Werkstoffe	dry, reference value
Coefficient of friction (concrete)	0.7	Getzner Werkstoffe	dry, reference value
Thermal conductivity	0.16 W/(mK)	DIN EN 12667	
Operating temperature	-30 to 50 °C		short term higher temperatures possible
Flammability	B2	DIN 4102 EN ISO 11925-2	normal flammable passed

¹ Measurement/evaluation in accordance with the relevant standard
² The measurement is performed on a density-dependent basis with differing test parameters

All information and data is based on our current knowledge. The data can be applied for calculations and as guidelines, are subject to typical manufacturing tolerances and are not guaranteed. We reserve the right to amend the data.

Further information can be found in VDI Guideline 2062 (Association of German Engineers).
Further characteristic values on request.

Load deflection curve



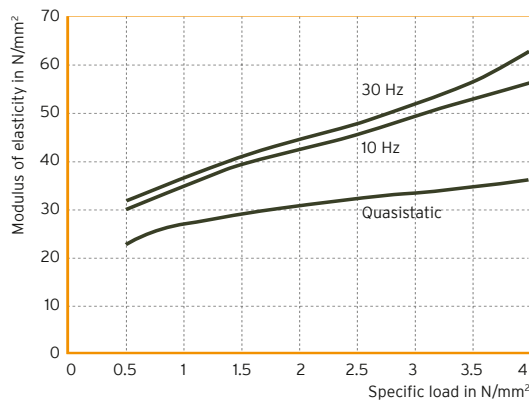
Quasistatic load deflection curve measured with a loading rate of $0.2 \text{ N/mm}^2/\text{s}$.

Testing between abrasive paper (grain size K120) affixed to flat steel-plates; recording of the 3rd loading; testing at room temperature.

Form factor $q = 3$

Fig. 1: Quasistatic load deflection curve for different bearing thicknesses

Modulus of elasticity



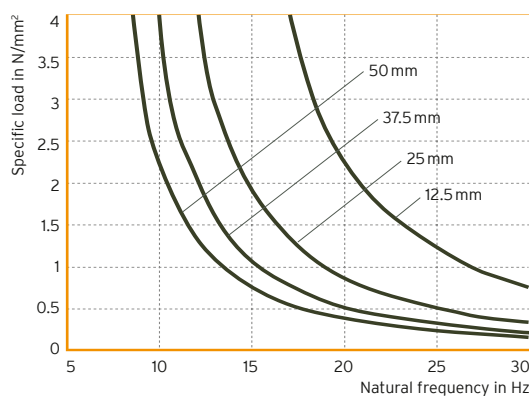
Load dependency of the static and dynamic modulus of elasticity.

Quasistatic modulus of elasticity as a tangent modulus taken from the load deflection curve; dynamic modulus of elasticity due to sinusoidal excitation with an amplitude of 0.1 mm.

Test according to DIN 53513.

Fig. 2: Load-dependency of the static and dynamic modulus of elasticity

Natural frequency



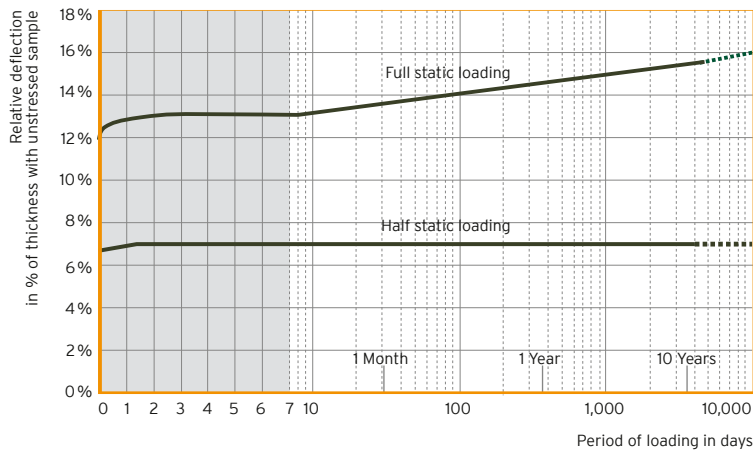
Natural frequency of a single-degree-of-freedom system (SDOF system) consisting of a fixed mass and an elastic bearing HRB HS 3000 based on a stiff subgrade.

Parameter: thickness of elastomeric bearing

Form factor $q = 3$

Fig. 3: Natural frequencies for different bearing thicknesses

Static creep behaviour



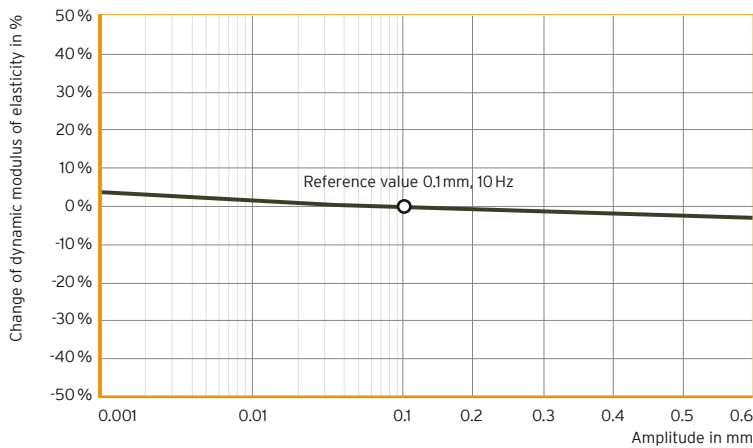
Deformation under consistent loading.

Parameter: permanent static load

Form factor $q = 3$

Fig. 4: Deformation under static load depending on time

Dependency on amplitude



Typical dependency of the dynamic modulus of elasticity on the amplitude of vibration.

HRB HS 3000 materials exhibit a negligible dependency of amplitude.

Fig. 5: Dynamic modulus of elasticity depending on the vibration amplitude

Influence of the form factor

In the figures below one can find correction varying form factors.

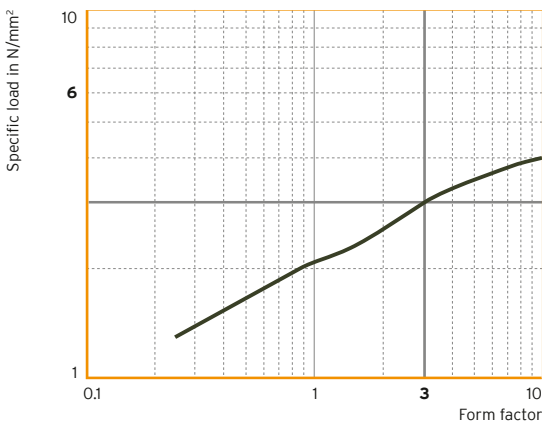


Fig. 6: Static area of application in relation to the form factor

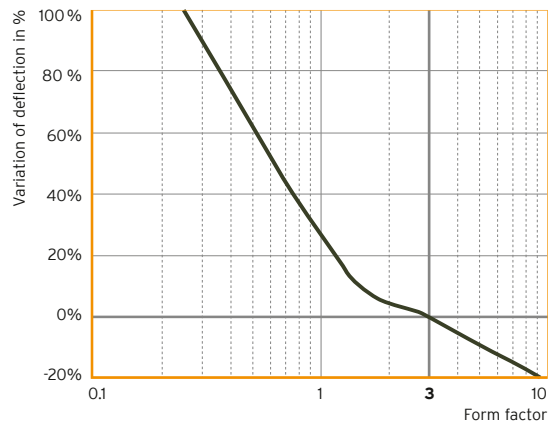


Fig. 7: Deflection³ in relation to the form factor

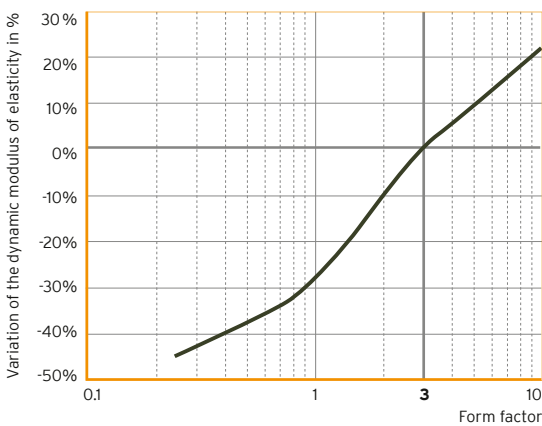


Fig. 8: Dynamic modulus of elasticity³ at 10Hz in relation to the form factor

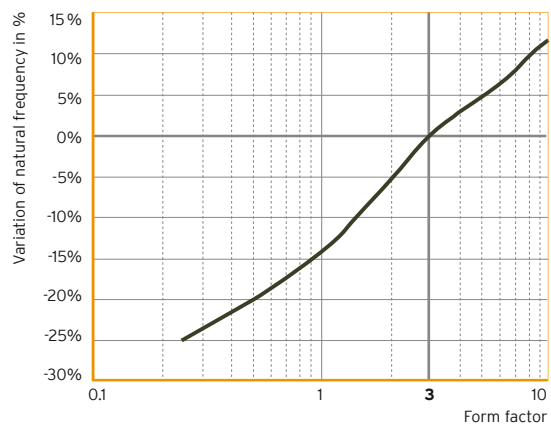


Fig. 9: Natural frequency³ in relation to the form factor

³ Reference value: specific load 3.0N/mm², form factor q=3