SLOVENSKI STANDARD
oSIST prEN 13232-5:2014

01-julij-2014

Železniške naprave - Zgornji ustroj proge - Kretnice in križišča za Vignolove tirnice - 5. del: Kretniška menjala

Railway applications - Track - Switches and crossings for Vignole rails - Part 5: Switches

Bahnanwendungen - Oberbau - Weichen und Kreuzungen für Vignolschinen - Teil 5: Zungenvorrichtungen

Applications ferroviaires - Voie - Appareils de voie - Partie 5: Aiguillages

Ta slovenski standard je istoveten z: prEN 13232-5 rev

ICS:

45.080	Tračnice in železniški deli	Rails and railway components

oSIST prEN 13232-5:2014 **en,fr,de**

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EUROPÄISCHE NORM

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English Version

Railway applications - Track - Switches and crossings for Vignole rails - Part 5: Switches

Applications ferroviaires - Voie - Appareils de voie - Partie 5: Aiguillages

Bahnanwendungen - Oberbau - Weichen und Kreuzungen für Vignolschienen - Teil 5: Zungenvorrichtungen

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

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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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Contents

Foreword

This document (prEN 13232-5:2014) 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 13232-5:2005+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 functional and geometric dimensions and tolerances for layout assembly.

The following terms are used within to define the parties involved in using the EN as the technical basis for a transaction:

Customer the Operator or User of the equipment, or the Purchaser of the equipment on the User's behalf.

Supplier the Body responsible for the use of the EN in response to the Customer's requirements.

Introduction

The requirements of switches are that they are capable of performing their intended purpose, which is to cause a vehicle to transfer from one track to the other track of a turnout, either in the facing or trailing direction. The switches are designed to withstand all external forces from rolling stock, thermal influences etc. Switches are manufactured to give safe (and acceptable) motion of the vehicle based on conditions in the specification.

1 Scope

The scope of this European Standard is:

— establish a working definition for switches and their constituent parts and identify the main types;

— specify the minimum requirements for the manufacture of the switches and/or constituent parts;

— specify codes of practice for inspection and tolerances of both full and half sets of switches and their constituent parts;

— establish the limits and scope of supply;

— list the methods by which switches and their parts should be identified and traced;

— list the different and varying ways by which switches can be described using the following parameters:

  — geometry of the switches;

  — types of construction;

  — performance requirements;

  — design criteria;

  — tolerances and inspection.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13145, *Railway applications – Track – Wood sleepers and bearers*

EN 13146 (all parts), *Railway applications – Track – Test methods for fastening systems*

EN 13230 (all parts), *Railway applications – Track – Concrete sleepers and bearers*

prEN 13232-1:2013, *Railway applications – Track – Switches and crossings for Vignole rails – Part 1: Definitions*

prEN 13232-2:2014, *Railway applications – Track – Switches and crossings for Vignole rails – Part 2: Requirements for geometric design*

prEN 13232-3:2014, *Railway applications – Track – Switches and crossings for Vignole rails – Part 3: Requirements for wheel/rail interaction*

prEN 13232-4:2014, *Railway applications – Track – Switches and crossings for Vignole rails – Part 4: Actuation, locking and detection*

EN 13481 (all parts), *Railway applications – Track – Performance requirements for fastening systems*

EN 13674 (all parts), *Railway applications – Track – Rail*

EN 13803-2, *Railway applications – Track alignment design parameters – Track gauges 1 435 mm and wider – Part 2: Switches and crossings and comparable alignment design situations with abrupt changes of curvature*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in prEN 13232-1:2013, and the following apply.

