

SVENSK STANDARD

SS-EN 16207:2014+A1:2019

**Järnvägar – Bromssystem – Funktions- och utförandekrav på
magnetskenskensbromsar för järnvägsfordon**

**Railway applications – Braking – Functional and performance
criteria of Magnetic Track Brake systems for use in railway
rolling stock**



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Denna standard ersätter SS-EN 16207:2014, utgåva 1.

The European Standard EN 16207:2014+A1:2019 has the status of a Swedish Standard. This document contains the official version of EN 16207:2014+A1:2019.

This standard supersedes the SS-EN 16207:2014, edition 1.

EUROPEAN STANDARD

EN 16207:2014+A1

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English Version

Railway applications - Braking - Functional and performance criteria of Magnetic Track Brake systems for use in railway rolling stock

Applications ferroviaires - Freinage - Critères pour la fonction et la performance des systèmes de freinage magnétiques pour véhicules ferroviaires

Bahnanwendungen - Bremse - Anforderungen an Funktion und Leistungsfähigkeit von Magnetschienenbremssystemen für Schienenfahrzeuge

This European Standard was approved by CEN on 28 June 2014 and includes Amendment 1 approved by CEN on 9 September 2019.

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COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 16207:2014+A1:2019) 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of an identical text or by endorsement, at the latest by May 2020 and conflicting national standards shall be withdrawn at the latest by May 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1 approved by CEN on 9 September 2019.

This document supersedes EN 16207:2014.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

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1 Scope

This European Standard specifies the functionality, position, constraints and control of a magnetic track brake system (MTB system) installed in bogies for use in emergency braking and in low adhesion conditions on Mainline Trains with speeds up to 280 km/h. It covers high suspension types of MTB only and not high/low and low suspension type of MTB.

This document also contains test methods and acceptance criteria for an MTB system. It identifies interfaces with electrical equipment, bogie, track and other brake systems.

On the basis of the existing international and national standards, additional requirements are defined for:

- conditions of application for the MTB system;
- retardation and brake forces;
- functional and design features;
- strength requirements;
- type, series and vehicle implementation tests.

For design and calculation a “reference surface” is established.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10025-2, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

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

EN 14198, *Railway applications — Braking — Requirements for the brake system of trains hauled by a locomotive*

EN 14478, *Railway applications — Braking — Generic vocabulary*

EN 14531-2 ^(A1), *Railway applications — Methods for calculation of stopping and slowing distances and immobilisation braking — Part 2: Step by step calculations for train sets or single vehicles*

EN 15085 (all parts), *Railway applications — Welding of railway vehicles and components*

EN 15179, *Railway applications — Braking — Requirements for the brake system of coaches*

EN 15273-1:2013, *Railway applications — Gauges — Part 1: General — Common rules for infrastructure and rolling stock*

EN 15273-2, *Railway applications — Gauges — Part 2: Rolling stock gauge*

EN 15734-1, *Railway applications — Braking systems of high speed trains — Part 1: Requirements and definitions*

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EN 15734-2, *Railway applications — Braking systems of high speed trains — Part 2: Test methods*

prEN 16185-1, *Railway applications — Braking systems of multiple unit trains — Part 1: Requirements and definitions*

prEN 16185-2, *Railway applications — Braking systems of multiple unit trains — Part 2: Test methods*

EN 45545-2, *Railway applications — Fire protection on railway vehicles — Part 2: Requirements for fire behavior of materials and components*

EN 50121-3-2, *Railway applications — Electromagnetic compatibility — Part 3-2: Rolling stock — Apparatus*

EN 50124-1, *Railway applications — Insulation coordination — Part 1: Basic requirements — Clearances and creepage distances for all electrical and electronic equipment*

EN 50126, *Railway applications — The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)*

EN 50128, *Railway applications — Communications, signalling and processing systems — Software for railway control and protection systems*

EN 50129, *Railway applications — Communication, signalling and processing systems — Safety related electronic systems for signalling*

EN 60077-1:2002, *Railway applications — Electric equipment for rolling stock — Part 1: General service conditions and general rules (IEC 60077-1:1999, modified)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 61373, *Railway applications — Rolling stock equipment — Shock and vibration tests (IEC 61373)*

EN ISO 2409, *Paints and varnishes — Cross-cut test (ISO 2409)*

EN ISO 4628-3, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 3: Assessment of degree of rusting (ISO 4628-3)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

EN 16834:2019, *Railway applications — Braking — Brake performance*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14478 and the following apply.

3.1.1

actuator

device to lower the MTB to the rail head, commonly a pneumatic cylinder with a return spring

3.1.2

end pieces

guide the magnets on the rails

Note 1 to entry: They also contribute to the braking force

Note 2 to entry: They are subject to wear.

3.1.3

high suspension

variation of the MTB in which the magnets are connected with each other by means of tie bars and, in their rest position, are fastened to centring elements situated at a rest position in the running gear where they are held by spring action, and in which, so as to apply the magnets, an energy source is used for lowering them onto the rails

3.1.4

high/low suspension

variation of the MTB in which the magnets are likewise connected with each other by means of tie bars and, in their rest position, are fastened to centring elements situated at a rest position in the running gear where they are displaced to their low position by using an external energy source, whereas, in their low position, however they are situated at a height which, when the magnets are energized, causes the magnets to get self-attracted by the rails, against a spring force

3.1.5

low suspension

variation of the MTB in which the magnets are suspended above the rail surface, by the action of a spring, at a level that allows the magnets, when they are energized, to become self-attracted by the rail

3.1.6

pole shoes

friction elements of the magnet that produce the braking force

Note 1 to entry: They are subject to wear and are therefore replaceable.

3.1.7

rest position

position of the MTB in which the magnets suspended at a significant distance from the rail surface, unless a brake application command has been issued and in which position the magnet is guided and positioned by the bogie

Note 1 to entry: This position corresponds to the geometrical defined rest position in case of high suspension and high/low suspension.

3.1.8

weld-ons

accumulation of metallic wear debris that attaches to the underside of the MTB pole pieces

Note 1 to entry: The presence of this material reduces the braking performance of the MTB and thus needs to be removed during maintenance activities.