

AS/NZS ISO 8124.1:2023
ISO 8124-1:2022



Australian/New Zealand Standard™

Safety of toys

Part 1: Safety aspects related to mechanical and physical properties



AS/NZS ISO 8124.1:2023

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- Australian Toy Association
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- CHOICE
- Consumer Affairs Victoria
- Consumers' Federation of Australia
- Farmers Trading Company, NZ
- Infant and Nursery Products Alliance of Australia
- Kidsafe Australia
- National Retail Association Australia
- New Zealand Toy Distributors Association
- Office of Fair Trading (QLD)
- Safekids Aotearoa (New Zealand)

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Australian/New Zealand Standard™

Safety of toys

Part 1: Safety aspects related to mechanical and physical properties

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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CS-018, Safety of Children's Toys, to supersede AS/NZS ISO 8124.1:2019.

The objective of this document is to specify acceptable criteria for the mechanical and physical properties of toys to enable their safe use by children in an age appropriate manner.

The requirements in this document apply to any product designed or clearly intended for use in play by children under 14 years of age under conditions of normal use and reasonably foreseeable abuse, unless specifically noted otherwise.

This document also includes acceptable test methods, types of safety labels, appropriate warnings and/or instructions for use that may be provided.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 Technical Committee ISO/TC 181, *Safety of toys*.

This sixth edition cancels and replaces the fifth edition (ISO 8124-1:2018), which has been technically revised. It also incorporates the amendments ISO 8124-1:2018/Amd.1:2020 and ISO 8124-1:2018/Amd.2:2020.

A list of the main technical changes made to the previous edition is given in [Annex G](#).

A list of all parts in the ISO 8124 series can be found on the ISO website.

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.

Introduction

This document is largely based upon existing standards in the European Union (EN 71-1) and in the United States of America (ASTM F963).

Conformity to the requirements of this document will minimize potential hazards associated with toys resulting from their use in their intended play modes (normal use) as well as unintended play modes (reasonably foreseeable abuse).

This document does not, nor is it intended to, eliminate parental responsibility in the appropriate selection of toys. In addition, this document does not eliminate the need for parental supervision in situations where children of various ages have access to the same toy(s).

Although [Annexes A, B, C, D, E](#) and [F](#) are for information purposes only, they are crucial for the correct interpretation of this document.

The safety of electric toys is described in IEC 62115.

When age indications are required for safety labelling purposes, they may be given in either months or years.

A list of the main technical changes made to the previous edition is given in [Annex G](#).

NOTES

Australian/New Zealand Standard

Safety of toys

Part 1: Safety aspects related to mechanical and physical properties

1 Scope

The requirements in this document apply to all toys, i.e. any product designed or clearly intended for use in play by children under 14 years of age. They are applicable to a toy as it is initially received by the consumer and, in addition, they apply after a toy is subjected to reasonably foreseeable conditions of normal use and abuse unless specifically noted otherwise.

The requirements of this document specify acceptable criteria for structural characteristics of toys, such as shape, size, contour, spacing (e.g. rattles, small parts, sharp points and edges, and hinge-line clearances) as well as acceptable criteria for properties peculiar to certain categories of toy (e.g. maximum kinetic energy values for non-resilient-tipped projectiles and minimum tip angles for certain ride-on toys).

This document specifies requirements and test methods for toys intended for use by children in various age groups from birth to 14 years. The requirements vary according to the age group for which a particular toy is intended. The requirements for a particular age group reflect the nature of the hazards and the expected mental and/or physical abilities of a child to cope with them.

This document also requires that appropriate warnings and/or instructions for use be given on certain toys or their packaging. Due to linguistic problems which may occur in different countries, the wording of these warnings and instructions is not specified but given as general information in [Annex B](#). It should be noted that different legal requirements exist in many countries with regard to such marking.

This document does not purport to cover or include every conceivable potential hazard of a particular toy or toy category. Except for labelling requirements indicating the functional hazards and the age range for which the toy is intended, this document has no requirements for those characteristics of toys which represent an inherent and recognized hazard which is integral to the function of the toy.

EXAMPLE 1 An example of such a hazard is the sharp point necessary for the proper function of a needle. The needle is a hazard which is well understood by the purchaser of a toy sewing kit, and the functional sharp-point hazard is communicated to the user as part of the normal educational process of learning to sew as well as at the point of purchase by means of cautionary labelling on the product's packaging.

EXAMPLE 2 As a further example, a two-wheeled toy scooter has inherent and recognized hazards associated with its use (e.g. instability during use, especially while learning). The potential hazards associated with its structural characteristics (e.g. sharp edges, pinch hazards) will be minimized by conformity to the requirements of this document.

Products not included within the scope of this document are:

- a) bicycles, except for those considered to be toys, i.e. those having a maximum saddle height of 435 mm (see [E.1](#));
- b) slingshots;

NOTE 1 "Slingshots" are also known as "catapults" and are usually held in the hand; examples are given in [Figure 1](#). Toy versions of medieval catapults and trebuchets are not exempt from this document; an example is given in [Figure 2](#).



NOTE Not within the scope of this document.

Figure 1 — Examples of slingshots



NOTE Within the scope of this document.

Figure 2 — Medieval toy catapult

- c) darts with metal points;
- d) public playground equipment;
- e) compressed air- and gas-operated guns and pistols (see [E.1](#));
- f) kites (except for the electric resistance of their strings, which is included);
- g) model kits, hobby and craft items, in which the finished item is not primarily of play value;
- h) sporting goods and equipment, camping goods, athletic equipment, musical instruments and furniture; however, toys which are their counterparts are included;

NOTE 2 It is recognized that there is often a fine distinction between, for example, a musical instrument or a sporting item and its toy counterpart. The intention of the manufacturer or distributor, as well as normal use and reasonably foreseeable abuse, determines whether the item is a toy counterpart or not.

- i) models of aircraft, rockets, boats and land vehicles powered by combustion engines; however, toys which are their counterparts are included (see [E.1](#));
- j) collectible products not intended for children under 14 years of age;
- k) holiday decorations that are primarily intended for ornamental purposes;
- l) aquatic equipment intended to be used in deep water;
- m) swimming-learning devices and flotation aids for children, such as swim-seats and swim-aids;
- n) toys installed in public places (e.g. arcades and shopping centres);
- o) puzzles for specialists, for example those with more than 500 pieces and those without a picture;

- p) fireworks, including percussion caps, except percussion caps specifically designed for toys;
- q) products containing heating elements intended for use under the supervision of an adult in a teaching context;
- r) steam engines;
- s) video toys that can be connected to a video screen and operated at a nominal voltage greater than 24 V;
- t) babies' pacifiers (dummies);
- u) faithful reproductions of firearms;
- v) electric ovens, irons or other functional products operated at a nominal voltage greater than 24 V;
- w) bows for archery with an overall relaxed length exceeding 120 cm;
- x) fashion jewellery for children (see [E.1](#)).

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 4593, *Plastics — Film and sheeting — Determination of thickness by mechanical scanning*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

ISO 11202, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections*

ISO 21920-2, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters*

IEC 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

NOTE The requirements in this document are applicable to certain age ranges. For an interpretation of these age ranges, see [E.43](#).

3.1

accessible

<part or component> contactable by any portion forward of the collar of the accessibility probe

Note 1 to entry: The accessibility probe is described in [5.7](#).

3.2

aquatic toy

product, whether inflatable or not, intended to bear the mass of a child and used as an instrument of play in shallow water

Note 1 to entry: Bathroom toys and beach balls are not considered aquatic toys.

3.3

arrow

projectile (3.56) in the form of a shaft with a length of 150 mm or more, intended to be discharged from a bow held by the user

3.4

A-weighted equivalent sound pressure level

L_{pAeq}

level of a *steady-state sound* (3.75) which, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound

3.5

backing

material adhering to flexible plastic sheeting

3.6

ball

spherical, ovoid or ellipsoidal object, usually but not always designed or intended to be thrown, hit, kicked, rolled, dropped or bounced

Note 1 to entry: This definition includes balls attached to a *toy* (3.82) or article by a string, elastic cord or similar tether and also any multi-sided object formed by connecting planes into, and any novelty item of, a generally spherical, ovoid or ellipsoidal shape designed or intended to be used as a ball.

Note 2 to entry: This definition does not include dice, or balls permanently enclosed inside pinball machines, mazes or similar outer containers. A ball is permanently enclosed if, when tested according to 5.24, it is not removed from the outer container.

3.7

battery-operated toy

toy (3.82) having at least one function dependent on electricity and powered by batteries

3.8

burr

roughness caused by not cleanly severing or finishing the material

3.9

chain

series of connected links or rings of which the length is significantly greater than the thickness and width

3.10

close-to-the-ear toy

toy (3.82) that is intended to be used close to the ear, i.e. the sound-emitting part of such a toy is normally put against the ear of a child

EXAMPLE Toy cellphones or toy telephones that emit sounds from the handpiece.

3.11

collapse

sudden or unexpected folding of a structure

3.12**cord**

narrow piece of flexible textile or non-textile material, the length of which is significantly greater than the thickness and width

EXAMPLE Elastic material, monofilament polymeric material, *tape* (3.79), *ribbon* (3.77), rope, *straps* (3.76), *chains*, woven and twisted material and string, as well as certain weak and long *springs* (3.73).

Note 1 to entry: *Electrical cables* (3.21) are not considered to be cords. *Accessible* (3.1) electrical wires [e.g. between a battery box and a sound source in a *soft-filled toy* (3.71)] which are not electrical cables are, however, considered to be cords.

3.13**cord with the potential to tangle**

cord (3.12) with an attachment, fixed loop, knot or similar feature that can cause the cord to tangle and form a tangled loop or *noose* (3.49) during reasonably foreseeable use and without excessive or intricate manipulation

3.14**crushing**

injury to part of the body resulting from compression between surfaces

3.15**C-weighted peak sound pressure level**

L_{pCpeak}

peak sound pressure level obtained when using standardized C-weighting

3.16**dart**

projectile (3.56) in the form of a shaft less than 150 mm in length that is intended to be thrown or blown

3.17**discharge mechanism**

component of the *toy* (3.82), separate from the *projectile* (3.56), which releases or propels the projectile into free flight

3.18**driving mechanism**

assembly of linked parts or components (e.g. gears, belts and winding mechanisms), at least one of which moves, powered by a source (e.g. electrical or mechanical means) independent of a child

3.19**edge**

line, formed at the junction of two surfaces, whose length exceeds 2,0 mm

3.19.1**curled edge**

edge (3.19) in which the portion of the sheet adjacent to the edge is bent into an arc and forms an angle of less than 90° with the base sheet

Note 1 to entry: See [Figure 3](#).

3.19.2**hemmed edge**

edge (3.19) in which the portion of the sheet adjacent to the edge is folded back on the sheet itself through an angle of approximately 180°, so that the portion of the sheet adjacent to the edge is approximately parallel to the main sheet

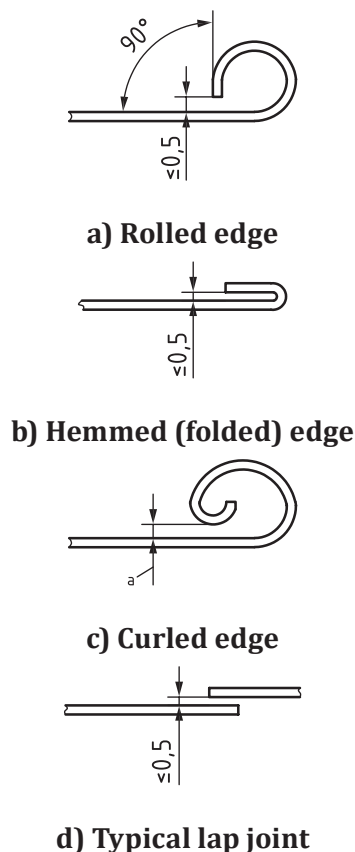
Note 1 to entry: See [Figure 3](#).

