



SLOVENSKI STANDARD
SIST EN 15273-3:2010
01-september-2010

Železniške naprave - Profili - 3. del: Svetli profili

Railway applications - Gauges - Part 3: Structure gauges

Bahnanwendungen - Lichtraum - Teil 3: Lichtraumprofile

Applications ferroviaires - Gabarits - Partie 3: Gabarit des obstacles

Ta slovenski standard je istoveten z: EN 15273-3:2009

[SIST EN 15273-3:2010](https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010)

<https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010>

ICS:

45.060.01 Železniška vozila na splošno Railway rolling stock in
general

SIST EN 15273-3:2010

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 15273-3:2010

<https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010>

EUROPEAN STANDARD

EN 15273-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2009

ICS 45.020

English Version

Railway applications - Gauges - Part 3: Structure gauges

Applications ferroviaires - Gabarits - Partie 3: Gabarit des obstacles

Bahnanwendungen - Begrenzungslinien - Teil 3: Lichtraumprofile

This European Standard was approved by CEN on 3 October 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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 United Kingdom.

STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 15273-3:2010
<https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

| | |
|--------------------------------------------------------------------------------------------|----|
| Foreword..... | 7 |
| Introduction | 8 |
| 1 Scope | 9 |
| 2 Normative references | 9 |
| 3 Terms and definitions | 9 |
| 4 Symbols, abbreviations and subscripts..... | 12 |
| 4.1 Symbols and abbreviations | 12 |
| 4.2 Subscripts | 17 |
| 4.3 Notations | 18 |
| 5 General information on all the gauging methods..... | 18 |
| 5.1 The reference profile and its associated rules | 18 |
| 5.2 Transverse widening | 18 |
| 5.2.1 Gauge variations depending on the local situation | 18 |
| 5.2.2 Random transverse phenomena | 19 |
| 5.3 Superelevation and lowering perpendicular to the running surface..... | 20 |
| 5.3.1 Introduction | 20 |
| 5.3.2 Vertical superelevation or lowering for longitudinal profile transition curves | 20 |
| 5.3.3 Vertical effect of the roll..... | 21 |
| 5.3.4 Uplift..... | 22 |
| 5.3.5 Vertical random phenomena | 22 |
| 5.4 Additional allowances | 22 |
| 5.5 Gauge types | 23 |
| 5.5.1 Gauge methodologies | 23 |
| 5.5.2 Structure gauge types..... | 23 |
| 5.5.3 Uniform gauge..... | 24 |
| 5.6 Gauge choice | 24 |
| 5.6.1 Gauge and methodology choice | 24 |
| 5.6.2 Structure gauge choice..... | 25 |
| 5.6.3 Taking account of the allowances | 25 |
| 5.6.4 Gauge catalogue..... | 25 |
| 6 Rules for determination of the static gauge | 26 |
| 6.1 General..... | 26 |
| 6.2 Associated rules | 26 |
| 6.3 Determination of the sum of allowances Σ | 27 |
| 6.3.1 Transverse allowances | 27 |
| 6.3.2 Vertical allowances for random phenomena | 28 |
| 7 Rules for determination of the kinematic gauge | 29 |
| 7.1 General..... | 29 |
| 7.2 Associated rules | 29 |
| 7.3 Transverse allowances for random phenomena | 30 |
| 7.3.1 Phenomena considered | 30 |
| 7.3.2 Determination of the sum of transverse allowances Σ_j | 30 |
| 7.4 Vertical allowances for random phenomena | 31 |
| 7.4.1 Phenomena considered | 31 |
| 7.4.2 Determination of the sum of vertical allowances Σ_v | 31 |
| 8 Rules for determination of the dynamic gauge | 31 |
| 8.1 General..... | 31 |

