

**Railway applications - Rolling stock - Pantographs:  
Characteristics and tests - Part 2: Pantographs for  
metros and light rail vehicles**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50206-2:2010 sisaldab Euroopa standardi EN 50206-2:2010 ingliskeelset teksti.

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English version

**Railway applications - Rolling stock -  
Pantographs: Characteristics and tests -  
Part 2: Pantographs for metros and light rail vehicles**

Applications ferroviaires -  
Matériel roulant -  
Pantographes: Caractéristiques et essais  
-  
Partie 2: Pantographes pour métros  
et tramways

Bahnanwendungen -  
Schienenfahrzeuge -  
Merkmale und Prüfungen  
von Stromabnehmern -  
Teil 2: Dachstromabnehmer  
für Stadtbahnen und Straßenbahnen

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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## Foreword

This European Standard was prepared by SC 9XB, Electromechanical material on board rolling stock, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways. It was submitted to the CENELEC formal vote and was approved by CENELEC as EN 50206-2 on 2010-05-01.

This document supersedes EN 50206-2:1999.

The main changes brought by this revision are:

- simplification and standardisation of the tolerances for static contact force (Annexes A and B);
- adjustment of terms to TSI (static contact force instead of static force);
- deletion of Clause 10;
- update of normative references.

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

The following dates were fixed:

- |  |       |            |
|--|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2011-05-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2013-05-01 |

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## Introduction

The electrical power supply of a tractive unit is achieved by the collection of current from the contact wire by means of one or more pantograph(s), installed on the traction unit or on the vehicle.

The contact strip of the pantograph which slides along the contact wire facilitates the transmission of power.

The pantograph and the overhead line equipment form two oscillating sub-systems which can be displaced. There exists a unilateral sliding linkage between them, which shall ensure continuous contact. Their design shall allow for minimum wear of both sub-systems when used.

## 1 Scope

This European Standard defines the general assembly characteristics which are to be applied to pantographs, to enable current collection from the overhead line equipment. It also defines the tests the pantographs have to perform, excluding insulators.

This European Standard does not apply to pantograph dielectric tests, which are to be performed on the pantograph installed on the vehicle roof. If no other requirement is agreed between customer and supplier, insulation coordination according to EN 50124-1 may be used.

This European Standard does not apply to pantographs used on main line vehicles: these pantographs are considered in EN 50206-1.

This European Standard relates to conventional suspended overhead line equipment and accessories. The systems (or part of them) which are rigidly suspended will require special consideration between the customer and the supplier.

## 2 Normative references

The following referenced documents are indispensable for the application 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 50125-1, *Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock*

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

EN 50163, *Railway applications – Supply voltages of traction systems*

EN 50317, *Railway applications – Current collection systems – Requirements for and validation of measurements of the dynamic interaction between pantograph and overhead contact line*

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

EN 60077-2, *Railway applications – Electric equipment for rolling stock – Part 2: Electrotechnical components – General rules* (IEC 60077-2)

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code)* (IEC 60529:1989)

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

## 3 Definitions

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

### 3.1 General

#### 3.1.1

##### **supplier**

manufacturer of the pantograph

#### 3.1.2

##### **customer**

either operating authority or vehicle manufacturer