

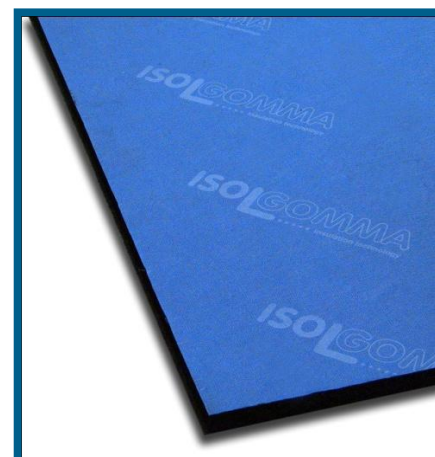
TECHNICAL DATA

Matrack Line AVC 500

Vibration insulation in railways and tramways

Product description and Technical Specification

Anti-vibration material supplied in panels, thickness of 15 to 50 mm, produced using fibres and granules of SBR rubber (Stirene Butadiene Rubber) selected and compacted using a polyurethane glue in a hot process; density 500 kg/m³. A non-woven, non-stretch synthetic membrane is applied on one side of panel, for added protection.



- high mitigation performances
- self-draining product and ice resistant
- mat dimensions available upon customers' request

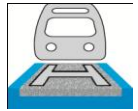
| AREA OF APPLICATION | | Axle load kN | Speed km/h | Ballast track Load σ (N/mm ²) | Suggested thickness | Floating slab track Load σ (N/mm ²) | Suggested thickness |
|---------------------|---------|-----------------|---------------|---|---------------------|---|---------------------|
| | Tram | ≤ 100 | ≤ 100 | $0,020 \leq \sigma \leq 0,030$ | from 15 to 50 | $0,007 \leq \sigma \leq 0,016$ | from 15 to 50 |
| | Metro | ≤ 130 | ≤ 120 | $0,030 \leq \sigma \leq 0,040$ | from 15 to 30 | $0,013 \leq \sigma \leq 0,029$ | from 15 to 50 |
| | Railway | ≤ 225 | ≤ 200 | $0,040 \leq \sigma \leq 0,070$ | from 15 to 25 | $0,017 \leq \sigma \leq 0,050$ | from 15 to 30 |

| PHYSICAL CHARACTERISTICS | Unit | Matrack AVC 500 | | | | | | Tolerance |
|--------------------------|-------------------|-----------------|----|----|----|----|----|-----------|
| Nominal thickness | mm | 15 | 20 | 25 | 30 | 40 | 50 | ± 5 |
| Length | m | up to 3,0 | | | | | | ± 1 |
| Width | m | up to 1,2 | | | | | | ± 1 |
| Density | kg/m ³ | 500 | | | | | | ± 5% |
| Backing superficial mass | g/m ² | 120 | | | | | | |
| Colour | | black/blue | | | | | | |

| TECHNICAL CHARACTERISTICS | Norm | Unit | Matrack AVC 500 | | | | | | Tolerance |
|----------------------------------|-----------------------|-------------------|-----------------|-------|-------|-------|-------|-------|-----------|
| Static Stiffnes ks | UNI 11059 - UNI 10570 | N/mm ³ | 0,029 | 0,021 | 0,018 | 0,016 | 0,012 | 0,008 | ± 10% |
| Dynamic Stiffness kd | UNI 11059 - UNI 10570 | N/mm ³ | 0,107 | 0,079 | 0,064 | 0,05 | 0,041 | 0,035 | ± 10% |
| Static Modulus of Elasticity Es | UNI 11059 | N/mm ² | 0,450 | 0,430 | 0,460 | 0,490 | 0,480 | 0,400 | ± 10% |
| Dynamic Modulus of Elasticity Ed | UNI 11059 | N/mm ² | 1,650 | 1,620 | 1,640 | 1,520 | 1,640 | 1,750 | ± 10% |

| PHYSICAL AND CHEMICAL PROPERTIES | Norm | Unit | Matrack AVC 500 | | | | | | Tolerance |
|----------------------------------|-------------------|---------------------------|-------------------|--|--|--|--|--|-----------|
| Temperature range of use | UNICHIM 87/1970 | °C | -20 °C / +115 °C | | | | | | |
| Inflammability | DIN 4102 | | B2 | | | | | | |
| Water absorption by volume | DIN 52103/A | | < 5% | | | | | | |
| Water absorption in weight | DIN 52103/A | | < 5% | | | | | | |
| Thermal conductivity | EN 12667 | W/m x °C | 0,11 | | | | | | |
| Electrical resistance | UNI 5572/CEI15-23 | $\Omega \times \text{cm}$ | ≥ 10 ⁶ | | | | | | |
| Resistance ozone | DIN 53509/1 | | no cracks | | | | | | |