3.1 Construction

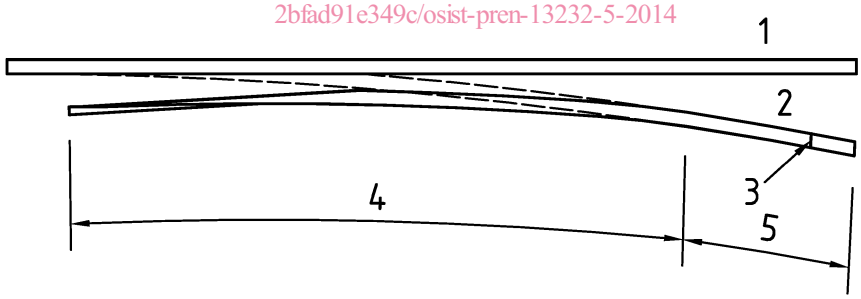
3.1.1
flexible switch
switch rail, the toe of which is moved by flexing about a fixed heel

Note 1 to entry: The switch rail in the movable area of the switch is made of one profile only. This can be either standard rail profile or special profile. If a transition from special profile to standard rail profile is required, this takes place in the fixed part of the switch rail. In case of a weld, the weld is also located in the fixed part of the switch rail (see Figure 1).

3.1.2
spring rail switches
the switch rail in the movable area of the switch is made of two different profiles. The transition and the weld between one to the other profile take place in the movable part of the switch rail. This weld is secured by fishplating (see Figure 2)

3.1.3
loose-heel switch (pivot-articulated switches)
rigid switch rail which pivots about its heel (see Figure 3).

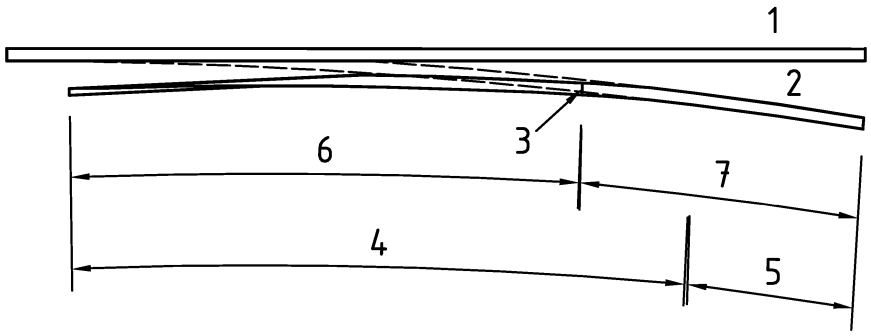
Variations from these basic forms may be used:



Key

1	Stock rail	4	Moveable
2	Switch rail	5	Fixed
3	Weld		

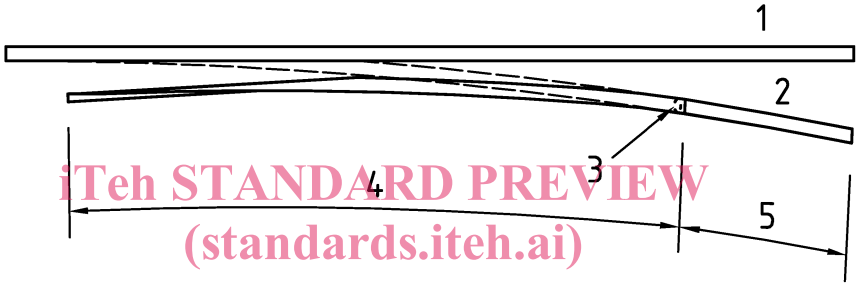
Figure 1 — Half set of flexible switches



Key

1	Stock rail	5	Fixed
2	Switch rail	6	Special profile
3	Weld	7	Standard profile
4	Moveable		

Figure 2 — Half set of spring switches



Key

1	Stock rail	4	Moveable
2	Switch rail	5	Fixed
3	Pivot		

Figure 3 — Half set of loose heel switches

3.2 Rail joints

3.2.1
switch rail joint
joint at the heel end of the switch rail

3.2.2
stock rail joint
joint at the switch heel end of the stock rail

3.2.3
stock front joint
joint at the switch toe end of the stock rail

3.3 Handing and sets of switches

3.3.1
set of switches
arrangement of two half sets of switches, one right hand, the other left hand. The requirement of any other fittings other than stud/distance block (Figure 7, item 11) and block or heel blocks (Figure 11, item 9) are

specified, e.g. baseplates, fishplates, drive bar, stretcher bar brackets, stretcher bars, anti creep device. They may be diverging right hand (Figure 4), diverging left hand (Figure 5) or equal split (Figure 6)

