Sylomer® L

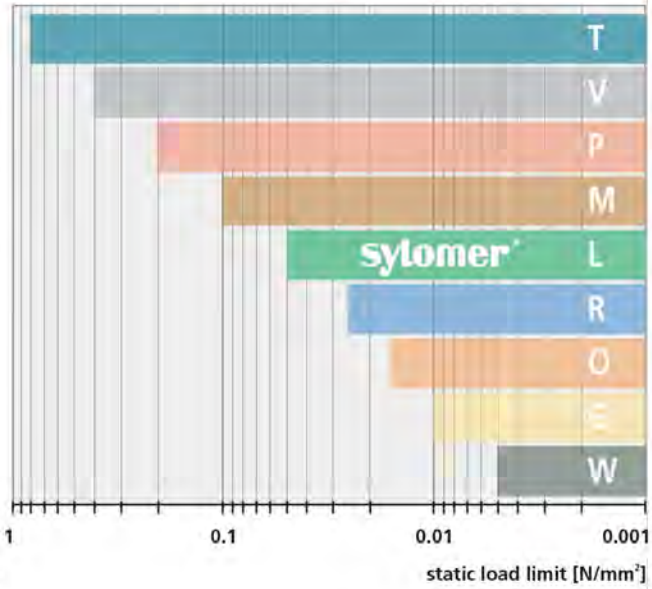
Material:	mixed cellular polyurethane	
Colour:	green	
Area of application:	compression load (depending on shape factor)	deflection
Static load limit:	up to 0.05 N/mm²	approx. 7%
Operating load range: (static plus dynamic loads)	up to 0.08 N/mm²	approx. 25%
Load peaks: (short term, infrequent loads)	up to 2.0 N/mm²	approx. 80%

Standard dimensions on stock:

thickness:	12.5 mm with Sylomer L12 25 mm with Sylomer L25
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	0.75	N/mm²	DIN EN ISO 527-3/5/100*	minimum value
elongation at break	300	%	DIN EN ISO 527-3/5/100*	minimum value
tear strength	2.5	N/mm	DIN 53515*	minimum value
abrasion	1,160	mm³	DIN 53516	load 7.5 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	0.13	N/mm²	DIN ISO 1827*	at static load limit
dynamic shear modulus	0.27	N/mm²	DIN ISO 1827*	at static load limit
mechanical loss factor	0.20		DIN 53513*	depending on frequency, load and amplitude (reference value)
rebound elasticity	55	%	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	$> 10^{11}$	·cm	DIN IEC 93	dry
thermal conductivity	0.07	W/[m·K]	DIN 52612/1	

further characteristic values on request

* tests according to respective standards

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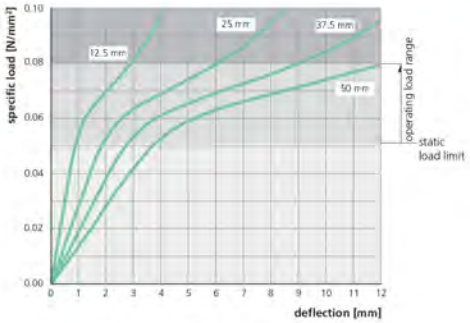
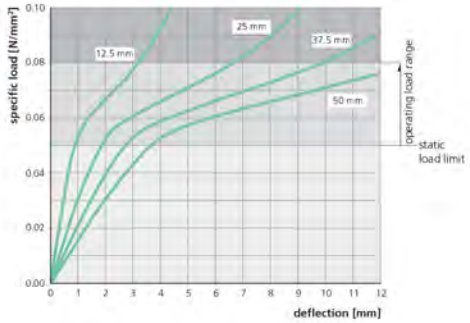
sylomer® L

load deflection curve

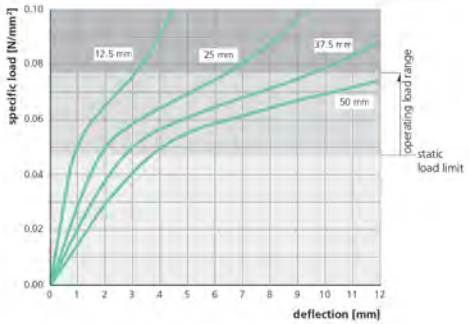
full surface bearing shape factor: q=6



strip bearing shape factor: q=3



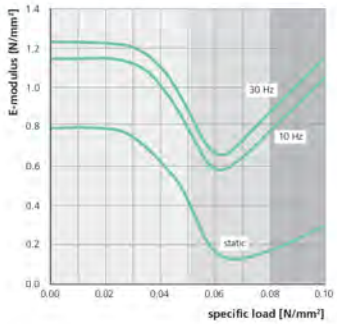
point bearing shape factor: q=1.5



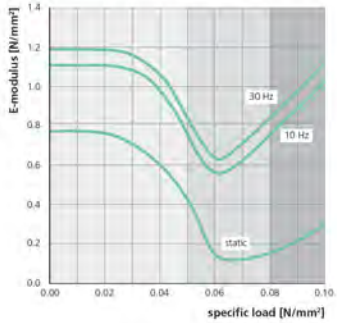
Quasi-static load deflection curve measured at a velocity of deformation of 1% of the thickness per second; testing between flat steel-plates; recording of the 3rd loading; testing at room temperature

modulus of elasticity

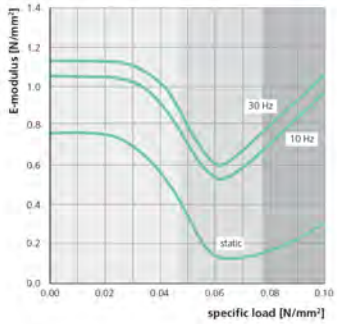
modulus of elasticity shape factor: q=6



modulus of elasticity shape factor: q=3



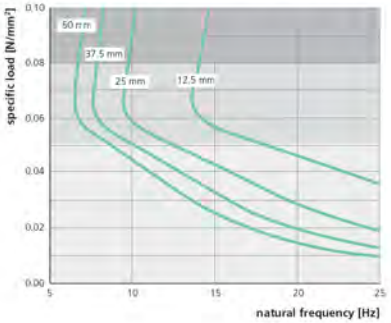
modulus of elasticity shape factor: q=1.5



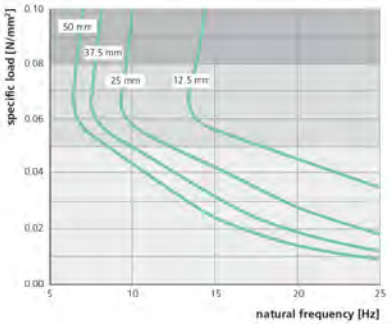
Static modulus of elasticity as a tangent modulus taken from the load deflection curve; dynamic modulus of elasticity due to sinusoidal excitation with a velocity level of 100 dBv re. $5 \cdot 10^{-8}$ m/s; test according to DIN 53513

natural frequency

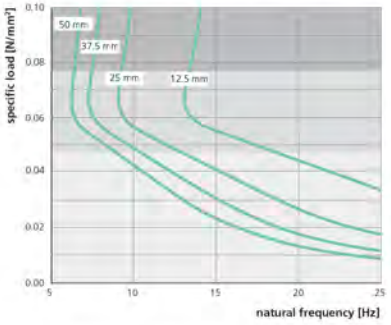
natural frequency shape factor: q=3



natural frequency shape factor: q=3

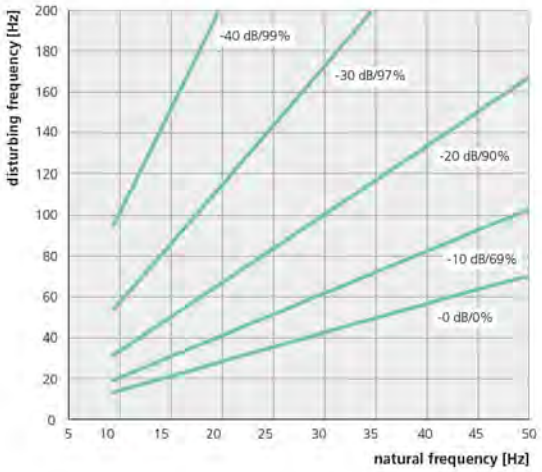


natural frequency shape factor: q=1.5



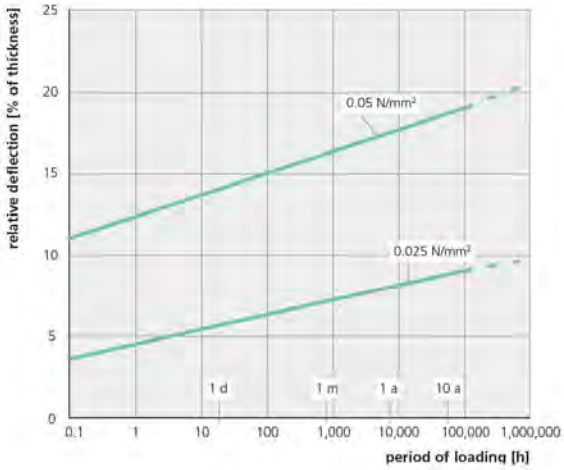
Natural frequency of a single-degree-of-freedom system (SDOF system) consisting of a fixed mass and an elastic bearing consisting of Sylomer L based on a stiff subgrade; parameter: thickness of elastomeric bearing

vibration isolation - efficiency



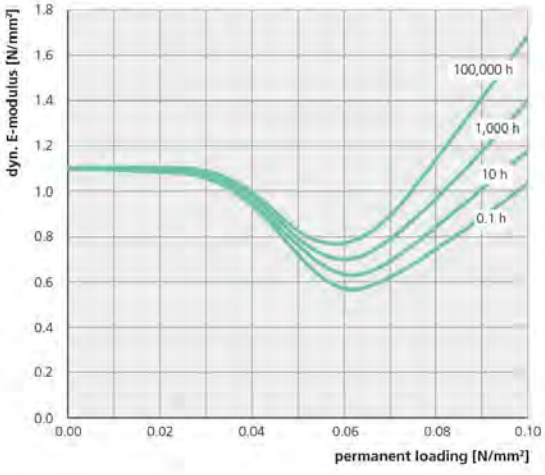
reduction of the transmitted mechanical vibrations by implementation of an elastic bearing consisting of Sylomer L
parameter: factor of transmission in dB, isolation rate in %

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

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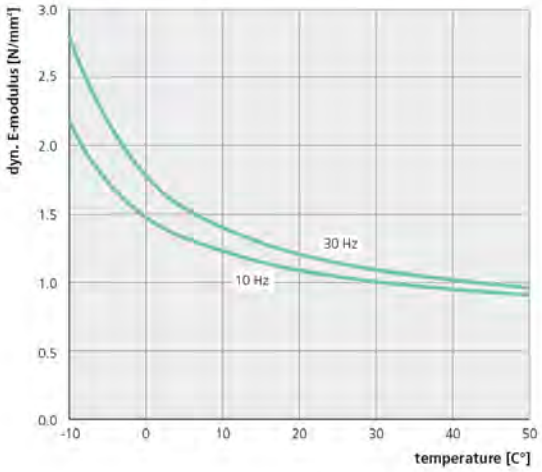
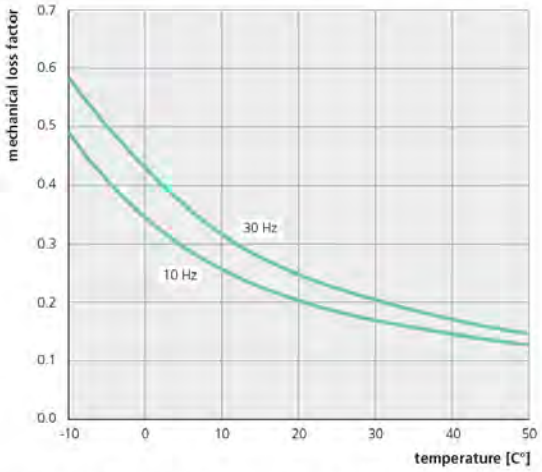
temperature dependency

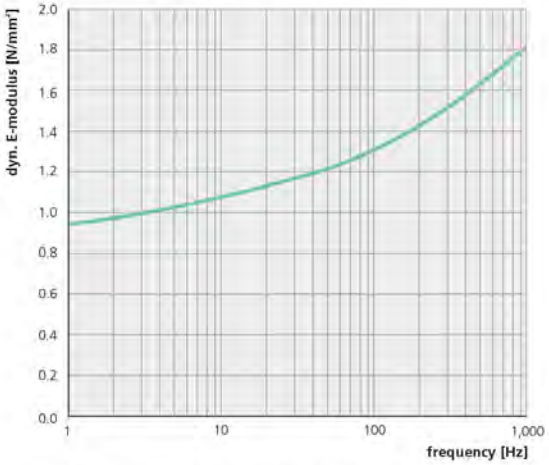
DMA-test (Dynamic Mechanical Analysis);
tests within linear area of the load deflection curve, at low specific loads

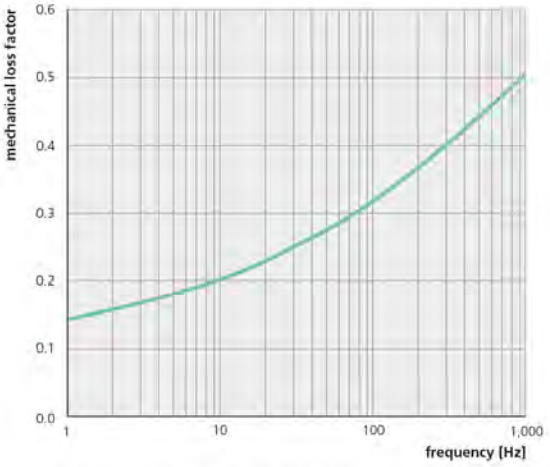




frequency dependency

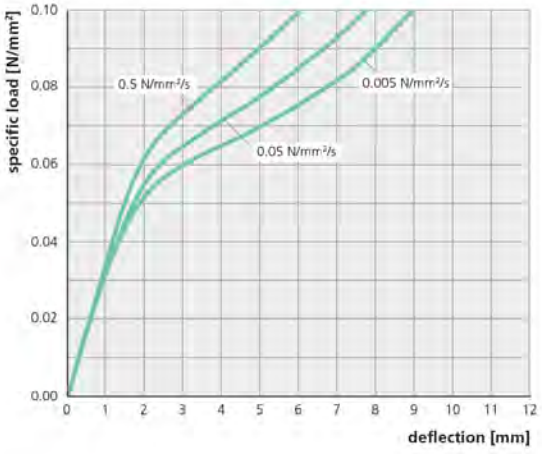
DMA-tests; mastercurve with a reference-temperature of 21°C;
tests within the linear area of the load deflection curve, at low specific loads





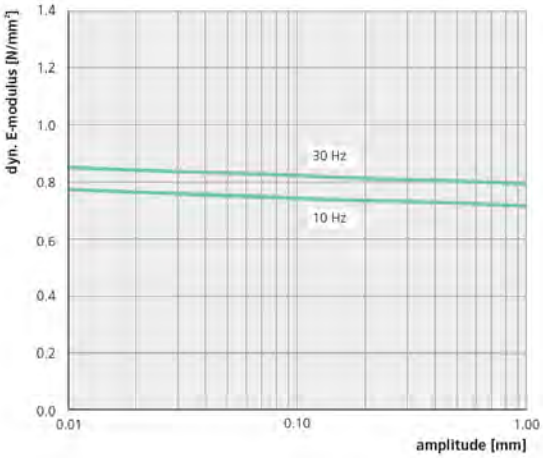
dependency on loading velocity

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



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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.

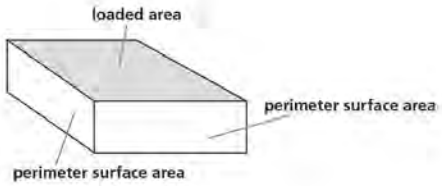
definition:

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

for a rectangular shape:

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

(l...length, w...width, t...thickness)

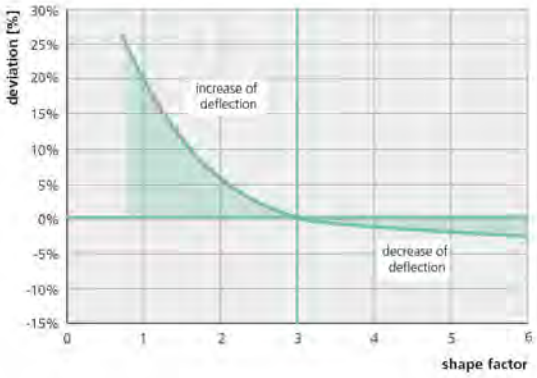


The shape factor has an influence on the deflection and the static load limit respectively.

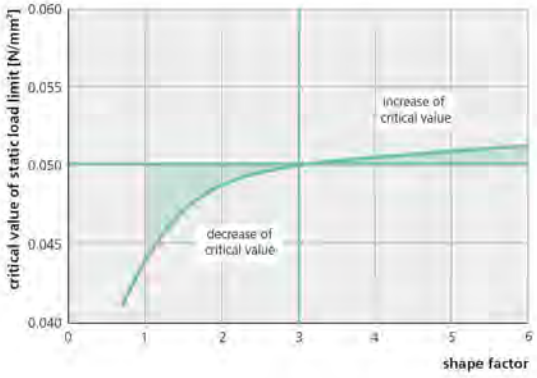
Elastic Sylomer-bearings are considered as:

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



sylomer® P

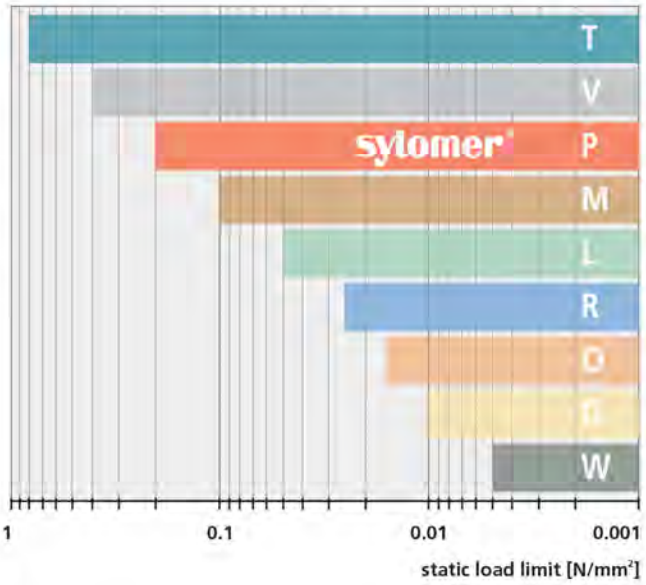
Material:	mixed cellular polyurethane	
Colour:	red	
Area of application:	compression load (depending on shape factor)	deflection
Static load limit:	0.20 N/mm²	approx. 9%
Operating load range: (static plus dynamic loads)	up to 0.30 N/mm²	approx. 20%
Load peaks: (short term, infrequent loads)	up to 4.0 N/mm²	approx. 70%

Standard dimensions on stock:

thickness:	12.5 mm with Sylomer P12 25 mm with Sylomer P25
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	1.5	N/mm²	DIN EN ISO 527-3/5/100*	minimum value
elongation at break	300	%	DIN EN ISO 527-3/5/100*	minimum value
tear strength	6.0	N/mm	DIN 53515*	minimum value
abrasion	1,000	mm³	DIN 53516	load 10 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	0.35	N/mm²	DIN ISO 1827*	at static load limit
dynamic shear modulus	0.68	N/mm²	DIN ISO 1827*	at static load limit
mechanical loss factor	0.15		DIN 53513*	depending on frequency, load and amplitude (reference value)
rebound elasticity	55	%	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^{11}	·cm	DIN IEC 93	dry
thermal conductivity	0.08	W/[m·K]	DIN 52612/1	

further characteristic values on request

* tests according to respective standards

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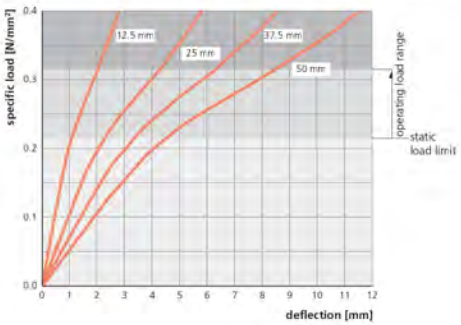
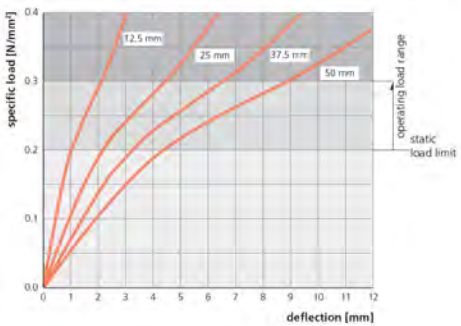
sylomer® P

load deflection curve

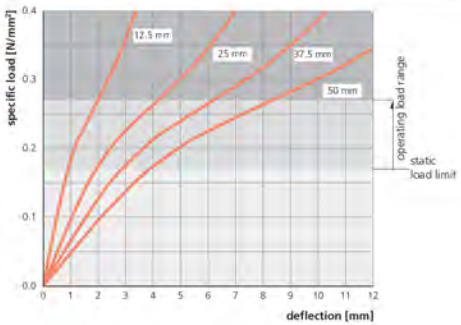
full surface bearing — shape factor: q=6



strip bearing — shape factor: q=3



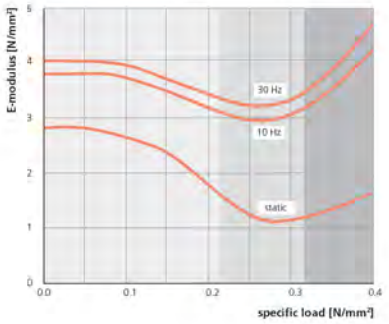
point bearing — shape factor: q=1.5



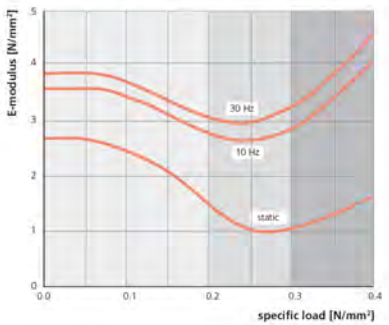
Quasi-static load deflection curve measured at a velocity of deformation of 1% of the thickness per second; testing between flat steel-plates; recording of the 3rd loading; testing at room temperature

modulus of elasticity

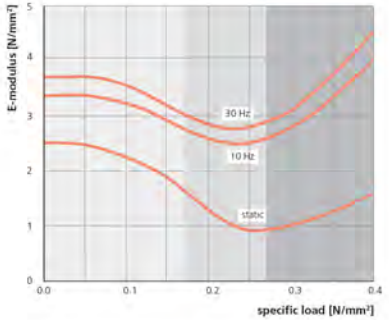
modulus of elasticity — shape factor: q=6



modulus of elasticity — shape factor: q=3



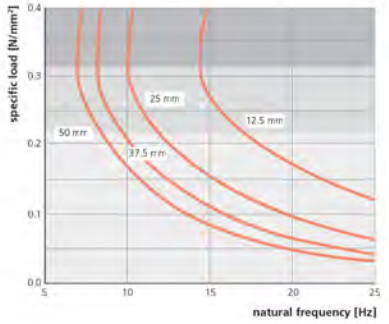
modulus of elasticity — shape factor: q=1.5



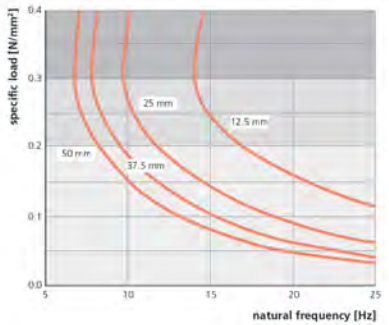
Static modulus of elasticity as a tangent modulus taken from the load deflection curve; dynamic modulus of elasticity due to sinusoidal excitation with a velocity level of 100 dBv re. $5 \cdot 10^{-8}$ m/s; test according to DIN 53513

natural frequency

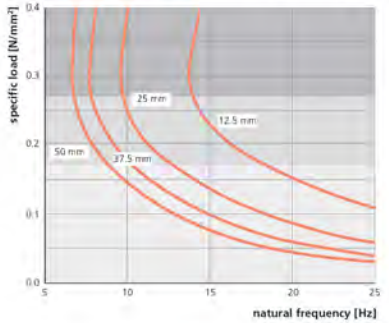
natural frequency — shape factor: q=6



natural frequency — shape factor: q=3



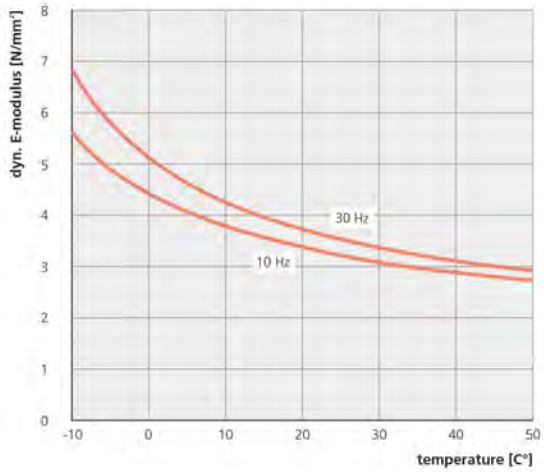
natural frequency — shape factor: q=1.5

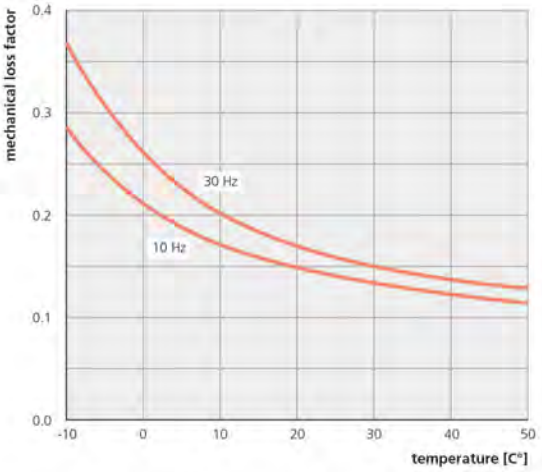


Natural frequency of a single-degree-of-freedom system (SDOF system) consisting of a fixed mass and an elastic bearing consisting of Sylomer P based on a stiff subgrade; parameter: thickness of elastomeric bearing

temperature dependency

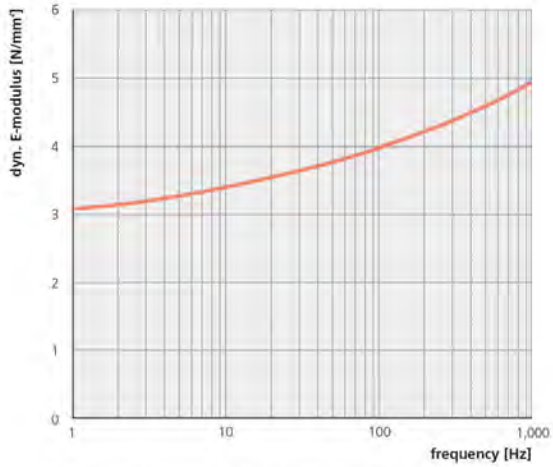
DMA-test (Dynamic Mechanical Analysis);
tests within linear area of the load deflection curve, at low specific loads

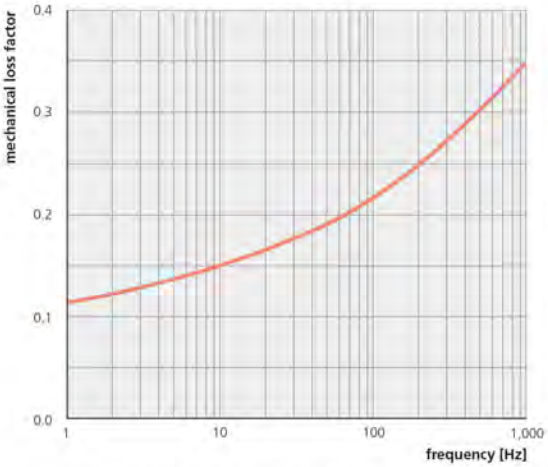




frequency dependency

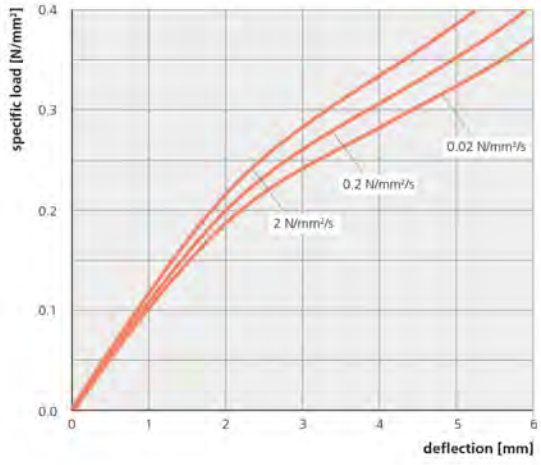
DMA-tests; mastercurve with a reference-temperature of 21°C;
tests within the linear area of the load deflection curve, at low specific loads





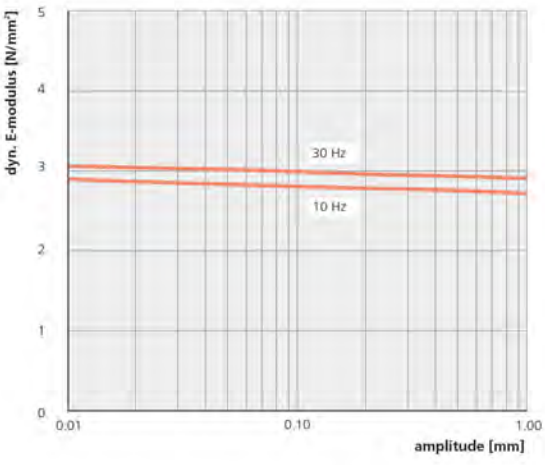
dependency on loading velocity

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



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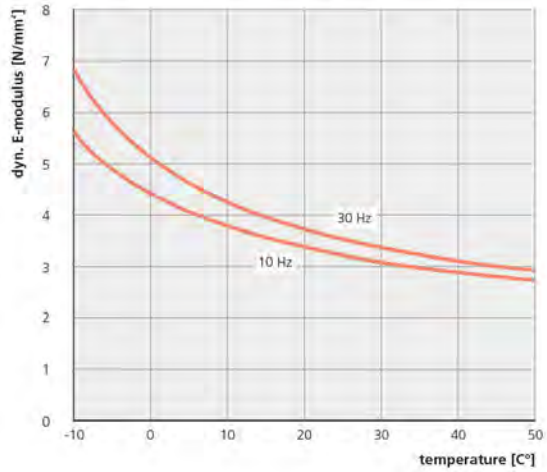
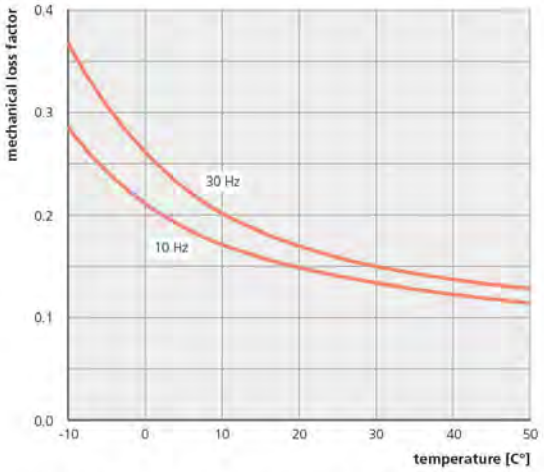
temperature dependency

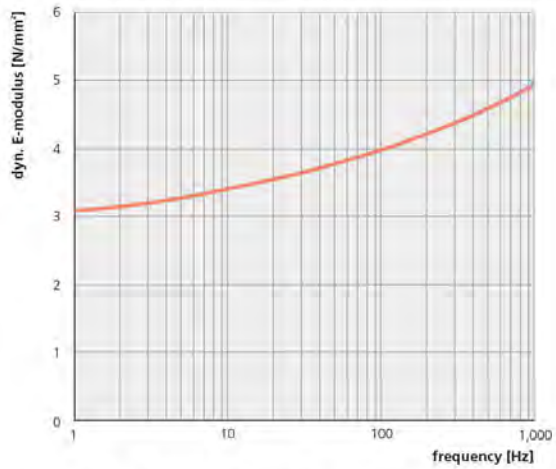
DMA-test (Dynamic Mechanical Analysis);
tests within linear area of the load deflection curve, at low specific loads