The suggestions and technical information given above represent our knowledge regarding the properties and the product's uses. ISOLGOMMA reserve the right to modify or update this data without prior notice. This document is the property of ISOLGOMMA and all rights are therefore reserved

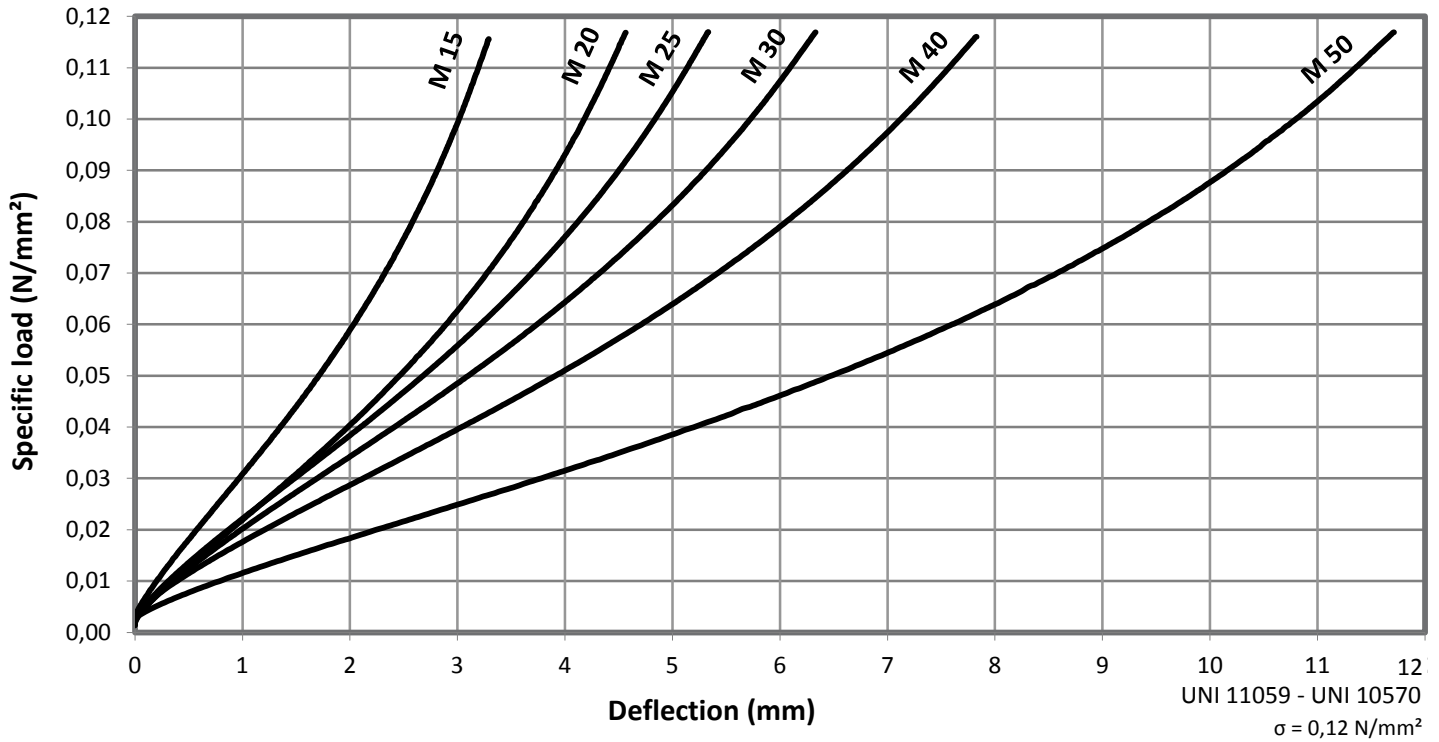


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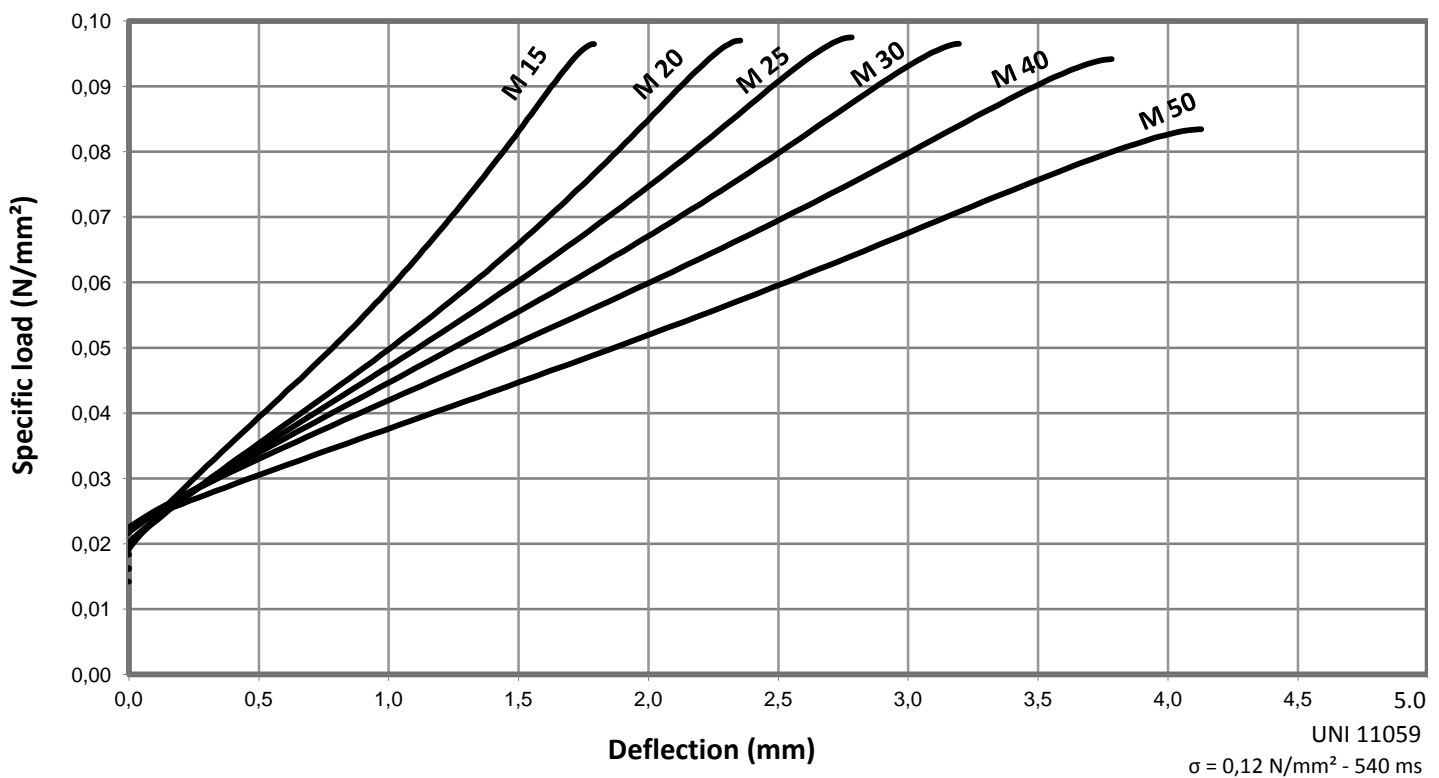
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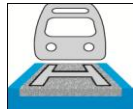
Vibration insulation in railways and tramways