| | | |
|--------|---------------------------------------------------------------------------------------------------------|----|
| 8.2 | Associated rules..... | 32 |
| 8.3 | Transverse allowances for random phenomena..... | 32 |
| 8.3.1 | Phenomena considered..... | 32 |
| 8.3.2 | Determination of the sum of allowances Σ_j | 32 |
| 8.4 | Vertical allowances for random phenomena..... | 33 |
| 8.4.1 | Phenomena considered..... | 33 |
| 8.4.2 | Determination of the sum of vertical allowances Σ_v | 33 |
| 9 | Distance between track centres..... | 34 |
| 9.1 | General..... | 34 |
| 9.2 | Determination of the limit distance between track centres..... | 34 |
| 9.2.1 | Introduction..... | 34 |
| 9.2.2 | Effect of cant difference $\Delta b_{\delta D}$ | 35 |
| 9.2.3 | Allowances to take into account random phenomena..... | 36 |
| 9.2.4 | Determination..... | 37 |
| 9.3 | Determination of the nominal distance between track centres..... | 38 |
| 9.3.1 | Introduction..... | 38 |
| 9.3.2 | Determination..... | 38 |
| 10 | Elements of variable layout..... | 39 |
| 10.1 | Introduction..... | 39 |
| 10.1.1 | Calculation principle..... | 39 |
| 10.1.2 | Characteristics of a layout transition..... | 39 |
| 10.1.3 | Gauge variations..... | 40 |
| 10.2 | Layout transition..... | 40 |
| 10.2.1 | Sudden change of curvature..... | 40 |
| 10.2.2 | Smooth transition of curvature..... | 41 |
| 10.3 | Crossing of a turnout..... | 42 |
| 10.3.1 | Introduction..... | 42 |
| 10.3.2 | Additional overthrow variations..... | 43 |
| 10.3.3 | Quasi-static effect variations..... | 44 |
| 10.3.4 | Result..... | 44 |
| 11 | Determination of the pantograph free passage gauge..... | 45 |
| 11.1 | General..... | 45 |
| 11.1.1 | Space to be cleared for electrified lines..... | 45 |
| 11.1.2 | Particularities..... | 45 |
| 11.1.3 | Basic principles..... | 45 |
| 11.2 | Determination of the pantograph free passage mechanical gauge (in the case of the kinematic gauge)..... | 46 |
| 11.2.1 | Determination of the mechanical gauge width..... | 46 |
| 11.2.2 | Determination of the maximum height h_{eff} of the mechanical gauge..... | 49 |
| 11.3 | Pantograph electrical gauge (in the case of the kinematic gauge)..... | 49 |
| 11.3.1 | Introduction..... | 49 |
| 11.3.2 | Pantograph electrical gauge width..... | 49 |
| 11.3.3 | Electrical gauge height..... | 50 |
| 11.3.4 | Insulating distance..... | 50 |
| 11.4 | Determination of the pantograph gauge in the case of the dynamic gauge..... | 50 |
| 12 | Overhead contact wire..... | 51 |
| 13 | Rules for installation of platform edges..... | 52 |
| 13.1 | General..... | 52 |
| 13.2 | Gaps b_{lac} and h_{lac} | 53 |
| 13.3 | Installation dimensions..... | 55 |
| 13.3.1 | Installation relative to the running surface..... | 55 |
| 13.3.2 | Installation relative to the horizontal (x_q, y_q) | 55 |
| 13.3.3 | Installation tolerances..... | 56 |
| 13.4 | Verification and tolerances..... | 56 |
| 14 | Tilting trains..... | 56 |
| 14.1 | General..... | 56 |

EN 15273-3:2009 (E)

