

STN	Nákladné bicykle Časť 4: Ťažké nákladné bicykle Mechanické a funkčné aspekty	STN EN 17860-4 30 9049
------------	---	--

Carrier Cycles - Part 4: Heavyweight carrier cycles - Mechanical and functional 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. 01/26

Obsahuje: EN 17860-4:2025

141664

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2026
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii
v znení neskorších predpisov.

EUROPEAN STANDARD

EN 17860-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2025

ICS 43.150

English Version

Carrier Cycles - Part 4: Heavy weight carrier cycles - Mechanical and functional aspects

Cycles utilitaires ζ Partie 4 : Cycles utilitaires lourds ζ
Aspects mécaniquesLastenfahrräder - Teil 4: Schwere Lastenfahrräder -
Mechanische und funktionale Aspekte

This European Standard was approved by CEN on 11 August 2025.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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, Türkiye and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

EN 17860-4:2025 (E)

Contents		Page
European foreword		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	Use cases: commercial/professional use or low mileage use	7
5	General vehicle requirements	8
5.1	Numbers and condition of specimens for the strength tests	8
5.2	Accuracy tolerances of test conditions for brake tests and strength tests	8
5.3	Protrusions	8
5.4	Sharp edges	8
5.5	Securing and strength of safety-relevant fasteners	8
5.6	Steering function	8
5.7	Shimmy	8
5.8	Requirements for loading areas/load securing	8
5.9	Parking and stability	8
5.9.1	Requirement	8
5.9.2	Tipping stability of multi track carrier cycles	8
5.9.3	Parking stability while loading	8
5.9.4	Dynamic tipping stability of multi track carrier cycles	8
5.9.5	Double lane change test	8
5.9.6	Dynamic tipping stability on slopes	9
5.9.7	Prevention of wheel jamming of multi track carrier cycles	9
5.10	Pedal clearance	9
5.10.1	Ground clearance	9
5.10.2	Toe clearance	9
5.11	Wheel and tyre assembly – clearance	9
5.12	Wheel retention	9
5.13	Vibrations, ergonomics and design	9
6	Brakes	10
6.1	General	10
6.2	Hand-operated brakes	10
6.2.1	Brake lever position	10
6.2.2	Brake-lever grip dimension	10
6.2.3	Attachment of brake assembly and cable requirements	10
6.2.4	Brake-lever – Position of applied force	10
6.2.5	Brake-block and brake-pad assemblies – Safety test	10
6.2.6	Hand-operated braking-system – Strength test	10
6.2.7	Back-pedal braking system – Strength test	10
6.3	Requirements of the test method on a test track	10
6.4	Requirements of the test method on a test bench	11
6.4.1	Requirement for the minimum braking force	11
6.4.2	Requirement for the uniformity of braking forces	11
6.5	Tests	11

7	Steering.....	11
8	Frame	11
8.1	Suspension frames — Special requirements	11
8.2	Requirements for all frame types	11
8.3	Frame - Dynamic test with pedalling forces	12
8.3.1	General.....	12
8.3.2	Test method	12
8.4	Frame - Dynamic test with horizontal forces.....	14
8.4.1	General.....	14
8.4.2	Determination of the test loads	15
8.4.3	Test method	15
8.5	Frame — Dynamic test with a vertical force onto the seatpost.....	17
8.6	Frame - Dynamic test with vertical forces onto the loading area	17
8.7	Frame - Dynamic test with lateral forces.....	17
8.7.1	General.....	17
8.7.2	Determination of the lateral test load	17
8.7.3	Requirement.....	19
8.7.4	Test method	19
8.8	Frame assembly - Impact test (falling frame).....	23
8.8.1	General.....	23
8.8.2	Requirement.....	23
8.8.3	Test method	23
8.9	Frame - Brake mount test.....	25
8.9.1	Requirements.....	25
8.9.2	Brake mount fatigue test.....	26
8.9.3	Brake mount static torque test	26
8.10	Frame - Trailer suitability stress test	27
8.10.1	Requirement.....	27
8.10.2	Test method	27
9	Front wheel fork.....	27
9.1	General.....	27
9.2	Installation of the axle and wheel fastening	27
9.3	Front wheel fork —Static bending test	27
9.3.1	Requirements.....	27
9.3.2	Determination of the static test load ($x_s \geq 0,8 z_s$)	27
9.3.3	Test method	29
9.4	Front wheel fork — Dynamic bending test.....	30
9.5	Front wheel fork — Rearward impact test.....	30
9.6	Front forks for use with hub or disc brakes	30
9.6.1	Requirements.....	30
9.6.2	Front fork for hub/disc brake — Dynamic test of the brake mounting.....	30
9.6.3	Front fork for hub/disc brake —Static braking torque test.....	30
10	Wheels and wheel/tyre assembly	30
11	Rims, tyres and tubes	30
12	Mudguards/wheel covers	31
13	Pedals and pedal/crank drive system.....	31
14	Drive chain and drive belt	31
15	Chain-wheel and belt-drive protective device	31
16	Saddles, seatposts and seats	31

