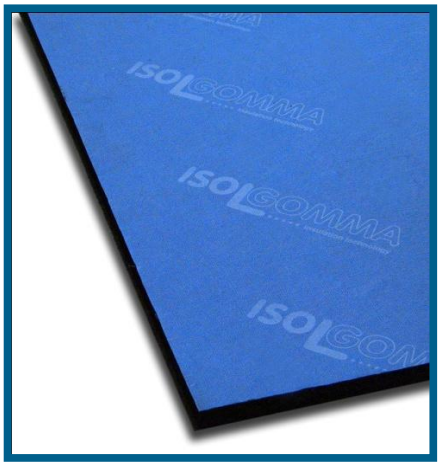
TECHNICAL DATA *Matrack Line AVC 500*

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/mm²)	Suggested thickness	Floating slab track Load σ (N/mm²)	Suggested thickness
Tram	≤ 100	≤ 100	0,020 ≤ σ ≤ 0,030	from 15 to 50	0,007 ≤ σ ≤ 0,016	from 15 to 50
Metro	≤ 130	≤ 120	0,030 ≤ σ ≤ 0,040	from 15 to 30	0,013 ≤ σ ≤ 0,029	from 15 to 50
Railway	≤ 225	≤ 200	0,040 ≤ σ ≤ 0,070	from 15 to 25	0,017 ≤ σ ≤ 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/m³	500						± 5%
Backing superficial mass	g/m²	120						
Colour		black/blue						

TECHNICAL CHARACTERISTICS	Norm	Unit	Matrack AVC 500						Tolerance
Static Stiffnes ks	UNI 11059 - UNI 10570	N/mm³	0,029	0,021	0,018	0,016	0,012	0,008	± 10%
Dynamic Stiffness kd	UNI 11059 - UNI 10570	N/mm³	0,107	0,079	0,064	0,05	0,041	0,035	± 10%
Static Modulus of Elasticity Es	UNI 11059	N/mm²	0,450	0,430	0,460	0,490	0,480	0,400	± 10%
Dynamic Modulus of Elasticity Ed	UNI 11059	N/mm²	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	Ω x cm	≥ 10^6	
Resistance ozone	DIN 53509/1		no cracks	

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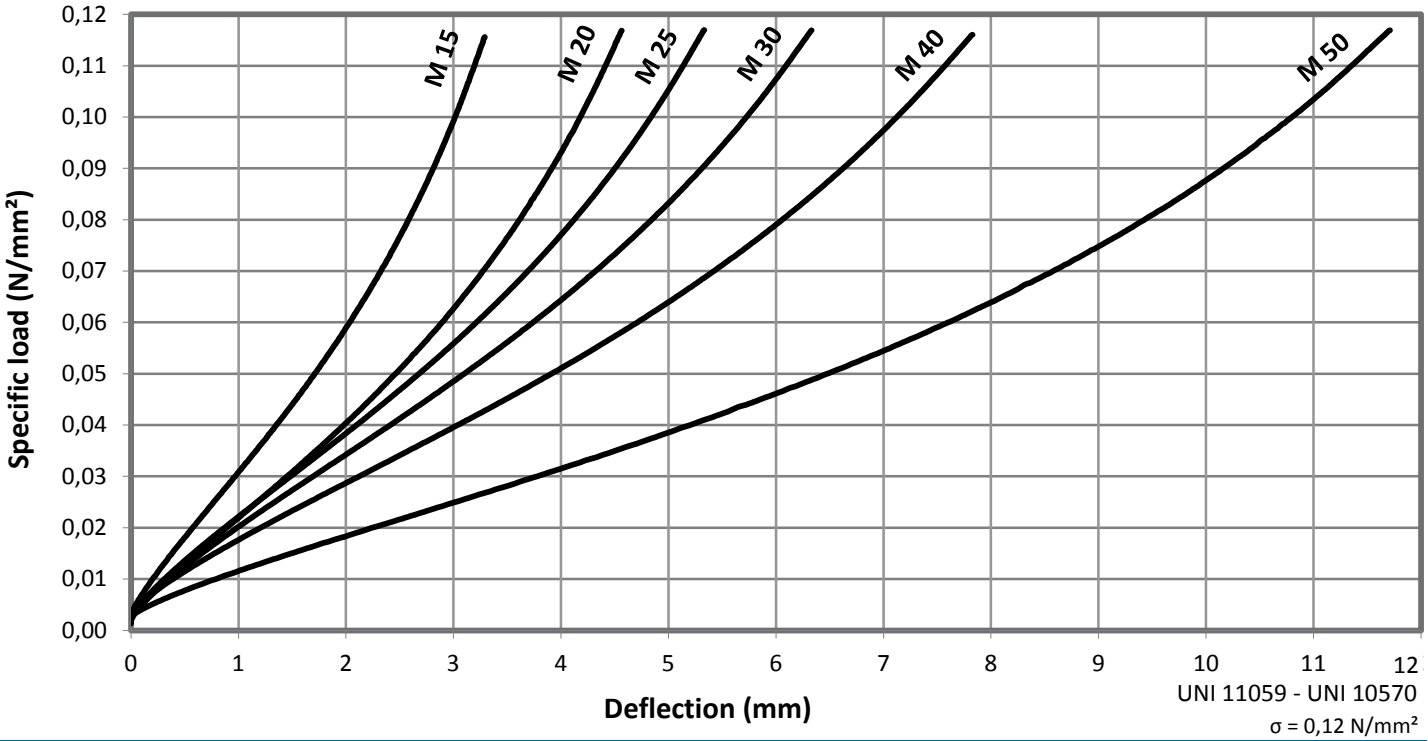
TECHNICAL DATA *Matrack Line AVC 500*

Vibration insulation in railways and tramways

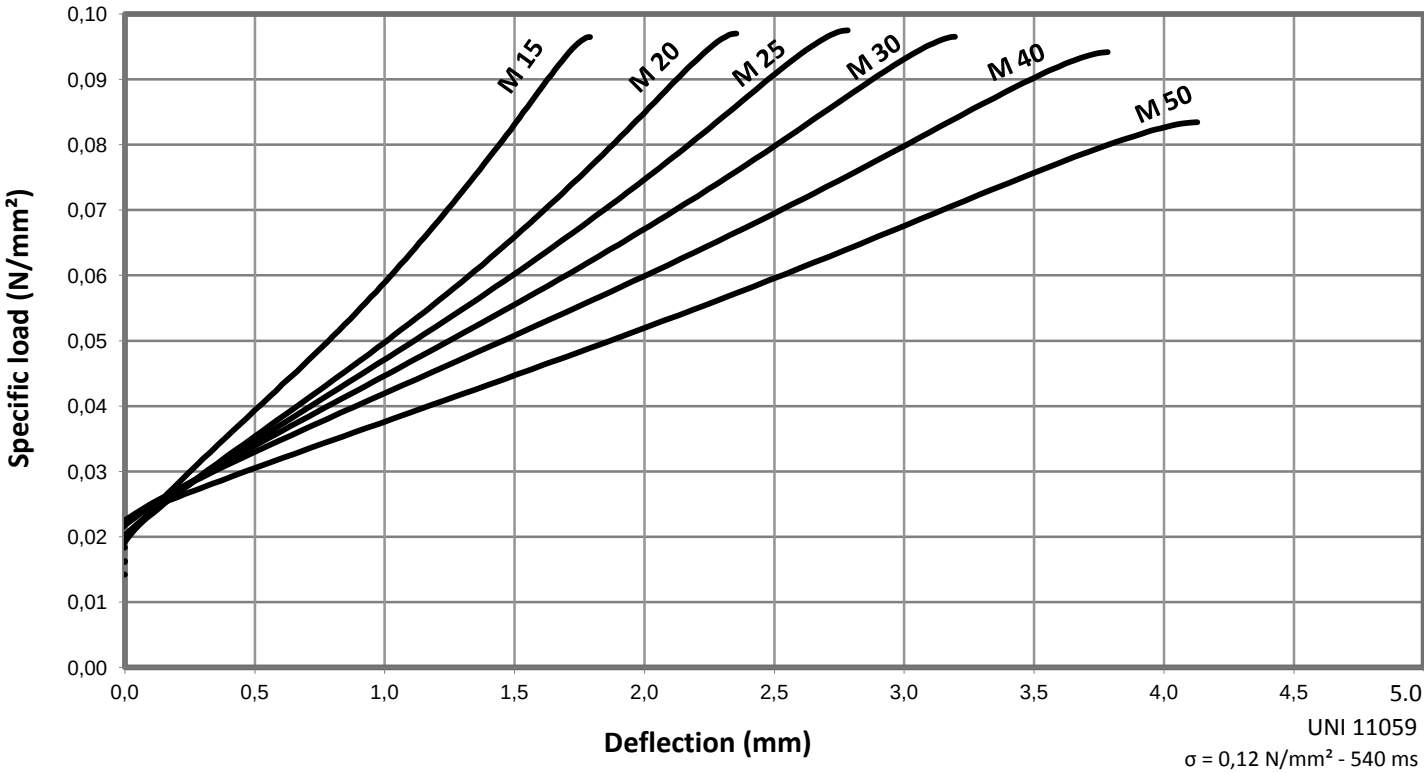
Quasi-static stiffness



UNI 11059 - UNI 10570

σ = 0,12 N/mm²

Simulation stiffness



UNI 11059

σ = 0,12 N/mm² - 540 ms

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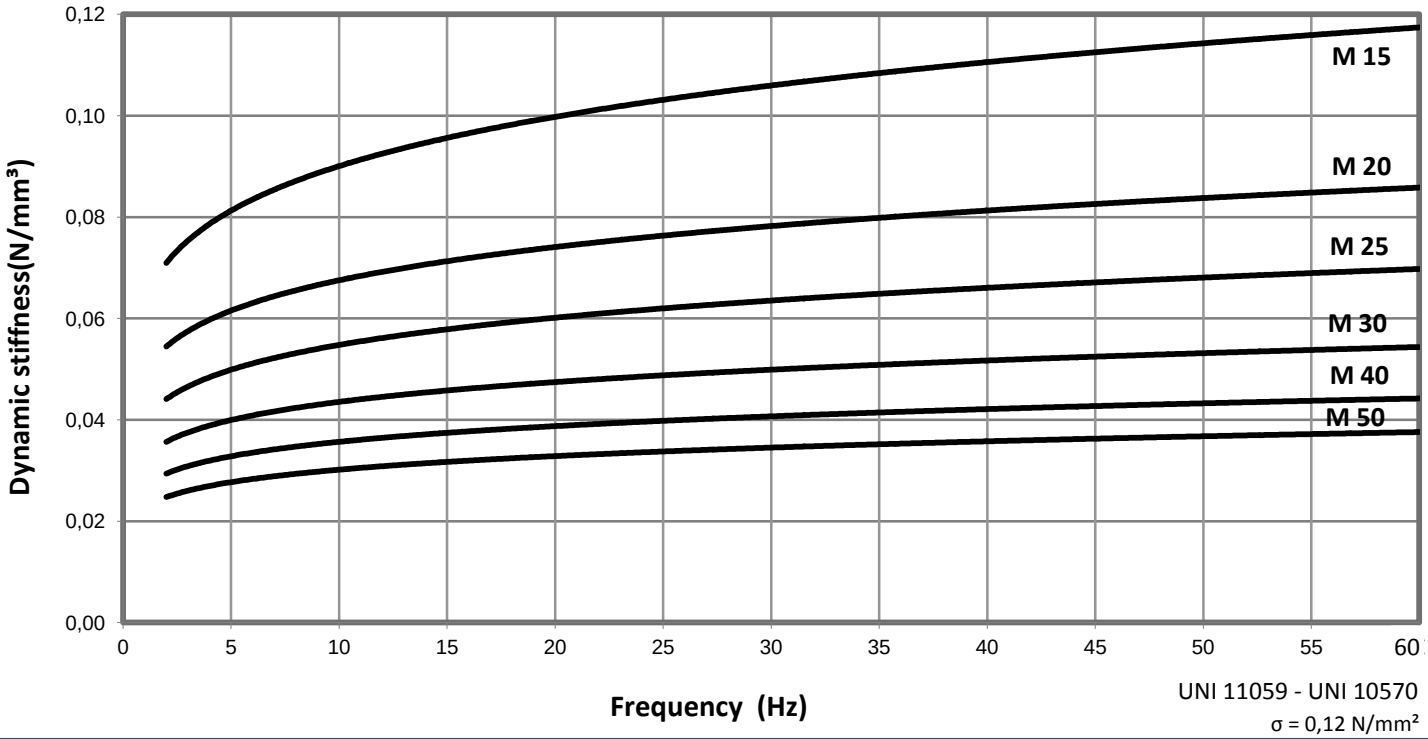
TECHNICAL DATA *Matrack Line AVC 500*