Quasi-static stiffness



Simulation stiffness



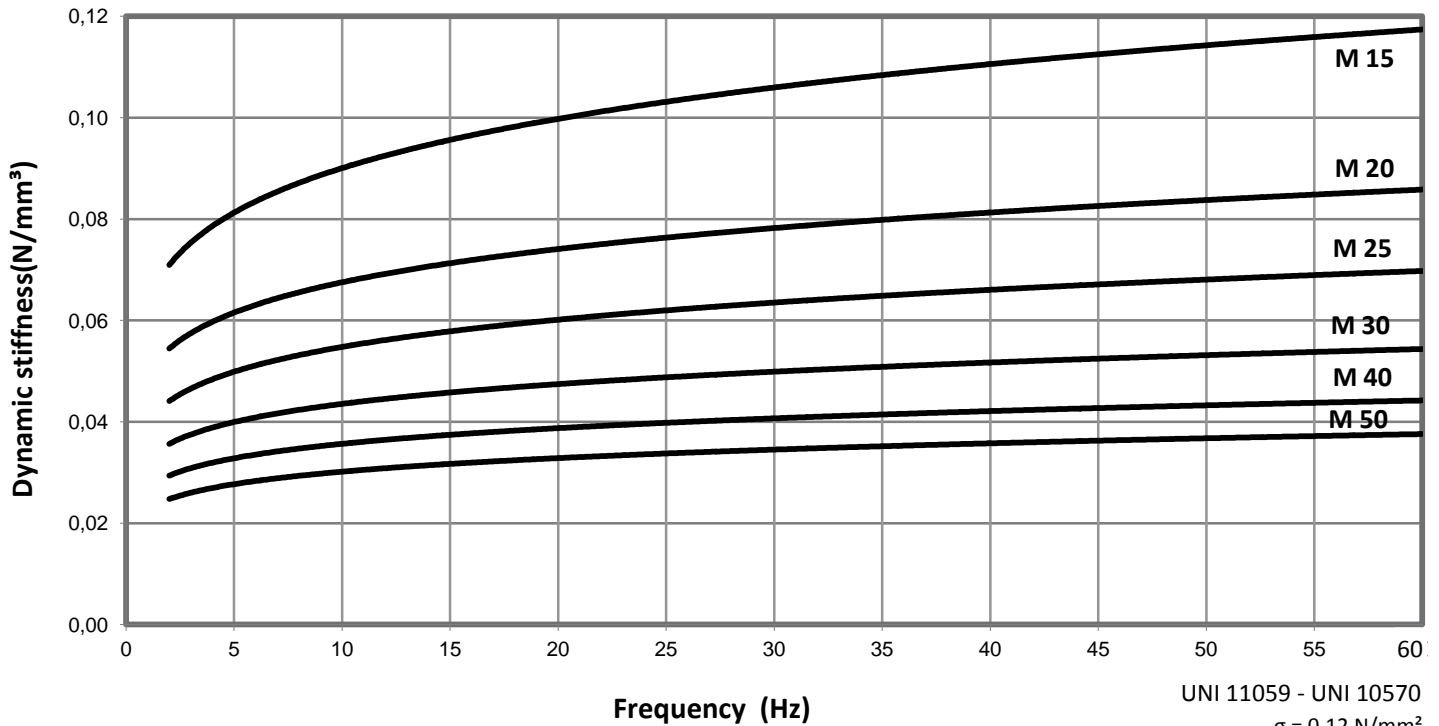


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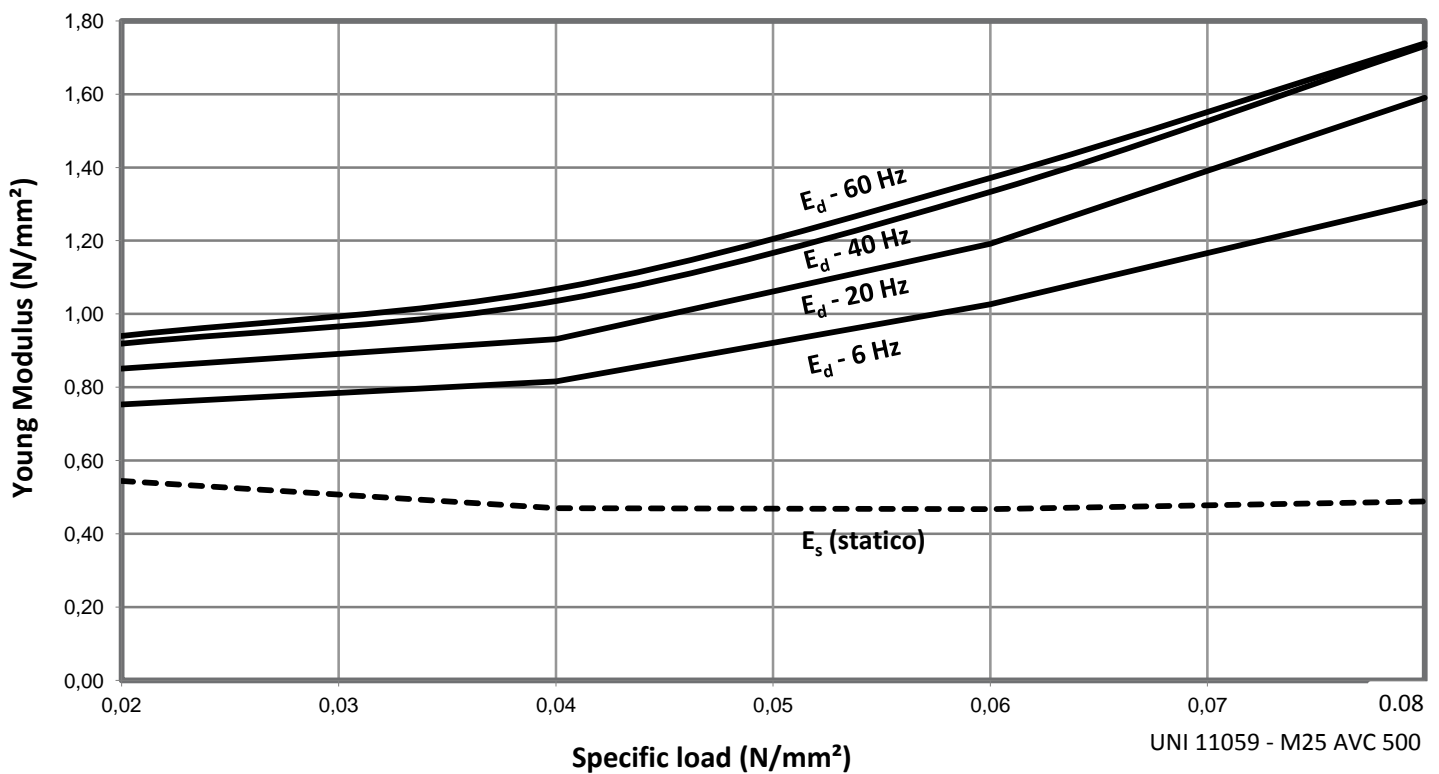
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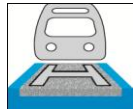
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Dynamic stiffness



