

Ciprotec 1515

Under ballast mat for track systems | Applicable for heavy haul transport

Application

Ciprotec is mainly used for ballast tracks on bridge decks, tunnel floors or similar. It helps to avoid ballast wear or protects coatings of concrete or steel structures. The mats fully cover the subfloor. They also provide highly effective reduction of vibrations and sound emissions caused by rail bound traffic. They are used for track sections in the vicinity of buildings and structures that are sensitive to vibration and noise, as well as track sections where certain requirements are placed on superstructure rigidity. Ciprotec 1515 has been successfully tested for extremely high axle loads of up to 35 tonnes in accordance with DIN EN 17282, in addition to the usual axle loads for passenger and freight traffic. This makes Ciprotec 1515 ideal for heavy haul transport to ensure the necessary elasticity and positional stability in the ballast superstructure.

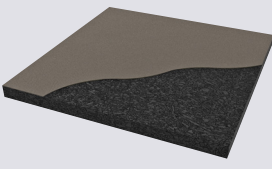
Description

Ciprotec is a black elastic mat made of PU bound rubber fibres, laminated on top with a geotextile layer of robustness class GRK 5. The table below shows the main properties of the product.

Installation

Ciprotec is layed to a well-swept subfloor. Projecting concrete edges or similar, protruding reinforcement parts etc must be removed. Ciprotec shall be layed butt-jointed without gaps. In case several layers of Ciprotec are installed, the different layers shall be staggered. Longitudinal or transverse joints between single mats facing the ballast bed shall be closed with a suitable covering strip or tape. The same applies to possible corner joints between floor- and side mats. If requested, the mat can also be glued in whole or in part to the surface of the subfloor.

Product data

PRODUCT PROPERTIES					
Item	Test Standard	Values	Dimensions and Weight	Values	
Tensile strength	ISO 37	0.4 N/mm ²	Length [m]	≈ 10	
Elongation at break	ISO 37	53 %	Width [mm]	≈ 1250	
Compression set test	DIN EN 17282 (7±1) days	$\Delta C_{stat} = -0,5 \%$ $\Delta C_{dyn[5Hz]} = +0,1 \%$	Thickness [mm]	≈ 16.5	
Ozone resistance	DIN ISO 1431-1	Crack Assessment 0	Weight [kg/m ²]	≈ 11.1	

EN 17282 up to 30 t axle load (track category TC 4)	
Static Bed Modulus C_{stat}	
Load Range [N/mm ²] applies to C_{stat} and C_{dyn}	Value ± 15 % [N/mm ³]
0.02 – 0.14	0.0655
Dynamic Bed Modulus C_{dyn}	
Frequency [Hz]	Value ± 15 % [N/mm ³]
5	0.0851
10	0.0911
20	0.0944

EN 17282 up to 35 t axle load (track category TC 4, special case)	
Static Bed Modulus C_{stat}	
Load Range [N/mm ²] applies to C_{stat} and C_{dyn}	Value ± 15 % [N/mm ³]
0.02 – 0.164	0.0729
Dynamic Bed Modulus C_{dyn}	
Frequency [Hz]	Value ± 15 % [N/mm ³]
5	0.0969
10	0.1003
20	0.1048

Tested at: TU Munich and MPA NRW. Test reports are available on request.

The contents of this publication are the result of many years of research and experience gained in the application of this technology. All information is given in good faith; it does not represent a guarantee with respect to characteristics and does not exempt the user from testing the suitability of products and from ascertaining that the industrial property rights of third parties are not violated. No liability whatsoever will be accepted for damage – regardless of its nature and its legal basis – arising from advice given in this publication. We reserve the right to make technical modifications in the course of product development.

© Copyright – Calenberg Ingenieure GmbH – 2023

Version 0

09 November 2023

Calenberg Ingenieure GmbH | Am Knübel 2-4 | 31020 Salzhemmendorf | Germany | info@calenberg-ingenieure.de | www.calenberg-ingenieure.com