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Wheeled child conveyances — Pushchairs and prams — Requirements and test methods

Voitures d'enfant — Poussettes et landaus — Exigences et méthodes d'essai

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Project Committee ISO/PC 310, *Wheeled child conveyances*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Wheeled child conveyances — Pushchairs and prams — Requirements and test methods

1 Scope

This document specifies the safety requirements and test methods for pushchairs and prams, intended for the transportation of one or more children up to three years of age.

This document does not apply to toys, pushchairs intended for sport use, pushchairs and prams propelled by a motor, and pushchairs and prams designed for children with special needs.

Other relevant standard(s) can apply if any when a pushchair or pram or any part of the pushchair or pram has several functions or can be converted into another function.

NOTE The average weight of a three-year-old child corresponds to 15 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.

ISO 8124-1:2018, *Safety of toys — Part 1: Safety aspects related to mechanical and physical properties*

ISO 8124-2:2014, *Safety of toys — Part 2: Flammability*

ISO 8124-3:2020, *Safety of toys — Part 3: Migration of certain elements*

ISO 8124-6:2018, *Safety of toys — Part 6: Certain phthalate esters in toys and children's products*

ISO 14184-1, *Textiles — Determination of formaldehyde — Part 1: Free and hydrolysed formaldehyde (water extraction method)*

ISO 14362-1, *Textiles — Methods for determination of certain aromatic amines derived from azo colorants — Part 1: Detection of the use of certain azo colorants accessible with and without extracting the fibres*

ISO 14362-3, *Textiles — Methods for determination of certain aromatic amines derived from azo colorants — Part 3: Detection of the use of certain azo colorants, which may release 4-aminoazobenzene*

ISO 17226-1, *Leather — Chemical determination of formaldehyde content — Part 1: Method using high performance liquid chromatography*

ISO 17234-1, *Leather — Chemical tests for the determination of certain azo colorants in dyed leathers — Part 1: Determination of certain aromatic amines derived from azo colorants*

ISO 17234-2, *Leather — Chemical tests for the determination of certain azo colorants in dyed leathers — Part 2: Determination of 4-aminoazobenzene*

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:

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

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

3.1
automatic locking device
device that engages with no additional voluntary action by the carer, when the vehicle is erected to its position of use

3.2
base material
material upon which coatings may be formed or deposited

3.3
braking device
device intended to reduce the speed of the *wheeled child conveyance* (3.25)

3.4
bumper bar protective covering
component designed and intended as a means to prevent exposure of any underlying accessible foam or other filling material

Note 1 to entry: Examples include, but are not limited to, woven, knit, coated, laminated, extruded, or calendared textile-based materials and leathers.

3.5
carry cot
portable bassinet
hand-held bassinet
product consisting of a base, sides, ends and carrying handle(s), within which a child can be laid down and transported by hand(s)

3.6
chassis
wheeled framework with one or more handles for pushing, pulling and steering, designed to accommodate and transport one or more of the *pram body* (3.17), *seat unit* (3.22) or car seat

3.7
crotch restraint
device positioned between the child's legs to prevent the child from sliding forwards

3.8
folding system
assembly of moving parts which enables the vehicle to be changed from an erected position to a folded position and vice versa under the control of the carer

EXAMPLE See Figure A.1.

3.9
footrest
support for the feet, used by the child when sitting

3.10
integrated platform
integrated part of the *wheeled child conveyance* (3.25) designed to support an additional child in a standing position

3.11
leg rest
support for the legs, used by the child when sitting

3.12
locking device
mechanical component, part of the *locking mechanism* (3.13), 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* (3.14)

EXAMPLE See Figure A.1.

3.13
locking mechanism
assembly of components consisting of one or more *locking device(s)* (3.12) and one or more *operating device(s)* (3.14)

EXAMPLE See Figure A.1.

3.14
operating device
part of the *locking mechanism(s)* (3.13) designed to be activated by the carer through one or several positive action(s)

EXAMPLE See Figure A.1.