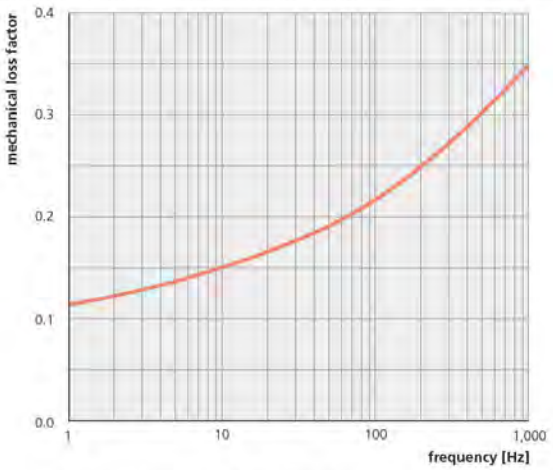




frequency dependency

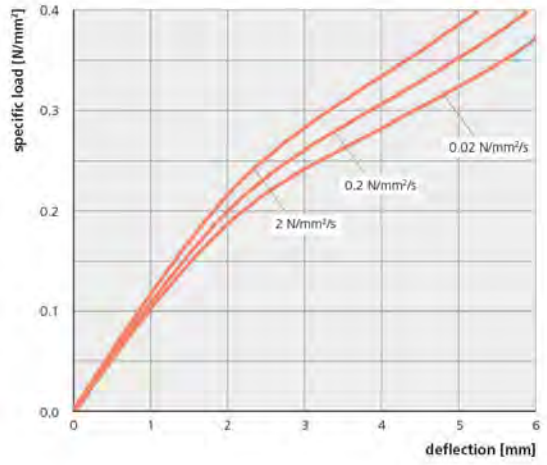
DMA-tests; mastercurve with a reference-temperature of 21°C;
tests within the linear area of the load deflection curve, at low specific loads





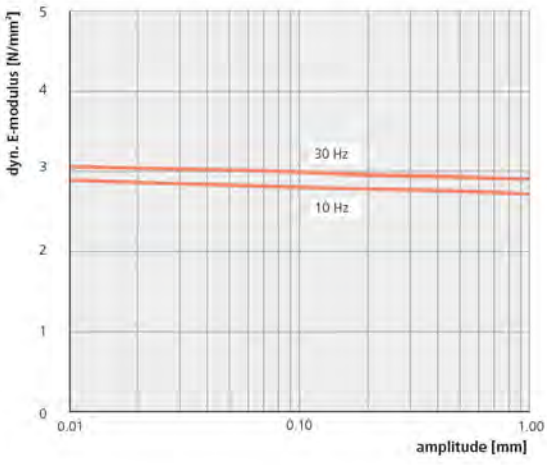
dependency on loading velocity

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



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Shape factor

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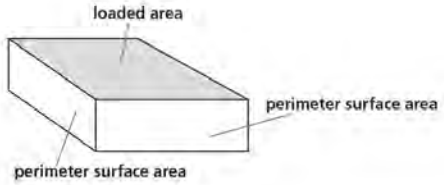
definition:

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

for a rectangular shape:

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

(l...length, w...width, t...thickness)

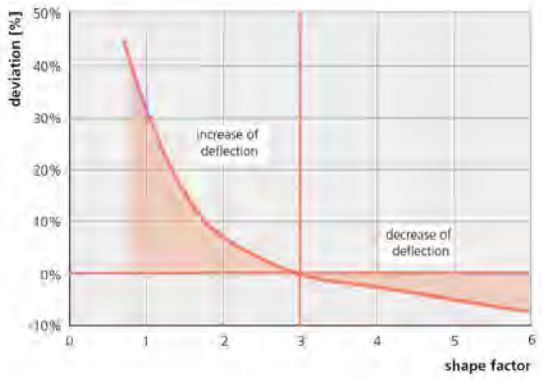


The shape factor has an influence on the deflection and the static load limit respectively.

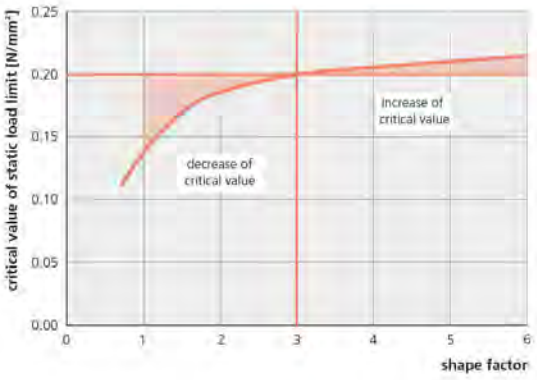
Elastic Sylomer-bearings are considered as:

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



sylomer® R

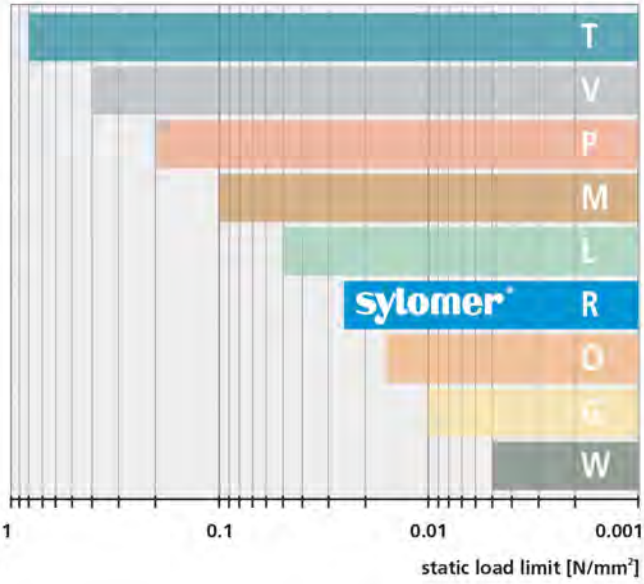
Material:	mixed cellular polyurethane	
Colour:	blue	
Area of application:	compression load (depending on shape factor)	deflection
Static load limit:	up to 0.025 N/mm²	approx. 7%
Operating load range: (static plus dynamic loads)	up to 0.035 N/mm²	approx. 20%
Load peaks: (short term, infrequent loads)	up to 1.0 N/mm²	approx. 80%