| | | |
|----------------|---------------------------------------------------------------------------------------------------------------|-----------|
| 14.2 | Transition curve | 57 |
| 14.3 | Degraded modes | 58 |
| 15 | Rules for ferries | 58 |
| 16 | Track accessories | 58 |
| 16.1 | Introduction | 58 |
| 16.2 | Contact ramps | 59 |
| 16.3 | Active check rails | 59 |
| 16.4 | Planking of level crossings | 59 |
| 16.5 | Electric third rail | 59 |
| 16.6 | Rail brakes | 59 |
| 17 | Verification and maintenance of the gauge | 60 |
| 17.1 | Structure gauge | 60 |
| 17.2 | Distance between centres | 60 |
| 18 | Guide for determination of a new gauge from an existing infrastructure | 60 |
| Annex A | (normative) Calculation methodology for structure gauge allowances | 61 |
| A.1 | Introduction | 61 |
| A.2 | Formulation in the case of the static or kinematic gauge | 61 |
| A.2.1 | For the installation nominal gauge | 61 |
| A.2.2 | For the installation limit gauge | 62 |
| A.2.3 | Limit gauge | 64 |
| A.2.4 | For the installation nominal distance between centres | 64 |
| A.2.5 | For the installation limit distance between centres | 65 |
| A.2.6 | For the limit distance between centres | 65 |
| A.2.7 | For the pantograph gauge | 65 |
| A.3 | Formulation in the case of the dynamic gauge | 66 |
| A.3.1 | General | 66 |
| A.3.2 | For the installation nominal gauge | 66 |
| A.3.3 | For the installation limit gauge | 66 |
| A.3.4 | Limit gauge | 67 |
| A.3.5 | For the installation nominal distance between centres | 68 |
| A.3.6 | For the installation limit distance between centres | 68 |
| A.3.7 | For the limit distance between centres | 69 |
| A.3.8 | For the pantograph gauge | 69 |
| Annex B | (informative) Recommended values for calculation of the structure gauge and calculation examples | 70 |
| B.1 | Recommendations for coefficients | 70 |
| B.2 | Examples of kinematic calculation | 71 |
| B.2.1 | Limit gauge and installation limit gauge | 71 |
| B.2.2 | Nominal, installation limit and limit distances between centres | 72 |
| B.2.3 | Pantograph gauge | 73 |
| Annex C | (normative) International gauges G1, GA, GB and GC | 80 |
| C.1 | General | 80 |
| C.1.1 | Application | 80 |
| C.1.2 | Gauge types | 80 |
| C.1.3 | Parameters and common rules | 80 |
| C.1.4 | Calculation of distance between centres | 81 |
| C.1.5 | Pantograph free passage gauge | 81 |
| C.1.6 | Gauge parts | 81 |
| C.2 | Gauge for the upper parts ($h > 400$ mm) | 82 |
| C.2.1 | Gauge G1 | 82 |
| C.2.2 | Gauges GA and GB | 83 |
| C.2.3 | Gauge GC | 84 |
| C.3 | Lower parts ($h \leq 0,400$ m) | 85 |
| C.3.1 | Lower parts of G1C2 – generally applicable | 85 |
| C.3.2 | Lower parts of G1C1 – Tracks for rail brake equipment | 87 |
| C.3.3 | Lower parts for "rolling" roads – G1C3 | 91 |

| | | |
|----------------|-------------------------------------------------------------------------------------------|------------|
| C.3.4 | Pantograph free passage gauge..... | 93 |
| Annex D | (normative) Gauges for multilateral and national agreements..... | 94 |
| D.1 | Introduction..... | 94 |
| D.2 | Kinematic gauges derived from international gauges | 94 |
| D.2.1 | Gauge G2..... | 94 |
| D.2.2 | Gauges GB1 and GB2 | 96 |
| D.3 | Static gauges derived from international gauges..... | 99 |
| D.3.1 | Gauge G1..... | 99 |
| D.3.2 | Gauge G2..... | 102 |
| D.3.3 | Gauges GA, GB and GC..... | 104 |
| D.4 | National application gauge..... | 106 |
| D.4.1 | Belgian gauges BE1, BE2 and BE3 | 106 |
| D.4.2 | French gauges FR-3.3..... | 109 |
| D.4.3 | Portuguese gauges PTb, PTb+ and PTc | 111 |
| D.4.4 | Finnish gauge FIN1 | 117 |
| D.4.5 | Swedish gauges SEa and SEc | 120 |
| D.4.6 | German gauge DE1 | 123 |
| D.4.7 | German gauge DE2 | 124 |
| D.4.8 | German gauge DE3 | 126 |
| D.4.9 | Czech gauge Z-GČD | 128 |
| D.4.10 | UK gauge UK1..... | 129 |
| D.4.11 | UK gauge UK1 [D]..... | 132 |
| D.4.12 | UK gauge W6a | 133 |
| Annex E | (informative) Calculation example for determination of the gauge at a turnout..... | 136 |
| E.1 | Introduction..... | 136 |
| E.2 | Methodology | 137 |
| E.3 | Widening in the curve | 137 |
| E.3.1 | Widening of the main line..... | 137 |
| E.3.2 | Widening in the turnout route | 139 |
| E.4 | The quasi-static effect..... | 140 |
| E.5 | Gauge width at a turnout..... | 141 |
| Annex F | (normative) Determination of reference vehicle characteristics | 144 |
| F.1 | Introduction..... | 144 |
| F.2 | Methodology | 144 |
| F.3 | Calculation example..... | 145 |
| F.3.1 | Introduction..... | 145 |
| F.3.2 | Vehicle no.1 (on the inside of the curve) | 145 |
| F.3.3 | Vehicle no.2 (on the outside of the curve)..... | 145 |
| F.3.4 | Vehicle no.3 (on the inside of the curve) | 146 |
| F.3.5 | Vehicle no.4 (on the outside of the curve)..... | 146 |
| F.3.6 | Summary | 146 |
| F.3.7 | International gauge reference vehicles..... | 146 |
| Annex G | (normative) Uniform gauge | 149 |
| G.1 | Introduction..... | 149 |
| G.2 | GU1 | 149 |
| G.2.1 | General | 149 |
| G.2.2 | Determination of the gauge | 149 |
| G.2.3 | Equivalent kinematic gauge | 151 |
| G.3 | GU2 | 151 |
| G.3.1 | General | 151 |
| G.3.2 | Determination of the gauge..... | 152 |
| G.4 | GUC..... | 153 |
| G.4.1 | General | 153 |
| G.4.2 | Determination of the gauge..... | 154 |
| Annex H | (informative) Gauge maintenance guideline..... | 156 |
| H.1 | Introduction..... | 156 |
| H.2 | Choice of gauge..... | 156 |

