

USM 1000 W

Track bed- / Sub-ballast mat

Field of Application

The profiled USM 1000 W ballast mat is a proven elastomeric product providing effective reduction of vibration and structure-borne sound emissions caused by rail bound traffic. The mat is designed for ballast tracks and floating slab tracks, covering various axle loads and speeds and guarantees maximum effectiveness. It also protects against early ballast wear. The mat is mainly used in tunnels underneath buildings, track sections adjacent to buildings and on bridges. High-grade rubber qualities, such as NR for the resilient cones with excellent dynamic properties, non-decaying fabrics in connection with high resistant synthetic rubber for the mat cover layer guarantee a long service life. Its special shape makes the mat particularly appropriate for applications where a drainage is required.

Description

USM 1000 W ballast mat is characterised by highly resilient cones on the underside of the mat. The upper part of the mat is especially resistant against abrasion, ozone and other environmental influences.

The mat is provided with a lateral overlap strip allowing for jointless placing of adjacent mats.

SPECIFICATION	
Recommended field of application for ballasted tracks *	
Speed	≤ 120 km/h
Axle load	≤ 135 kN
Dimensions and weight (approx.)	
Width [mm]	1536
Thickness [mm]	30
Length max. [m]	120
Weight [kg/m ²]	16
Dynamic Bed Modulus (at 40Hz)	
Preload [N/mm ²]	Value [N/mm ³]
0.030	0.013
0.060	0.023
0.100	0.041
Static Bed Modulus	
Load range [N/mm ²]	Value [N/mm ³]
0.02 - 0.10	0.016

*the values of axle load and speed may differ for floating slab track systems.

Product data

MATERIAL CHARACTERISTICS		
Item	Cover Layer	Natural Rubber Damping Layer
Tensile strength (DIN 53504)	≥ 10 MPa	≥ 15 MPa
Elongation at break (DIN 53504)	≥ 350 %	≥ 400 %
Tear resistance (DIN ISO 34-1:A)	≥ 5 N/mm	≥ 5 N/mm
Compression set (DIN ISO 815-1)	≤ 30 %	≤ 25 %
After ageing at 70°C for 168 hrs (DIN 53508)		
Tensile strength	-	≥ 13 MPa
Elongation at break	-	≥ 350 %



Installation

USM 1000 W ballast mats are normally laid in one piece from one side wall to the other, i.e. without any separation between base and side mats. If necessary, a special wedge-shaped profile for rectangular corners can be supplied. Normally the mats are placed without fixation to the ground whereas the overlap strips cover the joints between adjacent mats. If a waterproof surface is required the overlap strip can be glued to the adjacent mat by using a special adhesive. If watertightness is not necessary the overlap strips may be fixed mechanically only. Open top ends of side wall mats may be closed by using a plastic Z-profile which also keeps the mat in place during installation.

Certificates

USM 1000 W complies with DIN 45673, parts 5 and 7 and has been tested and proved by: BAM Berlin, TU München, TU Berlin, TU Dresden, MPA Universität Stuttgart, Müller-BBM München. Test reports are available on request.

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