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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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Contents

Page

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.

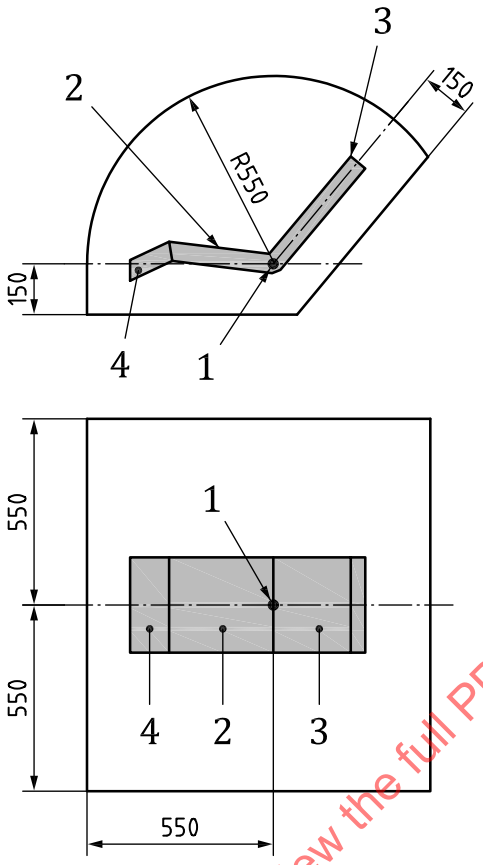
For vehicles fitted with inflatable tyres, the tyre pressure shall be adjusted in accordance with the manufacturer's instructions for use before conducting the entire test procedure. If a tyre is punctured during the test procedure, the tyre shall be replaced and the test procedure continued.

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

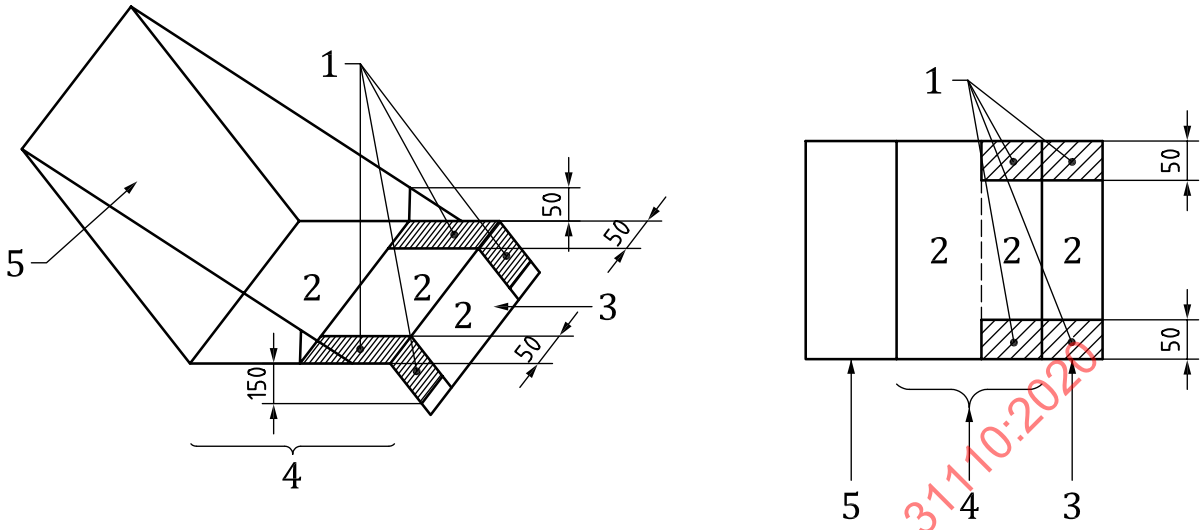
Figure 1 — Protected volume for seat units

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

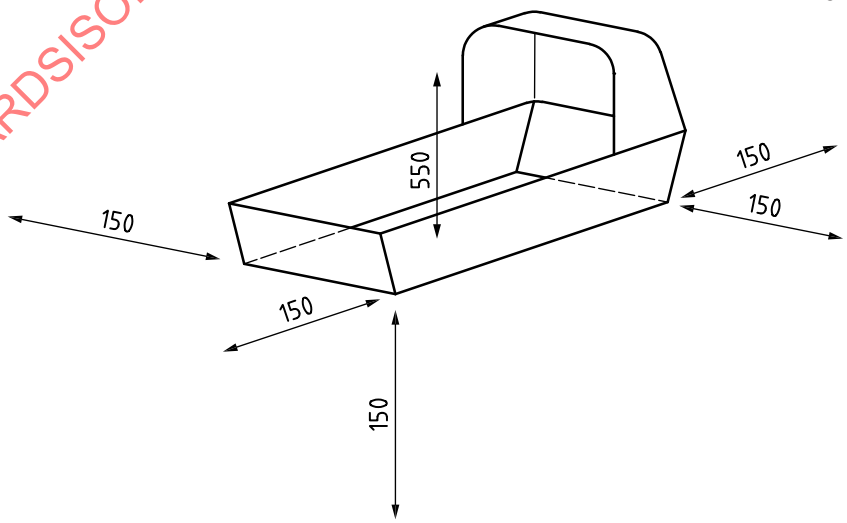


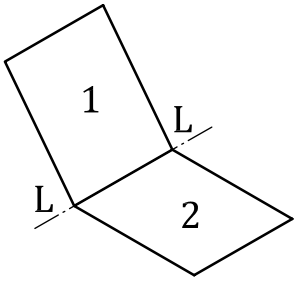
Figure 3 — Protected volume for pram bodies having a length greater than 800 mm

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.

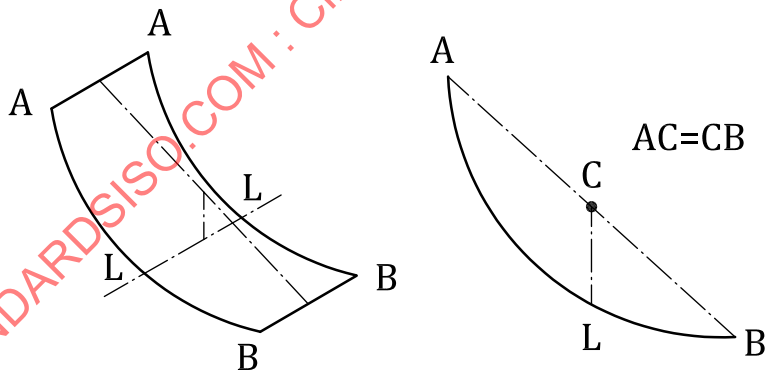


Key

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.

4.8 Determination of occupant space

4.8.1 Determination of occupant space for seat unit and car seat

The occupant space is defined as 550 mm from the mid-point of the junction line, on the uncompressed upper surface of the seat unit or car seat and the sides of the inner upper surface that support the child. The volume stops at the front edge of the seat. See Figure 6.

Dimensions in millimetres

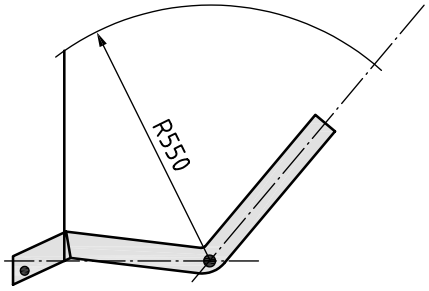
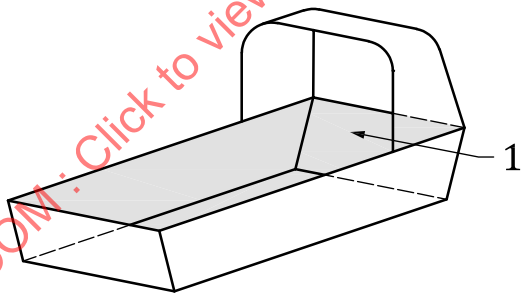


Figure 6 — Occupant space for seat unit and car seat

4.8.2 Determination of occupant space for pram body having a length less than 800 mm

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



Key

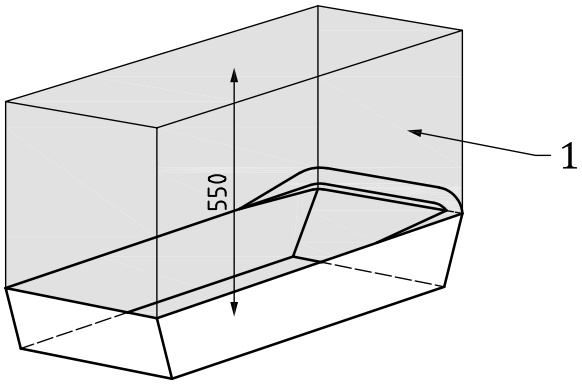
1 occupant space

Figure 7 — Occupant space for pram body having a length less than 800 mm

4.8.3 Determination of occupant space for pram body having a length greater than 800 mm

For pram bodies with an internal length greater than 800 mm, the occupant space is considered to be the volume of the inner upper surface that supports the child and the inner surface of the sides and ends of the pram body up to 550 mm. See Figure 8.

Dimensions in millimetres



Key

1 occupant space

Figure 8 — Occupant space for pram body having a length greater than 800 mm

5 Test equipment

5.1 Test masses

5.1.1 General

Unless otherwise specified, the test masses shall be those given in 5.1.2 to 5.1.9.

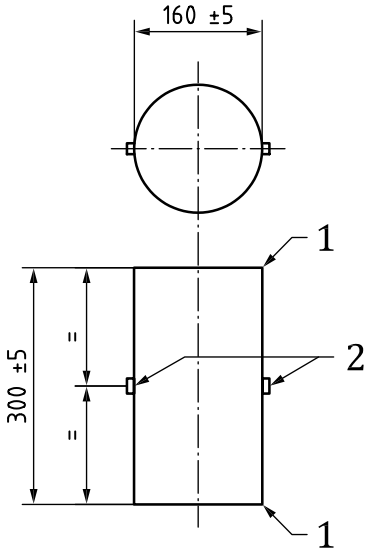
Any damage to fabric that can occur as a result of abrasion by the test masses during tests shall be ignored. Damage can be minimized by using a convenient means of protection of negligible mass. Where damage is not caused by abrasion by the test masses, it constitutes a structural failure.

Test masses may be fitted with additional handles for carrying purposes, as long as the centre of gravity is not changed, the 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, 1/0) 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 ± 2,5) mm from the base and at 180° to each other around the circumference, as shown in Figure 9.

Dimensions in millimetres



Key

1 radius: (5 ± 1) mm

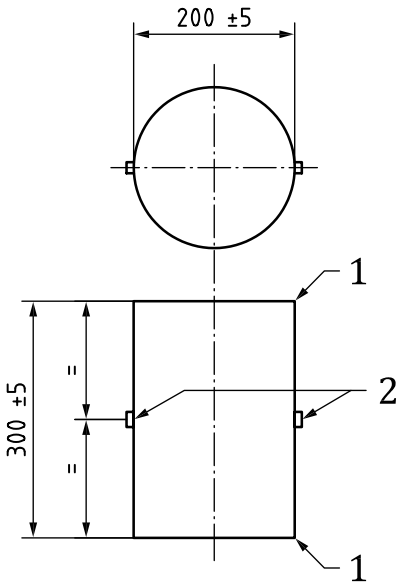
2 two anchorage points

Figure 9 — Test mass A

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, 1/0) 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 ± 2,5) mm from the base and at 180° to each other around the circumference (see Figure 10).

Dimensions in millimetres



Key

1 radius: (5 ± 1) mm

2 two anchorage points

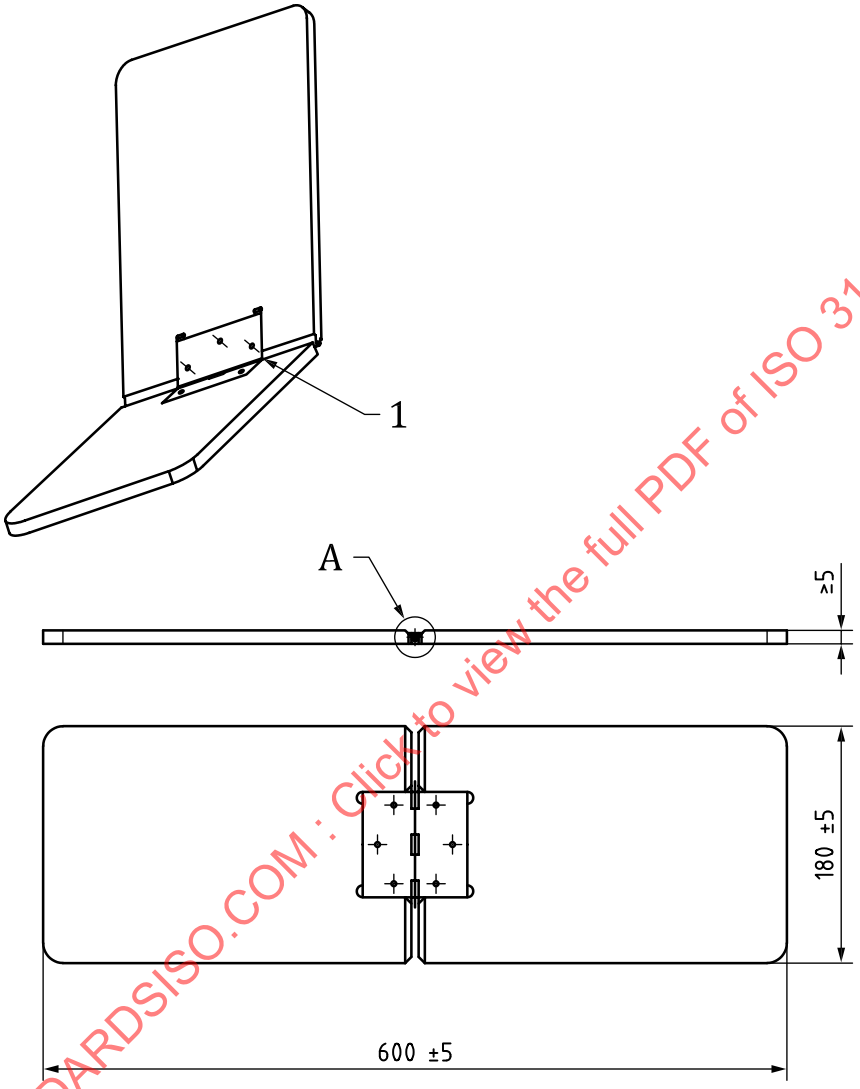
Figure 10 — Test mass B

5.1.4 Test mass C

Test mass C is a rigid plate (600 ± 5) mm long and (180 ± 5) mm wide, having a minimum thickness of 5 mm and a mass of (9 + 0,1/0) kg hinged along the centre line of the length (see Figure 11).

The tolerance on the dimensions is ±0,5 mm.

Dimensions in millimetres



Key

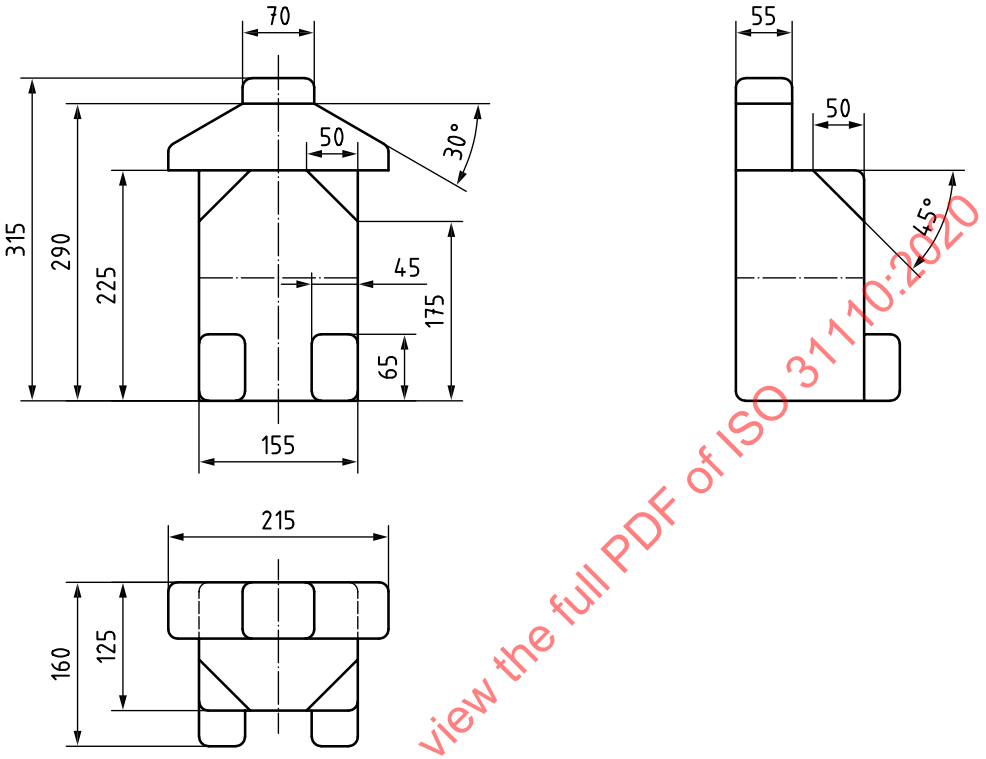
1 hinge axes

Figure 11 — Test mass C

5.1.5 Test mass D

Test mass D is made of a rigid material with a smooth finish and a total mass of (9 + 0,1/0) kg (see Figure 12).

Dimensions in millimetres



Tolerances:

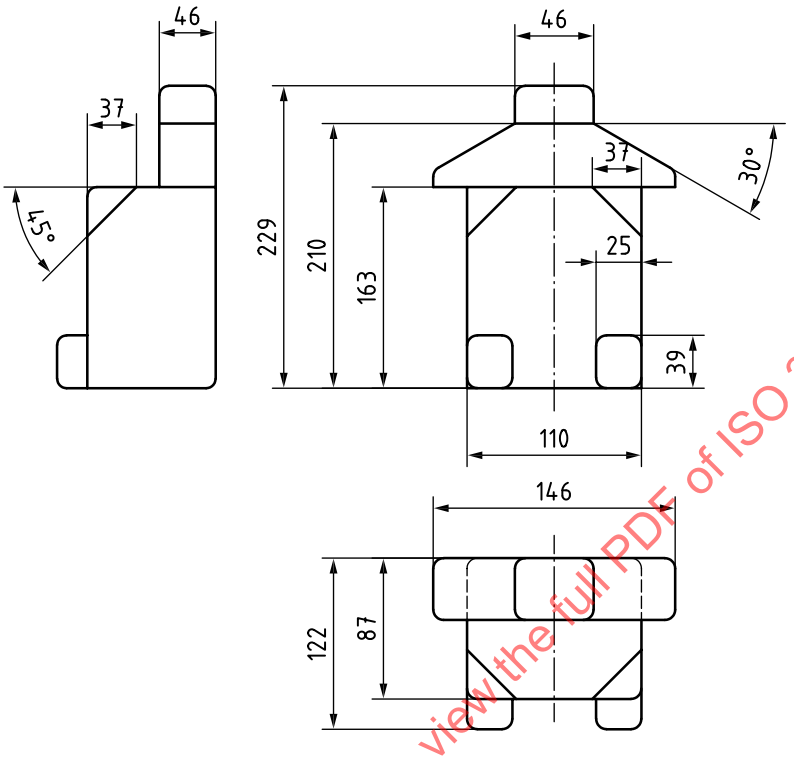
— dimensions ±2 mm;
— angles ±2°;
— where shown, corner radii shall be (10 ± 1) mm.

Figure 12 — Test mass D

5.1.6 Test mass D_0

Test mass D_0 is made of a rigid material with a smooth finish and a total mass of (3,7 + 0,1/0) kg (see Figure 13).

Dimensions in millimetres



Tolerances:

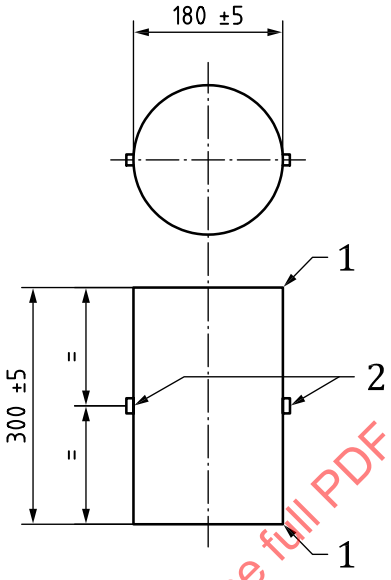
— dimensions ±2 mm;
— angles ±2°;
— where shown, corner radii shall be (10 ± 1) mm.

Figure 13 — Test mass D_0

5.1.7 Test mass F

Test mass F is a rigid cylinder (180 ± 5) mm in diameter and (300 ± 5) mm in height, having a mass of (13 + 0, 1/0) 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 ± 2,5) mm from the base and at 180° to each other around the circumference (see Figure 14).