Dynamic Modulus of Elasticity



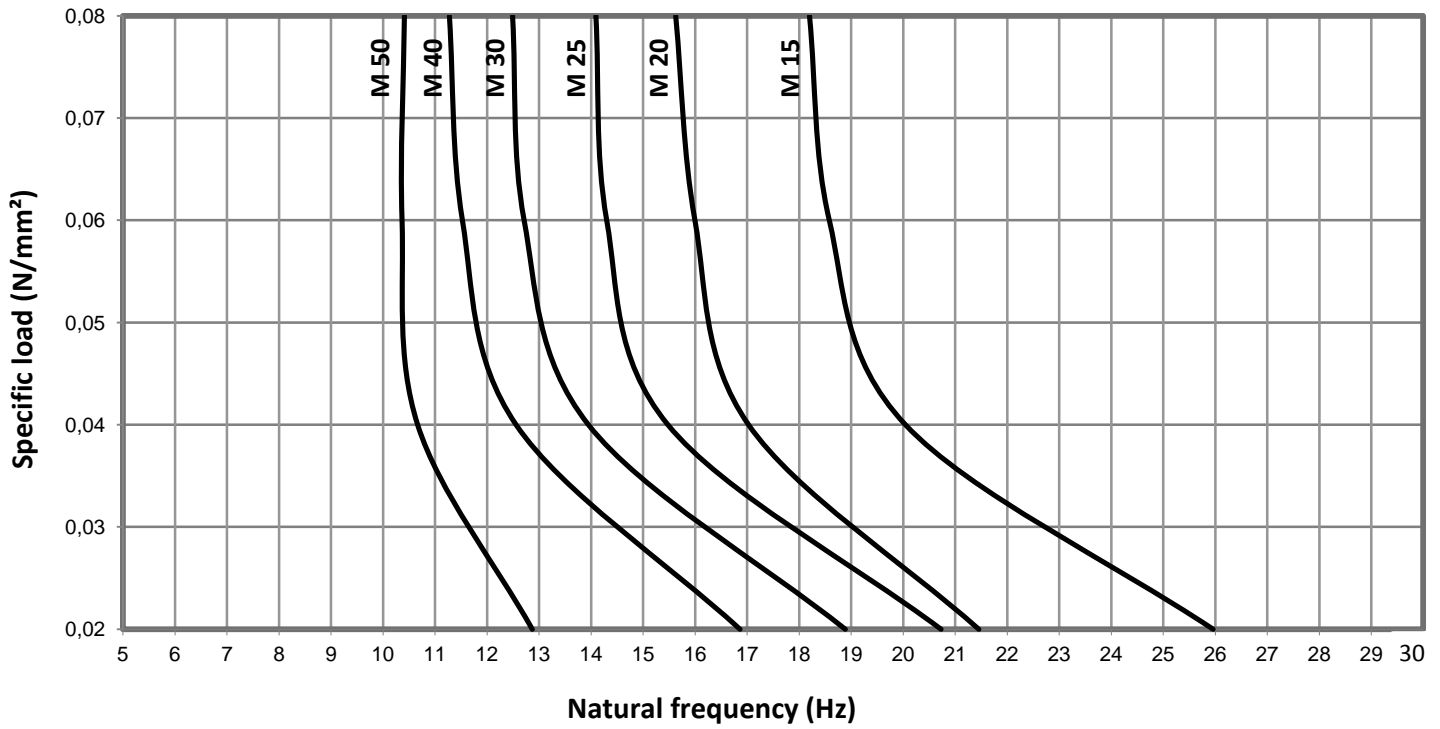


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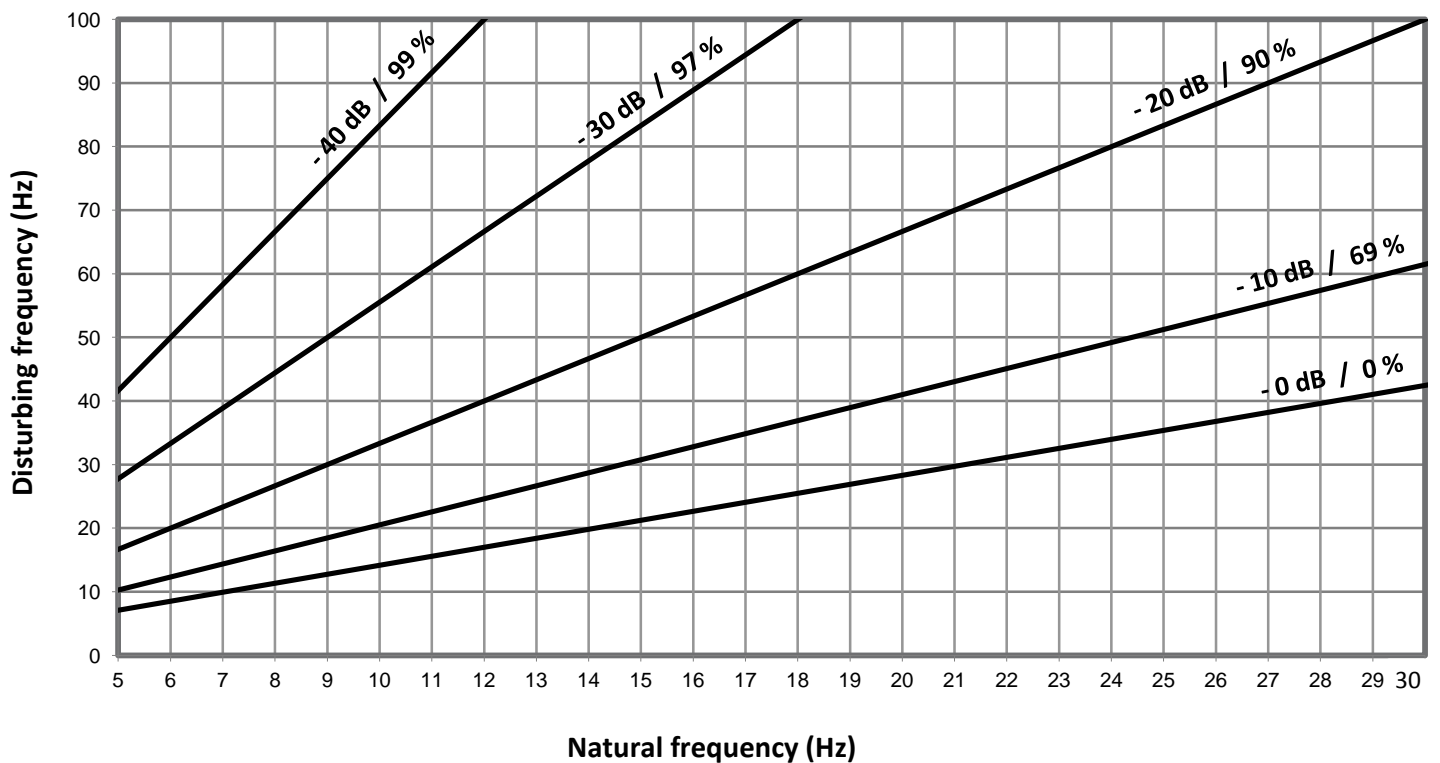
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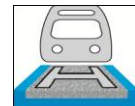
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Natural frequency



