



SLOVENSKI STANDARD
SIST EN 13232-4:2023

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Železniške naprave - Zgornji ustroj proge - Kretnice in križišča za Vignolove tirnice
- 4. del: Postavljalna naprava in kontrola lege ostrice

Railway applications - Track - Switches and crossings for Vignole rails - Part 4:
Actuation, locking and detection

Bahnanwendungen - Oberbau - Weichen und Kreuzungen für Vignolschienen - Teil 4:
Umstellung, Verriegelung und Lageprüfung

Applications ferroviaires - Infrastructure - Appareils de voie - Partie 4: Manuvre, blocage
et contrôle

Ta slovenski standard je istoveten z: EN 13232-4:2023

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ICS:

45.080	Tračnice in železniški deli	Rails and railway components
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Railway applications - Track - Switches and crossings for Vignole rails - Part 4: Actuation, locking and detection

Applications ferroviaires - Voie - Appareils de voie
pour rails Vignole - Partie 4 : Manœuvre, blocage et
contrôle

Bahnanwendungen - Oberbau - Weichen und
Kreuzungen für Vignolschienen - Teil 4: Umstellung,
Verriegelung und Lageprüfung

This European Standard was approved by CEN on 23 October 2022.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions.....	6
3.1 General.....	6
3.2 Actuation forces.....	7
3.3 Geometrical parameters.....	8
3.4 Movement and retention of switches and crossings with moveable parts.....	12
3.5 Movement of switch rails.....	13
3.6 Dynamics of the wheel.....	14
4 Design criteria.....	15
4.1 Parameters required.....	15
4.2 Calculations and verifications.....	15
4.2.1 Object detection between stock rail and switch rail.....	15
4.2.2 Calculation of minimum flangeway.....	16
4.2.3 Correct closing.....	17
4.2.4 Neutral position.....	17
4.2.5 Negative force.....	17
4.2.6 Mechanical integrity.....	17
5 Test methods.....	17
5.1 Obstacle detection.....	17
5.2 Minimum flangeway / free passage of wheel.....	17
5.3 Correct closing.....	18
5.4 Actuation force, F_a	18
5.5 Neutral position.....	18
5.6 Negative force.....	18
5.7 Trailability.....	19
5.7.1 General.....	19
5.7.2 Factory testing.....	19
5.7.3 Track testing.....	19
6 Acceptance.....	19
6.1 General.....	19
6.2 Standard testing (no prototypes).....	19
6.3 Prototype testing.....	20
6.4 Testing requirements for change in flexibility.....	20
Annex A (informative) Commonly used values for obstacle detection.....	21
Annex B (informative) Commonly used values for flangeway.....	22
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive (EU) 2016/797 aimed to be covered.....	23
Bibliography.....	25

European foreword

This document (EN 13232-4:2023) 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 2024, and conflicting national standards shall be withdrawn at the latest by April 2024.

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

This document supersedes EN 13232-4:2005+A1:2011.

This series of standards “*Railway applications – Track – Switches and crossings for Vignole rails*” covers the design and quality of switches and crossings in flat bottomed rail. The list of Parts is as follows:

- *Part 1: Definitions*
- *Part 2: Requirements for geometric design*
- *Part 3: Requirements for wheel/rail interaction*
- *Part 4: Actuation, locking and detection*
- *Part 5: Switches*
- *Part 6: Fixed common and obtuse crossings*
- *Part 7: Crossings with moveable parts*
- *Part 8: Expansion devices*

— *Part 9: Layouts*

Part 1 contains terminology used throughout all parts of this series. Parts 2 to 4 contain basic design guides and are applicable to all switch and crossing assemblies. Parts 5 to 8 deal with particular types of equipment including their tolerances. These use Parts 1 to 4 as a basis. Part 9 defines the geometric and non-geometrical acceptance criteria for inspection of layouts.

The changes in this document bring some improved clarity to the wording of the requirements and an update to several of the figures. The structure of the document remains similar to the previous revision.

This document has been prepared under a standardisation request addressed to [the relevant ESO] by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

EN 13232-4:2023 (E)

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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1 Scope

This document determines the interface between moveable parts and the actuation, locking and detection equipment, and defines the basic criteria for switches and crossing with moveable parts in respect of the interface.

It concerns:

- rules, parameters and tolerances for alternative positions of the moveable parts;
- criteria and limits for the forces which move and restrain the moveable parts.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13232-3:2023, *Railway applications – Track – Switches and crossings for Vignole rails – Part 3: Requirements for wheel/rail interaction*

EN 13232-5:2023, *Railway applications – Track – Switches and crossings for Vignole rails – Part 5: Switches*

EN 13232-6:2023, *Railway applications – Track – Switches and crossings for Vignole rails – Part 6: Fixed common and obtuse crossings*

EN 13232-7:2023, *Railway applications – Track – Switches and crossings for Vignole rails – Part 7: Crossings with moveable parts*

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3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

3.1 General

NOTE The guidance of a wheelset through switches and crossings concerns mainly the lateral or horizontal dimensions of wheel, axle, and track. In Figures 6, 7, 8 and 9, the wheels are shown in a simplified form as ellipses at the gauge reference plane.

3.1.1

actuation system

system that ensures the correct movement of the moveable parts of the switch and crossing

Note 1 to entry: The actuation system includes the rods, links and actuators needed to ensure the operation.

3.1.2

locking device

device that ensures the moveable part of the switches and crossings stays in the desired position

Note 1 to entry: It guarantees the correct position of the moveable part.

3.1.3

detection device

device that enables the verification of the correct positioning of the moveable part of the switch and crossing

Note 1 to entry: It enables the signalling to decide whether safe train passage can be guaranteed.

3.1.4

trailability

ability of actuator and locking systems to permit the trailing of the switches and crossings by a vehicle

3.1.5

trailable device as non-standard operation

device which permits trailing as a non-standard operation

Note 1 to entry: Parts of the switch may be slightly damaged.

Note 2 to entry: The switches and crossings will only be released for further operation after full inspection of switch and actuator.

3.1.6

trailable device as standard operation

device which permits trailing at a defined maximum speed as a standard operation

Note 1 to entry: The actuator and locking system permits the trailing of the switches and crossings by a vehicle, without damaging any part of it.

3.1.7**non-trailable device**

device which does not permit the trailing of the switches and crossings by a vehicle

3.1.8**single drive**

drive operated at one position, i.e. the switch toe

3.1.9**multiple drives**

drives operated at more than one position with either single or multiple locking

3.1.10**non-lubricated slide baseplates**

no lubrication on the slide baseplates is required to ensure the correct actuation of the switch and crossing

Note 1 to entry: This can be ensured by special baseplates, roller systems or other devices.

3.1.11**lubrication free actuator and locking system**

no lubrication is required to ensure the correct actuation and locking of the switch and crossing

3.1.12**switches and switch diamond crossings – closed position**

switch rail is applied to its corresponding stock rail

3.1.13**switches and switch diamond crossings – open position**

switch rail stands away from its corresponding stock rail by a defined distance (switch toe opening)

3.1.14**common crossings with moveable parts – closed position**

running edge (of main line or branch line) is not interrupted

3.2 Actuation forces**3.2.1****actuation force**

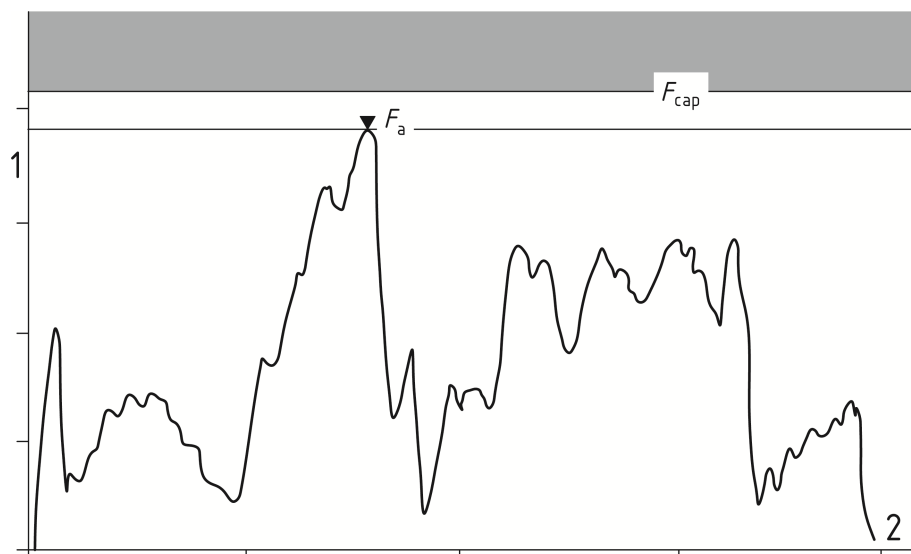
F_a

instant value of the force, applied by the actuator in order to operate the moveable parts of the switches and crossings

Note 1 to entry: see Figure 1.

Note 2 to entry: This force is measured at the interface between actuator and the throwing or locking device.

EN 13232-4:2023 (E)

**Key**

- 1 Actuation force
- 2 Displacement

Figure 1 — Actuation forces

3.2.2 actuator capacity

F_{cap}
maximum force the actuator can provide

Note 1 to entry: see Figure 1

3.2.3 negative force

F_{neg}
force needed to keep the moveable part at its closed position

3.2.4 retaining force

F_R
force externally applied to the actuator necessary to move the actuator out of its retention position

3.3 Geometrical parameters

3.3.1 stud gap

d_{stud}
gap between the stud (distance block) supporting surface and the corresponding surface of the moveable part (i.e. switch rail, point rail, wing rail)