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Safety of toys —

Part 9: Safety aspects related to mechanical and physical properties — Comparison of ISO 8124-1, EN 71-1, and ASTM F963

Sécurité des jouets —

Partie 9: Aspects de sécurité relatifs aux propriétés mécaniques et physiques — Comparaison des ISO 8124-1, EN 71-1 et ASTM F963

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Foreword

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

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This document was prepared by Technical Committee ISO/TC 181, *Safety of toys*.

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

The purpose of this document is to compare and contrast the identified versions of ASTM F963:2011, EN 71-1:2014 and ISO 8124-1:2014. This document focuses on the contents of these three referenced standards as they relate to mechanical and physical properties including scope, definitions, general requirements, warnings and test methods.

For ease of use and readability, ISO 8124-1:2014, Clause 4 is listed in Clause 6 of this document. For example, ISO 8124-1:2014, 4.3 relates to 6.4 of this document.

This document is an overview and, therefore, do not cover the entirety of all the differences among ISO 8124-1, ASTM F963 and EN 71-1. In addition, this document is not to be relied on to fully understand conformance with any of the referenced standards or the requirements within them. In the case of any discrepancies in the comparisons presented, please refer to the relevant clauses of the referenced standards.

The index of requirements in EN 71-1 is given in Annex A.

The index of requirements in ASTM F963 is given in Annex B.

Safety of toys —

Part 9: Safety aspects related to mechanical and physical properties — Comparison of ISO 8124-1, EN 71-1, and ASTM F963

1 Scope

This document consists of a comparison of the mechanical and physical requirements covered by the following toy safety standards:

a) ISO: ISO 8124-1:2014;

b) Europe (CEN): EN 71-1:2014;

c) USA: ASTM F963:2011.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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/

4 Comparison of scopes

The scope of applicable toy products covered by the referenced standards is generally similar, as shown in Table 1.

Table 1 — Scope

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
The requirements in this part of ISO 8124-1 apply to all toys, i.e. any product or material designed or clearly intended for use in play by children under 14 years of age.	This European Standard applies to toys for children, toys being any product or material designed or intended, whether or not exclusively, for use in play by children of less than 14 years. *NOTE "The words "whether or not exclusively" have been added to the definition to indicate that the product does not have to be exclusively intended for playing purposes in order for it to be considered as a toy, but it can have other functions as well. For example, a key-ring with a teddy bear attached to it is considered as a toy, or a sleeping bag in the shape of a soft filled toy."*	This specification covers requirements and contains test methods for toys intended for use by children under 14 years of age.

Table 2 illustrates the differences in the product types which are exempted from the scope of each standard.

Table 2 — Exemptions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Bicycles, except for those considered to be toys, i.e. those having a maximum saddle height of 435 mm.	Bicycles with a maximum saddle height of more than 435 mm, measured as the vertical distance from the ground to the top of the seat surface, with the seat in a horizontal position and with the seat pillar set to the minimum insertion mark (see NOTE 1)	Bicycles
Slingshots	Slings and catapults Items that are propelled into free flight by a child releasing an elastic band (e.g. Aeroplanes and rockets) are considered as catapults (see NOTE 2)	Sling shots
Darts with metal points	Products and games using sharp-pointed missiles, such as sets of darts with metallic points (see NOTE 1)	Sharp-pointed darts
Home and public playground equipment	Playground equipment intended for public use (seeNOTE 2)	Playground equipment
Compressed air- and gas-operated guns and pistols	Guns and pistols using compressed gas, with the exception of water guns and water pistols (see NOTE 1)	Non-powder guns
Kites (except for the electric resistance of their strings, which is included)	—	Kites (except for electric resistance of kite strings and hand-held lines over 6 ft (1,8 m) long, attached to flying devices intended for use as playthings)
NOTE 1 For the purpose of EN 71-1, these product types are not considered as toys. There are guidance documents issued by CEN to assist in the classification of toys. NOTE 2 EN 71-1 does not apply to these toys.		

Table 2 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Model kits, hobby and craft items, in which the finished item is not primarily of play value.	—	Hobby and craft items in which the finished item is not primarily of play value Model kits in which the finished item is not primarily of play value
Sporting goods and equipment, camping goods, athletic equipment, musical instruments and furniture; however, toys which are their counterparts are included.	—	Sporting goods, camping goods, athletic equipment, musical instruments, juvenile products, and furniture. However, toys that are their counterparts are covered.
Models of aircraft, rockets, boats and land vehicles powered by combustion engines; however, toys which are their counterparts are included.	Toy vehicles equipped with combustion engines (see NOTE 2)	Powered models of aircraft, rockets, boats, and land vehicles; however, toys that are their counterparts are covered.
Collectible products not intended for children under 14 years of age.	Products for collectors, provided that the product or its packaging bears a visible and legible indication that it is intended for collectors of 14 years of age and above. Examples of this category are: — detailed and faithful scale models; — kits for the assembly of detailed; — Scale models; — folk dolls and decorative dolls and other similar articles; — historical replicas of toys.	—
Holiday decorations that are primarily intended for ornamental purposes.	Decorative objects for festivities and celebrations (see NOTE 1)	—
Aquatic equipment intended to be used in deep water, swimming-learning devices and flotation aids for children such as swim-seats and swim-aids.	Aquatic equipment intended to be used in deep water, and swimming learning devices for children, such as swim seats and swimming aids (see NOTE 1)	—
Toys installed in public places (e.g. Arcades and shopping centres)	Automatic playing machines, whether coin operated or not, intended for public use (see NOTE 2)	—
Puzzles having more than 500 pieces or without a picture, for specialists	Puzzles with more than 500 pieces (see NOTE 1)	—
Fireworks including percussion caps, except percussion caps specifically designed for toy	Fireworks, including percussion caps which are not specifically designed for toys (see NOTE 1)	—
NOTE 1 For the purpose of EN 71-1, these product types are not considered as toys. There are guidance documents issued by CEN to assist in the classification of toys. NOTE 2 EN 71-1 does not apply to these toys.		

Table 2 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Products containing heating elements intended for use under the supervision of an adult in a teaching context	Products intended for use for educational purposes in schools and other pedagogical contexts under the surveillance of an adult instructor, such as science equipment (see NOTE 1)	—
Steam engines	Toy steam engines (see NOTE 2)	—
Video toys that can be connected to a video screen and operated at a nominal voltage greater than 24 V	—	—
Babies' pacifiers (dummies)	Babies' soothers (see NOTE 1)	—
Faithful reproduction of firearm	Reproductions of real fire arms (see NOTE 1)	—
Electric ovens, irons or other functional products operated at a nominal voltage greater than 24 V	Functional educational products, such as electric ovens, irons or other functional products, as defined in 2009/48/EC, operated at a nominal voltage exceeding 24 V which are sold exclusively for teaching purposes under adult supervision (see NOTE 1)	
Bows for archery with an overall relaxed length exceeding 120 cm	Bows for archery over 120 cm long (see NOTE 1)	—
Fashion jewellery for children	Fashion accessories for children which are not for use in play (see NOTE 1)	—
—	Sports equipment including roller skates, inline skates, and skateboards intended for children with a body mass of more than 20 kg (see NOTE 1)	—
—	Scooters and other means of transport designed for sport or which are intended to be used for travel on public roads or public pathways	—
—	Electrically driven vehicles which are intended to be used for travel on public roads, public pathways, or the pavement thereof (see NOTE 1)	—
—	Electronic equipment, such as personal computers and game consoles, used to access interactive software and their associated peripherals, unless the electronic equipment or the associated peripherals are specifically designed for and targeted at children and have a play value on their own, such as specially designed personal computers, key boards, joy sticks or steering wheels (see NOTE 1)	—

NOTE 1 For the purpose of EN 71-1, these product types are not considered as toys. There are guidance documents issued by CEN to assist in the classification of toys.

NOTE 2 EN 71-1 does not apply to these toys.

Table 2 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	Interactive software, intended for leisure and entertainment, such as computer games, and their storage media, such as cds (see NOTE 1)	—
—	Child-appealing luminaires (see NOTE 1)	—
—	Electrical transformers for toys (see NOTE 1)	—
—	Personal protective equipment, including flotation aids such as arm bands and swim seats; and swimming goggles, sunglasses and other eye protectors as well as bicycle and skateboard helmets (see NOTE 1)	—
—	—	Tricycles
—	—	Non-powered scooters (see consumer safety specification f2264)
—	—	Recreational powered scooters and pocket bikes(see Consumer Safety Specification F2641)
—	—	Crayons, paints, chalks, and other similar art materials in which the material itself or the finished item is not primarily of play value, except that all art materials, whether or not a component of a toy, must comply with LHAMA, in accordance with 4.29.1 to 4.29.3.
—	—	Toy chests
—	—	Constant air inflatables
NOTE 1 For the purpose of EN 71-1, these product types are not considered as toys. There are guidance documents issued by CEN to assist in the classification of toys. NOTE 2 EN 71-1 does not apply to these toys.		

5 Comparison of terms and definitions

5.1 General

Table 3 illustrates the terms that are defined in the referenced standards.

Table 3 — Defined terms

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.1 accessible	3.1 accessible	3.1.2 accessible
3.2 aquatic toy	3.2 aquatic toy	3.1.4 aquatic toy
3.3 arrow	—	—
3.4 backing	3.4 backing	—
3.5 ball	3.5 ball	3.1.6 ball
3.6 battery-operated toy	—	3.1.8 battery-operated toy
3.7 burr	3.6 burr	3.1.9 burr
3.8 close-to-the-ear toy	3.10 close-to-the-ear toy	3.1.12 close-to-the-ear toy

Table 3 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.9 collapse	3.11 collapse	3.1.14 collapse
3.10 continuous sound	—	3.1.17 continuous sound
3.11 cord	3.12 cord	3.1.18 cord
3.12 crushing	3.14 crushing	3.1.20 crushing
3.13 C-weighted peak sound pressure level (Lp_{Cpeak})	3.43 peak emission sound pressure level	3.1.11 C-weighted peak sound pressure level (L_{Cpeak}) 3.1.54 peak sound pressure level (L_{Cpk})
3.14 dart	—	—
3.15 discharge mechanism	—	3.1.23 discharge mechanism
3.16 driving mechanism	3.15 driving mechanism	3.1.24 driving mechanism
3.17 edge 3.17.1 curled edge 3.17.2 hemmed edge 3.17.3 rolled edge	3.16 edge	3.1.21 curled edge 3.1.40 hemmed edge 3.1.67 rolled edge
3.18 equivalent sound pressure level (Lp_{Aeq})	3.64 time-averaged emission sound pressure level	3.1.27 equivalent sound pressure level (L_{Aeq})
3.19 expanding material	3.20 expanding material	—
3.20 explosive action	—	3.1.28 explosive action
3.21 fastener	3.21 fastening	3.1.30 fastener
3.22 feathering	—	3.1.31 feathering
3.23 flash	—	3.1.32 flash
3.24 folding mechanism	—	3.1.33 folding mechanism
3.25 free flight	—	—
3.26 functional magnet in electrical or electronic components of toys	3.27 functional magnet in electrical or electronic components of toys	—
3.27 functional toy	3.28 functional product 3.29 functional toy	—
3.28 fuzz	3.30 fuzz	3.1.34 fuzz
3.29 glass	—	—
3.30 hand-held toy	3.31 hand-held toy	3.1.35 hand-held toy
3.31 harm	—	—
3.32 hazard	—	3.1.36 hazard
3.33 hazardous projection	—	3.1.60 projection, hazardous
3.34 hazardous sharp edge	—	3.1.25 edge, hazardous
3.35 hazardous sharp point	—	3.1.56 point, hazardous
3.36 hinge-line clearance	3.32 hinge line	3.1.41 hinge-line clearance
3.37 impulsive sound	—	3.1.42 impulsive sound
3.38 lap joint	3.39 overlap joint	3.1.44 lap joint
3.39 large and bulky toy	3.33 large and bulky toy	3.1.45 large and bulky toy
3.40 leading edge	—	—
3.41 marble	marble is covered by the definition of “balls” in EN 71-1	3.1.47 marble
3.42 magnetic component	3.34 magnetic component	3.1.37 hazardous magnet 3.1.38 hazardous magnet component

Table 3 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.43 magnetic/electrical experimental set	3.35 magnetic/electrical experimental set	—
3.44 maximum A-weighted sound pressure level	3.36 maximum emission sound pressure level	3.1.1 A-weighted sound pressure level (L_{pA}) 3.1.49 maximum A-weighted sound pressure level(L_{AFmax})
3.45 metal	—	—
3.46 normal use	—	3.1.51 normal use
3.47 packaging	3.40 packaging	3.1.53 packaging
3.48 paper	3.41 paper	A5.2.6 paper (applied to flammability requirement)
3.49 play furniture	—	—
3.50 pompom	—	3.1.57 pompom
3.51 projectile	3.46 projectile	3.1.59 projectile
3.52 projectile toy with stored energy	3.47 projectile toy with stored energy	—
3.53 projectile toy without stored energy	3.48 projectile toy without stored energy	—
3.54 protective cap, protective cover or protective tip	—	3.1.61 protective cap or cover 3.1.62 protective tip
3.55 pull toy	3.49 pull-along or push toy	—
3.56 rattle	3.50 rattle	3.1.63 rattle
3.57 reasonably foreseeable abuse	—	3.1.64 reasonably foreseeable abuse
3.58 reference box	—	3.1.65 reference box
3.59 removable component	3.51 removable component	—
3.60 resilient material	—	—
3.61 rigidity	—	3.1.66 rigid
3.62 risk	—	—
3.63 simulated protective equipment	—	3.1.69 simulated protective equipment
3.64 soft-filled toy, stuffed toy	3.53 soft-filled toy	3.1.70 soft-filled toy/stuffed toy
3.65 splinter	3.54 splinter	3.1.71 splinter
3.66 springs	3.55 spring	3.1.39 helical spring
3.66.1 helical spring	3.55.1 helical spring	3.1.15 compression spring
3.66.1.1 compression spring	3.55.2 compression spring	3.1.29 extension spring
3.66.1.2 extension spring	3.55.3 extension spring	3.1.72 spiral spring
3.66.2 spiral spring	3.55.4 spiral spring	
3.67 squeeze toy	3.56 squeeze toy	3.1.73 squeeze toy
3.68 table-top, floor and crib toy	3.60 table-top or floor toy	3.1.77 tabletop, floor, and crib toy
3.69 teether	3.63 teether	3.1.79 teether
3.70 tool	3.65 tool	3.1.80 tool
3.71 toy	—	3.1.81 toy
3.72 toy bicycle	3.67 toy bicycle	—
3.73 toy chest	—	3.1.82 toy chest
3.74 toy scooter	3.68 toy scooter	—

Table 3 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	3.3 asphyxiation	—
—	3.7 cap-firing toy	—
—	3.8 chain	—
—	3.9 choking	—
—	3.13 crack	—
—	3.17 elastic material	3.1.26 elastic
—	3.18 electrical cable	—
—	3.19 emission sound pressure level	—
—	3.22 filling	—
—	3.23 fixed drive	—
—	3.24 fixed loop	—
—	3.25 free-wheeling mechanism	—
—	3.26 functional edge or point	—
—	3.37 maximum saddle height	—
—	3.38 noose	—
—	3.42 paperboard	—
—	3.44 percussion toy	—
—	3.45 plastic sheeting	—
—	3.52 ribbon	—
—	3.57 strap	3.1.75 strap
—	3.58 suction cup	—
—	3.59 suffocation	—
—	3.61 tangled loop	3.1.78 tangle or form a loop
—	3.62 tape	—
—	3.66 toy bag	—
—	3.69 voice toy	—
—	3.70 wind toy	—
—	3.71 yo-yo ball	3.1.84 yo-yo elastic tether toy
—	—	3.1.46 latex balloon
—	—	3.1.55 pinching
—	—	3.1.58 principal display panel
—	—	3.1.74 steady-state sound (noise)
—	—	3.1.83 toy seat

5.2 Analysis of the main differences between the terms and definitions

5.2.1 Aquatic toy

EN 71-1 does not specifically exclude bathroom toys and beach balls as shown in Table 4.

Table 4 — Aquatic toy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.2 aquatic toy article, 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.	3.2 aquatic toy Toy, whether inflatable or not, intended for use in shallow water and which is capable of carrying or supporting a child on the water.	3.1.4 aquatic toy An article, whether inflatable or not, intended to bear the mass of a child and used as an instrument of play in shallow water. This does not include bath toys, beach balls, and united states coast guard-approved life saving devices.

5.2.2 Asphyxiation and choking

EN 71-1 defines asphyxiation and choking. ISO 8124-1 does not provide definitions although these terms are mentioned in ISO 8124-1:2014, Annex E.

5.2.3 Ball

The definition of ball in ASTM F963 is somewhat narrower than in EN 71-1 and ISO 8124-1 because it requires meeting both shape and function parameters. See Table 5.

Table 5 — Ball definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.5 ball spherical, ovoid or ellipsoidal object, usually but not always designed or intended to be thrown, hit, kicked, rolled, dropped or bounced	3.5 ball Spherical, ovoid or ellipsoidal object, usually but not always designed or intended to be thrown, hit, kicked, rolled, dropped or bounced.	3.1.6 ball Any spherical, ovoid, or ellipsoidal object that is designed or intended to be thrown, hit, kicked, rolled, dropped, or bounced.

5.2.4 Close-to-the-ear toy

In Table 6, EN 71-1 defines a close-to-the-ear toy as one that is intended to be used within 2,5 cm of the ear.

Table 6 — Close-to-the-ear toy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.8 close-to-the-ear toy toy 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 hand piece.	3.10 close-to-the-ear toy Toy clearly designed to emit sound, intended to be used within 2,5 cm of the ear Note 1 to entry: Examples of close-to-the-ear toys are toy telephones and toy rifles with a loudspeaker in the stock.	3.1.12 close-to-the-ear toy A toy that is intended to be used close to the ear, that is, the sound emitting part of such a toy is normally put against the ear of a child (example—toy telephones that emit sounds from the earpiece).

5.2.5 Electrical cable

Only EN 71-1 defines electrical cable.

5.2.6 Hand-held toy

The product category addressed in the definition of EN 71-1 is elaborated, clearly indicating the exemption for those typical toys with hand-held features, such as close-to-the-ear toys, rattles, squeeze toys, cap-firing toys, wind toys, voice toys and percussion toys. See Table 7.

Table 7 — Hand-held toy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.30 hand-held toy toy 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.	3.31 hand-held toy Toy clearly designed to emit sound, intended to be held in the hand but excluding close-to-the-ear toys, rattles, squeeze toys, cap-firing toys, wind toys, voice toys and percussion toys. Note 1 to entry: Examples of hand-held toys are clicking toys, toy tools, and toys guns.	3.1.35 hand-held toy A toy that is intended to be used or operated while being held in the hand. Examples include toy tools, small electronic games, stuffed animals, dolls, musical toys, and cap-firing toys.
NOTE For ISO 8124-1 and ASTM F963, the definition is exclusively applied to acoustic requirements on toy designed to emit sound.		

5.2.7 Large and bulky toy

The definition of large and bulky toy in ASTM F963 and ISO 8124-1 does not include consideration of toy mass (4,5 kg or more), while mass is one of the factors that can define a toy as large and bulky in EN 71-1. See Table 8.

Table 8 — Large and bulky toy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.39 large and bulky toy toy that has a projected base area of more than 0,26 m^2 or a volume of more than 0,08 m^3 calculated without regard to minor appendages 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 of each leg of the perimeter.	3.33 large and bulky toy Toy that has a projected base area of more than 0,26 m^2 or a volume of more than 0,08 m^3 calculated without regard to minor appendages, or a mass of 4,5 kg or more. Note 1 to entry: The base area of a toy having permanently attached legs is the area enclosed by straight lines connecting the outermost edge of each leg of the perimeter.	3.1.45 large and bulky toy Toy that has a projected base area of more than 400 in^2 (0,26 m^2) or a volume of more than 3ft^3 (0,08 m^3) calculated without regard to minor appendages. NOTE 2 – The base area for toys having permanently attached legs is measured by calculating the area enclosed by straight lines connecting the outermost edge of each leg of the perimeter.
NOTE In ISO 8124-1 and ASTM F963, consideration of toy mass is made during the application of the drop test.		

5.2.8 Marble

Marble is defined differently in ASTM F963 and ISO 8124-1. In ASTM F963, the definition excludes a marble that is permanently enclosed in a toy or game. ISO 8124-1 does not make this distinction. EN 71-1 does not define marble; however, marble is covered by the definition of ball in that standard.

5.2.9 Paper

In ISO 8124-1, the definition of paper includes either paper or paperboard with a maximum mass per unit area of 400 g/m^2. In EN 71-1, paper is defined as sheet formed by irregularly intervened cellulose fibres with a mass per unit area of 400 g/m^2. EN 71-1 defines paperboard separately and uses a mass per unit area of >400 g/m^2 criterion.

A definition of paper is given in ASTM F963:2011, Annex 5, but no numerical parameters are included. The definition is also limited to the flammability testing procedure.

NOTE Work is ongoing in ISO regarding paper.

5.2.10 Projectile

The ISO 8124-1 definition states that a projectile does not include self-propelled flying toys, as shown in Table 9.

Table 9 — Projectile definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.51 projectile object without capacity for self-propulsion, intended to be launched into free flight Note 1 to entry: The definition does not include self-propelled flying toys such as remote control helicopters and wind-up airplanes unless the capacity for self-propulsion is from self-contained compressed gas and/or liquid (e.g. rockets).	3.46 projectile Object intended to be launched into free flight or a trajectory in the air.	3.1.59 projectile An object propelled by means of a discharge mechanism capable of storing and releasing energy under the control of the operator.

