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| STN P | Technická špecifikácia pre pozemné napájacie systémy pre dynamickú infraštruktúru elektrického nabíjania cestných vozidiel v prevádzke | STN P CLC/TS 50740 34 1572 |
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Technical Specification for ground-based feeding systems for dynamic electric road charging infrastructure on road vehicles in operation

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/25

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Technical Specification for ground-based feeding systems for
dynamic electric road charging infrastructure on road vehicles in
operation

Spécification Technique de l'infrastructure de recharge
électrique dynamique des systèmes de recharge sur route
par le sol des véhicules routiers.

Technische Spezifikation für bodenseitige
Einspeiseanlagen für die dynamische elektrische
Straßenladeinfrastruktur für Straßenfahrzeuge in Betrieb

This Technical Specification was approved by CENELEC on 2025-07-28.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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CLC/TS 50740:2025 (E)

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CLC/TS 50740:2025 (E)**European foreword**

This document (CLC/TS 50740:2025) has been prepared by CLC/TC 9X “Electrical and electronic applications for railways”.

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

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

Introduction

This document is written in the frame of the standardization of one the families of Electric Road Systems that are developed to reduce carbon dioxide and other emissions caused by road traffic (see description in Annex A).

This document is limited to the infrastructure part of the conducted ground-based feeding ERS family and contains requirements for all types of these systems.

The infrastructure of the dynamic electric power supply is in charge, as described in Figure A.2, to transform the electricity from the grid and to transfer it safely to the road vehicles via metallic segments installed at road level. The on-board part of the ERS described in Figure A.2 is dealt with in CLC/TS 50717:2022. ERS solutions for dynamic supply of road vehicles need to be standardized to allow for interoperable, international vehicle operation.

CLC/TS 50740:2025 (E)**1 Scope**

This document specifies the infrastructure part defined in Figure 1 and Figure A.2 of the conducted ground-based feeding systems and their interfaces.

The charging infrastructure can be used for charging all road vehicle types at standstill or in motion.

This document covers the following aspects:

- interaction between the ground-based feeding systems and ERS vehicles;
- electrical safety and stray current protection (in case of DC electric traction power supply systems);
- environmental requirements;
- validation requirements.

This document defines the interfaces between:

- the ground-based feeding system and the grid;
- the infrastructure of the ground-based feeding system and the on-board current collector devices of the vehicles including the specificities according to the different interface types.

This document is not applicable to the on-board part of the conducted ground-based feeding systems.

This document is not applicable to motorcycles (including tricycles and quadricycles).

This document is not applicable to vehicles or electric buses with dynamic or static inductive charging systems and related power supplies.

This document is not applicable to vehicles or electric buses with dynamic or static conductive charging systems through overhead lines.

This document does not apply for charging stations with only a plug-in solution.

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 50121-5, *Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus*

EN 50122-1, *Railway applications — Fixed installations — Electrical safety, earthing and the return circuit — Part 1: Protective provisions against electric shock*

EN 50122-2, *Railway applications — Fixed installations — Electrical safety, earthing and the return circuit — Part 2: Provisions against the effects of stray currents caused by d.c. traction systems*

EN 50160, *Voltage characteristics of electricity supplied by public electricity networks*

EN 50163, *Railway applications - Supply voltages of traction systems*

EN 50328, *Railway applications - Fixed installations - Electronic power converters for substations*

EN 50329, *Railway applications - Fixed installations - Traction transformers*

EN 50562, *Railway applications - Fixed installations - Process, protective measures and demonstration of safety for electric traction systems*

CLC/TS 50717:2022, *Technical Requirements for Current Collectors for ground-level feeding system on road vehicles in operation*

EN IEC 61000 (all parts), *Electromagnetic compatibility (EMC) (IEC 61000)*

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