
Izdelki za otroke - Tricikli - Varnostne zahteve in preskusne metode

Child care articles - Tricycles - Safety requirements and test methods

Artikel für Säuglinge und Kleinkinder - Dreiräder - Sicherheitstechnische Anforderungen und Prüfverfahren

Articles de puériculture - Tricycles - Exigences de sécurité et méthodes d'essai

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CEN/TS 17876

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English Version

**Child care articles - Tricycles - Safety requirements and
test methods**

Articles de puériculture - Tricycles - Exigences de
sécurité et méthodes d'essai

Artikel für Säuglinge und Kleinkinder - Dreiräder -
Sicherheitstechnische Anforderungen und
Prüfverfahren

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European foreword

This document (CEN/TS 17876:2024) has been prepared by Technical Committee CEN/TC 252 “Child care articles”, the secretariat of which is held by AFNOR.

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CEN/TS 17876:2024 (E)**Introduction**

This document has been produced to provide safety guidance for designers, manufacturers, suppliers and users of children's tricycles providing a passive transportation function.

These guidelines have been drafted to address potential hazards associated with the transportation function of tricycles. Where there are similar hazards to those associated with wheeled child conveyances, these have been identified. Requirements and test methods which are given in EN 1888-1:2018+A1:2022 and are appropriate to the transportation function of tricycles have been included, adapted as necessary, in this document.

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1 Scope

This document covers children's tricycles providing a passive transportation function.

A tricycle is considered to provide a passive transportation function when it provides a pushing handle and a sufficient support for the child's back, i.e. the minimum length of the backrest is 250 mm (when measured in accordance with 6.1.1.2 of this document), and includes any of the below pushchair features:

- Bumper bar;
- Possibility to semi-recline or recline the child's seat;
- Reversible child's seat;
- *Footrest*;
- A system for overriding front wheel steering for the child and parent.

NOTE Toys or the toy functions of Convertible Tricycle Pushchairs are covered by Directive 2009/48/EC.

Products sold as pushchairs are excluded from the scope of this document, as they are covered by EN 1888 standard series.

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 71-1:2014+A1:2018, *Safety of toys - Part 1: Mechanical and physical properties*

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:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

convertible tricycle pushchair

CTP

vehicle designed for use by a child in at least two modes, the first being primarily for play and learning to steer and pedal; and the second to transport a child, similar in intent and purpose to a pushchair

3.2

chassis

wheeled framework with a removable or fixed handle(s) for pushing, pulling and steering, designed to accommodate and transport a *seat(s)*

3.3

seat

structure which may or may not be adjustable to achieve a reclining or recumbent position designed to support one child

CEN/TS 17876:2024 (E)**3.4****protected volume**

volume accessible by the child (occupant) when sitting in the convertible tricycle pushchair, where specific safety requirements are necessary

3.5**junction line**

intersection of the seating surface and the backrest

3.6**restraint system**

system to restrain the child within the *CTP*

Note 1 to entry: A surrounding rim or bumper bar is not considered a restraint system.

3.7**crotch restraint**

device positioned between the child's legs to prevent the child from sliding forwards

3.8**harness anchorage point**

device suitable for the attachment of an additional child's harness

3.9**footrest**

support for the feet or a foot other than pedals, used when sitting

3.10**shearing hazard**

hazard due to the movement of components relatively one to another resulting in a scissoring action

3.11**crushing hazard**

hazard due to the movement of components relatively one to another resulting in a compression action

3.12**folding system**

assembly of moving parts which enables the *CTP* or parts thereof to be changed from an erected position to a folded position under the control of the carer

3.13**locking mechanism**

assembly of components consisting of one or more *locking device(s)* and *one or more operating device(s)*

3.14**locking device**

mechanical component that maintains part(s) of the vehicle erected in the position of use (e.g. latch(es), hooks, over centre lock...) which could be deactivated or activated by action(s) on the *operating device*

3.15**operating device**

part of the *locking mechanism(s)* designed to be activated by the carer through one or several positive action(s)

3.16

automatic locking device

device that engages with no additional voluntary action by the carer, when the *CTP* is erected to its position of use

3.17

parking device

device to maintain the *CTP* in a stationary position

4 General requirements and test conditions

4.1 General

Words in italics are defined in Clause 3 (Terms and definitions). Additional information on the background and rationale for various requirements is given in Annex A.