5.2.11 Projectile toy with stored energy

Compared to EN 71-1, the ISO 8124-1 definition of projectile toy with stored energy provides additional detail regarding the discharge mechanism. ASTM F963 does not provide a definition; however, the requirements apply to this type of projectile toy. See Table 10.

Table 10 — Projectile toy with stored energy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.52 projectile toy with stored energy toy with a projectile launched by means of a discharge mechanism capable of storing energy independent of the user and incorporating a release mechanism	3.47 projectile toy with stored energy Toy with a projectile propelled by means of a discharge mechanism capable of storing and releasing energy.	—

5.2.12 Projectile toy without stored energy

Compared to EN 71-1, the definition of projectile toy without stored energy in ISO 8124-1 includes consideration of energy imparted by the user or a discharge mechanism incapable of storing energy independent of the user. ASTM F963 does not provide a definition. See Table 11.

Table 11 — Projectile toy without stored energy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.53 projectile toy without stored energy toy with a projectile propelled by energy imparted by the user or by means of a discharge mechanism incapable of storing energy independent of the user	3.48 projectile toy without stored energy Toy with a projectile discharged by the energy imparted by a child.	—

5.2.13 Protective cap, protective cover or protective tip

ASTM F963 provides definitions for the terms protective cap or cover (see ASTM F963:2011, 3.1.61) and protective tip (see ASTM F963:2011, 3.1.62). ISO 8124-1 combines them into one definition for protective cap, protective cover or protective tip. EN 71-1 does not specifically define these terms, but it uses the phrase “protective components” within the standard.

5.2.14 Pull toy

ISO 8124-1 includes an age range for applicable pull toys. EN 71-1 includes pull-along toys and push toys into one definition. ASTM F963 does not define neither pull toy, pull-along toy nor push toy. See Table 12.

Table 12 — Pull toy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.55 pull toy toy that is intended to be pulled along the floor or ground Note 1 to entry: Toys intended for children aged 36 months and over are not regarded as pull toys.	3.49 pull-along or push toy Toy on which movement is imparted by the user for example by pulling it by a cord or pushing it by means of a rigid extension.	—

5.2.15 Rattle

There is a difference in the applicable age range for rattles across the referenced standards. ASTM F963 is applicable for children under 18 months, while EN 71-1 and ISO 8124-1 for “children who are too young to sit up unaided” with the clarification, in the annexes of both standards, that children normally start to sit up unaided between five and ten months of age.

5.2.16 Squeeze toy

There is a difference in the applicable age range for squeeze toys across the referenced standards, as shown in Table 13. ASTM F963 and ISO 8124-1 are applicable for such toys intended for an age of under 18 months, while EN 71-1 is applied for: “children who are too young to sit up unaided”.

The definition in EN 71-1 does not discuss the ability of the toy to recover its original shape when released.

Table 13 — Squeeze toy definitions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
3.67 squeeze toy hand-held pliable toy, 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	3.56 squeeze toy Pliable toy, intended for children who are too young to sit up unaided, incorporating a sound-making feature activated by forcing air through an opening, clearly designed to emit sound when flexed or squeezed by the child or another person.	3.1.73 squeeze toy A hand-held pliable toy, intended for children under the age of 18 months, usually incorporating a noise-making feature activated by forcing air through an opening when flexed or squeezed, and which recovers to its original shape when released.
NOTE ISO 8124-1:2014, 4.5.1.2 specifies that squeeze toys are intended for children under 18 months.		

5.2.17 Yo-yo elastic tether toy

ISO 8124-1 does not define yo-yo elastic tether toy. ASTM F963 includes detail on the intended play pattern for the toy. See Table 14.

Table 14 — Yo-yo elastic tether toy definitions

ISO 8124-1: 2014	EN 71-1:2014	ASTM F963:2011
—	Toy made from elastic material consisting of a tether usually having a loop at one end to place around a finger, and a flexible object at the other end.	A toy consisting of an elastic tether that usually contains a loop on one end to wear around the finger, and a flexible object on the other end intended to be thrown and returned to the hand.

NOTE Work is ongoing in ISO regarding yo-yo elastic tether toy.

6 Comparison of requirements

6.1 General

The comparisons in this clause are based on the requirements in ISO 8124-1, they focus on the main differences of the referenced standards.

For the purpose of this document, the subclauses related to warnings and test methods are included in the general requirements section.

6.2 Normal use

The clauses for normal use requirements in the referenced standards are indicated in Table 15.

Table 15 — Normal use clauses

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.1 Normal use	—	8.5 Normal use testing
5.23 Washable toys	A.26 General requirements for toys intended for children under 36 months (see 5.1)	8.5.1 Washable toys 8.5.1.1 Conditions for machine washing and tumble drying

6.3 Reasonably foreseeable abuse

The clauses for reasonably foreseeable abuse in the referenced standards are indicated in Table 16.

Table 16 — Reasonably foreseeable abuse clauses

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.2 Reasonably foreseeable abuse 5.24 Reasonably foreseeable abuse tests	—	8.6 Abuse testing
5.24.2 Drop test	8.5 Drop test (see 4.5, 4.6, 4.10.2, 4.14.2, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12 and 5.13)	8.7.1 Drop test
—	—	8.7.3 Tumble test for wheeled toys
5.14 Impact test for toys that cover the face	4.14.2 b) 8.7 Impact test (see 4.14.2)	8.7.4 Impact test for toys that cover the face
5.24.3 Tip-over test for large and bulky toys	8.6 Tip over test (see 4.10.2, 4.22, 4.23.2, 5.1, 5.10, 5.12 and 5.13)	8.7.2 Tipover test for large, bulky toys
—	8.7 Impact test (see 4.5, 4.6, 4.10.2, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12, 5.13 and A.38)	8.24.4.2 Impact test (for magnet toy)

Table 16 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
5.24.4 Dynamic strength test for wheeled ride-on toys other than toy scooters	8.22 Dynamic strength (see 4.15.1.3)	8.20 Dynamic strength test for wheeled ride-on toys
5.24.5 Torque test	8.3 Torque test (see 4.6, 4.11, 4.14.2, 4.17, 4.18, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12, 5.13 and Clause 6)	8.8 Torque tests for removal of components
5.24.6 Tension test	8.4 Tension test (see A.37)	8.9 Tension test for removal of components
5.24.7 Compression test	8.8 Compression test (see 4.6, 4.14.2, 4.22, 4.23.2, 4.25, 5.1, 5.10, 5.12, 5.13 and A.39)	8.10 Compression test
—	8.9 Soaking test (see 4.11, 4.23.2, 5.1, 5.10 and 5.12)	—
5.24.8 Flexure test	8.13 Flexibility of metallic wires (see 4.8 and A.41)	8.12 Flexure test
—	—	8.11 Tests for tire removal and snap-in wheel and axle assembly removal
5.34 Soaking test for magnets	8.9 Soaking test (see 4.11, 4.23.2, 5.1, 5.10 and 5.12)	—

a) The reasonably foreseeable abuse test parameters in ISO 8124-1, EN 71-1 and ASTM F963 are determined according to the age grade for the toy, as shown in Table 17. For the drop test, ISO 8124-1 and ASTM F963 include toy mass criteria, a toy is not subjected to this test if its mass exceeds the mass limit. EN 71-1 does not include toy mass criteria for exemption from the drop test, however some clauses substitute the drop test with the tip over test (e.g. Clause 5.1d), when the toy is large and bulky, as defined in EN 71-1:2014 ,3.33.

Table 17 — Parameters for reasonably foreseeable abuse tests

		0 to18 months	18+ to 36 months	36+ to 96 months
Drop test	ASTM F963:2011	10 × 4,5 ft ± 0,5 in. (137 cm) (<1,4 kg)	4 × 3,0 ft ± 0,5 in. (91 cm) (<1,8 kg)	4 × 3,0 ft ± 0,5 in. (91 cm) (<4,5 kg)
	ISO 8124-1:2014	10 × (138 ± 5) cm (<1,4 kg)	4 × (93 ± 5 cm) (<4,5 kg)	
	EN 71-1:2014	5 × (850 ± 50) mm		
Torque test[a]	ASTM F963:2011	2 ± 0,2 in.·lbf (0,23 N·m)	3 ± 0,2 in.·lbf (0,34 N·m)	4 ± 0,2 in.·lbf (0,45 N·m)
	ISO 8124-1:2014	(0,45 ± 0,02) N·m		
	EN 71-1:2014	0,34 N·m		
Tension test[a]	ASTM F963:2011	10 ± 0,5 lbf (44,5 N)	15 ± 0,5 lbf (66,8 N)	15 ± 0,5 lbf (66,8 N)
	ISO 8124-1:2014	General tension test (70 ± 2) N Tension test for seams (70 ± 2) N Tension test for pompoms (70 ± 2) N Tension test for protective components (70 ± 2) N		
	EN 71-1:2014	The largest accessible dimension of the component to be gripped and tested is 6 mm or less (50 ± 2) N The largest accessible dimension of the component to be gripped and tested is greater than 6 mm (90 ± 2) N The component to be gripped is made entirely of paperboard (25 ± 2) N Tension test for seams (70 ± 2) N Tension test for protective components (60 ± 2) N		
Compression	ASTM F963:2011	20 ± 0,5 lbf (89,0 N)	25 ± 0,5 lbf (111,3 N)	30 ± 0,5 lbf (133,5 N)

[a] The tests in EN 71-1 are applicable to toys intended for children under 36 months or as specified by certain requirements.

Table 17 *(continued)*

		0 to18 months	18+ to 36 months	36+ to 96 months
Test [a]	ISO 8124-1:2014	(114 ± 2,0) N		(136 ± 2,0) N
	EN 71-1:2014	(110 ± 5) N		
Flexure test [a]	ASTM F963:2011	10 ± 0,5 lbf (44,5 N)	15 ± 0,5 lbf (66,8 N)	15 ± 0,5 lbf (66,8 N)
	ISO 8124-1:2014	(70 ± 2) N		
	EN 71-1:2014	(70 ± 2) N		

[a] The tests in EN 71-1 are applicable to toys intended for children under 36 months or as specified by certain requirements.

b) EN 71-1 provides a method to determine if a component can be gripped by inserting the feeler gauge between the component and the underlying layer or body of the toy at an angle between 0° and 10° from the toy surface using a force of (10 ± 1) N. If the gauge can be inserted more than 2 mm, the component shall be considered as grippable. There is no such method in ISO 8124-1 and ASTM F963. ASTM F963 and ISO 8124-1 apply the tension test to any projection of a toy that a child can grasp with at least the thumb and forefinger or the teeth.

c) Only ASTM F963 specifies a tumble test for wheeled toys.

d) The soaking test in EN 71-1 is applied to toys with magnets, wooden toys, toys intended to be used in water, and mouth-actuated toys. The soaking test in ISO 8124-1 is limited to toys with magnets. The soaking test is not specified in ASTM F963.

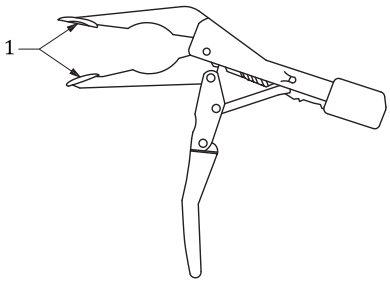
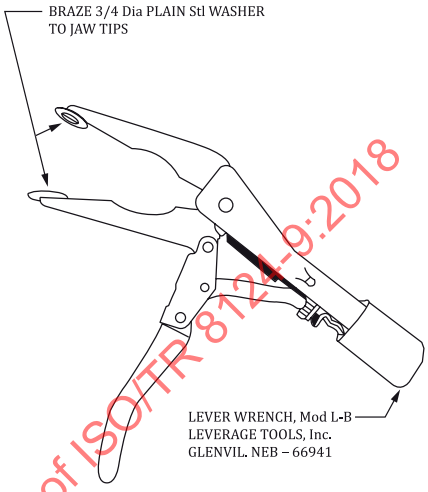
e) Table 18 indicates the impact medium specifications for the drop test across the referenced standards.

Table 18 — Impact medium specifications for the drop test

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Impact medium composition	Vinyl composition tile of approximately 3 mm nominal thickness laid over concrete of at least 64 mm thickness.	4 mm thick steel plate with a 2 mm thick coating and placed on a non-flexible horizontal surface.	The impact medium shall consist of a 1/8 in. (3 mm) nominal thickness of Type IV vinyl composition tile, composition 1-asbestos free, as specified in Federal Specification SS-T-312B over at least a 2,5 in. (64 mm) thickness of concrete.
Hardness	(80 ± 10) Shore A	(75 ± 5) Shore A	—
Area	≥0,3 m^2	—	≥3 ft^2 (0,3 m^2)

f) The seam clamp specified in the referenced standards is very similar, as shown in Table 19. The key difference exists in whether washers or discs are affixed to the jaws of the clamp. The jaws in ASTM F963 have washers affixed to them, whereas the jaws in EN 71-1 and ISO 8124-1 have discs affixed.

Table 19 — Seam clamps

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Clamps with jaws to which discs with a diameter of 19 mm are attached.  	Clamps with jaws to which discs with a diameter of 19 mm are affixed.	Clamps with jaws to which are attached 3/4-in. (19-mm) diameter washers.  FIG. 27 Seam Clamp

g) The tip over test in EN 71-1 provides more detail than the tests specified in ISO 8124-1 and ASTM F963. In EN 71-1 the value of force (≤120 N) and position (1 500 mm or top edge of the toy) are specified. See Table 20.

Table 20 — Tip over tests

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Tip the toy over three times, one of which shall be in the most onerous position, by pushing the toy slowly past its centre of balance onto the impact surface.	Place the toy on a horizontal surface and attempt to tip it over by pushing the toy slowly past its centre of balance three times, one of which shall be in its most onerous position.	Toys shall be tested for impact by tipping over three times, one of which is in the worst attitude by pushing the sample slowly past its centre of balance onto the impact medium.
	By gradually applying a force, which is not to exceed 120 N, in a horizontal direction and 1 500 mm above the horizontal surface or at the top edge of the toy for toys less than 1 500 mm in height.	
	A non-resilient step with a height of (25 ± 2) mm shall be positioned such that it prevents sliding or rolling of the toy during the test.	

6.4 Material

6.4.1 General

The clauses specifying requirements related to material properties are outlined in Table 21.

Table 21 — Clauses related to material properties

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.3 Material 4.3.1 Material quality See E.4.	4.1 Material cleanliness (see A.3) 5.2 Soft-filled toys and soft-filled parts of a toy (see A.27)	4.1 Material quality 4.3.7 Stuffing materials
4.3.2 Expanding materials See E.5. 5.21 Expanding materials	4.6 Expanding materials (see A.7) 8.14 Expanding materials (see 4.6)	—
4.6.1 Accessible sharp edges of glass or metal	4.5 Glass (see 5.7 and A.6) 5.7 Glass and porcelain (see 4.5 and A.6)	4.7.1 Potentially hazardous sharp metal and glass edges are defined in 16 CFR 1500.49.

6.4.2 Fillings

For toys intended for children under 36 months, EN 71-1 requires that fillings shall not contain any hard and sharp contaminants such as pieces of metal, nails, needles and splinters. ASTM F963 also requires that loose fillers for stuffed toys shall be free of objectionable matter originating from insect, bird, rodent, or other animal infestation and of contaminants, such as splinters and metal chips to the extent possible in good manufacturing practice. In addition, fiber filling, whether natural or synthetic, should meet the requirements of ASTM F963:2011, Title 34, Chapter 47, Section 47.317. There is no corresponding requirement in ISO 8124-1.

6.4.3 Expanding materials

In EN 71-1 and ISO 8124-1, a toy shall not expand more than 50 % in any direction after a 24 h, 48 h or 72 h soaking test. In EN 71-1, if the expanding material is enclosed by a material intended to break during soaking, the requirement shall also be fulfilled when the test is performed after removal of the breakable material. There is no corresponding requirement in ISO 8124-1 to remove a breakable enclosing material. ASTM F963 does not address expanding materials in toys.

6.4.4 Glass and porcelain

EN 71-1 limits the scope of the requirements to accessible glass and porcelain; however, it also states that glass shall not be used in the construction of toys intended for children under 36 months. EN 71-1 permits the use of accessible glass in toys intended for children 36 months and over where:

a) its use is necessary for the function of the toy;

b) it does not produce hazardous sharp edges or hazardous sharp points after the drop and impact tests.

ISO 8124-1 and ASTM F 963 refer to “accessible edges of glass or metal” as shown in Table 22.

Table 22 — Sharpness requirements for accessible glass edges

	Under 36 months	36 months and over, but under 96 months	96 months and over, but under 14 years
ISO 8124-1:2014	After normal use tests and reasonably foreseeable abuse tests, accessible edges on toys intended for children under 96 months shall not be hazardous sharp edges of glass.		Toy shall not present hazardous sharp edges of glass after normal use tests.
EN 71-1:2014	Accessible glass and accessible porcelain shall not be used in the construction of toys intended for children under 36 months.	Accessible glass may be used in the construction of toys for children of 36 months and over where: a) its use is necessary to the function of the toy; b) it is textile glass used for reinforcement; c) it is in the form of solid glass marbles or solid glass eyes for doll; d) it is in the form of other glass elements that after being subjected to drop test and impact test do not expose accessible hazardous sharp edges or accessible hazardous sharp points.	
ASTM F 963–11	Toys shall not have accessible, potentially hazardous sharp edges. Toys intended for use by children under 8 years of age are subject to these requirements before or after use and abuse testing, or both.		Toy shall not have accessible, potentially hazardous sharp edges after normal use tests.

6.5 Small parts

6.5.1 General

The clauses specifying the requirements related to small parts are indicated in Table 23.

Table 23 — Clauses related to small parts

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.4 Small parts See E.6. 4.4.1 For children under 36 months 5.2 Small parts test	5 Toys intended for children under 36 months 5.1 General requirements (see A.26) 8.2 Small parts cylinder (see 4.6, 4.11, 4.18, 4.23.2, 4.23.3, 4.25, 5.1, 5.2 and A.27) 8.9 Soaking test (see 4.11, 4.23.2, 5.1, 5.10 and 5.12)	4.6 Small objects 4.6.1 Toys that are intended for children under 36 months of age are subject to the requirements of 16 CFR 1501. 5.8 Toys intended to be assembled by an adult
4.4.2 For children 36 months and over but under 72 months B.2.3 Small toys and toys containing small parts 5.2 Small parts test	7.2 Toys not intended for children under 36 months (see 4.22 and A.34)	4.6.3 Toys and games that are intended for use by children who are at least three years old (36 months) but less than six years of age (72 months) are subject to the requirements of 16 CFR 1500.19.

6.5.2 Small parts exemptions

The small part exemptions are quite similar across the referenced standards, as shown in Table 24. ISO 8124-1 and ASTM F963 identify elastic as exempt. EN 71-1 indicates that felt and elastic fabric are exempt from the small parts requirements as fabric. Elastic polymeric materials that are interwoven in an elasticized fabric, as well as elasticized thread sewn in to a fabric, are excluded from the general requirements of EN 71-1:2014, 5.1. Elastic polymeric materials (e.g. rubber bands) that are not interwoven in, or sewn in to, a piece of fabric material are not excluded from the general requirements of EN 71-1:2014, 5.1.

Only EN 71-1 does not exempt tightly packed stuffed components made of fabric/or yarn.

6.5.3 Test requirement for soft-filled toys and soft-filled parts of a toy

Only EN 71-1 has a special requirement for soft-filled toys and soft-filled parts of a toy, after being tested according to 8.4.2.2 b) (tension test, seams and materials), it shall not be possible to insert the front part of a 12 mm diameter rod with a fully radiused end through any one opening in the seam or cover material by more than 6 mm.

Table 24 — Small parts exemptions

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Paper books and other articles made of paper and pieces of paper	Paper	Pieces of paper Books and other paper articles
Writing materials such as crayons, chalk, pencils and pens	Crayons, chalks, pencils and similar writing and drawing implements without removable components	Writing materials (crayons, chalk, pencils, and pens)
Modelling clay and similar products	Modelling clay and similar products	Modelling clay and similar products
Fingerpaints, water colours, paint sets and paint brushes	—	Fingerpaints, watercolors, and other paint sets
Fuzz	Fuzz	Fuzz
Balloons	Balloons	Balloons
Textile fabric	Fabric (including felt and elastic fabric)	Fabric
Yarn	Yarn	Yarn
Elastic and string	String	Elastic String
Audio and/or video discs which are not themselves small parts	—	Phonograph records and compact discs (CDS)

6.5.4 Test methods

The gauges and tests for small parts are essentially aligned across the referenced standards (see Table 25). There are minor dimensional differences for the gauge in ASTM F963 due to a lack of tolerances in the specification.

