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ESITATAVAD NÕUDED JA HINDAMINE**

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50317:2012+A1:2022 sisaldab Euroopa standardi EN 50317:2012 ja selle muudatuse A1:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 50317:2012+A1:2022 consists of the English text of the European standard EN 50317:2012 and its amendment A1:2022.
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English version

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

Applications ferroviaires -
Systèmes de captage de courant -
Prescriptions et validation des mesures de
l'interaction dynamique entre le
pantographe et la caténaire

Bahnanwendungen -
Stromabnahmesysteme -
Anforderungen und Validierung von
Messungen des dynamischen
Zusammenwirkens zwischen
Stromabnehmer und Oberleitung

This European Standard was approved by CENELEC on 2011-12-26. Amendment A1 was approved by CENELEC on 2022-06-13. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendment the status of a national standard without any alteration.

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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 document (EN 50317:2012) has been prepared by CLC/SC 9XC, "Electric supply and earthing systems for public transport equipment and ancillary apparatus (Fixed installations)", of CLC/TC 9X, "Electrical and electronic applications for railways".

The following dates are fixed:

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This document supersedes EN 50317:2002 + A1:2004 + A2:2007.

EN 50317:2012 includes the following significant technical changes with respect to EN 50317:2002 + A1:2004 + A2:2007:

- new definitions for "cord force", "mean contact force" and "total mean uplift force" (Clause 3);
- updated abbreviation lists (Clause 4);
- requirements for examination of total mean uplift force and aerodynamic portions (new Clause 6);
- a clear relation between the different portions of contact force (7.1);
- limits for aerodynamic influences of the force measurement system (7.2);
- the aerodynamic correction for measured contact forces (7.4);
- corrections and elaborations for calibration of force measurement (7.5);
- adjustment of filter requirements (7.6);
- adjustment of accuracy requirements for measurement of displacements (Clause 8);
- updated requirements for measurement of arcing (Clause 9).

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

A1 Amendment A1 European foreword

This document (EN 50317:2012/A1:2022) has been prepared by SC 9XC, Electric supply and earthing systems for public transport equipment and ancillary apparatus (fixed installations), of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

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1 Scope

This European Standard specifies the functional requirements for output and accuracy of measurements of the dynamic interaction between pantograph and overhead contact line.

2 Normative references

 There are no normative references in this document. 

3 Terms and definitions

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

3.1

collector head / pantograph head

pantograph equipment comprising the contact strips and their mountings

3.2

contact point

point of mechanical contact between a contact strip and a contact wire

3.3

working area of pantograph head

lateral and vertical range of possible contact points on the contact strips during normal operation

3.4

contact force

vertical force applied by the pantograph to the overhead contact line

Note 1 to entry: The contact force is the sum of the forces of all contact points

3.5

mean contact force F_m

statistical mean value of the contact force

Note 1 to entry: F_m is formed by the static and aerodynamic components of the pantograph contact force

3.6

static contact force

vertical force exerted upward by the collector head on the overhead contact line at standstill

3.7

standard deviation of contact force σ

square root of the sum of the square errors divided by the number of output values minus 1

3.8

aerodynamic force

additional vertical force applied by the pantograph as a result of air flow around the pantograph assembly. The aerodynamic force depends upon speed

3.9

statistical minimum of contact force

value of contact force represented by $F_m - 3 \sigma$

3.10

statistical maximum of contact force

value of contact force represented by $F_m + 3 \sigma$