4.2 Samples

Tests shall be carried out in the order of the clauses given in this document, unless otherwise stated. Each test shall be carried out only using one sample, unless otherwise stated.

CTP shall comply with all applicable requirements in any possible arrangement in accordance with the manufacturer's instructions.

4.3 Tolerances for test equipment

Unless otherwise stated, the accuracy of the test equipment shall be:

- forces $\pm 5\%$;
- masses $\pm 0,5\%$;
- dimensions $\pm 0,5\text{ mm}$;
- timing $\pm 1\text{ s}$;
- angles $\pm 0,5^\circ$.

4.4 Test conditions

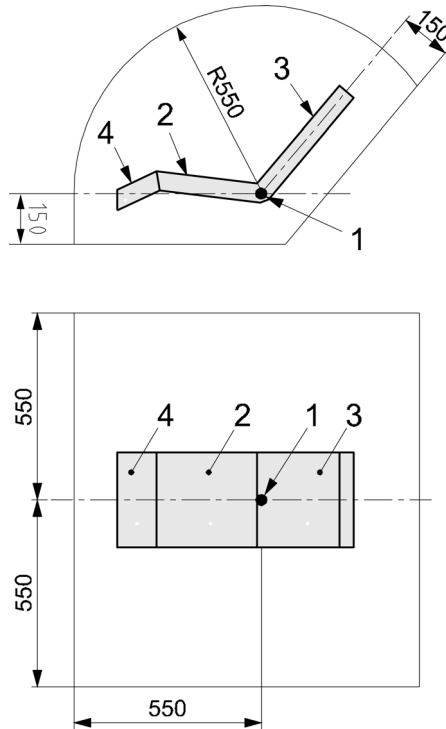
The *CTP* shall be conditioned at a temperature of $(23 \pm 5)^\circ\text{C}$ for at least 2 h prior to tests. All tests shall be carried out at a temperature of $(23 \pm 10)^\circ\text{C}$ unless otherwise specified.

For *CTPs* fitted with inflatable tyres, the tyre pressure shall be adjusted according to manufacturer's instructions for use before conducting the entire test procedure. If a tyre is punctured during the test procedure, the tyre shall be replaced, and the test procedure continued.

4.5 Determination of the *protected volume of the seat*

The protected volume of seat shall be determined in accordance with Figure 1 below.

Dimensions in millimetres

**Key**

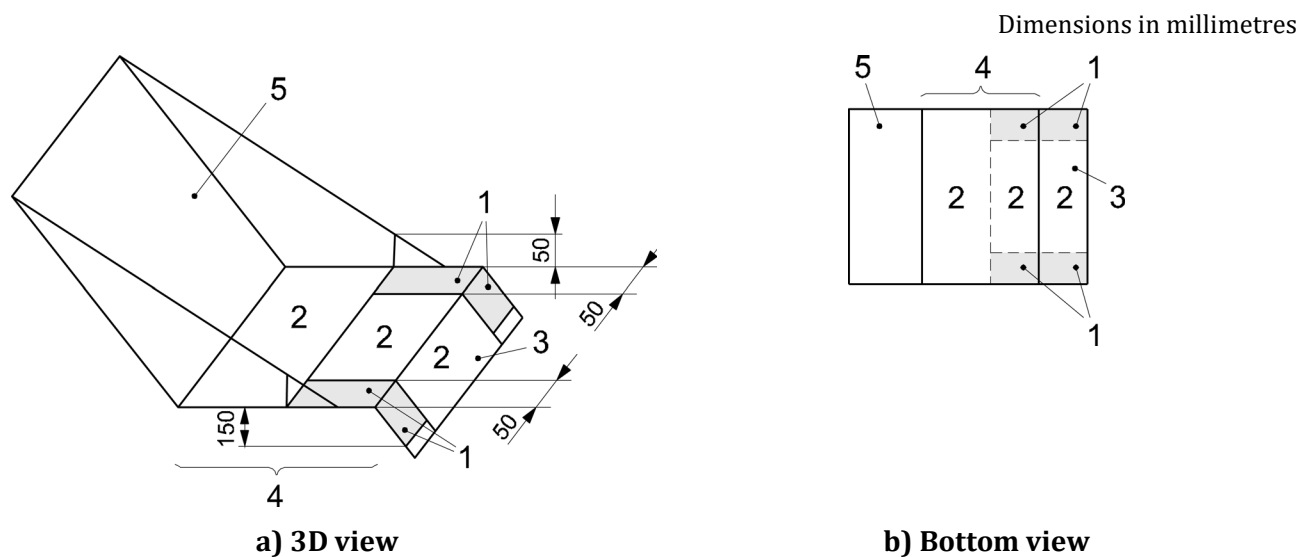
- 1 origin from which the *protected volume* has been defined (mid-point of the *junction line*, on the uncompressed upper surface of the *seat*)
- 2 *seat*
- 3 back rest
- 4 leg rest

Figure 1 — Protected volume for seat

The space located behind the backrest is excluded from the *protected volume*.

Where a *CTP* is suitable for two or more children the space located behind the backrest shall be considered if it enters another *protected volume*.

The space underneath the *seat* and underneath the leg rest is excluded from the *protected volume*, except for a 50 mm wide band measured from the outermost edge of the *seat*/leg rest sides where the *seat*/leg rest is not fitted with lateral protections of a height greater than 50 mm (textile or any rigid component) (see Figure 2).

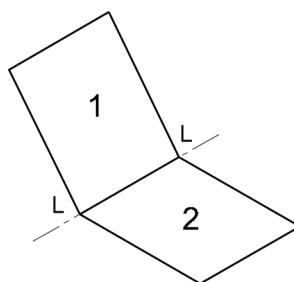
**Key**

- 1 space to be checked
- 2 space not to be checked
- 3 leg rest
- 4 seat
- 5 backrest

Figure 2 — Effect of lateral protection on the determination of the *protected volume*

4.6 Determination of the *junction line*

The *junction line* shall be determined as the intersection between the seating surface and the backrest as shown on Figure 3.

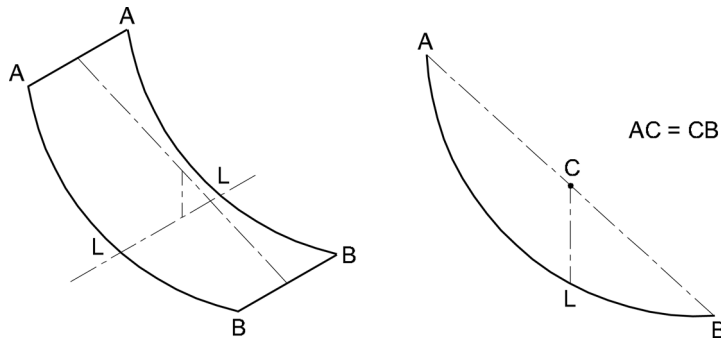
**Key**

- LL *junction line*
- 1 backrest
- 2 seat

Figure 3 — *Junction line*

When the *seat* is in the form of a hammock, then a theoretical *junction line*, “LL”, is determined as follows (see Figure 4).

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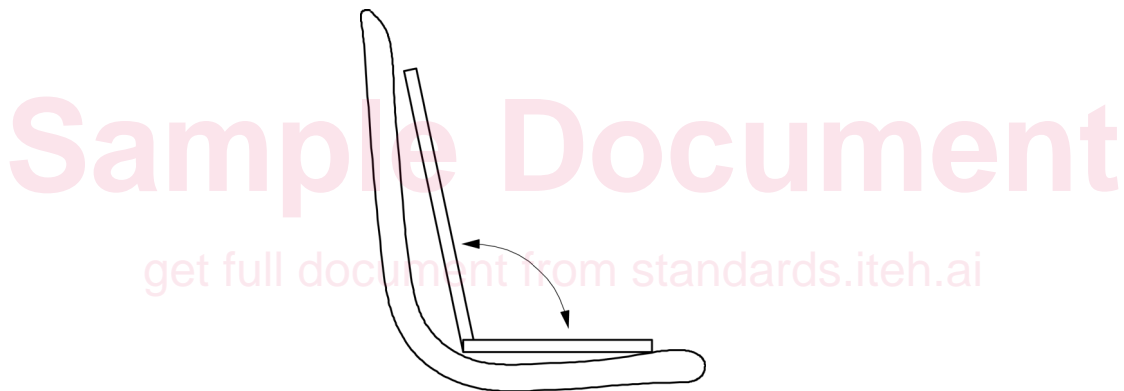
**Key**

- LL* junction line
LCL vertical projection of *C* on the hammock

Figure 4 — Junction line for seat in form of a hammock

NOTE 1 The *junction line* can vary when the backrest is adjusted to different positions.