Table 25 — Small parts cylinders

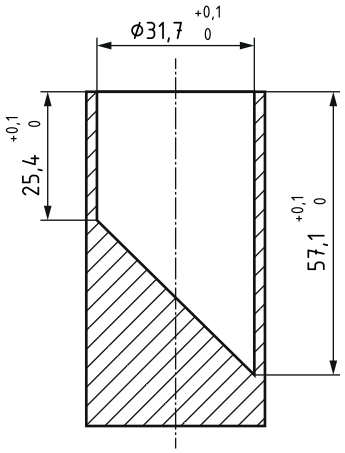
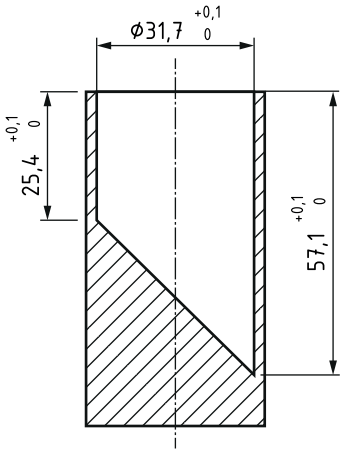
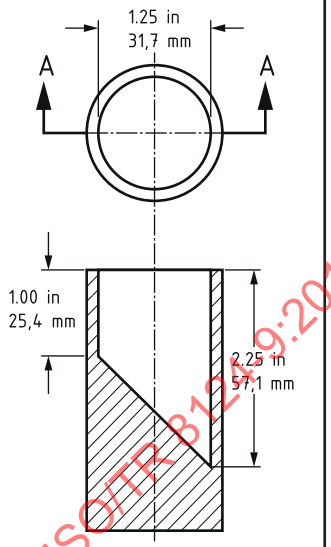
ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
		

FIG. 3 Small Parts Cylinder

6.6 Shape, size and strength of certain toys

6.6.1 General

The clauses for shape, size and strength of certain toys in the referenced standards are indicated in Table 26.

Table 26 — Clauses relating to the shape, size and strength of certain toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
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 4.5.1.2 Squeeze toys, rattles, and certain other toys and components of toys 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. 5.3 Test for shape and size of certain toys	5.8 Shape and size of certain toys (see A.31) 8.16 Geometric shape of certain toys (see 5.8, 5.11 and A.43)	4.22 Teethers and teething toys 4.23 Rattles 4.24 Squeeze toys 4.32 Certain toys with nearly spherical ends 4.32.1 Nearly spherical, hemispherical, circular flared, or dome-shaped ends of toys or components of toys
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	—	4.32.2 Nearly spherical, hemispherical, or dome-shaped ends of toy fasteners (for example, nails, bolts, screws, pegs)
4.5.2 Small balls 5.4 Small balls test B.2.5 Small balls and marbles	4.22 Small balls (see 5.10 and A.48) 5.10 Small balls (see also 4.22 and A.48) 8.32 Small balls and suction cups test (see 4.17, 4.22, 4.25, 5.10 and 5.13) 8.32.1 Small balls and suction cups test (see Clause 6) 8.32.2 Small balls attached to a toy by a cord 7.2 Toys not intended for children under 36 months (see 4.22 and A.34)	4.34 Balls 4.34.1 Balls intended for children under 36 months of age are subject to the requirements of 16 CFR 1500.18 (a)(17) 4.34.2 Toys intended for children at least 3 years old but less than 8 years of age that contain a loose small ball are subject to the requirements of 16 CFR 1500.19. 5.11.3 For any small ball intended for children 3 years of age or older the labelling shall read: "⚠ WARNING: CHOKING HAZARD—Toy contains a small ball. Not for children under 3 yrs."
4.5.3 Pompoms 5.5 Test for pompoms 5.24.6.3 Tension test for pompoms	—	4.35 Pompoms 8.16 Pompoms are subjected to the torque test as described in 8.8 and 8.8.1 and the tension test as described herein.
4.5.4 Pre-school play figures 5.6 Test for pre-school play figures	5.11 Play figures 8.33 Test for play figures (see 5.11)	4.32.3 Preschool play figures

Table 26 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.5.5 Toy pacifiers	—	4.20.2 Toy pacifiers attached to, or sold with, toys intended for children under 36 months of age
4.5.6 Balloons B.2.4 Balloons	4.12 Balloons (see 4.3 and A.16) 7.3 Latex balloons (see 4.12 and A.16)	4.31 Balloons – Packages containing latex balloons and toys or games containing latex balloons shall comply with the labelling requirements of 16 CFR 1500.19 5.11.5 For any latex balloon or any toy or game that contains a latex balloon, the labelling shall read: "⚠ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once."
4.5.7 Marbles B.2.5 Small balls and marbles	Marble is covered by the definition of "balls" in EN 71-1	4.33 Marbles shall comply with the labelling requirements of 16 CFR 1500.19. 5.11.4 For any marble intended for children 3 years of age or older the labelling shall read: "⚠ WARNING: CHOKING HAZARD—Toy contains a marble. Not for children under 3 yrs."
4.5.8 Hemispheric-shaped toys (see E.40.)	5.12 Hemispheric-shaped toys (see A.50)	4.36 Hemispheric-shaped objects
—	5.13 Suction cups(see A.54)	—

6.6.2 Squeeze toys, rattles and certain other toys

See Table 27.

a) EN 71-1 has a broader scope than ISO 8124-1 and ASTM F963. EN 71-1:2014, 5.8 generally applies to toys for children who are unable to sit up unaided, while ISO 8124-1 applies to a specific toy category.

b) In EN 71-1 the shape and size of certain toys requirement does not apply to rigid elements having a major dimension equal to 30 mm or less. In ASTM F963 rigid components having a major dimension equal to or less than 1,2 in. (30 mm) contained within soft-filled toys are exempt from the size and shape requirement for teethers and teething toys, rattles and squeeze toys. There is no corresponding exemption in ISO 8124-1.

c) The shape and size requirement in EN 71-1 applies to toys intended for children who are unable to sit up unaided where the toy or toy part weighs less than 0,5 kg. The scope of ISO 8124-1 is broader in terms of the age range (under 18 months) for squeeze toys, teethers and teething toys, but it aligns with EN 71-1 for the removable components of toys intended to be strung across a crib,

playpen or perambulator and for the removable components of baby gyms (under 6 months), and rattles (children who are unable to sit up unaided).

Table 27 — Squeeze toys, rattles and certain other toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.5.1 Squeeze toys, rattles and certain other toys Exemption: Soft-filled (stuffed) toys or soft-filled parts of toys or parts of fabric.	5.8 Shape and size of certain toys Exemption: Soft-filled parts of a toy or parts of fabric; Rigid elements having a major dimension equal to 30 mm or less.	4.22 Teethers and teething toys Exemption: (1) Teething toys that are composed of liquid-filled beads that are attached to form a ring or beads that are threaded on a flexible cord or string. (2) Soft-filled (stuffed) teething toys or soft-filled parts or parts of fabric. (3) Rigid components having a major dimension equal to or less than 1,2 in. (30 mm) contained within soft-filled teething toys.
Scope	Scope	
Squeeze toys intended for children under 18 months Rattles	Rattle-shaped toys and squeeze toys with or without noise making features;	
Teethers and teething toys, intended for children under 18 months;	Teethers, toys or components intended to be chewed on	
Legs of baby gyms intended for children under 18 months	Legs of baby gyms	4.23 Rattles Exemption: (1) Soft-filled (stuffed) rattles or soft-filled parts or parts of fabric. (2) Rigid components having a major dimension equal to or less than 1,2 in. (30 mm) contained within soft-filled rattles.
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 toys intended to be strung across a crib, playpen or perambulator	
Removable components of baby gyms. (if they have a mass less than 0,5 kg and are intended for children under 6 months)	Removable components of baby gyms	4.24 Squeeze toys Exemption: (1) Soft-filled (stuffed) squeeze toys or soft-filled parts or parts of fabric. (2) Rigid components having a major dimension equal to or less than 1,2 in. (30 mm) contained within soft-filled squeeze toys.
—	Hand-held activity toys	
—	Books and building blocks covered by textile or vinyl	

d) ISO 8124-1 and ASTM F963 have a requirement for toy fasteners with nearly spherical, hemispherical or domed-shaped ends which are intended for children over 18 months but less than 48 months. EN 71-1 does not set requirements for toy fasteners.

6.6.3 Small balls

a) EN 71-1 does not cover soft-filled balls. In all three standards, a small ball is any ball that passes entirely through the template when tested in accordance with small balls test. Only EN 71-1 includes requirement for ball attached to a toy by a cord.

b) Differences between warning statements for small balls are shown in Table 28.

Table 28 — Differences in warnings for small balls

	Age grade	Warning
ISO 8124-1:2014	Toys intended for children 36 months and over, but under 96 months.	"This toy is a small ball which may present a choking hazard. Not suitable for children under 3 years." or "This product contains a small ball which may present a choking hazard. Not suitable for children under 3 years."
EN 71-1:2014	Toys not intended for children under 36 months.	For example: "Warning. Not suitable for children under 36 months. Small balls" (see NOTE)
ASTM F963:2011	For any ball intended for children 3 years of age or older	⚠ **WARNING:** CHOKING HAZARD–This toy is a small ball. Not for children under 3yrs.
	For any toy or game intended for children who are at least 3 years old but less than 8 years of age that contains a small ball.	⚠ **WARNING:** CHOKING HAZARD–Toy contains a small ball. Not for children under 3yrs.
NOTE EN 71-1 includes the following: *"The provisions in 7.2 do not apply to toys which, on account of their function, dimensions, characteristics, properties or other cogent grounds, are clearly unsuitable for children under 36 months."*		

6.6.4 Pompons

In ASTM F963 and ISO 8124-1, the applied tension is different for a pompom connected to a toy: 70 N ± 2 N for ISO 8124-1 and 67 N for ASTM F963. EN 71-1 does not contain a corresponding requirement for pompoms.

6.6.5 Toy pacifiers

In ASTM F963, toy pacifiers attached to or sold with toys intended for children under 36 months of age shall conform with the requirements for small parts, and either conform to the requirements of 16 CFR 1511 or have a nipple length no longer than 0,63 in. (16 mm). ISO 8124-1 only specifies that toy pacifiers attached to or sold with toys intended for children under 36 months shall have a nipple length no longer than 16 mm. EN 71-1 includes no specific requirements for toy pacifiers.

6.6.6 Balloons

All three standards set warning requirements for balloons. Further, if a balloon is made of natural rubber latex, EN 71-1 requires relevant statement on the package.

6.6.7 Marbles

Differences between warning statements for marbles are shown in Table 29.

Table 29 — Differences in warnings for marbles

	Age grade	Warning
ISO 8124-1:2014	Toys intended for children 36 months and over, but under 96 months.	"This toy is a marble which may present a choking hazard. Not suitable for children under 3 years." or "This product contains a marble which may present a choking hazard. Not suitable for children under 3 years."
EN 71-1:2014	Toys not intended for children under 36 months.	For example: "Warning. Not suitable for children under 36 months. Small balls."(see NOTE)
ASTM F963:2011	For any marble intended for children 3 years of age or older.	⚠ **WARNING:** CHOKING HAZARD–This toy is a marble. Not for children under 3yrs.
	For any toy or game intended for children who are at least 3 years of age but less than 8 years of age that contains a marble.	⚠ **WARNING:** CHOKING HAZARD–Toy contains a marble. Not for children under 3yrs.
NOTE EN 71-1 includes the following: "*The provisions in 7.2 do not apply to toys which, on account of their function, dimensions, characteristics, properties or other cogent grounds, are clearly unsuitable for children under 36 months.*"		

6.6.8 Hemispheric-shaped toys

Hemispheric-shaped toys for holding liquids which are intended for children 2 years and older are exempt in ISO 8124-1 and ASTM F963, but they are not exempt in EN 71-1. ASTM F963 has an exemption for objects intended for drinking. See Table 30.

EN 71-1 applies the requirements to hemispheric shaped containers that are packaging of toys for children under 36 months; these containers are exempt from ASTM F963 and ISO 8124-1. See Table 31.

Table 30 — Exemptions from hemispheric-shaped toy requirements

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Hemispheric-shaped toys	Hemispheric-shaped toys	Hemispheric-shaped objects
—	—	Objects intended for drinking (for example, tea cup)
Objects intended to hold liquids in products appropriate for children of 24 months and over (e.g. pots and pans);	—	Objects intended to hold liquids in products appropriate for children at least 2 years old (for example, pots and pans)

Table 30 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Containers which must be airtight so that the contents can maintain their functional integrity (e.g. modelling clay containers);	Containers that need to be airtight so the contents can maintain their functional integrity (e.g. modelling clay containers)	Containers that must be airtight so the contents can maintain their functional integrity (for example, 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)	Components of larger products (e.g. bowl-shaped smoke stack that is permanently attached to a toy train or a swimming pool that is moulded into a larger toy playscape) that do not become detached when tested according to 8.3 (torque test), 8.4.2.1 (tension test, general), 8.5 (drop test), 8.7 (impact test) and 8.8 (compression test) and for glued wooden toys 8.9 (soaking test). For large and bulky toys, the drop test is substituted by 8.6 (tip over test)	Non-detachable (as determined by testing in accordance with 8.6 to 8.10 of this specification) components of larger products (for example, bowl-shaped smoke stack that is permanently attached to a toy train or a swimming pool that 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.	— Note: See also the requirement in 6 e) regarding packaging which is hemispheric-shaped. 6 e) The requirements in 5.12 (hemispheric shaped toys) apply to hemispheric-shaped containers that are part of the packaging for toys intended for children under three.	Containers that are part of the retail package intended to be discarded once the toy is removed from the package.

Table 31 — Hemispheric-shaped toy requirements

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Requirements for hemispheric-shaped toys	Requirements for hemispheric-shaped toys	Requirements for hemispheric-shaped objects
a-d	a-d	a-d
—	—	(e) Have an opening with a minor dimension of at least 0,66 in. (17 mm) located anywhere in the base or in the side wall of the object. If the opening is located in the sidewall of the object, the edge of the opening must be at least 0,5 in. (13 mm) from the rim as measured along the outside contour.

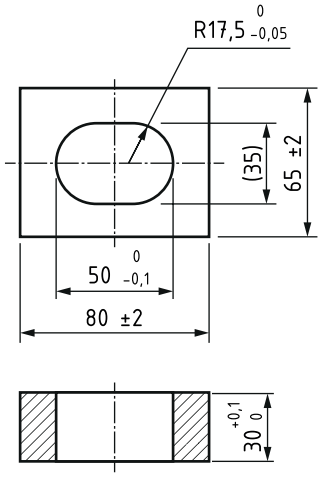
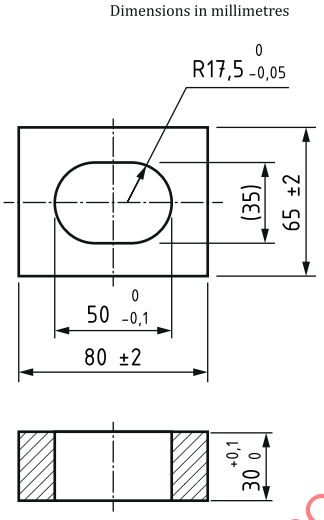
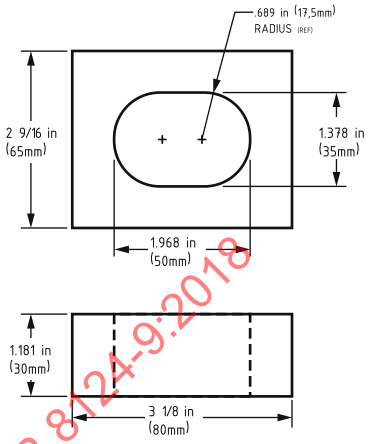
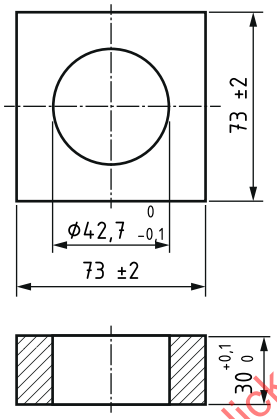
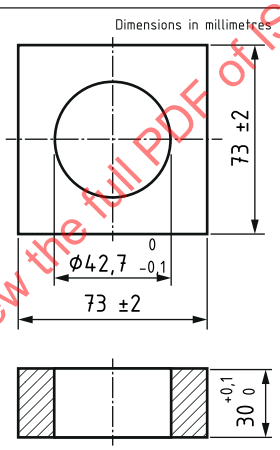
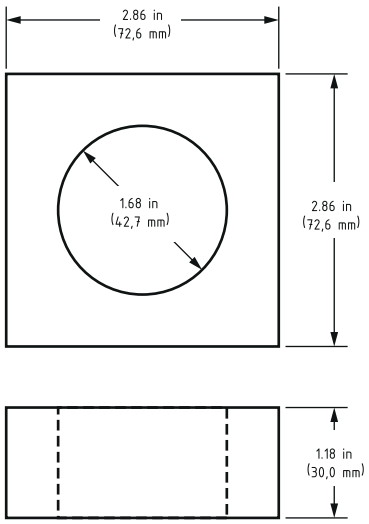
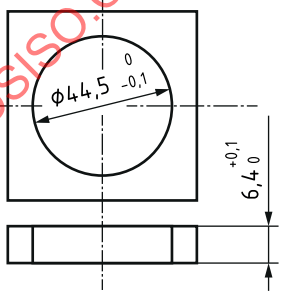
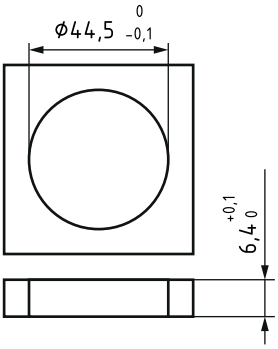
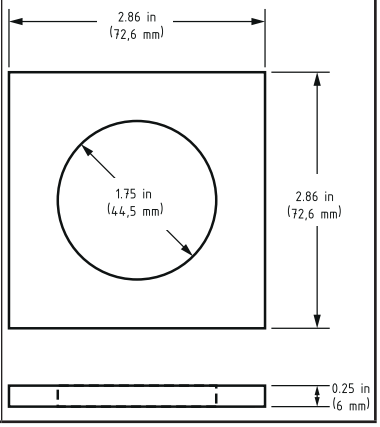
6.6.9 Suction cups

EN 71-1 sets a size requirement (template E) for loose, separable or detachable suction cups on toys intended for children under 36 months. ISO 8124-1 and ASTM F963 do not have a similar requirement.

6.6.10 Test templates

The test template dimensions are the same in EN 71-1 and ISO 8124-1, but there are minor dimensional differences for the templates in ASTM F963 due to a lack of tolerances in the specifications. See Table 32.

Table 32 — Test templates

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Template A **(Rattle Test Fixture in ASTM F963)**			
Template B **(Supplemental Test Fixture for Rattles, Squeeze Toys, and Teethers in ASTM F963)**			
Template C (Template E for EN 71-1) **(Test Fixture for Small Balls in ASTM F963)**			

6.7 Edges

6.7.1 General

The clauses for sharp edge requirements are indicated in Table 33.

Table 33 — Clauses related to sharp edges

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.6 Edge See E.11. 4.6.1 Accessible sharp edges of glass or metal 5.8 Sharp-edge test	4.7 Edges (see A.8) 4.7 a) (metal and glass edges only) 4.7 b) 5.1 b) 8.11 Sharpness of edges	4.7.1 Potentially hazardous sharp metal and glass edges are defined in 16 CFR 1500.49. 5.8 Toys Intended to be Assembled By an Adult
4.6.2 Functional sharp edges B.2.12 Toys with functional sharp edges and functional sharp points	4.7 d) 7.6 Hazardous sharp functional edges and points (see 4.7 and 4.8)	4.7.2 Toys containing potentially hazardous edges that are a necessary part of the function of a toy shall carry cautionary labelling as specified in 5.10 if the toy is intended for use by children from 48 to 96 months. 5.10 Toys with Functional Sharp Edges or Points
4.6.3 Edges on metal toys	4.7 a), b), c)	4.7.3 Metal toys
4.6.4 Edges on moulded toys	4.7 c)	4.7.4 Molded toys
4.6.5 Edges on exposed bolts or threaded rods	Covered by general sharp edge requirement in EN 71–1	4.7.5 Exposed bolts or threaded rods

6.7.2 Age range for application of the functional sharp edge exemption

A starting age grade of 36 months and over is applied in ISO 8124-1 and EN 71-1 for allowance of a hazardous sharp functional edge with a package warning. Whereas a 48 months and over starting age grade is applied in ASTM F963. EN 71-1 does not apply an upper age limit for functional sharp edge warning requirement, whereas ISO 8124-1 and ASTM F963 apply 96 months.

6.7.3 Toys assembled by adults

ASTM F963 requires that toys intended to be assembled by an adult which, in their unassembled state, contain potentially hazardous sharp edges or points shall have safety labelling.

6.7.4 Test method

The test method for sharp edges in ASTM F963 references 16 CFR 1500.49. The ends of tape can overlap by not more than 0,1 in. Other differences in the methods are shown in Table 34.

Table 34 — Sharp edge test parameters

Parameter	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
The diameter of mandrel	(9,53 ± 0,12) mm	(9,53 ± 0,12) mm	(0,375 ± 0,005) in. [(9,53 ± 0,12) mm] NOTE Diameter is derived from 16CFR1500.49. In 16CFR1500.49, the diameter is 9,35 mm which is error in the conversion from inches to mm (0,375 inches converts to 9,53 mm).
The surface roughness value	Ra ≤ 0,40 µm	Ra ≤ 0,40 µm	Ra ≤ 0,40 µm
The surface hardness	Rockwell hardness value ≥ 40 HRC.	Rockwell C not less than 40.	Rockwell C not less than 40

Table 34 *(continued)*

Parameter	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
The mandrel rotating tangential velocity	(23 ± 4) mm/s	(23 ± 4) mm/s	(1,00 ± 0,08) in./s [(25,4 ± 2,0) mm/s]
Force applied to the mandrel	(6 0,0 – 0,5) N	(6 ± 0,5) N	1,35 lb (6,00 N)
Test method	Calculate the percentage length of the tape which has been cut during the test. If this is more than 50 % of the contact length, the edge is a potentially hazardous sharp edge.	The same as ISO.	If the length of the tape which has been cut during the test is more than 1/2 inch, the edge is a potentially hazardous sharp edge.
Force application point	3 mm from the leading edge of the tape.	The mandrel at the centre of the tape.	The edge contacts the approximate centre of the width of the tape.
Support position	Ensure that the support is not less than 15 mm from the edge to be tested.	Ensure that the support is 15 mm or more from the edge to be tested.	The sharp edge test shall be performed with the edge supported so that its stiffness approximates but is not greater than the edge stiffness in the assembled sample.

