

SVENSK STANDARD

SS-EN 17282:2020

Järnvägar – Infrastruktur – Under ballastmattor

Railway applications – Infrastructure – Under ballast mats



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EUROPEAN STANDARD

EN 17282

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Railway applications - Infrastructure - Under ballast mats

Applications ferroviaires - Infrastructure - Tapis sous
ballast

Bahnanwendungen - Infrastruktur -
Unterschottermatten

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 17282:2020) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2021, and conflicting national standards shall be withdrawn at the latest by April 2021.

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Introduction

In a track for railway vehicles, the under ballast mat (UBM) is a structural element which is placed between the substructure and the ballast layer. This document applies to the performance-related properties of this mat.

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1 Scope

This document is applicable to under ballast mats used in ballasted track and defines the test procedures and their evaluation criteria.

This document provides particular information in the following areas:

- test methods, test arrangements and evaluation criteria of under ballast mats;
 - data supplied by the purchaser and by the supplier;
 - definition of general process of design approval tests;
 - definition of routine tests.
-
- fatigue tests;
 - tests for severe environmental conditions.

This document also sets out procedures for testing fitness for purpose and provides information on quality monitoring as part of quality assurance procedures. This document does not, however, contain requirements pertaining to the functions of under ballast mats. It is the responsibility of the purchaser to define these requirements and to choose the optional tests.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10027 (all parts), *Designation systems for steels*

EN 13450, *Aggregates for railway ballast*

EN 13674-1, *Railway applications - Track - Rail - Part 1: Vignole railway rails 46 kg/m and above*

EN ISO 1856, *Flexible cellular polymeric materials - Determination of compression set (ISO 1856)*

EN ISO 7500-1, *Metallic materials - Calibration and verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Calibration and verification of the force-measuring system (ISO 7500-1)*

EN ISO 9513:2012, *Metallic materials - Calibration of extensometer systems used in uniaxial testing (ISO 9513:2012)*

EN 22768 (all parts), *General tolerances (ISO 2768, all parts)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

ballasted track

track in which the sleepers or bearers are supported by ballast

3.2

Note 1 to entry: The main objectives of the application of under ballast mats are to reduce stiffness in the track in order to improve the load distribution and/or to reduce vibrations transmitted to the surroundings and, by doing so, provide vibration mitigation.

3.3

stiffness

force per unit deflection, measured under a uniaxial load

3.4

bedding modulus

pressure (force per surface) per unit deflection, measured under a uniaxial load

3.5

static stiffness or bedding modulus

force or pressure per unit deflection measured under a uniaxial static load

3.6

low frequency dynamic stiffness or bedding modulus

force or pressure per unit deflection measured under a uniaxial load which acts periodically at a frequency of (5 to 20) Hz between specific force or pressure levels

Note 1 to entry: This value is determined mainly for calculation of dynamic deformation of tracks.

3.7

higher frequency dynamic stiffness or bedding modulus

force or pressure per unit deflection measured under a uniaxial load or displacement, which acts periodically at a defined test frequency of (10 to 160) Hz at a specific pressure level

Note 1 to entry: This value will be determined as an input characteristic for vibration calculations. In contrast to the determination of low frequency dynamic stiffness or bedding modulus, this test will be determined under static preloading.

3.8

noise mitigation

reduction of secondary air-borne noise radiated by a construction (e.g. bridge)

Note 1 to entry: UBMs do not provide mitigation of airborne noise from the wheel and rail system.