3.19.3**rolled edge**

edge (3.19) in which the portion of the sheet adjacent to the edge is bent into an arc and forms an angle between 90° and 120° with the main sheet

Note 1 to entry: See [Figure 3](#).

Dimensions in millimetres



a No limit.

Figure 3 — Edges

3.20**elastic**

material or item that is stretchable when subjected to an external force and which is able to recover or nearly recover its original length or shape when the force is removed

3.21**electrical cable**

flexible insulated conductor used for connecting a *toy* (3.82) to a supply of electricity or to a piece of electronic equipment which is not itself a toy or part of a toy

3.22**expanding material**

material whose volume expands when exposed to water

3.23**explosive action**

sudden release of energy characterized by the rapid expansion or bursting of a material

3.24**fastener**

mechanical device which attaches two or more elements together

EXAMPLE Screws, rivets and staples.

3.25**feathering**

beveling of an *edge* (3.19) (or decrease in thickness moving toward the edge) caused during shearing or cutting of material

3.26**fixed loop**

loop in a *cord* (3.12), the perimeter of which is fixed by any permanent means, including one or more knots, hook and loop *fasteners* (3.24), buckles or similar fasteners

Note 1 to entry: A fixed loop can include a part or parts of the toy. See [Figure 4](#).

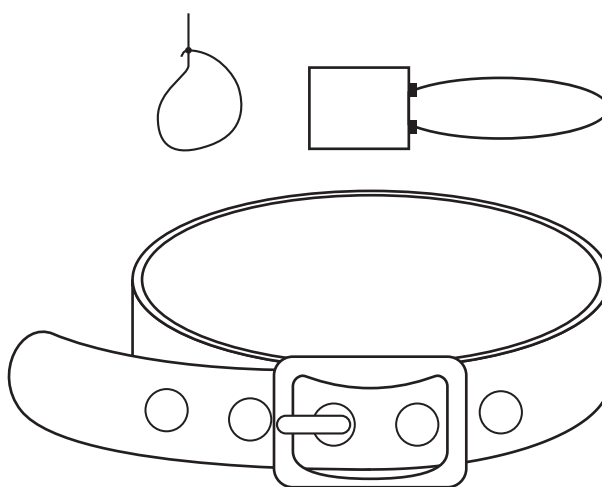


Figure 4 — Examples of fixed loops

3.27**flash**

excess material that escapes between the mating parts of a mould assembly

3.28**flying toy**

toy (3.82) or part of a toy intended to be launched into free flight with an on-board energy source (e.g. compressed gas, springs, electricity or inertial energy) that continues to propel the object after the initial release, for part or all of the flight

3.29**folding mechanism**

hinged, pivoted, folding or sliding assembly which could crush, scissor, pinch or shear during operation

EXAMPLE Toy ironing boards, toy pushchairs.

3.30**free flight**

unconstrained travel through the air

Note 1 to entry: This includes portions of unconstrained travel that may ultimately be constrained by means of a tether.

3.31**functional magnet**

magnet necessary for the function of motors, relays, speakers and other electrical or electronic components in a *toy* (3.82) where the magnetic properties are not part of the play pattern of the toy

3.32**functional toy**

toy (3.82) which performs and is used in the same way as, and is often a scale model of, a certain product, appliance or installation intended for adults

EXAMPLE Stove with heating properties.

3.33**fuzz**

bits of fibrous-type material which can be readily removed from *toys* (3.82) with a pile surface

3.34**glass**

hard, brittle, amorphous substance produced by fusion, usually consisting of mutually dissolved silica and silicates which also contain soda and lime

3.35**hand-held toy**

toy (3.82) that is intended to be used or operated while being held in the hand

EXAMPLE Toy tools, small electronic games, stuffed animals, dolls, musical toys and cap-firing toys.

3.36**harm**

physical injury or damage to the health of people or damage to property or the environment

3.37**hazard**

potential source of *harm* (3.36)

Note 1 to entry: The term hazard can be qualified in order to define its origin or the nature of the expected harm (i.e. electric shock hazard, *crushing* (3.14) hazard, cutting hazard, toxic hazard, fire hazard or drowning hazard).

3.38**hazardous projection**

projection that, because of its material or configuration or both, can present a puncture hazard should a child step on or fall onto it

Note 1 to entry: Excluded from this definition are puncture hazards to the eyes and/or mouth, because of the impossibility of eliminating puncture hazards to those areas of the body by product design.

Note 2 to entry: If the projection is on a small *toy* (3.82) which topples over when pressure is applied to the end of the projection, it is unlikely to present a *hazard* (3.37).

3.39**hazardous sharp edge**

accessible (3.1) *edge* (3.19) of a *toy* (3.82) which presents an unreasonable risk of injury during normal use and reasonably foreseeable abuse

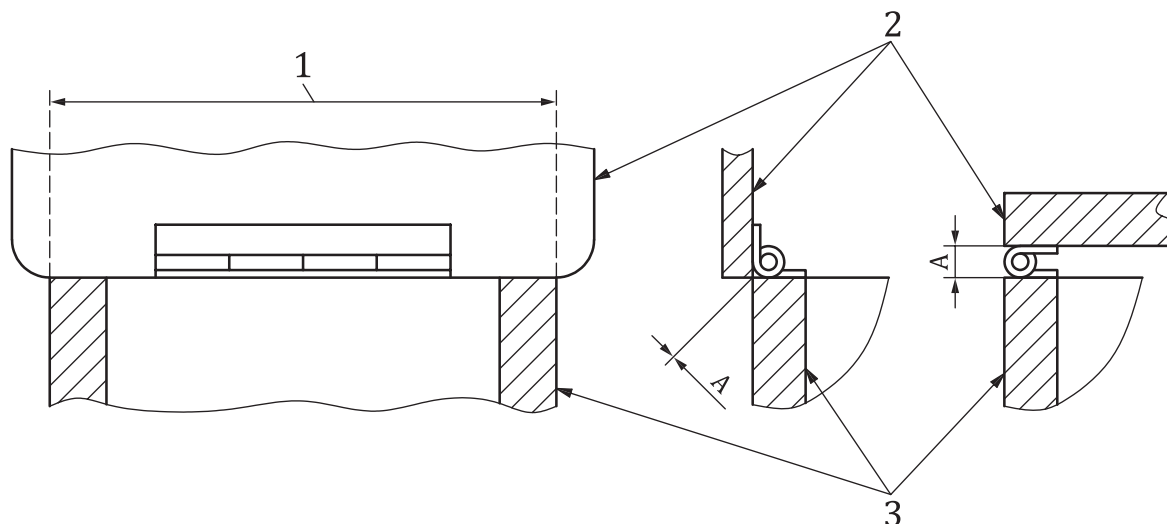
3.40**hazardous sharp point**

accessible (3.1) *point* of a *toy* (3.82) which presents an unreasonable risk of injury during normal use or reasonably foreseeable abuse

3.41**hinge-line clearance**

distance between the stationary portion of a *toy* (3.82) and the movable portion along or adjacent to a line projected through the axis of rotation

Note 1 to entry: See [Figure 5](#).

**Key**

- 1 hinge line
- 2 lid
- 3 box
- A hinge-line clearance between assembled edges

Figure 5 — Hinge-line clearance

3.42**lap joint**

joint in which an *edge* (3.19) overlaps a parallel surface but is not necessarily mechanically attached to it at all points along the length

Note 1 to entry: See [Figure 3](#).

3.43**large and bulky toy**

toy (3.82) that has a projected base area of more than 0,26 m² or a volume of more than 0,08 m³ calculated without regard to minor appendages, or a mass of 4,5 kg or more

Note 1 to entry: The base area for toys having permanently attached legs is measured by calculating the area enclosed by straight lines connecting the outermost *edge* (3.19) of each leg of the perimeter.

3.44**leading edge**

area of the *projectile* (3.56) or *flying toy* (3.28) [e.g. tips, *edges* (3.19) or protrusions] which would be expected to make contact with the eyeball

Note 1 to entry: This includes all areas on *projectiles* (3.56) or *flying toys* (3.28) that travel in unpredictable orientations (e.g. tumbling) that could reasonably be expected to strike the eyeball.

3.45**magnetic component**

part of a *toy* (3.82) which contains an attached or fully or partially enclosed magnet

3.46**magnetic or electrical experimental set**

toy (3.82) containing one or more magnets intended for carrying out educational experiments involving both magnetism and electricity

3.47**marble**

sphere made of hard material, such as *glass* (3.34), agate, marble or plastic, which is used in various children's games, generally as a playing piece or marker

Note 1 to entry: This definition does not include marbles permanently enclosed inside pinball machines, mazes or similar outer containers. A marble is permanently enclosed if, when tested according to 5.24, it is not removed from the outer container.

3.48**maximum A-weighted sound pressure level**

L_{AFmax}

maximum sound pressure level obtained when using standardized A-weighting and fast detector response time-weighting

3.49**noose**

loop in a *cord* (3.12) whose perimeter reduces as the cord is pulled

Note 1 to entry: See [Figure 6](#).

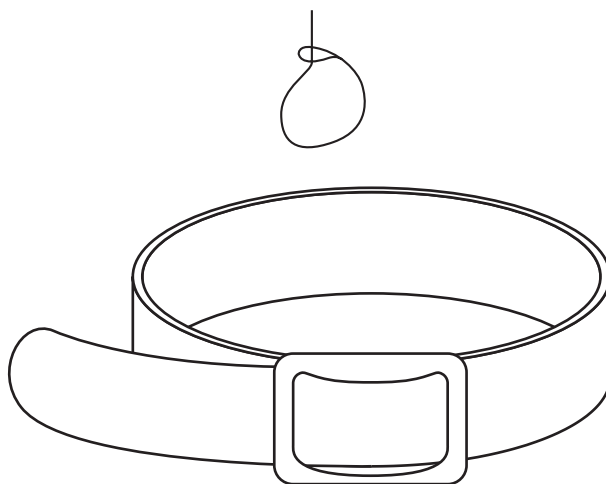


Figure 6 — Examples of a noose

3.50**normal use**

play modes that conform to the instructions which accompany the *toy* (3.82), and which have been established by tradition or custom, or which are evident from an examination of the toy

3.51**packaging**

material accompanying the *toy* (3.82) when purchased, but having no intended play function

3.52**paper**

sheet formed by irregularly intervened cellulose fibres with a mass per unit area of 400 g/m² or less

Note 1 to entry: If paper with polymeric lamination, or other treatments which can be resistant to wetting, no longer presents the same properties as paper, then it is not treated as such.

3.53**paperboard**

sheet formed by irregularly intervened cellulose fibres with a mass per unit area over 400 g/m², excluding pressed wooden fibreboards such as medium density fibreboard (MDF), chipboard and materials with similar properties

Note 1 to entry: The term paperboard also includes materials commonly referred to as card or cardboard with a mass per unit area over 400 g/m².

Note 2 to entry: If paperboard with polymeric lamination, or other treatments which can be resistant to wetting, no longer present the same properties as paperboard, then they are not treated as such.

3.54**play furniture**

furniture intended for use by a child and intended to, or likely to, support the mass of a child

3.55**pompom**

lengths or strands of fibre, yarn or thread clamped or secured and tied in the centre, and brushed up to form a substantially spherical, ovoid or ellipsoidal shape as well as substantially spherical-, ovoid- and ellipsoidal-shaped attachments made of stuffed materials

Note 1 to entry: See [Figure 7](#) for examples of pompoms.

Note 2 to entry: Tassels with long strands are not considered pompoms (see [Figure 8](#)).



1



2

Key

- 1 ordinary pompom
- 2 stuffed pompom (ball on end of cap)

Figure 7 — Pompoms



Figure 8 — Tassel with long strands

3.56**projectile**

object without capacity for self-propulsion, intended to be launched into *free flight* ([3.30](#))

Note 1 to entry: The definition does not include self-propelled *flying toys* ([3.28](#)) such as remote-controlled helicopters and wind-up airplanes, unless the capacity for self-propulsion is from self-contained compressed gas and/or liquid (e.g. rockets).

3.57**projectile toy with stored energy**

toy (3.82) with a *projectile* (3.56) launched by means of a *discharge mechanism* (3.17) capable of storing energy independent of the user and incorporating a release mechanism

Note 1 to entry: Release mechanisms should operate following at least one single discrete activation by the user.

Note 2 to entry: Toy rockets and similar toys propelled by a chemical reaction or compressed gases (e.g. air) where the energy can be stored independent of the user are considered as projectile toys with stored energy. For example, in a rocket propelled by a mixture of vinegar and baking soda, the user initiates the reaction by mixing the two substances but no longer has control of the actual launching. The rocket will launch when the pressure build-up overcomes the force that holds the rocket onto the launch platform.

3.58**projectile toy without stored energy**

toy (3.82) with a *projectile* (3.56) propelled by energy imparted by the user or by means of a *discharge mechanism* (3.17) incapable of storing energy independent of the user

3.59**protective cap, cover or tip**

component that is attached to a potentially hazardous *edge* (3.19) or projection to reduce the risk of injury

3.60**pull or push toy**

toy (3.82) with a *cord* (3.12), tether or handle attached to the toy and where the toy is intended for use on the floor or ground with the child in a standing or upright position, typically walking, while pushing or pulling the toy

Note 1 to entry: Toys intended for children aged 36 months and over are not regarded as pull or push toys.

3.61**rattle**

toy (3.82) that is clearly designed to emit sound when shaken, typically intended for children who are too young to sit up unaided

3.62**reasonably foreseeable abuse**

use of a *toy* (3.82) under conditions or for purposes not intended by the supplier, but which can happen, induced by the toy in combination with, or as a result of, common behaviour in a child

EXAMPLE Deliberate disassembly, dropping or use of a toy for a purpose for which it was not intended.

Note 1 to entry: Tests simulating reasonably foreseeable abuse are given in 5.24.

3.63**reference box**

hypothetical surface which is the smallest rectangular parallelepiped that can enclose the *toy* (3.82) without regard to minor appendages

3.64**remote-controlled flying toy**

flying toy (3.28) with a mass of no more than 250 g, capable of being remotely controlled (e.g. by a wireless transmitter)

Note 1 to entry: Wireless transmitters are typically hand-held devices and include smart devices such as telephones and tablets.

EXAMPLE Drones and helicopters.

3.65**removable component**

part or component that is intended to be removed from the *toy* (3.82) without the use of tools

3.66**resilient material**

material having a hardness value of 70 Shore A or less

Note 1 to entry: For resilience testing, see ISO 868.

3.67**ribbon**

narrow piece of fabric or textile material, the length of which is significantly greater than the width, and the width of which is significantly greater than the thickness

3.68**rigidity**

hardness of material exceeding 70 Shore A

Note 1 to entry: For hardness testing, see ISO 868.

3.69**risk**

combination of the probability of occurrence of *harm* (3.36) and the severity of that *harm* (3.36)

3.70**simulated protective equipment**

toys (3.82) designed to mimic products which infer some sort of physical protection to the wearer

EXAMPLE Protective helmets and visors.

3.71**soft-filled toy****stuffed toy**

toy (3.82), clothed or unclothed, with soft body surfaces and filled with soft materials or a combination of soft and non-soft materials (e.g. pellets), allowing compression of the main part readily with the hand

Note 1 to entry: A soft-filled toy may only be filled with a combination of soft and non-soft material if the main part of the toy can still be readily compressed with the hand.

3.72**splinter**

sharp pointed fragment

3.73**spring**

resilient device, typically a helical metal coil, that can be pressed or pulled but returns to its former shape when released, used chiefly to exert constant tension or absorb movement

3.73.1**helical spring**

spring in the form of a coil

Note 1 to entry: See [Figure 9](#).

3.73.1.1**compression helical spring**

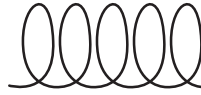
helical spring which essentially returns to its initial state after compression

3.73.1.2**extension helical spring**

helical spring which essentially returns to its initial state after tension

3.73.2**spiral spring**

clockwork-type spring

Note 1 to entry: See [Figure 10](#).**Figure 9 — Helical spring****Figure 10 — Spiral spring****3.74****squeeze toy**

hand-held pliable *toy* ([3.82](#)), usually incorporating a noise-making feature activated by forcing air through an opening when flexed or squeezed and which usually recovers its original shape when released

3.75**steady-state sound**

sound in which there are negligibly small fluctuations of sound pressure level within the period of observation

3.76**strap**

strip of flexible material used for fastening, securing, carrying or holding

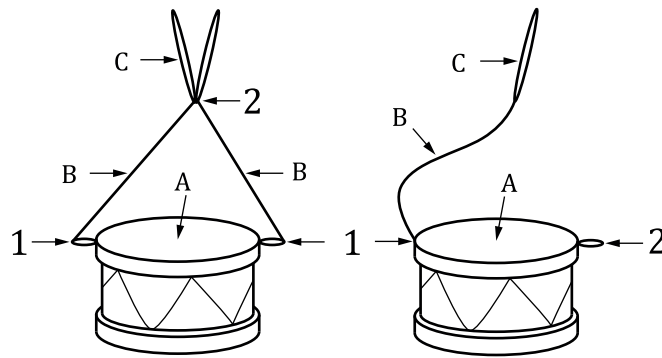
3.77**floor, tabletop and crib toy**

toy ([3.82](#)) intended to be played with while it is attached to or resting on a floor, tabletop or crib

3.78**tangled loop**

loop created by twisting or snagging a *cord* ([3.12](#)) with the potential to tangle

Note 1 to entry: A tangled loop can include a part or parts of the toy. See [Figure 11](#).

**Key**

- 1 fixing point
- 2 tangle point
- A drum surface
- B cord attaching drumstick to drum
- C drumstick

Figure 11 — Example of a tangled loop

3.79**tape**

narrow piece of non-textile material, the length of which is significantly greater than the width, and the width of which is significantly greater than the thickness

3.80**teether**

toy ([3.82](#)) designed for oral use and intended primarily for symptomatic relief of teething discomfort

3.81**tool**

screwdriver, coin or other object which can be used to operate a screw, clip or similar fixing device

3.82**toy**

product designed or clearly intended for use in play by children under 14 years of age

3.83**toy bag**

bag, clearly intended for use in play, often having features designed to encourage children to use it in play activities

Note 1 to entry: Bags that are used solely for storage of the toy or its components are to be considered *packaging* ([3.51](#)) regardless of whether they are attractive to children, for example if they are brightly coloured or have characteristics appealing to children. Such characteristics alone are not enough to define them as toy bags.

3.84**toy bicycle**

two-wheeled vehicle, with or without stabilizers, with a maximum saddle height of 435 mm and which is propelled solely by the muscular energy of a child on that vehicle, in particular by means of pedals

3.85**toy chest**

container with a hinged lid enclosing a volume greater than 0,03 m³, specifically designed for storing toys

3.86**toy scooter**

ride-on toy which is propelled by the muscular action of the user or other means and can be foldable or not, intended for children with a body mass of 50 kg or less and comprising at least one platform for standing, at least two wheels and a steering system equipped with an adjustable or fixed-length steering tube

3.87**yo-yo ball**

toy (3.82) with a tether made from an *elastic* (3.20) material usually having a ring at one end (i.e. a loop to place around a finger) and a flexible object at the other end, intended to be thrown and returned to the hand

4 Requirements

4.1 General

4.1.1 Normal use (see E.2)

All toys shall be tested in accordance with the relevant tests in 5.1 to 5.22 in order to ensure that risks as a result of normal wear and/or deterioration are minimized.

Toys labelled as washable shall be subjected to washing in accordance with 5.23.

After testing, the toy shall continue to conform to the relevant requirements of [Clause 4](#).

4.1.2 Location of warnings

In the following clauses that require warnings, the location of the warning is indicated. Warnings which are required to be on the packaging may instead be placed on the product itself as long as it is clearly visible to the consumer before the purchase.

4.2 Reasonably foreseeable abuse (see E.3)

After normal use tests, toys intended for children under 96 months, unless otherwise stated, shall be tested in accordance with the relevant tests in 5.24 to ensure that risks as a result of reasonably foreseeable abuse are minimized.

After testing, the toy shall continue to conform to the relevant requirements of [Clause 4](#).

4.3 Material

4.3.1 Material quality (see E.4)

All materials shall be visually clean and free from infestation. The materials shall be assessed visually by normal corrected vision rather than under magnification.

4.3.2 Expanding materials (see E.5)

Toys and components of toys which are expanding materials and fit entirely, whatever their orientation, into the small parts cylinder (see [Figure 26](#)) shall completely pass through the gauge specified in [Figure 39](#), if required when tested in accordance with 5.21. For a toy or component that at time of purchase is in an expanded state, the small part size assessment shall be performed when it is in a shrunken state.

This requirement does not apply to seeds in growing kits. The requirements in this subclause are not applicable after testing in accordance with 5.24.

4.4 Small parts

4.4.1 For children under 36 months (see [E.6](#))

Toys intended for children under 36 months, removable components thereof and components liberated during testing in accordance with [5.24](#) shall not fit entirely, whatever their orientation, into the small parts cylinder when tested in accordance with [5.2](#).

The requirement also applies to fragments of toys, including, but not limited to, pieces of flash, slivers of plastics and pieces of foam or shavings.

The following are exempt before and after subjecting the toy to the tests according to [Clause 5](#):

- paper books and other articles made of paper and pieces of paper;
- writing materials such as crayons, chalk, pencils and pens; this exemption does not include removable components such as pen caps;
- modelling clay and similar products;
- fingerpaints, water colours, paint sets and paint brushes;
- fuzz;
- fibrous filling material;
- balloons;
- textile fabric, including non-woven fabric such as felt;
- yarn;
- elastic fabric;
- string;
- audio and/or video discs which are not themselves small parts.

Additionally, toys, components of toys and removable components thereof made entirely of paperboard, that do not fit entirely in the cylinder when tested in accordance with [5.2](#), are exempt from testing in accordance with [5.24](#).

Guidance on categories of toys which can be considered as intended for children under 36 months is given in [A.4.2](#).

4.4.2 For children 36 months and over but under 72 months

Toys which fit entirely in the small parts cylinder when tested in accordance with [5.2](#) or have components, including removable components, which fit entirely in the small parts cylinder when tested in accordance with [5.2](#) shall carry a warning. The warning shall be on the toy, on the toy's packaging or, if the toy is unpackaged and unlabelled, on any retail display container provided by the manufacturer. See [B.2.3](#) and [E.6](#) for guidance.

The requirements in this subclause are not applicable to small parts liberated after testing in accordance with [5.24](#).

If the toy presents more than one of the following hazards:

- small part(s);
- small ball(s);
- marble(s);

the toy, its packaging or retail display container provided by the manufacturer (for unpackaged and unlabelled toys) shall carry at least one of the relevant statements in [B.2.3](#) or [B.2.5](#) or a statement combining the multiple hazards present.