Vibration insulation in railways and tramways

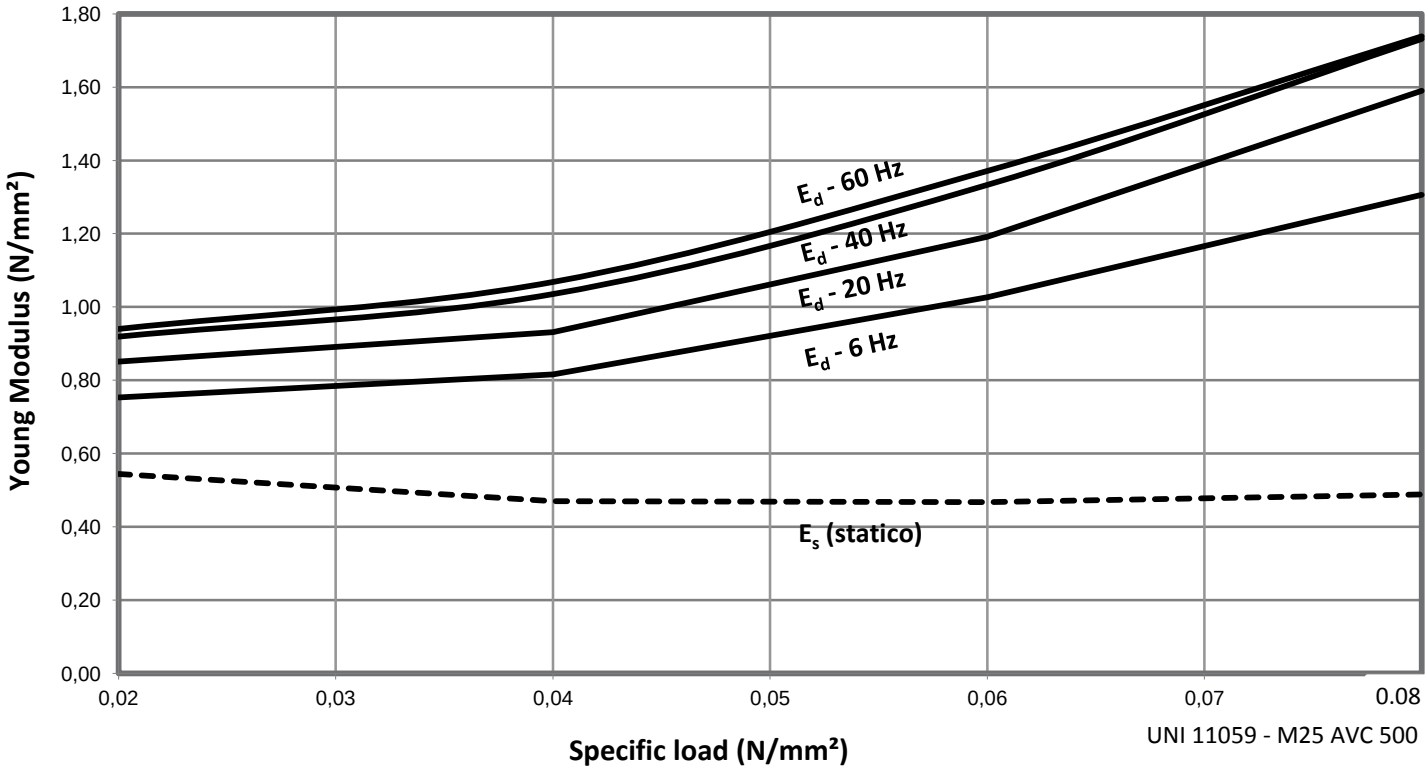
Dynamic stiffness



UNI 11059 - UNI 10570

σ = 0,12 N/mm²

Dynamic Modulus of Elasticity



UNI 11059 - M25 AVC 500

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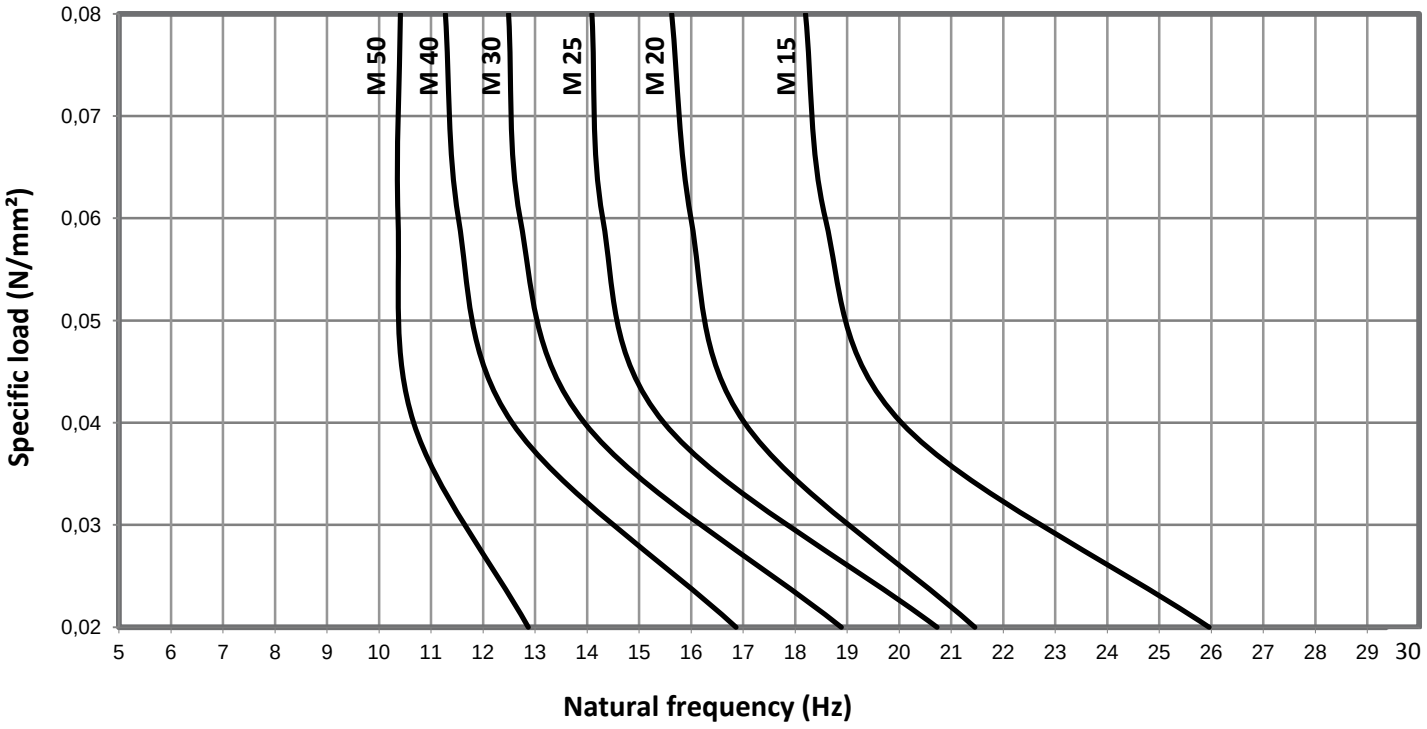
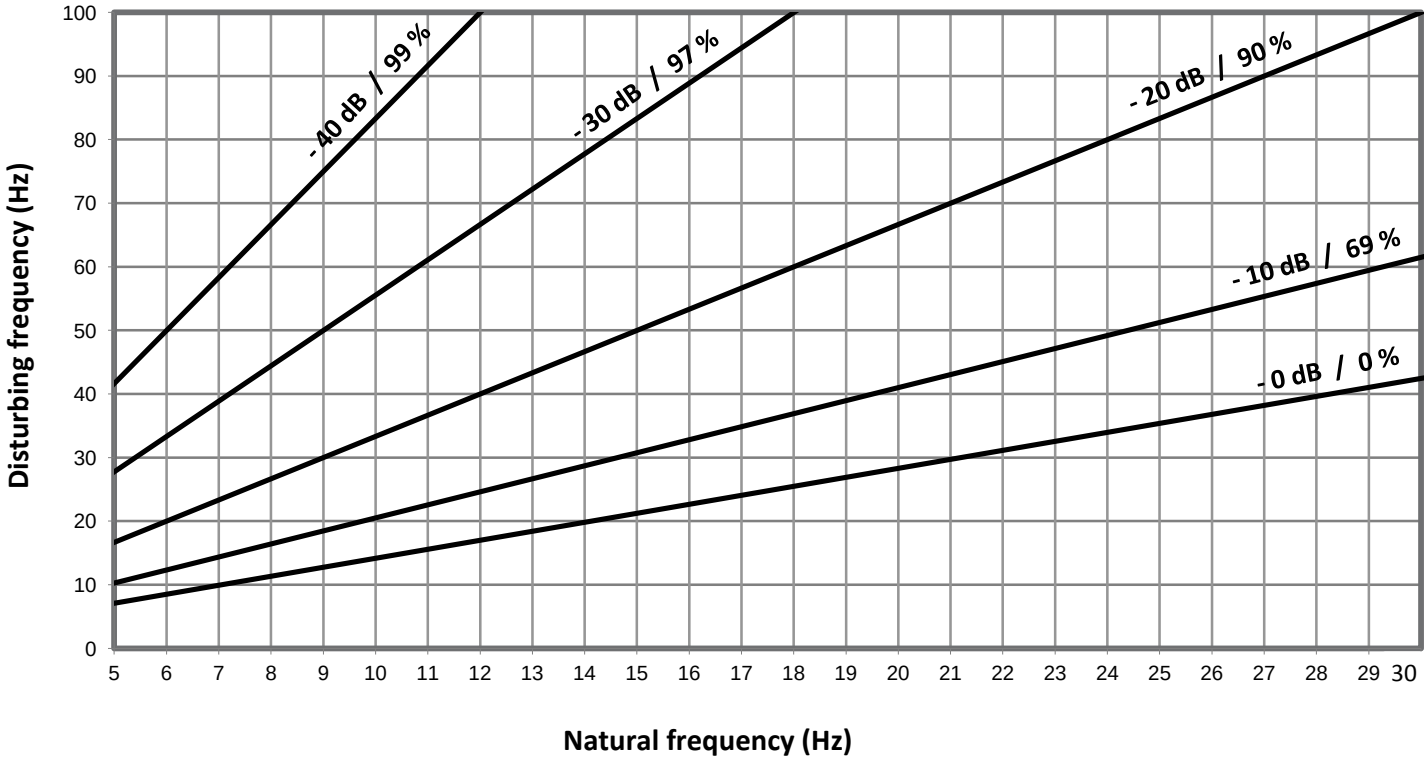
TECHNICAL DATA *Matrack Line AVC 500*

Vibration insulation in railways and tramways

Natural frequency



Degree of insulation



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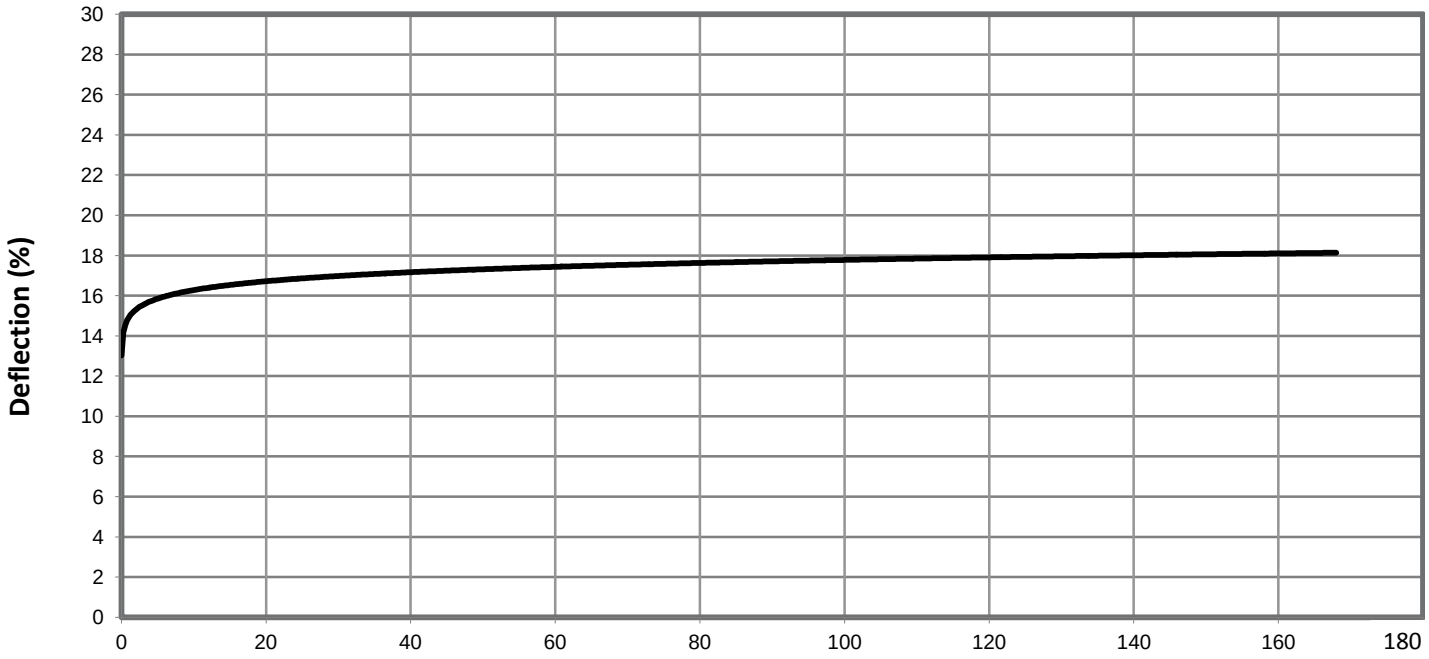
TECHNICAL DATA *Matrack Line AVC 500*

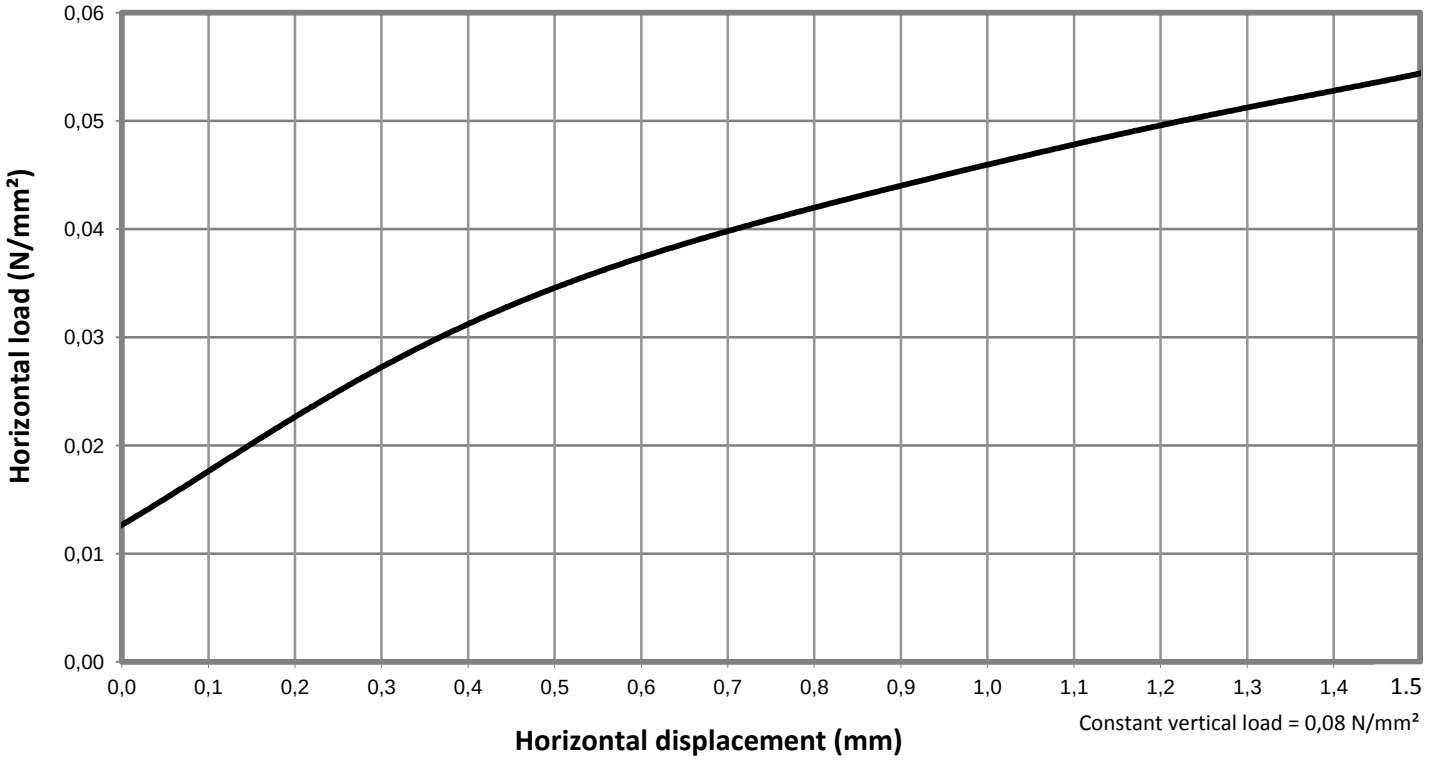
Vibration insulation in railways and tramways

Permanent load



UNI 11059 - M25 AVC 500
σ = 0,12 N/mm²

Shear test



Constant vertical load = 0,08 N/mm²

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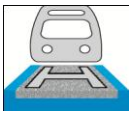

TECHNICAL DATA *Matrack Line AVC 500*

Vibration insulation in railways and tramways

Forced aging test

Frost strength test with water	**Laboratory test**		**Standard UNI 11059**
Dynamic stiffness variation (%) after $3x10^5$ cycles (-25°C)	7,0%	≤	20%

Fatigue test	**Laboratory test**		**Standard UNI 11059**
Thickness variation (%) after $3x10^6$ cycles	2,7%	≤	15%
Quasi-static stiffness variation (%) after $3x10^6$ cycles	8,9%	≤	20%
Static stiffness variation (%) after $50x10^6$ 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%

Adeguacy 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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TECHNICAL DATA *Matrack Line AVC 500*

Vibration insulation in railways and tramways

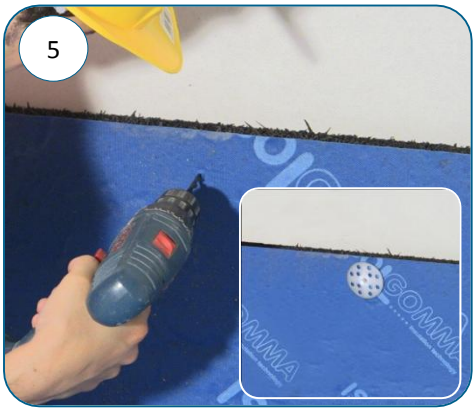
LAYING INSTRUCTIONS

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

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

All the lines of junction have to be taped

Place the Matrack mats vertically



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

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

Fix the "Z" profyle 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

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