
Železniške naprave - Infrastruktura - Tirna vozila za vzdrževanje železniških tirov in nadzorna vozila ter pripadajoča oprema - Pojasnila o tipu in skladnosti vozila, vključno s prevzemnimi procesi

Railway applications - Infrastructure - Rail mounted railway maintenance and inspection machines and associated equipment - Explanation of machine type and compliance, including acceptance processes

Bahnanwendungen - Infrastruktur - Schienengebundene Instandhaltungs- und Inspektionsmaschinen - Erläuterung des Maschinentyps und der Konformität, einschließlich der Zulassungsverfahren

Applications ferroviaires - Infrastructure - Machines ferroviaires de maintenance et d'inspection - Explication du type de machine et de leur conformité, y compris les processus d'autorisation

Ta slovenski standard je istoveten z: FprCEN/TR 17498

ICS:

45.120

Oprema za gradnjo in
vzdrževanje železnic oz.
žičnic

Equipment for
railway/cableway
construction and
maintenance

kSIST-TP FprCEN/TR 17498:2020

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/06ead3e7-2caf-43d1-89bf-99ea48a119db/ksist-tp-fprcen-tr-17498-2020>

TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

FINAL DRAFT
FprCEN/TR 17498

February 2020

ICS

English Version

Railway applications - Infrastructure - Rail mounted
railway maintenance and inspection machines and
associated equipment - Explanation of machine type and
compliance, including acceptance processes

Applications ferroviaires - Infrastructure - Machines
ferroviaires de maintenance et d'inspection -
Explication du type de machine et de leur conformité, y
compris les processus d'autorisation

Bahnanwendungen - Infrastruktur -
Schienengebundene Instandhaltungs- und
Inspektionsmaschinen - Erläuterung des
Maschinentyps und der Konformität, einschließlich der
Zulassungsverfahren

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

CEN members are the national standards bodies of 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, Turkey and United Kingdom.

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.

Warning : This document is not a Technical Report. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a Technical Report.



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.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Modes of operation.....	9
4.1 Introduction	9
4.2 Working mode.....	9
4.3 Travelling mode.....	10
4.4 Running mode	10
5 Generic types of machine	11
5.1 Introduction	11
5.1.1 Classification - general	11
5.1.2 Railbound machines.....	12
5.1.3 Road-rail machines.....	12
5.1.4 Demountable machines and trailers.....	13
5.1.5 Trolleys and portable machines	13
5.1.6 Demountable modules	13
5.1.7 Attachments	14
5.1.8 Machines without rail wheels	14
5.2 Classification of rail mounted machines.....	14
5.2.1 Classification method	14
5.2.2 Machines with a running mode.....	14
5.2.3 Machines with a road mode.....	14

5.2.4	How does the machine move along the track.....	14
5.2.5	Combination of questions.....	15
6	Assessment of machines.....	15
6.1	Introduction.....	15
6.2	Machinery Directive	15
6.3	European Railway Package	16
6.3.1	Interoperability Directive	16
6.3.2	Safety Directive.....	17
6.4	Common elements of design review processes	18
6.5	Acceptance to work on the railway	20
7	Composition of standards for machines.....	20
7.1	Introduction.....	20
7.2	Series of standards.....	20
8	Special national conditions.....	21
8.1	Introduction.....	21
	Annex A (informative) Examples of machine types.....	22
	Bibliography	38

European foreword

This document (FprCEN/TR 17498:2020) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document will be submitted to the vote.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/06ead3e7-2caf-43d1-89bf-99ea48a119db/ksist-tp-fprcen-tr-17498-2020>

Introduction

This document is intended as an explanatory guide to machines that are fitted with rail wheels. It is written to clarify the complex variety of machines that are used for the construction, maintenance, inspection, repair and renewal of railway infrastructure. It is intended to be used as an introduction to, and application guide for, the suite of standards for rail mounted maintenance and infrastructure inspection machines. It is an aid to clarify which standard to use for a particular machine. This document does not introduce any new requirements.