6.8 Points

6.8.1 General

The clauses for the sharp points requirements are indicated in Table 35.

Table 35 — Clauses related to sharp points

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.7 Points See E.12. 4.7.1 Accessible sharp points 5.9 Sharp-point test	4.8 Points and metallic wires 4.8 a) 5.1 b) 5.1 c) 8.12 Sharpness of points (see 4.5, 4.8, 4.9, 4.10.2, 4.14.2, 4.15.1.3, 5.1 and A.40)	4.9 Accessible points 4.9.1 Potentially hazardous sharp points are defined by 16 CFR 1500.48. 5.8 Toys Intended to be assembled by an adult
4.7.2 Functional sharp points	4.8 b) 7.6 Hazardous sharp functional edges and points (see 4.7 and 4.8)	4.9.2 Toys in which an accessible, potentially hazardous sharp point is a necessary function of the toy, such as a needle in a sewing kit, shall carry cautionary labelling as specified in 5.10, if the toy is intended for children from 48 to 96 months old. 5.10 Toys with functional sharp edges or points 16 CFR 1500.48.
4.7.3 Wooden toys	4.8 e)	4.9.3 Wood

6.8.2 Age range for application of the functional sharp point exemption

A starting age grade of 36 months and over is applied in ISO 8124-1 and EN 71-1 for allowance of a hazardous sharp functional point with a package warning. Whereas a 48-month and over starting age grade is applied in ASTM F963. EN 71-1 does not apply an upper age limit for functional sharp point warning requirement, whereas ISO 8124-1 and ASTM F963 apply 96 months.

6.8.3 Electrical conductors

EN 71-1 specifies an additional exemption for electrical conductors that have sharp points.

6.8.4 Accessible, potentially hazardous sharp point in ASTM F963

ASTM F963 states that toys shall not have accessible, potentially hazardous sharp points that may occur because of the following:

a) configuration of the toy;

b) assembly devices such as wires, pins, nails, and staples that are fastened poorly;

c) poorly sheared sheet metal;

d) burrs on screws;

e) splintered wood.

There is no corresponding reference to sharp points in ISO 8124-1 or EN 71-1 in relation to the clauses that address similar conditions.

6.8.5 Test method

Differences in parameters are shown in Table 36.

Table 36 — Sharp points test parameters

Parameter	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Rectangular opening	(1,02 ± 0,02) mm wide by (1,15 ± 0,02) mm long	(1,02 ± 0,02) mm by (1,15 ± 0,02) mm	0,040 in. (1,02 mm) wide by 0,045 in. (1,15 mm) long
Sensing head recessed	(0,38 ± 0,02) mm	(0,38 ± 0,02) mm	0,015 in. (0,38 mm)
Force of a return spring	(2,5 0 – 0,3) N	(2,5 0 – 0,3) N	0,5 lb (2,2 N)
Force of application	(4,5 0 – 0,2) N	4,5 N	1,0 lb (4,45 N)
Support position	Support at not less than 6 mm from the point to be tested.	Ensure that the support is 6 mm or more from the point to be tested.	The sharp point test shall be performed with the point supported so that its stiffness approximates but is not greater than the point stiffness in the assembled sample.
Gap	(0,12 ± 0,02) mm	(0,12 ± 0,02) mm	0,005 in. (0,12 mm)

6.9 Projections

6.9.1 General

The clauses for the requirements for projections are indicated in Table 37.

Table 37 — Clauses related to requirements for projections

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.8 Projections See E.13. 4.8.1 General requirements 5.24 Reasonably foreseeable abuse tests	4.9 Protruding parts (see A.10) 8.4.2.3 Protective components (see 4.9 and 4.17.1)	4.8 Projections 8.5 Normal use testing 8.6 Abuse testing 8.7 Impact tests 8.8 Torque tests for removal of components 8.9.1 Tension test for seams in stuffed toys and beanbag type toys 8.10 Compression test
4.8.2 Special considerations for bath toy projections	—	4.8.1 Bath toy projections

6.9.2 Ends of rigid handlebars

ISO 8124-1 and EN 71-1 define requirements for the ends of rigid handlebars. ASTM F963 includes no specific similar requirements, but the related requirements are addressed in other US standards (e.g. ASTM F2264).

6.9.3 Age grade

ASTM F963 requires assessment of potential hazards of toy protrusions only for toys for children under 8 years of age. EN 71-1 and ISO 8124-1 assess for protrusions regardless of the toy's age grade.

6.9.4 Bath toy projections

ISO 8124-1:2014, Annex F and ASTM F963:2011, Appendix A4 give additional design guidelines for bath toy projections. EN 71-1 does not provide similar design guidelines.

6.9.5 Protective components

Differences in protective components are shown in Table 38.

Table 38 — Abuse tests for protective components

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Toys intended for children under 8 years	Protective component shall not be detached before and after abuse tests in ISO 8124-1:2014, 5.24.	Protective component shall not be detached before and after tension test for protective components.	Protective component shall not be detached before and after abuse tests in ASTM F963:2011, 8.5 to 8.10.
Toys intended for children 8 years and over			Tension test not required

NOTE There is a need for clarification in ISO 8124-1 for cases where the test is applied to toys intended for children over 96 months.

6.10 Metal wires and rods

6.10.1 General

The clauses for the requirements for metal wires or rods are indicated in Table 39.

Table 39 — Clauses related to metal wires or rods

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.9 Metal wires and rods See E.14. 4.9 a) 5.24.8 Flexure test	4.8 c) 8.13 Flexibility of metallic wires (see 4.8 and A.41)	4.10 Wires or rods 8.12 Flexure test
4.9 b) 5.24.8 Flexure test	4.8 d)	
4.9 c)	4.9 Protruding parts (see A.10) 8.4.2.3 Protective components	

6.10.2 Scope of the metal wires and rods

To determine whether the flexure test is applicable to a metal wire or rod, ISO 8124-1 and EN 71-1 use the same force criteria. A maximum force of 70 N is applied perpendicular to the point that is 50 mm away from the main body of the toy or to the end of the metal wire if it is less than 50 mm. In ASTM F 963, the maximum force when applied perpendicularly to the major axis of the component at a point 2 ± 0,05 in. (50 ± 1,3 mm) from the intersection of the component with the main body of the toy or at the end of the component if the component is less than 2 in. (50 mm) long, shall be as follows [within a tolerance ±0,5 lb (±0,02 kg)]:

— 10 lbf (45 N) for toys intended for use by children 18 months of age or less;

— 15 lbf (67 N) for toys intended for use by children over 18 months but under 96 months of age.

6.10.3 Metal wire flexure test methods

In ASTM F963, the flexure test is only applied to metal wires that are used in toys for stiffening or retention of form.

EN 71-1 and ISO 8124-1 define two different methods:

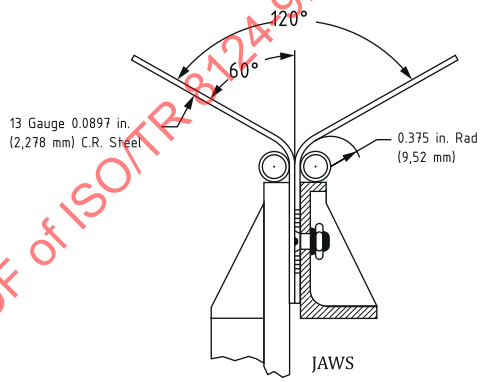
1) metal wires designed to be bent: 30 cycles flexure test;

2) metal wires not designed to be bent, but likely to be bent: 1 cycle flexure test.

ASTM F963 does not distinguish between wire designed to be bent and wire which is not designed to bent, but likely to be bent.

See Table 40 for an abbreviated comparison of the metal wire flexure test methods.

Table 40 — Metal wire flexure test method comparison

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Diameter of metal cylinders, radiused pliers or equivalent metal pieces	(10 ± 1) mm	(10 ± 1) mm	—
Vise shields	No vise shields	No vise shields	Vise shields are fabricated from 13-gauge thick cold-rolled steel or other similar material and have a 0,375 in. (9,5 mm) inside radius.
Applied load	(70 ± 2) N	(70 ± 2) N	10 ± 0,5 lbf (45 N) for toys intended for use by children 18 months of age or less 15 ± 0,5 lbf (67 N) for toys intended for use by children over 18 but under 96 months of age.
	No figure	No figure	

6.11 Plastic film or plastic bags in packaging and in toys

6.11.1 General

The clauses for the requirements for plastic film are indicated in Table 41.

Table 41 — Clauses related to plastic film requirements

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.10 Plastic film or plastic bags in packaging and in toys	4.3 Flexible plastic sheeting (see A.5 and A.16) 5.3 Plastic sheeting (see A.28) 6 Packaging (see A.56)	4.12 Plastic film
5.10 Determination of thickness of plastic film and sheeting	8.25 Plastic sheeting 8.25.1 Thickness (see 4.3, 5.3 and Clause 6) 8.25.2 Adhesion (see 5.3)	8.21 Plastic film thickness

6.11.2 Scope of plastic film or plastic bags in packaging and in toys

ISO 8124-1 and EN 71-1 are applicable to flexible plastic film or flexible plastic bags without backing. In ASTM F963, the plastic film requirement is applied to flexible plastic film bags and flexible plastic sheets used as packaging materials for shelf packages or used with or as part of toys. ASTM F963 has no exemption for the flexible plastic film or flexible plastic bags with backing.

6.11.3 Minimum sheet thickness

See Table 42.

Table 42 — Requirements of sheet thickness

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Average thickness	≥0,038 mm	≥0,038 mm	≥0,001 50 in. (0,038 10 mm)
Minimum sheet thickness	0,032 mm	—	0,001 25 in. (0,031 75 mm)

6.11.4 Thickness of plastic balloons

There is a thickness testing method for plastic balloons in ISO 8124-1 and EN 71-1. For plastic balloons, the thickness requirement applies to double layers of plastic sheeting (i.e. the thickness is measured without inflating or destroying the balloon). ASTM F963 does not contain a specific testing method for plastic balloons.

NOTE ASTM F963 also has thickness requirement for plastic balloons; however, the thickness requirement applies to a single layer of plastic sheeting.

6.11.5 Detached plastic sheeting

After testing according to EN 71-1:2014, 8.25.2 and 8.4.2.1, any plastic sheeting that detaches from the toy which has an area greater than 100 mm × 100 mm, shall have an average thickness not less than 0,038 mm; there is no plastic sheeting adhesion test method in ISO 8124-1 and ASTM F963.

6.11.6 Perforated plastic film

Perforated plastic film is an option for all three standards. ISO 8124-1 further provides detailed requirements and an illustrative example of a perforation pattern.

6.11.7 Determination of plastic sheet area

EN 71-1 and ASTM F963 specify that a bag is not to be cut open to a single sheet to assess its area to determine if the film requirements apply to it. ISO 8124-1 does not specify that a bag should not be cut open to assess its area. A comparison of the dial-type thickness gauges specified for film measurement is provided in Table 43.

Table 43 — Plastic film thickness measurement gauge comparison

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Accuracy	4 µm	1 µm	4 µm
Diameter of measuring surface	(6 ± 1) mm	(1) Plane/plane measuring surfaces: 2,5 mm ~ 10 mm. (2) Plane/radiused measuring surfaces: lower surface: ≥5 mm, radius of curvature of the upper. surface: 15 mm ~ 50 mm NOTE According to ISO 4593.	—
Compression force	(0,75 ± 0,25) N	(1) Plane/plane measuring surfaces: 0,5 N ~ 1,0 N. (2) Plane/radiused measuring surfaces: 0,1 N ~ 0,5 N.	—
Parallelism of measuring surface	Parallel to within 5 µm	Parallel to within 5 µm	—

6.12 Cords and elastics

6.12.1 General

The clauses for cords are indicated in Table 44.

Table 44 — Clauses related to cord requirements

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.11 Cords and elastics	5.4 Cords, chains and electrical cables in toys 5.4 a) 5.4 b) 5.4 c) 5.4 d) 7.21 Toys with electrical cables exceeding 300 mm in length (see 5.4 i) 7.22 Toys with cords or chains intended for children of 18 months and over but under 36 months [See 5.4 b), 5.4 c) and 5.4 g)]	4.14 Cords, straps, and elastics 4.14.1 Cords, straps, and elastics in toys
	5.4 e)	4.14.2 Self retracting pull cords
	5.4 h)	4.14.3 Pull toys
	4.4 Toy bags	4.14.5 Cords on toy bags intended for children up to 18 months
	5.4 f) 7.11 Toys intended to be attached to or strung across a cradle, cot, or perambulator [See 5.4 f)]	4.26 Toys Intended to be attached to a crib or playpen 4.26.1 Protrusions 4.26.2 Crib mobiles
	NOT SPECIFIED	4.26.3 Crib gyms
	8.20 Cords cross-sectional dimension [See 5.4 a)] 8.36 Perimeter of cords and chains [See 5.4 c) and 5.4 d)] 8.38 Breakaway feature separation test [See 5.4 b), 5.4 c) and 5.14] 8.39 Self-retracting cords [See 5.4 e)] 8.40 Length of cords, chains and electrical cables [See 5.4 b), 5.4 c), 5.4 g), 5.4 h) and 5.4 i)]	8.22 Test for loops and cords
4.11.7 Cords, strings and lines for flying toys 5.11.3 Electric resistance of cords	4.13 Cords of toy kites and other flying toys 8.19 Electric resistivity of cords (see 4.13) 7.9 Toy kites	4.14.4 Strings and lines for flying devices

6.12.2 Cord thickness

EN 71-1 has a thickness requirement for cords connected to a self-retraction mechanism and cords in pull-along toys only (an average cross sectional dimension of 1,5 mm). ASTM F963 does not contain a cord thickness requirement.

6.12.3 Fixed loops of cords or chains

EN 71-1 and ASTM F963 are not in alignment, as shown in Table 45.

NOTE At the time of publication of this document, no comparison data is available for ISO 8124-1.

Table 45 — Differences in requirements for fixed loops of cords or chains

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	For cords and chains with a single fixing point or with fixing points less than 94 mm apart shall have a perimeter not exceeding 380 mm.	The loop (for toys intended for children under 18 months) shall not allow the head probe to be inserted so deep that it admits the base of the probe.
—	For cords and chains fixed to a toy at points of 94 mm or more apart, a distance “d” shall not exceeding 96 mm.	
—	Separate into parts with a length not exceeding 220 mm (for toys intended for children under 18 months) or with a length not exceeding 300 mm (for other toys).	Contain a functional breakaway feature, the free length of the individual released cord, strap, or elastic should not exceed a maximum length of 12 in.

6.12.4 Self-retracting cords

Both EN 71-1 and ASTM F963 have requirements for self-retracting cords, but the requirements are not in full alignment. See Table 46.

NOTE At the time of publication of this document, no comparison data is available for ISO 8124-1.

Table 46 — Self-retracting cord requirements

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011	
Load	—	Attach a mass of (1 ± 0,1) kg to the free end of the cord.	For monofilament cords greater than 1/16 in. (2 mm) in diameter: a weight of 2 lb (0,9 kg) is attached to the fully extended cord with the cord held vertical and the toy held firmly in the most favourable position for retraction.	For monofilament cords less than or equal to 1/16 in. (2 mm) in diameter: apply a load of 1 lb (0,45 kg) in the same manner.
Assessment	—	The force of self-retraction mechanisms for cords in toys shall not retract the cord more than 6 mm under any of the testing-conditions specified as follow: — with the cord extracted from the mechanism to the extent of 20 mm; — with the cord extracted from the mechanism for a length equal to half of its maximum extractable length; — with the cord extracted from the mechanism to its maximum extent.	Shall not retract more than 1/4 in. (6 mm)	Shall not retract more than 1/4 in. (6 mm)

6.12.5 Toys with cords intended to be strung across a cradle, cot or perambulator

The requirements for toys with cords intended to be strung across a cradle, cot or perambulator are shown in Table 47.

NOTE At the time of publication of this document, no comparison data is available for ISO 8124-1.

Table 47 — Toys with cords intended to be strung across a cradle, cot or perambulator

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	Toys with cords intended to be strung across a cradle, cot or perambulator shall carry a warning (See EN 71-1 7.11). This requirement applies also to toys with cords intended to be attached to a cradle, cot or perambulator where the cords of such toys are intended to be out of reach of the children if they have cords longer than 220 mm that can form tangled loop or a noose.	Applies to toys intended to be attached to a crib or playpen (from birth to 5 months).
—	"Warning. To prevent possible injury by entanglement, remove this toy when the child starts trying to get up on its hands and knees in a crawling position."	"WARNING! Possible entanglement or strangulation. Remove toy when baby begins to push up on hands and knees.

6.12.6 Free length of cords

EN 71-1 requires that toys (excluding pull-along toys) intended for children over 18 months but under 36 months, having cords or chains with a free end and a free length exceeding 300 mm, shall carry a warning (see EN 71-1:2014 7.22). ASTM F963 requires that cords or elastics included with or attached to toys intended for children less than 18 months of age (excluding pull toys, see ASTM F963 4.14.3) shall be less than 12 in. (300 mm) long when measured to the maximum length in a free state and under a load of 5 lb (2,25 kg).

6.12.7 Cords and chains on pull-along toys

EN 71-1 and ASTM F963 are not in alignment as shown in Table 48.

NOTE At the time of publication of this document, no comparison data is available for ISO 8124-1.

Table 48 — Cords and chains on pull-along toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	Cords and chains with a free end (i.e. with no attachments) on pull-along toys intended for children under 36 months shall have a free length not exceeding 800 mm when measured.	Cords, straps, and elastics greater than 12 in. (300 mm) long for pull toys intended for children under 36 months of age shall not be provided with beads or other attachments that could tangle to form a loop.

6.12.8 Cords on toy bags

EN 71-1 and ASTM F963 are generally in alignment.

Bags with opening >380 mm shall not have a drawstring according to EN 71-1, while in ISO 8124-1 and ASTM F963, toy bags made of impermeable material have the same requirement but at >360 mm opening. See Table 49.

NOTE At the time of publication of this document, no comparison data is available for ISO 8124-1.

Table 49 — Cords on toy bags

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	Toy bags with an opening perimeter greater than 380 mm having a drawstring as a means of closure shall either: a) be made of material permeable to air, or b) comply with requirements given in 4.14.2 a) (masks and helmets).	Toy bags made of impermeable material with an opening perimeter greater than 14 in. (360 mm) shall not have a drawstring or cord as a means of closing.

6.12.9 Comparison of cords, strings and lines for flying toys

EN 71-1 and ASTM F963 are generally in alignment, but there are variances in both the applicable parameters as well as the test conditions. See Table 50.

Table 50 — Comparison of cords, strings and lines for flying toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Hand-held cords, strings and lines over 1,8 m long, attached to toy kites or other flying toys	Cords of toy kites and other flying toys linking the toy to the child and with a length of more than 3 m	Kite strings and hand-held lines over 6 ft (1,8 m) long, attached to flying devices intended for use as playthings
Condition the samples for 7 h minimum at a temperature of (25 ± 3) °C and at a relative humidity of 50 % to 65 % and perform the test in this atmosphere	Condition the samples for 7 h or more at a temperature of (25 ± 3) °C and at a relative humidity of 50 % to 65 % and perform the test in this atmosphere	Tested at a relative humidity of not less than 45 % and a temperature of not greater than 75 °F (24 °C)
Shall have an electrical resistance of more than 10^8 Ω/cm	Shall be made of material with an electric resistance exceeding 100 MΩ/cm of cord	Shall have an electric resistance of more than 10^8 Ω/cm
Carry a warning not to be used near overhead power lines or during thunderstorms	"Warning. Do not use near overhead power lines or during thunderstorms."	

6.12.10 Toys with electrical cables

EN 71-1 states that toys with electrical cables which are intended for children under 3 years and which are longer than 300 mm shall carry a warning. ASTM F963 has no corresponding requirement.

6.12.11 Straps intended to be worn fully or partially around the neck

The EN 71-1 requirement applies only to straps intended to be worn fully or partially around the neck, such as straps of binoculars, guitars or other toys intended to be worn fully or partially around the neck. EN 71-1 requires that toys with straps intended to be worn fully or partially around the neck and which create a fixed loop shall have a breakaway feature which breaks when tested to the breakaway feature separation test. ISO 8124-1 and ASTM F963 have no corresponding requirement.

6.12.12 Cord warning

ASTM F963 only has a warning requirement for toys intended exclusively to be strung across strollers or carriages by means of string, cords, elastic, or straps. EN 71-1 has warning requirements for the following:

a) toys intended to be attached to or strung across a cradle, cot, or perambulator;

b) toys with electrical cables exceeding 300 mm in length;

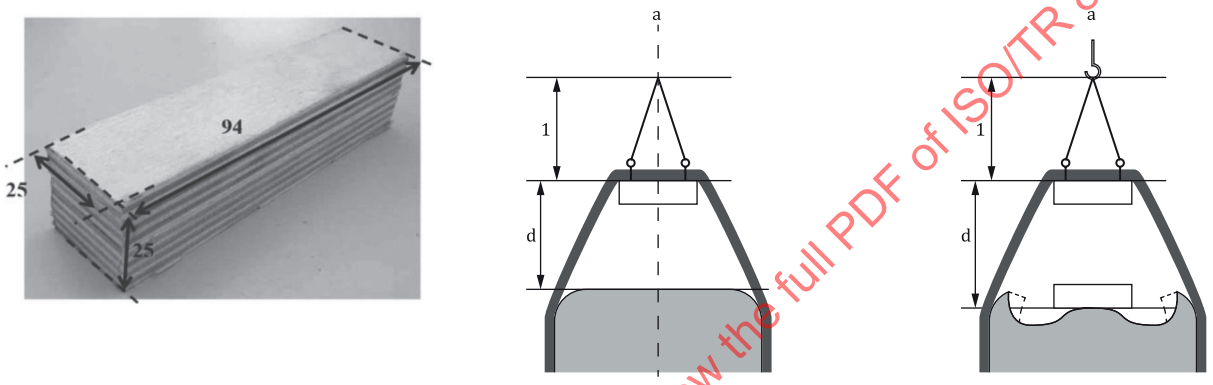
c) toys with cords or chains over 220 mm in length intended for children of 18 months and over but under 36 months;

d) toys (excluding pull-along toys) with cords or chains with free ends over 300 mm in length for children of 18 months to and over but under 36 months.

6.12.13 Test methods

a) EN 71-1 provides a cord thickness test for cords connected to a self-retraction mechanism and cords in pull-along toys. The test specifies that a (25 ± 2) N force be applied to the cord while measuring the diameter of the largest cross-section of the cord. The result is the average of 3 to 5 measurements. ASTM F963 does not require this test.

b) For cords and chains that can form a tangled loop or a noose, EN 71-1:2014, 8.36.2 provides two test methods. The aim of the tests is to assess whether or not the head of a child can fit through a fixed loop. EN 71-1 established a test method to measure the distance, *d*, as shown in Figure 1.



a) Test block dimensions **b) Flat surface** **c) Irregular surface**

Figure 1 — Measurement of distance, *d*

In ASTM F963, for toys intended for children under 18 months, the loop shall not allow the head probe to be inserted so deep that it admits the base of the probe. The measurement for loops in ASTM F963 differs from the EN 71-1 test listed above.

c) Kite line resistivity test

EN 71-1 states that the kite line shall be pretreated in an environment of temperature of (25 ± 3) °C, humidity of 50 % to 65 % for at least seven hours, and tested in this environment. ASTM F963 does not require pretreatment, and the test environment differs from EN 71-1. ASTM F963 requires that the kite line be tested at a relative humidity of not less than 45 % and a temperature not greater than 75 °F (24 °C).

d) Breakaway feature separation test

EN 71-1 and ASTM F963 test methods are nearly identical, with a difference in the force parameter: EN 71-1 applies (25 ± 2) N and ASTM F963 applies 5,0 lb (22,2 N).

e) Elastic rope perimeter test

ASTM F963 utilizes this test method. A 5 lb force is used, and the test procedure is applied as shown in Figure 2. If the elastic material cannot be stretched and held in this position or if the force needed to stretch the elastic material exceeds 5,0 lb (22,2 N), the elastic material conforms with this requirement.

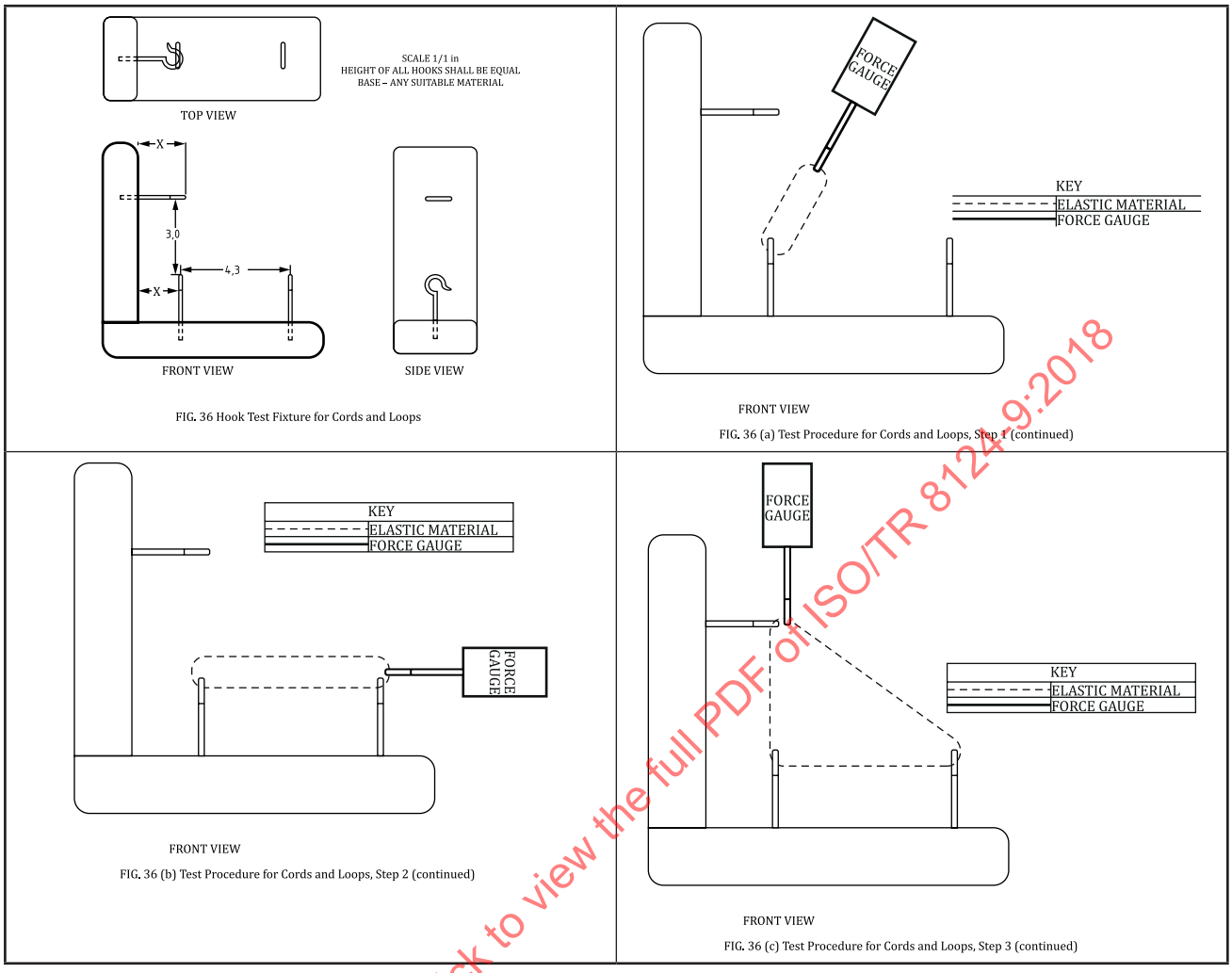


Figure 2 — Test procedures for cords and loops

6.13 Folding mechanisms

6.13.1 General

The clauses for folding mechanisms are indicated in Table 51.

Table 51 — Clauses related to folding mechanisms

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.12 Folding mechanisms See E.17.	4.10.1 Folding and sliding	4.13 Folding mechanisms and hinges 4.13.1 Folding mechanisms
4.12.1 Toy pushchairs, perambulators and similar toys a) Toys with a handle or other structural member which can fold down over a child	a) Toy pushchairs and perambulators incorporating a handle or other structural member which can fold down over a child.	
4.12.1 Toy pushchairs, perambulators and similar toys b) Toy pushchairs and perambulators that do not present a hazard of a handle or other structural member folding down over a child	b) Toy pushchairs and perambulators that do not otherwise constitute a hazard of a handle or other structural member folding down over a child.	

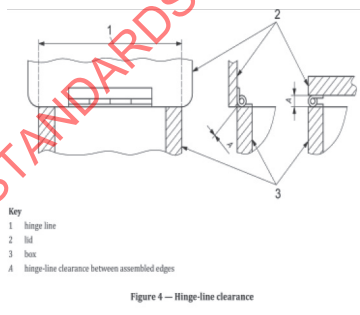
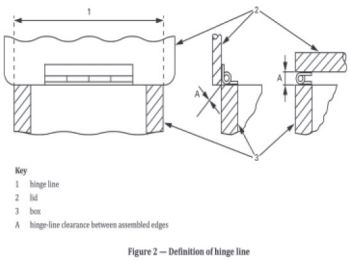
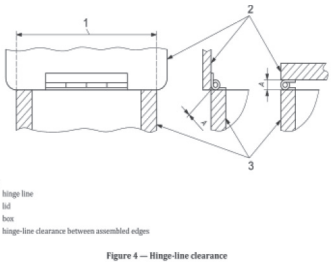
Table 51 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.12.2 Other toys with folding mechanisms	c) Folding devices on other collapsible toys (e.g. ironing boards, folding chairs and tables, etc.) which may have a scissor-like action. d) Toys other than those covered by 4.10.1 a), b) or c), with folding or sliding mechanisms intended to bear or capable of bearing the mass of a child and capable of injuring fingers.	
5.22.2 Toy pushchairs and perambulators	8.18.2 Toy pushchairs and perambulators	8.25 Test methods for locking mechanisms or other means 8.25.1 Locking mechanisms or other means 8.25.2 Locking test method
5.22.3 Other toys with folding mechanisms	8.18.3 Other collapsible toys (see 4.10.1 c)	
4.12.3 Hinge-line clearance	4.10.3 Hinges (see A.13)	4.13.2 Hinge-line clearance

6.13.2 Hinge line clearance

The requirements for hinge line clearance are similar across these standards. The requirements in EN 71-1 and ISO 8124-1 do not apply if any part joined by one or more hinges has a mass of less than 250 g. The requirement in ASTM F963 does not apply if the moveable portion weighs less than 0,5 lb. See Table 52 for an abbreviated comparison of the requirements.

Table 52 — Hinge line clearance

Item	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Exemption	Less than 0,25 kg	Less than 0,25 kg	Moveable portion that weighs less than ½ lb (0,2 kg)
Requirement	If it admits a 5 mm diameter rod, it shall also admit a 12 mm diameter rod at all positions of the hinge.	Shall also allow a 12 mm diameter rod to be inserted if it allows a 5 mm diameter rod to be inserted.	If it admits a 3/16 in. (5 mm) diameter rod, it shall also admit a ½ in. (13 mm) diameter rod at all positions of the hinge.
Figure for hinge-line	 Figure 4 — Hinge-line clearance	 Figure 2 — Definition of hinge line	 Figure 4 — Hinge-line clearance

6.13.3 Toy pushchairs, perambulators and similar toys

In EN 71-1 and ISO 8124-1, toy pushchairs and perambulators incorporating a handle or other structural member which can fold down over a child, shall have at least one main locking device and at least one secondary locking device, both of which shall act directly on the folding mechanism. At least one of the locking devices which automatically engages when the toy is erected. Toy pushchairs and perambulators that do not constitute a hazard of a handle or other structural member folding down over a child, shall have at least a locking device or a safety stop, which may be manual in operation.

ASTM F963 requires these kinds of toys to have a single action or double action locking device. The locking devices shall engage automatically and each single action device shall require a minimum force of 10 lbf (45 N) to activate the release mechanism.

See Table 53.

6.13.4 Requirement for folding devices having a scissor-like action

Only EN 71-1 points out an additional requirement for clearance between moveable parts in folding devices on collapsible toys which may have a scissor-like action, it shall have a clearance of 12 mm or more between moving parts which constitute a scissor-like action.

Table 53 — Different test methods for toy pushchairs, perambulators and similar toys

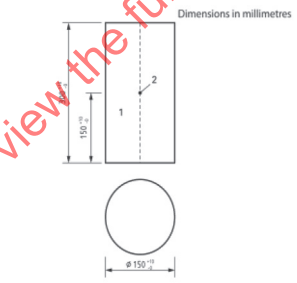
Item	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Precondition	Erecting and folding toys 10 times	Erecting and folding toys 10 times	—
Load and test duration	Mass, ≥36 months (50 ± 0,5) kg Mass, <36 months (25 ± 0,2) kg, Load evenly over 5 s and maintain for 5 min. No information on dimensions of the load is given in the standard.	Mass, ≥36 months (50 ± 0,5) kg Mass, <36 months (25 ± 0,2) kg Apply the load for 5 min The dimensions of the load are given as below.  Key 1 mass, < 36 months, 25 kg mass, ≥ 36 months, 50 kg 2 centre of gravity Figure 26 – Load for determination of strength and stability	Apply a force of 45 lbf (200 N) Apply force gradually over a 5 s period and maintain for an additional 10 s. Perform this procedure five times within a 2 min period.

Table 53 *(continued)*

Item	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Placement of toy	**Toy pushchairs and perambulators**: Erect the toy on a horizontal surface. **Other toys with folding mechanisms**: a) Erect the toy. Lift the toy and observe whether the locking device disengages when the toy is tilted in any (30 ± 1)° angle from the horizontal. b) Erect the toy and position it on a surface inclined (10 ± 1)° in the most onerous position with respect to the folding parts.		Erect the product in accordance with the manufacturer's instructions. Secure the product so that the normal folding motion is not impeded.
Load position	**Toy pushchairs and perambulators**: Ensuring that the load is borne by the frame, If the seat of the body is detachable from the chassis, this test shall also be performed on the chassis only. **Other toys with folding mechanisms**: Apply the load wherever it is possible for a child to sit and in the most onerous position with respect to the folding parts. Ensure that the load is borne by the frame. Where necessary, use support so that the seat material is not damaged.		Apply a force of 45 lbf (200 N) to the product, but not to the mechanism itself, in the direction normally associated with folding.
Locking device testing	After loading test on the toy, determine whether the toy collapses and whether the locking device or safety stop is still operable and engaged. (There is no specific test apply only on locking device or safety stop.)		With the product in the manufacturer's recommended use position, gradually apply a force of 10 lbf (45 N) to the locking mechanism in the direction tending to unlock it. The locking mechanism shall not unlock until a minimum force of 10 lbf (45 N) has been achieved.

6.14 Holes, clearances and accessibility of mechanisms

6.14.1 General

The clauses for holes, clearances and accessibility of mechanisms are indicated in Table 54.

Table 54 — Clauses related to holes, clearances and accessibility of mechanisms

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.13 Holes, clearances and accessibility of mechanisms	—	4.18 Holes, clearance, and accessibility of mechanisms
4.13.1 Circular holes in rigid materials See E.20.	—	4.18.2 Circular holes in rigid materials
4.13.2 Accessible clearances for movable segments See E.21.	4.15.1.6 Transmission and wheel arrangement c)	4.18.1 Accessible clearances for moveable segments

Table 54 *(continued)*

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.13.3 Chains or belts in ride-on toys See E.22.	4.15.1.6 Transmission and wheel arrangement 4.15.1.6 a) 4.15.1.6 b) 4.15.1.6 d)	4.18.3 Chains and belts 4.18.3.1 Supporting chains 4.18.3.2 Chains or belts for ride-on toys
4.13.4 Other driving mechanisms See E.23.	4.10.2 Driving mechanisms (see A.12) 4.10.2 a) 4.10.2 b)	4.18.4 Inaccessibility of mechanisms
4.13.5 Winding keys See E.24.	4.10.2 c)	4.18.5 Winding keys 3.1.2 Accessible

6.14.2 Holes, clearances and accessibility of mechanisms

a) The scope of the requirements in ISO 8124-1 and ASTM F963 are almost the same, except that ASTM F963 includes a coil spring requirement which is covered in ISO 8124-1:2014, 4.14.

b) Without considering the unit conversion, the requirements of holes and accessible clearances for movable segments in ISO 8124-1 and ASTM F963 are same. Both ISO 8124-1 and ASTM F963 define the term “rigid” as any material having a hardness exceeding 70 Shore A. EN 71-1 does not have corresponding requirement for holes except that the restrictions of the drainage hole on the transmission shield of ride-on toys.

6.14.3 Accessible clearances for moveable segments

a) ASTM F963 states in the context of the requirement that the requirement only applies to clearances between movable segments on toys intended for children under 96 months where the potential of pinching or crushing fingers or other appendages exists.

b) It is implied in ISO 8124-1:2014, E.21 that this requirement applies (but is not limited) on the ride-on toys powered by electrical, spring or inertial energy, while in ASTM F963 this requirement applies on all ride-on toys no matter they are powered by electrical, spring or inertia energy. The requirements for transmission and wheel arrangements in EN 71-1 are restricted to the toys intended to bear the mass of a child, while the other two standards do not specify limits the requirement to these toys.

See Table 55.

Table 55 — Differences in accessible clearances for moveable segments

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
E.21 Accessible clearances for movable segments	4.15.1.6 Transmission and wheel arrangement	4.18.1 Accessible clearances for moveable segments
It includes, but is not limited to, wheels and rigid-wheel wells, fenders or the radial clearance between the wheels and chassis of ride-on toys powered by electrical, spring or inertial energy.	Spaces between the wheels and the body or parts of the body (e.g. mudguards). This requirement does not apply to the friction surfaces of braking mechanisms, toy skateboards or roller skates.	It includes, but is not limited to, wheels and rigid-wheel wells, fenders, or the radial clearance between the wheels and chassis of ride-on toys, or the driven wheels and other parts of toys powered by electrical, spring, or inertial energy.
If accessible clearances for movable segments can admit a 5 mm diameter rod, they shall also admit a 12 mm diameter rod.	Spaces shall also allow a 12 mm diameter rod to be inserted if they allow a 5 mm diameter rod to be inserted.	If such accessible clearances admit a 3/16 in. (5 mm) diameter rod, they shall also admit a 1/2 in. (13 mm) diameter rod.

6.14.4 Chains or belts in ride-on toys

ISO 8124-1 and EN 71-1 clearly define the requirements for the shield of power transmission chains and belts in ride-on toys. ASTM F963 just mentions that power transmission chains and belts in ride-on toys shall be shielded.

6.14.5 Other driving mechanisms

a) The requirement is applicable for all ages in ISO 8124-1 and EN 71-1. The requirement in ASTM F963 only applies to toys intended for children aged 60 months or less.

b) ASTM F963 and EN 71-1 emphasize that the requirement does not apply to driving mechanisms with insufficient power to injure fingers or other parts of the body within the requirements. See ISO 8124-1:2014, E.23 for the requirement for other driving mechanisms.

6.14.6 Winding keys

a) The applicable age grade is not the same. The requirement applies to all ages in EN 71-1 and is only applicable to toys for children under 36 months in ISO 8124-1 and ASTM F963. In EN 71-1, this requirement also applies to starting handles.

b) For ISO 8124-1 and EN 71-1, the requirement is that if the clearance can admit a 5 mm rod, it shall also admit a 12 mm rod in. For ASTM F963, the requirement is that if the clearance can admit a 5 mm rod, it shall also admit a 13 mm rod.

6.15 Springs

The clauses for springs are indicated in Table 56.

Table 56 — Clauses related to springs

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.14 Springs	4.10.4 Springs (see A.14)	4.18.6 Coil springs

The requirements in ASTM F963 only apply to coil springs which can carry the weight of a child, while those in ISO 8124-1 and EN 71-1 also apply to spiral and helical springs and there is no exclusion for springs that do not carry the weight of a child.

6.16 Stability and overload requirements

6.16.1 Stability requirements for ride-on toys and seats

6.16.1.1 General

The clauses for the stability of ride-on toys and seats are indicated in Table 57.

Table 57 — Clauses related to stability and overload requirements

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.15 Stability and overload requirements 4.15.1 Stability of ride-on toys and seats	4.15 Toys intended to bear the mass of a child (see A.20)	4.15 Stability and over-load requirements
4.15.1.1 Sideways stability, feet available for stabilization See E.26. 5.12.2 Sideways stability test, feet available for stabilization	4.15.1.4 Stability 8.23.1 Toys intended to bear the mass of a child (see 4.15.1.4, 4.15.3 and 4.15.4) 4.15.3 Rocking horses and similar toys (see A.21) 4.15.4 Toys not propelled by a child	4.15.1 Stability of ride-on toys and toy seats 4.15.2 Sideways stability requirements 8.15 Test for stability of ride-on toys or toy seats
4.15.1.2 Sideways stability, feet unavailable for stabilization 5.12.3 Sideways stability test, feet unavailable for stabilization		
4.15.1.3 Fore and aft stability See E.27. 5.12.4 Fore and aft stability test		4.15.3 Fore and aft stability 8.15 Test for stability of ride-on toys or toy seats

6.16.1.2 Stability testing

See Table 58 for the differences in stability testing between the referenced standards.

Table 58 — Differences of the test method for stability testing

		ISO 8124-1:2014		EN 71-1:2014		ASTM F963:2011
Applicable scope		The requirement of stability applies 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.		Toys intended to bear the mass of a child, e.g.: — roller skates, inline skates and skateboards intended for children with a body mass of 20 kg or less; — tricycles, cars, hand carts, moon-hoppers and pogo sticks.		The stability requirement apply to the following classes of toys intended for use by children aged 60 months or less: ride-on toys, with three or more load bearing wheels, such as wagons; ride-on, action-type toys such as hobby horses, rocking toys (for example, horses, cars); and toy seats.
Exemption		Ride-on toys of spherical, cylindrical or other shapes, which do not normally have a stable base (for example toy bicycles and similar toys), are not covered by these requirements.		The stability requirement does not apply to: — roller skates, inline skates and toy skateboards; — toys that by their design do not have a stable base (e.g. pogo sticks, moon hoppers, big balls and soft filled toy animals); — toys with aligned wheels. Wheels with a spacing of 150 mm or less between the centre of the outermost wheels are considered to be a single wheel.		Ride-on toys of spherical, cylindrical, or other shape that does not normally have a stable base is not covered by these requirements.
Sideways stability, feet available for stabilization	Inclined angle	Place the toy on a smooth surface inclined $(10^{+0,5}_{0,0})°$		Place the toy on a (10 ± 1) ° slope		Place the ride-on toy or toy seat across the slope of a smooth surface inclined 10°
	Test load and determination	**Age group**	**Load** (kg)	**Age group**	**Load** (kg)	TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)
		Under 36 months	25 ± 0,2	Under 36 months	25 ± 0,2	
		36 months and over	50 ± 0,5	36 months and over	50 ± 0,5	

Age, years	Weight, lb (kg)
1	28 (12.6)
2	29 (13.2)
3	42 (18.9)
4	43 (19.7)
5	50 (22.6)
6	59 (26.6)
7	69 (31.2)
8	81 (37.0)
9	89 (40.4)
10	105 (47.9)
11	121 (55.0)
12	120 (54.7)
13	140 (63.6)
14	153 (69.6)

Table 58 *(continued)*

<table>
<tr><th></th><th></th><th>ISO 8124-1:2014</th><th>EN 71-1:2014</th><th>ASTM F963:2011</th></tr>
<tr><td></td><td></td><td>Exemption: Ride-on toys and stationary toys with seats, where the height of the seat from the ground is less than 27 cm.

Observe whether the toy tips over within 1 min after application of the load.</td><td>Exemption: Toys intended for children of 36 months and over where the feet of the child can provide sideways stability (i.e. where the legs are unrestricted in their sideways motion) and where the height of the seat is such that a child of the age group for which the toy is intended can reach the ground with both feet when seated (with fore and aft stability remaining).

Determine whether the toy tips over</td><td>Apply to the seat a static load equal to the weight indicated in above table at the highest age of the age range for which the ride-on toy or toy seat is intended, but not exceeding 60 months. When the highest age of the intended age range falls between two ages listed in above table, the higher of the two shall be chosen.

Exemption: Those ride-on toys or toy seats in which the height of the seat from the ground is one third, or less than one third, of the height indicated in below table at the lowest age of the age range for which the ride-on toy or toy seat is intended.

TABLE 3 Height of Fifth Percentile Children (Values Given for Boys or Girls, Whichever is Lower)
Age, years | Height, in. (cm)
1 | 27 (69.8)
2 | 29 (74.4)
3 | 33 (85.1)
4 | 37 (93.8)
5 | 40 (100.5)

Determine whether the ride-on toy or toy seat tip.</td></tr>
<tr><td rowspan="4">Sideways stability, feet unavailable for stabilization</td><td>Inclined angle</td><td colspan="2">Place the toy on a smooth surface inclined $(15^{+0,5}_{0,0})$ °</td><td colspan="2">Place the toy on a (10 ± 1) ° slope</td><td>Place the ride-on toy or toy seat across the slope of a smooth surface inclined 15°</td></tr>
<tr><td rowspan="3">Test load</td><td>Age group</td><td>Load (kg)</td><td>Age group</td><td>Load (kg)</td><td rowspan="3">TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)
Age, years | Weight, lb (kg)
1 | 28 (12.6)
2 | 29 (13.2)
3 | 42 (18.9)
4 | 43 (19.7)
5 | 50 (22.6)
6 | 59 (26.6)
7 | 69 (31.2)
8 | 81 (37.0)
9 | 89 (40.4)
10 | 105 (47.9)
11 | 121 (55.0)
12 | 120 (54.7)
13 | 140 (63.6)
14 | 153 (69.6)</td></tr>
<tr><td>Under 36 months</td><td>25 ± 0,2</td><td>Under 36 months</td><td>25 ± 0,2</td></tr>
<tr><td>36 months and over</td><td>50 ± 0,5</td><td>36 months and over</td><td>50 ± 0,5</td></tr>
<tr><td></td><td colspan="2">Observe whether the toy tips over within 1 min after application of the load</td><td colspan="2">Determine whether the toy tips over.</td><td>Apply to the seat a static load equal to the weight indicated in above table at the highest age of the age range for which the ride-on toy or toy seat is intended, but not exceeding 60 months. When the highest age of the intended age range falls between two ages listed in above table, the higher of the two shall be chosen.

Determine whether the ride-on toy or toy seat tip.</td></tr>
</table>

Table 58 *(continued)*

		ISO 8124-1:2014		EN 71-1:2014		ASTM F963:2011
Fore and aft stability	Inclined angle	Place the toy on a smooth surface inclined $(15^{+0,5}_{0,0})°$		Place the toy on a (10 ± 1) ° slope		Place the ride-on toy or toy seat across the slope of a smooth surface inclined 15°
	Test load	**Age group**	**Load** (kg)	**Age group**	**Load** (kg)	TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)
		Under 36 months	25 ± 0,2	Under 36 months	25 ± 0,2	Age, years / Weight, lb (kg)
		36 months and over	50 ± 0,5	36 months and over	50 ± 0,5	1 28 (12.6) 2 29 (13.2) 3 42 (18.9) 4 43 (19.7) 5 50 (22.6) 6 59 (26.6) 7 69 (31.2) 8 81 (37.0) 9 89 (40.4) 10 105 (47.9) 11 121 (55.0) 12 120 (54.7) 13 140 (63.6) 14 153 (69.6)
		Observe whether the toy tips over within 1 min after application of the load.		Determine whether the toy tips over.		
	Toy facing	Ride-on toys shall be tested with the steering mechanism, if any, in the position where the toy is most likely to tip. Test the toy facing both up and down the slope. For rocking horses, displace the toy to the limit of its bow.		Place the toy on a slope in the most onerous position with respect to stability.		The stability of ride-on toys is to be tested not only with the steering wheels in a forward position, but also at an angle of 45° to the left and to the right of the forward position. Tested the toy both facing down and up the slope.
	The location of the load	For all ride-on toys, secure the centre of gravity of the load both (43 ± 3) mm rearward of the frontmost portion of the designated seating area, and (43 ± 3) mm forward of the rearmost portion of the designated seating area. If there is no designated seating area, place the load at the least favourable position in which it is reasonable to anticipate that a child will choose to sit or stand.		Load the toy in the most onerous position on its standing or sitting surface.		The centre of gravity of the load for the fore and aft stability test shall be secured both 1,7 in. (43 mm) rearward of the front-most portion of the designated seating area and 1,7 in. (43 mm) forward of the rear-most portion of the designated seating area. If there is no designated seating area or if there is no designated fore and aft orientation, the load shall be placed 1,7 in. (43 mm) inward towards the geometric centre of the ride-on toy or toy seat from the least favourable position that it is reasonable to anticipate that the child will choose to sit.
	Test load	**Age group**	**Load** (kg)	**Age group**	**Load** (kg)	TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)
		Under 36 months	25 ± 0,2	Under 36 months	25 ± 0,2	Age, years / Weight, lb (kg)
		36 months and over	50 ± 0,5	36 months and over	50 ± 0,5	1 28 (12.6) 2 29 (13.2) 3 42 (18.9) 4 43 (19.7) 5 50 (22.6) 6 59 (26.6) 7 69 (31.2) 8 81 (37.0) 9 89 (40.4) 10 105 (47.9) 11 121 (55.0) 12 120 (54.7) 13 140 (63.6) 14 153 (69.6)
		Observe whether the toy tips over within 1 min after application of the load.		Determine whether the toy tips over.		

6.16.1.3 Toy orientation

Four directions including forward, backward, left and right are to be taken into consideration during the stability test of ISO 8124-1, secure the centre of the gravity of the load both 43 mm rearward of the front-most portion of the designate seating area, and 43 mm frontward of the rear-most portion of the designate seating area.

There are two scenarios addressed in ASTM F963.

a) For toys with a designated sitting area, the centre of the gravity of the load is place on 43 mm rearward of the front-most portion when doing forward stability testing; and 43 mm frontward of the rear-most portion when doing rearward stability testing. For sideways stability testing, the centre of gravity of the load is place on the geometric centre of the sitting area.

b) For toys without a designated sitting area or if there is no designated sideways orientation, the centre of gravity is place on 43 mm inward towards the geometric centre of the toy.

Regarding the test addressed in EN 71-1, the load shall be placed in the most onerous position of the toy on its standing or sitting surface. Additional interpretation on how to place the load has been elaborated in CEN/TR 15371-1.

6.16.1.4 Sitting surface height

In ISO 8124-1, sideways stability test is not applicable if the sitting surface height is less than 27 cm and children's feet can provide sideways stability.

As for the requirement addressed in ASTM F963, it would be not applicable if the sitting surface height from the ground is 1/3 or less than 1/3 of children's height corresponds to the minimum age of the age group.

6.16.1.5 Rocking horses and similar toys

EN 71-1 has specified the limit to the movement on rocking horse and similar toys, it aims to ensure the bow rocker of any bow-mounted rocking horses or other rocking toys shall have a limit to its movement which shall at all times hold the user within the extreme of the bow. There are currently no corresponding requirement in ISO-8124-1 and ASTM F963.

6.16.1.6 Mass

EN 71-1:2014, A.49 specifies that a body mass of 20 kg corresponds approximately to the mass (95th percentile) of a child of 3 years, while ISO 8124-1:2014, E.44 specifies that "*A body mass of 20 kg corresponds approximately to the average mass of a child of 5 years*." In ASTM F963, the mass (95th percentile) of a 3-year old child is 42 lb (18,9 kg).

6.16.1.7 Height of load's centre of gravity for requirements off ride-on toys and seats

See Table 59.

Table 59 — Height of load's centre of gravity

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Design the load so that the height of its centre of gravity is (220 ± 10) mm above the seat surface.	Load's centre of gravity is 150^{+10}_{-0} mm.	The load shall be designed so that the height of its centre of gravity is (8,7 ± 0,5) in. (220 ± 13) mm.

6.16.2 Overload requirements for ride-on toys and seats

6.16.2.1 General

The clauses for ride-on toys and seats are indicated in Table 60.

Table 60 — Clauses related to overload requirements for ride-on toys and seats

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.15.2 Overload requirements for ride-on toys and seats See E.28. 5.12.5 Overload test for ride-on toys and seats 5.24.4 Dynamic strength test for wheeled ride-on toys other than toy scooters	No overload requirement 4.15.1.3 Strength 8.21 Static strength (see 4.15.1.3, 4.15.1.5, 4.15.3, 4.15.4 and A.46) 8.22 Dynamic strength (see 4.15.1.3)	4.15.5 Overload requirements for ride-on toys and toy seats 8.26 Test for overload of ride-on toys and toy seats 4.15.6 Wheeled ride-on toys 8.20 Dynamic strength test for wheeled ride-on toys

6.16.2.2 Loading requirements for ride-on toys and seats

The purpose of this requirement is to minimize unexpected hazards which could be caused by a toy that is not capable of withstanding an overload. The relationship between age range of children and test load to be applied are shown in Table 61.

Table 61 — Loading requirements for ride-on toys and seats

Age, years	**ISO 8124-1:2014** (Overload) kg	**EN 71-1:2014** (Static strength test) kg	**ASTM F963:2011** (Overload) lb(kg)
1	35 ± 0,3	25 ± 0,2	28 (12,6)*3
2			29 (13,2)*3
3			42 (18,9)*3
4	80 ± 1,0	50 ± 0,5	43 (19,7)*3
5			50 (22,6)*3
6			59 (26,6)*3
7			69 (31,2)*3
8			81 (37,0)*3
9	140 ± 2,0		89 (40,4)*3
10			105 (47,9)*3
11			121 (55,0)*3
12			120 (54,7)*3
13			140 (63,6)*3
14			153 (69,6)*3

Table 61 *(continued)*

Age, years	**ISO 8124-1:2014** (Overload) kg	**EN 71-1:2014** (Static strength test) kg	**ASTM F963:2011** (Overload) lb(kg)
Note	Conduct the test for overload requirements so that it will be consistent with the advertised mass capacity of the toy, if that mass is higher than the required load according to Table 4.	**For scooter**: **(1)** For toy scooters labelled as intended for children with a body mass of 20 kg or less: **(50 ± 0,5) kg**; **(2)** For other toy scooters: **(100 ± 1) kg**.	When the highest age of the intended age range falls between two ages listed at column for ASTM F963 in this Table, the higher of the two shall be chosen.
Test method	Load the toy on its standing or sitting surface with the appropriate mass in accordance with Table 4. Determine whether the toy collapses such that it does not conform to the relevant requirements.	Load the toy in the most onerous position with a mass of (50 ± 0,5) kg on its standing or sitting surface for 5 min. For toys labelled as not suitable for children of 36 months and over, load the toy with a mass of (25 ± 0,2) kg.	Apply a static load(s) that is equal to the weight as determined by the criteria above. The load(s) shall be applied so that it is as close as possible to the geometric centre of the designated seating or standing area(s). If there is no designated seating or standing area(s), the load shall be placed at the least favourable position that it is reasonable to anticipate that the child will choose to sit or stand. Observe whether the toy collapses within 1 min after application of the static load.

6.16.2.3 Dynamic strength test

All three standards have dynamic test. In EN 71-1, a test load with articulated arms is to be used when the toy is equipped with steering wheel or handlebars. In ISO 8124-1, the test load with articulated arms is only to be used when conducting the dynamic strength test for toy scooters. There is no corresponding requirement in ASTM F963. See Table 62.

Table 62 — Differences of the test method for dynamic strength test

<table>
<tr><th></th><th></th><th>ISO 8124-1:2014</th><th>EN 71-1:2014</th><th>ASTM F963:2011</th></tr>
<tr><td rowspan="2">Dynamic strength test</td><td>Test method</td><td>Wheeled ride-on toys other than toy scooters.
Load the toy for 5 min.
Drive the toy three times at a speed of (2 ± 0,2) m/s into a non-resilient step with a height of 50 mm.</td><td>A load is secured to the toy, and articulated arms with the elbow joints in a downward position are attached to the steering wheel or handlebars if the toy is so equipped. The toy is driven three times into a non-resilient step.</td><td>Load the toy for 5 min in the most onerous position with the appropriate mass in accordance with this Table on its standing or sitting surface. Secure the load to the toy in a position corresponding to the normal use of the toy. Drive the toy three times at a speed of 6,6 ft/s (2 m/s) ± 0,7 ft/s (0,2 m/s) into a nonresilient step with a height of 2 in. (50 mm).</td></tr>
<tr><td>Test load</td><td>Wheeled ride-on toys other than toy scooters
<table><tr><th>Age group</th><th>Load (kg)</th></tr><tr><td>Under 36 months</td><td>25 ± 0,2 kg</td></tr><tr><td>36 months and over</td><td>50 ± 0,5 kg</td></tr></table>For scooter:
For toy scooters intended for users up to 50 kg:
54,5 kg;
For toy scooters intended for users of 20 kg or less:
29,5 kg</td><td>For toys intended for children of 36 months and over:
54,5 kg
For toys labelled as unsuitable for children of 36 months and over:
29,5 kg</td><td>TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever Is Higher)
<table><tr><th>Age, years</th><th>Weight, lb (kg)</th></tr><tr><td>1</td><td>28 (12.6)</td></tr><tr><td>2</td><td>29 (13.2)</td></tr><tr><td>3</td><td>42 (18.9)</td></tr><tr><td>4</td><td>43 (19.7)</td></tr><tr><td>5</td><td>50 (22.6)</td></tr><tr><td>6</td><td>59 (26.6)</td></tr><tr><td>7</td><td>69 (31.2)</td></tr><tr><td>8</td><td>81 (37.0)</td></tr><tr><td>9</td><td>89 (40.4)</td></tr><tr><td>10</td><td>105 (47.9)</td></tr><tr><td>11</td><td>121 (55.0)</td></tr><tr><td>12</td><td>120 (54.7)</td></tr><tr><td>13</td><td>140 (63.6)</td></tr><tr><td>14</td><td>153 (69.6)</td></tr></table></td></tr>
</table>

6.16.3 Stability of stationary floor toys

The clauses for the stability of stationary floor toys are indicated in Table 63.

Table 63 — Clauses related to stability of stationary floor toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.15.3 Stability of stationary floor toys See E.29. 5.12.6 Stability test of stationary floor toys	4.16 Heavy immobile toys 8.23.2 Heavy immobile toys (see 4.16)	4.15.4 Stability of stationary floor toys

Table 64 illustrates a comparison of stability test for stationary floor toys.

Table 64 — Comparison of stability test for stationary floor toys

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Scope	Stationary floor toys greater than 760 mm in height and weighing more than 4,5 kg.	Immobile toys with a mass of 4,5 kg or more and intended to rest on the floor but not to bear the mass of a child.	Stationary floor toys of greater than 30 in. (760 mm) in height and weighing more than 10 lb (4,5 kg).
Angle of slope	Place the toy on a smooth surface inclined (10 ± 1)°.	Place the toy in the most onerous position on a (5 ± 1)° slope.	Placed on a 10° incline.
Test duration	Observe whether the toy tips over within 1 min.	—	—

6.17 Enclosures

6.17.1 General

The clauses for enclosures are indicated in Table 65.

Table 65 — Clauses related to enclosures

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.16 Enclosures See E.30. 4.16.1 Ventilation	4.14 Enclosures 4.14.1 Toys which a child can enter (see A.18) 4.14.1 a)	4.16 Confined spaces 4.16.1 Ventilation
4.16.2 Closures 4.16.2.1 Lids, doors and similar devices 4.16.2.2 Lid support for toy chests and similar toys 5.13 Test for closures and toy chest lids	4.14.1 b) 4.14.1 c) 8.31 Toy chest lids	4.16.2 Closures
4.16.3 Toys that enclose the head	4.14.2 Masks and helmets (see A.19) 4.14.2 a)	4.16.3 Toys that enclose the head

NOTE Toy chests are not covered by ASTM F963. They are considered as children's furniture and have their own set of safety requirements that are already covered by Consumer Safety Specification F834. CPSC has "ordered" that Toy Chests are re-inserted in the next version of ASTM F963.

6.17.2 Impermeable material

In ISO 8124-1 and ASTM F963, any toy, made of impermeable material and having a door or lid, which encloses a continuous volume greater than 0,03 m^3 and in which all internal dimensions are 150 mm or more, shall provide means for breathing by the incorporation of unobstructed ventilation openings. Compared with ISO 8124-1 and ASTM F963, EN 71-1 does not mention impermeable material in this requirement.

6.17.3 Ventilation

All the three standards have similar requirements for toys that enclosed the head, the main differences are shown in Table 66.

Table 66 — Differences in requirements of ventilation

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Requirements of ventilation	Toys that enclose the head and which are made of impermeable material, shall provide ventilation through at least two holes or through any equivalent single ventilation area.	Toys that fully enclose the head and which are made of impermeable material shall provide ventilation through at least two holes or through any equivalent single ventilation area.	Toys that enclose the head and which are made of impermeable material shall provide two holes for breathing.
Location of ventilation	Ventilation areas should be close to the mouth and nose area.	There is no requirement on the location of ventilation area.	There is no requirement for equivalent single ventilation area.

6.17.4 Closures

a) In ISO 8124-1 and ASTM F963, closures shall be a type which can be opened with a force of less than (45 ± 1,3) N. The force shall be applied in an outward direction to the inside of the closed closure, perpendicular to the plane of the closure and anywhere within 25 mm from the geometric centre of the closure. In EN 71-1, for toys having a door, lid or similar device, it shall be possible to open the door, lid or similar device by applying a force of 50 N or less from the inside.

b) In ISO 8124-1, toy chests shall be accompanied by instructions for proper assembly and maintenance in sufficient detail to describe the correct assembly of components, the resulting hazard if the lid support device is not installed, and a description of how to determine whether the support is working properly (see ISO 8124-1:2014, B.3.4). In EN 71-1, toys chests with vertically opening hinged lids shall be accompanied by instructions for proper assembly and maintenance, the standard does not state the details of what kind of information are included in the instructions.

c) In ISO 8124-1 and EN 71-1, the requirements on enclosure notably preclude the use of buttons, zips and similar fastenings on doors, lids or similar devices. ASTM F963 has no relevant statement. However, in ASTM F963, any enclosure toys made of impermeable material, the closure shall be of a type that can be opened with a force of 10 lbf (45 N) or less when treated as follows.

   With the closure in a closed position, apply the force in an outward direction to the inside of the closure perpendicular to the plane of the closure and anywhere within 1 in. (25 mm) from the geometric centre of the closure.

6.18 Simulated protective equipment, such as helmets, hats and goggles

The clauses for simulated protective equipment are indicated in Table 67.

Table 67 — Clauses related to simulated protective equipment

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.17 Simulated protective equipment, such as helmets, hats and goggles See E.31. 5.14 Impact test for toys that cover the face B.2.11 Simulated protective equipment	4.14.2 Masks and helmets 4.14.2 b) 4.14.2 c) 7.8 Imitation protective masks and helmets (see 4.14.2 and A.19)	4.19 Simulated Protective Devices (such as helmets, hats, and goggles) 8.7.4 Impact test for toys that cover the face 5.9 Simulated protective devices

In EN 71-1, simulated protective equipment made of rigid material shall subject to the impact test (round disc weight 1 kg, diameter 80 mm, drop from height of 100 mm from the surface of toy). In ISO 8124-1 and ASTM F963, simulate protective equipment that covered the face (including toys with

cut-out eye holes as well as items that cover the eyes), such as goggles, space helmets and face shield shall subject to the ball impact test.