3.15
parking device
device to maintain the *wheeled child conveyance* (3.25) in a stationary position

3.16
pram
vehicle comprising a *chassis* (3.6) and one or more *pram bodies* (3.17)

3.17
pram body
carriage
structure with essentially vertical and continuous sides that ends with an internal base designed to transport one or more children in a primarily horizontal position

3.18
protected volume
volume accessible by the child when sitting or lying in the *wheeled child conveyance* (3.25), where specific safety requirements are necessary

Note 1 to entry: See 4.6.

3.19
pushchair
vehicle comprising a *chassis* (3.6) and one or more *seat units* (3.22) or car seats

3.20
restraint system
system to restrain the child within the *wheeled child conveyance* (3.25)

3.21
reversible handle
handle that can be rotated on the *chassis* (3.6) to change the direction of pushing

3.22
seat unit
structure that may or may not be adjustable to achieve a reclining, upright or lying flat position, designed to support one or more children

3.23
type A car seat
child restraint system (CRS) used for children up to 9 kg

EXAMPLE In Europe, see Regulation ECE R44 (group 0) or Regulation ECE R129.

3.24
type B car seat
child restraint system (CRS) used for children up to 13 kg

EXAMPLE In Europe, see Regulation ECE R44 (group 0+) or Regulation ECE R129.

3.25
wheeled child conveyance
vehicle designed for the transportation of one or more children that can be manually steered while being primarily pushed

4 General requirements and test conditions

4.1 General

Words in italics are defined in Clause 3. Additional information on the background and rationale for various requirements are given in Annexes C and F.

4.2 Samples

Tests should 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 vehicle, unless otherwise stated.

Vehicles with multiple places for pram bodies and/or seat units shall conform to all applicable requirements in all possible arrangements in accordance with the manufacturer's instructions. If a vehicle can be equipped with an additional seat unit, pram body or car seat supplied or recommended by the manufacturer, the combination shall conform to this document.

4.3 Principle of the most onerous condition

Unless otherwise stated, each test in this document shall be conducted with the vehicle in the most onerous condition for that test in terms of:

— the choice and number of seat units, pram bodies and/or car seats attached to the chassis stated in the manufacturer's instructions;

— the addition of any additional seat unit(s) approved by the manufacturer;

— the use of test masses: for vehicles transporting more than one child, at least one place that a child can occupy shall be loaded with a test mass;

— the loading (or not) of any receptacle designed for carrying additional load(s) allowed for in the instructions or otherwise approved by the manufacturer and the placing (or not) of load(s) in any such facility, up to the maximum mass allowed in the manufacturer's instructions, or 2 kg if nothing is indicated;

NOTE Small pockets fitted onto textile parts are not concerned by this condition.

— the addition (or not) of any other accessories supplied or recommended by the manufacturer for use with the vehicle and with accessories loaded in accordance with the manufacturer's instructions;

— the adjustment of seat units, pram bodies, handles, car seats and any other adjustable features or accessories, or any other optional arrangement of the vehicle allowed in the manufacturer's instructions or otherwise approved by the manufacturer.

The loading sequence of the child(ren) shall be tested in the most onerous condition, even when otherwise specified by the manufacturer.

The installation sequence of accessories already loaded with the child and with a carrying function (e.g. car seat, pram body) shall be tested in the most onerous condition, even when otherwise specified by the manufacturer.

The heaviest loads do not always produce the most onerous conditions.

4.4 Tolerances for test equipment

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

— forces ±5 %;

— masses ±0,5 %;

— dimensions ±0,5 mm;

— timing ±1 s;

— angles ±0,5°.

4.5 Test conditions

The vehicle shall be conditioned at a temperature of (23 ± 5) °C for at least 2 h prior to tests. All tests shall be carried out at a temperature of (23 ± 10) °C unless otherwise specified.