EN 17860-4:2025 (E)

17	Lighting systems and reflectors.....	31
17.1	General.....	31
17.2	Indicator lights.....	31
17.3	Brake lights.....	31
17.4	Retro reflective devices.....	31
18	Warning device.....	31
19	Rear-view mirror.....	31
20	Safety belts for cyclists.....	32
21	Marking.....	32
22	Manufacturer's instructions.....	32
23	Structural integrity test.....	32
23.1	General.....	32
23.2	Requirements.....	32
23.3	Verification methods.....	32
	Annex A (normative) Test cycles for professional/commercial use or low mileage use.....	33
	Annex B (informative) Examples of a "Complete vehicle test".....	34
	Annex C (informative) Road test (Vehicle fatigue life test by means of test drives covering a representative distance.....	36
	Annex D (informative) Construction regulation for a "Belgian Block" test track.....	37
	Annex E (informative) Roller bank test.....	39
	Annex F (informative) Vibration test for vehicles on a uniaxial vibrating table/shaker.....	45
	Annex G (informative) Frame - Dynamic test with vertical forces on front wheel/axle.....	48
	Bibliography.....	51

European foreword

This document (EN 17860-4:2025) 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 April 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.

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 the standard series consisting of the following parts. Users are invited to check which parts are applicable to their situation:

- 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*
- EN 17860-4:2025, *Carrier Cycles — Part 4: Heavyweight multi track carrier cycles – Mechanical and functional aspects*
- EN 17860-5:2024, *Carrier Cycles — Part 5: Electrical aspects*
- EN 17860-6:2025, *Carrier Cycles — Part 6: Passenger transport*
- EN 17860-7:2024, *Carrier Cycles — Part 7: 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.

EN 17860-4:2025 (E)**Introduction**

This document gives requirements and test methods for mechanical and functional aspects for heavyweight carrier cycles.

This document has been developed in response to demand throughout Europe. Its aim is to provide a standard for the assessment of mechanical aspects for multi track carrier cycles of a type which are excluded from type approval by Regulation (EU) No. 168/2013.

Because of the diversity of geometries and solutions of carrier cycles not all requirements and test methods in this document may apply to every carrier cycle.

Examples of carrier cycle configurations can be found in EN 17860-2:2024, Annex A. EN 17860-2:2024, Annex B provides a reading guide for parts 2, 3 and 4 of this standard series.

EN 17860-2:2024, Annex A, gives an overview of vehicle configurations.

EN 17860-2:2024, Annex B, provides a reading guide for the parts of this standard series.

EN 17860-2:2024, Annex J, contains a rationale explaining the choices made when developing the standard series.

This document is based on a risk analysis, the focus is on mechanical aspects for multi track carrier cycles. This document is a type C standard as specified in EN ISO 12100:2010. The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document.

1 Scope

This document is applicable to carrier cycles with or without electric assistance with a minimum gross vehicle weight that is bigger than 300 kg and a maximum gross vehicle weight of 650 kg.

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

EN 17860-7:2024, *Carrier cycles - Part 7: Cargo trailers*

EN ISO 4210-3:2023, *Cycles - Safety requirements for bicycles - Part 3: Common test methods (ISO 4210-3:2023)*

EN ISO 4210-6:2023, *Cycles - Safety requirements for bicycles - Part 6: Frame and fork test methods (ISO 4210-6:2023, Corrected version 2023-08)*

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN