Sylomer®
Details Data Sheet

Static creep behaviour

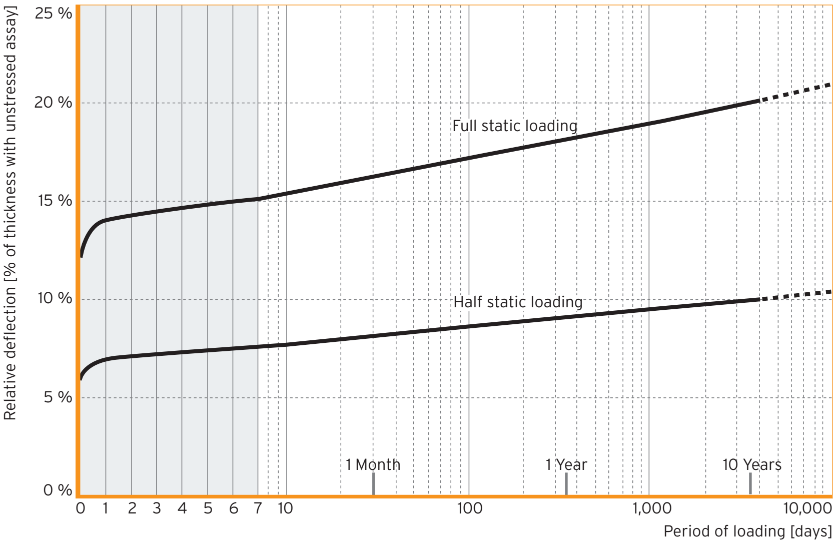

Fig. 1: Typical trend of a creeping behaviour

Like all Elastomers the deformation of Sylomer® increases under consistent loading (creeping). The increase of deformation is related with the logarithm of time. That is, for each decade of time (1 d, 10 d, 100 d) the same additional deflection occurs while the prior increase of deformation has ended after a short period of time. The static load ranges of Sylomer® have been chosen in that way that all types have the same creep behaviour.

Dynamic creep behaviour

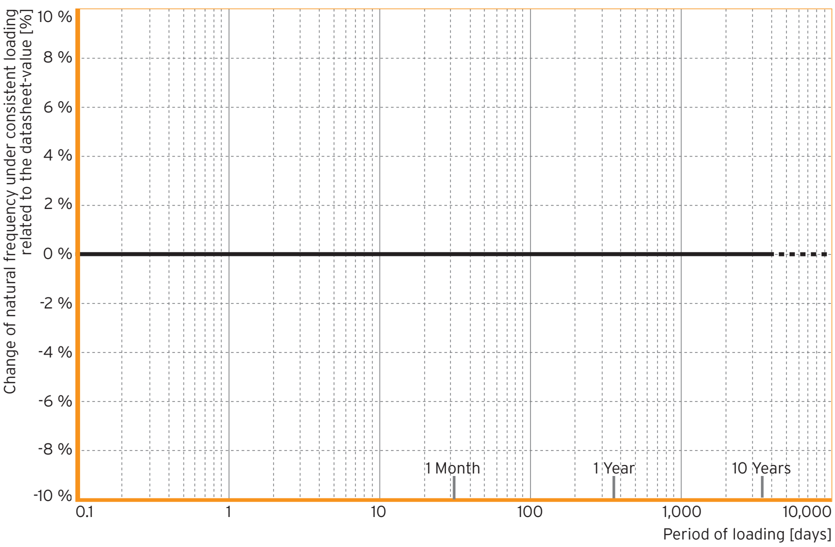

Fig. 2: When using the full capacity of the static load range of Sylomer®, there will be no change of the value of the natural frequency at constant ambient during the whole time of loading.

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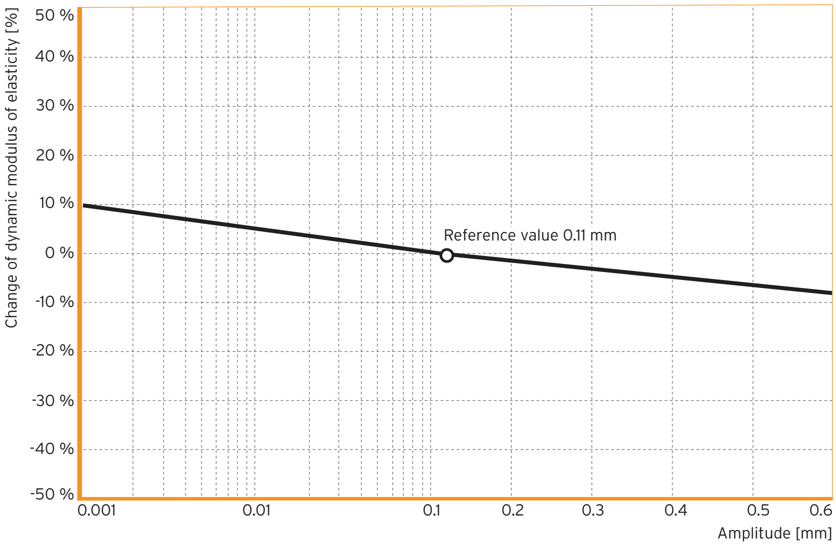
Dependency on amplitude



Reference value: amplitude 0.11 mm (corresponds to a velocitiy level of 100 dBv at 10 Hz)

Fig. 3: Typical dependency of the dynamic modulus of elasticity on the amplitude of vibration

Sylomer® materials exhibit a negligible dependency of amplitude. The dynamic stiffness of other elastic materials, such as compact, foamed and bonded (rubber granule) rubber products, however, is significantly dependent on the amplitude of excitation.

Dependency of the mechanical loss factor on temperature and excitation frequency

The mechanical loss factor of Sylomer® is related to the temperature of the ambient and to the excitation frequency. These dependencies are shown in Table 1 and Table 2.

Dependency on temperature

	-10 °C	0 °C	10 °C	20 °C	30 °C	50 °C
Sylomer® SR 11	0.60	0.44	0.32	0.25	0.19	0.11
Sylomer® SR 18	0.51	0.31	0.26	0.23	0.20	0.18
Sylomer® SR 28	0.45	0.33	0.25	0.21	0.20	0.17
Sylomer® SR 42	0.40	0.30	0.22	0.16	0.15	0.14
Sylomer® SR 55	0.35	0.24	0.20	0.17	0.16	0.14
Sylomer® SR 110	0.29	0.21	0.16	0.13	0.12	0.10
Sylomer® SR 220	0.26	0.19	0.15	0.13	0.12	0.10
Sylomer® SR 450	0.22	0.16	0.13	0.11	0.10	0.08
Sylomer® SR 850	0.25	0.18	0.15	0.12	0.11	0.09
Sylomer® SR 1200	0.23	0.17	0.13	0.09	0.09	0.09

Dependency on frequency

	1 Hz	50 Hz	100 Hz	1000 Hz
Sylomer® SR 11	0.19	0.30	0.33	0.43
Sylomer® SR 18	0.17	0.29	0.32	0.46
Sylomer® SR 28	0.14	0.28	0.33	0.45
Sylomer® SR 42	0.11	0.22	0.27	0.42
Sylomer® SR 55	0.11	0.21	0.25	0.40
Sylomer® SR 110	0.10	0.17	0.20	0.32
Sylomer® SR 220	0.09	0.16	0.19	0.30
Sylomer® SR 450	0.08	0.16	0.18	0.29
Sylomer® SR 850	0.08	0.16	0.18	0.28
Sylomer® SR 1200	0.08	0.14	0.17	0.26

Table 1 und Table 2: DMA-test (Dynamic Mechanical Analysis). Test within linear area of the load deflection curve.

Dependency of the dynamic modulus of elasticity on temperature

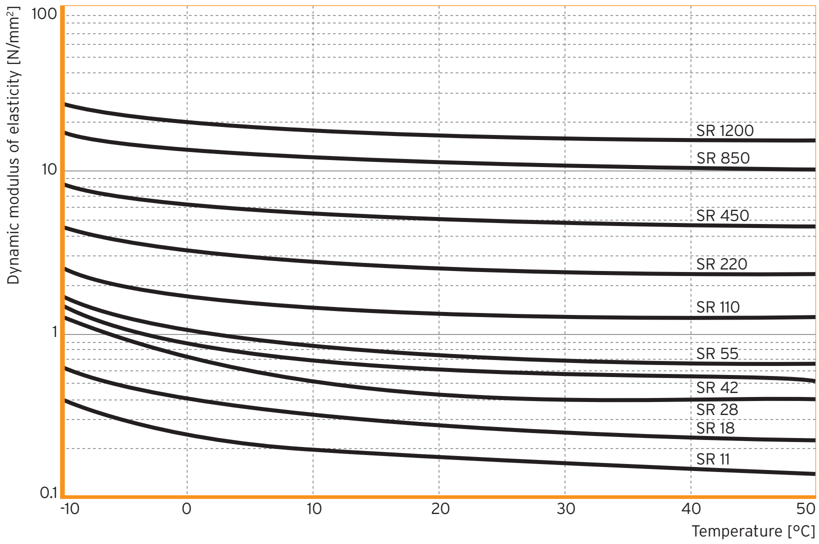


Fig. 4: DMA-test (Dynamic Mechanical Analysis). Test within linear area of the load deflection curve.