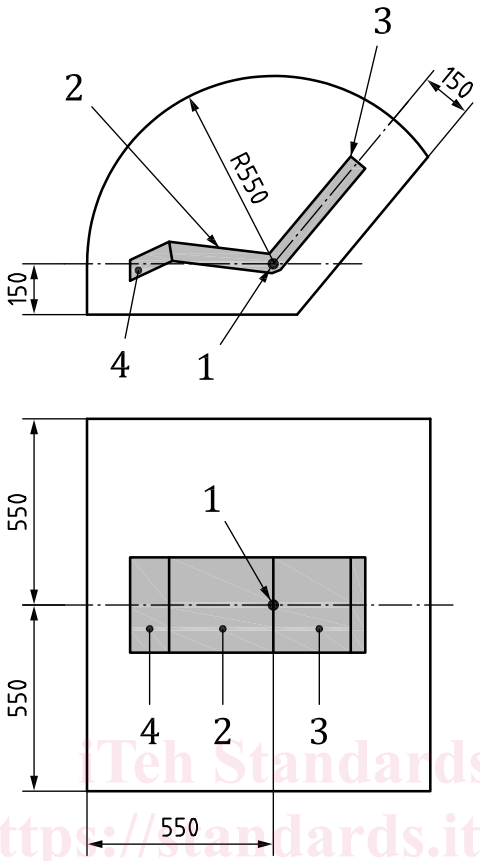
For vehicles fitted with inflatable tyres, the tyre pressure shall be adjusted in accordance with the manufacturer's instructions for use before conducting the entire test procedure. If a tyre is punctured during the test procedure, the tyre shall be replaced and the test procedure continued.

4.6 Determination of the protected volume

4.6.1 Protected volume of seat units

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

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 unit)

2 seat

3 backrest

4 leg rest

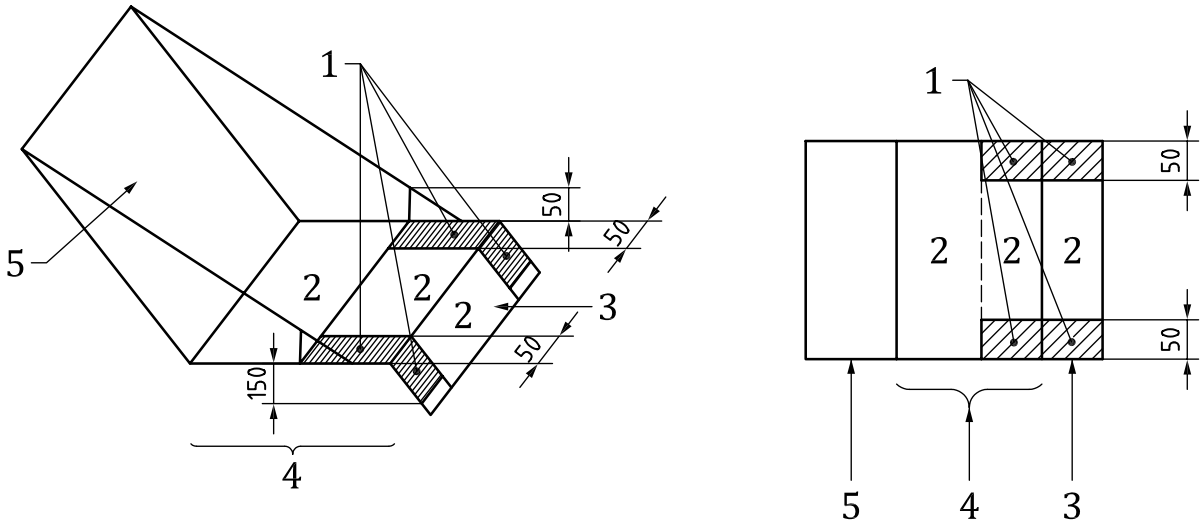
Figure 1 — Protected volume for seat units

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

Where a vehicle 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).

