SLOVENSKI STANDARD
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Železniške naprave - Zgornji ustroj - Prevzem del - 1. del: Dela na (zgornjem ustroju) tiru s tirno gredo - Odprta proga, kretnice in križišča

Railway applications - Track - Acceptance of works - Part 1: Works on ballasted track - Plain line, switches and crossings

Bahnanwendungen - Oberbau - Abnahme von Arbeiten - Teil 1: Arbeiten im Schotteroberbau - Gleise, Weichen und Kreuzungen

Applications ferroviaires - Voie - Réception des travaux - Partie 1: Travaux de voie ballastée - Voie courante et appareils de voie

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ICS:

45.080	Tračnice in železniški deli	Rails and railway components

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EUROPEAN STANDARD

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Will supersede EN 13231-1:2006, EN 13231-2:2006

English Version

Railway applications - Track - Acceptance of works - Part 1: Works on ballasted track - Plain line, switches and crossings

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Foreword

This document (prEN 13231-1:2011) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13231-1:2006, EN 13231-2:2006.

It results from the revision and the merging of these former standards.

This European Standard is one of the series EN 13231 "*Railway applications – Track – Acceptance of works*" as listed below:

— *Part 1: Works on ballasted track – Plain line, switches and crossings*

— *Part 3: Acceptance of rail grinding, milling and planning work on track – Plain line*

— *Part 4: Acceptance of rail grinding work on track – Switches and crossings and expansion devices*

NOTE Part 2 does not exist in this series.

The following technical modifications have been introduced during the revision:

— Merging of EN 13231-1:2006 and EN 13231-2:2006, taking into account the similarities between them;

— Definition of the absent tolerances for some existing parameters;

— Revision of the tolerances already set up on the former version;

— Definition of new parameters and the respective tolerances.

1 Scope

This European Standard specifies the minimum technical requirements and the tolerances for the acceptance of works on ballasted track situated on plain line and on switches and crossings and rail expansion devices, as part of the track, for 1435 mm and wider gauge railways, concerning construction of new track, track renewal and track maintenance. More particularly this Standard gives the requirements for the documentation of work parameters, for the tolerances for relative track geometry and absolute track position and for the acceptance procedures.

This standard does not deal with contractual and legal aspects and it does not cover either works related to re-profiling the railhead nor the associated measurements, since these works are covered by other parts of EN 13231 series.

Related works, e.g. platform reconstruction, formation, drainage, level crossings are not covered by this standard.

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 13481 (series), *Railway applications – Track – Performance requirements for fastening systems*

EN 13848-1:2003+A1:2008, *Railway applications – Track – Track geometry quality – Part 1: Characterisation of track geometry*

EN 13848-2, *Railway applications – Track – Track geometry quality – Part 2: Measuring systems – Track recording vehicles*

EN 13848-3, *Railway applications – Track – Track geometry quality – Part 3: Measuring systems – Track construction and maintenance machines*

prEN 13848-4:2010, *Railway applications – Track – Track geometry quality – Part 4: Measuring systems – Manual and lightweight devices*

EN 13848-5, *Railway applications – Track – Track geometry quality – Part 5: Geometric quality levels – Plain line*

EN 14587 (series), *Railway applications – Track – Flash butt welding of rails*

EN 14730 (series), *Railway applications – Track – Aluminothermic welding of rails*

EN 13450, *Aggregates for railway ballast*

3 Terms and definitions

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

3.1
works on track (including switches and crossings)
works on track cover:

— construction of new track;

— renewal or partial renewal and maintenance of rails, sleepers, ballast and other components;

— removing and relaying existing track because of works on substructure (e.g. bridges, tunnels, earthworks, etc.);

— renewal or partial renewal and maintenance of switches and crossings (switch rail/stock rail, crossing, etc.), bearers and ballast;

— works to correct track geometry e.g. track tamping/levelling/lining;

— dynamic stabilising;

— ballast cleaning;

— stressing work;

— welding.

3.2
acceptance
acceptance is the declaration of the customer to the contractor that the work has been achieved in accordance with the contract

3.3
tolerance
permissible deviation from reference or designed value

3.4
relative track geometry
group of parameters defining the position of the rails, usually the following: gauge, alignment, longitudinal level, twist and cross level as described in EN 13848 series

3.5
design track position
position of the track defined in the track design process. The design position is defined in the geodetic reference system

3.6
actual track position
position of the track when measured from external absolute references, e.g. a network of geodetic reference points

3.7
deviation from design track position
vertical and lateral difference between the design track position and the actual track position

3.8
loaded and unloaded measurements
conditions for loaded and unloaded measurements are defined in EN 13848-1:2003+A1:2008, clause 5

3.9
nominal track gauge
single value which identifies the track gauge but may differ from the design track gauge

3.10
design track gauge
single value which is obtained when all the components of the track conform precisely to their design dimensions, or their median design dimension, when there is range. It may differ from nominal track gauge.

The design track gauge is specified by the customer taking into account the materials, the method of measurement and whether the application is on plain line or in switches and crossings

3.11
new track
new constructed track applying new materials, formation included

3.12
renewal
complete replacement of all the components of the track (rails, sleepers, fastenings, switches, crossings and ballast) applying new materials, including the formation if necessary

3.13
partial renewal
replacement of one or more (but not all) track components in a track section

3.14
maintenance
all other works than stated in 3.11, 3.12 and 3.13

4 Acceptance of works on plain line and on switches and crossings

4.1 General

The requirements under this clause apply to works as defined in 3.1.

