

# Sylodyn® HRB HS 12000

## Data Sheet

HRB  
HS  
12000

by getzner  
**sylodyn®**

**Material** closed cellular PU elastomer  
(Polyurethane)  
**Colour** dark brown

### Standard delivery dimensions

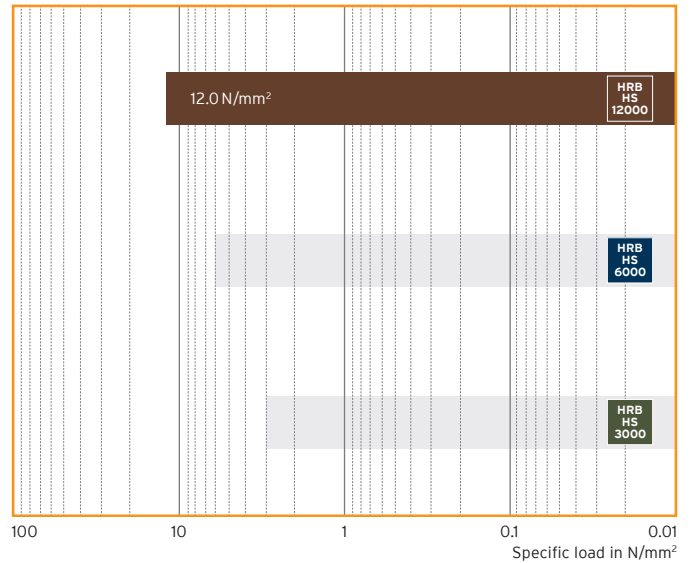
Thicknesses: 12.5 mm / 25 mm  
Plates: 1.2 m wide, 1.5 m long

Other dimensions as well as punched parts available on request.

Range of use	Compression load	Deflection
	form factor-dependent, the specified values apply for a form factor of $q=3$	
Static range of use (static loads)	up to 12.0 N/mm <sup>2</sup>	approx. 8 %
Dynamic range of use (static and dynamic loads)	up to 16.0 N/mm <sup>2</sup>	approx. 10 %
Load peaks (short term, infrequent loads)	up to 24.0 N/mm <sup>2</sup>	approx. 15 %

### Sylodyn® HRB HS range

Static range of use



Material properties		Test methods	Comment
Mechanical loss factor	0.08	DIN 53513 <sup>1</sup>	temperature-, frequency-, specific load- and amplitude-dependent
Compression set <sup>2</sup>	< 5 %	EN ISO 1856	at 25 % deformation, 23 °C, 72 h, 30 min after after removal of load
Static shear modulus <sup>3</sup>	4.0 N/mm <sup>2</sup>	DIN ISO 1827 <sup>1</sup>	at a pretension of 12.0 N/mm <sup>2</sup>
Dynamic shear modulus <sup>3</sup>	5.3 N/mm <sup>2</sup>	DIN ISO 1827 <sup>1</sup>	at a pretension of 12.0 N/mm <sup>2</sup> , 10 Hz
Coefficient of friction (steel)	≥ 0.4	Getzner Werkstoffe	dry, static friction
Coefficient of friction (concrete)	≥ 0.6	Getzner Werkstoffe	dry, static friction
Thermal conductivity	0.19 W/(mK)	DIN EN 12664	
Temperature range	-30 °C to 70 °C		short term higher temperatures possible
Flammability	class E	EN ISO 11925-2	normal flammable, EN 13501-1

<sup>1</sup> Measurement/evaluation in accordance with the relevant standard

<sup>2</sup> The measurement is performed on a density-dependent basis with differing test parameters

<sup>3</sup> Values applicable to form factor  $q=3$

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. Material properties as well as their tolerances can vary depending on type of application or use and are available from Getzner on request.

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

## Load deflection curve

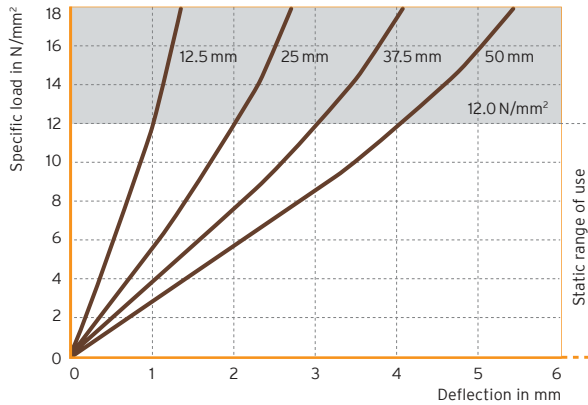


Fig. 1: Quasi-static load deflection curve for different bearing thicknesses

Quasi-static load deflection curve measured with a loading rate of  $1.2 \text{ N/mm}^2/\text{s}$ .

Testing between sandblasted, flat steel-plates; recording of the 1<sup>st</sup> load, with filtered starting range in accordance with ISO 844, testing at room temperature.

Form factor  $q = 3$

## Modulus of elasticity

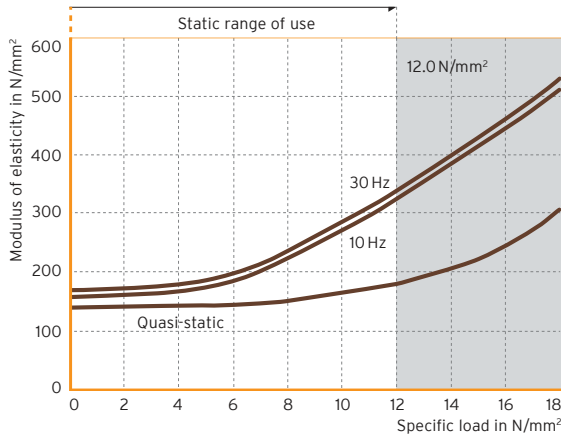


Fig. 2: Load-dependency of the static and dynamic modulus of elasticity

Load dependency of the static and dynamic modulus of elasticity.

Quasi-static modulus of elasticity as tangential modulus from the load deflection curve. Dynamic modulus of elasticity from sinusoidal excitation at a vibration velocity of  $100 \text{ dBv re } 5 \cdot 10^{-8} \text{ m/s}$  (corresponding to a vibration amplitude of  $0.22 \text{ mm}$  at  $10 \text{ Hz}$  and  $0.08 \text{ mm}$  at  $30 \text{ Hz}$ ).

Measurement in accordance with DIN 53513

Form factor  $q = 3$

## Natural frequencies

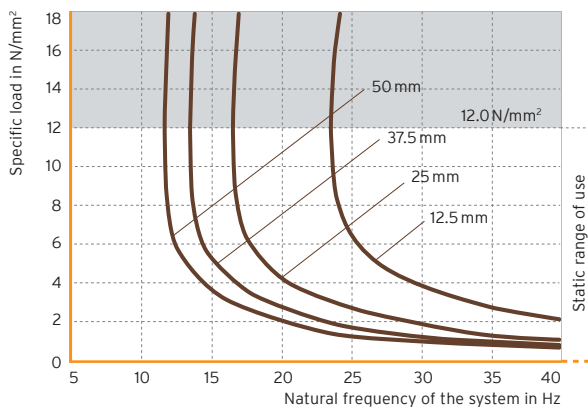


Fig. 3: Natural frequencies for different bearing thicknesses

Natural frequencies of a single-degree-of-freedom system (SDOF system) consisting of a fixed mass and an elastic bearing Sylodyn® HRB HS 12000 based on a stiff subgrade.

Parameter: thickness of elastomeric bearing

Form factor  $q = 3$

### Static creep behaviour

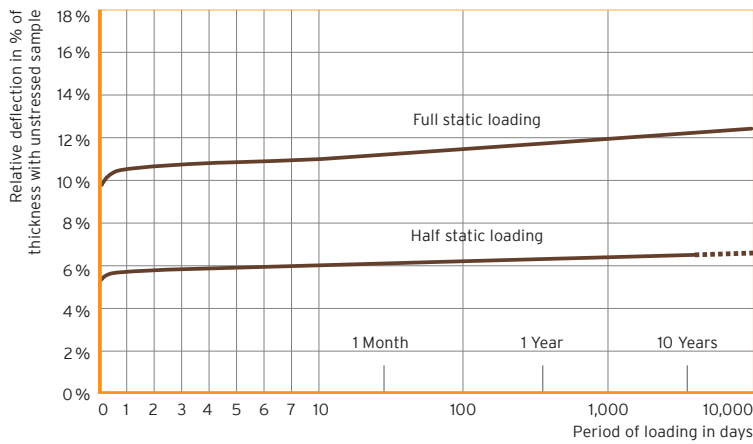


Fig. 4: Deformation under static load depending on time

Deformation under consistent loading.

