

# sylomer® R

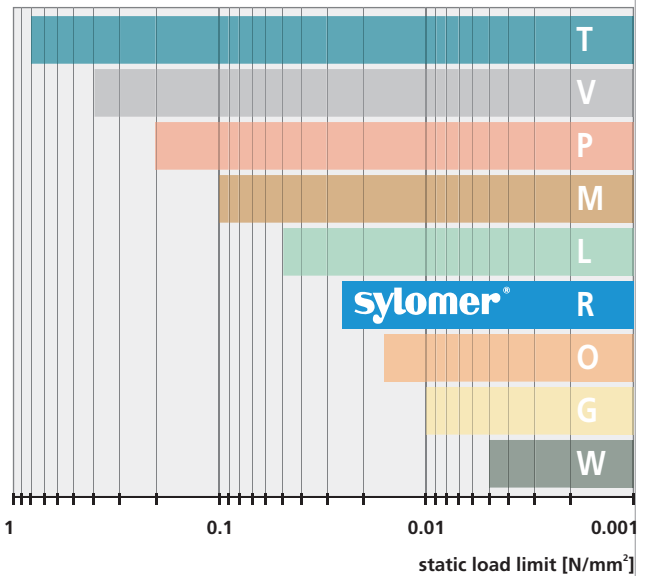
**Material:** mixed cellular polyurethane  
**Colour:** blue

**Area of application:** compression load deflection  
 (depending on shape factor)  
**Static load limit:** up to 0.025 N/mm<sup>2</sup> approx. 7%  
**Operating load range:** up to 0.035 N/mm<sup>2</sup> approx. 20%  
 (static plus dynamic loads)  
**Load peaks:** up to 1.0 N/mm<sup>2</sup> approx. 80%  
 (short term, infrequent loads)

**Standard dimensions on stock:**

**thickness:** 12.5 mm with Sylomer R12  
 25 mm with Sylomer R25  
**rolls:** 1.5 m wide, 5.0 m long  
**stripes:** max 1.5 m wide, 5.0 m long  
 other dimensions (also thickness), as well as stamped and molded parts on request

**Standard Sylomer range**



MATERIAL PROPERTIES			test methods	comment
tensile stress at break	0.5	N/mm <sup>2</sup>	DIN EN ISO 527-3/5/100*	minimum value
elongation at break	300	%	DIN EN ISO 527-3/5/100*	minimum value
tear strength	2.0	N/mm	DIN 53515*	minimum value
abrasion	770	mm <sup>3</sup>	DIN 53516	load 5 N, bottom surface
coefficient of friction (steel)	0.5		Getzner Werkstoffe	dry
coefficient of friction (concrete)	0.7		Getzner Werkstoffe	dry
compression set	< 5	%	EN ISO 1856	50%, 23°C, 70 h, 30 minutes after unloading
static shear modulus	0.07	N/mm <sup>2</sup>	DIN ISO 1827*	at static load limit
dynamic shear modulus	0.17	N/mm <sup>2</sup>	DIN ISO 1827*	at static load limit
mechanical loss factor	0.21		DIN 53513*	depending on frequency, load and amplitude (reference value)
rebound elasticity	45	%	DIN 53573	tolerance +/- 10%
operating temperature	-30 up to 70	°C		short term higher temperatures possible
flammability	B2		DIN 4102	normal flammable
	B, C and D		EN ISO 11925-2	passed
specific volume resistance	> 10 <sup>11</sup>	·cm	DIN IEC 93	dry
thermal conductivity	0.06	W/[m·K]	DIN 52612/1	

further characteristic values on request  
 \* tests according to respective standards



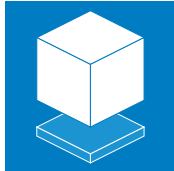
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All information according to our current state of knowledge.  
 All data can be used for calculation and reference values and are subject to usual production tolerances. Subject to modifications and alterations at any time and without prior notice.

