ICS 43.150 SLOVENSKÁ TECHNICKÁ NORMA Apríl 2025

| STN | **Nákladné bicykle**<br>**Časť 5: Elektrické aspekty** | **STN**<br>**EN 17860-5**<br><br>30 9049 |
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Carrier cycles - Part 5: Electrical aspects

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. 03/25

Obsahuje: EN 17860-5:2024

**140209**

# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

**EN 17860-5**

December 2024

ICS 43.150

English Version

# Carrier cycles - Part 5: Electrical aspects

Cycles utilitaires - Partie 5: Aspects électriques

Lastenfahrräder - Teil 5: Elektrische Aspekte

This European Standard was approved by CEN on 4 November 2024.



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

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Ref. No. EN 17860-5:2024 E

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# European foreword

This document (EN 17860-5:2024) has been prepared by Technical Committee CEN/TC 333 “Cycles”, the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by June 2025, and conflicting national standards shall be withdrawn at the latest by June 2025.

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 is part of standard series consisting of the following parts:

— EN 17860-1:2024, Carrier cycles — Part 1: Terms and definitions

— EN 17860-2:2024, Carrier cycles — Part 2: Lightweight single track carrier cycles — Mechanical aspects

— EN 17860-3:2024, Carrier Cycles — Part 3: Lightweight multi track carrier cycles — Mechanical aspects

— prEN 17860-4:2024, Carrier Cycles — Part 4: Heavy weight carrier cycles — Mechanical and functional aspects

— FprEN 17860-5:2024, Carrier cycles — Part 5: Electrical aspects

— prEN 17860-6:2024, Carrier Cycles — Part 6: Passenger transport

— FprEN 17860-7:2024, Carrier cycles — Cargo trailers

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.

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.

# Introduction

This document has been developed in response to an increased demand throughout Europe for carrier cycles of a type which are excluded from the scope of Regulation (EU) No 168/2013. Electrical aspects of electric trailers and other peripherals such as chargers are also part of this document.

# 1 Scope

This document applies to:

— functional and electrical safety aspects of carrier cycles covered in all parts of EN 17860;

— electrical aspects of electrically power assisted cycle trailers (EPACT) covered in prEN 17860-7;

— electrical aspects of batteries used for carrier cycles;

— electrical aspects of chargers used for carrier cycles.

This document does not apply to charging stations.

This document specifies requirements and test methods for motor power management systems, electrical circuits including the charger for the assessment of the design and assembly of carrier cycles and subassemblies for systems having a Safety Extra Low Voltage (SELV) maximum working voltage ≤ 60 V d.c. disregarding transients.

# 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 17860-1:2024, *Carrier cycles — Part 1: Terms and definitions*

EN 17860-2:2024, *Carrier cycles — Part 2: Lightweight single track carrier cycles — Mechanical aspects*

EN 15194:2017+A1:2023, *Cycles — Electrically power assisted cycles — EPAC Bicycles*

EN ISO 7010, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010)*

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

EN ISO 13849 (all parts), *Safety of machinery — Safety-related parts of control systems*

CEN/TS 17831:2023, *Cycles — Electrically power assisted cycles — Anti-tampering measures*

EN 50604-1:2016, *Secondary lithium batteries for light EV (electric vehicle) applications — Part 1: General safety requirements and test methods*

EN 50604-1:2016/A1:2021, *Secondary lithium batteries for light EV (electric vehicle) applications — Part 1: General safety requirements and test methods*

IEC 60034-1, *Rotating electrical machines — Part 1: Rating and performance*

EN 60068-2-27, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock (IEC 60068-2-27)*

IEC 60335-1:2020, *Household and similar electrical appliances — Safety — Part 1: General requirements*

EN 60335-2-29, *Household and similar electrical appliances — Safety — Part 2-29: Particular requirements for battery chargers (IEC 60335-2-29)*

HD 60364-5-52:2011, *Low-voltage electrical installations — Part 5-52: Selection and erection of electrical equipment — Wiring systems*

IEC 60417, *Graphical symbols for use on equipment*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN IEC 61000-6-1, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity standard for residential, commercial and light-industrial environments*

EN IEC 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for equipment in residential environments*

ISO 6742-1, *Cycles — Lighting and retro-reflective devices —Part 1:Lighting and light signalling devices*

ISO 13732-1, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces*