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SYLOMER VIBRATION ISOLATION PADS

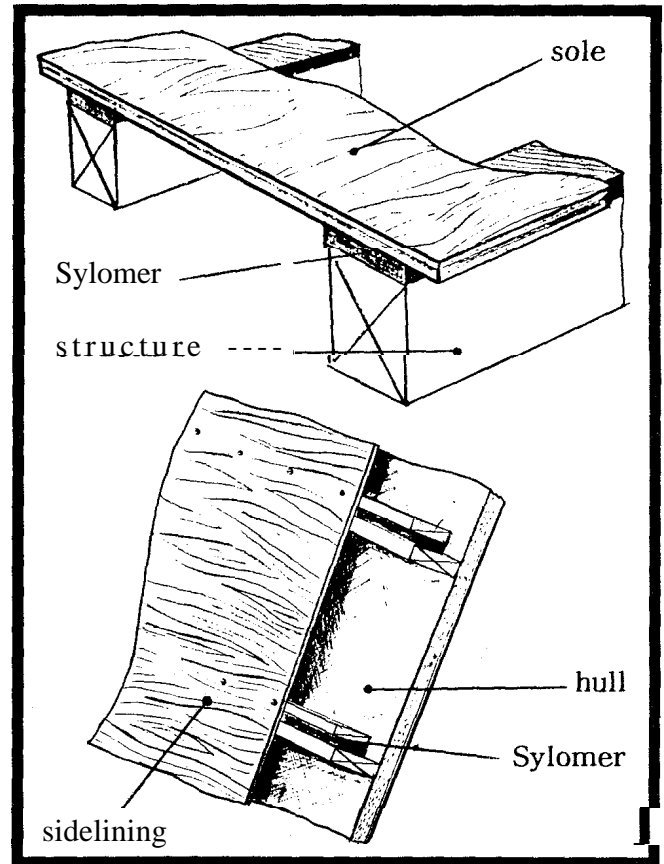
SOUNDOWN'S SYLOMER isolation foam urethane products were first introduced into marine yacht construction by our engineering affiliate J&A Enterprises, in 1983 on the mega yacht SHERGAR. Since that time this material has become "the standard" for vibration isolation pads used in isolation of finish surfaces in yacht interiors, worldwide.

Sylomer foams are most often used for elastic support of cabin soles, effectively isolating structureborne noise from engines, gears, propellers, and water impact. They also isolate footfall noise transmission from hard floored main deck spaces (galley) to cabins below.

Sylomer foams, when bonded to wooden furring strips, provide an excellent isolated support for bulkhead and hull side linings when the highest noise reduction is required.

The standard grades of Sylomer used in these applications are the soft "R-12" which is grey in color, and the slightly stiffer "L-12" which is green. Cabin soles are normally supported with the "L-12" material using a coverage of about 10% (i.e. 2" strips on 20" centers).

Bulkhead and side lining panels are usually supported on the "R-12" material at a coverage of 5 to 15%.



Sylomer is a high density elastic urethane foam. It is readily bonded to wood, fiberglass, aluminum, and steel, making it easy to install.

It has high endurance against chemical and physical abuse, giving it a long life in the marine environment. Its elastic properties are excellent for isolating vibration and structureborne noise over the full range of tactile and audible frequencies.

Sylomer L-12 and R-12 are 1/2" thick and come in rolls 5'x16.5'. Shorter lengths are available, and the material may be purchased in strips (2" strips are standard stock item). [A wider range of stiffness and thickness is available on special order from Soundown.]

Sylomer products from Soundown are a high tech innovation for the marine market. To be sure that our customers gain the greatest benefit from them we are ready to support them with our engineering assistance, when requested.

SOUNDOWN CORP.

INSTALLATION ADHESIVES
FOR SYLOMER PRODUCTS

The following table lists the adhesive systems that Soundown recommends for installation of Sylomer isolation foam materials.

MATERIALS TO BE BONDED TO SYLOMER

| | WOOD | FIBERGLASS | ALUMINUM | STEEL |
|--|-------------|-------------------|-----------------|--------------|
| MAX BOND (H.B. FULLER) | * | * | | |
| SOUNDOWN (2049) | * | * | * | * |
| 3M (#1537) | * | | * | * |
| SIKAFLEX (201 or 211(fast cure)) (primer 205-260 for metal) | * | | * | * |

sylomer®

L 12

Material: cellular Polyetherurethane (PUR), mixed cellstructure

Colour: green

Standard sizes, on stock:

Thickness: 12 mm for Sylomer® L12

Rolls: width 1.5 m, length 5.0 m

Strips: width up to 1.5 m, length 5.0 m

Recommendations if used as an elastic bearing:

Operating load range: 0 to 0.08 N/mm²
 (permanent and variable loads)

Permanent static load range: up to 0.05 N/mm²

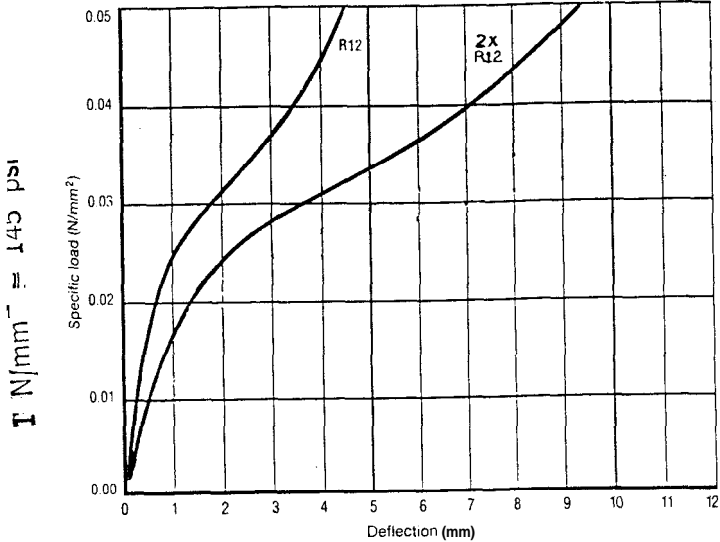
Load peaks: up to 2 N/mm²
 (rare and short-term loads)

1 N / mm . s q . = 1 4 5 p s i

Physical Properties

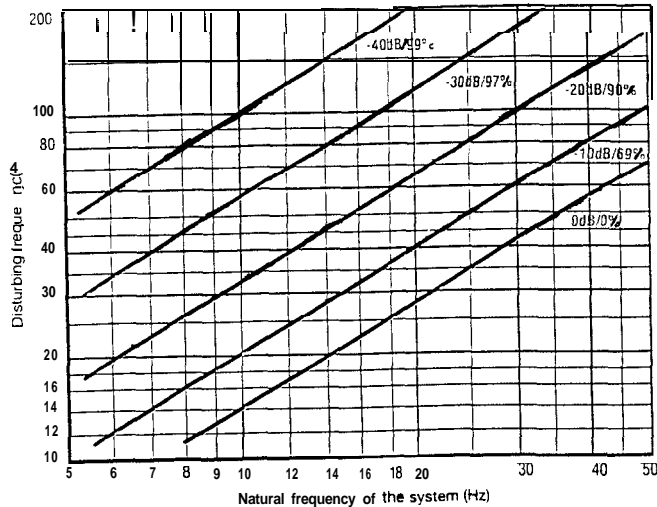
| Quantity | Value | Unit | Test Standard | Remarks |
|-------------------------------|------------------|-------------------|----------------------|---|
| Density | 300 | kg/m ³ | DIN 53420 | |
| Static Modulus of Elasticity | 0.1 -0.7 | N/mm ² | Similar to DIN 53513 | Tangential modulus, see fig. 2 |
| Static Shear Modulus | 0.15 | N/mm [*] | Similar to DIN 53513 | Average value for small deflections |
| Dynamic Modulus of Elasticity | 0.35 -1 .1 | N/mm ² | Similar to DIN 53513 | Depending on load and frequency, see fig. 2 |
| Dynamic Shear Modulus | 0.25 | N/mm [*] | Similar to DIN 53513 | Average value for <i>small</i> deflections |
| Mechanical Loss Factor | 0.2 | | DIN 53513 | |
| Compression Set | 2.6 | % | DIN 53572 | 50% compression, 23°C, 70 h 30 min after decompression |
| Tensile Strength | 1.0 | N/mm [*] | DIN 53455-6-4 | Minimum |
| Elongation at Break | 300 | % | DIN 53455-6-4 | Minimum |
| Tear-Resistance | 2.5 | N/mm | DIN 53515 | Minimum |
| Electrical Volume Resistivity | 10 ¹⁵ | Ω · cm | DIN 53482 | For dry material |
| Thermal Conductivity | 0.07 | W/(m . K) | DIN 52612/1 | |
| Inflammability | B 2 | | DIN 4102 | Normal inflammable |

① Load Deflection Curves Sylomer® R



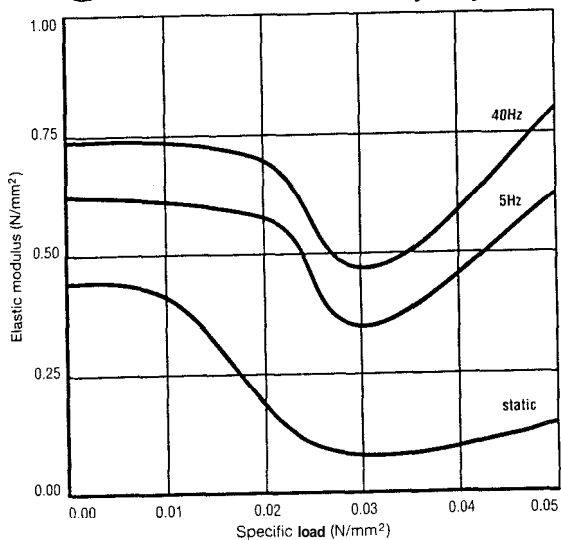
Samples: 300 mm x 300 mm. 3rd load cycle, between flat plates
Load rate: 1% of the thickness per second, ambient temperature

④ Vibration isolation



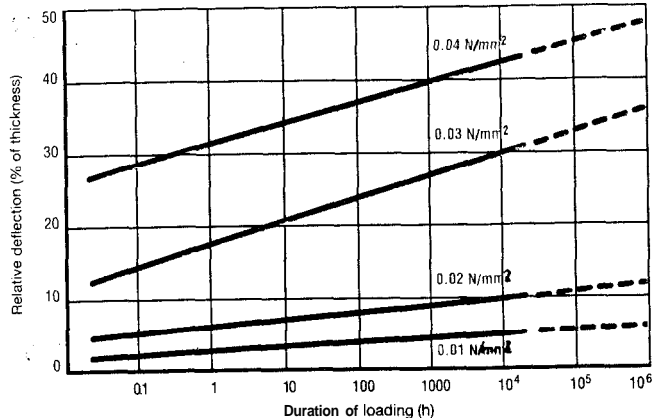
Parameter:
Power transmission loss in dB, isolation factor in %

② Modulus of Elasticity Sylomer® R



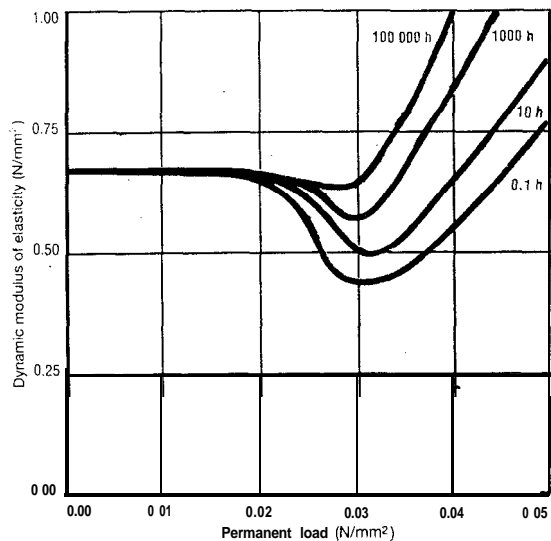
Static modulus of elasticity: Tangential modulus from the load deflection curves
Dynamic modulus of elasticity: Samples 300 mm x 300 mm x 25 mm
Sinusoidal excitation, amplitude of +/- 0.25 mm

⑤ Long-term Creeping test Sylomer® R



Parameter:
Permanent load

⑥ Long-term Creeping of the Dynamic Modulus Sylomer® R of Elasticity

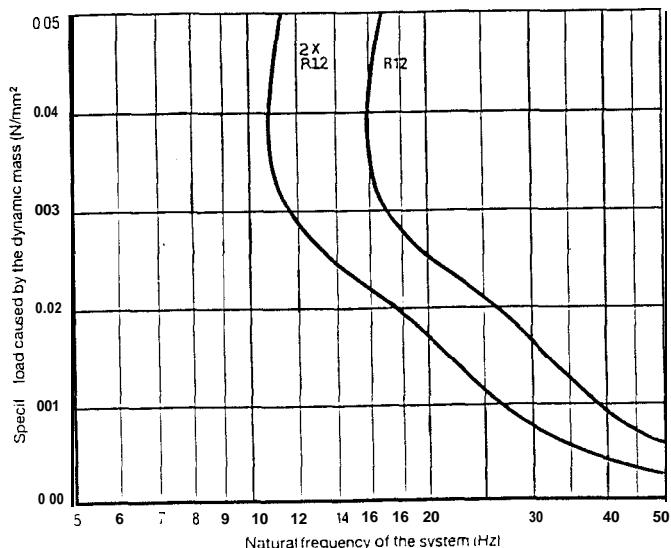


Parameter:
Duration of loading

Determination of the elastic modulus by measuring the natural frequency after impact excitation

All indications are based on our actual technical experience and knowledge.
Alterations reserved.

③ Natural Frequency*



* Natural frequency of a system consisting of a rigid mass and an elastic layer of Sylomer®

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getzner
werkstoffe

sylomer®

R 12

Material: cellular Polyetherurethane (PUR), mixed cellstructure

Colour: blue

Standard sizes, on stock:

Thickness: 12 mm for Sylomer™ R12

Rolls: width 1.5 m, length 5.0 m

Strips: width up to 1.5 m, length 5.0 m

Recommendations if used as an elastic bearing:

Operating load range: 0 to 0.035 N/mm²
(permanent and variable loads)

Permanent static load range: up to 0.025 N/mm²

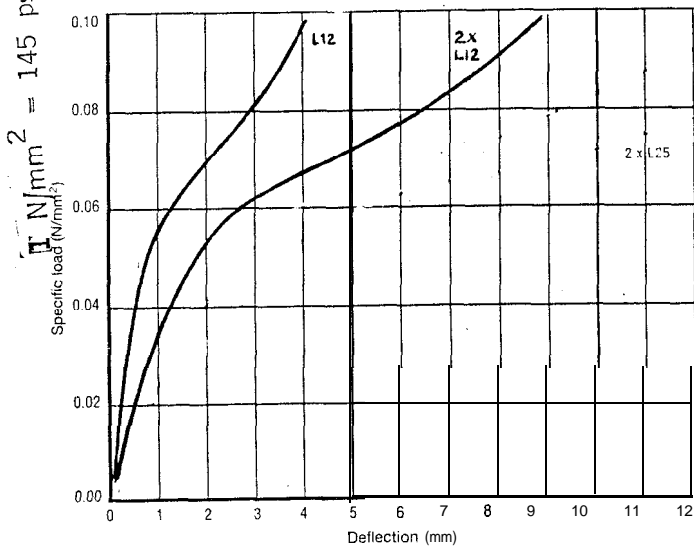
Load peaks: up to 1 N/mm²
(rare and short-term loads)