Dimensions in millimetres



Key

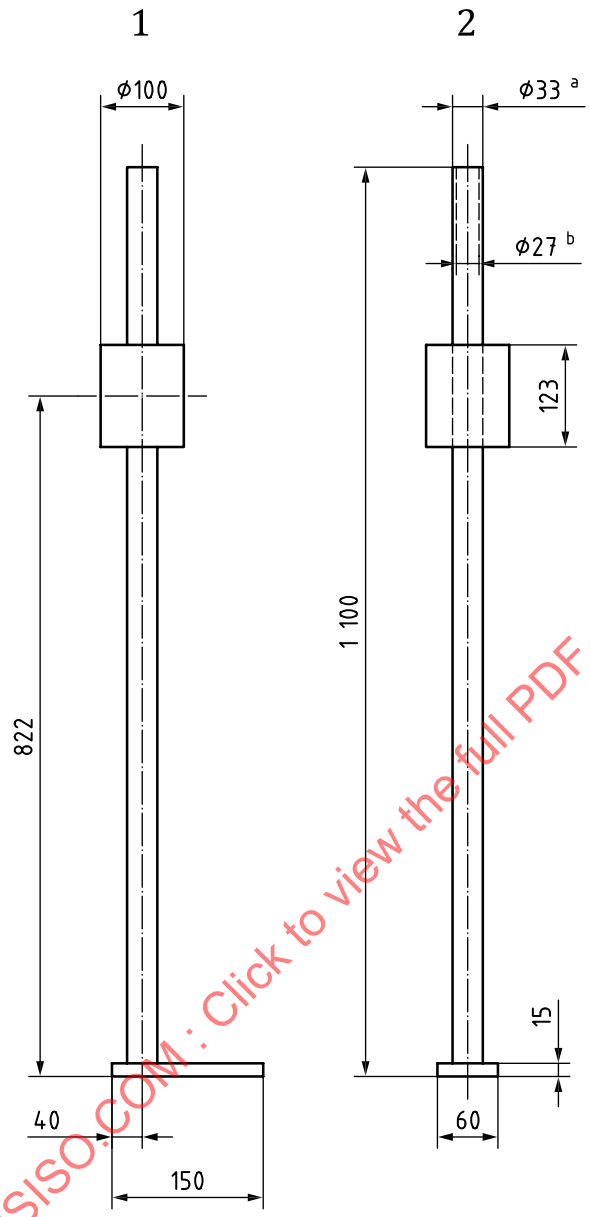
1 radius (5 ± 1) mm
2 anchorage points

Figure 14 — Test mass F

5.1.8 Test mass G

Test mass G comprises two identical parts made of steel and with the dimensions given in Figure 15. Each part shall have a mass of (10 + 0,1/0) kg.

Dimensions in millimetres



Key

1 side view
2 front view
a ext.
b int. (tube 1 1/4).

Figure 15 — Test mass G

The distance between the two identical parts of test mass G shall be adjusted in accordance with the shape and dimensions of the integrated platform that is tested.

A rigid bar of negligible mass shall be used to maintain the test mass along the integrated platform and both parts shall be maintained apart from each other by any connecting means of negligible mass.

5.1.9 Test bar

A rigid square bar with a cross section of (25 × 25) mm, having a length greater than the length of the pram body and a mass of 0,75 kg.

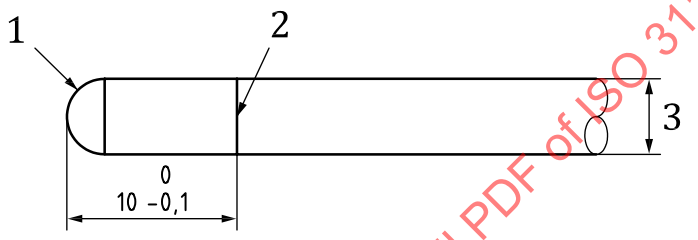
5.2 Test probes

5.2.1 Finger probes

5.2.1.1 Finger probe with hemispherical end

Three probes made of rigid and smooth material of diameters $5^{\ 0}_{-0,1}$ mm, $7^{\ 0}_{-0,1}$ mm and $12^{+0,1}_{\ 0}$ mm, with a full hemispherical end (see Figure 16).

Dimensions in millimetres



Key

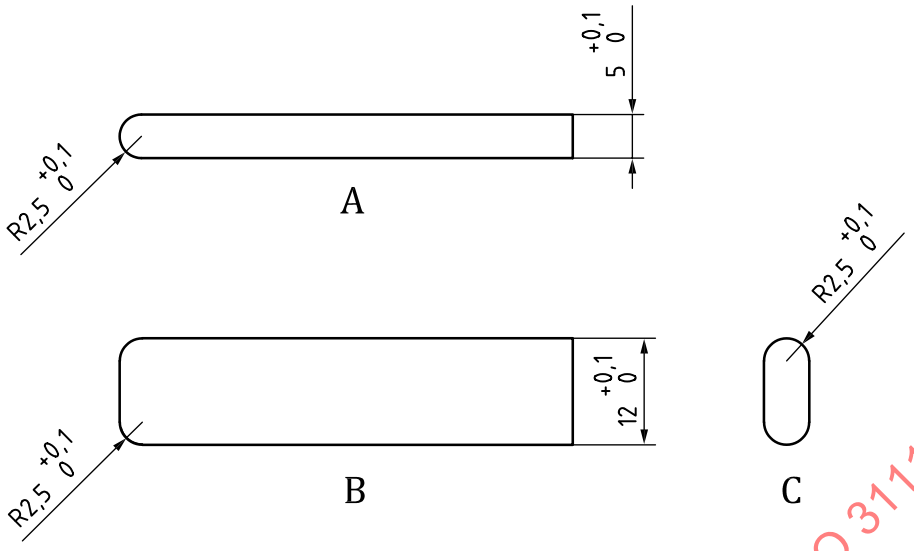
1 hemispherical end
2 scribed line around circumference
3 Ø 5 mm, 7 mm and 12 mm

Figure 16 — Probes with hemispherical end

5.2.1.2 Shape assessment probe

Probe made of rigid and smooth material with the dimensions shown in Figure 17.

Dimensions in millimetres



Key

A side view
B top view
C front view

Figure 17 — Shape assessment probe

5.2.1.3 Conical probe for mesh

Probe for assessing mesh made of rigid and smooth material, as shown in Figure 18. It shall be capable of being mounted on a force measuring device, so that the conical end can be presented to the opening being assessed.

The tolerance on the radius is ±0,2 mm.

Dimensions in millimetres

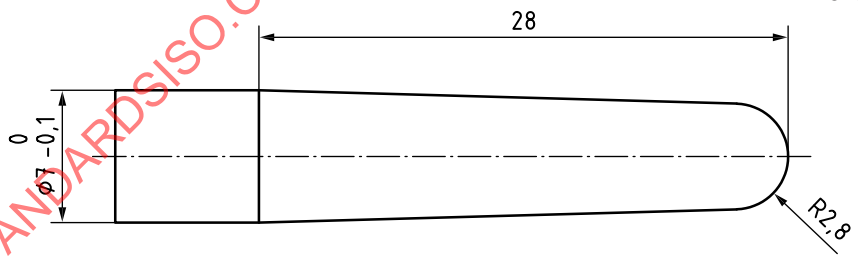


Figure 18 — Conical probe for mesh

5.2.2 Conical probes

Probes made of rigid and smooth material of diameters (12 + 0,1/0) mm, (25 0/–0,1) mm and (45 + 0,1/0) mm with one conical end with an angle of 30° that can be mounted on a force measuring device (see Figure 19).

NOTE To avoid any risk, the tip of the conical part can be rounded.

Dimensions in millimetres

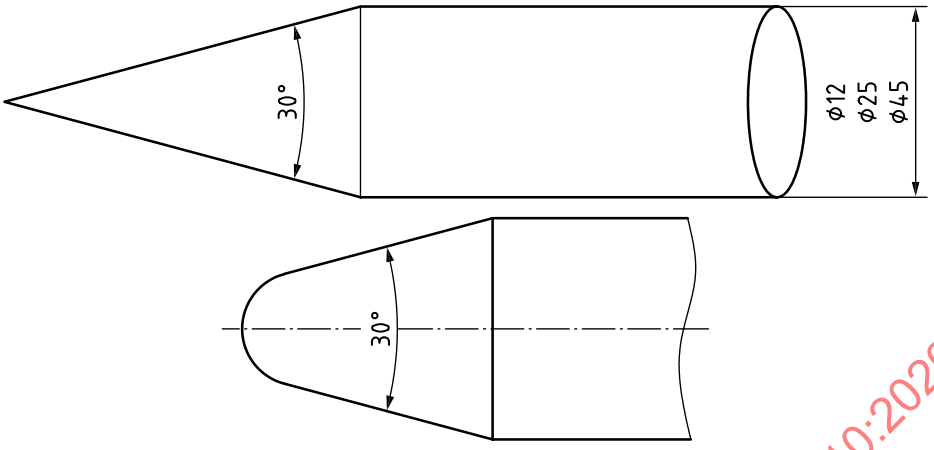
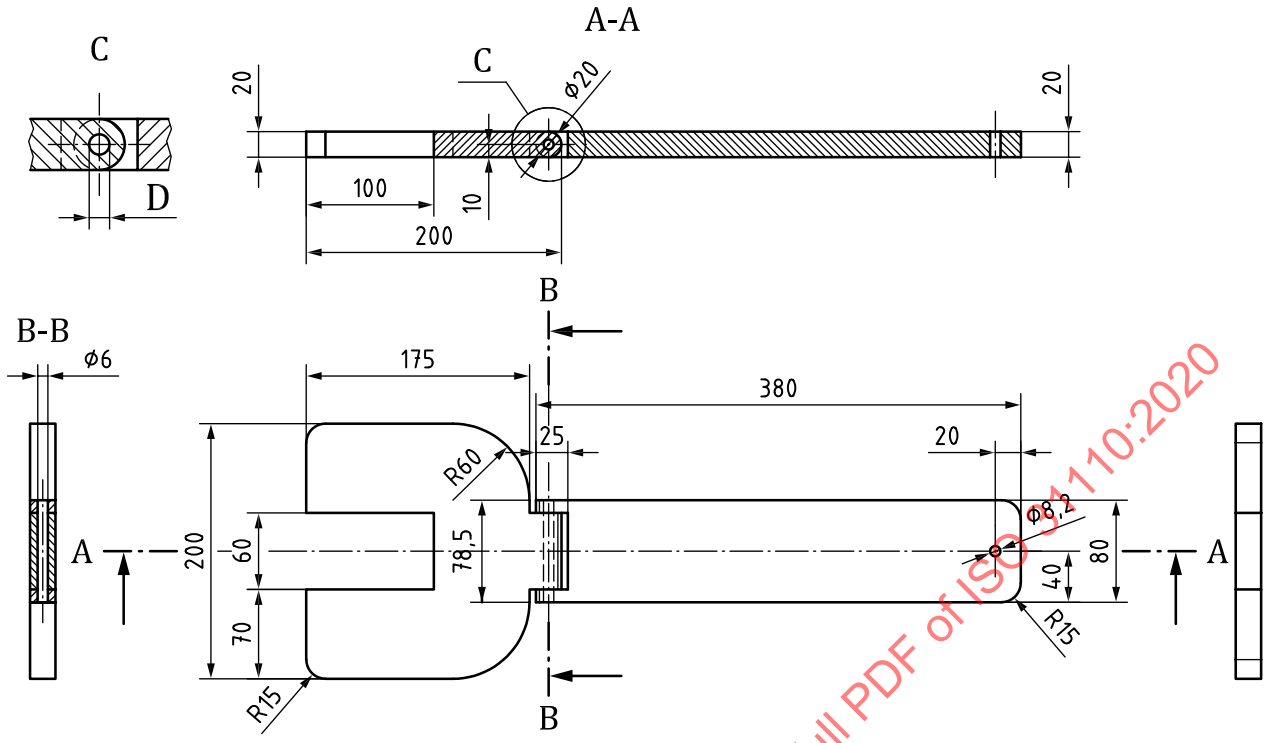


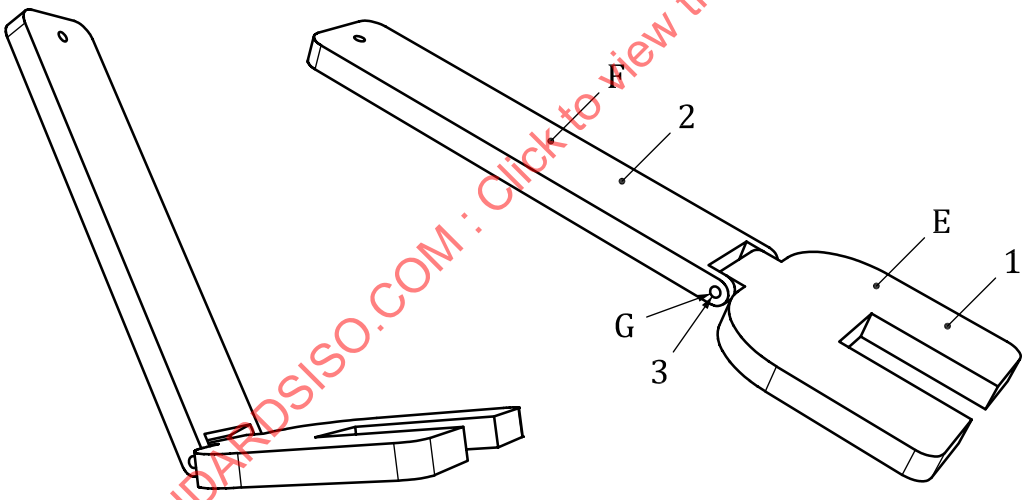
Figure 19 — Conical probes

5.3 Angle measuring device

A 9 kg articulated steel device used to measure the angle between the seat and the backrest (see Figure 20).

Dimensions in millimetres





Key

1 part to be placed onto the seat surface made of steel
2 part to be placed onto the backrest surface made of steel
3 hinge pin made of steel
E mass: (4 495 ± 50) g
F mass: (4 501 ± 50) g
G mass of hinge axle: (17 ± 0,5) g, length: 79,5 mm

Total mass: (9 ± 0,1) kg.
Dimensions tolerance: ±2 mm.
All edges shall be chamfered.

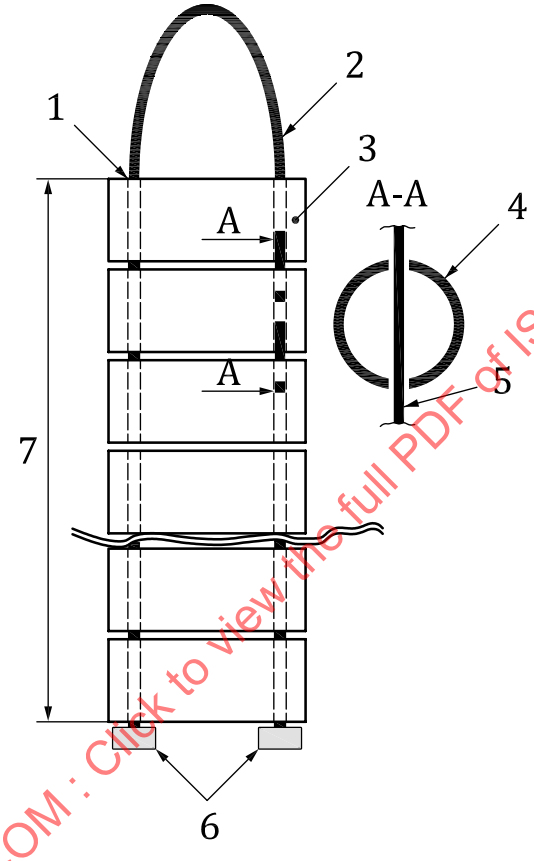
Figure 20 — Angle measuring device

5.4 Test ball

Sphere with a hard, smooth surface of 120 mm diameter and 5 kg mass.

5.5 Hinged board

Articulated board used to allow slackness while adjusting the straps of the restraint system around test mass D_0 (see Figure 21).



Key

1 hole Ø 3 mm
2 steel cable Ø 1,5 mm
3 tube Ø 25 mm
4 tube Ø 25 mm
5 steel cable Ø 1,5 mm
6 cable ends cycle type
7 total length = 13 tubes

Length of each tube: 60 mm.

Figure 21 — Hinged board

5.6 Small parts cylinder

Cylinder having the dimensions shown in Figure 22.

Dimensions in millimetres

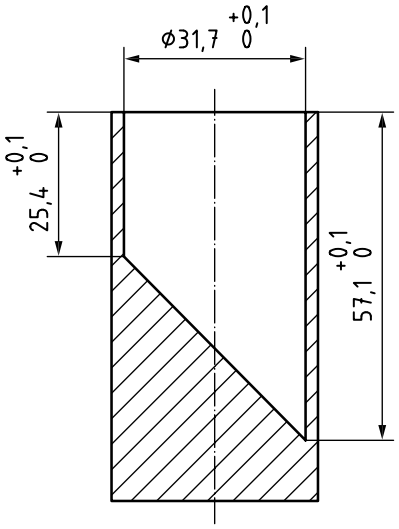


Figure 22 — Small parts cylinder

5.7 Test surface

A surface capable of inclination at an angle of 9° (0/+0,5)°, 12° (0/+0,5)° or 45° (0/+0,5)° to the horizontal and covered with aluminium oxide paper of grade 80.

5.8 Rectangular stops

Rectangular stops made of rigid material having a height of 25 mm and a suitable length and width.

5.9 Irregular surface test equipment

5.9.1 Obstacles

The surface of the irregular surface test equipment shall comprise two types of obstacles: Type A and Type B, as shown in Figures 23 and 24.

These obstacles shall be mounted on a conveyor system, as shown in Figure 25, so that the wheels on each side of the vehicle are lifted alternately. The conveyor system shall run at a speed of (5 ± 0,1) km/h.

For equipment with a conveyor belt, the belt shall be supported by a rigid flat surface upon which the wheels of the wheeled child conveyance are placed, as shown in Figure 25.

The use of rollers as a means of rigid flat surface is not acceptable.

The full conveyor system may be made of rigid material. Therefore, an additional rigid flat surface is not needed.

The distance between two lots of obstacles (one cycle) shall be sufficient for the wheeled child conveyance to rest flat on the conveyor, but the distance shall never be greater than 200 cm.