4.5 Shape, size and strength of certain toys (see [E.7](#))

4.5.1 Squeeze toys, rattles, fasteners and certain other toys and components of toys

4.5.1.1 General

The requirements of [4.5.1](#) do not apply to:

- soft-filled (stuffed) toys or soft-filled parts of toys or parts made entirely of fabric;
- rigid elements having a major dimension equal to 30 mm or less.

4.5.1.2 Squeeze toys, rattles and certain other toys and components of toys

The requirements of [4.5.1.2](#) apply to the following types of toys:

- squeeze toys intended for children under 18 months;
- rattles;
- teething toys intended for children under 18 months;
- legs of baby gyms intended for children under 18 months;
- removable components of toys intended to be strung across a crib, playpen or perambulator if they have a mass less than 0,5 kg and are intended for children under 6 months;
- removable components of baby gyms if they have a mass less than 0,5 kg and are intended for children under 6 months.

The toys and components of the toys listed shall be designed so that no part of the toy protrudes past the base of test template A when tested in accordance with [5.3](#).

The toys and components of the toys listed shall, if they have nearly spherical, hemispherical or circular flared ends, be designed so that such ends do not protrude past the base of the supplemental test template B when tested in accordance with [5.3](#).

4.5.1.3 Other toys or components of toys with nearly spherical, hemispherical, circular flared or dome-shaped ends of toys having a mass less than 0,5 kg and intended for children under 18 months (see [E.7](#))

The requirements of [4.5.1.3](#) apply only to toys or components of toys where the nearly spherical, hemispherical, circular flared or dome-shaped end adjoins a shaft, handle or support that has a smaller cross section.

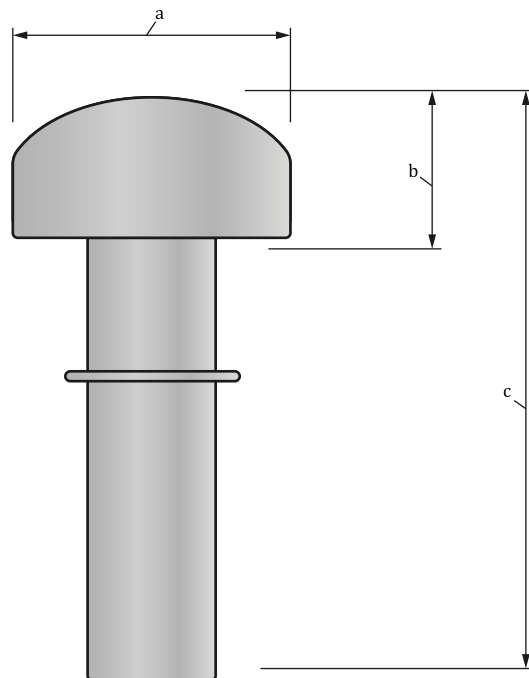
Nearly spherical, hemispherical, circular flared or dome-shaped ends of toys or components of toys shall be designed so that such ends do not protrude past the base of the supplemental test template B when tested in accordance with [5.3](#).

4.5.1.4 Toy fasteners (e.g. nails, bolts, screws and pegs) with nearly spherical, hemispherical or dome-shaped ends intended for children 18 months and over but under 48 months (see [E.7](#))

The requirements of [4.5.1.4](#) apply only to toy fasteners that meet all of the following criteria (see [Figures 12](#) and [13](#)):

- The nearly spherical, hemispherical or dome-shaped end has a diameter of 15 mm or more.

- The distance from the apex of the toy fastener to the undercut is 44,4 mm or less.
- The overall length is 57,1 mm or more.



- a Diameter of nearly spherical, hemispherical or dome-shaped end, ≥ 15 mm.
- b Distance from the apex of the toy fastener to the undercut, $\leq 44,4$ mm.
- c Overall length, $\geq 57,1$ mm.

Figure 12 — Dimensions of toy fasteners

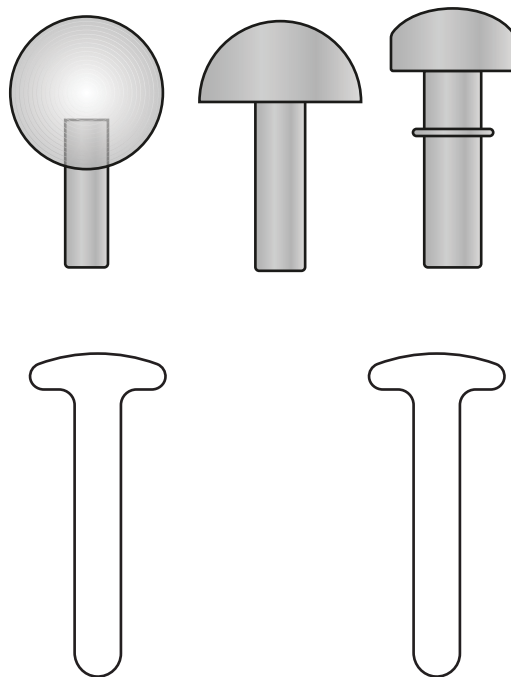


Figure 13 — Examples of toy fasteners

The requirements of [4.5.1.4](#) do not apply to toy fasteners:

- with non-rigid ends; or
- that are tethered to a toy where the weight of the combined toy or fastener is more than 0,5 kg and the length of the tether is less than 300 mm.

Nearly spherical, hemispherical or dome-shaped ends of toy fasteners (e.g. nails, bolts, screws and pegs) shall be designed so that such ends do not protrude past the base of the supplemental test template B when tested in accordance with [5.3](#).

4.5.2 Small balls

A small ball is any ball that passes entirely through the template when tested in accordance with [5.4](#).

- a) Toys intended for children under 36 months shall not be small balls, contain small balls or contain removable small balls.
- b) Toys intended for children 36 months and over but under 96 months which are small balls, contain small balls, contain removable small balls or small balls liberated after testing in accordance with [5.24](#) shall carry a warning. The warning shall be on the toy, on the toy's packaging or, if the toy is unpackaged and unlabelled, on any retail display container provided by the manufacturer. See [B.2.5](#) for guidance.

If the toy presents more than one of the following hazards:

- small part(s);
- small ball(s);
- marbles;

the toy, its packaging or retail display container provided by the manufacturer (for unpackaged and unlabelled toys) shall carry at least one of the relevant statements in [B.2.3](#) or [B.2.5](#), or a statement combining the multiple hazards present.

4.5.3 Pompoms (see [E.8](#))

Pompoms intended for children under 36 months which become detached when tested in accordance with [5.24.6.3](#) shall not pass entirely through the test template when tested in accordance with [5.5](#). Any components, pieces or individual strands that are detached from the pompom during the torque or tension tests shall not be subjected to the test in [5.5](#).

4.5.4 Pre-school play figures (see [E.9](#))

Except for soft play figures made of textiles, pre-school play figures intended for children under 36 months having:

- a) a round, spherical or hemispherical end with tapered neck attached to a simple cylindrical shape without appendages; and
- b) an overall length not exceeding 64 mm (see [Figure 14](#));

shall be designed so that the rounded end shall not be capable of entering and penetrating past the full depth of the cavity of the test template when tested in accordance with [5.6](#). The requirement applies to figures with added or moulded features such as hats or hair, which retain the rounded shape of the end.

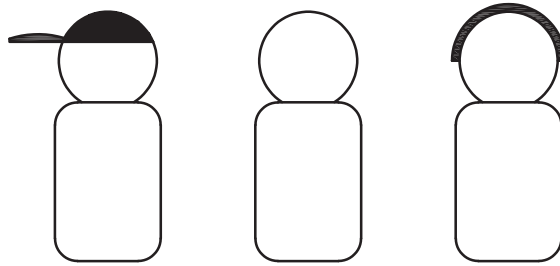


Figure 14 — Examples of pre-school play figures

4.5.5 Toy pacifiers

Toy pacifiers attached to or sold with toys intended for children under 36 months shall have a nipple length no longer than 16 mm. This dimension shall be measured from the nipple side of the shield to the end of the nipple.

4.5.6 Balloons

See also [4.10](#), [4.26](#) d) and [E.10](#).

The packaging of rubber latex balloons shall carry a warning. See [B.2.4](#) for guidance.

4.5.7 Marbles

Toys intended for children 36 months and over, but under 96 months, which are marbles, include loose marbles, include removable marbles or marbles liberated after testing according to [5.24](#) shall carry a warning. The warning shall be on the toy, on the toy's packaging or, if the toy is unpackaged and unlabelled, on any retail display container provided by the manufacturer. See [B.2.5](#) for guidance.

If the toy presents more than one of the following hazards:

- small part(s);
- small ball(s);
- marbles;

the toy, its packaging or retail display container provided by the manufacturer (for unpackaged and unlabelled toys) shall carry at least one of the relevant statements in [B.2.3](#) or [B.2.5](#) or a statement combining the multiple hazards present.

4.5.8 Hemispheric-shaped toys (see [E.41](#))

The requirements for hemispheric-shaped toys apply to cup-shaped, bowl-shaped or one-half-of-an-egg-shaped toys having a nearly round, oval or elliptical opening with the dimensions of minor and major axes between 64 mm and 102 mm, a volume of less than 177 ml, a depth greater than 13 mm and intended for children under 36 months.

Cup-shaped, bowl-shaped or one-half-of-an-egg-shaped toys shall, as a minimum, conform to at least one of the requirements in [4.5.8](#) a), b), c) or d).

- a) The object shall have at least two openings which are at least 13 mm from the rim as measured along the outside contour:
 - if the openings are placed in the base of the object, at least two of the openings shall be at least 13 mm apart; see [Figure 15](#) a);

- if the openings are not placed in the base of the object, at least two of the openings shall be placed at least 30° but not more than 150° apart; see [Figure 15 b](#)).
- b) The plane of the opening to the cup shape shall be interrupted at the centre by some type of divider which extends to 6 mm or less from the plane of the opening. An example of an interruption includes a rib through the centre of the opening; see [Figure 15 c](#)).
- c) The object shall have three openings located between 6 mm and 13 mm from the rim and at least 100° apart as measured along the outside contour.
- d) The object shall have a repeated scalloped-edge pattern around the entire rim. The maximum distance between centre lines of adjacent peaks shall be 25 mm and the minimum depth shall be 6 mm. See [Figure 15 d](#)) for examples of scalloped-edge patterns.

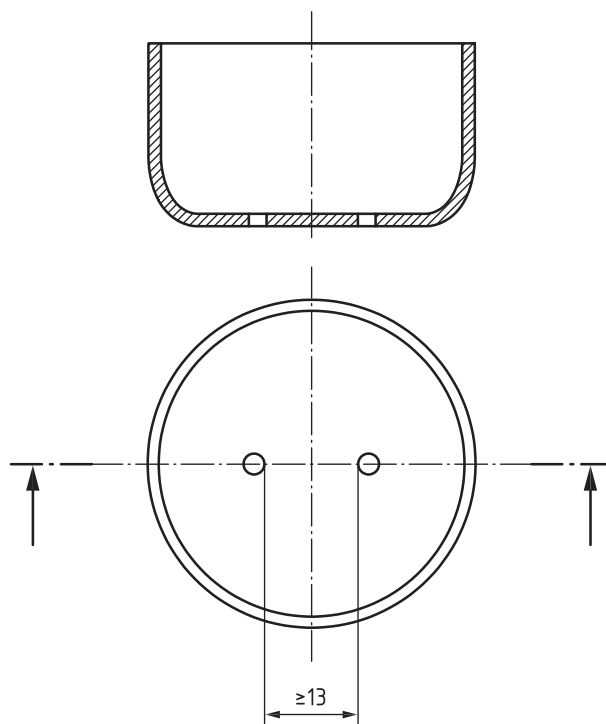
For the purpose of these requirements, an opening is defined as a hole of any shape with a minimum dimension of 2 mm.

The above-mentioned requirements apply before and after testing in accordance with [5.24](#).

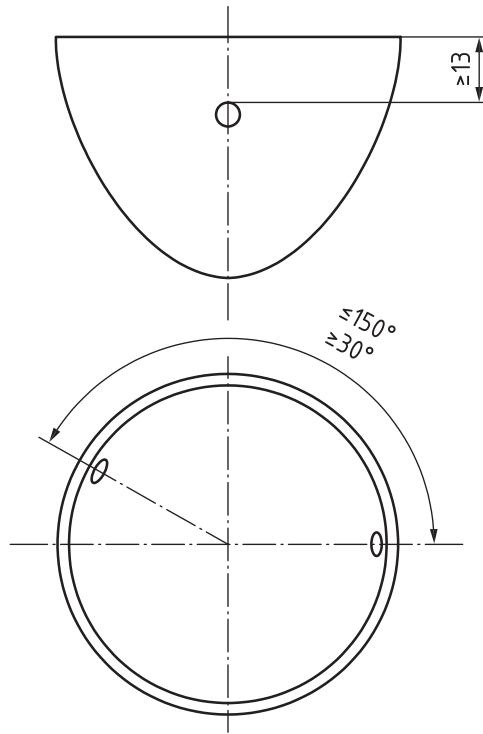
The following toys are exempt from these requirements:

- objects intended to hold liquids in products appropriate for children of 24 months and over (e.g. pots and pans);
- containers which must be airtight so that the contents can maintain their functional integrity (e.g. modelling clay containers);
- components of larger products which do not become detached when tested in accordance with [5.24](#) (e.g. a bowl-shaped smoke stack which is permanently attached to a toy train or a swimming pool which is moulded into a larger toy playscape);
- containers that are part of packaging intended to be discarded once the toy is removed from the packaging.

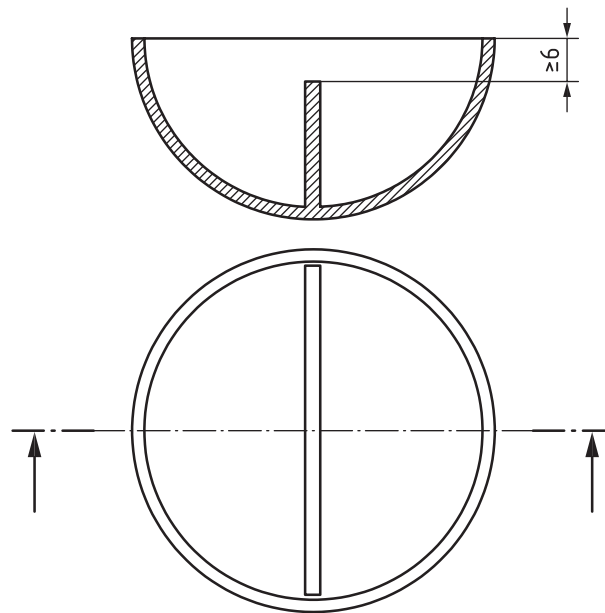
Dimensions in millimetres



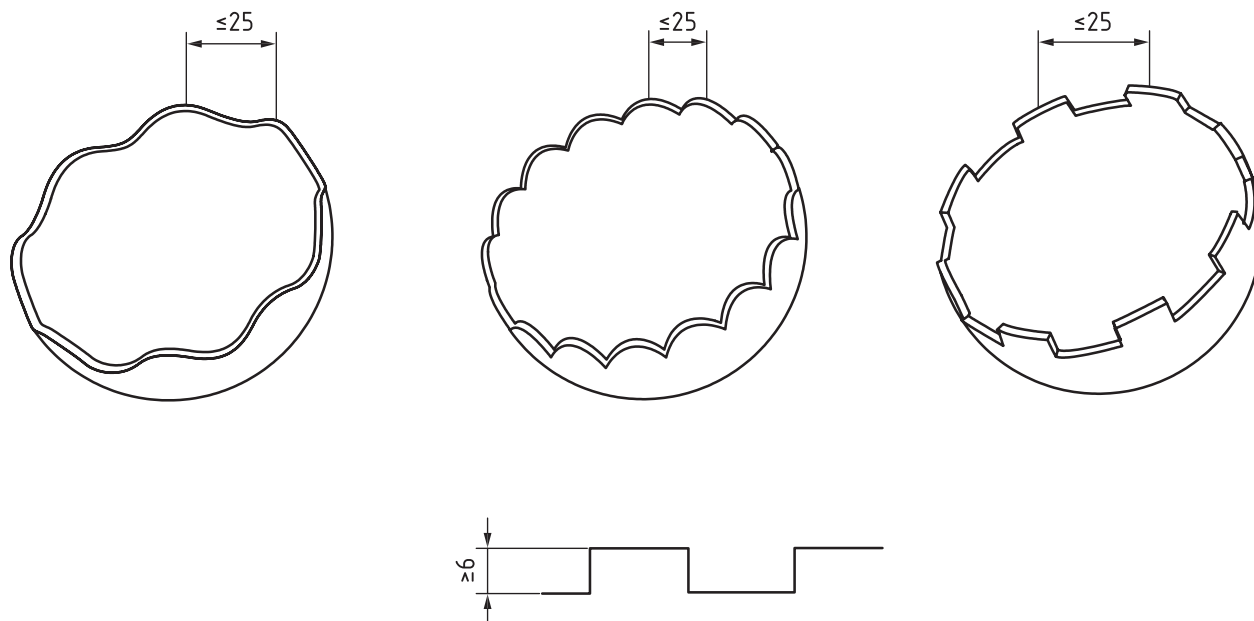
a) Openings in the base of the bowl



b) Opening placement



c) Rib-through-cup centre



d) Scalloped-edge pattern

Figure 15 — Examples of hemispheric-shaped toys

4.6 Edges (see [E.11](#))

4.6.1 Accessible sharp edges of glass or metal

The accessible sharp edges of glass or metal on toys shall fulfil the following requirements:

- Accessible edges on toys intended for children under 96 months shall not be hazardous sharp edges of glass or metal when tested in accordance with [5.8](#).
- If an accessible edge fails the sharp-edge test as given in [5.8](#), the edge shall be assessed to determine whether it presents an unreasonable risk of injury, taking into account the foreseeable use and intended age grade of the toy.
- Potentially sharp glass or metal edges shall be considered non-accessible if they lie adjacent to a surface of the test sample and any gap between the edge and the adjacent surface does not exceed 0,5 mm (e.g. in lap joints and hemmed edges, see [Figure 3](#)).
- Edges of pieces intended to serve as electrical conductors and microscope slides and cover slips are considered as functional edges and do not require a warning.

4.6.2 Functional sharp edges

The following requirements apply to toys which include functional sharp edges:

- Toys intended for children under 36 months shall not have accessible hazardous functional sharp edges.
- Toys intended for children 36 months and over but under 96 months, which by reason of their function (e.g. functional toy scissors and functional toy tool kits) necessarily include a sharp edge and which do not include any non-functional sharp edges, are exempt from [4.6](#) provided the packaging carries a warning. See [B.2.11](#) for guidance.

4.6.3 Edges on metal toys

Accessible metal edges, including those of holes and slots, on toys intended for children under 96 months shall be free of hazardous burrs and feathering or shall be hemmed, rolled or curled (see [Figure 3](#)) or shall incorporate a permanently affixed protective equipment or finish.

Regardless of the manner in which edges are finished, they shall be subject to the sharp-edge test as given in [5.8](#).

4.6.4 Edges on moulded toys

Accessible edges, corners or mould-parting areas of moulded toys intended for children under 96 months shall be free of hazardous sharp edges produced by burrs and flash or so protected that hazardous sharp edges are not accessible.

4.6.5 Edges on exposed bolts or threaded rods

Accessible ends of threaded bolts or threaded rods shall be free of sharp edges and burrs, or the ends shall be covered by smooth protective caps so that sharp edges and burrs are not accessible. Any protective caps used shall be subjected to the compression test in [5.24.7](#), regardless of whether or not the protective cap is accessible to flat-surface contact during the appropriate test(s) in [5.24](#). Protective caps shall also be subjected to [5.24.5](#) followed by [5.24.6.1](#).

4.7 Points (see [E.12](#))

4.7.1 Accessible sharp points

The following requirements apply to toys having accessible sharp points:

- a) Accessible points on toys intended for children under 96 months shall not be hazardous sharp points when tested according to [5.9](#).

If an accessible point fails the sharp-point test as given in [5.9](#), the point shall be assessed to determine whether it presents an unreasonable risk of injury, taking into account the foreseeable use and intended age grade of the toy.

Points of pencils and similar drawing implements are not considered sharp points.

- b) Potentially sharp points shall be considered non-accessible if they lie adjacent to a surface of the test sample and any gap between the point and the adjacent surface does not exceed 0,5 mm.
- c) Points on toys intended for children under 36 months, whose largest cross-sectional dimension is 2 mm or less and which do not necessarily present a sharp point when tested in accordance with [5.9](#), are considered to be potentially hazardous sharp points. They shall therefore be assessed to determine whether or not they present an unreasonable risk of injury, taking into account the foreseeable use and intended age grade of the toy.

4.7.2 Functional sharp points

The following requirements apply to toys having functional sharp points:

- a) Toys intended for children under 36 months shall not have accessible hazardous functional sharp points.
- b) Toys intended for children 36 months and over but under 96 months, which by reason of their function (e.g. a toy sewing machine with a needle) necessarily include a sharp point and which do not include any non-functional sharp points, are exempt from [4.7.1](#) provided the packaging carries a warning. See [B.2.11](#) for guidance.

4.7.3 Wooden toys

The accessible surfaces and edges of wood used in toys shall be free of splinters.

4.8 Projections

4.8.1 General requirements (see [E.13](#))

These requirements are intended to address the hazards associated with the users of toys falling on projections or on rigid components possibly causing skin puncture or internal injury.

If a projection presents a skin puncture hazard, the projection shall be protected by suitable means, such as turning back the end of a wire or by affixing a smoothly finished protective cap or cover, which effectively increases the surface area for potential contact with the skin. The protective cap or cover shall not become detached when tested in accordance with [5.24](#).

If a rigid handlebar presents a potential internal injury hazard or a skin puncture hazard, it shall be equipped with handle-grips with enlarged ends. Ends of tubes that present a potential internal injury hazard or a skin puncture hazard shall be equipped with end plugs or other means of protection at the end of the tube.

Handle grips, end plugs and other protective devices shall not become detached when subjected to a removal force of 70 N.

Since this requirement relates to hazards arising from a child falling on a toy, only vertical or nearly vertical projections shall be evaluated. However, the toy and its projection shall be tested in the most onerous position.

4.8.2 Special considerations for bath toy projections

Rigid projections on toys designed primarily for use in the bath tub pose a specific hazard that can result in serious penetration and impalement injuries. Design guidelines that intend to minimize penetration and impalement hazards are presented in [Annex F](#).

4.9 Metal wires and rods (see [E.14](#))

- a) Wires and other metallic components that are designed and intended to be bent, for example, to change the shape or position of a toy or part of a toy (e.g. in soft-filled toys) shall not break and produce hazardous sharp points, or protrude through any surface covering of the toy, when tested according to [5.24.8.2](#).
- b) Wires that are not designed to be bent, but are likely to occasionally or accidentally be bent during play, shall not break and produce hazardous sharp points or protrude through any surface covering of the toy when tested according to [5.24.8.3](#).
- c) The ends of spokes on toy umbrellas shall be protected. If the protection is removed when tested according to [5.24.6.4](#), the ends of the spokes shall be free from sharp edges and sharp points when tested in accordance with [5.8](#) and [5.9](#). Furthermore, if the protective components are removed by the tension test, the spokes shall have a minimum diameter of 2 mm and the ends shall be smooth, rounded and approximately spherical with no burrs.

4.10 Plastic film or plastic bags in packaging and in toys (see [E.15](#))

These requirements do not apply to:

- shrink film, which is in the form of an overwrap, which would normally be destroyed when the packaging is opened;

- flexible plastic bags or flexible plastic film with a minor dimension of 100 mm or less; bag dimensions shall be measured while in the form of a bag, not cut open into a single thickness sheet.

Flexible plastic film or flexible plastic bags without backing and used in toys shall either:

- have an average thickness of $\geq 0,038$ mm and individual thickness of $\geq 0,032$ mm when tested in accordance with [5.10](#); or
- have perforations with well-defined holes (where material has been removed) of 1 % minimum area on any maximum area of 30 mm $\times$ 30 mm. See [Figure 16](#).

NOTE The requirement in [4.10 b\)](#) can be fulfilled by having 3,4 mm diameter holes in a square grid pattern where the vertical and horizontal distance between the centre of two holes is 22,9 mm or less [the area of a 3,4 mm hole is larger than 9 mm² which is more than 1 % of 900 mm² (30 mm $\times$ 30 mm)].

For plastic balloons, the thickness requirement in a) applies to double layers of plastic sheeting (i.e. the thickness is measured without inflating or destroying the balloon).

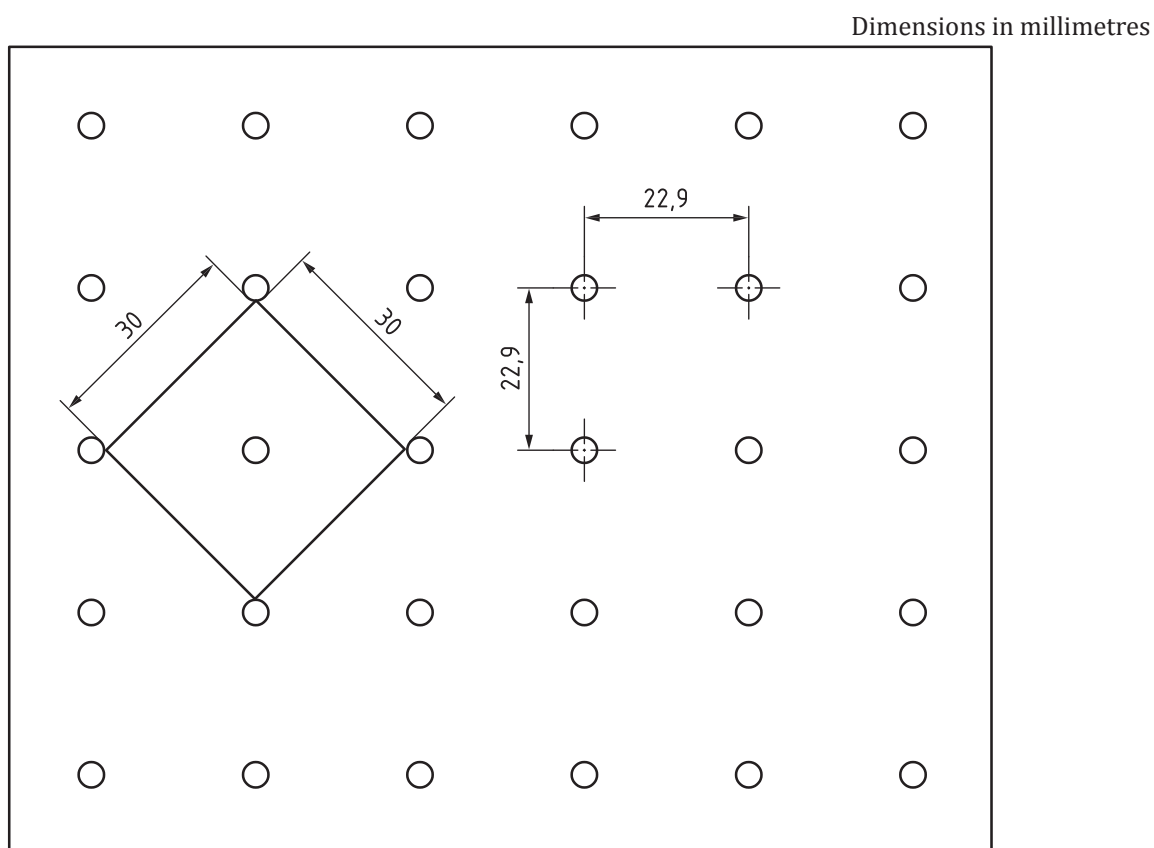


Figure 16 — Example of perforation pattern

4.11 Cords

4.11.1 General (see [E.16](#))

The requirements in [4.11](#) do not apply to:

- ropes and chains that are covered by the diameter requirements of ISO 8124-4 (e.g. climbing and swinging ropes);
- straps intended to be worn fully or partially around the neck (see [4.33](#));
- straps in safety harnesses;

- straps in imitation safety harnesses (e.g. on toy pushchairs);
- shoulder or waist straps (e.g. on toy bags, toy backpacks or toy fairy wings);
- handles (e.g. on toy bags, toy cradles, toy carry cots, or toy buckets and boxes);
- cords intended for pulling sledges or toboggans, intended for outdoor use on snow under adult supervision (see [4.34](#)).

NOTE Straps in safety harnesses include straps for securing children to ride-on toys and seats.

The requirements from [4.11.2](#) to [4.11.8](#) do not apply to:

- toys intended to be strung across a cradle, cot, perambulator or carriage. However, any elements hanging down from such toys that are intended to be within the reach of children are not exempt from these clauses and shall fulfil the applicable requirements;
- toys intended to be attached to a cradle, cot, perambulator or carriage with cords which are intended to be out of reach of the children.

The requirements of [4.11.2](#) to [4.11.5](#) and [4.11.7](#) to [4.11.11](#) do not apply to electrical cables on toys intended for children 18 months and over; such electrical cables shall conform to [4.11.6](#).

4.11.2 Cords in toys intended for children under 18 months

4.11.2.1 Cords with the potential to tangle

Cords with the potential to tangle shall either:

- a) have a length not exceeding 220 mm when measured according to [5.11.2](#); or
- b) separate into parts when tested according to [5.11.3](#).

It shall be possible to join the parts after they have been separated without altering the characteristics of the joints (see [Figure 17](#)). In addition, any cord with the potential to tangle included with or attached to the toy after the breakaway has been separated shall continue to conform to the requirement of [4.11.2.1 a](#)).

Where two or more cords with the potential to tangle are attached to the toy in the same position (e.g. using the same fixing point or same stitching), the total of the two longest individual cord lengths, each measured from the fixing point, shall be considered as one cord length for the purpose of this requirement.

4.11.2.2 Other cords

Other cords included with or attached to toys, excluding pull toys, shall have a free length not exceeding 300 mm when measured according to [5.11.2](#). This requirement applies to any cords remaining attached to the toy or becoming separated from the toy after assessment against [4.11.2.1 b](#)).

Where two or more cords are attached to the toy in the same position (e.g. using the same fixing point or same stitching), each cord length, measured from the fixing point, is considered a separate cord.

4.11.3 Cords in toys intended for children 18 months and over but under 36 months

4.11.3.1 Cords with the potential to tangle

Cords with the potential to tangle shall either:

- a) have a length not exceeding 300 mm when measured according to [5.11.2](#); or
- b) separate into parts when tested according to [5.11.3](#).

It shall be possible to join the parts after they have been separated without altering the characteristics of the joints (see [Figure 17](#)). In addition, any cord with the potential to tangle included with or attached to the toy after the breakaway has been separated shall continue to conform to the requirements of [4.11.3.1 a\)](#).

Where two or more cords with the potential to tangle are attached to the toy in the same position (e.g. using the same fixing point or same stitching), the total of the two longest individual cord lengths, each measured from the fixing point, shall be considered as one cord with their lengths combined for the purpose of this requirement.



Figure 17 — Example of a joint on cords

4.11.3.2 Other cords

Where other cords are included with or attached to toys (excluding pull toys) with a free length exceeding 300 mm, when measured according to [5.11.2](#), the toy's packaging shall carry a warning indicating that the toy is not suitable for children under the age of 18 months. This requirement applies to any cords remaining attached to toys after assessment against [4.11.3.1 b\)](#). See [B.2.21](#) for guidance.

Where two or more cords are attached to the toy in the same position (e.g. using the same fixing point or same stitching), each cord length, measured from the fixing point, is considered a separate cord.

4.11.3.3 Other cords without a free end

Where other cords are included with or attached to toys and are without a free end and with a length exceeding 220 mm but not exceeding 300 mm when measured according to [5.11.2](#), the toy's packaging shall carry a warning indicating that the toy is not suitable for children under the age of 18 months. See [B.2.21](#) for guidance.

4.11.4 Fixed loops and nooses intended for children under 36 months

Cords that comprise fixed loops or nooses on toys as received shall either:

- a) not permit the passage of the head probe (see [Figure 35](#)) when tested in accordance with [5.11.4](#). Specifically, the loop shall not allow the head probe to be inserted so deep that it admits the base of the probe; or
- b) be separable such that the loop or noose is no longer intact, when tested according to [5.11.3](#).

In addition, any cords with the potential to tangle attached to the toy after the breakaway has been separated and without a free end shall continue to conform to the requirement of [4.11.2.1 a\)](#) or [4.11.3.1 a\)](#), as appropriate, for the intended age grade of the toy.

4.11.5 Cords on pull toys

Cords on pull toys intended for children under 36 months shall have a free length not exceeding 800 mm when measured according to [5.11.2](#).

4.11.6 Electrical cables

Toys with electrical cables longer than 300 mm, when measured according to [5.11.2](#), intended for children 18 months and over shall carry a warning on the packaging. See [B.2.20](#) for guidance.

Electrical cables on toys intended for children under 18 months shall conform to [4.11](#), as applicable.

4.11.7 Diameter of certain cords intended for children under 36 months

Cords connected to a self-retraction mechanism and cords in pull toys shall have an average cross-sectional dimension of 1,5 mm or more when measured according to [5.11.1](#).

4.11.8 Self-retracting cords intended for children under 36 months

The force of self-retraction mechanisms for cords in toys shall not retract the cord by more than 6 mm under any of the testing conditions specified in [5.11.5](#).

4.11.9 Toys attached to or intended to be strung across, or otherwise attached to, a cradle, cot, perambulator or carriage

4.11.9.1 Toys intended to be strung across a cradle, cot, perambulator or carriage

Toys intended to be strung across a cradle, cot, perambulator or carriage shall carry a warning on the toy. See [B.2.9](#) for guidance.

NOTE This requirement is intended to ensure that the message is available on the product during its foreseeable life.

The toy shall be accompanied by instructions which indicate proper assembly, installation and use (as applicable) to ensure that the product does not present an entanglement hazard. See [B.3.3](#) for guidance.

4.11.9.2 Toys otherwise intended to be attached to a cradle, cot, perambulator or carriage or intended to be suspended over a cot from a wall or ceiling

Toys intended to be attached to, but not strung across, a cradle, cot, perambulator or carriage, or suspended over a cot from a wall or ceiling, where any attached cords do not conform to the requirements of [4.11.2](#) to [4.11.8](#), shall carry a warning that states that it is to be affixed so that the cords are out of the reach of children and that they are to be removed before the child can reach them. The warning shall be on the toy and on the packaging. See [B.2.23](#) for guidance.

The toy shall be accompanied by instructions which indicate how the toy is to be assembled, affixed out of reach of children and used (as applicable) to ensure that the product does not present an entanglement hazard. See [B.3.2](#) for guidance.

4.11.10 Cords on toy bags

Toy bags made of impermeable material with an opening perimeter greater than 360 mm shall not have a drawstring or a cord as a means of closing (see also [4.10](#)).

4.11.11 Cords, strings and lines for flying toys

Hand-held cords, strings and lines over 1,8 m long, attached to toy kites or other flying toys, shall have an electrical resistance of more than $10^8 \Omega/\text{cm}$ when tested in accordance with [5.11.6](#).

Toy kites and other flying toys shall carry a warning that they are not to be used near overhead power lines or during thunderstorms. The warning shall appear on the toy. See [B.2.14](#) for guidance.

4.12 Folding mechanisms (see [E.17](#))

4.12.1 Toy pushchairs, perambulators and similar toys

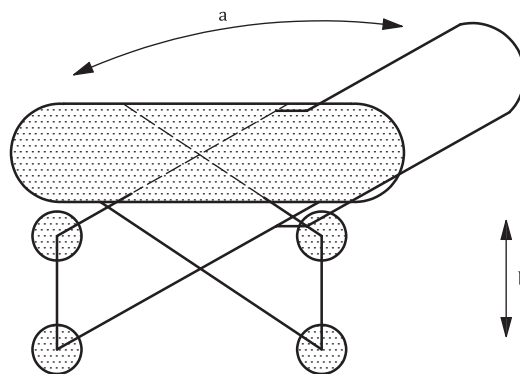
The requirements in [4.12.1](#) do not apply to toys with a potential sitting surface width of less than 140 mm.

Toy pushchairs, strollers, perambulators and similar toys with folding and sliding mechanisms shall conform to the following requirements.

- a) Toys with a handle or other structural member which can fold down over a child shall:
- 1) have at least one main locking device and at least one secondary locking device, both of which act directly on the folding mechanism;
 - 2) have at least one of the locking devices which automatically engages when the toy is erected;
 - 3) not collapse and neither shall any of the locking devices fail or disengage, when the toy is tested in accordance with [5.22.2](#);
 - 4) be considered as having one locking device if the toy comprises two devices of the same construction (e.g. locking rings), one on the left-hand side and one on the right-hand side;
 - 5) be subjected to the test given in [5.22.2](#) with one of the locking devices disengaged, if it is a toy pushchair or perambulator which can be partially erected without one of the locking devices being engaged.

NOTE 1 Partially erect means erected in such a way that the user might wrongly believe the toy to be fully erect.

NOTE 2 An example of a toy pushchair or perambulator covered by [4.12.1 a](#) is illustrated in [Figure 18](#).



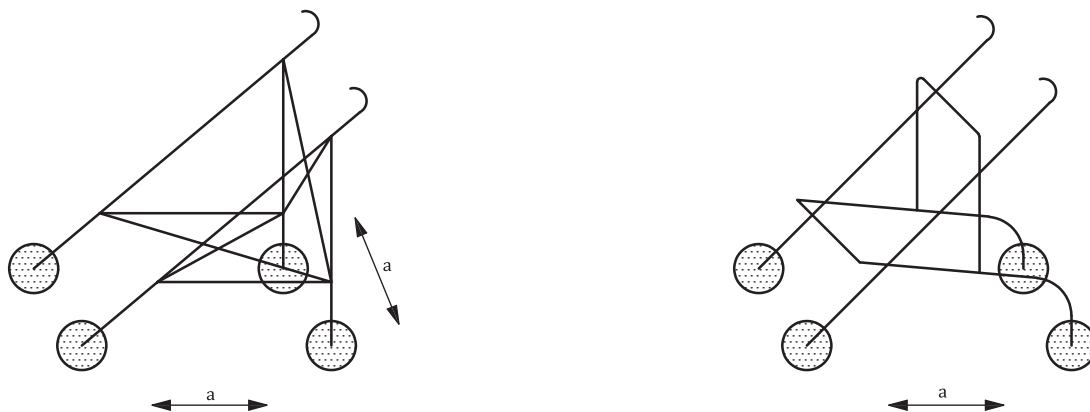
- a Direction of handle movement.
b Direction of chassis movement.

Figure 18 — Toy pushchair or perambulators covered by [4.12.1 a](#)

- b) Toy pushchairs and perambulators that do not present a hazard of a handle or other structural member folding down over a child shall:
- 1) have at least a locking device or a safety stop, which may be manual in operation;
 - 2) not collapse and neither shall the locking device or safety stop fail or disengage, when tested according to [5.22.2](#);
 - 3) be subjected to the test given in [5.22.2](#) if it is a toy pushchair or perambulator which can be partially erected without a locking device being engaged (see Note 1).

NOTE 3 Partially erect means erected in such a way that the user might wrongly believe the toy to be fully erect.

NOTE 4 Examples of toy pushchairs and perambulators covered by [4.12.1 b](#) are illustrated in [Figure 19](#).



a Direction of chassis movement.

Figure 19 — Toy pushchairs or perambulator covered by 4.12.1 b)

4.12.2 Other toys with folding mechanisms (see E.18)

Play furniture and other toys in which a folding mechanism, arm or brace is capable of supporting a child or a comparable mass shall have one of the following:

- A safety stop or locking device to prevent unexpected or sudden movement or collapse of the toy. The safety stop or locking device shall not fail or disengage when tested in accordance with 5.24 and the toy shall not collapse when tested in accordance with 5.22.3; or
- Adequate clearance between moving parts to protect the fingers and toes against crushing or laceration in the event of sudden movement or collapse of the toy. If it is possible to insert a 5 mm diameter rod between moving parts, it shall also be possible to insert a 12 mm diameter rod.

4.12.3 Hinge-line clearance (see E.19)

Toys having a gap or clearance along the hinge line between a stationary portion and a movable portion which weighs more than 0,25 kg shall be so constructed that if the accessible gap at the hinge line will admit a 5 mm diameter rod, it shall also admit a 12 mm diameter rod at all positions of the hinge.

4.13 Holes, clearances and accessibility of mechanisms

4.13.1 Circular holes in rigid materials (see E.20)

For toys intended for children under 60 months, if an accessible circular hole in any rigid material less than 1,58 mm in thickness can admit a 6 mm diameter rod to a depth of 10 mm or greater, it shall also admit a 12 mm diameter rod.

4.13.2 Accessible clearances for movable segments (see E.21)

For toys intended for children under 96 months, if accessible clearances for movable segments can admit a 5 mm diameter rod, they shall also admit a 12 mm diameter rod.

4.13.3 Chains or belts in ride-on toys (see E.22)

Power transmission chains and belts in ride-on toys shall have a shield from, and including, the driving chain- or belt-wheel to, and including, the driven chain- or belt-wheel at the side(s) where the limb of a child is nearest the chain or belt (see Figure 20, side A). There shall also be a shield around the driving

chain- or belt-wheel on any side (see [Figure 20](#), side B) where the chain or belt is separated from the limb of the child (e.g. by a frame on a bicycle).

NOTE A toy can have two sides “A”.

The shield shall be such that the chain or belt and any chain- or belt-wheels are not accessible from side A and that the junction between the chain or belt and the chain- or belt-wheel is not accessible from side B (if any) when tested according to [5.7](#).

It shall not be possible to remove the shield without the use of a tool.

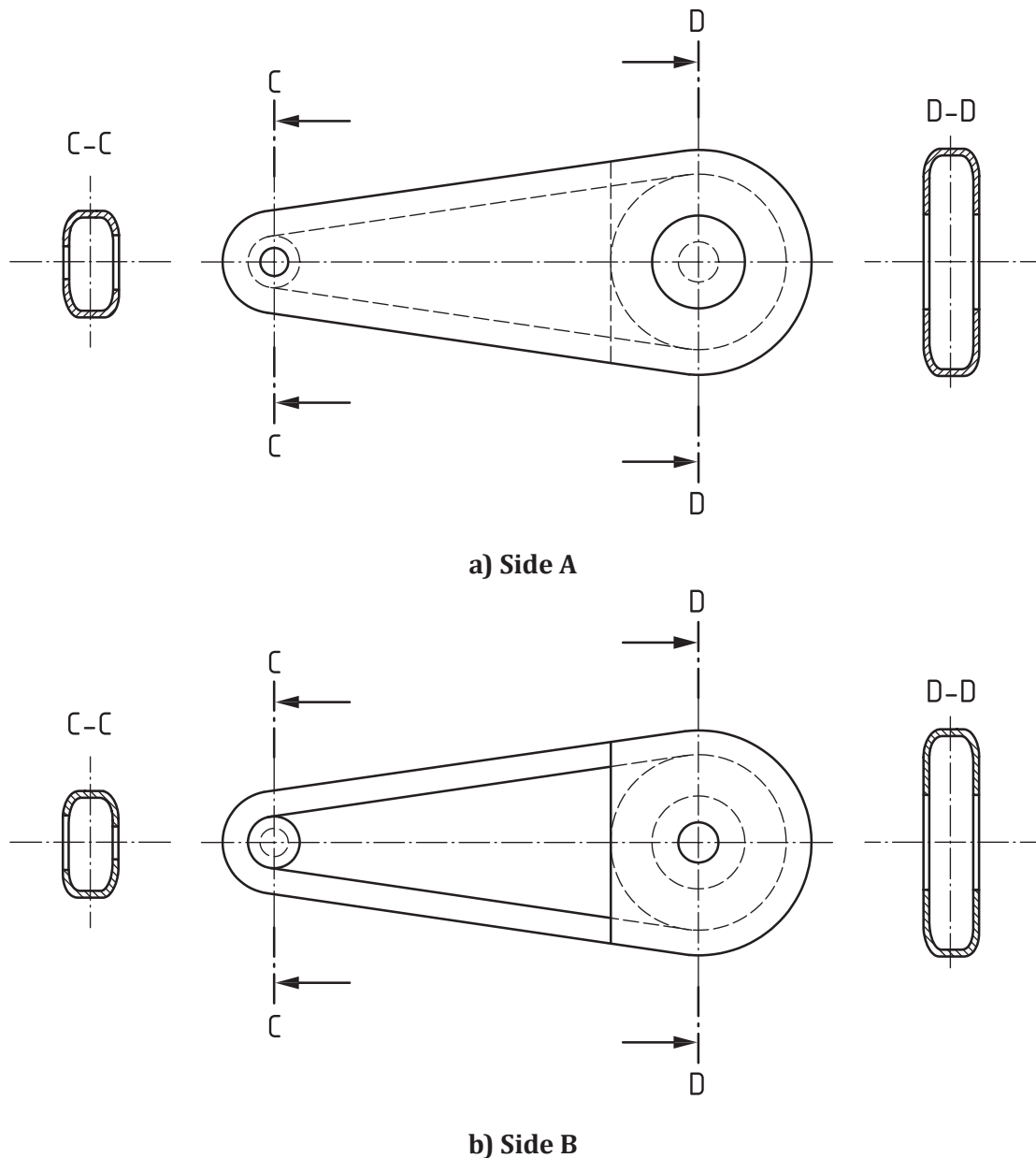


Figure 20 — Propelling chains and chain shields

4.13.4 Other driving mechanisms (see [E.23](#))

Clockwork, battery-operated, inertial or other power-driven mechanisms in toys shall be so enclosed that they do not expose accessible sharp edges or sharp points or otherwise present a hazard of crushing the fingers or other parts of the body.

