**Sylodyn® ND**

**Material Data Sheet**

**Material**  
Closed cellular polyurethane

**Colour**  
Green

**Standard dimensions on stock**

- **Thickness:** 12.5 mm with Sylodyn® ND 12  
  25 mm with Sylodyn® ND 25
- **Rolls:** 1.5 m wide, 5.0 m long
- **Stripes:** max. 1.5 m wide, up to 5.0 m long

Other dimensions (also thickness) as well as stamped and molded parts on request.

**Areas of application**

<table>
<thead>
<tr>
<th>Compression load (depending on form factor)</th>
<th>Deflection</th>
<th>Static load limit</th>
<th>Operating load range (static plus dynamic loads)</th>
<th>Load peaks (short term, infrequent loads)</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 0.35 N/mm²**</td>
<td>approx. 10 %**</td>
<td>up to 0.50 N/mm²**</td>
<td>approx. 16 %**</td>
<td>up to 4.0 N/mm²**</td>
</tr>
</tbody>
</table>

**Material properties**

<table>
<thead>
<tr>
<th>Material property</th>
<th>Test methods</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile stress at break</td>
<td>2.5 N/mm²</td>
<td>DIN EN ISO 527-3/5/100* minimum value</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>500 %</td>
<td>DIN EN ISO 527-3/5/100* minimum value</td>
</tr>
<tr>
<td>Tear strength</td>
<td>10 N/mm</td>
<td>DIN 53515* minimum value</td>
</tr>
<tr>
<td>Abrasion</td>
<td>100 mm/²</td>
<td>DIN 53516 load 10 N, bottom surface</td>
</tr>
<tr>
<td>Coefficient of friction (steel)</td>
<td>0.7</td>
<td>Getzner Werkstoffe dry</td>
</tr>
<tr>
<td>Coefficient of friction (concrete)</td>
<td>0.7</td>
<td>Getzner Werkstoffe dry</td>
</tr>
<tr>
<td>Compression set</td>
<td>&lt; 5 %</td>
<td>EN ISO 1856 50 %, 23 °C, 70 h, 30 minutes after unloading</td>
</tr>
<tr>
<td>Static shear modulus</td>
<td>0.35 N/mm²</td>
<td>DIN ISO 1827* at static load limit</td>
</tr>
<tr>
<td>Dynamic shear modulus</td>
<td>0.47 N/mm²</td>
<td>DIN ISO 1827* at static load limit</td>
</tr>
<tr>
<td>Mechanical loss factor</td>
<td>0.08</td>
<td>DIN 53513* depending on frequency, load and amplitude (reference value)</td>
</tr>
<tr>
<td>Rebound elasticity</td>
<td>70 %</td>
<td>DIN 53512 tolerance /- 10 %</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-30 to 70 °C</td>
<td>Short term higher temperatures possible</td>
</tr>
<tr>
<td>Flammability</td>
<td>B2 class E</td>
<td>DIN 4102 normal flammable</td>
</tr>
<tr>
<td>Specific volume resistance</td>
<td>&gt; 10²²[kg·cm³]</td>
<td>DIN IEC 93 dry</td>
</tr>
<tr>
<td>Thermal conductivity</td>
<td>0.09 W/[m·K]</td>
<td>DIN 52612/I dry</td>
</tr>
</tbody>
</table>

**Area of application**

- **Static load limit:**
- **Operating load range (static plus dynamic loads):**
- **Load peaks (short term, infrequent loads):**

**Standard Sylodyn® range**

- **Static load limit (N/mm²):**
  - 10
  - 1
  - 0.1
  - 0.01
  - 0.001

Further characteristic values on request

- * Tests according to respective standards
- ** At 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. We reserve the right to amend the data.

Further information can be found in VDI Guideline 2062 - Page 2.
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

Form factor: q=6

Form factor: q=3

Form factor: q=1.5

Natural frequency

Form factor: q=6

Form factor: q=3

Form 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. 5·10⁻⁶ 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 Sylodyn® ND 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 Sylodyn® ND

Parameter: factor of transmission in dB, isolation rate in %

Creep behaviour

Increase in deformation under consistent loading

Parameter: permanent loading

Form factor: q=3

Dynamic E-modulus at long term loading

Change of dynamic modulus of elasticity under consistent loading (at 10 Hz)

Parameter: load duration

Form factor: q=3
Temperature dependency

Frequency dependency

Dependency on amplitude

Dependency on loading velocity

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

Dependency on amplitude:
- preload at static load limit; form factor: q=3, thickness of material 25 mm

Dependency on loading velocity:
- form factor: q=3, thickness of material 25 mm
**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 sum of the perimeter surfaces.

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

For a rectangular shape: \[ q = \frac{l \times w}{2 \times t \times (l + w)} \]

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

**Elastic Sylodyn®-bearings are considered as**

- Full surface bearing: Form factor > 6
- Strip bearing: Form factor between 2 and 6
- Point bearing: Form factor < 2

**Influence of the form factor on the deflection at the static load limit for a homogeneous material**

Reference value: Form factor q=3

**Influence of the form factor on the static load limit for a homogeneous material**

Reference value: Form factor q=3

![Graph showing the influence of form factor on deflection and static load limit.](Image)

*Note: The graph shows a decrease in deflection and an increase in static load limit with a decrease in form factor.*

*Source: www.getzner.com*