When the *seat* is of rigid material, then a theoretical *junction line*, “*LL*”, is determined as follows.

**Key**

- 1 angle measuring device
 2 *seat*
 3 angle between the seating surface and the backrest

Figure 5 — Determination of junction line

Place the angle measuring device (5.3) described in Figure 11 at the centre of the seat as shown in Figure 5 and move it towards the centre line of the seat unit until both parts of the device give the smallest angle along the seat and the backrest unit. When the smallest angle is reached (seat angle measurement device shall not be oriented in a negative angle), the axis of the device corresponds to the junction line.

NOTE 2 In case the shape of the seat does not allow to keep the angle measurement device in position, manually slowly slide the angle measurement device from the top of the backrest and maintain it to record the smallest angle.

5 Test equipment

5.1 Test masses

5.1.1 General

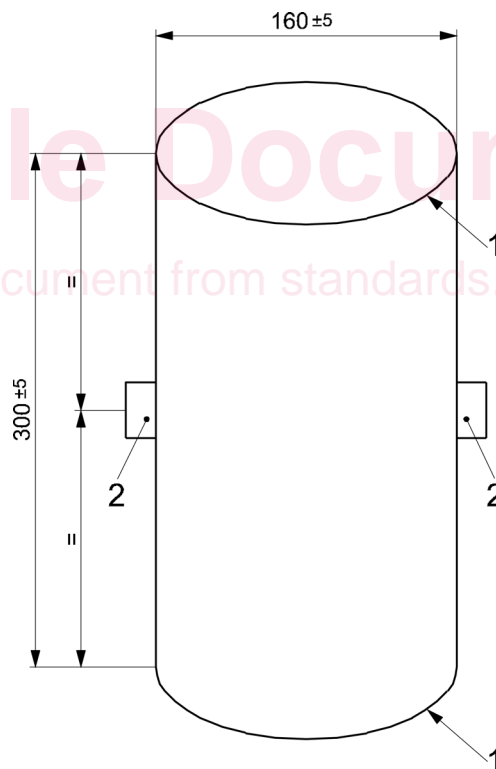
Any damage to fabric which may occur as a result of abrasion by the test masses during tests shall be ignored. Damage can be minimized by using a convenient means of protection of negligible mass. Where damage is not caused by abrasion by the test masses it constitutes a structural failure.

Test masses may be fitted with additional handles for carrying purposes, as long as the centre of gravity is not changed, and mass remains within tolerances and the test procedure is not affected.

5.1.2 Test mass A

Test mass A is a rigid cylinder (160 ± 5) mm in diameter and (300 ± 5) mm in height, having a mass of ($9_0^{+0,1}$) kg and with its centre of gravity in the centre of the cylinder. All edges shall have a radius of (5 ± 1) mm. Two anchorage points shall be provided, positioned ($150 \pm 2,5$) mm from the base and at 180° to each other around the circumference as shown in Figure 6.

Dimensions in millimetres



Key

- 1 radius: (5 ± 1) mm
- 2 two anchorage points

Figure 6 — Test mass A

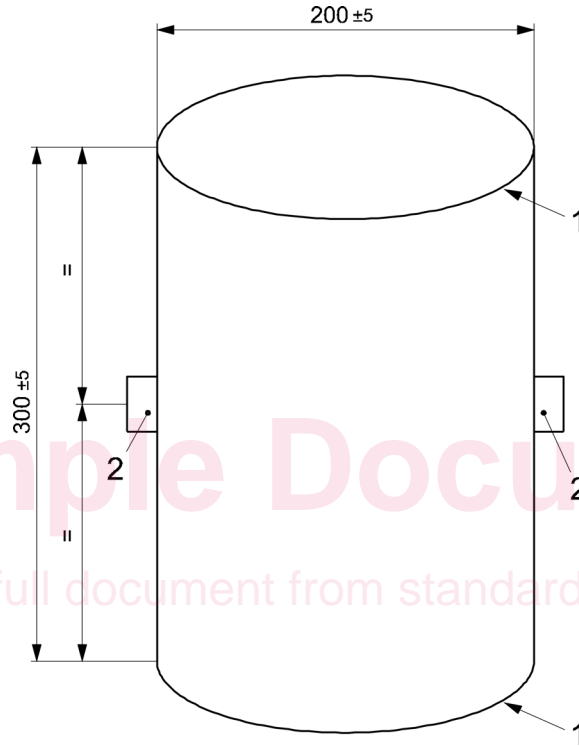
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5.1.3 Test mass *B*