Table 68 — Differences between steel ball impact test

	ISO 8124-1:2014	ASTM F963:2011
Diameter	16 ± 0,15 mm	5/8 in (16 mm)
Weight	16,9 ± 0,7 g (weight range from 16,2 g ~ 17,6 g)	0,56 oz. (15,8 g) [with a tolerance of +0,03 oz. (0,8 g), −0 oz.] (weight range from 15,8 g ~ 16,4 g)
Testing height	130 ± 0,5cm	50 in. (1,3 m)

The weight ranges for the steel ball for ISO 8124-1 and ASTM F963 are overlapped between the range of 16,2 g ~ 16,4 g. Therefore, a steel ball weighs within the overlapped range can be used to show conformance with both standards.

6.19 Projectile toys

6.19.1 General

The clauses for projectile toys are indicated in Table 69.

NOTE Work is ongoing in ASTM and CEN regarding projectiles.

Table 69 — Clauses related to projectile toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.18 Projectile toys 4.18.1 General 5.35 Determination of projectile range	4.17 Projectiles 4.17.1 General 8.32 Small balls and suction cups test (see 4.17, 4.22, 4.25, 5.10 and 5.13)	4.21 Projectile toys 8.14 Projectiles 8.14.1 Kinetic energy determination 8.14.4 Impact test for projectiles
4.18.2 Projectiles 5.36 Tip assessment of rigid projectiles 5.37 Length of suction cup projectiles 5.24.6.5 Tension test for a projectile with a suction cup B.2.15 Projectile toys		
4.18.3 Projectile toys with stored energy 5.15 Kinetic energy and wall impact test	4.17.3 Projectile toys with stored energy 8.24 Determination of kinetic energy 8.24.1 Kinetic energy of projectiles 7.7 Projectiles	
4.18.4 Projectile toys without stored energy	4.17.2 Projectile toys without stored energy	
4.18.4.1 Mouth-actuated projectile toys 5.20 Durability of mouth-actuated toys	4.11 Mouth-actuated toys and other toys intended to be put in the mouth (see A.15) e)	
4.18.4.2 Projectiles in the form of a dart 4.18.4.3 Arrows (e.g. bow and arrow set) 5.15 Kinetic energy and wall impact test	4.17.3 Projectile toys with stored energy 8.24.2 Kinetic energy of bows and arrows	

6.19.2 General requirements of projectiles

a) ISO 8124-1 and EN 71-1 are applicable to projectile toys with stored energy and without stored energy while ASTM F963 only covers projectile toys with stored energy.

b) In ISO 8124-1 and ASTM F963, all projectiles used in projectile toys with stored energy shall not have sharp point, sharp edge, and whatever their orientation, fit entirely into the small parts cylinder. EN 71-1 does not prohibit stored energy projectiles that are small parts.

c) Requirements for projectile toys are not identical among the three standards. In ISO 8124-1, tips or leading edges of rigid projectiles shall not protrude beyond the depth of the cylindrical gauge. The leading edges of the projectiles, as well as any corners that are adjacent to the leading edges, shall be smooth and free of points, burrs, flash or similar projections. The corners of the projectiles that are adjacent to the leading edges shall have rounded edges with a radius of 0,25 mm or more. In EN 71-1 and ASTM F963, they only require the tip radius of the projectiles with rigid tip shall not be less than 2 mm.

6.19.3 Projectile range

ISO 8124-1 provides the test method for determination of projectile range. The requirements in ISO 8124-1:2014, 4.18.2 a) to c), and ISO 8124-1:2014, 4.18.3 b) to d) do not apply to projectiles where the maximum range of the discharged projectile is 300 mm or less. The concept of projectile range is not introduced into ASTM F963 and EN 71-1.

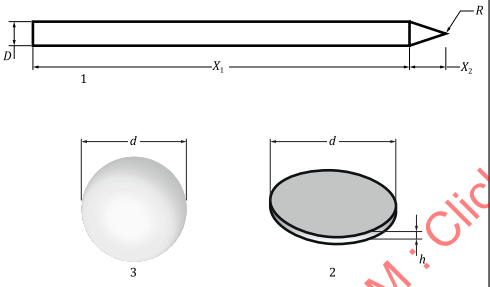
6.19.4 Impact surface

In ISO 8124-1 and EN 71-1, projectiles with a suction cup as a contact surface shall have a length of 57 mm or more before and after subjected to torque test and tension test. The requirements are exempted in the ISO 8124-1 for foam shaft projectiles where they are 57 mm or more in the as received state, and where the suction cup has a diameter less than or equal to the diameter of the foam shaft. EN 71-1 does not have this exemption. ASTM F963 has no relevant requirements that are unique to suction cup projectiles, however such projectiles are subject to the general projectile requirements (e.g. not be small parts if there is stored energy).

6.19.5 Discharge mechanism

In ISO 8124-1 and ASTM F963, discharge mechanisms shall be designed so that they are unable to launch improvised projectiles. A set of improvised projectiles with specified specifications were given in the ISO 8124-1, but it is not specified in the ASTM F963. In EN 71-1, projectile toys shall carry a warning if they are able to discharge an object other than that provided with the toy. See Table 70.

Table 70 — Differences of requirements for discharge mechanism

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
For projectile toys with stored energy, the discharge mechanism shall be designed so that it is unable to launch the improvised projectiles, specified in bellow figure and table, in a manner determined to be hazardous.  Key 1 cylindrical shaft 2 disc 3 sphere Dimensions in millimetres Designation / Name / Material / Diameter D / Shaft length X1 / Length of cone X2 / Radius of tip* R / Thickness H Cylindrical Shafts A Pencil Hardwood 7 155 15 0,5 B Long nail / pen refill Aluminium 3 100 5 0,1 C Pen refill Aluminium 3 50 5 0,1 D Short nail / toothpick Aluminium 1,5 50 2,3 0,05 E Toothpick Aluminium 1,5 25 2,3 0,05 Spheres F Steelball Steel 8 G Small marble Glass 16 H Large marble Glass 25 Discs I Small coin Steel 15 1,5 J Medium coin Steel 20 2 K Medium/large coin Steel 25 3 L Large coin Steel 30 3 * Radius on shaft tips are non-critical dimensions.	For projectile toys with stored energy, if a discharge mechanism is able to discharge an object other than that provided with the toy, the toy shall be accompanied by instructions for use which draw attention to the hazards of using missiles other than those supplied or recommended by the manufacturer.	Discharge mechanisms shall be unable to discharge potentially hazardous improvised projectiles such as pencils or pebbles without modification by the user.

6.19.6 Kinetic energy

In the requirements of projectile toys with stored energy in ISO 8124-1, projectiles with kinetic energy greater than 0,08 J shall have contact surface made of resilient material, kinetic energy per unit contact area not greater than 2 500 J/m^2, and be accompanied by a warning.

In the requirements of projectile toys with stored energy in EN 71-1, the maximum kinetic energy of projectiles shall not be over 0,08 J and 0,5 J for projectiles with rigid impact surfaces and resilient impact surfaces respectively. Projectiles in form of arrows with kinetic energy greater than 0,08 J, shall have contact surface made of a resilient material, and have kinetic energy per unit contact area not greater than 0,16 J/cm^2.

The difference in requirements for kinetic energy among the three standards are given in Table 71.

Table 71 — Differences in requirements for kinetic energy

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Projectile toys with stored energy	Projectiles with a kinetic energy greater than 0,08 J when tested according to kinetic energy of projectiles shall: (1) have a contact surface(s) made of a resilient material; (2) be accompanied by a warning about aiming at the eyes or face. This requirement only applies to projectiles that might reasonably be able to be aimed at the face. (3) have a kinetic energy per unit area not greater than 2 500 J/m^2 when tested according to determination of kinetic energy per area of contact.	(1) The maximum kinetic energy of projectiles, when tested according to kinetic energy of projectiles shall not exceed: a) 0,08 J for rigid projectiles without resilient impact surfaces; b) 0,5 J for resilient projectiles or projectiles with resilient impact surfaces (e.g. rubber). (2) For projectiles in the form of arrows whose maximum kinetic energy exceeds 0,08 J, their impact surfaces shall be protected by a resilient material (e.g. rubber). The maximum kinetic energy per unit area of the resilient impact surface shall not exceed 0,16 J/cm^2 when tested according to kinetic energy of projectiles. If a toy is capable of discharging a projectile with a kinetic energy greater than 0,08 J, the potential danger shall be drawn to the attention of the user by a warning.	Any rigid projectile fired from a toy that has a kinetic energy that exceeds 0.08 J shall have an impact surface(s) of a resilient material.

Table 71 *(continued)*

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Projectile toys without stored energy	Projectiles in the form of an arrow shall have a maximum kinetic energy per unit area of contact not greater than 2 500 J/m^2 when determined in accordance with determination of kinetic energy.	(1) The maximum kinetic energy of arrows discharged from a bow when tested according to kinetic energy of bows and arrows shall not exceed: a) 0,08 J for rigid projectiles without resilient impact surfaces; b) 0,5 J for resilient projectiles or projectiles with resilient impact surfaces (e.g. rubber). (2) Arrows whose maximum kinetic energy exceeds 0,08 J, when tested according to kinetic energy of bows and arrows, their impact surfaces shall be protected by a resilient material (e.g. rubber). The maximum kinetic energy per unit area of the resilient impact surface shall not exceed 0,16 J/cm^2 when tested according to kinetic energy of projectiles. If a toy is capable of discharging a projectile with a kinetic energy greater than 0,08 J, the potential danger shall be drawn to the attention of the user by a warning.	—

According to ISO 8124-1 and EN 71-1, projectile toys with a kinetic energy greater than 0,08 J, shall carry a warning. ISO 8124-1 also requires that projectile toys without stored energy, that might reasonably be able to be launched at the face, shall be accompanied by instructions for use that draw attention to the hazard of aiming at eye/face. EN 71-1 requires that projectile toys capable of firing projectiles other than those supplied, shall be accompanied by instructions for use that draw attention to the hazard of using other improvised projectiles.

The differences regarding warning and content in instructions for use are shown in Table 72.

Table 72 — Differences in warnings for projectile toys

	Warning in ISO 8124–1:2014	Warning in EN 71–1:2014	Warning in ASTM F963:2011
Projectile toys with stored energy	—	Toys with projectiles which are able to discharge an object other than that provided with the toy shall be accompanied by instructions for use which draw attention to the hazards of using missiles other than those supplied or recommended by the manufacturer.	—
	Projectile toys with stored energy with projectiles with a kinetic energy greater than 0,08 J when tested according to (kinetic energy of projectiles), should be accompanied by a warning, which may appear in the instructions for use concerning aiming at the eyes or face, such as: "Warning. Do not aim at eyes or face." NOTE This requirement for a warning does not apply to projectile toys that are not reasonably to be aimed at the eyes or face of the user or third party.	Toys capable of discharging a projectile with a kinetic energy greater than 0,08 J shall carry the following warning on the toy and/or its packaging and in the instructions for use: "Warning. Do not aim at eyes or face."	—
Projectile toys without stored energy	Projectile toys without stored energy that might reasonably be able to be launched at the face should be accompanied by instructions for use which draw attention to the hazards of aiming at eyes or face.	—	—
Bow and arrow	Bow and arrow that might reasonably be able to be launched at the face should be accompanied by instructions for use which draw attention to the hazards of aiming at eyes or face.	Toys capable of discharging a projectile with a kinetic energy greater than 0,08 J shall carry the following warning on the toy and/or its packaging and in the instructions for use: "Warning. Do not aim at eyes or face."	—

6.19.7 Arrow

a) In ISO 8124-1, projectiles in the form of an arrow shall have a maximum kinetic energy per unit area of contact of not greater than 2 500 J/m^2.

b) In EN 71-1, kinetic energy shall not exceed 0,08 J and 0,5 J for rigid projectiles and resilient projectile respectively. For projectiles in the form of arrows whose maximum kinetic energy exceeds 0,08 J, their impact surfaces shall be protected by resilient material. The maximum kinetic energy per unit area of the resilient impact surface shall not exceed 0,16 J/cm^2.

c) In ASTM F963, if kinetic energy of rigid projectiles exceeds 0,08 J, the rigid projectile shall have an impact surface made of resilient material. ASTM F963 does not provide the requirement for kinetic energy on resilient projectiles.

6.19.8 Mouth-actuated projectile toys

ASTM F963 does not have specific requirement for mouth-actuated projectile toys. In ASTM F963, mouth-actuated projectile toys are fall in the scope of the requirement of mouth-actuated toys. A comparison of the durability tests among the three standards are given in Table 73.

Table 73 — Comparison of durability test for mouth-actuated projectile toys

	ISO 8124-1:2014	EN 71-1:2014
Pump	Capable of discharging and receiving more than 300 cm^3 of air in less than 3 s	No requirement
Pressure	≤13,8 kPa	13,8 kPa ± 5 %
Operation	Subject the toy to 10 alternating blowing and sucking cycles, each within 5 s and of at least (295 ± 10) cm^3 of air including the volume which may be discharged through the relief valve.	Apply a pressure of 13,8 kPa ± 5 % in the direction of the mouthpiece for 5 s. Carry out the test 10 times in total.

6.19.9 Test method

a) Tension test methods for projectiles with suction cup in ISO 8124-1 and EN 71-1 are identical, except the tensile force values where they are 70 N in ISO 8124-1, 50 N or 90 N in EN 71-1. In ASTM F963, tension test for suction cup on projectiles is covered in the tension test for removal of components.

b) In ISO 8124-1, during testing to determine kinetic energy of sets with bow and arrow, the bowstring shall be stretched until a 150 N pull force is reached, or the arrow cannot be pulled back further due to its length, or a 70 cm pull back distance has been reached. In EN 71-1, the bowstring shall be stretched until a pull force of 30 N is reached, or a 70 cm pull back distance has been reached. ASTM F963 does not specify this test method.

c) ISO 8124-1 specifies the testing distance as (300 ± 5) mm when determining kinetic energy per unit area. EN 71-1 does not specify a testing distance. ASTM F963 does not have requirement on kinetic energy per unit area.

d) ISO 8124-1 and ASTM F963 have requirements on wall impact test for projectiles. The impact surface to be used is either a concrete block wall or similar hard flat impact surface. In ISO 8124-1, the distance between the leading edge of the projectile and the impact surface shall be such that the projectile enters free flight. In ASTM F963, the distance is 300 mm plus the length of the projectile from the front end of the launcher. EN 71-1 does not have such test method.

6.20 Rotors and propellers

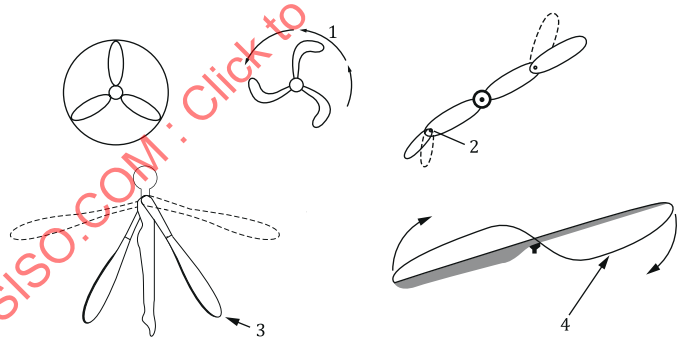
The clauses for the rotors and propellers are indicated in Table 74.

Table 74 — Clauses related to rotors and propellers

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.19 Rotors and propellers See E.33.	4.17 Projectiles (see A.22) 4.17.1 c)	—

The scope, exemption and requirements for rotors and propellers in ISO 8124-1 and EN 71-1 are different as shown in Table 75.

Table 75 — Comparison of the scope and exemption and requirements for rotors and propellers

	ISO 8124-1:2014	EN 71-1:2014
Scope	Rotors and propellers powered by electrical, spring or inertial energy and that take off into free flight.	Helicopter rotors and single propellers intended to be powered into vertical or nearly vertical free flight by a spring mechanism or similar device.
Exemption	These requirements do not apply to: — rotors and propellers that normally rotate in the vertical plane, e.g. A propeller on an aeroplane or certain remote controlled flying toys, or — rotors and propellers on projectiles that have a maximum range of 300 mm or less when measured in accordance with 5.35 (determination of projectile range).	—
Requirement	Rotors and propellers powered by electrical, spring or inertial energy and that take off into free flight shall be designed to minimize the potential of rotating blades to cause injury. For example, this may be accomplished by one or more of the following: a) the design of the rotor or propeller shall prevent access to the blade ends during operation; b) the blade ends shall be "clutched" or loosely attached to the rotor so that the ends are not directly powered by the rotor drive; c) rotors or propellers shall be designed so that the leading edges are protected with a resilient material. Examples of designs that achieve these conditions are given in Figure E.2.  **Key** 1 direction of rotation 2 loose fit rivet 3 resilient material 4 plastic wire protector **Figure E.2 — Examples of designs that are considered to minimize risk of eye injury**	Helicopter rotors and single propellers intended to be powered into vertical or nearly vertical free flight by a spring mechanism or similar device, shall have a ring around the perimeter in order to reduce the risk of injuries.

6.21 Aquatic toys

The clauses for aquatic toys are indicated in Table 76.

Table 76 — Clauses related to aquatic toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.20 Aquatic toys See E.34. B.2.6 Aquatic toys	4.18 Aquatic toys and inflatable toys (see A.23) 7.4 Aquatic toys (see 4.18 and A.23)	5.4 Aquatic toys

a) In EN 71-1, the stopper, or any part of it, if detached when tested according to torque test, and tension test shall not fit entirely into the small part cylinder. In ISO8124-1 and ASTM F963, stoppers on aquatic toys shall be subjected to reasonably foreseeable abuse tests and shall continue to conform to the relevant requirements for toys intended for children under 96 months. The differences are shown in Table 77.

Table 77 — Differences in age grading for the air-inflation inlets on aquatic toys

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
0 to 96 months	Reasonably foreseeable abuse	Torque test and tension test, small parts test	Abuse testing
Over 96 months	—		—

b) In ISO 8124-1 and EN 71-1, stopper shall be capable of being pushed into the toy so that it does not protrude more than 5 mm outside the surface of the toy when inflated. ASTM F963 has no corresponding requirement.

NOTE Work is ongoing in CEN regarding aquatic toys.

c) The differences in warnings for aquatic toys are shown in Table 78.

Table 78 — Differences in warnings for aquatic toys

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Content	Aquatic toys should carry a statement that this is not a life-saving device, followed by a warning that the toy should only be used in a shallow water and under supervision.	"Warning. Only to be used in water in which the child is within its depth and under adult supervision."	Warning: This is not a life-saving device. Do not leave child unattended while device is in use
Location of the warning	—	The height of letters shall be 3mm or more and the marking on inflatable aquatic toys shall be 100 mm or less from one of the air inflation inlets.	—

6.22 Braking

6.22.1 General

The clauses for braking are indicated in Table 79. There is no specific requirement for braking devices in ASTM F963. The brake requirements in EN 71-1 do not apply to roller skates, inline skates and toy skateboards.

Table 79 — Clauses related to braking

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.21 Braking See E.35. 5.16 Free-wheeling facility and brake performance test	4.15.1.5 Braking 8.26 Brake performance	—

6.22.2 Braking device

Table 80 illustrates a comparison of scopes for toys where they shall have a braking device.

Table 80 — Comparison of scopes for toys where they shall have braking device

ISO 8124-1:2014	EN 71-1:2014
Mechanically or electrically propelled ride-on toys with a free-wheeling facility in accordance with 5.16.1 (determination of free-wheeling facility).	Mechanically- or electrically-driven ride-on toys with a free-wheeling mechanism shall have a braking device.
NOTE 1 For ISO 8124-1, if a toy accelerates down a slope of 10° when loaded with a mass of 50 kg, it can be expected to be free-wheeling. NOTE 2 EN 71-1 gives definition for free-wheeling mechanism – transmission in which the drive mechanism is disengaged from the driven shaft when the driven shaft rotates faster than the drive mechanism.	

6.22.3 Free-wheeling facility

In EN 71-1, the requirements of braking do not apply to electrically-driven ride-on toys on which the electrical motor itself supplies sufficient braking. The standard specifies two methods to determine motor brake performance – ramp test (EN 71-1:2014 8.26.1.2) and horizontal test (EN 71-1:2014, 8.26.1.3). In ISO 8124-1, the horizontal test (ISO 8124-1:2014, 5.16.1) is used to determine free-wheeling facility for mechanically or electrically propelled ride-on-toys, and toy bicycles.

6.22.4 Brake performance test

Table 81 illustrates a comparison for the test of brake performance.

Table 81 — Comparison for brake performance test

	ISO 8124-1:2014	EN 71-1:2014
Inclined angle	$(10^{+0,5}_{0})°$	10 ± 1°
Brake performance for certain ride-on toys	Apply a force of (50 ± 2) N in the direction in which the brake handle is normally operated. If the brake is operated by a handle similar to that of a bicycle, apply a force of (30 ± 2) N at right angles to the axis of the handle, at the middle of the handle. If the brake is operated by a pedal, apply a force of (50 ± 2) N to the pedal in the operating direction producing the effect of the brake.	Apply a force of (50 ± 2) N, in the case of levers operated by the hand and arm or by foot, or (30 ± 2) N, in the case of levers operated only by the hand, in the direction in which the brake lever is normally operated. Apply the force to the brake lever 25 mm from the end of the lever. If the brake is operated by a pedal, apply the force to the pedal in the operating direction to produce the effect of the brake.

