

Railway applications — Rolling stock — Pantographs: Characteristics and tests —

Part 2: Pantographs for metros and light rail vehicles

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British Standard

ICS 29.280; 45.060.01

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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.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50206-2 on 1999-01-01.

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) 2000-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-01-01

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, annexes A, B and C are normative and annex D is informative.

SC9XB Note:

Clauses and subclauses subject to further change are indicated in the text by a note.

Those affected are:

- 6.4.2 Resistance to vibrations;
- 6.9 Current collection tests.

Contents

Foreword	2
Introduction	3
1 Scope	3
2 Normative references	3
3 Definitions	3
3.1 General	3
3.2 Design	4
3.3 General characteristics	4
4 Technical requirements	5
4.1 Gauge	5
4.2 Extension of the pantographs	5
4.3 Electric values	5
4.4 Static force tolerances	5

4.5 Transverse rigidity	5
4.6 Collector head	5
4.7 Operating system	5
4.8 Automatic dropping device (A.D.D.)	5
4.9 Pantograph mass and force on the roof	5
4.10 Protection against corrosion	5
5 Marking	6
6 Tests	6
6.1 Categories of tests	6
6.2 General tests	6
6.3 Operating tests	7
6.4 Endurance tests	7
6.5 Resistance to shocks (supplementary type test)	8
6.6 Transverse rigidity test (type test)	8
6.7 Air tightness tests	8
6.8 Measurement of degrees of freedom of collector head (routine test)	8
6.9 Current collection tests (combined test)	8
6.10 Heating tests	8
7 Inspection plan	9
8 Reliability	9
8.1 Specification	9
8.2 In-service reliability demonstration	9
9 Maintenance	9
9.1 Structure	9
9.2 Collector head structure	9
9.3 Maintainability	9
10 Electromagnetic compatibility	9
Annex A (normative) Pantograph terminology	10
Annex B (normative) Static force tolerances	11
Annex C (normative) List of tests	12
Annex D (informative) Items to be specified in customer specifications	13

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 catenary form two oscillating subsystems, which can be displaced. There exists an unilateral sliding linkage between them, which shall ensure continuous contact. Their design shall allow for minimum wear of both subsystems when used.

1 Scope

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

This standard does not apply to pantograph dielectric tests, which are to be performed on the pantograph installed on the vehicle roof.

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

This standard relates to conventional suspended overhead line systems 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

This European Standard incorporates, by dated or undated references, provisions from other publications. These normative references are cited at the appropriate place in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

DIN 43267:1973, *Pantographs for electric traction, profile limiting for pantograph carbons with leading horns.*

EN 29001, *Quality systems — Model for quality assurance in design/development, production, installation and servicing.*

EN 29002, *Quality systems — Model for quality assurance in production and installation.*

EN 50125-1¹⁾, *Railway applications — Environmental conditions for equipment — Part 1: Equipment on board rolling stock.*

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

EN 50206-1, *Railway applications — Rolling stock — Pantographs: Characteristics and tests — Part 1: Pantographs for main line vehicles.*

EN 50163, *Railway applications — Supply voltages of traction systems.*

EN 50215¹⁾, *Railway applications — Testing of rolling stock after completion of construction and before entry into service.*

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

ENV 50121 series, *Railway applications — Electromagnetic compatibility.*

IEC 60077-1¹⁾, *Railway applications — Electrotechnical components — Part 1: General service conditions.*

IEC 60077-2¹⁾, *Railway applications — Electrotechnical components — Part 2: General rules.*

IEC 60494:1974, *Rules for pantographs of electric rolling stock.*

IEC 61373¹⁾, *Railway applications — Shock and vibration requirements for rolling stock equipment.*

3 Definitions

For the purpose of this standard, the following definitions apply.

3.1 General

3.1.1

supplier

the manufacturer of the pantograph

3.1.2

customer

either the operating authority or the vehicle manufacturer

3.1.3

pantograph (see annex A)

an apparatus that collects current on one or more contact lines

NOTE It consists of a base frame, an operating system, a frame and a collector head. It is of variable geometry. In the "operating" position, the apparatus is entirely or partly under voltage. It is electrically insulated only generally at its interfaces, on the vehicle roof. It enables current to be transmitted from the overhead line to the vehicle electrical system.

¹⁾ In preparation.