Dimensions in millimetres



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

4.6.2 Protected volume of pram bodies having a length greater than 800 mm

The protected volume of pram bodies having a length greater than 800 mm shall be determined in accordance with Figure 3.

The surface underneath the pram body is excluded from the protected volume.

Dimensions in millimetres

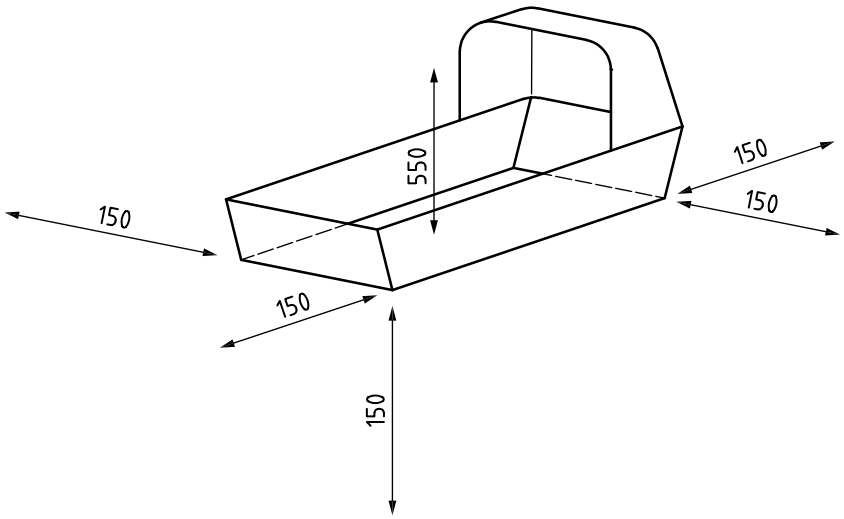


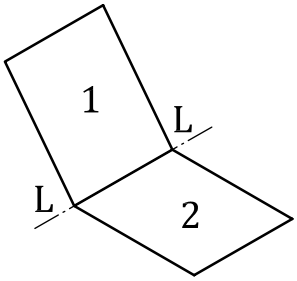
Figure 3 — Protected volume for pram bodies having a length greater than 800 mm

4.6.3 Protected volume for pram bodies having a maximum internal length of 800 mm and car seats

For vehicles designed only for children under six months of age, the protected volume for pram bodies with a maximum internal length of 800 mm and for car seats is considered to be the inner upper surface that supports the child and the inner surface of the sides and ends of the pram body. See Figure 7.

4.7 Determination of the junction line

The junction line shall be determined as the intersection between the seat and the backrest as shown in Figure 4.

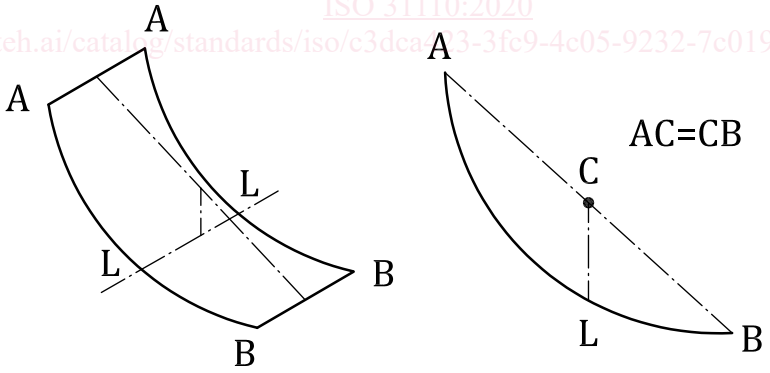


Key

LL junction line
1 backrest
2 seat

Figure 4 — Junction line

When the seat unit is in the form of a hammock, a theoretical junction line is determined as shown in Figure 5.



Key

LL junction line
L vertical projection of C on the hammock

Figure 5 — Junction line for seat unit in form of a hammock

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