**sylomer<sup>®</sup>**

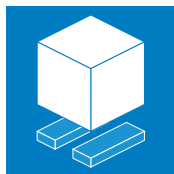
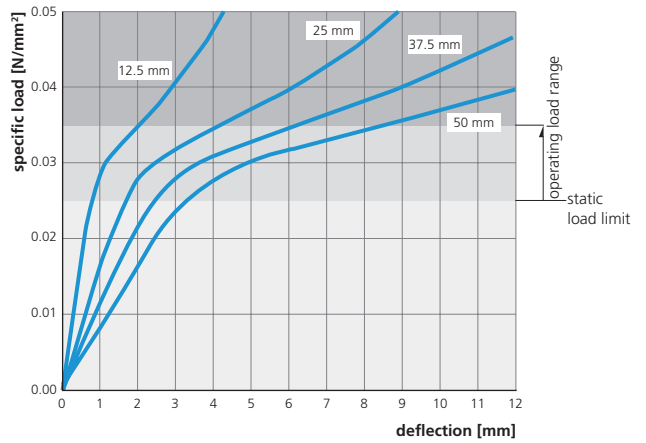
**R**

**load deflection curve**



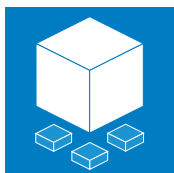
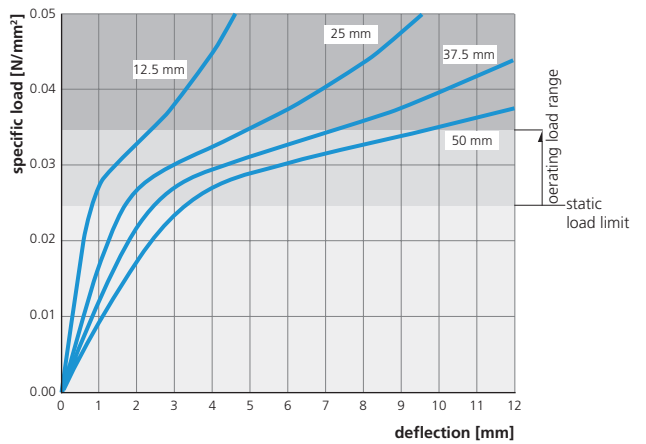
**full surface bearing**