Fig. 4: The dynamic modulus of elasticity is related to temperature of the ambient.

Dependency of the dynamic modulus of elasticity on excitation frequency

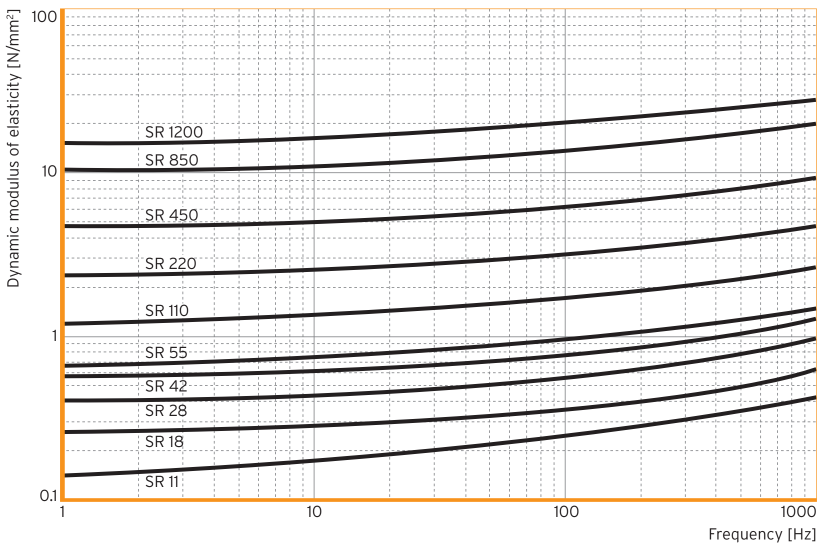


Fig. 5: DMA-test (Dynamic Mechanical Analysis). Test within linear area of the load deflection curve.

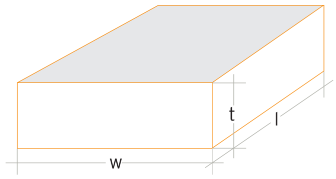
Fig. 5: The dynamic modulus of elasticity is related to the excitation frequency.

Form factor

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

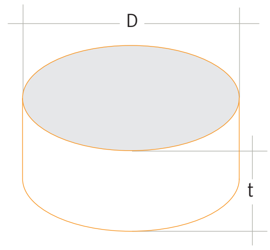
Definition: $$\text{Form factor} = \frac{\text{Loaded area}}{\text{Perimeter surface area}}$$

The charts shown in the product datasheets for the load deflection curve, for the modulus of elasticity and for the natural frequency are suitable for form factor 3. For differing form factors these values have to be charged with a correction factor, shown on page 4 of the product datasheet.



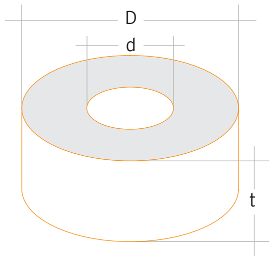
Cuboid

$$q = \frac{w \cdot l}{2 \cdot t\,(w + l)}$$



Cylinder

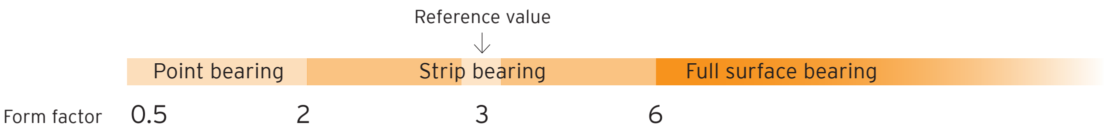
$$q = \frac{D}{4 \cdot t}$$



Hollow cylinder

$$q = \frac{D - d}{4 \cdot t}$$

Elastic Sylomer®-bearings are considered as



Cellular materials such as Sylomer® SR 11, SR 18 and SR 28 are volume compressible and hence the influence of the form factor on stiffness can be neglected. By contrast, the form factor plays an increasingly important role as the compactness of the elastomer increases.

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.