EN 15273-3:2009 (E)

| | | |
|------------------------|----------------------------------------------------------------------------------------------------|-----|
| H.3 | Installation rules | 156 |
| H.3.1 | Guidelines for installation of equipment along the track | 156 |
| H.3.2 | Guidelines for the installation of tracks alongside structures | 157 |
| H.3.3 | Guidelines for the installation of temporary structures | 157 |
| H.4 | Managing and checking of structures | 157 |
| H.4.1 | Management principles | 157 |
| H.4.2 | Management of critical situations | 157 |
| H.4.3 | Practical aspects for measuring the structures | 158 |
| H.5 | Effect of track maintenance | 158 |
| H.6 | Personnel training | 158 |
| Annex I (informative) | A-deviations | 159 |
| Annex ZA (informative) | Relationship between this European Standard and the Essential Requirements of the 2008/57/EC | 161 |
| Bibliography | | 170 |

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 15273-3:2010

<https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010>

Foreword

This document (EN 15273-3:2009) 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 June 2010, and conflicting national standards shall be withdrawn at the latest by June 2010.

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

This document has been prepared under a mandate given to CEN/CENELEC/ETSI 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(s), 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, 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.

[SIST EN 15273-3:2010](#)

<https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010>

Introduction

This document is the third of a series of three parts of the European Standard covering gauges:

- Part 1 covers general principles, phenomena shared by the infrastructure and by the rolling stock, reference profiles and their associated rules;
- Part 2 gives the rules for dimensioning the vehicles as a function of their specific characteristics for the relevant gauge and for the related calculation method;
- Part 3 gives the rules for dimensioning the infrastructure in order to allow vehicles built according to the relevant gauge and taking account of the specific constraints to operate within it.

The aim of this standard is to define the space to be cleared and maintained to allow the running of rolling stock, and the rules for calculation and verification intended for sizing the rolling stock to run on one or several infrastructures without interference risk.

This standard defines the gauge as a one-to-one agreement between infrastructure and rolling stock.

This standard defines the responsibilities of the following parties:

a) for the infrastructure:

iTeh STANDARD PREVIEW
(standards.iteh.ai)

1) gauge clearance,

2) maintenance;

3) infrastructure monitoring.

[SIST EN 15273-3:2010](https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010)

<https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010>

b) for the rolling stock:

1) compliance of the operating rolling stock with the gauge concerned;

2) maintenance of this compliance over time.

This standard includes a catalogue of various railway gauges implemented in Europe, some of which are required to ensure the interoperability, while others are related to more specific applications not requiring the interoperability of the rolling stock on other networks.

1 Scope

This standard:

- defines the various profiles needed to install, verify and maintain the various structures near the structure gauge;
- lists the various phenomena to be taken into account to determine the structure gauge;
- defines a methodology that may be used to calculate the various profiles from these phenomena;
- lists the rules to determine the distance between the track centres;
- lists the rules to be complied with when building the platforms;
- lists the rules to determine the pantograph gauge;
- lists the formulae needed to calculate the structure gauges in the catalogue.

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 13232-3, *Railway applications — Track — Switches and crossings — Part 3: Requirements for wheel/rail interaction*

[https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-](https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010)

EN 13232-9, *Railway applications — Track — Switches and crossings — Part 9: Layouts*

EN 15273-1, *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 50119, *Railway applications — Fixed installations — Electric traction overhead contact lines*

EN 50367, *Railway applications — Current collection systems — Technical criteria for the interaction between pantograph and overhead line (to achieve free access)*

3 Terms and definitions

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

3.1

structure gauge

defines the space, relative to the track used called the reference track, to be cleared of all objects or structures and relative to the traffic on adjacent tracks in order to permit safe operation on this reference track.

The structure gauge is defined on the basis of the reference profile by applying the associated rules.

There are three types of structure gauge.

EN 15273-3:2009 (E)

3.2 structure limit gauge
space not to be encroached upon at any time and fixes the limit for normal operation. It is used to ensure that structures allow free passage

Consequently, no structure is allowed to penetrate this space at any time.

3.3 structure installation limit gauge
space not to be encroached upon taking into account a maintenance allowance. It is to be used to define the structure installation limit

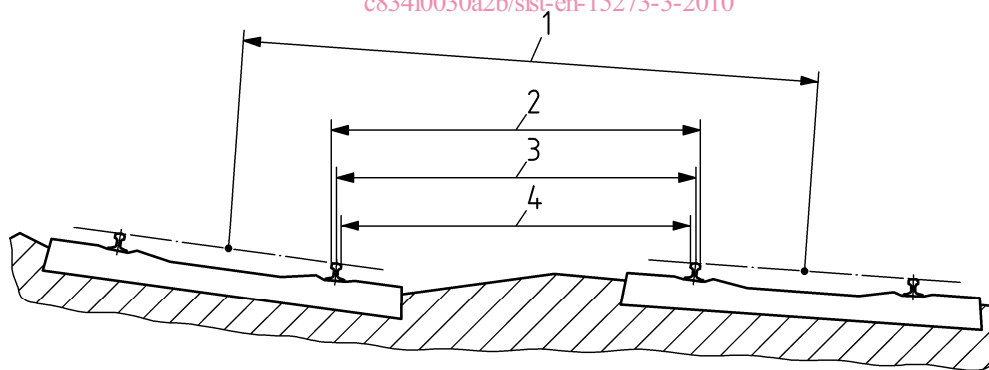
Consequently, no structure shall be installed if free passage is desired following normal maintenance operations.

3.4 structure installation nominal gauge
space to be cleared for all structures to permit train operation and track maintenance, including adequate allowances. This space may include allowances for special consignments and other conditions

3.5 distance between track centres
distance between the centre points of the two tracks concerned, measured parallel to the running surface of the track used, called the reference track, which is the track with the least cant

NOTE 1 On the track, the distance between centres is often determined on the basis of the space between centres which is the distance between the two rails of the adjacent tracks. The exact measurement references (guideline, field face, rail centrelines) differ from one network to another.

NOTE 2 The definition of distance between centres adopted in this standard may differ from those used in other applications, such as installation for example. It is the responsibility of the infrastructure manager to determine the various conversion rules.

**Key**

- 1 distance between track centres
- 2 space between centres measured between the running edges
- 3 space between centres measured between the rail centrelines
- 4 space between centres measured between the outside edges of the rails

Figure 1 — Distance between track centres

3.6**limit distance between centres**

minimum distance to be maintained at all times between adjacent tracks to ensure completely safe passage of traffic within the gauge used on the two tracks by avoiding any risk of interference between the vehicles. This distance varies as a function of the local track parameters (e.g. cant, curve radius, etc.)