Machines are designed and intended for a specific working purpose and their ability to operate as a railway vehicle is considered as an additional function.

There are various standards which apply to the machines in scope of this document:

- EN 13977
- EN 14033 series
- EN 15746 series
- EN 15955

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/06ead3e7-2caf-43d1-89bf-99ea48a119db/ksist-tp-fprcen-tr-17498-2020>

1 Scope

This document covers machines fitted with rail wheels that are used for the construction, maintenance, inspection, repair and renewal of railway infrastructure. It is also applicable to machines used for emergency rescue purposes on railway infrastructure.

NOTE Inspection of the infrastructure includes measurement

This document explains the different modes of operation, classification of machines and which standard covers the technical requirements. There is also guidance on the compliance process provided to explain the design review process of different legislation, how these can be combined into one process (to avoid duplication) and achieve a common understanding of what the design review is achieving.

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 ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

EN 13977:2011, *Railway applications - Track - Safety requirements for portable machines and trolleys for construction and maintenance*

EN 14033-1:2017, *Railway applications — Track — Railbound construction and maintenance machines — Part 1: Technical requirements for running*

EN 14033-2:2017, *Railway applications — Track — Railbound construction and maintenance machines — Part 2: Technical requirements for travelling and working*

EN 14033-3:2017, *Railway applications — Track — Railbound construction and maintenance machines — Part 3: General safety requirements*

EN 14033-4:2019, *Railway applications — Track — Railbound construction and maintenance machines — Part 4: Technical requirements for running, travelling and working on urban rail.*

FprEN 15746-1:2019, *Railway applications — Track — Road-rail machines and associated equipment — Part 1: Technical requirements for travelling and working*

FprEN 15746-2:2019, *Railway applications — Track — Road-rail machines and associated equipment — Part 2: General safety requirements*

FprEN 15746-3:2019, *Railway applications — Track — Road-rail machines and associated equipment — Part 3: Technical requirements for running*

FprEN 15746-4:2019, *Railway applications — Track — Road-rail machines and associated equipment — Part 4: Technical requirements for running, travelling and working on urban rail*

prEN 15955:2020, *Railway applications — Infrastructure — Demountable machines, trailers and associated equipment — General safety and technical requirements for travelling and working*

EN 16704-1:2016, *Railway applications — Track — Safety protection on the track during work – Part 1: Railway risks and common principles for protection of fixed and mobile work sites*

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

rail mounted railway maintenance and infrastructure inspection machines

generic term for the collection of all machines which have wheels suitable for running on rails and are intended for the construction, maintenance, inspection, repair and renewal of railway infrastructure. It is also applicable to machines used for emergency rescue purposes on railway infrastructure

3.2

railbound construction and maintenance machine

collective term for on-track machines and infrastructure inspection machines

3.3

on-track machines

OTM

machine specially designed for construction and maintenance of the track and infrastructure, running on its own rail wheels and designed and intended to operate signalling systems

Note 1 to entry Signalling systems are defined in CCS TSI Index 77 and/or defined by the urban rail manager.

3.4

infrastructure inspection machine

self-propelled or a hauled machine used to monitor the condition of the infrastructure, running on its own rail wheels, and designed and intended to operate signalling systems

Note 1 to entry These machines are also referred to in the Loc&Pas TSI as infrastructure inspection vehicles.

Note 2 to entry These machines are also referred to in prEN 13848-2:2018 as Track Recording Vehicles.

3.5

road-rail machine

self-propelled machine that can move on rails and ground

Note 1 to entry It is normally a road vehicle adapted for moving on rail also, but can be a specially designed rail vehicle for moving on the ground also.

Note 2 to entry It does not imply that the machine is suitable for use on the public road.

3.6**demountable machine**

machine that can travel and work only on rail and which is not intended to operate track signalling and control systems, but is not able to travel on the ground

Note 1 to entry: Such a machine is designed to get on and off track by its own means or with other lifting equipment. In the case of demounting by its own means these are not intended for operating on the ground.

