SLOVENSKI STANDARD
oSIST prEN 15020:2019

01-september-2019

Železniške naprave - Vlečna spenjača - Zahteve za izdelavo, geometrija vmesnika in preskusne metode

Railway applications - Rescue coupler - Performance requirements, specific interface geometry and test methods

Bahnanwendungen - Abschleppkupplung - Leistungsanforderungen, spezifische Schnittstellengeometrie und Prüfverfahren

Applications ferroviaires - Attelage de secours - Exigences concernant la performance, la géometrie des interfaces et les methodes d'essai

Ta slovenski standard je istoveten z: **prEN 15020**

ICS:

45.060.10 Vlečna vozila Tractive stock

oSIST prEN 15020:2019 **en,fr,de**

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English Version

Railway applications - Rescue coupler - Performance requirements, specific interface geometry and test methods

Applications ferroviaires - Attelage de secours - Exigences concernant la performance, la géometrie des interfaces et les methodes d'essai

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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

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

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European foreword

This document (prEN 15020:2019) 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 15020:2006+A1:2010.

This document has been prepared under a mandate given to CEN 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 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

The requirements on coupling interfaces of end couplers are defined in EN 16019.

Modifications:

The main modifications to EN 15020:2006+A1:2010 are:

a) Modifications on Scope;

b) Verifying of Clause 2 “Normative references”;

c) Modification in Clause 3 “Terms and definitions”, in particular 3.1 “rescue coupler”;

d) Clause 4 completely revised;

e) Change of all Figures;

f) Annex B “Characteristics of the rescue vehicle” is deleted and referred to EN 16839;

g) Annex C “Air pipe coupling heads” is deleted and referred to EN 15807.

1 Scope

This document specifies the requirements for the rescue coupler for train sets compliant with the Technical Specification for Interoperability Locomotives and Passenger rolling stock (TSI Loc & Pas).

This document defines the rescue coupler foreseen to connect rescue vehicle equipped with draw hook, according to EN 15566 together with the train to be rescued equipped with Type 10 automatic coupler according to EN 16019.

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 10204, *Metallic products — Types of inspection documents*

EN 12663-1, *Railway applications — Structural requirements of railway vehicle bodies — Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)*

EN 15085 (all parts), *Railway applications — Welding of railway vehicles and components*

EN 15566, *Railway applications — Railway rolling stock — Draw gear and screw coupling*

EN 15807, *Railway applications — Pneumatic half couplings*

EN 16019, *Railway applications — Automatic coupler — Performance requirements, specific interface geometry and test method*

EN 16839, *Railway applications — Rolling stock — Head stock layout*

EN ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections (ISO 5817)*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 16019, EN 15807 and the following apply.

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

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

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
rescue coupler
special device that enables hauling and towing of a failed train unit or train set by another vehicle that is equipped with different coupling systems

3.2
rescue vehicle
vehicle able to rescue a failed train unit or train set

3.3
draw hook
part of a conventional and mechanical manual coupling system

Note 1 to entry: See also EN 15566.

3.4
air pipe
main reservoir pipe or brake pipe

Note 1 to entry: See also EN 14478.

3.5
technical specification
document describing specific parameters and/or product requirements as an addition to the requirements of this document

4 Product requirements

4.1 General

4.1.1 Metallic products

For the materials used for the manufacture of the rescue coupler the Certificate 3.1 or 3.2 according to EN 10204 shall be available. This shall contain the actual chemical composition as well as the test results of tensile, resilience and hardness.

Welded parts shall be in accordance with the EN 15085 series and EN ISO 5817.

Additional requirements to these specified product requirements may be given in in the technical specification.

4.1.2 Non-metallic products

Additional requirements to those in 4.2 to 4.7 may be given in the technical specification.

4.2 Rescue coupler characteristics

4.2.1 Mechanical requirements

The main dimensions and characteristics of the rescue coupler shall be as given in Annex A.

The mass of the complete rescue coupler in its operational condition shall not exceed 50 kg.

The rescue coupler shall be able to withstand the following static loads (see 5.1.2) at least:

— tensile load 300 kN;

— compressive load 250 kN.

The designed breaking loads of the rescue coupler shall fulfill the rules given in EN 12663-1 for the safety coefficient relative to the tensile load (300 kN) and the compressive load (250 kN) defined in this document.

If higher tensile and compressive loads are required in the case of rescue a vehicle, the higher loads shall be specified in the technical specification.

The tensile and compressive loads shall not produce uncoupling of the rescue coupler.

For transport and lifting the rescue coupler shall be equipped with handles or components.

4.2.2 Pneumatic requirements

The rescue coupler shall be connected to the rescue vehicle by the half couplings.

The air pipes connected to the rescue coupler shall be free to rotate around their axes.

If pneumatic hoses can be removed from the rescue coupler, it shall be impossible to refit the hoses incorrectely.

The air pipes connected to the rescue coupler shall be designed in order to ensure safe connection between the rescue coupler and the rescue vehicle.

The whole air connection system of the rescue coupler shall be suitable for a 10 bar pressure.

4.3 Interface of rescue coupler to rescue vehicle

The rescue coupler defined in this document shall be compatible with a rescue vehicle having the following characteristics:

— equipped with connections for air pipes according with EN 16839;

— the interfaces as described in EN 16839 for locomotives.

NOTE 1 Rescue vehicle is equipped with moveable draw hook and draw gear capable of tensile loading and compressive loading.

NOTE 2 Rescue vehicle is able to accept at least the same loads as defined for the rescue coupler.

4.4 Requirements linked to the fitting procedure

Mounting of the rescue coupler shall not require any special tools.

It shall be possible for the rescue coupler to be lifted and mounted by no more than two persons. The rescue coupler shall be secured to the draw hook with a fixing device in such a way that it cannot freely move or come off the draw hook during the rescue operation.

Once the rescue coupler is mounted on the draw hook of the rescue vehicle:

— the rescue coupler shall be able to be adjusted vertically on the draw hook without the need of special tools;

— the installed rescue coupler shall be able to have at least ± 6° vertical movement during operation.

4.5 Requirements linked to the coupling and uncoupling conditions

4.5.1 Mechanical coupling

The mechanical coupling between the automatic coupler on the failed train set and the rescue coupler on the rescue vehicle shall be automatic.

The rescue coupler shall be able to couple with the automatic coupler under the following conditions:

— The vertical difference between the centre lines of the automatic coupler and the draw hook is not more than 75 mm.

  NOTE This requirement can be achieved either by use of a guide horn or by the vertical adjustability of the rescue coupler.

— In a 150 m radius curve, if necessary, with manual adjustments of the automatic coupler.

— The coupling speed shall not exceed 2 km/h.

The rescue coupler is able to be coupled and uncoupled without any human presence between the rescue vehicle and the failed train unit or train set.

4.5.2 Pneumatic coupling

Connection of the air pipes with the Type 10 automatic coupler shall be made automatically and the connection to the rescue vehicle by the half couplings shall be made manually (see Figure 1).

NOTE After completion of the mechanical coupling operation and the connection of the air pipes, the end-cocks on the rescue vehicle are opened.

4.6 Requirements linked to the operating conditions

In rescue operation, the rescue coupler shall not restrict the running condition of the rescued train set.

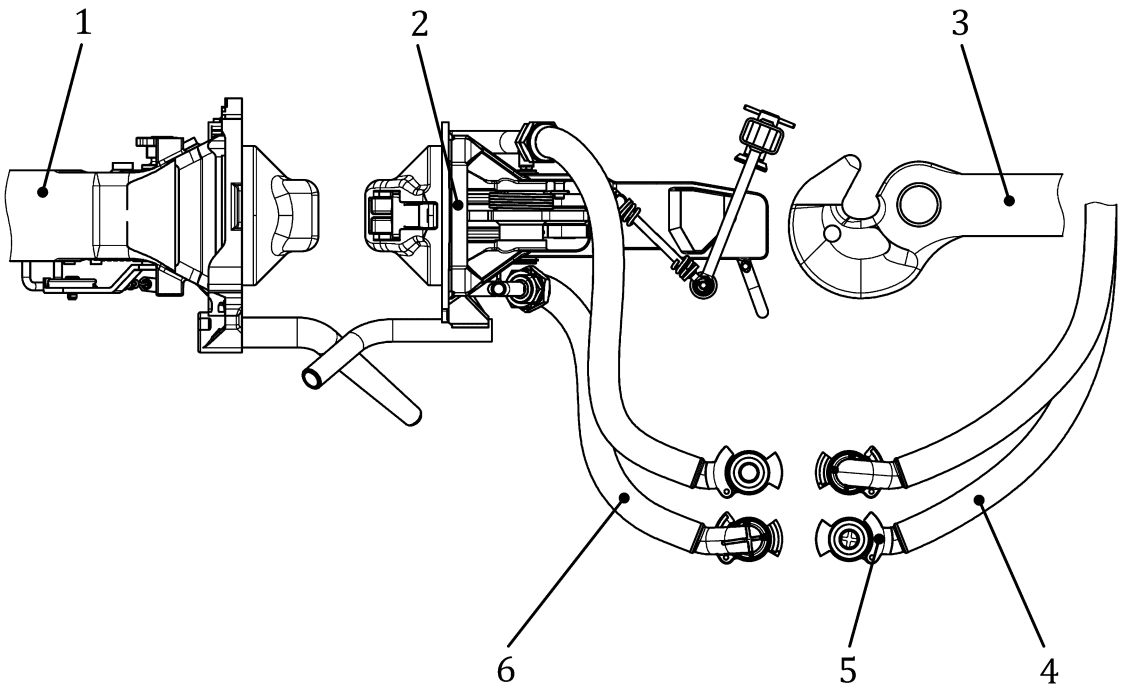
The rescue coupler, and specifically its pneumatic hoses, shall not limit the maximum lateral movement of the draw hook during operation.

The rescue vehicle shall be able to control the braking system of the rescued train set.

4.7 Uncoupling conditions

Before uncoupling, the end cocks of the main reservoir pipe (air pipe) and automatic air brake pipe (brake pipe) of the rescue vehicle shall be closed.

Uncoupling shall be done according to EN 16019.



Key

1 train set to be rescued
2 recue coupler
3 draw hook on rescue vehicle
4 air pipes on rescue vehicle
5 coupling head
6 air pipes of the rescue coupler

Figure 1 — Example of an exploded view of the pneumatic connection between the rescue vehicle and rescue coupler — uncoupled condition, (lateral view)

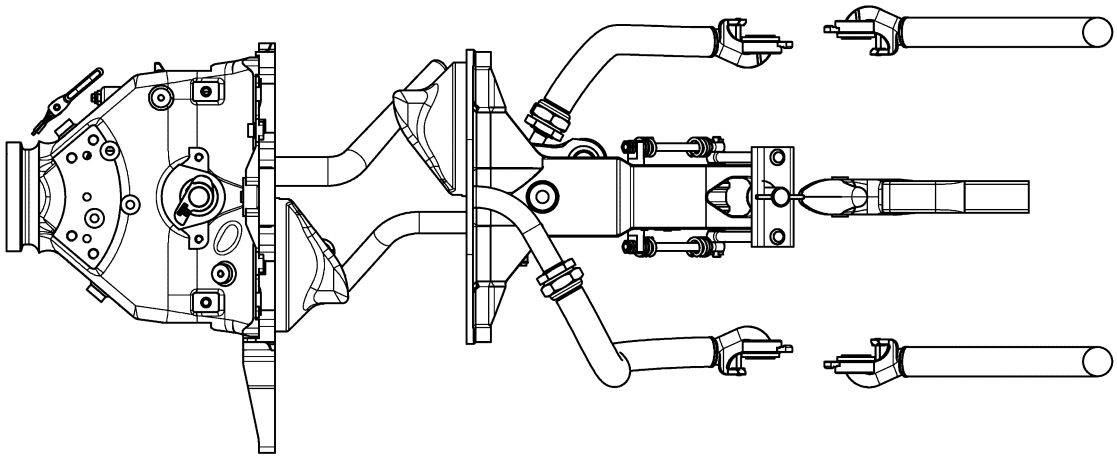


Figure 2 — Example of an exploded view of the pneumatic connection between the rescue vehicle and rescue coupler — uncoupled condition, (top view)