Test mass *B* is a rigid cylinder (200 ± 5) mm in diameter and (300 ± 5) mm in height, having a mass of ($15_0^{+0,1}$) kg and with its centre of gravity in the centre of the cylinder. All edges shall have a radius of (5 ± 1) mm. Two anchorage points shall be provided, positioned ($150 \pm 2,5$) mm from the base and at 180° to each other around the circumference (see Figure 7).

The test mass may be fitted with additional handle for carrying purposes, as long as the centre of gravity is not changed, and mass remains within tolerances and the test procedure is not affected

Dimensions in millimetres



Key

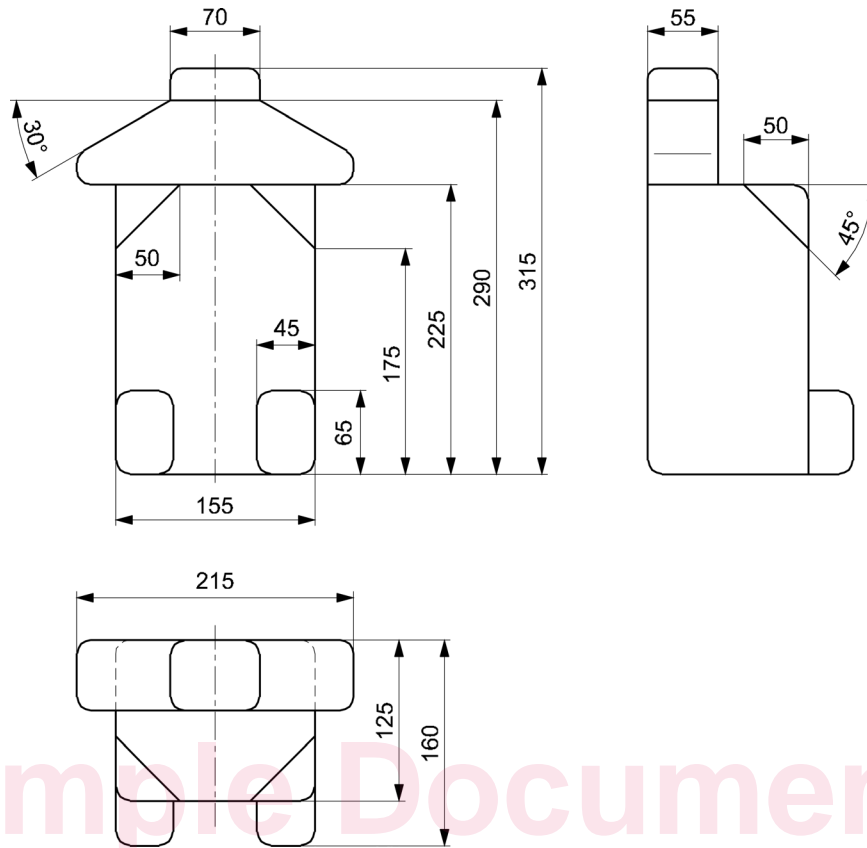
- 1 radius: (5 ± 1) mm
- 2 two anchorage points

Figure 7 — Test mass *B*

5.1.4 Test mass *D*

Test mass *D* is made of a rigid material with a smooth finish and a total mass of ($9 \pm 0,1$) kg (see Figure 8).

Dimensions in millimetres

**Tolerances:**

- dimensions ± 2 mm
- angles $\pm 2^\circ$
- where shown, corner radii shall be (10 ± 1) mm

Figure 8 — Test mass D**5.2 Test probes****5.2.1 Finger probes****5.2.1.1 Finger probe with hemispherical end**

Probes made from plastics or other hard, smooth material of diameters $5_{-0,1}^0$ mm, $7_{-0,1}^0$ mm and $12_0^{+0,1}$ mm with a full hemispherical end (see Figure 9).