Note 2 to entry: Such a machine is permitted to work on the railway only under special operating conditions granted by the Infrastructure Manager and travel under special conditions granted by the authorized body and/or the Infrastructure Manager.

3.7**trailer**

non-self-propelled machine that can be towed on rail wheels and is not intended to operate track signalling and control systems

Note 1 to entry: Trailers are not designed to have a running mode.

3.8**road-rail trailer**

trailer that can be towed on rails and ground

3.9**trolley**

equipment moved along track on wheels or runners by human force only, which is designed so that it can be manually placed on or off the track; uses include transport of materials, tools and/or various equipment

3.10**portable machine**

machine designed or adapted for use on the track which is propelled by manual effort (ie. no powered drive system), but has a lifting capability and/or incorporates a power system (e.g. internal combustion, electro-mechanical, hydraulic, pneumatic energy sources or from an external supply) for specific work applications

Note 1 to entry: This type of equipment is covered under the definition of 'Machinery' in the Machinery Directive as per Article 2(a)

3.11**associated equipment**

a device which, after the putting into service of the machine, is connected to that machine

Note 1 to entry: Specific examples of associated equipment are described in 5.1.6 and 5.1.7, but anything plugged into the host machine is considered to be associated.

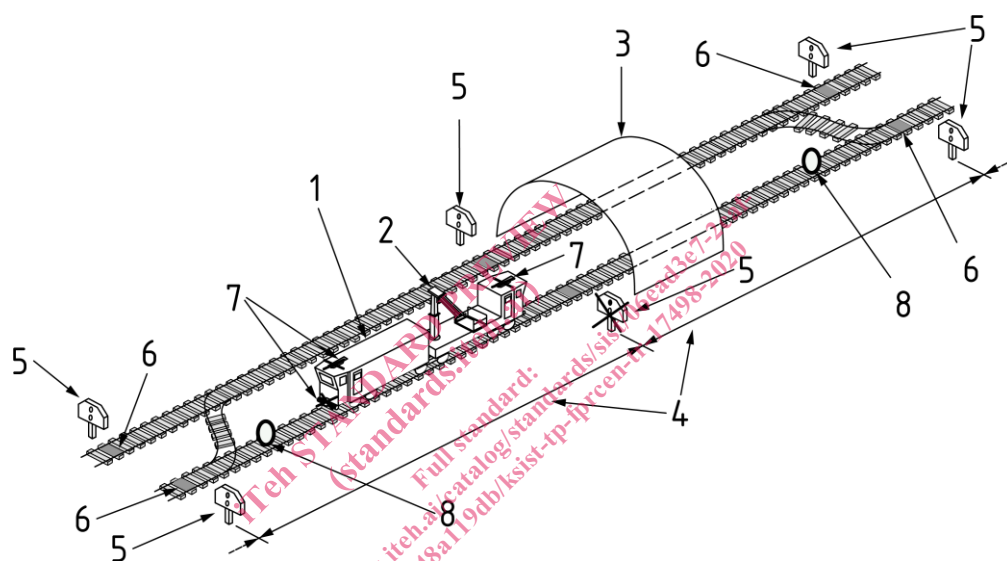
4 Modes of operation

4.1 Introduction

Before explaining the various generic types of machines it is useful for the reader to understand the three basic operating modes of a machine on the railway as described in this report, as they have a significant effect on the type of machine and its compliance process.

4.2 Working mode

When in working mode the machine is protected from interference with passenger and freight trains by operational controls applied to the rules of the Infrastructure Manager. It is possible, but not always the case, that signalling systems will not be operational. Safety protection during work is described in more detail in EN 16704-1.