3.3.2
half-set of switches
consists of one stock rail and its switch rail complete with small fittings. It is right or left hand as seen by an observer in the centre of the track facing the switch heel from the switch toe

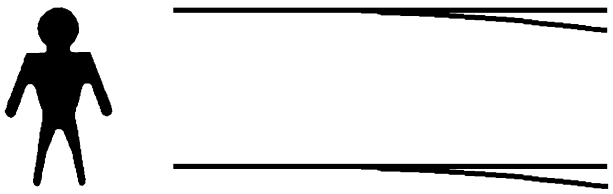


Figure 4

Figure 5

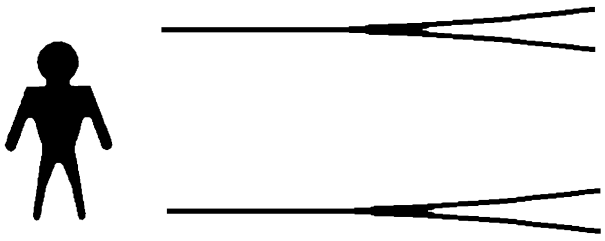
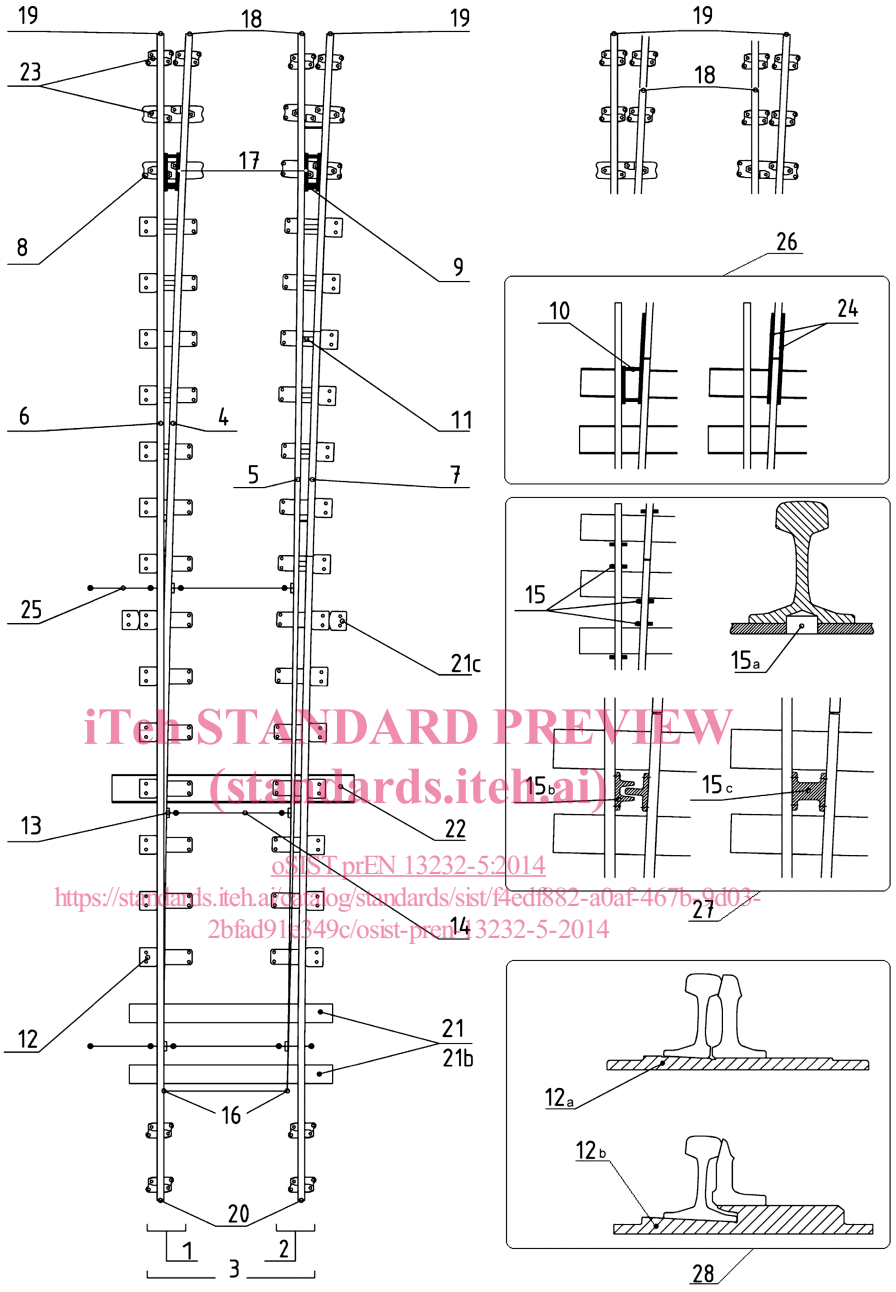