shape factor:  $q=6$



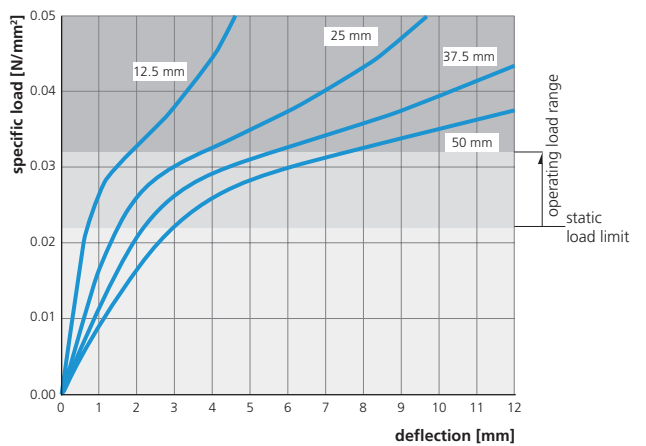
**strip bearing**

shape factor:  $q=3$



**point bearing**

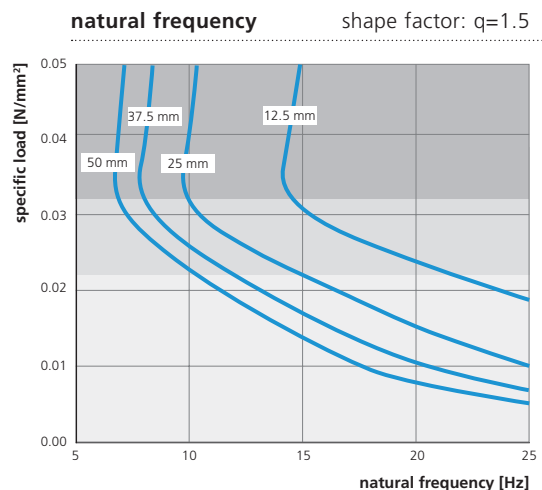
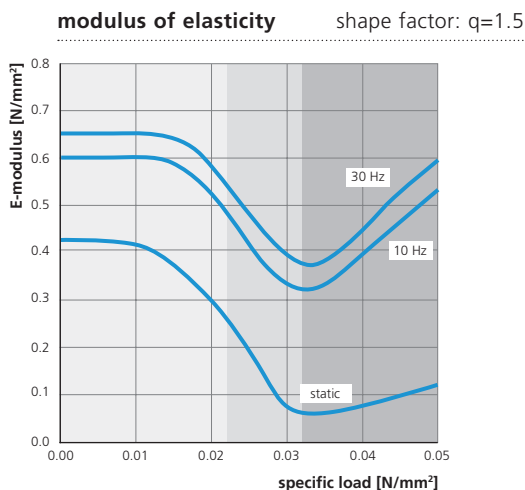
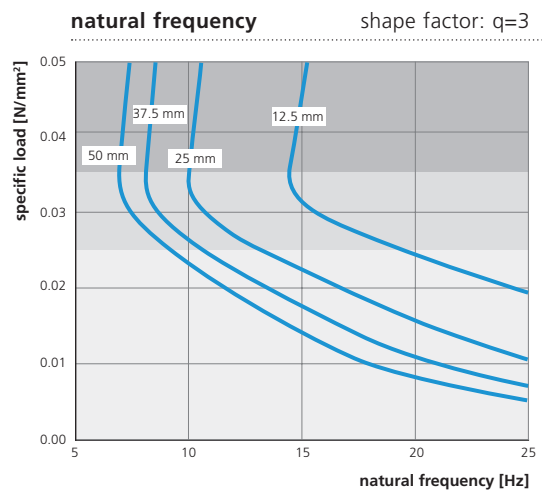
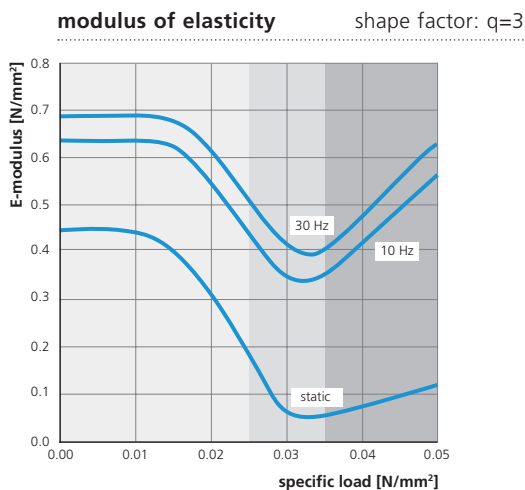
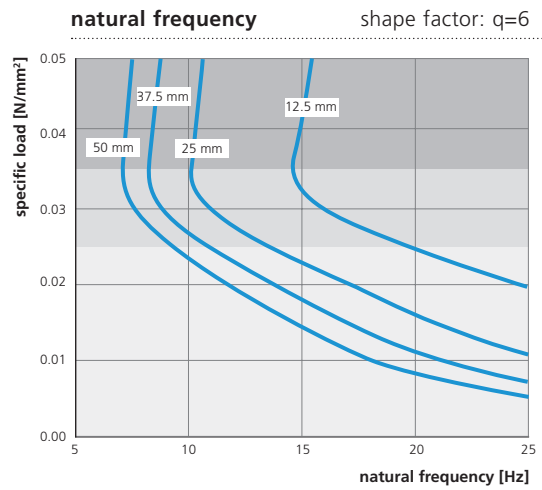
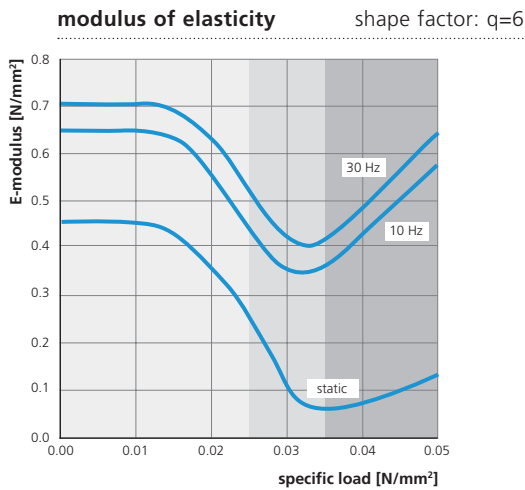
shape factor:  $q=1.5$



Quasi-static load deflection curve measured at a velocity of deformation of 1% of the thickness per second;  
 testing between flat steel-plates;  
 recording of the 3<sup>rd</sup> loading; testing at room temperature

# modulus of elasticity

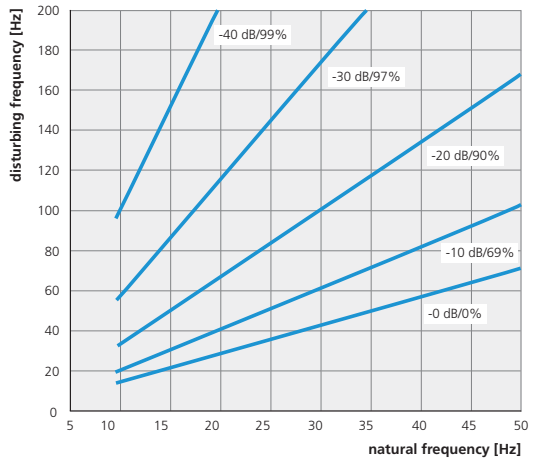
# natural frequency



Static modulus of elasticity as a tangent modulus taken from the load deflection curve; dynamic modulus of elasticity due to sinusoidal excitation with a velocity level of 100 dBv re.  $5 \cdot 10^{-8}$  m/s; test according to DIN 53513

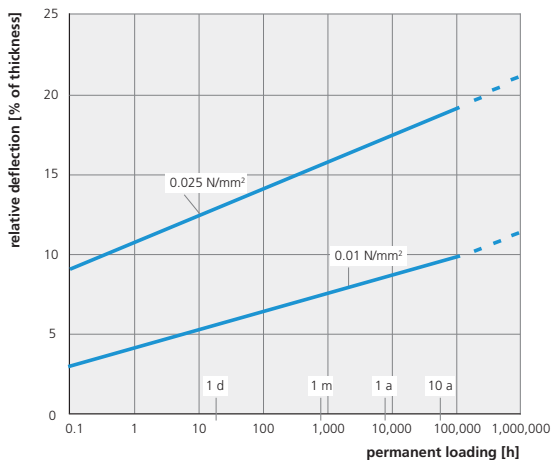
Natural frequency of a single-degree-of-freedom system (SDOF system) consisting of a fixed mass and an elastic bearing consisting of Sylomer R based on a stiff subgrade; parameter: thickness of elastomeric bearing

### vibration isolation - efficiency



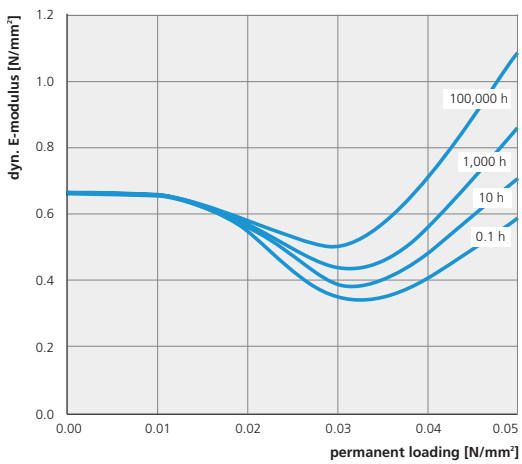
reduction of the transmitted mechanical vibrations by implementation of an elastic bearing consisting of Sylomer R  
**parameter:** factor of transmission in dB, isolation rate in %

### creep behaviour



increase in deformation under consistent loading  
**parameter:** permanent loading  
 shape factor q=3

### dynamic E-modulus at long term loading

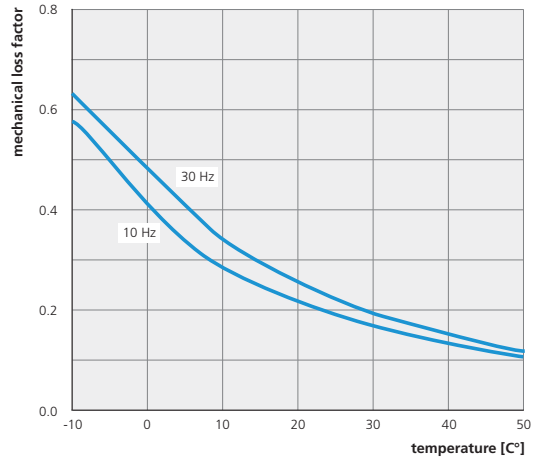
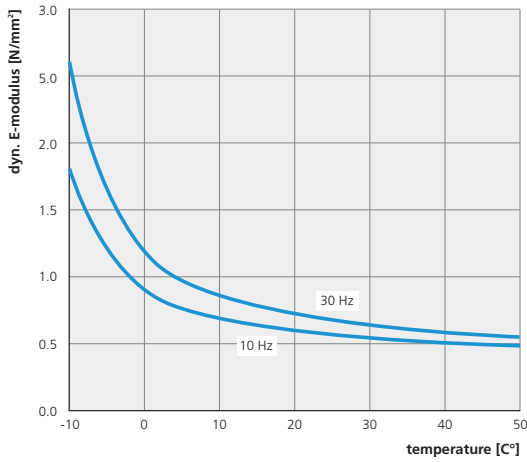


change of dynamic modulus of elasticity under consistent loading  
**parameter:** load duration  
 shape factor q=3

DMA-test (Dynamic Mechanical Analysis);

tests within linear area of the load deflection curve, at low specific loads

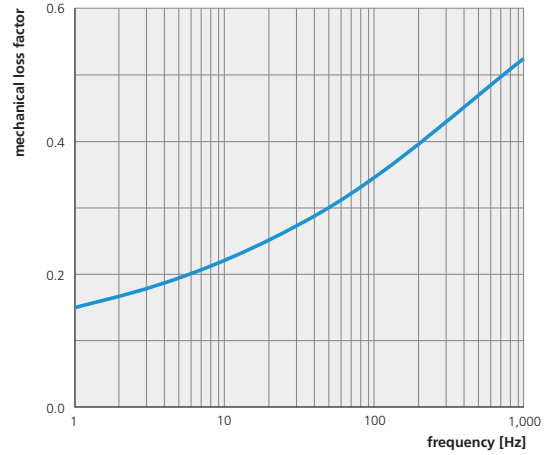
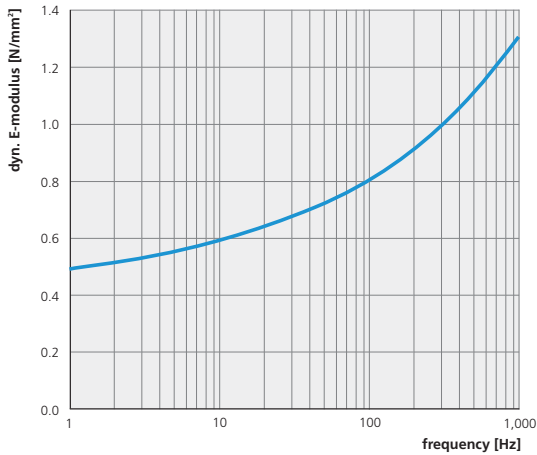
**temperature dependency**



DMA-tests; mastercurve with a reference-temperature of 21°C;

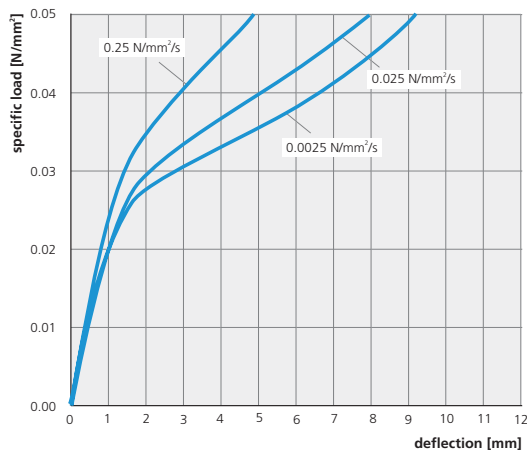
tests within the linear area of the load deflection curve, at low specific loads