Parameter: permanent static load

Form factor  $q = 3$

### Dependency on amplitude

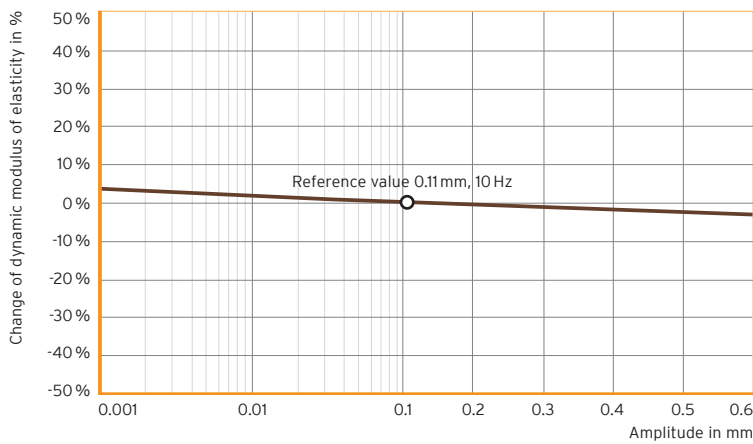


Fig. 5: Dynamic modulus of elasticity depending on the vibration amplitude

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

Sylodyn® HRB HS 12000 materials exhibit a negligible dependency of amplitude.

### Influence of the form factor

The graphs show the material properties at different form factors.

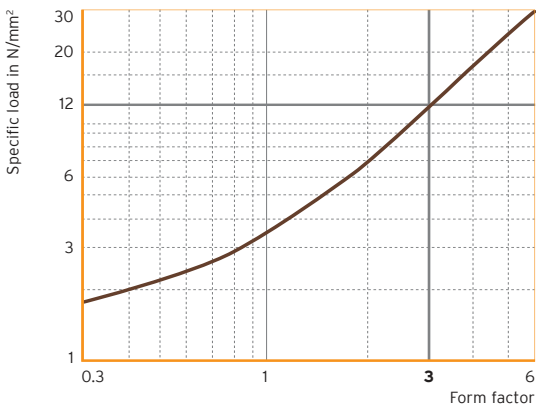


Fig. 6: Static range of use in relation to the form factor

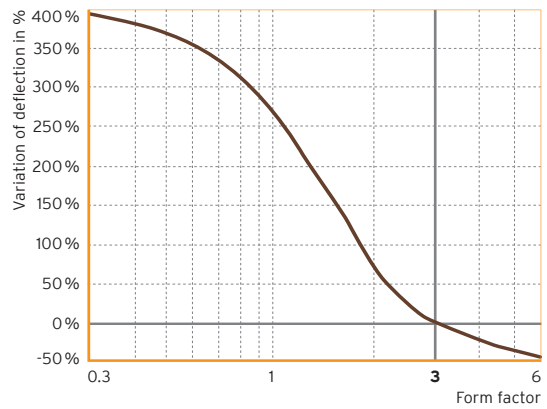


Fig. 7: Deflection<sup>3</sup> in relation to the form factor

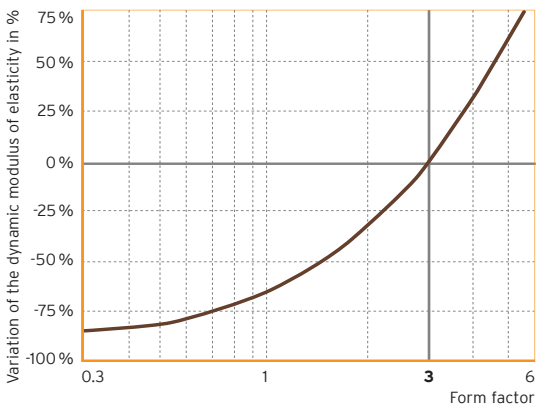


Fig. 8: Dynamic modulus of elasticity<sup>3</sup> at 10 Hz in relation to the form factor

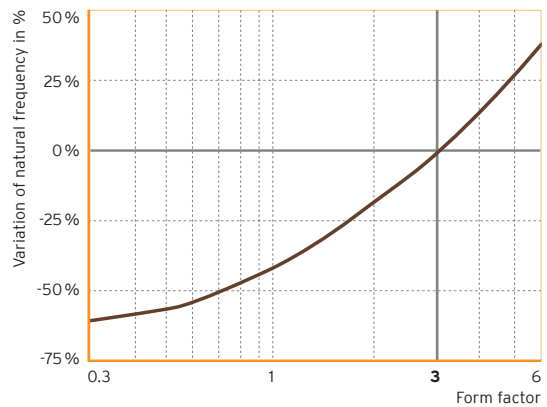


Fig. 9: Natural frequency<sup>3</sup> in relation to the form factor

<sup>3</sup> Reference value: specific load 12.0 N/mm<sup>2</sup>, form factor q = 3