Vibration Insulation

Technical Data for Regufoam®
150, 220, 300, 400, 510, 680
Vibration Absorption and Structure Borne Sound Insulation

The material Regufoam® achieves top levels in vibration absorption and insulation of structure-borne noise. This material is a hydrolysis-proof and rot-proof polyurethane foam that is manufactured in six different grades according to firmness. These different degrees of hardness are colour-labelled to prevent confusion. Selection form amongst the different types depends on the load involved. They are available in standard thicknesses of 12 and 25 mm and combinations thereof. Regufoam® shows very low intrinsic frequency levels within the relevant load ranges, resulting in high noise insulation values. Another advantage of this insulation material is its relatively low compression ratio, combined with enormous resilience. Regufoam® can be used in a wide variety of applications. The material is used wherever structure-borne sound and vibrations require highly effective insulation. This includes the fields of structural and civil engineering and track-laying. Regufoam® also plays an important role in mechanical engineering and shipbuilding. The standard supply form for this material is in rolls. Stamped parts, cutouts produced with a water jet and mould-formed articles are also available on request.

Fields of application

**Road construction**

In track-laying and tunnel construction, as well as in road and bridge construction, BSW materials are used to damp vibrations and to protect structures from damaging vibrations.

**Foundations**

Buildings with load distribution plates rest on Regufoam® to protect them against ground vibrations.
**Structural engineering**

Whether in lift motors, pumps, ventilation systems or block-type thermal power stations, Regufoam® is easy to install and has a long useful life.

**Industry**

In industrial applications, Regufoam® is used for active insulation of machines and passive insulation of floor plates on which fine measuring equipment is installed, in laboratory rooms and in measuring booths. Both sub-critical and hyper-critical mounts are possible.

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**Load Ranges**

- **Regufoam**
  - Load range (N/mm²)
  - Thickness: 12 and 25 mm
  - Rolls: width 1,500 mm, length 5,000 mm
  - Special lengths possible
  - Die-cutting, water-jet cutting, self adhesive possible.

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**Standard sizes, on stock:**
- Thickness: 12 and 25 mm
- Other thicknesses possible.
### Load Deflection

<table>
<thead>
<tr>
<th>Specific load (N/mm²)</th>
<th>Deflection (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0200</td>
<td>0.0000</td>
</tr>
<tr>
<td>0.0175</td>
<td>0.0050</td>
</tr>
<tr>
<td>0.0150</td>
<td>0.0075</td>
</tr>
<tr>
<td>0.0125</td>
<td>0.0100</td>
</tr>
<tr>
<td>0.0100</td>
<td>0.0125</td>
</tr>
<tr>
<td>0.0075</td>
<td>0.0150</td>
</tr>
<tr>
<td>0.0050</td>
<td>0.0175</td>
</tr>
<tr>
<td>0.0025</td>
<td>0.0200</td>
</tr>
<tr>
<td>0.0000</td>
<td>0.0225</td>
</tr>
</tbody>
</table>

Samples: 300 mm x 300 mm, 3rd load cycle, between flat plates
load rate: 0.02 MPa/min, ambient temperature

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**Load Ranges**

Regufoam 150

0.0000

0.025

0.050

0.100

0.200

0.400

150/12

150/25

150/37

150/50

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2 Vibration Insulation

Regufoam 150

Natural frequency of the system (Hz)

Disturbing frequency (Hz)

40 dB/99%
30 dB/97%
20 dB/90%
10 dB/69%
0 dB/0%

3 Natural Frequency

Regufoam 150

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

The diagram refers to a structure consisting of a rigid base and an elastic layer of Regufoam® 150.

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4 Modulus of Elasticity

Regufoam 150

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

5 Dynamic Rigidity

Regufoam 150

Samples: 300 mm x 300 mm x 25 mm
DIN 53513
6 Long-term Creep Test

Regufoam 150

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Technical Data

Permanent static load range: 0 to 0.010 N/mm²
Permanent and variable loads/operating load range: 0 to 0.015 N/mm²
Rare and short-term loads/load peaks: up to 0.50 N/mm²

Density DIN 53420 ca. 150 kg/m³ measured at a maximum continuous load of 0.01 N/mm² and a material thickness of 25 mm

Beddingsmodule DIN 18134 0.0038 N/mm³ measured 30 minutes after decompression with 50% deformation/23°C after 70 hrs.

Compression Set DIN 53572 2.50 % Minimum
Tensile Strength DIN 53571 0.42 N/mm² Minimum
Elongation at break DIN 53571 270 % Minimum
Tear-Resistance DIN 53515 2.65 N/mm Minimum
Mechanical Loss Factor DIN 53513 0.25 -
Inflammability DIN 4102 B 2 - Normal inflammable

Static Modulus of Elasticity Similar to EN 826 0.025 - 0.16 N/mm² Tangential modulus see fig. 4
Dynamic Modulus of Elasticity DIN 53513 0.11 - 0.32 N/mm² depending on load and frequency, see fig. 4

The information on this data sheet is based on the current state of our knowledge and experience and is subject to changes and production-related variations without notice.
Samples: 300 mm x 300 mm, 3rd load cycle, between flat plates
load rate: 0.05 MPa/min, ambient temperature
2 Vibration Insulation

Regufoam 220

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

3 Natural Frequency

Regufoam 220

The diagram refers to a structure consisting of a rigid base and an elastic layer of Regufoam® 220.
4 Modulus of Elasticity

Regufoam 220

static

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

5 Dynamic Rigidity

Regufoam 220

static

Dynamic rigidity (MN/m³)

Samples: 300 mm x 300 mm x 25 mm
DIN 53513

Tested by the University of Dresden, Institute for Structural Dynamics, test certificate no. 32/02, April 2002
### Technical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>DIN 53420</td>
<td>ca. 220 kg/m³</td>
<td>measured at a maximum continuous load of 0.025 N/mm² and a material thickness of 25 mm</td>
</tr>
<tr>
<td>Beddingsmodule</td>
<td>DIN 18134</td>
<td>0.011 N/mm²</td>
<td>measured 30 minutes after decompression with 50% deformation/23 °C after 70 hrs.</td>
</tr>
<tr>
<td>Compression Set</td>
<td>DIN 53572</td>
<td>&lt; 4.0 %</td>
<td>Minimum</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>DIN 53571</td>
<td>0.56 N/mm²</td>
<td>Minimum</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>DIN 53571</td>
<td>260 %</td>
<td>Minimum</td>
</tr>
<tr>
<td>Tear-Resistance</td>
<td>DIN 53515</td>
<td>3.38 N/mm</td>
<td>Minimum</td>
</tr>
<tr>
<td>Mechanical Loss Factor</td>
<td>DIN 53513</td>
<td>0.20 -</td>
<td>-</td>
</tr>
<tr>
<td>Inflammability</td>
<td>DIN 4102</td>
<td>B 2</td>
<td>Normal inflammable</td>
</tr>
<tr>
<td>Static Modulus of Elasticity</td>
<td>Similar to EN 826</td>
<td>0.05-0.38 N/mm²</td>
<td>Tangential modulus see fig. 4</td>
</tr>
<tr>
<td>Dynamic Modulus of Elasticity</td>
<td>DIN 53513</td>
<td>0.30-0.69 N/mm²</td>
<td>depending on load and frequency, see fig. 4</td>
</tr>
</tbody>
</table>

The information on this data sheet is based on the current state of our knowledge and experience and is subject to changes and production-related variations without notice.
Load Deflection

Samples: 300 mm x 300 mm, 3rd load cycle, between flat plates
load rate: 0.1 MPa/min, ambient temperature
The diagram refers to a structure consisting of a rigid base and an elastic layer of Regufoam® 300.
4 Modulus of Elasticity

Regufoam 300

Tested by the University of Dresden, Institute for Structural Dynamics, test certificate no. 32/02, April 2002

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

5 Dynamic Rigidity

Regufoam 300

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Samples: 300 mm x 300 mm x 25 mm
DIN 53513
### Technical Data

- **Density**: DIN 53420, ca. 300 kg/m³
- **Beddingsmodule**: DIN 18134, 0.025 N/mm², measured at a maximum continuous load of 0.05 N/mm² and a material thickness of 25 mm.
- **Compression Set**: DIN 53572, 2.20 %, measured 30 minutes after decompression with 50 % deformation/23°C after 70 hrs.
- **Tensile Strength**: DIN 53571, 0.78 N/mm², Minimum
- **Elongation at break**: DIN 53571, 240 %, Minimum
- **Tear-Resistance**: DIN 53515, 4.85 N/mm, Minimum
- **Mechanical Loss Factor**: DIN 53513, 0.14, -
- **Inflammability**: DIN 4102, B 2, Normal inflammable
- **Static Modulus of Elasticity**: Similar to EN 826, 0.14-0.75 N/mm², Tangential modulus see fig. 4
- **Dynamic Modulus of Elasticity**: DIN 53513, 0.60-1.30 N/mm², depending on load and frequency, see fig. 4

The information on this data sheet is based on the current state of our knowledge and experience and is subject to changes and production-related variations without notice.
Load Deflection

Specific load (N/mm²)

Range of dynamic load

Deflection (mm)

0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000

400/12
400/25
400/37
400/50

Samples: 300 mm x 300 mm, 3rd load cycle, between flat plates
load rate: 0.2 MPa/min, ambient temperature
The diagram refers to a structure consisting of a rigid base and an elastic layer of Regufoam® 400.
4 Modulus of Elasticity

Regufoam 400

Static modulus of elasticity: Tangential modulus from the deflection curves
Dynamic modulus: samples 250 mm x 250 mm x 25 mm
Sinusoidal excitation, amplitude +/- 0.25 mm

5 Dynamic Rigidity

Regufoam 400

Samples: 300 mm x 300 mm x 25 mm
DIN 53513
# 6 Long-term Creep Test

Regufoam 400

![Graph showing relative deflection (% of thickness) vs. loading time (hrs)]

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## Technical Data

- **Permanent static load range:** 0 to 0.10 N/mm²
- **Permanent and variable loads/operating load range:** 0 to 0.15 N/mm²
- **Rare and short-term loads/load peaks:** up to 3.0 N/mm²

### Material basis:
- Cellular Polyurethane (PUR)
- Mixed cell structure

### Colour:
- Brick-red

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Density</strong> DIN 53420</td>
<td>ca. 400 kg/m³</td>
<td><strong>measured</strong> at a maximum continuous load of 0.10 N/mm² and a material thickness of 25 mm</td>
</tr>
<tr>
<td><strong>Beddingsmodule DIN 18134</strong></td>
<td>0.037 N/mm³</td>
<td><strong>measured</strong> 30 minutes after decompression with 50% deformation/23°C after 70 hrs.</td>
</tr>
<tr>
<td><strong>Compression Set DIN 53572</strong></td>
<td>2.40%</td>
<td>Minimum</td>
</tr>
<tr>
<td><strong>Tensile Strength DIN 53571</strong></td>
<td>1.30 N/mm²</td>
<td>Minimum</td>
</tr>
<tr>
<td><strong>Elongation at break DIN 53571</strong></td>
<td>290%</td>
<td>Minimum</td>
</tr>
<tr>
<td><strong>Tear-Resistance DIN 53515</strong></td>
<td>7.38 N/mm</td>
<td>Minimum</td>
</tr>
<tr>
<td><strong>Mechanical Loss Factor DIN 53513</strong></td>
<td>0.10%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Inflammability DIN 4102</strong></td>
<td>B 2</td>
<td>Normal inflammable</td>
</tr>
<tr>
<td><strong>Static Modulus of Elasticity</strong></td>
<td>Similar to EN 826 0.39-1.27 N/mm²</td>
<td>Tangential modulus depending on load frequency, see fig. 4</td>
</tr>
<tr>
<td><strong>Dynamic Modulus of Elasticity</strong></td>
<td>DIN 53513 1.07-1.80 N/mm²</td>
<td><strong>see</strong> fig. 4</td>
</tr>
</tbody>
</table>

The information on this data sheet is based on the current state of our knowledge and experience and is subject to changes and production-related variations without notice.
Samples: 300 mm x 300 mm, 3rd load cycle, between flat plates
load rate: 0.5 MPa/min, ambient temperature
The diagram refers to a structure consisting of a rigid base and an elastic layer of Regufoam® 510.
4 Modulus of Elasticity

Regufoam 510

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

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5 Dynamic Rigidity

Regufoam 510

Samples: 300 mm x 300 mm x 25 mm
DIN 53513
6 Long-term Creep Test

Regufoam 510

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Relative deflection (% of thickness) vs. Loading time (hrs)

0.2 N/mm²

Technical Data

Permanent static load range:
0 to 0.2 N/mm²

Permanent and variable loads/
operating load range:
0 to 0.3 N/mm²

Rare and short-term loads/load peaks:
up to 4.0 N/mm²

Material basis:
cellular Polyurethan (PUR)
mixed cellstructure

Colour: orange

Density DIN 53420 ca. 510 kg/m³ measured at a maximum continuous load of 0.20 N/mm² and a material thickness of 25 mm

Beddingsmodule DIN 18134 0.072 N/mm³ measured 30 minutes after decompression with 50% deformation/23°C after 70 hrs.

Compression Set DIN 53572 2.80 %

Tensile Strength DIN 53571 1.50 N/mm² Minimum

Elongation at break DIN 53571 260 % Minimum

Tear-Resistance DIN 53515 8.28 N/mm Minimum

Mechanical Loss Factor DIN 53513 0.10 -

Inflammability DIN 4102 B 2 Normal inflammable

Static Modulus of Elasticity Similar to EN 826 1.49-2.25 N/mm² Tangential modulus see fig. 4

Dynamic Modulus of Elasticity DIN 53513 2.63-3.35 N/mm² depending on load and frequency, see fig. 4

The information on this data sheet is based on the current state of our knowledge and experience and is subject to changes and production-related variations without notice.
Load Deflection

Specific load (N/mm²)

<table>
<thead>
<tr>
<th>Load Range (N/mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>680/12</td>
</tr>
<tr>
<td>680/25</td>
</tr>
<tr>
<td>680/37</td>
</tr>
<tr>
<td>680/50</td>
</tr>
</tbody>
</table>

Samples: 250 mm x 250 mm, 3rd load cycle, between flat plates
load rate: 0.8 MPa/min, ambient temperature
2 Vibration Insulation

Regufoam 680

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

3 Natural Frequency

Regufoam 680

The diagram refers to a structure consisting of a rigid base and an elastic layer of Regufoam® 680.
4 Modulus of Elasticity

Regufoam 680

Static modulus of elasticity: Tangential modulus from the deflection curves
Dynamic modulus: samples 250 mm x 250 mm x 25 mm
Sinusoidal excitation, amplitude +/- 0.25 mm

5 Dynamic Rigidity

Regufoam 680

Samples: 250 mm x 250 mm x 25 mm
DIN 53513
6 Long-term Creep Test

Regufom 680

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Technical Data

Permanent static load range:
0 to 0.4 N/mm²

Permanent and variable loads/
operating load range:
0 to 0.6 N/mm²

Rare and short-term loads/load peaks:
up to 5.0 N/mm²

Material basis:
cellular Polyurethan (PUR)
mixed cellstructure

Colour: brown

Density DIN 53420 ca. 680 kg/m³ measured at a maximum continuous load of 0.40 N/mm² and a material thickness of 25 mm

Beddingsmodule DIN 18134 0.327 N/mm³ measured 30 minutes after decompression with 50% deformation/23°C after 70 hrs.

Compression Set DIN 53572 2.90 %

Tensile Strength DIN 53571 2.47 N/mm² Minimum

Elongation at break DIN 53571 310 % Minimum

Tear-Resistance DIN 53515 14.4 N/mm Minimum

Mechanical Loss Factor DIN 53513 0.08 -

Inflammability DIN 4102 B 2 - Normal inflammable

Static Modulus of Elasticity Similar to EN 826 3.0-3.9 N/mm² Tangential modulus see fig. 4

Dynamic Modulus of Elasticity DIN 53513 4.80-5.60 N/mm² depending on load and frequency, see fig. 4

The information on this data sheet is based on the current state of our knowledge and experience and is subject to changes and production-related variations without notice.
Regufoam® is the material from which BSW GmbH manufactures a wide variety of materials for vibration damping as well as insulation and protection stripping for the construction industry. Regufoam® consists of polyurethane foam. Regufoam® products are highly adaptable, have a long useful life, can bear high-level loads and are 100% recyclable. Object-specific, individual production as well as customer-specific finishing, packaging and storage ensure rapid, application-specific solutions.

Also in the BSW product programme:
Regupol®
The expanded product spectrum for vibration damping with Regupol® includes Regupol® types characterized by different load bearing characteristics. Regupol® vibration insulation consists of a number of different polyurethane-bound rubber granulates that effectively cover load ranges from 0.01 to 1.5 N/mm² in six different material types. The Institute for Structural Dynamics at Dresden Technical University has carried out extensive studies of these material types. Regupol® has been known for many years for its homogeneity and as a reliable product in the field of vibration insulation. With the expanded product spectrum and coverage of higher load ranges, BSW is now upgrading its competence in the area of vibration technology.

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Worldwide consulting and sales:
Germany BSW GmbH
Australia Regupol Australia Pty.

www.berleburger.de
See our website for further information on our products. At the website, you can also order product samples online and communicate directly with your contact person at BSW.