Degree of insulation



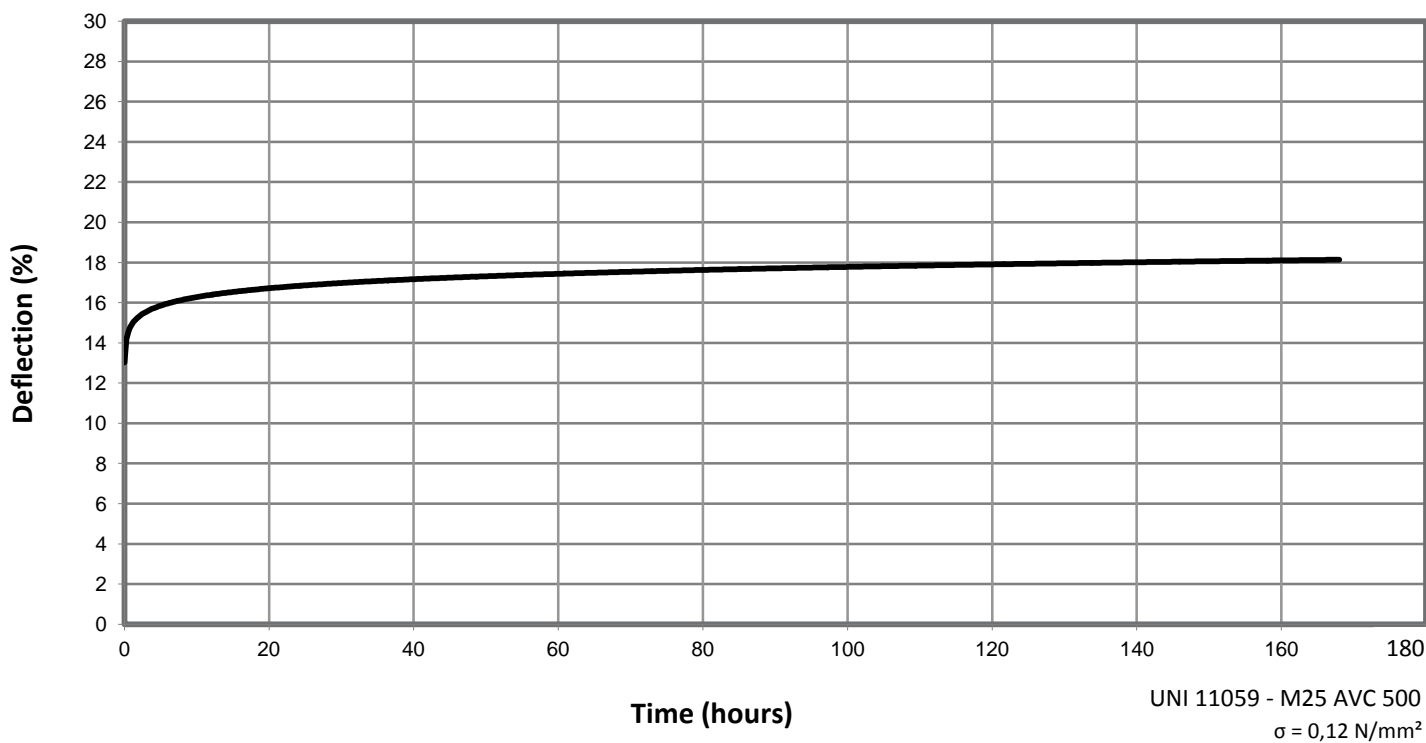


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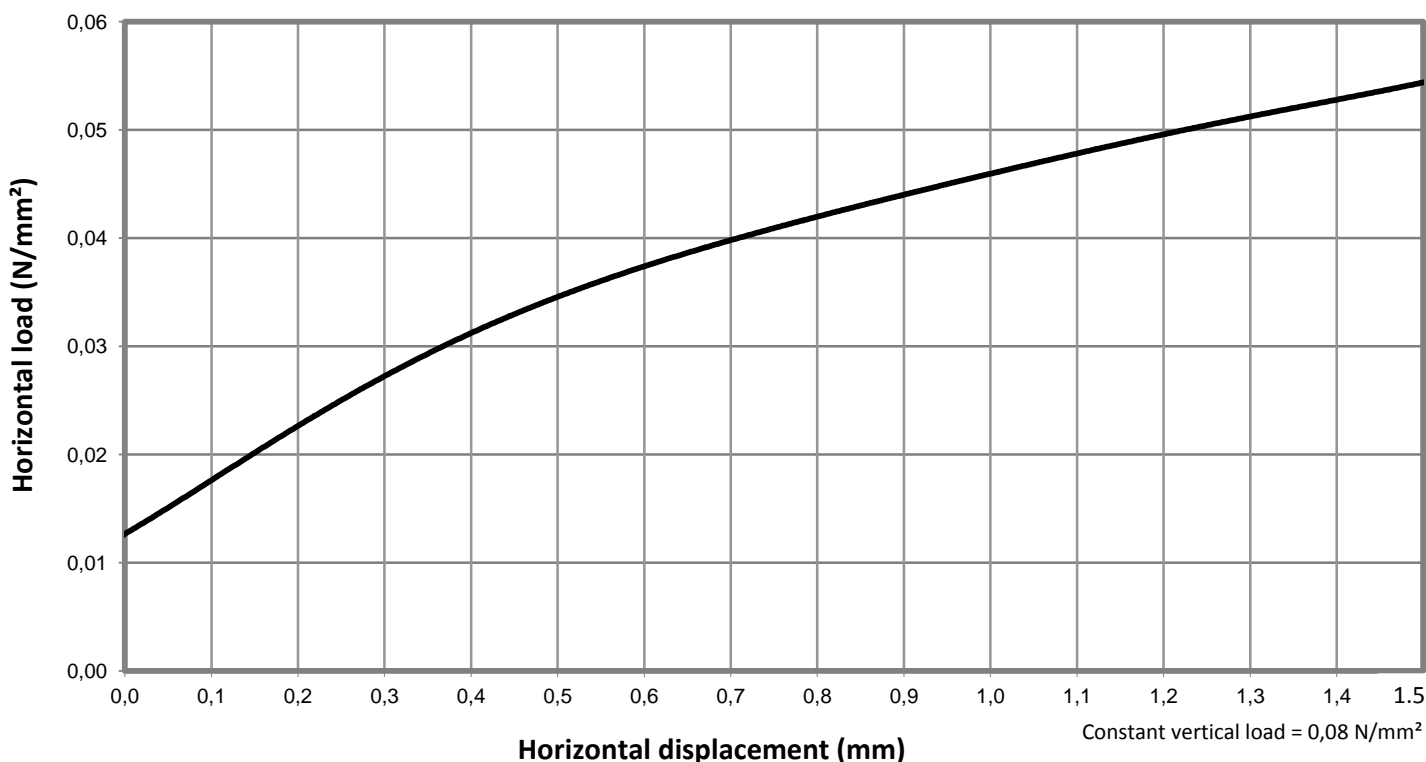
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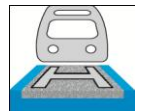
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Permanent load



Shear test





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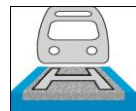
Forced aging test

| Frost strength test with water | Laboratory test | | Standard UNI 11059 |
|--|------------------------|---|---------------------------|
| Dynamic stiffness variation (%) after 3×10^5 cycles (-25°C) | 7,0% | ≤ | 20% |

| Fatigue test | Laboratory test | | Standard UNI 11059 |
|---|------------------------|---|---------------------------|
| Thickness variation (%) after 3×10^6 cycles | 2,7% | ≤ | 15% |
| Quasi-static stiffness variation (%) after 3×10^6 cycles | 8,9% | ≤ | 20% |
| Static stiffness variation (%) after 50×10^6 cycles at 50 Hz under ballast plate (DB-TL 918071/2000) | ≤ 12% | | |

| Atmospheric conditions strength test | Laboratory test | | Standard UNI 11059 |
|--|------------------------|---|---------------------------|