**frequency dependency**



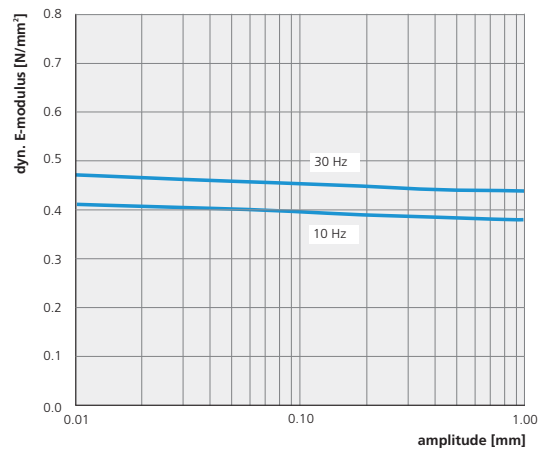
**dependency on loading velocity**

shape factor:  $q=3$ , thickness of material 25 mm



**dependency on amplitude**

preload at static load limit; shape factor:  $q=3$ , thickness of material 25 mm

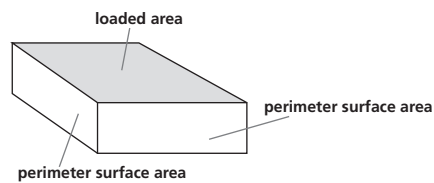


### Shape factor

The shape factor is a geometric measure for the shape of an elastomeric bearing defined as the ratio of the loaded area and the area of sum of the perimeter surfaces.

definition: 
$$\text{shape factor} = \frac{\text{loaded area}}{\text{perimeter surface area}}$$

for a rectangular shape: 
$$q = \frac{l \cdot w}{2 \cdot t \cdot (l+w)}$$
  
 (l...length, w...width, t...thickness)

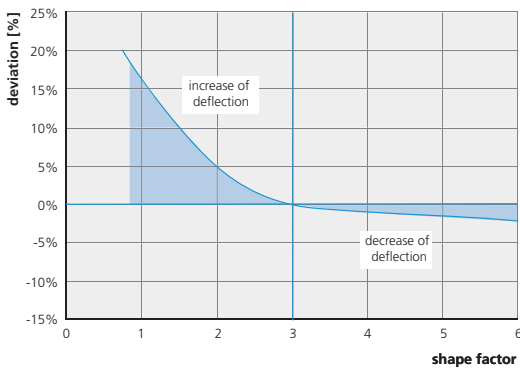


The shape factor has an influence on the deflection and the static load limit respectively.

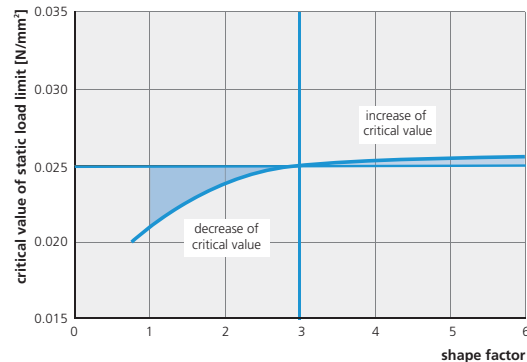
#### Elastic Sylomer-bearings are considered as:

- full surface bearing: shape factor > 6
- strip bearing: shape factor between 2 and 6
- point bearing: shape factor < 2

#### influence of the shape factor on the critical value of the static load limit for homogeneous material reference value: shape factor q=3



#### influence of the shape factor on the critical value of the static load limit for homogeneous material reference value: shape factor q=3



Caveats: Specifications are subject to change without notice. The data in this document are typical of average values based on tests by independent laboratories or by the manufacturer and are indicative only. Materials must be tested under intended service conditions to determine their suitability for purpose. The conclusions drawn from acoustic test results are as interpreted by qualified independent testing authorities. Nothing here releases the purchaser/user from responsibility to determine the suitability of the product for their project needs. Always seek the opinion of your acoustic or mechanical engineer on data presented by the manufacturer. Due to the wide variety of individual projects, Pyrotek NC is not responsible for differing outcomes from using their products. Pyrotek disclaims any liability for damages or consequential loss as a result of reliance solely on the information presented. No warranty is made that the use of this information or of the products, processes or equipment to which this Information Page refers will not infringe any third party's patents or rights. DISCLAIMER: This document is covered by Pyrotek standard Disclaimer, Warranty and © Copyright clauses. See [www.pyroteknc.com/disclaimer](http://www.pyroteknc.com/disclaimer).

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