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/mm²	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	mm³	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/mm²	DIN ISO 1827*	at static load limit
dynamic shear modulus	0.17	N/mm²	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	$> 10^{11}$	·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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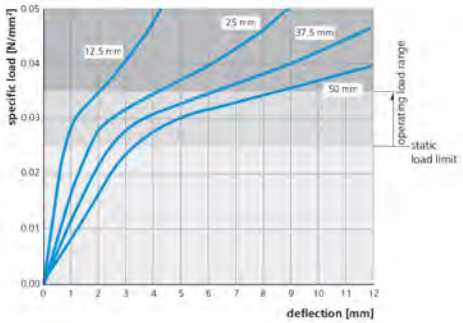
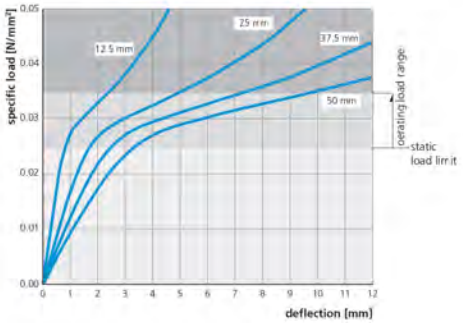
sylomer® R

load deflection curve

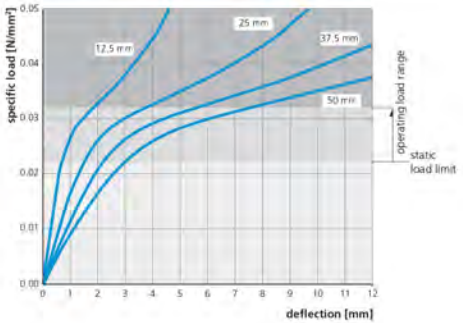
full surface bearing shape factor: q=6



strip bearing shape factor: q=3



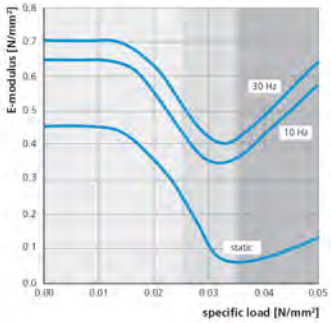
point bearing shape factor: q=1.5



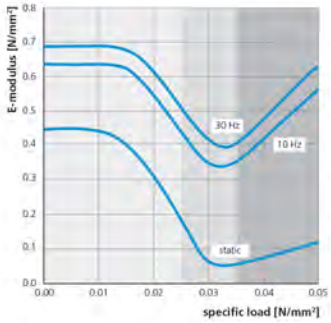
Quasi-static load deflection curve measured at a velocity of deformation of 1% of the thickness per second; testing between flat steel-plates; recording of the 3rd loading; testing at room temperature

modulus of elasticity

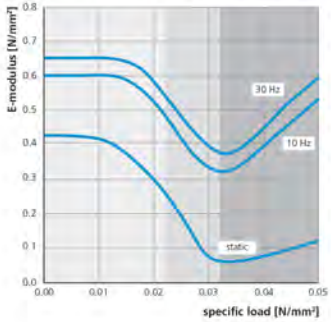
modulus of elasticity shape factor: q=6



modulus of elasticity shape factor: q=3



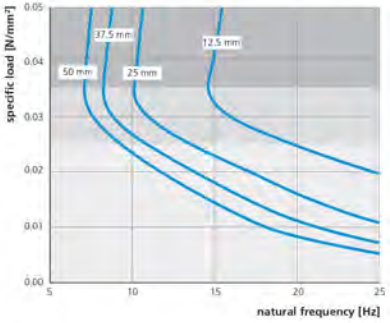
modulus of elasticity shape factor: q=1.5



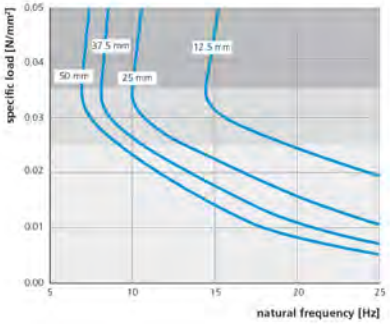
Static modulus of elasticity as a tangent modulus taken from the load deflection curve; dynamic modulus of elasticity due to sinusoidal excitation with a velocity level of 100 dBv re. $5 \cdot 10^{-8}$ m/s; test according to DIN 53513

natural frequency

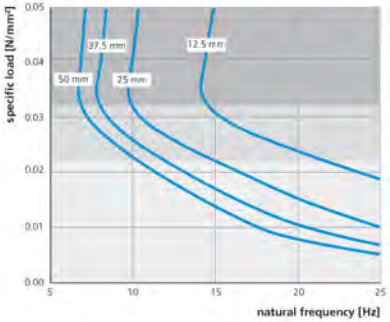
natural frequency shape factor: q=6



natural frequency shape factor: q=3

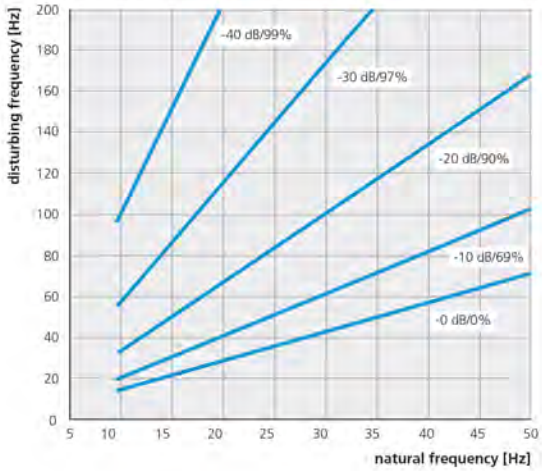


natural frequency shape factor: q=1.5



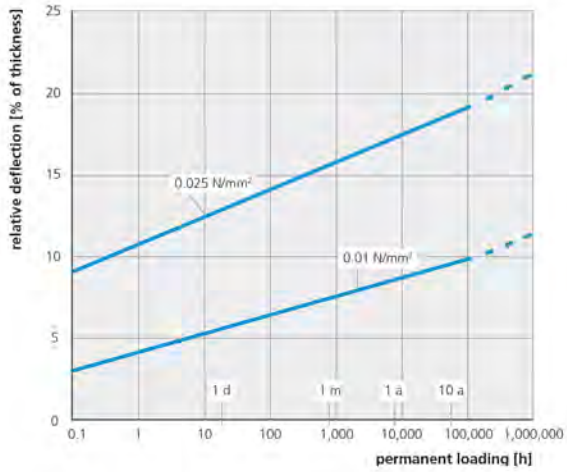
Natural frequency of a single-degree-of-freedom system (SDOF system) consisting of a fixed mass and an elastic bearing consisting of Sylomer R based on a stiff subgrade; parameter: thickness of elastomeric bearing

vibration isolation - efficiency



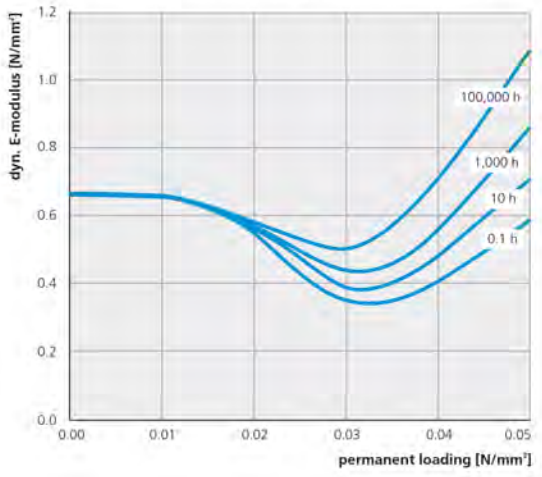
reduction of the transmitted mechanical vibrations by implementation of an elastic bearing consisting of Sylomer R
parameter: factor of transmission in dB, isolation rate in %

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

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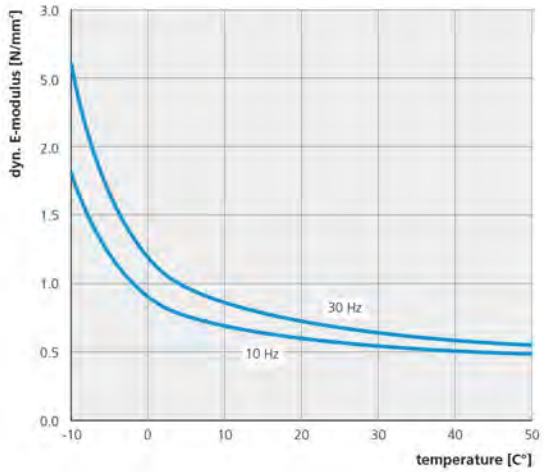
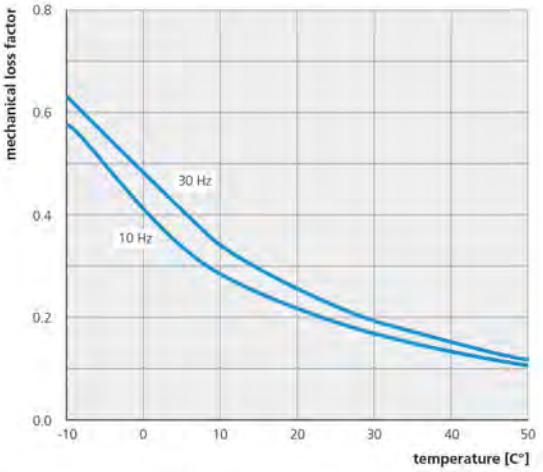
temperature dependency

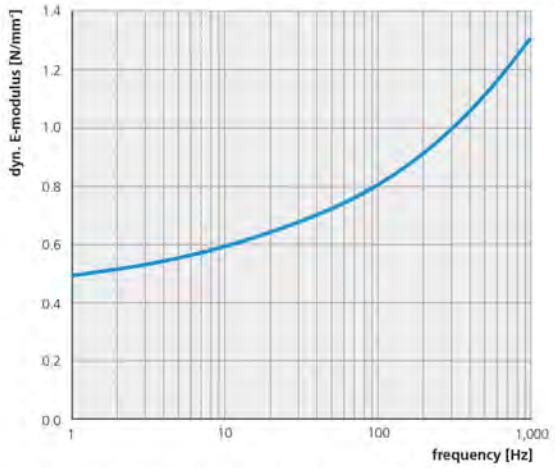
DMA-test (Dynamic Mechanical Analysis);
tests within linear area of the load deflection curve, at low specific loads

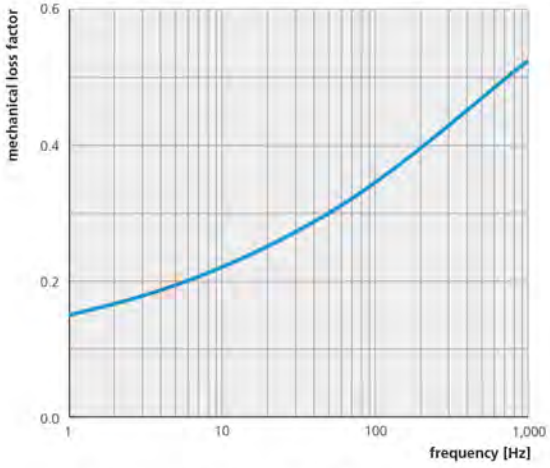




frequency dependency

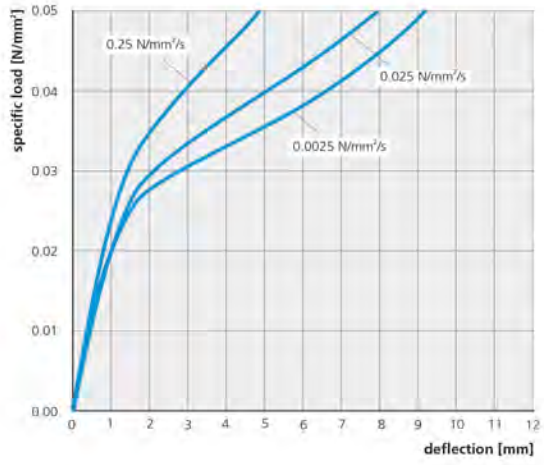
DMA-tests; mastercurve with a reference-temperature of 21°C;
tests within the linear area of the load deflection curve, at low specific loads





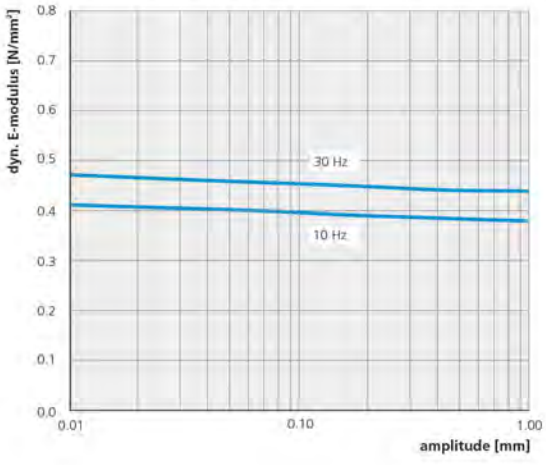
dependency on loading velocity

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



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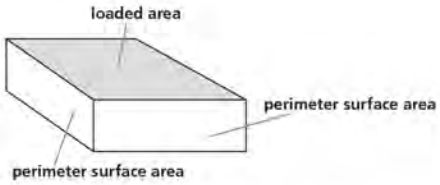

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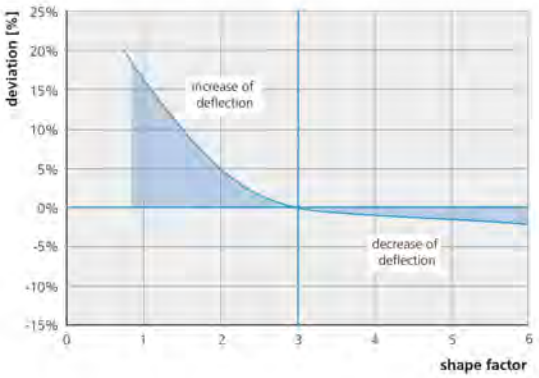

influence of the shape factor on the critical value of the static load limit for homogeneous material
reference value: shape factor q=3