| Dynamic stiffness variation (%) in air at 70 °C | 9,0% | ≤ | 10% |
| Dynamic stiffness variation (%) in water at 50°C | 4,1% | ≤ | 15% |
| Dynamic stiffness variation (%) in ozone | 1,0% | ≤ | 20% |

| Adequacy of mats to be put on lines | Laboratory test | | Standard UNI 11059 |
|--|------------------------|---|---------------------------|
| Thickness variation (%) | 3,0% | ≤ | 20% |
| Dynamic stiffness variation (%) | 1,5% | ≤ | 20% |



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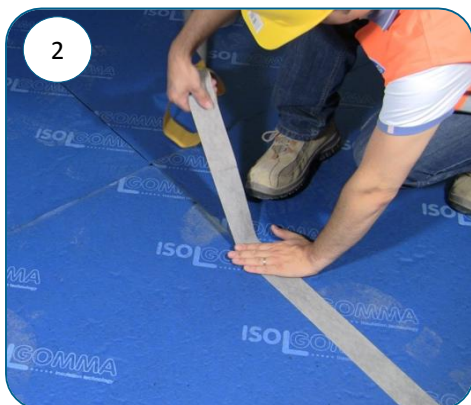
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LAYING INSTRUCTIONS



1 Lay the Matrack mats on the pit, without leaving gaps between adjacent mats or along the edges



2 Seal the edges of the mats with Stik WP tape, taking care of the good adhesion of the tape to the mats



3 All the lines of junction have to be taped



4 Place the Matrack mats vertically



5 Fix the vertical mats with large headed screws or with adequate glue



6 Seal the vertical joints of the mats with the Stik WP tape



7 Fix the "Z" profile on the top border of the vertical mat



Example of a complete lay for a ballast track



Example of a complete lay for a floating slab track