Key

- | | |
|--|---|
| 1 Machine | 5 Signal (with a cross means may be isolated) |
| 2 Moveable component outside machine gauge | 6 Track mounted signalling equipment |
| 3 Limiting infrastructure gauge (tunnel etc) | 7 Vehicle mounted signalling equipment (off) |
| 4 Signalling block sections | 8 Train stop for passenger and freight trains |

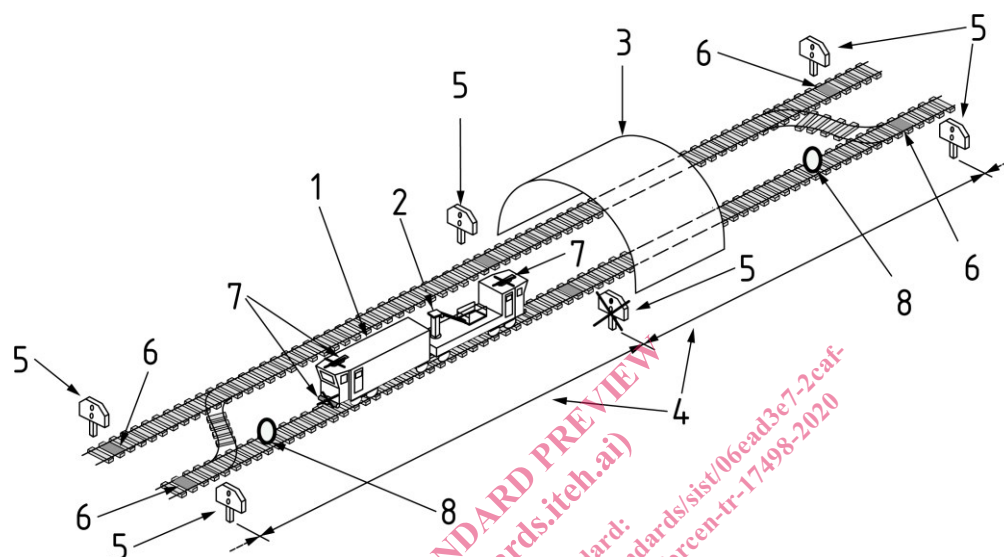
Figure 1 — Schematic representation of working mode

In working mode a machine is permitted to exceed the vehicle gauge of the track it is on. Planning will be undertaken to avoid damage to the infrastructure by the machine which may need devices to limit its movement and/or other operational controls. Another area of planning is whether passenger and freight trains will be allowed to pass the work site on the adjacent track.

When self propelled a machine will be operated by a driver/operator who has to fulfil the Infrastructure Manager's requirements for the line it is on.

4.3 Travelling mode

Where the machine needs to move from one worksite to another worksite, but only on the line that is protected from interference with passenger and freight trains by operational controls applied to the rules of the Infrastructure Manager, then the machine needs to be within gauge for the line but does not necessarily need to react with signals. This is called travelling mode. Where the machine is self propelled it will be operated by a driver/operator who has to fulfil the Infrastructure Manager's requirements and the driver/operator needs to be able to see far enough ahead of the machine to enable the machine to stop within the sighting distance.



Key

- | | |
|--|---|
| 1 Machine | 5 Signal (with a cross means may be isolated) |
| 2 Moveable component within machine gauge | 6 Track mounted signalling equipment |
| 3 Limiting infrastructure gauge (tunnel etc) | 7 Vehicle mounted signalling equipment (off) |
| 4 Signalling block sections | 8 Train stop for passenger and freight trains |

Figure 2 — Schematic representation of travelling mode

4.4 Running mode

This is where the machine is operated under the same rules as a comparable standard railway vehicle.

Not every machine has a running mode. A machine in running mode will be expected to behave and react to the railway signalling and control systems on the track it's running on in the same way that a passenger or freight train would be scheduled for operational service.

In running mode a machine can either be self propelled or towed. When self propelled it will be driven by a train driver who has to comply with the signalling systems on the line it is running on, eg the driver has to be able to see signals, machine is fitted with in cab signalling etc. When a machine is not self propelled in running mode it will be towed and needs to behave with the signalling system in the same way that is expected for a railway wagon.