Dimensions in millimetres

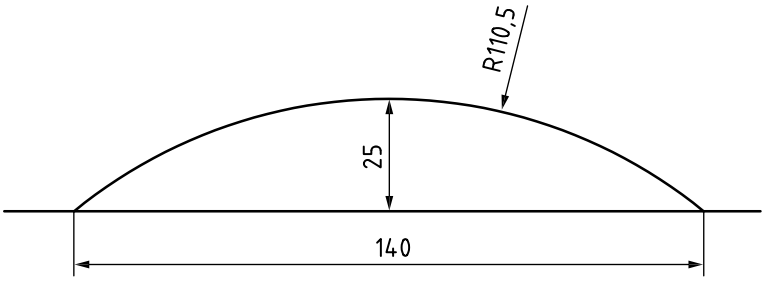
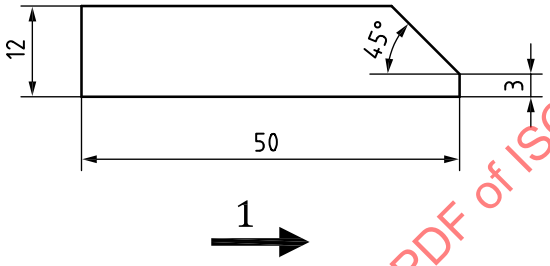


Figure 23 — Type A obstacle for the irregular surface test

Dimensions in millimetres

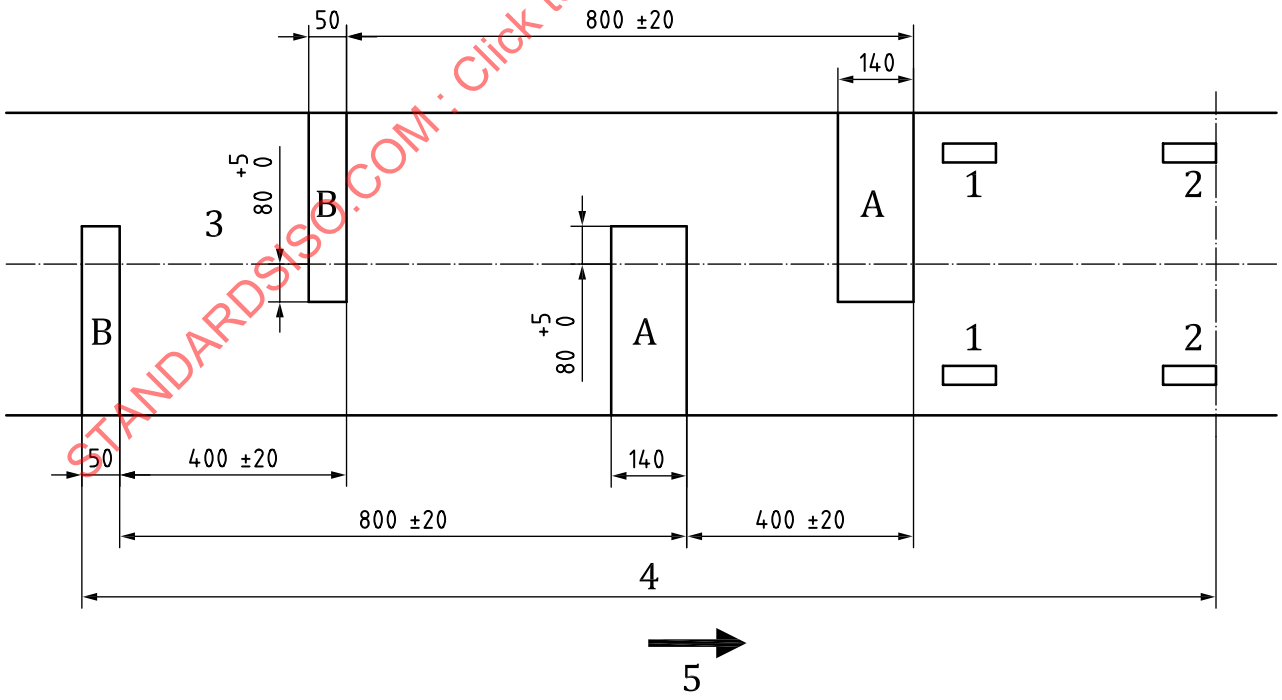


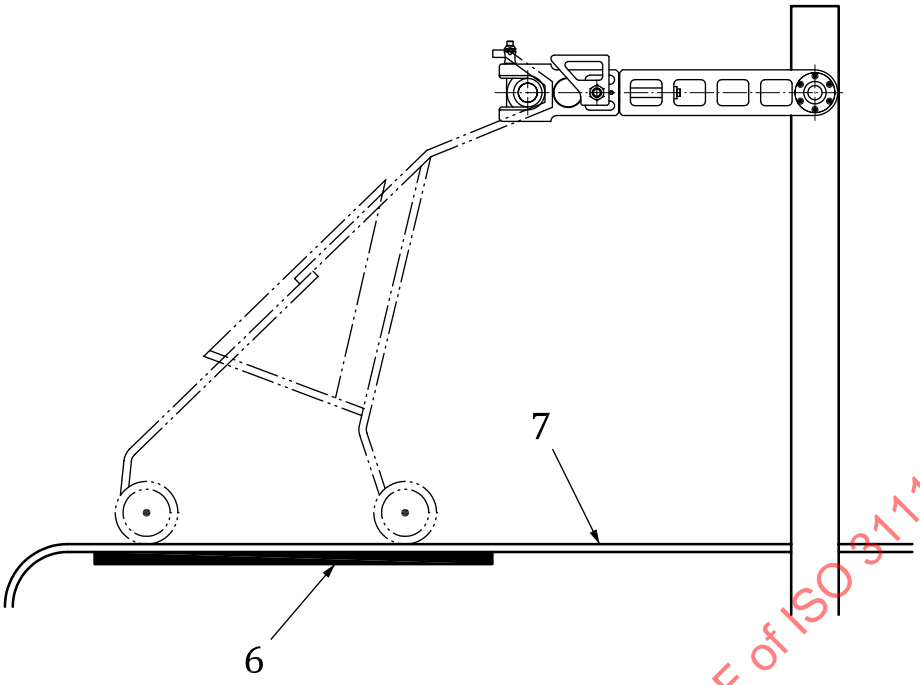
Key

1 direction of travel

Figure 24 — Type B obstacle for the irregular surface test

Dimensions in millimetres





Key

1 front wheels
2 back wheels
3 centre line
4 length of one cycle
5 direction of the travel of obstacles
6 flat bed
7 conveyor

Figure 25 — Arrangement for the irregular surface test

5.9.2 Articulating arms

The test apparatus comprises two independent articulating arms capable of moving independently of each other in the vertical plane (see Figures B.1 and B.2).

The test apparatus shall allow the articulating arms to be adjustable in height and across the width of the irregular surface test equipment to accommodate different types and sizes of vehicle.

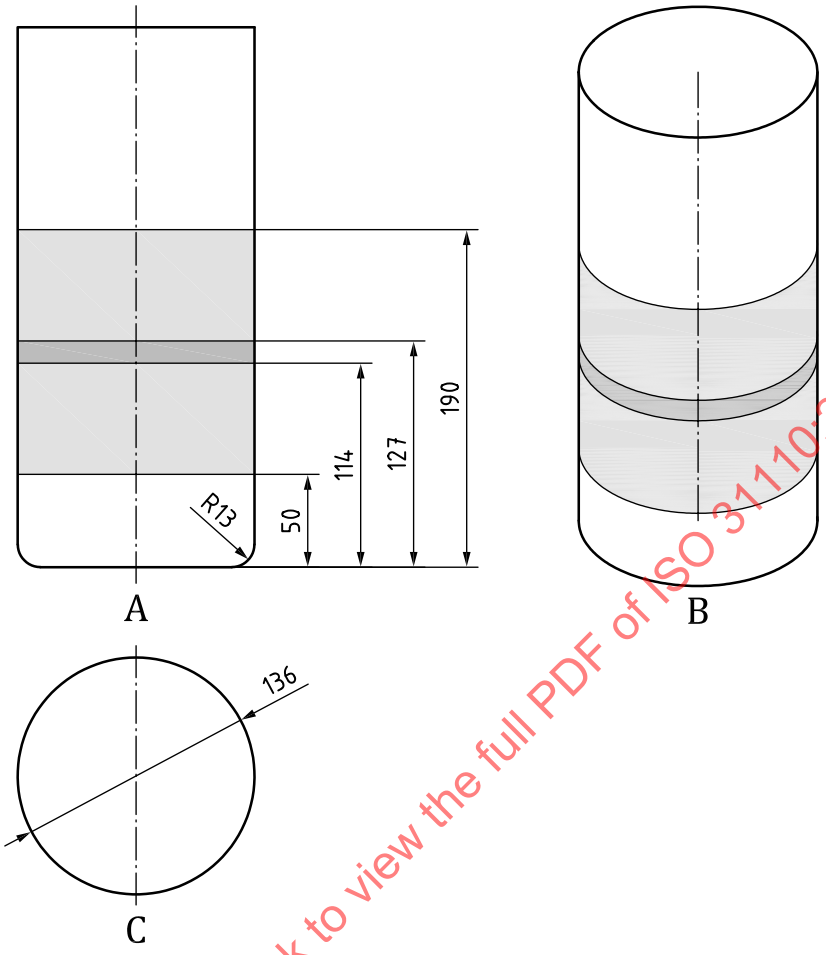
The articulating arms shall pivot around the arm articulation (see Figure B.1).

The vertical force applied on each handle shall be (20 ± 1) N.

5.10 Test cylinder

Test cylinder, made of rigid material, 136 mm diameter by 304 mm height, weighing 4,5 kg, on which lines have been drawn in the circumference as shown in Figure 26.

Dimensions in millimetres



Key

A side view

B 3D view

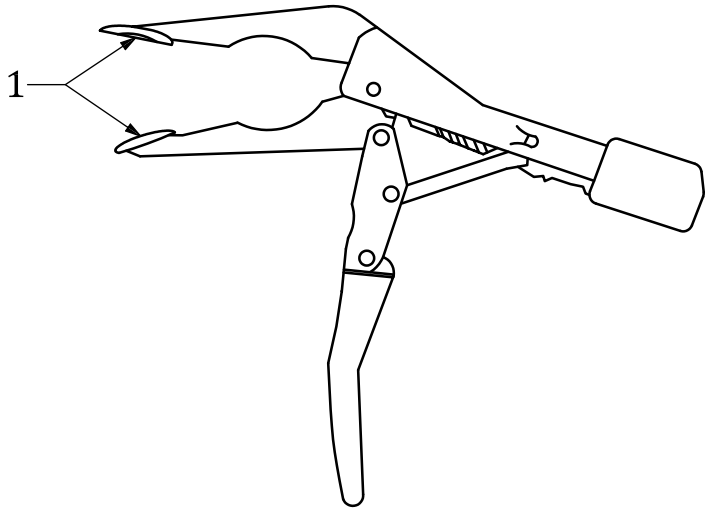
C top view

NOTE Adapted from ASTM F833[30].

Figure 26 — Test cylinder

5.11 Clamp device

One or more clamps with jaws to which discs with a diameter of 19 mm are affixed (see Figure 27).



Key
1 flat discs

Figure 27 — Seam clamp

6 Chemical hazards

6.1 General

Additional information on the background and rationale for various requirements is given in Annex C. In general, the main materials used in wheeled child conveyances are plastics or polymers, coatings, rubber, fabrics, leather, artificial leather, etc.

6.2 Requirements

6.2.1 General

The chemicals presented by material in Table 1 shall conform to the requirements in 6.3 to 6.7.

Table 1 — Chemicals by material

Materials	Migration of certain elements (see 6.3)	Phthalates (see 6.4)	Azo colorants (see 6.5)	Formaldehyde (see 6.6)	Flame retardants (see 6.7)
Plastics	X	X			X
Coating	X	X			
Rubber	X	X			
Artificial leather	X	X	X		X
Fabric	X		X	X	X
Leather	X		X	X	
Fibreboard	X			X	
Other materials	X				
NOTE Other materials (e.g. paper and paperboard, wood, bamboo) are included, but metal, glass and ceramic are excluded.					

6.2.2 Sampling

The sample for testing shall be representative of the material used in mass production. Identical materials may be combined and treated as a single test portion. Test portions may be composed of more than one material or colour only if physical separation, such as dot printing, patterned textiles or mass limitation reasons, precludes the formation of discrete specimens.

The above sample requirement does not preclude the testing of materials before they are used to manufacture (raw materials from manufacturing process).

NOTE 1 The manufacturing process has to ensure that it does not increase prohibited risk to the materials.

Where a surface is coated with a multi-layer of paint or similar coating, the test sample shall not include any of the base material. Paint and other similar surface-coating material means a fluid, semi-fluid or other material, with or without a suspension of finely divided colouring matter, which changes to a solid film when a thin layer is applied to a metal, wood, leather, cloth, plastic or another surface.

NOTE 2 If the composite materials (e.g. coated fabric) can be mechanically separated, the coating and fabric are tested separately.

For migration of certain elements and phthalates tests, a test portion of less than 10 mg from a single laboratory sample shall not be tested.

If the mass of the test portion from a single sample is greater than 10 mg but less than the normal mass for testing, it is recommended to supplement the test materials as follows:

a) supplement the identical material from other locations of the same sample;

b) sampling from raw materials: if raw materials are used instead of finished product, this should be noted in the test report.

6.3 Migration of certain elements

All accessible materials within the protected volume (see Table 1) shall not exceed the following amounts of elements in Table 2, considering the correction factor when tested in accordance with ISO 8124-3:2020.

Table 2 — Maximum acceptable element migration from wheeled child conveyances materials

Element	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Limit (mg/kg)	60	25	1 000	75	60	90	60	500

6.4 Phthalates

All accessible plasticized materials within the protected volume (see Table 1) should not contain phthalates exceeding the limits in Table 3.

The test procedure given in ISO 8124-6:2018 shall be used.

Table 3 — Maximum acceptable phthalates in wheeled child conveyances

Material	Substance	CAS No.	Limit
Plastic or polymer, coating, artificial leather and rubber	Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7	Concentrations equal to or less than 0,1 % by mass
	Dibutyl phthalate (DBP)	84-74-2	
	Benzyl butyl phthalate (BBP)	85-68-7	

Table 3 *(continued)*

Material	Substance	CAS No.	Limit
Plastic or polymer, coating, artificial leather and rubber that can be placed in the mouth by children	Di-n-octyl phthalate (DNOP)	117-84-0	Concentrations equal to or less than 0,1 % by mass
	Di-'isononyl' phthalate (DINP)	28553-12-0	
		68515-48-0	
	Di-'isodecyl' phthalate (DIDP)	26761-40-0	
		68515-49-1	

6.5 Azo colorants

All accessible coloured fabrics, leather and artificial leather within the protected volume shall not contain aromatic amines as given in Table 4, which can be released by reductive cleavage of one or more azo groups in excess of 30 mg/kg.

Table 4 — Limits of aromatic amines in wheeled child conveyances

Material	Substance	CAS No.	Limit (mg/kg)
Fabrics, leather (including artificial)	4-aminobiphenyl	92-67-1	30
	benzidine	92-87-5	30
	4-chloro-o-toluidine	95-69-2	30
	2-naphthylamine	91-59-8	30
	o-aminoazotoluene	97-56-3	30
	5-nitro-o-toluidine	99-55-8	30
	4-chloroaniline	106-47-8	30
	4-methoxy-m-phenylenediamine	615-05-4	30
	4,4′-diaminodiphenylmethane	101-77-9	30
	3,3′-dichlorobenzidine	91-94-1	30
	3,3′-dimethoxybenzidine	119-90-4	30
	3,3′-dimethylbenzidine	119-93-7	30
	4,4′-methylenedi-o-toluidine	838-88-0	30
	p-cresidine	120-71-8	30
	4,4′-methylene-bis-(2-chloro-aniline)	101-14-4	30
	4,4′-oxydianiline	101-80-4	30
	4,4′-thiodianiline	139-65-1	30
	o-toluidine	95-53-4	30
	4-methyl-m-phenylenediamine	95-80-7	30
	2,4,5-trimethylaniline	137-17-7	30
	2-methoxyaniline	90-04-0	30
	4-aminoazobenzene	60-09-3	30
	2,4-xylidine	95-68-1	30
	2,6-xylidine	87-62-7	30

The test procedure given in ISO 14362-1 and ISO 14362-3 for fabric, and ISO 17234-1 and ISO 17234-2 for leather shall be used.

A test portion below 0,2 g in a single laboratory sample shall be exempted from test. All colours shall be tested. Up to three colours may be combined as one specimen.

Azo colorants that are able to form 4-aminoazobenzene generate amines aniline (CAS number 62-53-3) and 1,4-phenylenediamine (CAS number 106-50-3) under the conditions of ISO 14362-1 and ISO 17234-1. Due to detection limits, it is possible only aniline is be detected. If aniline of above 5 mg/kg is detected, then the presence of these colorants shall be tested as per ISO 14362-3 for fabric or ISO 17234-2 for leather, which can release 4-aminoazobenzene.

"White" and uncoloured fibres, threads or fabrics are not considered to contain azo colorants and, therefore, these parts do not have to be tested. But attention should be paid to "pale printed" materials as they can contain azo colorants.

6.6 Formaldehyde

All accessible fabric and leather materials within the protected volume shall not release formaldehyde in excess of 20 mg/kg (See Table 5).

All fibreboard shall not release formaldehyde in excess of 0,124 mg/m^3 (See Table 5).

Table 5 — Maximum acceptable formaldehyde in wheeled child conveyances

Material	Substance	CAS No.	Limit
Fabric and leather	Formaldehyde	50-00-0	20 mg/kg
Fibreboard			0,124 mg/m^3

For formaldehyde released from fabric and leather, the test procedure given in ISO 14184-1 for fabric and ISO 17226-1 for leather shall be used.

Different types of fabrics shall be tested separately but the colour difference can be ignored. A test portion below 1,0 g in a single laboratory sample shall be exempted from the test.

For formaldehyde released from fibreboard, the test procedure is defined in ISO 12460-1.

6.7 Flame retardants

Accessible plastics, artificial leather and fabrics in the protected volume of wheeled child conveyance, which are not treated with flame retardant, shall be exempted from flame-retardant testing. Only a declaration of conformity document is required. The template of declaration of conformity for flame retardants in C.5 can be used for reference.

Accessible plastics, artificial leather and fabrics in the protected volume of wheeled child conveyances, which are treated with flame retardant, shall not contain the flame retardants listed in Table 6 according to the limits given in Table 6.

Table 6 — Flame retardants concerned in wheeled child conveyances

CAS No.	Substance	Limit
25637-99-4	Hexabromocyclododecane (HBCDD)	< 100 ppm[a]
5436-43-1	Tetrabromodiphenyl ether (tetra-BDE)	< 10 ppm[a]
32534-81-9	Pentabromodiphenyl ether (penta-BDE)	< 10 ppm[a]
36483-60-0	Hexabromodiphenyl ether (hexa-BDE)	< 10 ppm[a]
189084-68-2	Heptabromodiphenyl ether (hepta-BDE)	< 10 ppm[a]
32536-52-0	Octabromodiphenyl ether (octa-BDE)	< 0,1 %
1163-19-5	Decabromodiphenyl ether (deca-BDE)	< 0,1 %
59536-65-1	Polibrominated biphenyl (PBB)	Not used

NOTE Relevant regulations include EU REACH, RoHS, POPs, TSD, etc.

[a] 1 ppm = 1 mg/kg

Table 6 *(continued)*

CAS No.	Substance	Limit
126-72-7	Tri-(2,3_dibromopropyl)-phosphate (TRIS)	Not used
545-55-1	Tris-(aziridinyl)-phosphinoxide (TEPA)	Not used
115-96-8	Tris(2-chloroethyl) phosphate (TCEP)	< 5 ppm[a]
13674-87-8	Tris-Diclorpropylphosphat (TDCPP)	< 5 ppm[a]
13674-84-5	Tris-Chlorpropylphosphat (TCPP)	< 5 ppm[a]
NOTE Relevant regulations include EU REACH, RoHS, POPs, TSD, etc.		
[a] 1 ppm = 1 mg/kg		

7 Thermal hazards

Fabrics shall not produce a surface flash effect when applying a flame in accordance with ISO 8124-2:2014.

A separate sample may be used for these tests.

8 Mechanical hazards

8.1 Protective functions

8.1.1 Suitability of vehicle

8.1.1.1 Requirements

8.1.1.1.1 Vehicles intended for use from birth

Vehicles intended for children from birth shall conform to at least one of the following:

a) A pram body conforming to the requirements of 8.1.2.

b) A seat unit where the angle between the backrest and the seat (angle 1 in Figure 28) is capable of adjustment to an angle of 150° or more, when measured in accordance with 8.1.1.2.1 and conforming to 8.1.2. Any parts that have a function essential for conforming to 8.1.2 shall not allow the test ball to fall from the seat unit when tested in accordance with 8.1.1.2.2. In this configuration, the restraint system shall be capable of being removed, hidden or covered in accordance with the manufacturer's instructions to avoid any risk of strangulation.

c) A seat unit where the angle between the backrest and the seat (angle 1 in Figure 28) is capable of adjustment to an angle of 150° or more, when measured in accordance with 8.1.1.2.1 and equipped with a restraint system suitable from birth conforming to 8.1.3.

d) Any car seat suitable from birth.

8.1.1.1.2 Vehicles intended for use from six months of age

Car seats are exempt from this requirement.

Vehicles intended for children from six months of age shall have a restraint system conforming to the relevant requirements of 8.1.3.

Seat units intended to be used from six months of age shall be marked with the warning given in 10.2 c) 3). The warning shall be visible during folding, unfolding or adjustment of the vehicle.

8.1.1.1.3 Seat units

Car seats are exempt from these requirements. When measured in accordance with 8.1.1.2.1:

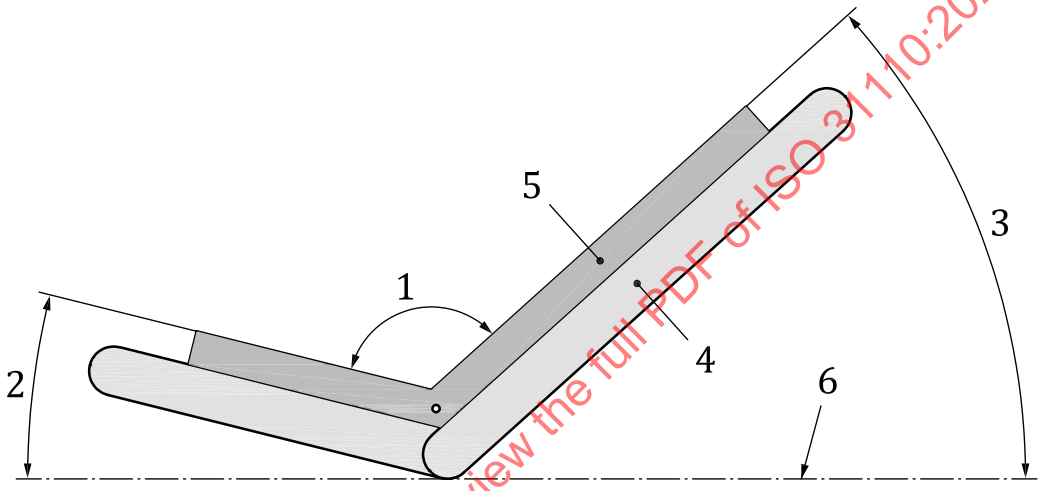
— angle 1 between the seat and the backrest (see Figure 28) shall not be less than 95°;

— angle 2 between the seat and the horizontal (see Figure 28) shall not be less than 0°;

— angle 3 between the backrest and the horizontal (see Figure 28) shall not be less than 0°.

NOTE Angles below the horizontal line are considered to be less than 0°.

When tested in accordance with 8.1.1.2.1, the top of the backrest of the seat unit shall be equal to or higher than the top of part 2 of the angle measuring device.



Key

1 angle between the seat and the backrest
2 angle between the seat and the horizontal
3 angle between backrest and the horizontal
4 seat unit
5 angle measuring device
6 horizontal

Figure 28 — Measurement of angles of seat unit

8.1.1.2 Test methods

8.1.1.2.1 Measurement of angle and length of the backrest

Adjust the backrest of the seat unit to its most upright position.

Any removable head cushion shall be removed before performing the measurements.

Place the angle measuring device (see 5.3) on the seat unit with part 1 against the seat and with part 2 (see Figure 20) against the backrest, as shown in Figure 28.

Any component that can impair the correct positioning of part 1 of the angle measuring device (crotch strap, padded parts, buckle, etc.) should be positioned such as to ensure part 1 of the device is correctly placed onto the seat.

Raise the whole device for at least 50 mm from the seat with part 2 (see Figure 20), maintaining complete contact with the backrest. With the device in this position, fold up part 1 to its maximum reach. Then lower the whole device as far as possible by its own weight, with part 2 (see Figure 20)

maintaining complete contact with the backrest. Then slowly unfold part 1 (see Figure 20) in such a way that it leans fully on the seat as far as possible under its own weight.

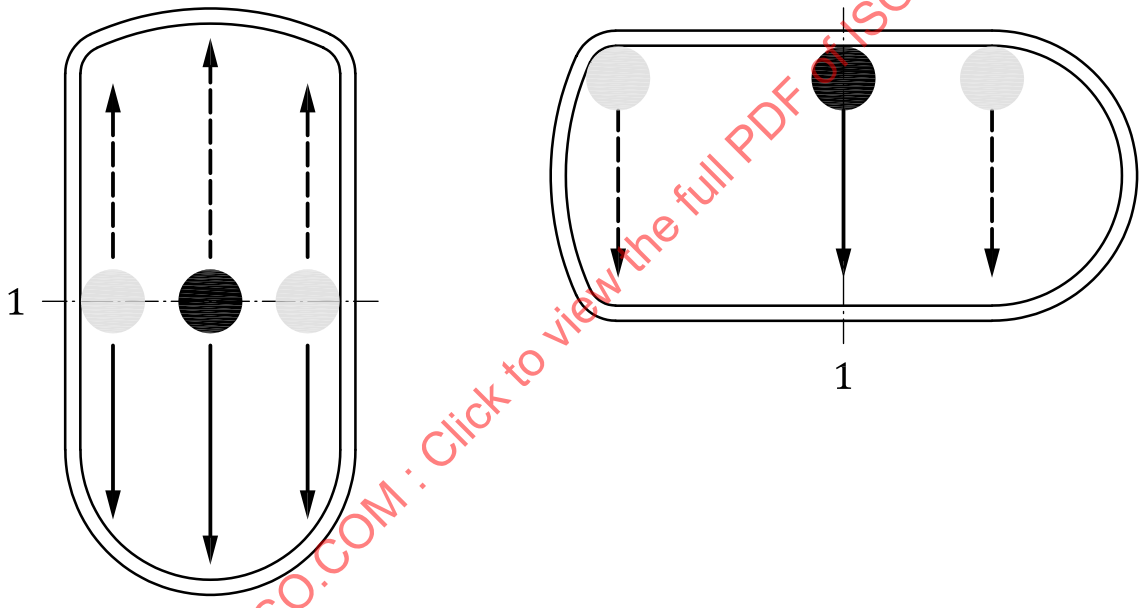
Measure angles 1, 2 and 3 (see Figure 28) on the top surface of the angle measuring device. During measurement, the angle measuring device shall not move from its position.

If applicable, adjust the backrest to its lowest position, allowing the angle measuring device to move freely with the seat unit. Then measure angles 1, 2 and 3 (see Figure 28) on the top surface of the angle measuring device. The angle measuring device shall not move from its position during the measurement.

Check if the top of the backrest of the seat unit is equal to or higher than the top of part 2 (see Figure 20) of the angle measuring device.

8.1.1.2.2 Ball retention test

Recline the backrest of the seat unit to the most reclined position. All parts intended to retain the child including the rear part of hoods and aprons shall be attached in accordance with the manufacturer's instructions.



a) Direction facing up/down the slope **b) Direction perpendicular to the slope**

Key

1 junction line

Figure 29 — Retention test

Restrain the vehicle to a plane inclined at 45°, in a direction facing down the slope.

Position the test ball (see 5.4) as shown in Figure 29 a) on the centre of the junction line. Release the test ball, allowing it to roll freely.

Record whether the test ball falls from the seat unit.

Repeat the test, positioning the test ball on the left and right sides on the junction line. Repeat the entire procedure with the vehicle facing up the slope.

Repeat the entire procedure with the vehicle facing in a direction perpendicular to the slope, with the test ball positioned as shown in Figure 29 b).

8.1.2 Minimum internal height of pram body

8.1.2.1 Requirements

When measured in accordance with 8.1.2.2, the minimum internal height of the pram body side and end upper edges shall be:

a) for a pram body having an internal length (D in Figure 30) of 800 mm or less:

   1) internal height (A in Figure 30) shall be not less than 150 mm for at least 170 mm in both directions from the centre line of the length (B in Figure 30);

   2) at all other points on the sides and ends, the internal height (C in Figure 30) shall be at least 100 mm;

b) for a pram body having an internal length (D in Figure 30) greater than 800 mm:

   1) internal height (A in Figure 30) shall be not less than 180 mm for at least 180 mm in both directions from the centre line of the length (B in Figure 30);

   2) at all other points on the sides and ends, the internal height (C in Figure 30) shall be at least 130 mm.

8.1.2.2 Test method

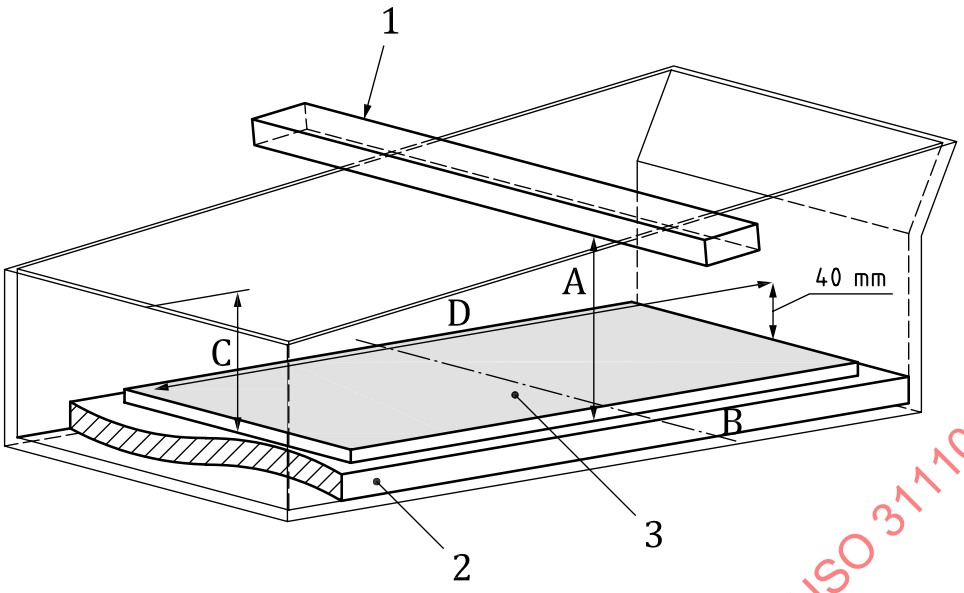
Measure the internal length D 40 mm from the top surface of test mass C on the centre of longitudinal axis of the pram body.

The minimum internal heights of the pram body shall be measured from the lower edge of the test bar (see 5.1.9), as shown in Figure 30, placed on the top edge of the pram body to the lower edge of test mass C placed on the mattress supplied or recommended by the manufacturer [see 10.2 d)].

The measurement of the minimum height shall be carried out longitudinally, with the test bar placed across the ends of the pram body, and laterally, with the test bar placed across the sides of the pram body.

If the pram body is fitted with a base that can be inclined, the measurement shall be carried out in a full lying position.

Dimensions in millimetres



Key

1 test bar
2 mattress
3 test mass C
A internal height from the centre line
B centre line of the length
C internal height for all points
D internal length

Figure 30 — Measurement of the minimum internal heights of the pram body

8.1.3 Restraint system and fasteners

8.1.3.1 Requirements

8.1.3.1.1 Restraint system for seat units

The requirements in 8.1.3.1.1 do not apply to the restraint system of car seats.

Seat units shall be fitted with a restraint system incorporating a crotch restraint for each position a child can occupy.

The restraint system shall be designed so that it cannot be used without the crotch restraint. The restraint system shall be adjustable.

Where straps are included in the restraint system, they shall have a minimum width of 19 mm.

The restraint system of a seat unit shall conform to 8.1.3.1.2 (restraint system type A) or to 8.1.3.1.3 (restraint system type B).

The restraint system of a pram body shall conform to 8.1.3.1.4.

8.1.3.1.2 Restraint system type A

All seat units shall be tested in accordance with 8.1.3.2.1. Test mass D (see 5.1.5) shall not completely fall out of the restraint system.

Seat units designed for children under six months of age shall be tested in accordance with 8.1.3.2.1. Test mass D_0 (see 5.1.6) shall not completely fall out of the restraint system.

NOTE Any partial movement of test mass D or D_0 is not considered a failure.

When tested in accordance with 8.1.3.2.2, the attachment of the restraint system shall not break, deform, work loose or become torn/displaced, and the seat unit shall remain in place without permanent damage.

When tested in accordance with 8.1.3.2.3, fasteners shall not be released and shall not have suffered damage which impairs their normal operation and function.

When tested in accordance with 8.1.3.2.4, the maximum slippage of adjusters shall be 20 mm.

8.1.3.1.3 Restraint system type B[1)]

The restraint system shall meet the following requirements:

— If a restraint system utilizes seat back anchor points for shoulder straps, the height of the shoulder strap's potential anchors shall be at (267 ± 26) mm and (318 ± 26) mm from the junction line of the stroller back and seat with the stroller back in the most upright position when tested in accordance with 8.1.3.2.6.

— The anchor points of the waist restraint shall be between the 50 mm line and the 127 mm line on the test cylinder (see Figure 26) when tested in accordance with 8.1.3.2.7.

— A 25 mm diameter probe (see Figure 19) shall not freely pass through any gap between the waist restraint and the test cylinder when tested in accordance with 8.1.3.2.8.

— The forward-most position of the junction line of the crotch strap and seat surface shall not be in front of the test cylinder when tested in accordance with 8.1.3.2.9. A removable seat pad shall not be considered part of the seat surface.

— The contact point on the lower edge of the waist strap shall be between the 114 mm line and the 190 mm line on the test cylinder when tested in accordance with 8.1.3.2.10.

When tested in accordance with 8.1.3.2.2, the attachment of the restraint system shall not break, deform, work loose or become torn/displaced, and the seat unit shall remain in place without permanent damage.

When tested in accordance with 8.1.3.2.3, fasteners shall not be released and shall not have suffered damage which impairs their normal operation and function.

When tested in accordance with 8.1.3.2.4, the maximum slippage of adjusters shall be 20 mm.

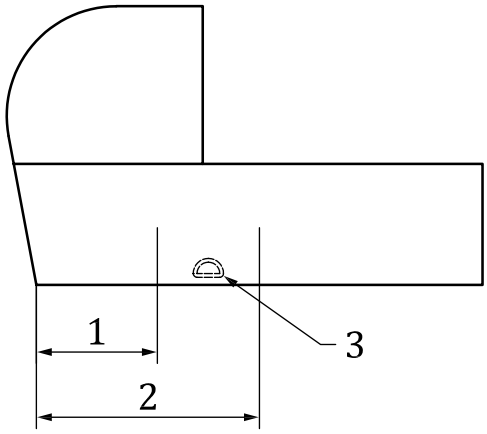
8.1.3.1.4 Restraint system for a pram body

Pram bodies with an internal length greater than 800 mm (see 8.1.2.2) shall be fitted with two harness anchorage points for each position that a child can occupy. The harness anchorage points shall be located on each side of the base of a pram body within the zone indicated in Figure 31.

If provided, anchorage points for an additional harness fitted on pram bodies with an internal length less than 800 mm (see 8.1.2.2) shall be located on each side of the base of the pram body within the zone indicated in Figure 31.

When tested in accordance with 8.1.3.2.5, the harness anchorage points shall continue to function as intended.

1) Based on ASTM F833[30].



Key

1 245 mm from hood end

2 half of internal length (D/2) of the pram body

3 harness anchorage point

Figure 31 — Harness anchorage points

8.1.3.2 Test methods

8.1.3.2.1 Effectiveness of restraint system of seat unit

For a seat unit designed for children under six months of age, place the hinged board described in 5.5 between the test mass D_0 and the backrest of the seat unit. The hinged board shall follow as closely as possible the curvature of the seat unit and its base shall be flush with the base of test mass D_0. Attach the restraint system in accordance with the manufacturer's instructions with the seat unit in the most reclined position. Fasten any waist restraint around the torso section of test mass D_0 so that any slackness is removed and the waist restraint is positioned above the leg stumps. If the crotch restraint is adjustable, adjust it so that any slackness is removed. After adjustment of the restraint system, the hinged board is removed to perform the test. Where the restraint system has shoulder straps that can be positioned on the back of the seat unit in a range of positions, the shoulder straps shall be placed in the lowest position (to accommodate the youngest child).

For seat units designed for children over six months of age, initially place test mass D against the backrest in the middle of the seat unit with the 225 mm axis against the backrest and attach the restraint system in accordance with the manufacturer's instructions with the seat unit in the most upright position. Fasten any waist restraint around the torso section of test mass D so that any slackness is removed and the waist restraint is positioned above the leg stumps. If the crotch restraint is adjustable, adjust it so that any slackness is removed and the waist restraint is still positioned above the leg stumps. Where the restraint system has shoulder straps that can be positioned on the back of the seat unit in a range of positions, the shoulder straps shall be placed in the highest position (to accommodate the oldest child).

Where shoulder straps are fitted, place a 30 mm cuboid spacer block, made of rigid smooth material, on each shoulder of test mass D. Adjust each shoulder strap in accordance with the manufacturer's instructions so that any slackness is removed. Remove the spacers.

A rotating test surface shall be used to rotate the vehicle smoothly through 360° at a speed of (4 ± 0,5) r/min in a forward and reverse direction.

Rotate the vehicle through 360° in a forward direction. If necessary, reposition test mass D or D_0 to its initial position without altering the adjusters on the restraint system. Rotate the vehicle through 360° in the reverse direction. If necessary, reposition test mass D or D_0 to its initial position without altering the adjusters on the restraint system.

Repeat the forward and reverse rotation cycles for two more sequences, giving a total of three forward and three reverse rotations. If necessary, after each rotation, reposition test mass D or D_0 to its initial position without altering the adjusters on the restraint system.

8.1.3.2.2 Attachment of the restraint system to the seat unit

Gradually apply a tensile force of 150 N to each point of attachment of the restraint system in the most onerous direction. Maintain this force for 1 min.

If more than one strap is attached at the same position or within a 20 mm radius, the force of 150 N shall be applied to each strap simultaneously.

8.1.3.2.3 Strength of fastener

A tensile force of 200 N shall be gradually applied to the straps either side of the fastener. Maintain this force for 1 min.

8.1.3.2.4 Effectiveness of the adjustment system

This test shall be conducted at the end of the whole test procedure given in this document. Use approximately 125 mm of the restraint system on either side of the adjustment system.

Fix one end of the test piece into one jaw of a tensile strength test equipment and the other end into another jaw. The distance between the jaws shall be 200 mm.

Draw a line across the width of the test piece flush with each jaw.

Set the jaw movement speed to (500 ± 10) mm/min. Reduce the distance between the jaws to 150 mm. Subject the test piece to a tensile force until the latter reaches (100 ± 10) N. When this strain has been reached, return the distance between the jaws to 150 mm.

Conduct the test for a total of 10 times.

Measure the distance between the lines drawn flush with the jaws. The difference between this dimension and original dimension of 200 mm is the amount of slippage.

8.1.3.2.5 Strength of the harness anchorage points

Secure the pram body to prevent any movement and gradually apply a force of 150 N to each harness anchorage point in the most onerous direction. Maintain this force for 1 min.

If more than one harness anchorage point is attached at the same position or within a 20 mm radius, the force 150 N shall be applied to each harness anchorage point simultaneously.

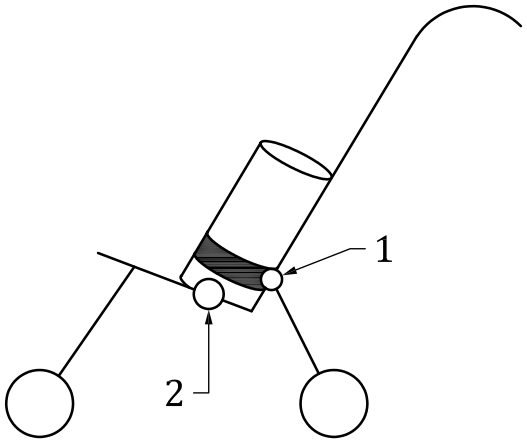
8.1.3.2.6 Measurement of anchorage points location

The measurement shall be from the junction line of the seat/back to the lowest point of the strap/seat back junction line. With the stroller back in the most upright position, these measurements shall be taken from the top of the uncompressed seat parallel to the back.

8.1.3.2.7 Determination of the test mass position[2)]

If the wheeled child conveyance has an adjustable backrest, place it in the fully upright position. Snugly secure the test cylinder (see Figure 26) in the unit (see Figure 32) with the restraint system. The lower corner of the test cylinder shall be at the seat bottom/back junction line with the test cylinder centred and in full contact with the seat back. Align the waist restraint so that it is parallel with the lines on the test cylinder. Determine the location of the waist restraint anchor centre point(s) by visual inspection.

2) Based on ASTM F833[30].



Key

1 waist belt anchor point

2 crotch strap junction

NOTE Adapted from ASTM F833[30].

Figure 32 — Test cylinder in a stroller

8.1.3.2.8 Determination of gaps in waist restraint[3)]

With the same configuration in accordance with 8.1.3.2.7, attempt to freely pass the 25 mm diameter probe (see Figure 19) through any space between the waist restraint system and the test cylinder.

8.1.3.2.9 Determination of the positioning of the mass[3)]

Position the test cylinder (see Figure 26) so that the lower corner is at the seat surface/back junction line and the bottom of the test cylinder is in full contact with the seat surface. Determine the forward-most position of the junction line of the crotch strap and seat surface by visual inspection.

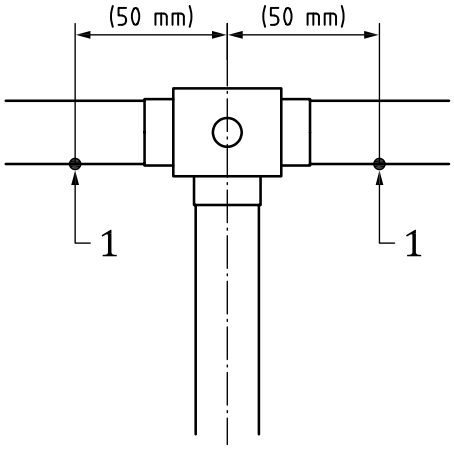
8.1.3.2.10 Determination of the positioning of the mass with crotch strap system[3)]

The test shall be conducted with the same configuration given in 8.1.3.2.9.

If the crotch strap is adjustable, adjust it to the maximum length. Locate the point 50 mm to the right and left of the centre of the crotch/waist junction line in accordance with Figure 33. With the waist restraint adjusted to allow full extension of the crotch restraint, pull the crotch restraint to its highest point on the test cylinder.

Check the waist strap position.

3) Based on ASTM F833[30].



Key

1 point

NOTE Adapted from ASTM F833[30].

Figure 33 — Point

8.2 Entrapment hazards

8.2.1 Holes and openings

8.2.1.1 Requirements

When testing in accordance with 8.2.1.2, there shall be no completely bounded openings in rigid materials within the protected volume that let the 7 mm probe go through unless the depth of penetration is less than 10 mm or unless the shape assessment probe enters. This requirement is not applicable to the restraint system.

The size of the holes in mesh within the protected volume shall be less than 7 mm when measured in accordance with 8.2.1.2.

There shall be no accessible holes or openings between rigid parts of the footrest having a width greater than 25 mm and smaller than 45 mm, when measured in accordance with 8.2.1.2.

Illustrations of completely bounded openings are given in F.3.3.

8.2.1.2 Test methods

Check whether the 7 mm finger probe (see 5.2.1.1), with an applied force of up to 30 N, enters 10 mm or more into any accessible opening in any possible orientation. If the 7 mm probe enters 10 mm or more. then the shape assessment probe (see 5.2.1.2) shall also enter 10 mm or more with an applied force of up to 5 N.

Check whether the conical probe (see 5.2.1.3) penetrates holes in the mesh to the 7 mm diameter section with an applied force of up to 30 N.

Check whether the 25 mm conical probe (see 5.2.2) enters into any opening in the footrest with an applied force of up to 30 N. If the 25 mm conical probe enters, then the 45 mm conical probe (see 5.2.2) shall also enter with an applied force of up to 5 N.

8.3 Hazards from moving parts

8.3.1 Requirements

The requirements shall be checked before and after the irregular surface test (see 8.10.4). These requirements do not apply to the restraint system.

Within the protected volume, there shall be no shearing or crushing hazards between rigid parts moving relative to each other, except while the vehicle is being erected for use, being folded or during adjustments of parts that are locked when in position for use.

Contact edges between parts moving relative to each other shall be rounded or chamfered in accordance with 8.7, unless the clearance is always less than 5 mm.

8.3.2 Shearing hazards

8.3.2.1 Requirements

After the product is set up for normal use in accordance with the manufacturer's instructions, there shall be no accessible hazardous scissoring points within the protected volume that can close to less than 12 mm or into which the 12mm probe cannot enter when tested in accordance with 8.3.2.2.

For hoods and any similar items such as canopies, sunshades, etc., the requirement is applicable to the space between the frame components and between any hood tensioner attached to them and the frame components, within a distance of 100 mm measured from the primary pivot point of the hood (see Figure 34 and Annex E).

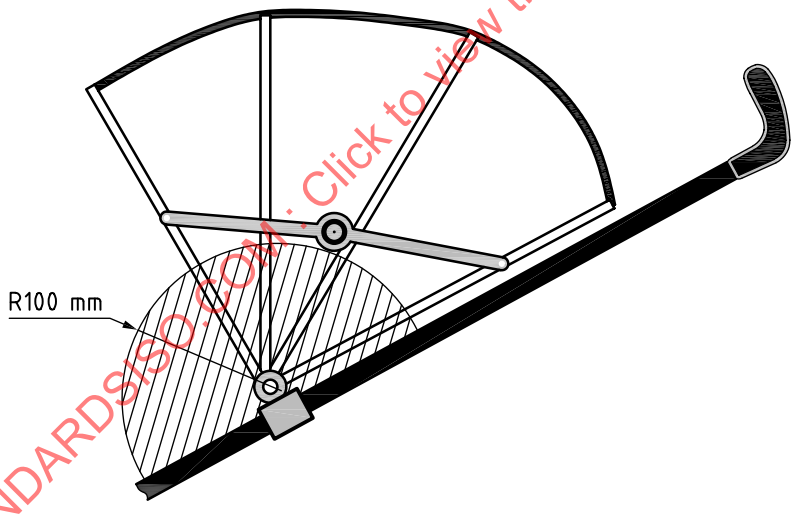


Figure 34 — Distance from the primary pivot point of the hood

8.3.2.2 Test method

Check for parts that have a potentially hazardous scissoring movement. Adjust the moving parts to reduce the gap to the minimum distance possible and hold them in position without impairing the flexibility of the parts.

When using an applied force of 30 N, check whether the 12 mm probe (see 5.2.2) can pass between the moving parts.

Carry out the test at the most onerous position of the moving parts.

8.3.3 Crushing hazards (see F.3.4)

8.3.3.1 Requirements

After the product is set up for normal use in accordance with the manufacturer's instructions, there shall be no accessible hazardous compression point within the protected volume that can close to less than 12 mm unless the clearance is always less than 5 mm.

8.3.3.2 Test method

Check whether the 12 mm probe (see 5.2.2) can pass between the moving parts or check whether the 5 mm probe (see 5.2.1.1) cannot pass between the moving parts.

8.3.4 Wheels

Any gaps in wheels within the protected volume shall be covered so that the 7 mm finger probe (see 5.2.1.1) does not enter unless the depth is less than 5 mm.

The point of contact between a wheel and the ground shall not be within the protected volume.

8.3.5 Locking mechanism(s)

8.3.5.1 Folding system for storage or transportation

8.3.5.1.1 Requirements

8.3.5.1.1.1 General requirements

Vehicles that can be folded for storage or transportation where the chassis can fold with the pram body or seat unit attached, shall be fitted with one or more locking mechanism(s). The locking mechanism(s) shall conform to the requirements in 8.3.5.1.1.2 and 8.3.5.1.1.3.

Vehicles that can be folded for storage or transportation where the chassis can only fold when the pram body or seat unit has been removed or vehicles that can only be folded after putting them in a position that clearly does not allow transportation of a child (e.g. overturn the vehicle) shall be fitted with a locking mechanism(s).

The function of any operating device shall not be impaired after being tested in accordance with 8.3.5.1.2.1.

8.3.5.1.1.2 Incomplete deployment

To avoid hazards due to incomplete deployment, there shall be at least two locking devices. At least one locking device shall engage automatically when the product is fully deployed for use.

If the locking device is not visible without damaging the vehicle, a second sample may be used for the purpose of determining the number of locking devices.

8.3.5.1.1.3 Unintentional release of locking mechanism(s)

NOTE 1 Guidelines are given for the application of this subclause in Annex D.

NOTE 2 The removal of a child is not considered as an operating action.

To avoid hazards due to unintentional release, one of the following three conditions shall be fulfilled:

a) there shall be at least one operating device that fulfils the following:

   1) the operating device shall require at least two consecutive actions, the second being dependent on the first having been carried out and maintained by the carer;

   2) the operating device shall not be activated or damaged in one single action during testing in accordance with 8.3.5.1.2.2;

b) there shall be two separate and independent operating devices that fulfil one of the following:

   1) where one or both operating device(s) are intended to be operated by foot (e.g. for its position, shape), at least one of them shall automatically return to its original position and the locking device shall reengage when tested in accordance with 8.3.5.1.2.3;

   2) where both operating devices are intended to be operated by hand(s) (e.g. for their position, shape, in accordance with the manufacturer's instructions for use), they shall both automatically return to their original position and the locking devices shall reengage when tested in accordance with 8.3.5.1.2.3.

c) there shall be three or more separate and independent operating devices, at least one of which shall be located out of the protected volume or shall require a force of more than 50 N to be operated.

During testing in accordance with 8.3.5.1.2.4, the vehicle shall not fold. After testing in accordance with 8.3.5.1.2.4, the vehicle and the locking mechanisms shall not be damaged, and the vehicle shall still conform to the requirements of 8.2 and 8.7.

When tested in accordance with the following tests, the vehicle shall not fold and the locking device(s) shall not be released:

— irregular surface test (see 8.10.4);

— dynamic strength test (see 8.10.5);

— handle strength test (see 8.10.7).

8.3.5.1.2 Test methods

8.3.5.1.2.1 General

Operate the operating devices 200 times.

8.3.5.1.2.2 Unintentional release of the locking mechanism by one single action

Place the vehicle fully deployed and ready for use on a horizontal flat surface.

Apply a force of 150 N or a torque of 2,2 N·m to the operating device. This force or torque shall be applied to the operating device in the direction most likely to operate the operating device in one single action. The force or torque shall be applied for a period of 5 s.

8.3.5.1.2.3 Automatically returning operating device

Place the vehicle on a horizontal flat surface.

Without any test mass in the vehicle, operate the operating device. Check whether the operating device automatically returns to its original position and whether the locking device re-engages.

Place one of the following as described in 8.8.2.1 with the backrest and/or seat unit adjusted to the most onerous position:

— test mass A in the pram body having a length less than 800 mm or a type A car seat;

— test mass B in the seat unit or in a pram body having a length greater than 800 mm;

— test mass F in the type B car seat.

Disengage the automatic operating device. Check whether the automatic operating device automatically returns to its original position and whether the locking device re-engages.

8.3.5.1.2.4 Effectiveness of locking mechanism(s) on vehicles where the chassis can fold with the pram body or seat unit or car seat installed

Place one of the following as described in 8.8.2.1:

— test mass A in the pram body having a length less than 800 mm or a type A car seat;

— test mass B in the seat unit or in a pram body having a length greater than 800 mm;

— test mass F in the type B car seat.

If the vehicle is designed for more than one child, use any number of appropriate test masses, up to one in each place intended to be occupied by a child.

Engage all the locking mechanisms.

Restrain the wheels to prevent forward or rearward movement by means of fixed floor stops with a height greater than the radius of the wheels, as shown in Figure 35.

Apply a force F for a period of 5 s to the handlebar (or to each handle in turn in the case of separate handles) in each of the following directions:

a) forward horizontal;

b) rearward horizontal.

The test shall be performed with the stops between the wheels or outside them (see Figure 35).

Force F shall be either the force to raise the front or rear wheels or 200 N, whichever is the lesser force.

For vehicles with two or more separate and independent operating devices, operate each operating device such as to disengage each locking device in turn and apply force F in the same manner as in a) and b) above.

The test is not conducted on vehicles for which the test mass causes all locking devices to automatically re-engage.

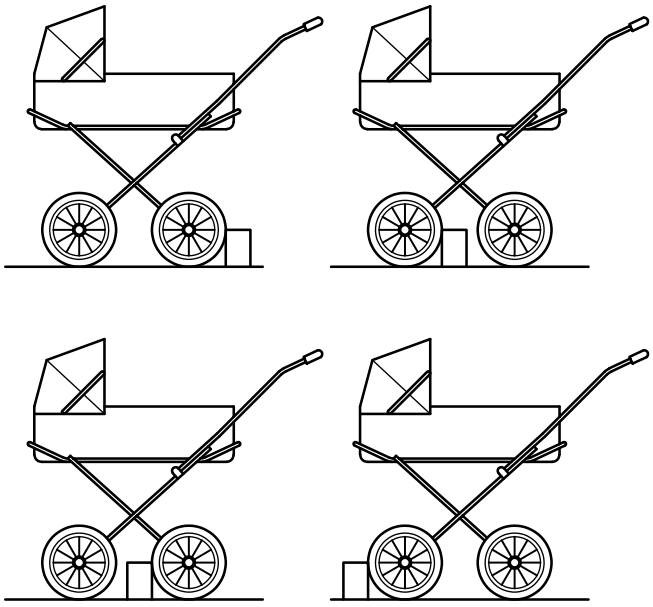


Figure 35 — Positioning of the stop

8.3.5.2 Pushchairs with rotating seat units

Pushchairs with rotating seat units on any axis shall be fitted with at least one automatic locking device to prevent inadvertent rotation.

8.3.5.3 Handle movement

8.3.5.3.1 Requirements for reversible handles

Any locking device(s) for the reversible handle shall be positioned so that it is not possible to operate more than one device in a single action.

To avoid hazards due to inadvertent operation by an adult or operations by a child, there shall be at least two locking mechanisms, which require either:

a) two separate operations acting on two separate parts of the vehicle;

b) two consecutive actions, the first being maintained while the second is carried out.

To avoid hazards due to an unlocked handle, at least one of the locking mechanisms shall engage automatically when the handle is in a position of use.

When tested in accordance with the following tests, the locking mechanism(s) of the handle shall not be released:

— irregular surface test (see 8.10.4);

— dynamic strength test (see 8.10.5);

— handle strength test (see 8.10.7).

8.3.5.3.2 Requirements for telescopic handles

Telescopic handles shall be fitted with devices to avoid inadvertent separation or detachment during use.

8.3.5.4 Requirements for the attachment of pram body, seat unit and car seats to the chassis

When the pram body, seat unit or car seat is attached to the chassis in accordance with the manufacturer's instructions, it shall be obvious to the carer that the pram body, seat unit or car seat is correctly placed and locked in position.

To avoid hazards due to the unintentional detachment of the pram body, seat unit or car seat, the weight of the child shall act against the detachment of the pram body, seat unit or car seat, and one of the following requirements shall be fulfilled:

a) a minimum force of 50 N or a minimum torque of 0,34 N·m is required to release the attachment device attaching the pram body, seat unit or car seat to the chassis;

b) at least two consecutive actions are required to detach the pram body, seat unit or car seat or to release the attachment device, the first of which shall be maintained while the second is carried out;

c) at least two independent simultaneous actions are required to detach the pram body, seat unit or car seat or to release the attachment device;

d) more than two independent actions are required to detach the pram body, seat unit or car seat.

This shall be assessed with and without the test mass in the product. The pram body, seat unit or car seat shall not fall under its own weight when all the attachment devices are disengaged.

8.4 Entanglement hazards

8.4.1 Requirements[4)]

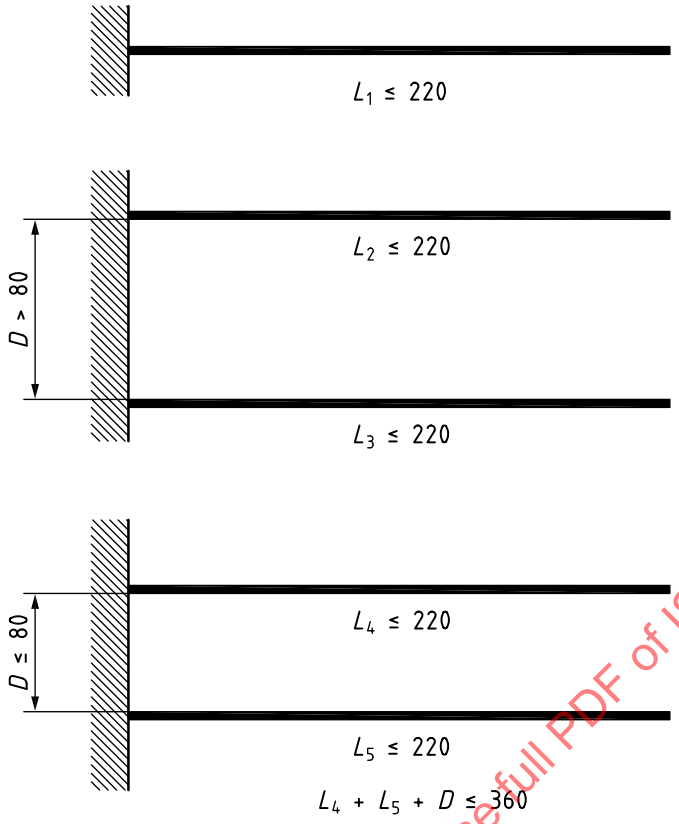
The restraint system, handles of bags, and carrying handles of pram bodies or carry cots are excluded from these requirements.

Cords, strings and other narrow fabrics that originate within or extend into the pram body, seat unit or car seat shall not create a loop that has a peripheral dimension exceeding 360 mm. They shall not have a free stretched length that exceeds a length of 220 mm, when measured in accordance with 8.4.2.

Cords strings and other narrow fabrics that do not originate within the occupant space (see 4.7) but that can extend into the pram body, seat unit or car seat shall not create a loop that has a peripheral dimension exceeding 360 mm. They shall not have a free stretched length that exceeds a length of 220 mm within the pram body, seat unit or car seat, when measured in accordance with 8.4.2, only on the portion of the component that can extend into the pram body, seat unit or car seat.

Where cords, ribbons and similar parts are attached to the vehicle together or within 80 mm of each other, all single cords shall have a maximum free length of 220 mm. The combined length from one loose end to the end of another loose end shall be a maximum of 360 mm (see Figure 36).

4) Based on ASTM F833[30].



Key

L_x length of cords, ribbons and parts used as ties

D distance between attachment points

Figure 36 — Examples of measuring cords, ribbons or parts used as ties

8.4.2 Test method

The length of a cord, ribbon or similar part shall be measured from the fixing point on the vehicle to the free end of the cord, ribbon or similar part under a 25 N tensile force.

The peripheral dimension of a loop shall be measured from the fixing point on the vehicle of one end to the fixing point of the other end under a 25 N tensile force.

When cords, ribbons, loops or similar parts do not originate within an occupant space (see 4.8), the measurement shall be made from the edge all around the inner upper surface that supports the child.

8.5 Choking and ingestion hazards

8.5.1 Requirements

When tested in accordance with 8.5.2.1 and 8.5.2.2, any component or part of a component within the protected volume that is removed, whether intended to be removed without the use of a tool or not, shall not fit entirely within the small parts cylinder (see 5.6) in any orientation without compression.

Self-adhesive plastic labels shall not be used on the inside surfaces of a pram body or seat unit. Heat transfer labels are not considered as self-adhesive.

Bumper bars that are accessible and forward of the occupant shall meet any one of the following:

a) the bumper bar does not contain foam or other filling material;

b) the bumper bar covering prevents the underlying foam or other filling material from being exposed when tested in accordance with 8.5.2.3.

8.5.2 Test methods

8.5.2.1 Torque test[5)]

Apply a torque gradually to the component within a period of 5 s in a clockwise direction until either:

— a rotation of 180° from the original position has been attained;

— a torque of 0,34 Nm is reached.

The maximum rotation or required torque shall be applied for 10 s.

The component shall then be allowed to return to a relaxed condition and the procedure repeated in an anticlockwise direction.

Where projections, components or assemblies are rigidly mounted on an accessible rod or shaft designed to rotate together with the projections, components or assemblies, during the test, the rod or shaft shall be clamped to prevent rotation.

If a component attached by a screw thread becomes loosened during the application of the required torque, the torque shall continue to be applied until the required torque is exceeded, the component disassembles or it becomes apparent that the component will not disassemble.

When using clamps and test equipment, care shall be taken not to damage the attachment mechanism or body of the component.

Check whether any component or part of a component that is removed during the test fits wholly within the small parts cylinder.

8.5.2.2 Tensile test

The tensile test shall be carried out on the same components as the torque test.

Attach a suitable clamp to the component, taking care not to damage the component or any part of the product.

Apply a tensile force of up to 70 N for fabrics and 90 N to other components to be tested. Apply the force gradually within a period of 5 s and maintain it for 10 s.

Check whether the component or any part of a component that is removed during the test fits wholly within the small parts cylinder.

8.5.2.3 Bumper bar protective covering removal test method

If the covering is removable, install the bumper bar protective covering in accordance with the manufacturer's instructions on the bumper bar.

Attach a force gauge to the protective covering by means of a clamp such as the one described in 5.11. This test shall be considered a pass if the bumper bar protective covering material cannot be grasped between the thumb and forefinger of the test personnel sufficient for clamping by the 19 mm diameter washer jaws.

The clamp device shall only attach to the bumper bar protective covering and shall not attach to the underlying foam or other filling under the cover or to attachment devices such as zippers or Velcro tabs.

5) Based on ASTM F833[30].

Gradually apply a 70 N force in the direction that is most likely to expose the foam or other filling under the covering over a 5 s period and hold for an additional 10 s.

Visually inspect if the foam or other filling has become uncovered.

8.6 Suffocation hazards

8.6.1 Internal lining of the pram body and seat unit

Where the internal lining of a pram body or seat unit is made of plastic or of a plastic-coated material, it shall have a minimum thickness of 0,2 mm.

Where the internal lining of a pram body or seat unit is made of a fabric not coated with plastic, it shall be tensioned so as not to present any suffocation hazard to the child.

8.6.2 Requirements — Packaging

NOTE Packaging includes single use and repeated use packaging.

Flexible plastics used for packaging including bags shall conform to either of the following:

a) packaging that covers an area greater than 100 mm × 100 mm when tested in accordance with ISO 8124-1:2018, 5.10, should have an average thickness of not less than 0,038 mm;

b) packaging with an average thickness of less than 0,038 mm and that covers an area greater than 100 mm × 100 mm should be perforated with holes so that a minimum of 1 % of the area has been removed over any area of 30 mm × 30 mm.

Bags made of impermeable material with an opening perimeter greater than 360 mm should not have a drawstring or cord as a means of closing.

8.7 Hazards from edges and protrusions

All exposed edges, surfaces and protrusions within the vehicle's protected volume shall be rounded or chamfered and free from burrs and sharp edges.

All other surfaces shall be free from burrs and sharp edges.

8.8 Parking and braking devices

8.8.1 Requirements

The vehicle shall be fitted with a parking device, the mechanism of which can be operated by the carer standing adjacent to the handle.

If the parking device or its operating mechanism is within the protected volume, it shall be designed so that it cannot be operated by the child sitting within the vehicle. This requirement is met under one of the following conditions:

a) a minimum force of 50 N or a minimum torque of 0,34 N·m is required to release the parking device;

b) at least two consecutive actions are required to release the parking device, the first of which shall be maintained while the second is carried out;

c) at least two independent simultaneous actions are required to release the parking device;

d) at least three independent actions are required to release the parking device.

When tested in accordance with 8.8.2.2, 8.8.2.3 and 8.8.2.4, the vehicle shall remain static on the slope for a minimum of 1 min.