1 N/mm.sq. = 145 psi

Physical Properties

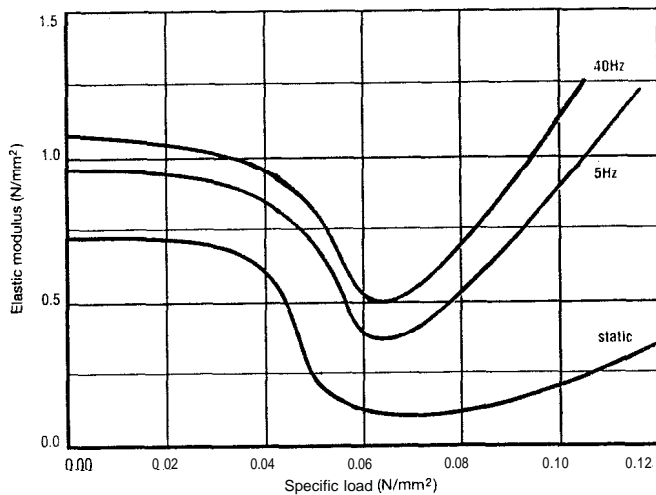
| Quantity | Value | Unit | Test Standard | Remarks |
|-------------------------------|------------------|-------------------|----------------------|--|
| Density | 220 | kg/m ³ | DIN 53420 | |
| Static Modulus of Elasticity | 0.075 -0.45 | N/mm ² | Similar to DIN 53513 | Tangential modulus, see fig. 2 |
| Static Shear Modulus | 0.1 | N/mm ² | Similar to DIN 53513 | Average value for small deflections |
| Dynamic Modulus of Elasticity | 0.35 -0.75 | N/mm ² | Similar to DIN 53513 | Depending on load and frequency, see fig. 2 |
| Dynamic Shear Modulus | 0.15 | N/mm ² | Similar to DIN 53513 | Average value for small deflections |
| Mechanical Loss Factor | 0.23 | | DIN 53513 | |
| Compression Set | 3.2 | % | DIN 53572 | 50% compression, 23°C, 70 h 30 min after decompression |
| Tensile Strength | 0.5 | N/mm ² | DIN 53455-6-4 | Minimum |
| Elongation at Break | 300 | % | DIN 53455-6-4 | Minimum |
| Tear-Resistance | 2.0 | N/mm | DIN 53515 | Minimum |
| Electrical Volume Resistivity | 10 ¹⁵ | Ω · cm | DIN 53482 | For dry material |
| Thermal Conductivity | 0.06 | W/(m . K) | DIN 52612/1 | |
| Inflammability | B 2 | | DIN 4102 | Normal inflammable |

① Load Deflection Curves Sylomer® L



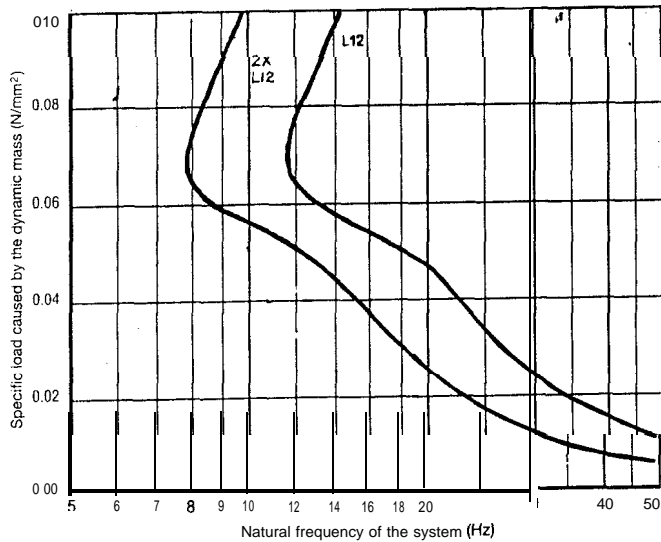
Samples: 300 mm x 300 mm. 3rd load cycle, between flat plates