3.7**installation limit distance between centres**

minimum distance between adjacent tracks to ensure completely safe passage of traffic within the gauge used on the two tracks by avoiding any risk of interference between the vehicles. This distance varies as a function of the local track parameters (e.g. cant, curve radius, etc.). It takes into account maintenance allowances

3.8**installation nominal distance between centres**

distance between centres that generally has a suitable allowance to permit ease of design, laying, monitoring and maintenance, the operation of special transport or any other aspect. Outside the small radius zones, the nominal distance between centres is often invariable (determined with fixed parameters)

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 15273-3:2010

<https://standards.iteh.ai/catalog/standards/sist/05922fb7-b7a0-4de0-bf0c-c834f0030a2b/sist-en-15273-3-2010>

4 Symbols, abbreviations and subscripts

4.1 Symbols and abbreviations

Table 1 — Symbols and abbreviations

| Symbol | Designation | Unit | Symbol number |
|--------------------|------------------------------------------------------------------------------------------------------------|------|---------------|
| a | Distance between end axles of vehicles not fitted with bogies or between bogie centres | m | 1.001 |
| b | Semi-width or distance parallel to the running surface, relative to the track centreline or of the vehicle | m | 1.007 |
| b' | Semi-width of the pantograph gauge | m | 3.001 |
| b'_q | Actual installation distance of the platforms, measured from the rail running edge | m | 1.008 |
| b_{RP} | Semi-width of the reference profile | m | 3.002 |
| b_{elec} | Electrical insulation distance | m | 3.003 |
| b_{gap} | Standard width of the gap between the platform and the step | m | 1.019 |
| $b_{structure}$ | Distance parallel to the running surface between the structure and the track centreline | m | 3.004 |
| b_q | Semi-width of the platform installation | m | 1.021 |
| Δb | Variation in semi-width b | m | 3.005 |
| b_{veh} | Semi-width of the vehicle | m | 1.030 |
| b_w | Semi-width of the pantograph head | m | 1.033 |
| C_0 | (Reference) roll centre | m | 3.006 |
| c_w | Semi-width of the pantograph head insulating horn | m | 3.007 |
| dg | Geometric overthrow | m | 3.008 |
| dg_a | Geometric overthrow of the vehicle on the outside of the curve | m | 1.038 |
| dg_i | Geometric overthrow of the vehicle on the inside of the curve | m | 1.041 |
| D | Cant | m | 1.044 |
| D_0 | Fixed cant value taken into account by agreement between the vehicle and the infrastructure | m | 1.045 |
| D'_0 | Reference cant taken into account by the vehicle for the pantograph gauge | m | 3.009 |
| D'_L and D''_L | Limit cant values used in calculation of the total allowances | m | 3.010 |
| $D_{max,0}$ | Standard maximum cant to allow for enlargement of the kinematic gauge | m | 1.050 |

Table 1 (continued)

| Symbol | Designation | Unit | Symbol number |
|------------|-----------------------------------------------------------------------------------------------------------------------------------|------|---------------|
| δD | Cant difference (between two tracks) | m | 3.011 |
| e_p | Offset of the pantograph due to the vehicle characteristics | m | 1.067 |
| e_{pi} | Offset of the pantograph due to the vehicle characteristics, inside of the curve | m | 3.012 |
| e_{pa} | Offset of the pantograph due to the vehicle characteristics, outside of the curve | m | 3.013 |
| e_{po} | Offset of the pantograph at the upper verification point | m | 1.068 |
| e_{pu} | Offset of the pantograph at the lower verification point | m | 1.071 |
| e_v | Lowering of track components | m | 1.073 |
| EA | Distance between track centres | m | 3.014 |
| f_s | Allowance to take into account raising of the contact wire | m | 1.079 |
| f_{dyn} | Allowance to take into account dynamic movement of the contact wire | m | 3.015 |
| f_{wa} | Allowance to take into account the overrun by the pantograph head of the contact surface because of pantograph contact strip wear | m | 1.083 |
| f_{ws} | Allowance to take into account the overrun by the pantograph head of the contact surface because of pantograph skewing | m | 1.084 |
| h | Height in relation to the running surface | m | 1.088 |
| h' | Reference height in the calculation of the pantograph gauge | m | 3.016 |
| h_o' | Maximum verification height of the pantograph gauge in a raised position | m | 1.089 |
| h_u' | Minimum verification height of the pantograph gauge in a raised position | m | 1.090 |
| h_{Co} | Value of h_c used for the agreement between the vehicle and the infrastructure | m | 1.092 |
| h'_{Co} | (Reference) roll centre height for the pantograph gauge | m | 3.017 |