4.13.5 Winding keys (see [E.24](#))

This requirement applies to toys intended for children under 36 months which use winding keys that rotate as the mechanism unwinds. The requirement applies to keys with flat plates attached to the stem and which protrude from a rigid surface of the body of the toy.

If the clearance between the flukes of the key and the body of the toy can admit a 5 mm diameter rod, it shall also admit a 12 mm diameter rod at all positions of the key. For keys covered by this requirement, there shall be no opening in the flukes of the key which can admit a 5 mm diameter rod.

4.14 Springs (see [E.25](#))

Springs shall conform with the following:

- a) Spiral springs shall not be accessible if the gap between two consecutive spirals is greater than 3 mm in any position of use.
- b) Extension helical springs shall not be accessible if the gap between two consecutive turns is greater than 3 mm when the spring is subjected to a tensile force of 40 N.

This requirement does not apply to springs which do not essentially return to their original position after unloading.

- c) Compression helical springs shall not be accessible if the gap between two consecutive turns is greater than 3 mm at rest and the spring, when the toy is used, can be subjected to a compression force of 40 N or more.

This requirement does not apply to springs which do not essentially return to their original position after loading with a force of 40 N, nor to springs wound around a second component of the toy (e.g. a guiding rod) so that it is not possible to insert the accessibility probe A (see [5.7](#)) between consecutive coils further than 5 mm.

4.15 Stability and overload requirements

4.15.1 Stability of ride-on toys and seats

4.15.1.1 General

The requirements in [4.15.1.2](#) to [4.15.1.4](#) apply to ride-on toys, rocking toys (e.g. rocking horses) and stationary toys with seats, such as play furniture intended for children under 60 months. Ride-on toys of spherical, cylindrical or other shapes which do not normally have a stable base (e.g. toy bicycles and similar toys) are not covered by these requirements.

NOTE Stability requirements for toy scooters with a stable base are given in [4.30.4](#).

4.15.1.2 Sideways stability, feet available for stabilization (see [E.26](#))

Ride-on toys and stationary toys with seats, where the height of the seat from the ground is 27 cm or more and where the feet and/or legs of the child are unrestricted in their sideways motion and thus are available for stabilization, shall not tip over when tested in accordance with [5.12.2](#).

4.15.1.3 Sideways stability, feet unavailable for stabilization (see [E.26](#))

Ride-on toys and stationary toys with seats, where the feet and/or legs of the child are restricted in their sideways motion, such as by the enclosed sides of a toy automobile, shall not tip over when tested in accordance with [5.12.3](#).

4.15.1.4 Fore and aft stability (see [E.27](#))

Ride-on toys and stationary toys with seats, where the rider cannot easily use his or her legs for stabilization, shall not tip forward or backward when tested in accordance with [5.12.4](#).

4.15.2 Overload requirements for ride-on toys and seats (see [E.28](#))

Ride-on toys, stationary toys with seats and toys designed to support all or part of the mass of a child shall not collapse when tested in accordance with [5.12.5](#) and [5.24.4](#). The requirements in [4.15.2](#) do not apply to toy scooters (which are instead covered by the requirements in [4.30.3](#)).

Manufacturers are recommended to consider the strength of the seat and seat pillar under dynamic conditions.

4.15.3 Stability of stationary floor toys (see [E.29](#))

Stationary floor toys greater than 760 mm in height and weighing more than 4,5 kg shall not tip over when tested in accordance with [5.12.6](#).

4.16 Enclosures (see [E.30](#))

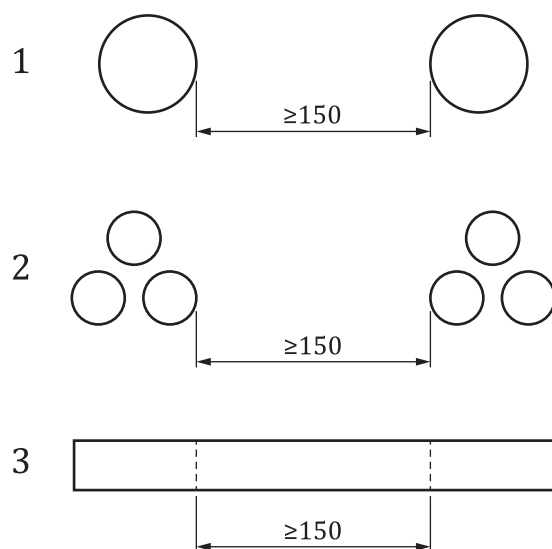
4.16.1 Ventilation

Any toy made of impermeable material and having a door or lid which encloses a continuous volume greater than 0,03 m³ and in which all internal dimensions are 150 mm or more shall provide means for breathing by the incorporation of unobstructed ventilation openings. The ventilation openings are not required if the continuous volume is effectively subdivided into compartment(s) by a permanent partition(s) or one or more bars making at least one dimension in the compartment less than 150 mm.

The ventilation shall be provided by an opening or a group of openings placed at least 150 mm from a second opening or group of openings. Each opening or group of openings shall provide a total area of at least 650 mm². Alternatively, one opening which is equivalent to two 650 mm² openings expanded to include the separation area may be used (see [Figure 21](#)).

The ventilation opening shall remain unobstructed when the toy is placed on the floor in any position and adjacent to two vertical plane surfaces meeting at a 90° angle, to simulate the corner of a room.

Dimensions in millimetres

**Key**

- 1 two openings; each opening $\geq 650 \text{ mm}^2$
- 2 two groups of openings; each group $\geq 650 \text{ mm}^2$
- 3 single opening with two areas separated by at least 150 mm and each $\geq 650 \text{ mm}^2$

Figure 21 — Examples of ventilation openings**4.16.2 Closures****4.16.2.1 Lids, doors and similar devices**

Closures such as lids, covers and doors or devices similar to enclosures shall not be fitted with automatic locking devices.

Closures shall be of a type which can be opened with a force $\leq 45 \text{ N}$ when tested in accordance with [5.13.1](#).

This requirement notably precludes the use of buttons, zips and similar fastenings on lids, covers and doors.

4.16.2.2 Lid support for toy chests and similar toys

The requirements for lid support for toy chests and similar toys are as follows.

- a) Toy chests and similar toys with vertically opening hinged lids shall have lid-support mechanisms to prevent sudden collapse or dropping of the lid. The lid-support mechanism shall support the lid so that at no position in the arc of travel of the lid, from within 50 mm of the fully closed position through an arc not to exceed 60° from the fully closed position, shall it drop more than 12 mm under the influence of its own mass, except in the last 50 mm of travel. The test shall be conducted in accordance with [5.13.2.2](#).

The lid-support mechanism shall conform to this requirement before and after being subjected to 7 000 opening and closing cycles, as described in [5.13.2.3](#).

- b) The lid-support mechanism shall not require adjustment by the consumer to ensure adequate lid support, nor shall it require adjustment in order to conform to [4.16.2.2 a\)](#) after being cycled in accordance with [5.13.2.3](#).
- c) The lid and lid-support mechanism shall conform to the requirements in [4.12](#).

- d) Toy chests shall be accompanied by instructions for proper assembly and maintenance. See [B.3.4](#) for guidance.

4.16.3 Toys that enclose the head

Toys that enclose the head, such as space helmets, and which are made of impermeable material shall provide means for breathing by the incorporation of unobstructed ventilation areas close to the mouth and nose area. The ventilation shall be provided by an opening or a group of openings placed at least 150 mm from a second opening or group of openings. Each opening or group of openings shall provide a total area of at least 650 mm². Alternatively, one opening which is equivalent to two 650 mm² openings expanded to include the separation area may be used (see [Figure 21](#)).

4.17 Items that cover the face and simulated protective equipment (see [E.31](#))

All rigid toys that cover the face, such as goggles, space helmets or face shields, when tested in accordance with [5.14](#), shall not produce sharp edges, sharp points or loose parts which could enter the eye. This applies to toys with cut-out eye holes as well as items that cover the eyes.

Toys that simulate safety protective equipment and are intended to be worn by children (examples include but are not limited to construction helmets, sports helmets, fire-fighter helmets and safety goggles in toy tool benches) shall carry a warning. The warning shall be on the toy and on its packaging. See [B.2.10](#) for guidance.

4.18 Projectile toys (see [E.32](#))

4.18.1 General

- a) The requirements of [4.18.2](#) a) to c) and [4.18.3](#) b) to d) do not apply to projectiles where the maximum range of the discharged projectile is 300 mm or less when measured in accordance with [5.35](#).
- b) The requirement of [4.18.3](#) a) does not apply to projectile toys for children 3 years and over with a range of 100 mm or less when measured in accordance with [5.35](#).
- c) The requirements of [4.18.2](#), [4.18.3](#) and [4.18.4](#) do not apply to:
 - components that function as projectiles which are permanently enclosed within a toy unless they are liberated when the outer container is tested according to [5.24](#);
 - ground-based toys propelled along a track or launched onto another surface.

NOTE These are not considered to be projectile toys even if they include an element of motion in free flight, for example leaps between tracks or surfaces.

4.18.2 Projectiles

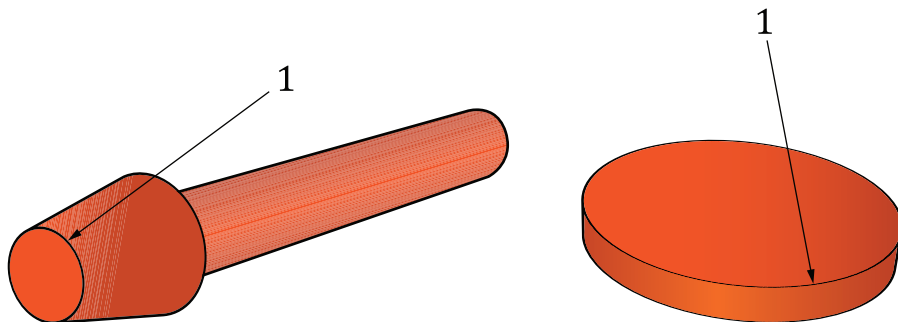
Projectile toys shall conform to the following requirements:

- a) Tips or leading edges on rigid projectiles shall not protrude beyond the depth of the gauge shown in [Figure 60](#) when tested according to [5.36](#).
- b) The leading edge(s) of a projectile, as well as any corners that are adjacent to the leading edge(s), shall be smooth and free of points, burrs, flash or similar projections.
- c) For rigid projectiles discharged by projectile toys with stored energy, the corners of the projectile that are adjacent to the leading edge(s) shall have rounded edges. For the purposes of this requirement a radius of 0,25 mm shall be considered sufficient. This requirement does not apply to projectiles made from paper or paperboard.

NOTE There can be multiple leading edges that require evaluation, especially in situations where the projectile can travel in irregular or unpredictable orientations (e.g. tumbling).

To determine if a leading edge and/or adjacent corner can strike the eye, the spherical shape of the eyeball should be considered, as well as the size and shape of the projectile relative to the eye, the regularity or predictability of the flight path and any other relevant factors.

See [Figure 22](#) for examples of corners adjacent to leading edges.



Key

- 1 corners adjacent to leading edges

Figure 22 — Examples of corners adjacent to leading edges on missile and disc-type projectiles

- d) Projectiles with a suction cup as a contact surface shall have a length of 57 mm or more when measured according to [5.37](#) before and after testing according to [5.24.5](#) and [5.24.6.5](#). This requirement does not apply to:
- projectiles with a suction cup that does not pass entirely through test template C when tested according to [5.4](#);
 - foam shaft projectiles which are 57 mm or more in the as-received state when measured according to [5.37](#), and where the suction cup has a diameter, measured in the relaxed state, that is less than or equal to the diameter of the foam shaft (see [Figure 23](#)).