② Modulus of Elasticity Sylomer® L



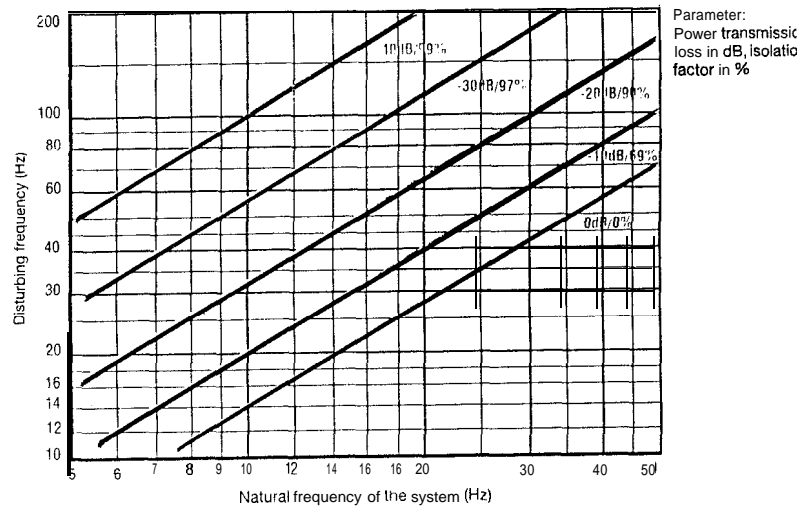
Static modulus of elasticity: Tangential modulus from the load deflection curves
 Dynamic modulus of elasticity: Samples 300 mm x 300 mm x 25 mm
 Sinusoidal excitation, amplitude of +/- 0.25 mm

③ Natural Frequency*



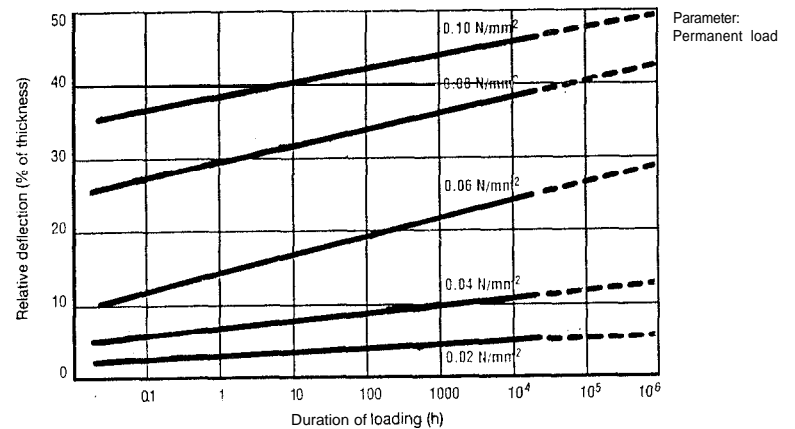
* Natural frequency of a system consisting of a rigid mass and an elastic layer of Sylomer®

④ Vibration Isolation



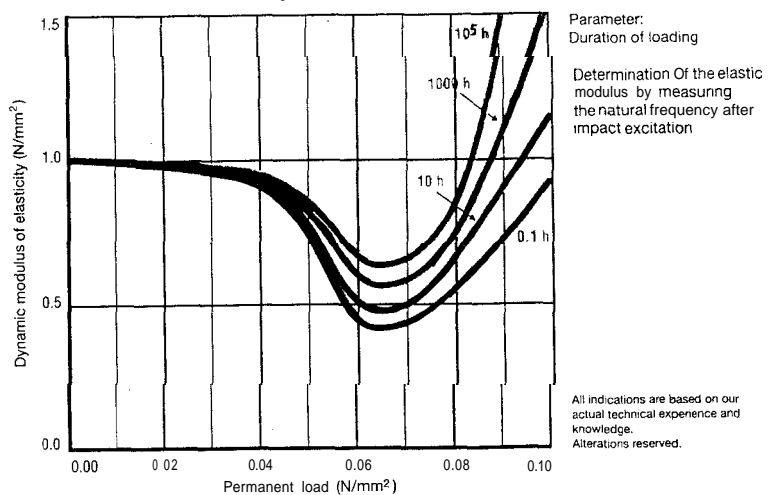
Parameter:
 Power transmissic
 loss in dB, Isolatio
 factor in %

⑤ Long-term Creeping Test Sylomer® L



Parameter:
 Permanent load

⑥ Long-term Creeping of the Dynamic Modulus Sylomer® L of Elasticity



Parameter:
 Duration of loading
 Determination Of the elastic
 modulus by measuring
 the natural frequency after
 impact excitation

All indications are based on our
 actual technical experience and
 knowledge.
 Alterations reserved.