Figure 6

3.4 Parts of switches



Key

1	Left hand half set of switches	11	Stud/distance block	21	Soleplate
2	Right hand half set of switches	12	Slide baseplate	21b	Gauge plate
3	Set of switches	13	Stretcher bar bracket	21c	Special stop
4	Left hand switch rail	14	Stretcher bar	22	Bearers
5	Right hand switch rail	15	Anti-creep device	23	Baseplate
6	Left hand stock rail	16	Switch toe/tip	24	Fishplate (joint bar)
7	Right hand stock rail	17	Switch heel	25	Drive rod
8	Heel baseplate	18	Switch rail joint	26	Example of alternative rail joint position
9	Block or heel block	19	Stock rail joint	27	Example of alternative switch heel arrangements
10	Fishplate block	20	Stock front joint	28	Example of slideplates

Figure 7 — Parts of switches

3.4.1
switch rail
movable machined rail, often of special section, but fixed and/or joined at the heel end to a rail to provide continuity of wheel support. Details of movement are described in prEN 13232-4:2014. The two switch rails in a set are the two inside rails. A switch rail is described as right or left hand according to whether it is part of a right hand or left hand half-set of switches (see 3.3.2)

3.4.2
stock rail
fixed machined rail, ensuring the continuity on the main or diverging track with the switch in the open position. The machined part of the stock rail supports its switch rail in the closed position, giving continuity of line through this switch rail. The two stock rails in a set of switches are the two outside rails. A stock rail is described as right or left hand according to whether it is part of a right hand or left hand half-set of switches (see 3.3.2)

3.4.3
heel baseplate
first baseplate at the heel end of the movable part of the switch. This baseplate with or without the aid of a heel block forms the first part of the rigid part of the switch

3.4.4
anti creep device
device to stop or limit relative longitudinal movement between switch and stock rails, or between rails and bearers/ baseplates

3.4.5
soleplate
fabricated plate for use with switch operating device

3.4.6
gauge plate
plate used to hold the track gauge of the stock rails may or may not assist in the location of the switch operating device

3.4.7
special stop
device used to hold the track gauge of the stock rails in the drive areas

3.4.8
bearers
load carrying supports on which the switches are mounted

3.4.9
baseplate
device used to support the switch and stock rails, stop them from twisting and moving laterally and also connect the switch and stock rail to the supports in the heel end region of a set of switches

3.4.10
fishplate (joint bars)
device used for bolting two pieces of rail together

3.4.11
drive rod
rod connecting the switch rails to the switch drive. This may be integrated into the bearer

3.4.12
transition section
part of the switch rail which has been formed to give a transition between two different rail sections (not shown)