An acceptance form shall be prepared for each item of work outlining the results achieved.

Acceptance is not given until the work is completed in accordance with the requirements of the contract.

4.2 Acceptance deadlines

Acceptance should not be carried out until the track has been subjected to an appropriate passing tonnage described and defined by the customer. However, acceptance should occur within a period not exceeding 6 weeks or the maximum of 1.500.000 gross tons after the completion of the works, even if the appropriate passing tonnage has not been achieved.

4.3 Acceptance measurements, checks and related documentation

Before acceptance, the following measurements or checks shall be carried out when applicable (manually or by automatic means), and shall be documented when applicable:

— Relative track geometry of plain line, switches and crossings as specified in 4.4;

— Absolute track position of plain line, switches and crossings as specified in 4.5;

— Sleeper or bearer position, voiding of sleepers or bearers as specified in 4.6.2, 4.6.3, 4.6.4 and 4.6.5;

— Correct assembly and integrity of the rail fastenings, pads and insulators as specified in 4.6.6;

— Welds as specified in 4.6.7 (running surface and running edge);

— Joint gaps, dips and staggers as specified in 4.6.8;

— Insulated joints as specified in 4.6.9;

— Ballast profile as specified in 4.6.10;

— Stressing work as specified in 4.6.11;

— Specific measurements or checks for switches and crossings and rail expansion devices as specified in 4.7 and 4.8;

— Tamping work as specified in 5.2;

— Dynamic stabilising work as specified in 5.3;

— Ballast replacement / cleaning work as specified in 5.5;

— Damage caused to rails, sleepers, bearers, fastenings, cables and other equipment, or where the work process has displaced the sleepers, the bearers or the rail pads;

— All track materials compliance with the customer's relevant acceptance criteria or specifications, in particular acceptance of associated works as well as approval and acceptance of the material provided by the supplier.

The customer may request additional documented measurements or checks if contractually agreed.

The customer may also restrict the choice of measuring devices if contractually agreed.

Relative track geometry shall be measured by a track recording vehicle or by a track construction and maintenance machine fitted with measuring equipment, both in accordance with series EN 13848. If the measuring equipment fails, or is not available, corresponding light weight or manual devices measurements shall be taken and documented. Other use of light weight or manual devices measurements shall be in accordance with series EN 13848.

If track works affect track geometry, measurement of relative track geometry according to series EN 13848 has to be performed before allowing commercial trains running.

For the purpose of acceptance, every section and switch and crossing shall be inspected by the experts as nominated by the customer and the contractor.

The contract shall define who should perform the measurements.

4.4 Relative track geometry

4.4.1 Parameters

Measurements as defined in EN 13848-1:

4.4.1.1 Track gauge and cross level

Measurement:

— by track recording vehicles according the requirements of EN 13848-2; or

— by track construction and maintenance machines according the requirements of EN 13848-3; or

— by track measuring trolleys or manually operated devices, according the requirements of prEN 13848-4:2010, with a minimum of 10 adjoining measurements every 100 m.

NOTE If track gauge is measured before there has been any traffic, an allowance should be made for subsequent "bedding" of the track. This allowance should be fixed by the customer.

4.4.1.2 Longitudinal level and alignment

Measurements for longitudinal level should preferably be undertaken on both rails. For alignment measurement should be undertaken on both rails on straight track and shall be undertaken on the reference rail for curved track (reference rail being the outer rail):

— by track recording vehicles according the requirements of EN 13848-2; or

— by track construction and maintenance machines according the requirements of EN 13848-3; or

— by track measuring trolleys or manually operated devices, according the requirements of prEN 13848-4:2010, with a minimum of 10 adjoining measurements every 100 m.

4.4.1.3 Twist

Measurement:

— by track recording vehicles according the requirements of EN 13848-2; or

— by track construction and maintenance machines according the requirements of EN 13848-3; or

— by track measuring trolleys or manually operated devices, according the requirements of prEN 13848-4:2010, measurements should be performed at least every 3 m.

4.4.2 Tolerances

Accepted track shall comply with the tolerances shown in Tables 1 and 2.

All measurements shall be sampled at constant distance based intervals not larger than 0,5 m.

NOTE For track construction and maintenance machines that move non-continuously and measure track geometry whilst working, the sampling interval may be extended up to 1,5 m.

The tolerances in Tables 1 and 2 are for loaded measurements, which are recommended. For unloaded measurements the customer shall specify the tolerances for the relative track geometry parameters.

For track gauge, values considered of the Tables 1 and 2 apply to both isolated defects of track gauge and mean track gauge as defined in EN13848-1.

The track gauge between any two adjacent sleepers shall not vary by more than 1 mm, unless otherwise specified by the customer (only applicable for hand measurements).

Measurements made by track recording vehicles, track construction and maintenance machines or track measuring trolleys, the track gauge shall not vary by more than 3 mm per 1,5 m, unless otherwise specified by the customer.

Concerning the longitudinal level and alignment for tracks and switches and crossings:

— the customer shall decide if 10 m chord measurement results or *D*1, *D*2 or *D*3 results according to EN 13848-1 should be used;

— the analysis method shall be «mean-to-peak»;

NOTE Recording vehicles and track construction and maintenance machines delivered prior to the issue of this standard may use the analysis method «peak-to-peak». The values of the tolerances shall be set by the customer.

— at chord measurement results, the sliding mean for each point shall be taken in a length of 40 m considering a symmetric interval;