The maximum movement of any one wheel or set of wheels shall be 90 mm when tested in accordance with 8.8.2.5. This requirement does not apply to vehicles where the parking device acts directly on the tyre(s) and parking devices where there is no gap between different positions.

The parking device shall be tested in accordance with 8.8.2.2 to 8.8.2.5 both before and after undergoing the irregular surface test (see 8.10.4). The abrasion conditioning (see 8.8.2.6), if applicable, shall be performed after the irregular surface test (see 8.10.4).

If the vehicle has a braking device, the carer shall be able to activate the braking device when walking.

NOTE For vehicles with reversible handles and foot-operated activating devices, it can be necessary to have such devices on each side where the carer walks, pushing or pulling the vehicle.

When braking and parking devices are combined in one mechanism, the action to activate the braking device shall be different from the action to activate the parking device. Braking action shall not activate the parking device.

Any platform or any part of the vehicle shall not impede the accessibility to the operating mechanism of the parking device or the braking device.

8.8.2 Test methods

8.8.2.1 General test conditions

Operate the parking device 200 times before carrying out the tests.

Position the relevant test mass(es) as follows:

— In a pram body, test mass A or test mass B for pram bodies having an internal length greater than 800 mm when measured in accordance with 8.1.2.2 shall be placed centrally and in a horizontal position.

— In a type A car seat, test mass A and, in a type B car seat, test mass F shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/back junction line.

— In a seat unit, test mass B shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/backrest junction line.

— For vehicles fitted with a platform, the test shall be performed with test mass G uniformly positioned and secured so that the middle point of the base of test mass G is on the centre line of the platform in the most perpendicular position with respect to the ground when the vehicle is positioned on the slope. If necessary, wedges of negligible mass shall be used to maintain the position defined for test mass G.

For positions in which the angle between the backrest and the seat is equal to or greater than 150°, test mass B shall be positioned such that the seat backrest junction line and transverse plane through the centre of the test mass coincide.

If the vehicle is designed for more than one child, use any number of appropriate masses, up to one in each position is to be occupied by a child. Additional test load(s) shall be positioned centrally within any receptacle designed for carrying additional load(s). Any test mass and additional load shall be secured to prevent movement by using packing of negligible mass.

NOTE 1 The most onerous conditions for parking device tests can be obtained when the number of test masses placed in the vehicle is less that the number of children the vehicle is designed for.

If a vehicle is designed for more than one child and the chassis can accommodate pram bodies, seat units and/or car seats, combinations of these as described in the manufacturer's instructions for use and by product markings shall be loaded with the appropriate test mass. The most onerous conditions for the test shall be established with regard to the combination of pram body, seat unit or car seat.

Any initial movement of the wheels on the slope shall be disregarded for test purposes.

NOTE 2 This movement can result from the interaction of the parking device and the vehicle, and from the suspension and structural settlement.

8.8.2.2 Vehicle facing up the slope

Place the vehicle on the test surface (see 5.7) inclined at 9° facing up the slope. Engage the parking device. If the vehicle is fitted with swivelling or steering wheels, then:

— the swivelling or steering wheels opposite the handle shall be unlocked and placed in the position they would normally assume when the vehicle travels in the direction it is facing;

— any lockable swivelling or steering wheels on the handle end shall be locked.

8.8.2.3 Vehicle facing down the slope

Repeat 8.8.2.2 with the vehicle facing down the slope.

8.8.2.4 Vehicle perpendicular to the slope

Place the vehicle at 90° to the direction of the slope on the test surface (see 5.7) inclined at 9°. Engage the parking device. If the vehicle is fitted with swivel wheels, then:

— any swivel wheels on the handle end shall be locked;

— the swivel wheels opposite to the handle shall be unlocked and placed in the position they would normally assume when the vehicle travels in the direction it is facing.

8.8.2.5 Test for available wheel movement

Place the vehicle to be tested on the test surface (see 5.7) inclined at 9° facing up the slope and engage the parking device. Allow the vehicle to reach a state of equilibrium.

Using a rectangular stop, mark the position(s) of the down slope wheel(s) with a line perpendicular to the direction of the slope. Remove the stop.

Maintain the position of the vehicle by hand and at the same time release the parking device(s). Allow the vehicle to move down the slope so that the parking device is engaged in the next position for use. Using the rectangular stop, mark the position(s) of the down slope wheel(s) with a line perpendicular to the slope.

Measure the distance between the two lines.

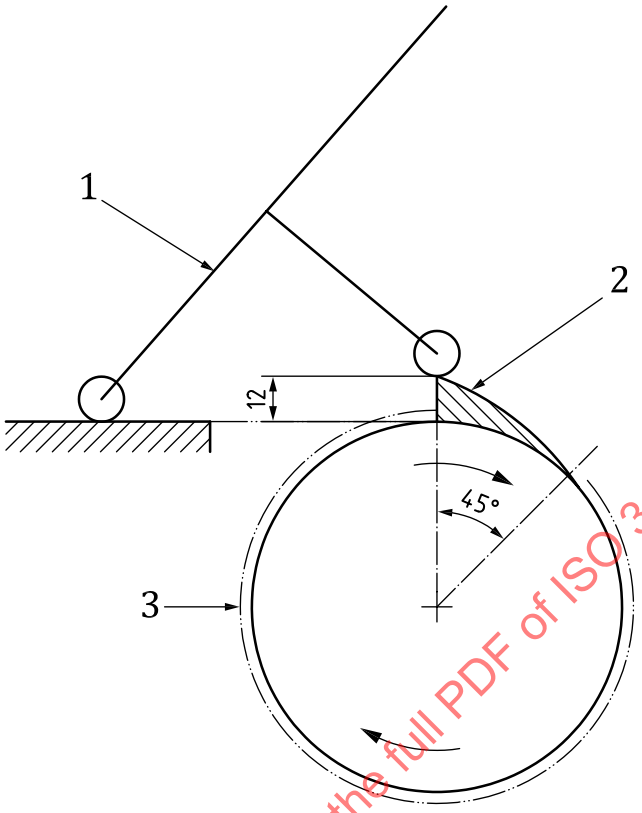
8.8.2.6 Abrasion conditioning

The abrasion conditioning shall be performed if the vehicle is fitted with a parking device that operates on the tyre(s) of the wheel(s). It shall be carried out on the wheel(s) on which the parking device operates.

The abrasion conditioning shall be performed after the irregular surface test (see 8.10.4).

The abrasion conditioning shall be performed on a drum, the surface of which is capable of being run at a speed of (5 ± 0,1) km/h. The drum shall be covered with aluminium oxide paper of grade 80 with cam obstacles of 12 mm in height, as shown in Figure 37. New aluminium oxide paper shall be used for each test.

Dimensions in millimetres



Key

1 vehicle
2 cam obstacles
3 aluminium oxide paper of grade 80

Figure 37 — Abrasion conditioning

Place and secure one of the following:

— test mass A at the bottom of pram bodies having an internal length of 800 mm or less when measured in accordance with 8.1.2.2 or in type A car seats;

— test mass B for pram bodies having an internal length greater than 800 mm when measured in accordance with 8.1.2.2;

— test mass F on type B car seats;

— test mass B on seat units.

The abrasion conditioning shall comprise 100 000 cam obstacles. The distance between obstacles shall be (400 0/+40) mm.

For vehicles having alternative arrangements, the test shall be carried out for a total of 100 000 times with a minimum of 50 000 cycles in the seat unit arrangement and, for the remaining 50 000 cycles, with an equal number of cycles for each arrangement.

8.9 Stability

8.9.1 Stability of vehicle

8.9.1.1 Requirements

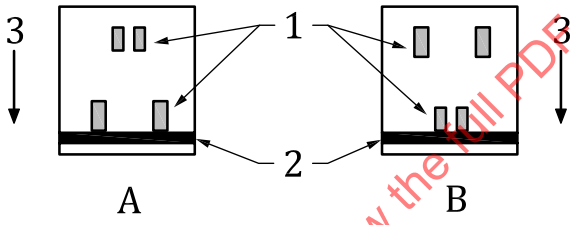
The vehicle shall not tip over when tested in accordance with 8.9.1.2. Any pram body, seat unit or car seat attachment device shall not become detached during the test.

8.9.1.2 Test procedure

8.9.1.2.1 Positioning of the vehicle

Position the vehicle on the test surface (see 5.7) inclined at an angle of 12° without engaging the parking device.

The vehicle shall be placed gently against the 25 mm stop(s) (see 5.8) without added force. Carry out the tests with the vehicle first facing forward, then rearward (see Figure 38) and then perpendicular to the slope, facing left and right.

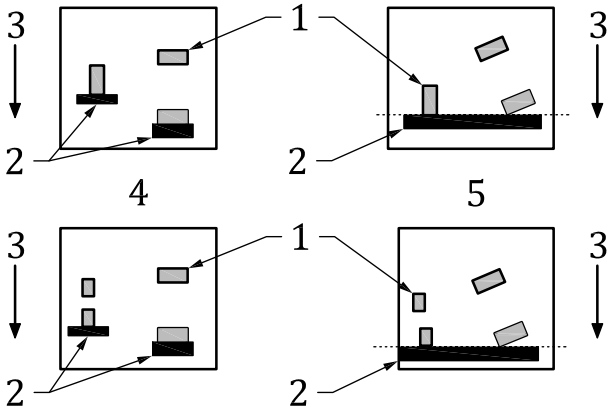


Key

1 wheel(s)
2 stop
3 slope direction
A rearward stability example
B forward stability example

Figure 38 — Rearward and forward stability

When assessing the lateral stability, place the vehicle once perpendicular to the test surface and once with the front- wheel(s) aligned with the rear wheel(s), as shown in Figure 39.



Key

1 wheel(s)
2 stop
3 slope direction
4 perpendicular to the test surface
5 front wheel(s) aligned with rear wheel(s)

Figure 39 — Lateral stability

If the vehicle passes over the 25 mm × 25 mm stop, use a stop of 50 mm × 50 mm that retains the vehicle on the test surface. The additional stop shall block only the wheel(s) that passes over the 25 mm × 25 mm stop.

Where the vehicle has swivelling or steering wheels, they shall be placed perpendicular and/or parallel to the slope direction whichever is the most onerous.

To change the position of the vehicle, it shall be unloaded then loaded again to assess its stability.

8.9.1.2.2 Stability of prams (for one child)

8.9.1.2.2.1 Prams (for one child) having an internal length of 800 mm or less

Load the pram with an internal length of 800 mm or less with test mass A placed centrally in the pram body, within a tolerance of ±10 mm so that the longitudinal and transverse axes of the pram body and test mass are aligned.

Limit the movement of the test mass with wedges of negligible mass.

8.9.1.2.2.2 Prams (for one child) having an internal length greater than 800 mm

Load the pram with an internal length greater than 800 mm with test mass B placed centrally in the pram body, within a tolerance of ±10 mm so that the longitudinal and transverse axes of the pram body and test mass are aligned.

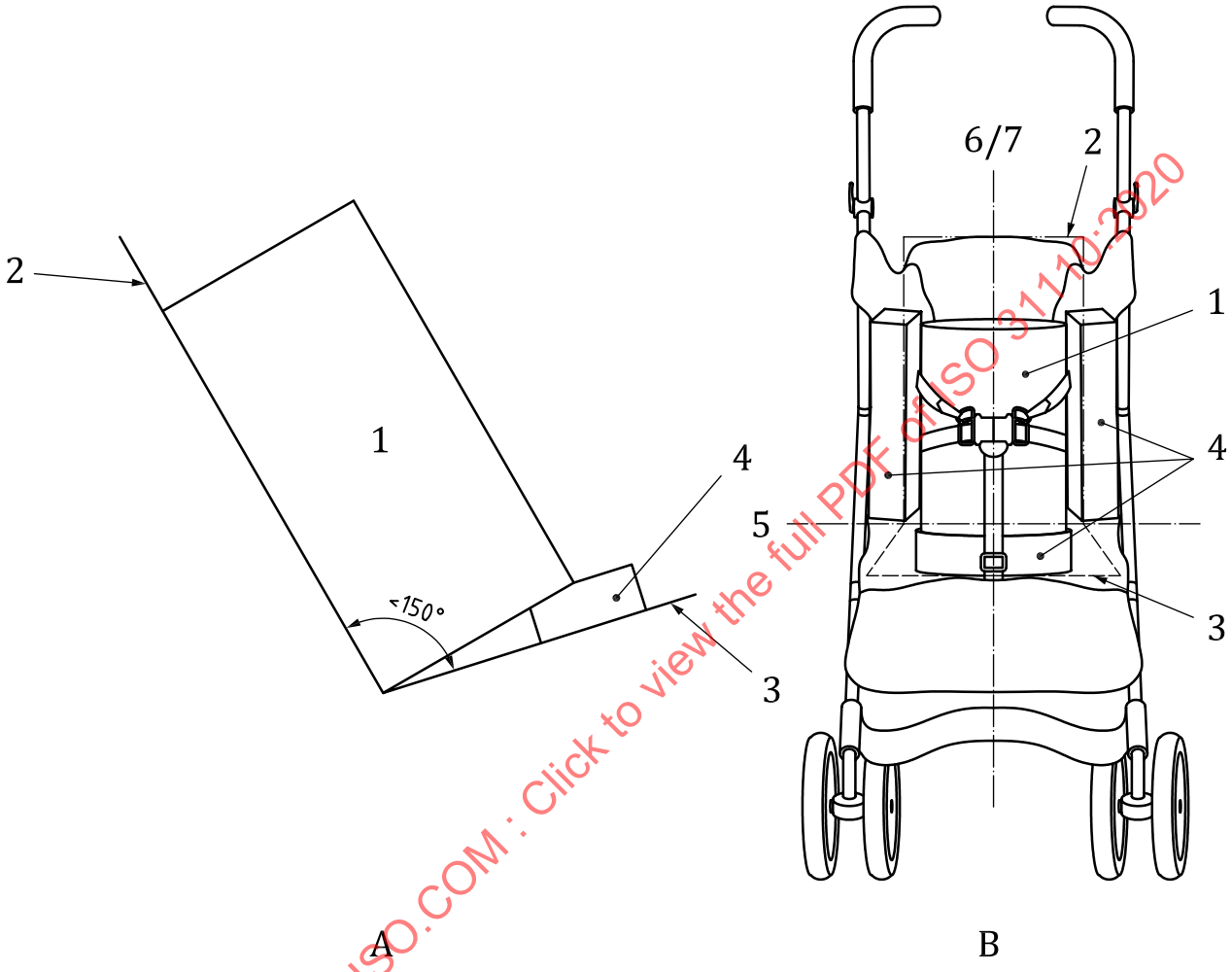
Limit the movement of the test mass with wedges of negligible mass.

8.9.1.2.3 Stability of pushchairs (for one child)

For any positions in which the angle between the backrest and the seat is less than 150° when measured in accordance with 8.1.1.2.1, adjust the seat unit in the most upright position and place test mass B on the seat unit against the backrest. Raise the whole of test mass B at least 50 mm from the seat with the test mass maintaining complete contact with the backrest. With the test mass in this position, gently lower it down as far as possible until it rests on the seat by its own weight. Where necessary in order

to maintain the position of the test mass against the backrest, use wedges of negligible mass to support the test mass [see Figure 40 a)]. The test mass is positioned centrally on the backrest such that the longitudinal axes of the test mass and backrest are aligned [see Figure 40 b)].

When the backrest is reclinable, the backrest shall be inclined without removing test mass B from the seat and maintaining contact with the backrest at all times.



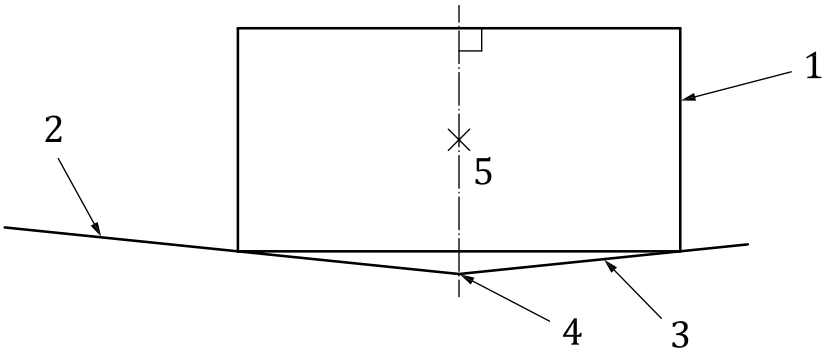
a) Side view **b) Front view**

Key

1 test mass B
2 backrest
3 seat unit
4 wedges of negligible mass
5 junction line of the seat and backrest
6 longitudinal axis of test mass
7 longitudinal axis of seat unit (centreline of seat)

Figure 40 — Positioning of test mass B in the seat unit for stability tests

For positions in which the angle between the backrest and the seat is equal to or greater than 150°, test mass B shall be positioned such that the seat backrest junction line and transverse plane through the centre of the test mass are aligned coincide (see Figure 41).



Key

1 test mass B
2 reclined backrest
3 seat
4 junction of the seat base and the backrest
5 transverse plane through the centre of the test mass

Figure 41 — Positioning of test mass B for stability test of pushchairs in which the angle between the backrest and the seat is equal to or greater than 150°

8.9.1.2.4 Stability of vehicles fitted with a car seat

Place test mass A in a type A car seat and test mass F in a type B car seat positioned centrally on the backrest (see Figure 42) so that the bottom edge of the test mass is in contact with the lowest point inside the car seat. Where necessary in order to maintain the position of the test mass, use wedges of negligible mass to support the test mass.

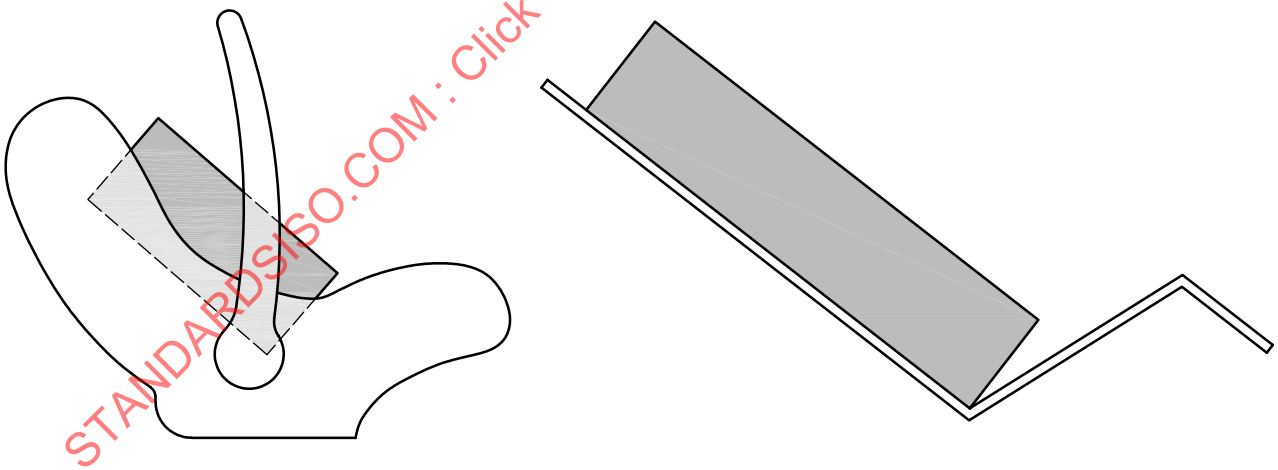


Figure 42 — Positioning of test mass F for stability test of vehicles fitted with a car seat

8.9.1.2.5 Stability of vehicles for more than one child

If a pram is designed for more than one child, use any number of test masses, up to one in each place intended to be occupied by a child as described in 8.9.1.2.2.1 or 8.9.1.2.2.2.

If a pushchair is designed for more than one child, use any number of test masses, up to one in each place intended to be occupied by a child as described in 8.9.1.2.3.

If a vehicle is designed for more than one child and the chassis can accommodate pram bodies, seat units and/or car seats, combinations of these as described in the manufacturer's instructions for use and by product markings shall be loaded with the appropriate test mass in accordance with 8.9.1.2.2 to

8.9.1.2.4. The most onerous conditions for the test shall be established with regard to the combination of pram body, seat unit or car seat.

NOTE The most onerous stability condition can occur when less than the total number of test masses is in the vehicle.

8.9.1.2.6 Stability of vehicles fitted with an integrated platform

The test shall be carried out on a vehicle fitted with an integrated platform with and without test masses A or B or F on the seat unit, pram body or car seat.

The vehicle is placed on a horizontal surface.

The backrest shall be placed in the most upright position.

Place and secure test mass G and fix it uniformly, putting the middle point of the base of test mass G on the centre line of the integrated platform. Test mass G shall be maintained along the integrated platform with a rigid bar. Both parts shall be maintained apart from each other by any connecting means of negligible mass.

Test mass G shall be positioned and fixed in such a way so that it is perpendicular to the test surface. Where the geometry of the vehicle does not allow test mass G to be in a vertical position, it shall be placed in the most vertical position.

Apply a force of 50 N vertically downwards in the middle of the handle. For separate handles, connect the handles with a rigid bar and apply the force in the middle of the bar.

8.10 Structural integrity

8.10.1 Carrying handles and handle anchorage points of pram bodies and seat units with a carrying function

8.10.1.1 Requirements

The attachment points or the top of the flexible handles' maintaining device shall be located in a position that is at least three quarters of the height of the pram body, measured on the outside from the base.

When tested in accordance with 8.10.1.2, the anchorage points of the carrying handles of the pram body or of the seat unit with a carrying function shall not break or be pulled out.

The integrity of the anchorage points shall have been maintained.

There shall be no permanent distortion or damage to any part of the pram body, seat unit with a carrying function, or handles or points of attachment when these are tested in accordance with 8.10.1.2.

8.10.1.2 Test method

Place test mass C in the geometric centre of the pram body and load uniformly the pram body to a total mass of 38 kg, or to a total mass of 38 kg per child if designed for more than one child.

Load uniformly the detachable seat unit to a total mass of 38 kg, or to a total mass of 38 kg per child if designed for more than one child.

Suspend the pram body or seat unit by its handle(s) as described in 8.10.2.2 for 30 min.

8.10.2 Longitudinal stability of a pram body with carrying handles

8.10.2.1 Requirements

When tested in accordance with 8.10.2.2, the maximum angle of inclination of the pram body towards the head or foot shall be 10°.

8.10.2.2 Test method

Place test mass A in the geometric centre of the pram body. If the vehicle is designed for more than one child, use any number of test masses, up to one in each place intended to be occupied by a child. Movement of the test mass(es) may be limited, if necessary, using any convenient means of negligible mass.

If the pram body has a hood, this shall be in the down position.

If the pram body has rigid handles, take two equal lengths of 20 mm wide webbing and attach each length to the rigid handles to form webbing loops.

Suspend the pram body by either the handles or the webbing loops from a metal bar having a cross section of 40 mm × 40 mm with an external radius of approximately 5 mm.

If the pram body has a transverse handle, suspend it by the handle from the metal bar described previously in such a way that the handle is perpendicular to the metal bar.

8.10.3 Strength and durability of attachment devices for pram bodies, seat units, car seats or carry cots

8.10.3.1 Requirements

After testing in accordance with 8.10.3.2, the devices used to connect the pram body, seat unit or car seat to the chassis shall not become disconnected, loosened or show signs of damage during or after the test. The pram body, seat unit or car seat shall not become detached from the chassis.

After testing in accordance with 8.10.3.2, any carry cot attached to a seat unit shall not become detached from the seat unit.

8.10.3.2 Test method

With the pram body, seat unit or car seat mounted on the chassis, operate the attachment devices securing the pram body, seat unit or car seat to the chassis 200 times.

When a pram body is attached to the seat unit, operate the attachment device 200 times.

Place test mass A at the bottom of a pram body or a type A car seat where the internal length is less than 800 mm.

Place test mass B at the bottom of a pram body where the internal length is greater than 800 mm.

Place test mass B in a seat unit and secure it in a central position.

Place test mass F in a type B car seat and secure it in a central position.

If the vehicle is designed for more than one child, use any number of test masses, up to one in each position intended to be occupied by a child.

Attach the vehicle by its wheels or axles to a rigid platform that can be orientated in an axis parallel to the ground.

Slowly rotate the vehicle with the test mass through an angle of 100° to the horizontal, both in a clockwise and anticlockwise direction such that the attachment devices alone transmit the test load to the chassis or seat unit (see Figure 43).

Maintain this position for 5 min in each direction.

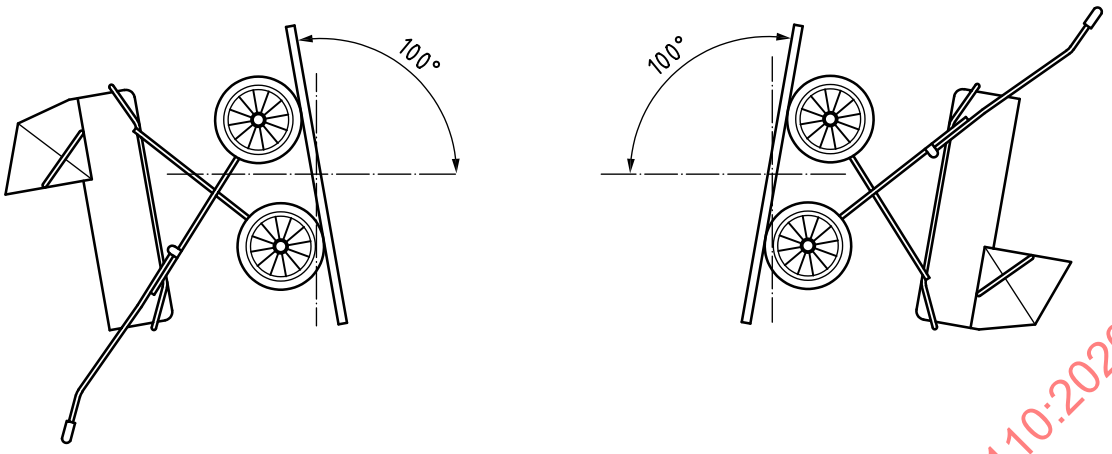


Figure 43 — Test for strength and durability of attachment devices for pram bodies and seat units and car seats

8.10.4 Irregular surface test

8.10.4.1 Requirements

When tested in accordance with 8.10.4.2, there shall be no break or deformation of any part of the product that can impair the safety of the vehicle. Signs of wear shall not be regarded as a failure.

The vehicle shall not collapse. The locking mechanisms and attachment devices shall still function as intended.

The devices used to connect the pram body, seat unit or car seat to the chassis shall not become disconnected, loosened or damaged during or after testing.

After testing in accordance with 8.10.4.2, the vehicle shall still conform to the requirements of 8.2, 8.3, 8.5, 8.8 and 8.9.

8.10.4.2 Test method

The vehicle shall be placed on the irregular surface test equipment (see 5.9) in a position so that the vehicle handle(s) can be attached to the independent articulating arms (see 5.9.2). The handle(s) shall be attached to the articulating arms, initially positioned horizontally so that the free movement of the handle(s) is not restricted or controlled by the articulating arms. Where there are more than two handles, the articulating arms shall be attached to the outer pair of handles. The handle of the wheeled child conveyance shall be protected with foam or other material with negligible mass.

Position the relevant test mass(es) as follows:

— In a pram body, test mass A or test mass B for pram bodies having an internal length greater than 800 mm when measured in accordance with 8.1.2.2 shall be placed centrally and in a horizontal position.

— In a type A car seat, test mass A and, in a type B car seat, test mass F shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/back junction line.

— In a seat unit, test mass B shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/backrest junction line. Restrain the test mass with the restraint system and any appropriate strap if needed.

Place any adjustable backrest(s) of seat unit(s) in the most upright position.

If the vehicle is designed for more than one child, use any number of appropriate test masses, up to one in each place intended to be occupied by a child.

Swivelling or steering wheels shall be unlocked.

The maximum movement of the test mass during set up shall be limited to 50 mm in any direction by the use of straps linking the anchorage points on the test mass to the attachment points on the vehicle.

To enable the vehicle to remain central on the irregular surface test equipment during the test, side straps may be used to guide the vehicle with a minimum of tension applied to the vehicle. The straps should be attached horizontally to the front legs of the vehicle and the side and/or the front of the irregular surface test equipment.

The vehicle shall pass over the configuration shown in Figure 25 for a total of 72 000 times at a speed of (5 ± 0,1) km/h.

For vehicles having alternative arrangements such as pram body, car seat, etc., the test shall be carried out for a total of 72 000 cycles, with the following arrangement:

— 24 000 cycles, with pram body, car seat, etc., with an equal number of cycles for each arrangement;

— then, the remaining 48 000 cycles with test mass B in the seat unit.

For vehicles having only a seat unit (not pram body or car seat usable) that conforms to 8.1.1.1.1 b) or c), the test shall be carried out for a total of 72 000 cycles, with the following arrangement:

— 24 000 cycles, with test mass A in the seat unit(s);

— then, the remaining 48 000 cycles with test mass B in the seat unit.

If the handle is telescopic, position the handle in its most extended position.

The adjustable (e.g. pivoting) part of the handle shall be aligned as close as possible with the handle frame.

In case of products with more than two handles, the most external handles shall be used for the testing.

If the seat unit allows it, place the seat unit in the forward-facing direction.

If a vehicle has a reversible handle, the number of cycles shall be divided to test the product in each direction of use.

For vehicles fitted with a platform, half of the total number of cycles, i.e. 36 000, shall be performed by placing and securing two masses of 10 kg each fixed uniformly about the centre line on the platform. The test masses used shall not break the platform due to their shape or material.

For vehicles having alternative arrangements such as pram body, car seat etc., the test shall be carried out for a maximum of three arrangements, taking into account the most onerous conditions on the same chassis.

8.10.5 Dynamic strength

8.10.5.1 Requirements

When tested in accordance with 8.10.5.2, the vehicle shall not collapse. The locking mechanisms and attachment devices shall still function as intended.

The devices used to attach the pram body, seat unit or car seat to the chassis shall not become detached, loosened or damaged during or after testing.

After testing in accordance with 8.10.5.2, any carry cot attached to the seat unit shall not become detached from the seat unit.

After testing in accordance with 8.10.5.2, the pram body, seat unit or car seat shall not be displaced by more than 10 mm on the chassis after testing in each direction in accordance with 8.10.5.2. This requirement does not apply to soft carry cots attached to a seat unit or in a pram body.

8.10.5.2 Test method

Position the relevant test mass(es) as follows:

— In a pram body, test mass A or test mass B for pram bodies having an internal length greater than 800 mm when measured in accordance with 8.1.2.2 shall be placed centrally and in a horizontal position.

— In a type A car seat, test mass A and, in a type B car seat, test mass F shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/backrest junction line.

— In a seat unit, test mass B shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/backrest junction line. Restrain the test mass with the restraint system and any appropriate strap if needed.

Place any adjustable backrest(s) of seat unit(s) in the most upright position.

If the vehicle is designed for more than one child, use any number of appropriate test masses, up to one in each place intended to be occupied by a child.

Position the vehicle as shown in Figure 44. Release the vehicle and allow it to run freely down the slope against a rigid stop made of steel that is at least equal to the height of the axle of the wheels of the vehicle.

Carry out the test as follows:

— three times for each alternative arrangement such as pram body, car seat;

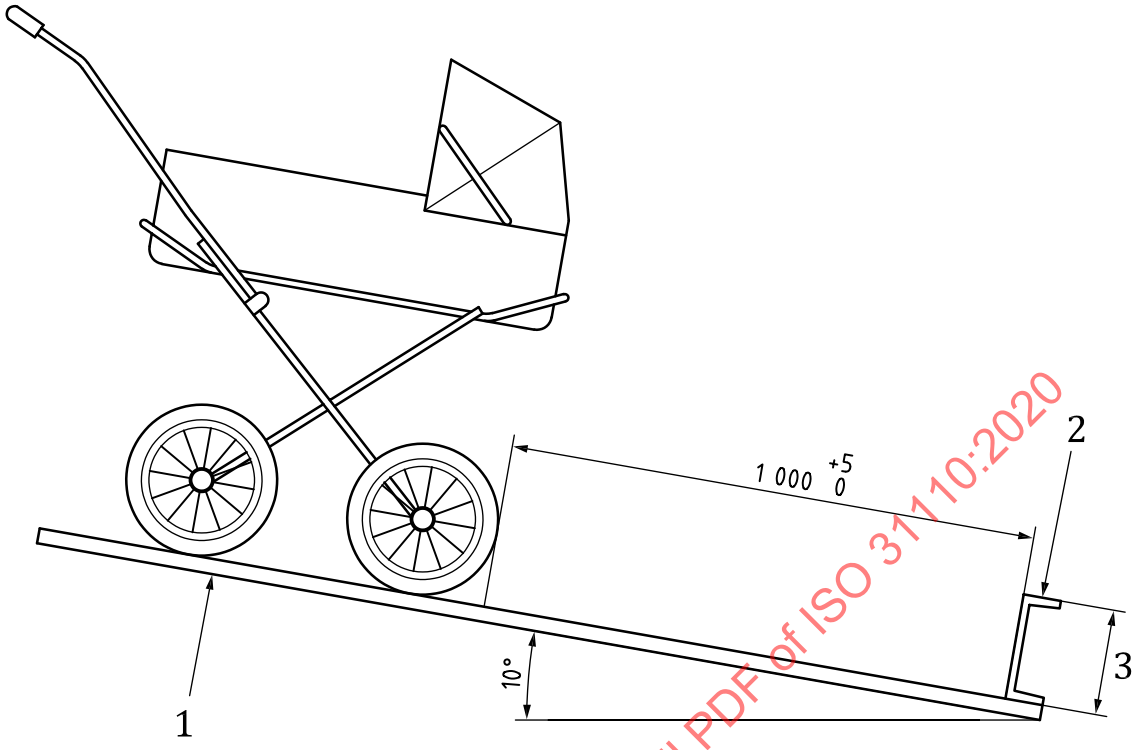
— five times with the seat unit for each orientation in accordance with the manufacturer's instructions.

Check the displacement of the pram body, seat unit or car seat.

During the test, the vehicle shall be prevented from tipping over.

If the pram body, seat unit or car seat has moved, reposition the pram body, seat unit or car seat to its original position before testing in the backwards direction.

Repeat the test with the vehicle facing in the reverse direction and check the displacement of the pram body, seat unit or car seat.



Key

1 rigid and flat surface
2 stop made of steel
3 at least the height of the axle of the wheels

Figure 44 — Dynamic strength test

8.10.6 Wheel strength

8.10.6.1 Requirements

After testing in accordance with 8.10.6.2, removable assemblies, swivel assemblies or fixed wheels shall remain attached to the axle and the wheel assembly shall function as intended.

8.10.6.2 Test method

8.10.6.2.1 Test method wheels detachment from an axle testing

8.10.6.2.1.1 General[6)]

Wheels contained on both sides by a fork are exempt from this requirement.

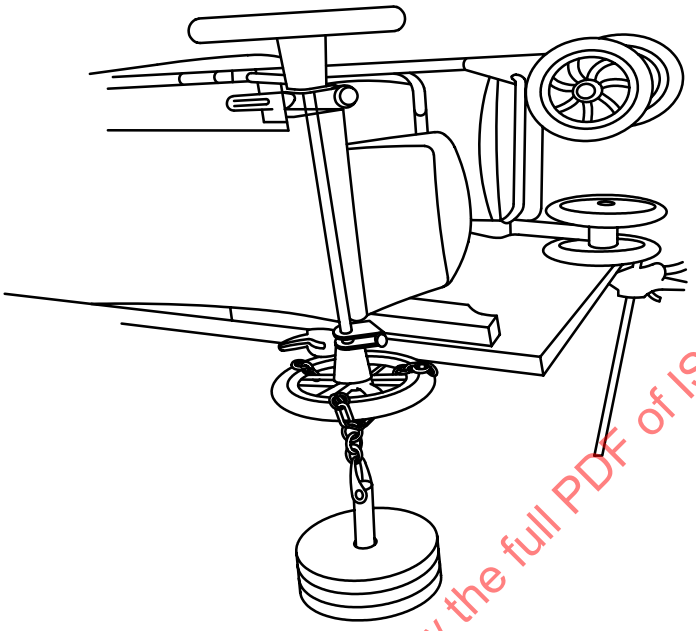
Test one rear and one front wheel for detachment from an axle in accordance with 8.10.6.2.1.2 and 8.10.6.2.1.3 for non-swivel wheel assemblies with 8.10.6.2.1.4.

8.10.6.2.1.2 Test method for non-swivel wheels[6)]

Secure the unit on its side on a table so that a hanging weight can be applied to the unit's wheel without impeding its removal. Hang a 45 kg weight on the wheel along the axle centre line so that it pulls against the wheel fastener (see Figure 45). The weight may be applied by means of a fixture/clamping

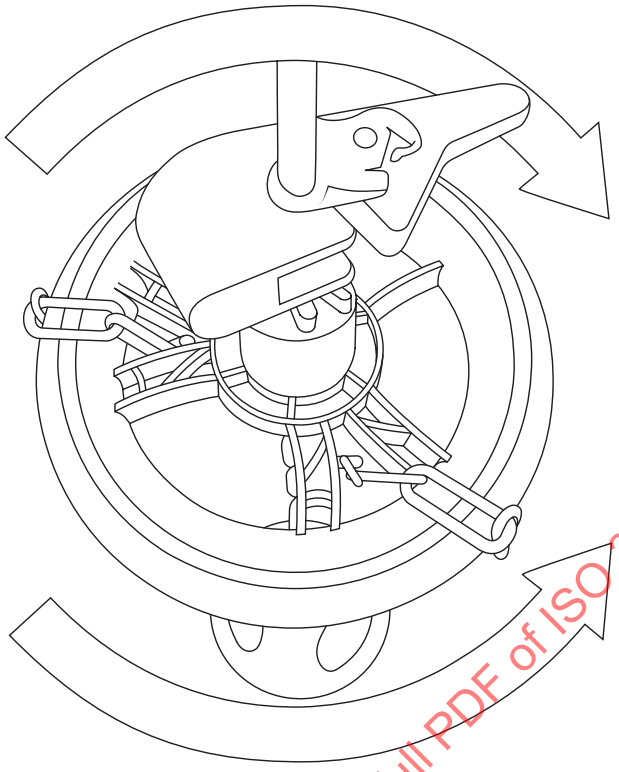
6) Based on ASTM F833[30].

device that can be adjusted to fit differently sized wheels. The fixture/clamping device shall be made to minimize damage to the wheel and to not impede the force being applied through the wheel to the fastener. Gradually apply the weight within a period of 5 s. Then rotate the wheel clockwise 360° and then anticlockwise 360° for 10 cycles: one cycle equals turning it one time clockwise 360° and one time anticlockwise 360° (see Figure 46). Each cycle shall not be less than 12 s or greater than 18 s.



NOTE Adapted from ASTM F833[30].

Figure 45 — Hanging weight



NOTE Adapted from ASTM F833[30].

Figure 46 — Turning the wheel

8.10.6.2.1.3 Test method for swivel wheels[7)]

Secure the unit on its side on a table so that a hanging weight can be applied to the unit's wheel without impeding its removal. Hang a 23 kg weight on the wheel along the axle centre line so that it pulls against the wheel fastener (see Figure 45). The weight may be applied by means of a fixture/clamping device that can be adjusted to fit different size wheels. The fixture/clamping device shall be made to minimize damage to the wheel and not to impede the force being applied through the wheel to the fastener. Gradually apply the weight within a period of 5 s. Then rotate the wheel clockwise 360° and then anticlockwise 360° for 10 cycles: one cycle equals turning it one time clockwise 360° and one time anticlockwise 360° (See Figure 46). Each cycle shall not be less than 12 s or greater than 18 s. If needed, secure the swivel wheel assembly from swivelling using the manufacturer's swivel locks or another means to keep it from swivelling.

NOTE Product swivel locks are not always sufficient to secure the front wheel from swivelling. If possible, the swivel wheel assembly can be disassembled from the unit for ease of testing.

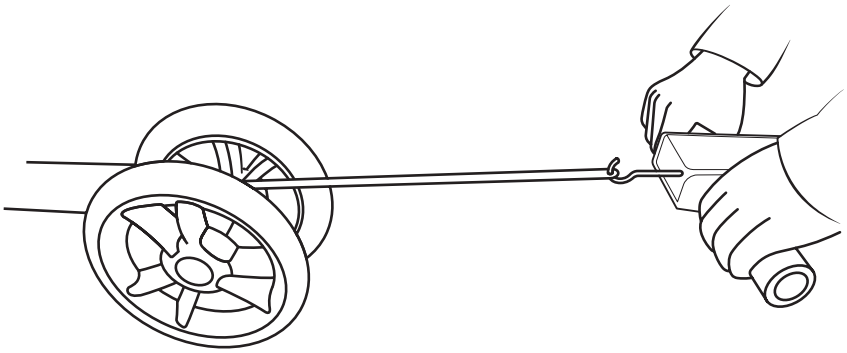
8.10.6.2.1.4 Test method for swivel assembly attachment from the frame[7)]

Test one swivel assembly. If the unit contains swivel assemblies on the front and rear, test one of each.

Secure the unit in such a way that removal of the swivel wheel assembly(s) is not impeded.

Apply a pull force of 200 N to the swivel assembly in line with the direction normally associated with the removal of the swivel assembly (see Figure 47). Gradually apply the pull force within a period of 5 s and maintain for an additional 10 s.

7) Based on ASTM F833[30].



NOTE Adapted from ASTM F833[30].

Figure 47 — Swivel assembly

8.10.7 Handle strength

8.10.7.1 Requirements

After testing in accordance with 8.10.7.2.2, there shall be no structural failure of the handle or any part of the vehicle that impairs its safety. The vehicle shall still conform to the requirements of 8.3.1.

After testing in accordance with 8.10.7.2.3, adjustable or reversible handles or part of handles shall not be detached. Any attachment point of the reversible handle shall not be released or broken.

During testing in accordance with 8.10.7.2.4, the end stops shall prevent the release of telescopic handles or part of the handle.

8.10.7.2 Test methods

8.10.7.2.1 General test conditions

Before testing in accordance with 8.10.7.2.2 and 8.10.7.2.3, reversible handle(s) shall be reversed 200 times, each time engaging the locking mechanism.

8.10.7.2.2 Durability test

Position the vehicle on a horizontal surface without the parking device applied. Position the relevant test mass(es) as follows:

— In a pram body, test mass A or test mass B for pram bodies having an internal length greater than 800 mm when measured in accordance with 8.1.2.2 shall be placed centrally and in a horizontal position.

— In a type A car seat, test mass A and, in a type B car seat, test mass F shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/back junction line.

— In a seat unit, test mass B shall be placed centrally against the backrest in such a way that its bottom edge is in contact with the seat/backrest junction line. Restrain the test mass with the restraint system and any appropriate strap if needed.

Place any adjustable backrest(s) of seat unit(s) in the most upright position.

If the vehicle is designed for more than one child, use any number of appropriate test masses, up to one in each place intended to be occupied by a child.

Where there are more than two handles, the fixture shall be attached to the outer pair of handles

Alternately raise and lower the handle(s) by applying a vertical force to the handle so that the rear wheels and front wheels in turn are raised (120 ± 10) mm, measured at the start of the test from the floor and then lowered in a controlled manner without pause (see Figure 48).

Carry out the test for a total of 10 000 cycles at a frequency of (15 ± 2) cycles/min.

Where the downwards force necessary to lift the front wheels exceeds 450 N, carry out the test by applying alternately a downwards 450 N force and an upwards force necessary to raise the rear wheels for 3 000 cycles at a frequency of (15 ± 2) cycles/min. Then continue the test by only raising the rear wheels (120 ± 10) mm for additional 7 000 cycles at a frequency of (15 ± 2) cycles/min.

For vehicles having alternative arrangements, the test shall be carried out for a total of 10 000 cycles, with an equal number of cycles for each arrangement.

For vehicles having alternative arrangements, the test shall be carried out for a maximum of three arrangements, taking into account the most onerous conditions on the same handle.

Any swivelling and steering wheels shall be locked.

For vehicles fitted with an integrated platform, place and secure uniformly two masses of each 10 kg about the centre line on the platform.

Dimensions in millimetres

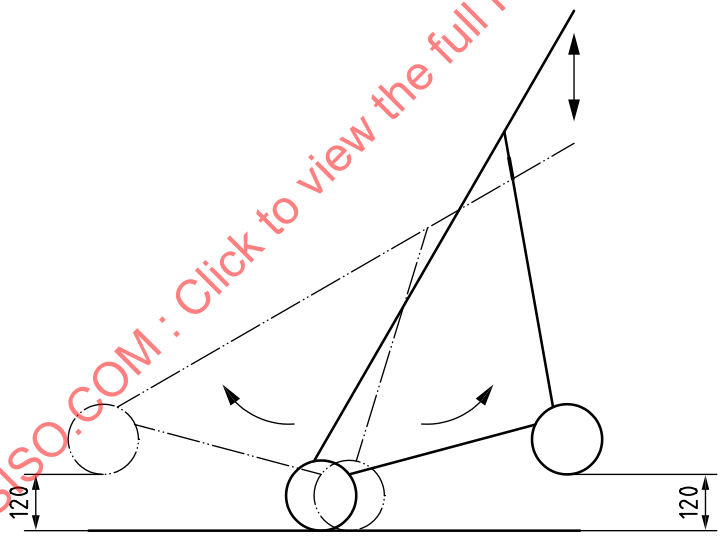


Figure 48 — Motion of the vehicle during the handle test

8.10.7.2.3 Dynamic resistance of reversible and/or adjustable handles

Restrain the vehicle in such a way that any existing suspension does not absorb any movement and force when moving the handle.

Restrain the vehicle so that the wheels are prevented from lifting.

All automatic handle locking devices shall be locked.

If a vehicle is equipped with any extra locking devices that need to be activated manually to secure the reversible handle, the handle test shall be performed without the extra locking device attached.

Attach a steel cable at the handle, 200 mm off centre. In the case of individual handles, attach it to one handle. If the measurement is not possible, attach it in the most onerous position.

Lead the cable via pulleys in such a way that a force at an angle of 90° in the direction of the movement of the handle can be applied. Attach test mass B to the other end of the cable and allow it to hang down freely (see Figure 49).

Allow the mass to reach a state of equilibrium. Lift the mass vertically 100 mm and release.

Repeat the test with the cable attached at the other side of the handle or on the other single handle. Reverse the handle(s) and repeat the above procedure.

Dimensions in millimetres

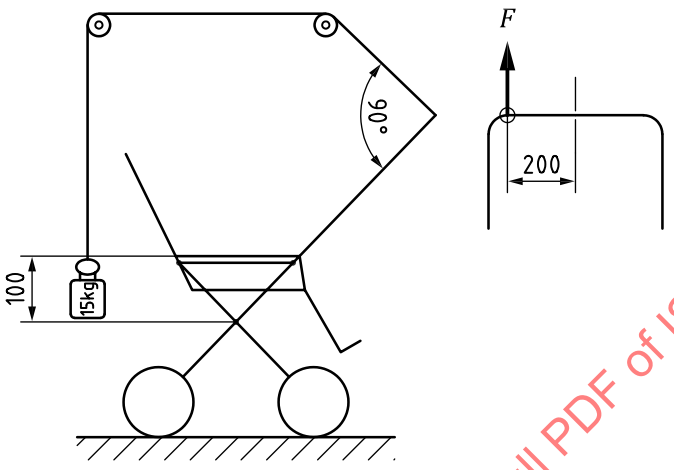


Figure 49 — Test for dynamic resistance for the adjustable and/or reversible handle(s)

8.10.7.2.4 Dynamic resistance of telescopic handles

Restrain the vehicle in such a way that any existing suspension does not absorb any movement and force when moving the handle.

All handle locking devices shall be locked.

Adjust the handle to its maximum length. If a vehicle is equipped with any extra locking devices that need to be activated manually to secure the handle, the handle test shall be performed without the extra locking device attached.

Attach a steel cable at the handle, 200 mm off centre. In the case of individual handles, attach it to one handle. If the measurement is not possible, attach it in the most onerous position.

Lead the cable via pulleys in such a way that a force can be applied in the direction of the longitudinal axis of the handle. Attach test mass B to the other end of the cable and allow it to hang down freely (see Figure 50).

Allow the mass to reach a state of equilibrium. Lift the mass vertically 100 mm and release.

Repeat the test with the cable attached at the other side of the handle or on the other single handle.

Dimensions in millimetres

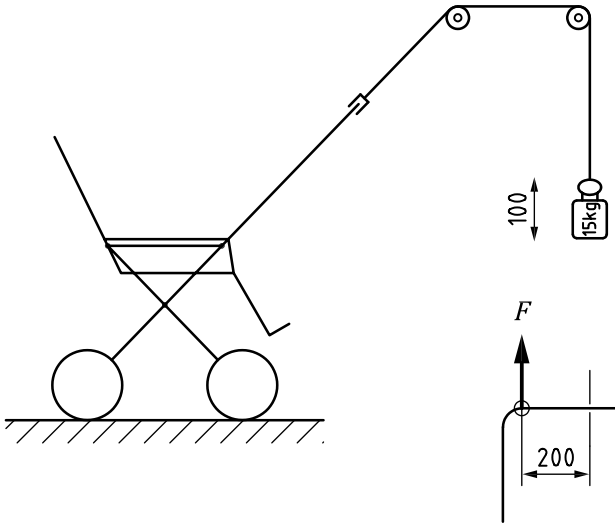


Figure 50 — Test for dynamic resistance for telescopic handle(s)

9 Durability and adhesion of marking

9.1 Requirement

After testing in accordance with 9.2, the text of the label shall still be clearly legible.

9.2 Test method

Any permanent labels shall be gently rubbed back and forth 20 times with a cotton cloth moistened with demineralized water.

10 Product information

10.1 General

All product information shall be provided in the official language(s) of the country in which the product is sold.

The word WARNING shall be added at the beginning of a warning sentence or at the top of a list of separated warnings.

The word WARNING and the first letter of the sentence shall be written in upper case letters of at least 2,5 mm in height.

The warning may be expressed in different words providing they clearly convey the same message.

10.2 Marking of product

The vehicle shall be legibly, visibly and permanently marked with at least the following information. Where a vehicle can be sold in separate parts (frame, pram body and/or seat unit), each part shall be marked.

a) The name or trademark of the manufacturer, importer or organization responsible for its sale.

b) A means to identify the model where a vehicle can be sold in separate parts.

c) The appropriate warning statement from the following list:

1) When using the product, this warning shall be visible: “Never leave the child unattended”.

2) For pram bodies having an internal length greater than 800 mm, as defined in 8.1.2.1 b): “Use a harness as soon as the child can sit unaided”.

3) For vehicles that are not suitable for children under six months in accordance with 8.1.1.1.2, this warning shall be visible during folding, unfolding or adjustment of the vehicle: “This seat unit is not suitable for children under six months”.

4) For all seat units: “Always use the restraint system”. For seat units conforming to 8.1.1.1.1, the warning shall be visible when the vehicle is used as a pushchair.

5) Only use when a removable bumper covering is installed: “Children can choke on foam”. For a bumper bar with a removable protective covering, the warning shall be located on the foam.

d) For pram bodies, the maximum thickness of the mattress to be used unless a mattress is provided. The manufacturer shall clearly indicate that only one mattress shall be used.

e) For inflatable tyres, the maximum pressure shall be marked on the tyre or product.

f) Plastic packaging shall be marked with the following warning: “WARNING Keep this plastic cover away from children to avoid suffocation”. This statement may be expressed in different words providing they clearly convey the same warning.

g) The number and date of this document, i.e. ISO 31110:2020.

10.3 Purchase information

The manufacturer, importer or organization responsible for the sale of the product shall provide the following information to be clearly visible at the point of sale. If the product is sold through the internet, the point of sale is the website where the product is sold.

a) Information concerning the weight, age and/or ability of the child for which the product is suitable (up to 15 kg).

b) The warning: “WARNING This product is designed for walking use only”.

c) For pram bodies with a length of 800 mm or less, provide a statement that the product shall not be used as soon as the child is able to sit by himself:

“This product is suitable for a child who cannot sit up unaided, roll over and cannot push itself up on its hands and knees. Maximum weight of the child: 9 kg”.

This requirement does not apply to pram bodies conforming to car seat standards.

10.4 Instructions for use

Instructions concerning the safe use of the product shall be provided in the form of instruction sheet, instruction manual, leaflet or other printed media.

The instructions shall be headed as follows: “Important — Read these instructions carefully before use and keep for future reference”. (This heading is not necessary on the cover.)

The instructions shall contain the following.

— WARNING

— Never leave the child unattended

— Ensure that all the locking devices are engaged before use

- To avoid injury, ensure that the child is kept away when unfolding and folding this product
- Do not let the child play with this product
- This seat unit is not suitable for children under six months (if applicable)
- Always use the restraint system (if applicable)
- Check that the pram body, seat unit or car seat attachment devices are correctly engaged before use
- This product is only suitable for walking use
- Use a harness as soon as the child can sit unaided (for pram bodies having a length greater than 800 mm)
- To prevent accidents, ensure that the vehicle is kept away from automatic closing doors (e.g. on trains, lifts)

The word WARNING shall be added at the beginning of a warning sentence (as above) or at the top of a list of separated warnings.

At least the following information shall be given.

- The name or trade mark of the manufacturer, importer or organization responsible for its sale.
- A means to identify the product.
- Information concerning the weight, age and/or ability of the child for which the product is suitable (up to 15 kg).
- For pushchairs designed to be used from birth, a recommendation on the use of the most reclined position for new born babies.
- Instructions for initial assembly, folding and erection (if applicable).
- A statement of compatibility between frame and pram body, seat unit and/or car seat (if applicable).
- For pram bodies, an indication of the maximum thickness of the mattress to be used unless a mattress is provided. The manufacturer shall clearly indicate that only one mattress shall be used.
- Instructions covering all the functions of the product:
  - operating, parking and/or braking device(s);
  - engaging the parking device(s) when placing and removing the child/children;
  - for vehicles fitted with load carrying accessories, details of the maximum load;
  - a statement that any load attached to the handle and/or on the back of the backrest and/or on the sides of the vehicle will affect the stability of the vehicle;
  - performing a routine inspection, maintenance, cleaning and/or washing;
  - a statement that the vehicle shall be used only for up to the number of children for which it has been designed;
  - a statement that accessories that are not approved by the manufacturer shall not be used;
  - using and maintaining the restraint system including any attachment points;
  - ensuring the safe use of an integrated platform together with an indication of weight of the child for which it is suitable (up to 20 kg);

— for pram bodies with a length of 800 mm or less, a statement that as soon as the child is able to sit unaided the product shall not be used: “This product is not suitable for a child who can sit up unaided or roll over and push itself up on its hands and knees. Maximum weight of the child: 9 kg”; this does not apply to pram bodies conforming to car seat standards;

— for pram bodies with flexible carrying handles, a statement that the handles shall be left out of the pram body during use;

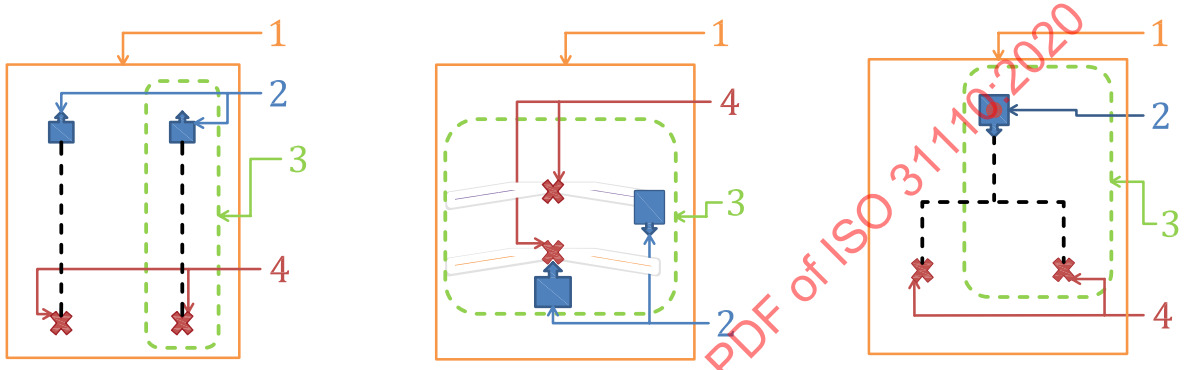
— a statement that only replacement parts supplied or recommended by the manufacturer/distributor shall be used;

— any other information for safe usage.

Annex A
(informative)

Examples of a folding system

As indicated in 3.8, the folding system enables the wheeled child conveyance to be changed from an erected position to a folded position under the control of the carer. (see Figure A.1).



a) Example 1 **b) Example 2** **c) Example 3**

Key

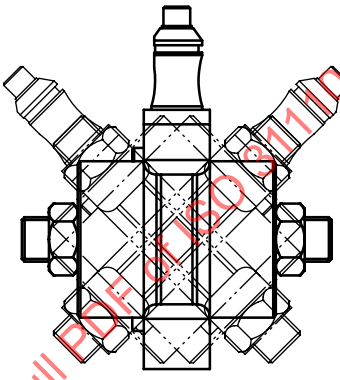
1 folding system (FS)
2 operating device (OD)
3 locking mechanism (LM = OD + LD)
4 locking device (LD), for example 1 and example 3, two locking pins linked to the OD

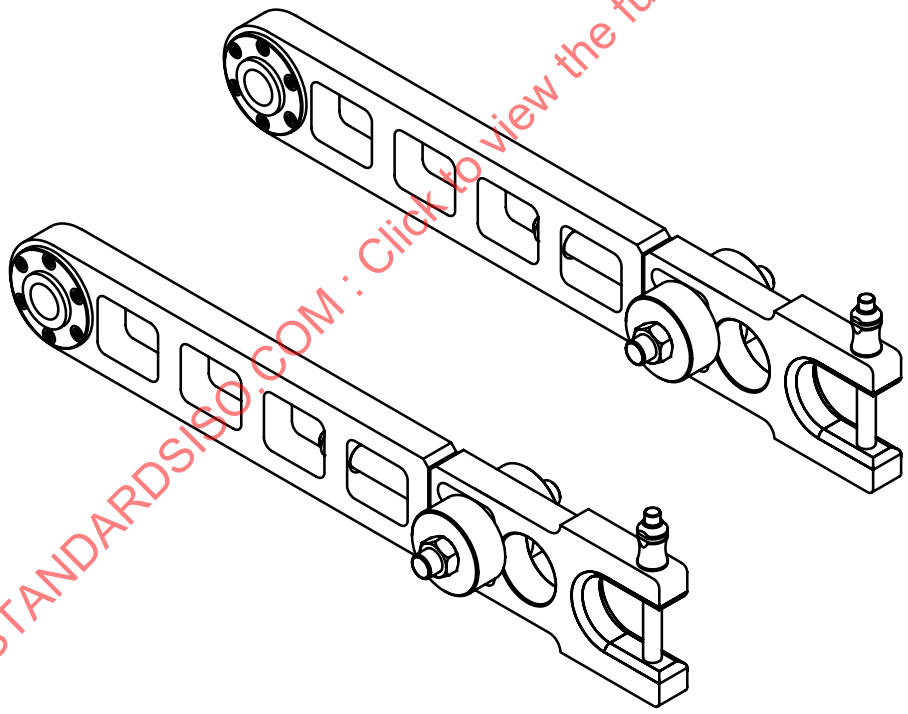
Figure A.1 — Folding system

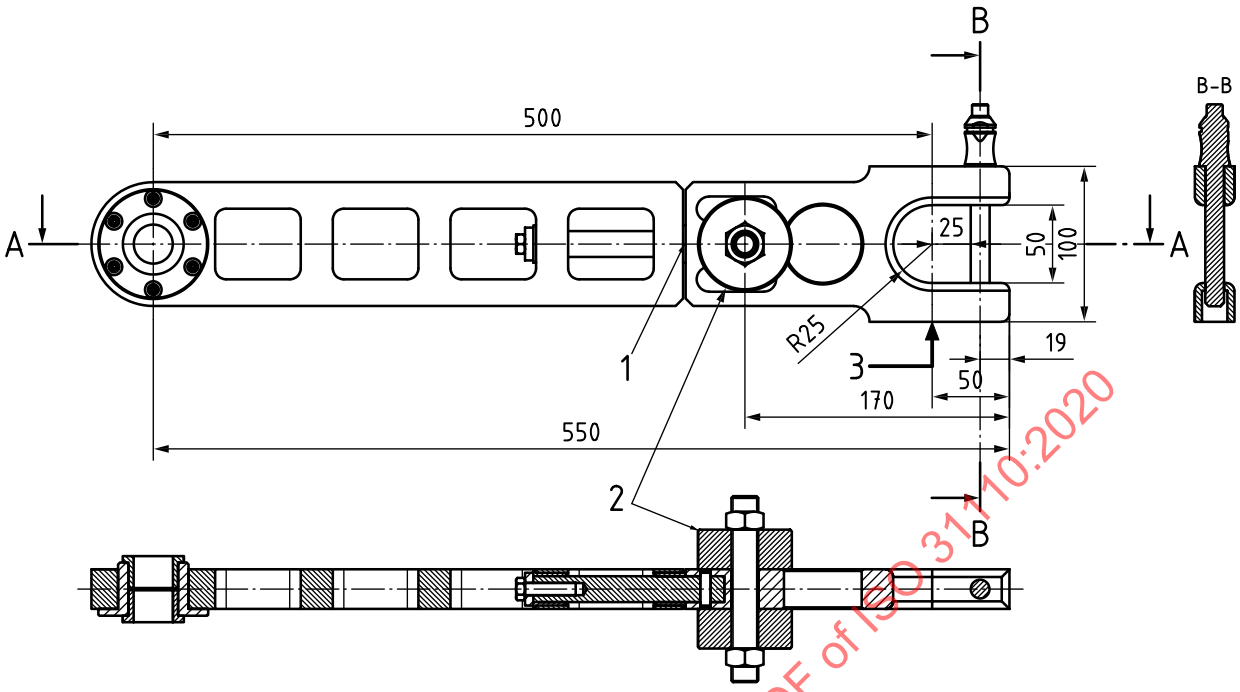
Annex B
(informative)

Articulating arms

Dimensions in millimetres







Key

1 arm articulation
2 steel washer of diameter 60 mm
3 application point

Figure B.1 — Articulating arm adaptation for single straight handles

Dimensions in millimetres