

# SVENSK STANDARD

## SS-EN 15806:2010



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### **Järnvägar – Bromsar – Statisk bromsprovning**

### **Railway applications – Braking – Static brake testing**

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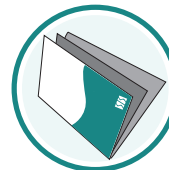
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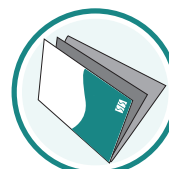
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EUROPEAN STANDARD

**EN 15806**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2010

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ICS 45.040; 45.060.01

English Version

## Railway applications - Braking - Static brake testing

Applications ferroviaires - Freinage - Essai statique de freinage

Bahnanwendungen - Bremse - Statische Bremsprüfung

This European Standard was approved by CEN on 21 August 2010.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
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**Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN 15806:2010) 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of an identical text or by endorsement, at the latest by April 2011, and conflicting national standards shall be withdrawn at the latest by April 2011.

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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 the Directive 2008/57/EC.

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

The objective of this European Standard is to provide a list of static test requirements which are at least to enable compliance with assessment of conformity after manufacturing.

This European Standard covers the static brake type and routine testing of brake systems used in railway vehicles. Only routine tested components may be used.



## 1 Scope

This European Standard specifies generic static tests requirements for the braking systems for all types of railway vehicles. Hereinafter all references to tests are to be read as “static” tests.

The methods of test and acceptance criteria are described in the appropriate standards (as example, for High speed trains, FprEN 15734-1 and FprEN 15734-2 apply).

Static tests conducted in normal service before the departure of the train are not considered in this standard.

This European Standard is applicable to brake systems on:

- all new vehicle designs of vehicles;
- all new constructions of existing vehicle types;
- all major overhauls of the above-mentioned vehicles if they involve redesigning or extensive alteration to the brake system of the vehicle concerned.

This European Standard does not apply to special transport systems (suspended monorail, rack and pinion lines, etc.), nor to investigative and supplementary tests.

Annex A presents the components and sub-systems to be incorporated in the brake system considered.

## 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 14478:2005, *Railway applications — Braking — Generic vocabulary*

EN 15595, *Railway applications — Braking — Wheel slide protection*

EN 15663, *Railway applications — Definition of vehicle reference masses*

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

ISO 8573-1, *Compressed air — Part 1: Contaminants and purity classes*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14478:2005 and the following apply.

### 3.1

#### **brake test**

test which aims to prove that a brake system complies with the requirements in terms of function and performance

NOTE The brake tests may comprise:

- type test;
- routine tests.

### 3.2

#### **static tests**

tests that are carried out whilst the vehicles and/or train are stationary and that may be part of the tests for the acceptance of a rail vehicle into service

NOTE Vehicle movements could occur at certain times during the testing (for example, during parking brake tests axle speed sensors tests).

### 3.3

#### **train**

single vehicle or a number of coupled vehicles operating on a guided ground transport system

### 3.4

#### **type test**

test of single devices, brake control circuits and complete brake systems on a complete vehicle or a train, to verify that the function and performance complies with the requirements specified for the type of vehicle or train concerned

### 3.5

#### **routine test**

test of the brake system to which each and every vehicle or train is subjected, after manufacture, in order to verify that it complies with the relevant criteria for the type of vehicle or train concerned

### 3.6

#### **interface specification**

specification describing the functional and component requirements to assure that the different brake sub-systems are able to operate together in the whole brake system (e.g. signal structure, pressure values, timing values)

### 3.7

#### **stakeholders**

bodies involved with the train design, train procurement, train maintenance, trains testing, etc. (e.g. notified body, train manufacturer, brake supplier, train operator, etc)

### 3.8

#### **brake system specification**

all points which shall be described in a brake system specification and containing at least the following requirements:

- a) List of relevant documents:
  - 1) European directives
  - 2) European standards
- b) Brake system requirements:
  - 1) Application and release timings
  - 2) Brake performance
  - 3) Load criteria
  - 4) Operational requirements
  - 5) Brake system failure consequences
  - 6) Brake control properties
  - 7) Train signalling / communication

- 8) Monitoring facilities
- 9) Adhesion criteria
- 10) Testing procedure
- 11) Isolating facilities

## 4 Symbols and abbreviations

WSP	Wheel Slide Protection
G	Good
P	Passenger
R	Rapid (High performance)
R+Mg	Rapid + magnetic track brake

## 5 Test requirements

### 5.1 General

#### 5.1.1 General test requirements

Prior to carrying out the requirements of the following brake system tests the vehicle/train shall have successfully completed the testing of all vehicle systems which interface with the brake system e.g. vehicle control systems, WSP systems, etc. and all wiring tests.

With a pre-serial unit or first vehicle/train of a serial production, type tests shall demonstrate that the brake system complies with the requirements. After successful passing of the type tests, routine tests shall confirm the technical stability of the production process of the system and its subsystems on subsequent trains following manufacture or modification as applicable. For this purpose, the final design of the system and its subsystems defined during the type test shall be considered. Brake testing shall also be undertaken if the brake system, and/or any other part of the train (e.g. train mass and/or load carried) has been changed from the final approved design referring to type test. (e.g. change of pad quality, shape). For example, this may be achieved by adjusting the settings of the existing brake equipment or installing new equipment, etc.

The content of this type testing, due to a brake design change, shall be agreed according to the modifications implemented.

Before carrying out these tests, the following conditions shall be assured:

- The train brake system has been assembled according to the manufacturer's design specifications;
- All system integration tests that could be carried out in advance of physical fitment of the brake system components to the vehicle/train to confirm their satisfactory interaction have been successfully carried out;
- All necessary component type / routine tests shall have been successfully completed. A non exhaustive list of brake components is given in Annex A.
- Tests associated with energy production (see ISO 8573-1) are supposed to be performed before beginning the static test on the train.