6.23 Toy bicycles

6.23.1 General

The clauses for toy bicycles are indicated in Table 82.

Table 82 — Clauses related to toy bicycles

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.22 Toy bicycles See 4.13.3 and E.36. 4.22.1 Instructions for use B.2.17 Toy bicycles	4.15.2 Toy bicycles (see A.20) 4.15.2.1 General 4.15.2.2 Warnings and instructions for use 7.15 Toy bicycles (see 4.15.2.2) 7.16 Toys intended to bear the mass of a child (see 4.15.1.2, 4.15.2.2, 4.15.3 and 4.15.4)	—
4.22.2 Determination of maximum saddle height	4.15.1.7 Adjustable seat pillar and handlebar stem minimum insertion marks	—
4.22.3 Braking requirements 5.16.1 Determination of free-wheeling facility 5.16.3 Brake performance for toy bicycles	4.15.2.3 Braking requirements 8.26.2 Brake performance for toy bicycles (see 4.15.2.3)	—

NOTE 1 Toy bicycle is covered by 16CFR 1512.

NOTE 2 Work is ongoing in CEN regarding the brake and balance requirements for toy bicycles.

6.23.2 Braking system

EN 71-1 requires two braking systems on toy bicycles and ISO 8214 requires one braking system.

6.23.3 Warning

In EN 71-1, toy bicycles and their packaging shall carry the warning: "Warning. Protective equipment should be worn. Not to be used in traffic." ISO 8124-1 does not specify a fixed content of warning for toy bicycles.

6.24 Speed limitation of electrically driven ride-on toys

6.24.1 General

The clauses for speed limitation of electrically driven ride-on toys are indicated in Table 83.

Table 83 — Clauses related to speed limitation of electrically driven ride-on toy

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.23 Speed limitation of electrically driven ride-on toys See E.37. 5.17 Determination of speed of electrically driven ride-on toys	4.15.1.8 Electrically-driven ride-on toys 5.6 Speed limitation of electrically-driven ride-on toys 8.29 Determination of maximum design speed of electrically-driven ride-on toys (see 4.15.1.2, 4.15.1.5, 4.15.1.8 and 5.6)	—

6.24.2 Seat requirements

In EN 71-1, electrical ride-on toys intended for use by children less than 6 years old shall be installed with a seat. There is no corresponding requirement in ISO 8124-1.

6.24.3 Determination of maximum design speed of electrically-driven ride-on toys

See Table 84 for an abbreviated comparison of the test for determination of maximum design speed of electrical ride-on toys.

Table 84 — Comparison of the determination of maximum design speed of electrically-driven ride-on toys

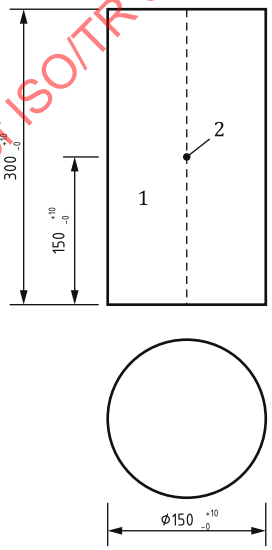
	ISO 8124-1:2014	EN 71-1:2014
Load weight	(25 ± 0,2) kg	Under 36 months:(25 ± 0,2) kg; Over 36 months:(50 ± 0,5) kg
Dimension specification of load	—	
Load placement	Toy normal sitting or standing position	a) Toy sitting or standing position. b) If the toy is intended to bear the mass of more than one child at a time, place the mass on the driver's sitting or standing surface.
Test plane	Horizontal surface	Horizontal plane with a surface that prevents skidding of the wheels (e.g. abrasive paper, asphalt or similar)

Table 84 *(continued)*

	ISO 8124-1:2014	EN 71-1:2014
Test procedure	—	The toy is set at the maximum speed setting, If the toy is equipped with two-position device with which the maximum design speed can be changed, the speed shall be determined with the device in the low-speed position and in the high-speed position. Determine the average speed with an accuracy of ±10 %. Carry out the test 3 times and determine the maximum value. The maximum value is the maximum design speed.
Requirement on speed limitation	Electrically driven ride-on toys shall have a maximum speed of 8 km/h.	Toys intended for children under 3 years: 6 km/h. Toys intended for children over 3 years, but under 6 years: 6 km/h or 8,2 km/h The higher speed (8,2 km/h) is applicable only if the toy is equipped with a two-position device which limits the maximum design speed to 6 km/h or less in one position. Toys intended for children of 6 years and over: 16 km/h
Warning	—	A warning regarding the age group for which the toy is intended, with regard to the limitations specified, either: — "Warning. This toy is unsuitable for children under 3 years due to its maximum speed.", or — "Warning. This toy is unsuitable for children under 6 years due to its maximum speed."

6.25 Toys containing a heat source

6.25.1 General

The clauses for toys containing a heat source are indicated in Table 85.

Table 85 — Clauses related to toys containing a heat source

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.24 Toys containing a heat source 5.18 Determination of temperature increases	4.21 Toys containing a non-electrical heat source 8.30 Measurement of temperature rises (see 4.21)	—

6.25.2 Exemption for toys containing a heat source

The texts for the exemptions in ISO 8124-1 and EN 71-1 are not identical (see Table 86). Light bulbs are specifically exempted from ISO 8124-1. However, EN71-1 has the statement: "requirements for toys containing an electrical heat source are given in EN 62115", therefore electrical light bulbs are also exempted from the heat source requirements in EN 71-1.

Table 86 — Exemptions for toys containing a heat source

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Burners in chemistry sets or related experimental kits, or light bulbs and similar items.	Burners and similar items in chemistry sets and experimental kits and similar items.	—

6.25.3 The perspective of toys containing a heat source

In ISO 8124-1, the scope of the requirements covers all toys containing a heat source. In EN 71-1, the scope of the requirements covers only toys containing non-electric heat source. EN71-1 has the statement: "requirements for toys containing an electrical heat source are given EN 62115". ASTM F963 does not mention toys containing non-electrical heat source.

6.25.4 Temperature rise of heat source

The requirements between ISO 8124-1 and EN 71-1 are almost the same except that EN 71-1, specifies one more material category of "glass or porcelain" for the limit of temperature rise of other accessible part of the toy. Refer to Table 87 for details.

Table 87 — Requirements for toys containing a heat source

ISO 8124-1:2014 (Toys containing a heat source)		**EN 71-1:2014** (Toys containing a non-electrical heat source)	
The temperature rise of all handles, knobs and similar parts which are likely to be touched by hand, shall not exceed the following values			
Parts made of metal	25 K	Parts of metal	25 K
Parts made of glass or porcelain	30 K	Parts of glass or porcelain	30 K
Parts made of plastics or wood	35 K	Parts of plastics or wood	35 K
The temperature rise of other accessible parts of the toy shall not exceed the following values			
Parts made of metal	45 K	Parts of metal	45 K
Parts made of other materials	55 K	Parts of glass or porcelain	50 K
		Parts of other materials	55 K

6.25.5 Test environment for toys containing a heat source

There is a minor difference in the test methods of ISO 8124-1 and EN 71-1, the details are specified in Table 88.

Table 88 — Comparison of test environment for toys containing a heat source

	ISO 8124-1:2014	**EN 71-1:2014**
Test environment	In an ambient draft-free atmosphere with a temperature of (21 ± 5) °C.	In an ambient temperature of (20 ± 5) °C

6.26 Liquid-filled toys

The clauses for liquid-filled toys are indicated in Table 89.

Table 89 — Clauses related to liquid-filled toys

ISO 8124-1:2014	**EN 71-1:2014**	**ASTM F963:2011**
4.25 Liquid-filled toys See E.38. 5.19 Leakage of liquid-filled toys B.3.5 Liquid-filled teethers and liquid-filled teething toys	5.5 Liquid-filled toys (see A.30) 8.15 Leakage of liquid-filled toys (see 5.5 and A.42) 7.12 Liquid-filled teethers (see 5.5)	4.3.6 Cosmetics, liquids, pastes, putties, gels, and Powders NOTE This requirement is for toy's toxicology.

a) In ISO 8124-1, there shall be no leakage of the contents of liquid-filled toys that contain inaccessible liquid which could result in a potential hazard before and after the test. If the liquid-filled toy leaks, the contents should be assessed for any potential hazard. In EN 71-1, there shall be no leakage of the contents nor any splitting or cracking of toys that contain inaccessible liquid, which could lead to

leakage of the contents before and after the test. Both standards carry a warning for liquid-filled toys not be placed in a freezer compartment. ASTM F963 contains no leakage test for liquid-filled toys.

b) Only ISO 8124-1 (see ISO 8124-1:2014, E.38) considers that the liquid is either aqueous or non-aqueous.

6.27 Mouth-actuated toys

The clauses for mouth-actuate toys are indicated in Table 90.

Table 90 — Clauses related to mouth-actuate toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.26 Mouth-actuated toys See E.39. 5.20 Durability of mouth-actuated toys	4.11 Mouth-actuated toys and other toys intended to be put in the mouth (see A.15) 8.9 Soaking test (see 4.11, 4.23.2, 5.1, 5.10 and 5.12) 8.17 Durability of mouth-actuated toys (see 4.11 and A.44)	4.6.2 Mouth-actuated toys 8.13 Test for mouth-actuated toys

a) EN 71-1:2014, 4.11 has been extended to address any removable or detachable component of such toys and of toys intended to be put in the mouth. ISO 8124-1:2014, 4.26 applies to the mouthpiece and loose object. ASTM F963:2011, 4.6.2 only applies to the loose object.

b) There is a durability test required for the mouthpiece of mouth-actuated toys in three standards.

ASTM F963 also requires the durability test to be performed on the air outlet which is capable of being inserted into or covered by the mouth. ISO 8124-1 and EN 71-1 require the durability test to be performed on the air outlet, if the air outlet is accessible.

c) Only EN 71-1 requires that mouth actuated toys be subjected to the soak test.

6.28 Toy roller skates, toy inline skates and toy skateboards

The clauses for toy roller skates, toy inline skates and toy skateboards are indicated in Table 91.

Table 91 — Clauses related to toy roller skates, toy inline skates and toy skateboards

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.27 Toy roller skates, toy inline skates and toy skateboards B.2.14 Toy roller skates, toy inline skates and toy skateboards	4.15.1.2 Warnings and instructions for use 7.10 Roller skates, inline skates, skateboards and certain other ride-on toys (see 4.15.1.2 and A.20) 7.16 Toys intended to bear the mass of a child (see 4.15.1.2, 4.15.2.2, 4.15.3 and 4.15.4)	—

ISO 8124-1 and EN 71-1 require toy roller skates, toy inline skates and toy skateboards intended for use by children weighing no more than 20 kg to carry a warning. In addition to the requirements mentioned above, EN 71-1 also requires a warning on such toys and their packaging due to their construction, strength, design or other factors, where they are not suitable for use by children of 36 months and over.

6.29 Percussion caps

The clauses for percussion caps are indicated in Table 92.

Table 92 — Clauses related to percussion caps

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.28 Percussion caps See E.40. B.2.18 Percussion caps	4.19 Percussion caps specifically designed for use in toys and toys using percussion caps (see A.24) 7.13 Percussion caps specifically designed for use in toys (see 4.19)	5.12 Toy caps

ISO 8124-1 and EN 71-1 both require percussion caps specifically designed for use in toy shall not produce flames, glowing parts or other debris which are potential eye injury hazards. See Table 93.

Table 93 — Differences in warnings for toy caps/percussion caps

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
The packaging of percussion caps shall carry a warning to not be used indoors or near eyes and ears and to not be carried loose in a pocket.	"Warning. Do not fire indoors or near eyes and ears. Do not carry caps loose in a pocket."	Warning as specified in 16 CFR 1500.86(a)(6)(i).
"Warning! Do not use close to the ear! Misuse may cause damage to hearing."	"Warning. Do not use close to the ear! Misuse may cause damage to hearing."	
"Do not fire indoors!"	"Do not fire indoors! Use only percussion caps recommended by the manufacturer."	

6.30 Acoustic requirements

6.30.1 General

The clauses for acoustic are indicated in Table 94.

Table 94 — Clauses related to acoustic

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.29 Acoustic requirements See E.42. B.2.19 Toys which produce high impulse noise 5.25 Determination of sound pressure levels	4.20 Acoustics (see A.25) 8.28 Determination of emission sound pressure levels (see 4.20) 7.14 Acoustics (see 4.19 and 4.20)	4.5 Sound-producing toys 8.19 Tests for toys which produce noise

NOTE Work is ongoing in ISO and ASTM regarding acoustic toys.

6.30.2 Scope for the acoustic

The scope of ISO 8124-1 and ASTM F963 are the same, but there are large differences with EN 71-1. For EN 71-1, toys that are clearly designed to emit sound, but do not belong to the 11 categories of toys, as illustrated in Table 95, shall be assessed as either table-top/or floor toy or handheld toy, whichever is the most appropriate. The acoustic requirement of EN 71-1 applies to all toys that are clearly designed to emit sound. ISO 8124-1 and ASTM F963 apply to a smaller subset of toy categories than EN 71-1. Child-actuated toys are excluded in ISO 8124-1 and ASTM F963.

6.30.3 Category

EN 71-1 classifies toys designed to emit sound into 3 exposure categories. The requirements of A-weighted time averaged emission sound pressure level LpA varies according to the exposure category, as well as different toy categories. For toys that do not fit clearly into a specific exposure category, the nearest, strictest exposure category should be used. In ISO 8124-1 and ASTM F963, for the requirements of A-weighted equivalent sound pressure level (LpAeq) of continuous sounds, the limits are decided by toy categories.

6.30.4 Rattle

In ISO 8124-1 and ASTM F963, rattle toys only need to be tested to Lcpeak. EN 71-1 applies both LpA and Lcpeak measurements on rattle toys.

6.30.5 Comparison of the acoustic requirements

See Table 95 for an abbreviated comparison of the requirements for acoustics between EN 71-1, ASTM F963 and ISO 8124-1.

Table 95 — Comparison of the acoustic requirements

Toy categories	LpAeq			LpCpeak			LpA max		
	ISO	ASTM	EN	ISO	ASTM	EN	ISO	ASTM	EN
Close-to-the-ear toys	65	65	60/65/70[a]	95	95	110	—	—	—
Cap-firing toys[c]	—	—	90	125[b]	125	125[c]	—	—	—
Rattles	—	—	85	115	115	110	—	—	—
Hand-held toys	85	85	80/85/90[a]	115	115	110	—	—	—
Table-top or floor toys	85	85	80/85/90[a]	115	115	110	—	—	—
Pull-along or push toys	—	—	—	115	115	110	85	—	80/85/90
Toys using head-phones or earphones	—	—	85	—	—	135	—	—	—
Squeeze toys	—	—	85	—	—	110	—	—	—
Percussion toys[c]	—	—	85	—	—	130	—	—	—
Wind toys	—	—	85/90[d]	—	—	110	—	—	—
Voice toys	—	—	80/85/90[a]	—	—	110	—	—	—

[a] The requirements are for exposure category 1, 2 and 3 respectively.

[b] The LpCpeak produced by cap-firing toys or explosion toys shall not exceed 125 dB. If exceeds 115 dB, the potential danger to hearing shall be drawn to the attention of the user by a warning.

[c] Percussion toys and cap-firing toys which produce high impulse sound levels, or their packing, shall carry the warning.

[d] The requirements are for exposure category 2 and 3 respectively.

6.30.6 Test method

Table 96 illustrates differences between the standards in the microphone distances, number of microphones, the measurement distance, microphone position, number of operators, and other test parameters.

Table 96 — Differences between the microphone distances, number of microphones, number of operators, and other test parameters

Toy type	Measurement parameter	
	ISO 8124-1:2014	EN 71-1:2014
Close-to-the-ear toys	a) Measure distance:(50 ± 0,5) cm b) Microphone position: 1	a) Measure distance: (50 ± 1) cm b) Microphone position: 6
Table-top or floor toys	a) Measure distance: 50 cm b) Microphone position: 5 (9 when the toy is larger than 100 cm)	a) Measure distance: (50 ± 1) cm b) Microphone position: 5 (9 when the toy is larger than 100 cm)
Hand-held toys	a) Measure distance: 50 cm b) Microphone position: 6	a) Measure distance:(50 ± 1) cm b) Microphone position: 6
Pull-along or push toys	a) Measure distance: w, of 25 cm or less, 50 cm w, of more than 25 cm, (40 + w/2) cm b) Microphone position: 2 c) Speed: 2 m/s or less	a) Measure distance: (40 + w/2) cm b) Microphone position: 2 c) Speed: 1 m/s or less
Cap-firing toys	a) Measure distance: (50 ± 1) cm b) Microphone position: 6	a) Measure distance: (50 ± 1) cm b) Microphone position: 6
Rattles	a) Measure distance: 50 cm b) Microphone position: 1 c) Microphone Mounting: above the ground 1,2 m d) Operator: 1 adult	a) Measure distance: (50 ± 1) cm b) Microphone position: 1 c) Microphone Mounting: at least 100 cm above the floor d) Operator: 3 adult
Squeeze toys	—	a) Measure distance: (50 ± 1) cm b) Microphone position: 1 c) Operator: 3 adult
Percussion toys	—	a) Measure distance: 50 cm b) Microphone position: For hand-held toys 6, For table-top or floor toys 5 c) Operator: 3 adult
Wind toys	—	a) Measure distance: 50 cm b) Microphone position: 5 c) Operator: 3 adult
Voice toys	—	a) Measure distance: 50 cm b) Microphone position: For hand-held toys 6, For table-top or floor toys 5
Toys using head-phones or earphones	—	Measure in an ear simulator

Compared to ISO 8124-1 and ASTM F963, EN 71-1 adds five kinds of toys into the scope, such as squeeze toys, percussion toys, wind toys, toys with headphones and voice toys. There are additional five test methods in EN 71-1 for these toy categories. Some kinds of toys require adults' operation during noise level measurement, such as squeeze toys, rattle toys, percussion toys and wind toys. EN 71-1 requires at least three adult operators to operate the toy during testing. For A-weighted time-averaged sound pressure level, it requires the operators to apply maximum force and operating frequency which obtained the maximum noise level when conducting a test. Noise level obtained in this way will be louder or have a higher decibel level than normal use, so the measured value should be subtracted by a

stated value before comparing it with the limit value. For C-weighted peak sound pressure level, since the sound pressure level is independent of time, it requires operators to apply greatest effort to operate the toy. The test result is considered the worst case scenario.

6.31 Toy scooters

The clauses for toy scooters are indicated in Table 97.

Table 97 — Clauses related to toy scooters

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.30 Toy scooters See E.44. 4.30.1 General	4.15.5 Toy scooters (see A.49) 4.15.5.1 General	—
4.30.2 Warnings and instructions for use B.2.20 Toy scooters	4.15.5.2 Warnings and instructions for use 7.18 Toy scooters (see 4.15.5.2)	—
4.30.3 Strength 5.26 Static strength for toy scooters 5.27 Dynamic strength for toy scooters 5.29 Strength of toy scooter steering tubes	4.15.5.3 Strength 4.15.1.3 Strength 8.21 Static strength (see 4.15.1.3, 4.15.1.5, 4.15.3, 4.15.4 and A.46) 8.22 Dynamic strength (see 4.15.1.3) 8.27 Strength of toy scooter steering tubes (see 4.15.5.3)	—
4.30.4 Stability 5.12.2 Sideways stability test, feet available for stabilization	4.15.1.4 Stability	—
4.30.5 Adjustable and folding steering tubes and handlebars 5.30 Resistance to separation of handlebar	4.15.5.4 Adjustable and folding steering tubes	—
4.30.6 Braking 5.28 Brake performance for toy scooters	4.15.5.5 Braking 8.26.3 Brake performance for toy scooters (see 4.15.5.5)	—
4.30.7 Wheel size	4.15.5.6 Wheel size	—
4.30.8 Protruding parts See E.13.	4.15.5.7 Protruding parts	—

NOTE ASTM F2264 sets up the test requirements on non-powered scooter, it covers non-powered scooter intended for children ages 5 years and older. But if non-powered scooter is intended for children less than 5 years, it also needs to meet the requirement of ASTM F963:2011, 4.15.

See Table 98 for the comparison of toy scooters between EN 71-1 and ISO 8124-1.

Table 98 — Comparison of toy scooters

	ISO 8124-1:2014	EN 71-1:2014
General	√	Same as ISO 8124-1
Warnings and instructions for use	√	Same as ISO 8124-1
Strength	√	Same as ISO 8124-1

Table 98 *(continued)*

	ISO 8124-1:2014	EN 71-1:2014
Stability	√	Same as ISO 8124-1
Adjustable and folding steering tubes	√	Same as ISO 8124-1
Handlebars	√	Comparing with ISO 8124-1, EN 71-1 does not have the requirement of resistance to separation of handlebar.
Braking	√	Same as ISO 8124-1
Wheel size	√	Same as ISO 8124-1
Protruding parts	√	Same as ISO 8124-1

6.32 Magnets and magnetic components

The clauses for magnets and magnetic components are indicated in Table 99.

Table 99 — Clauses related to magnets and magnetic components

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
4.31 Magnets and magnetic components See E.45.	4.23 Magnets (see A.51) 4.23.1 General	4.38 Magnets
4.31.1 Magnetic/electrical experimental sets intended for children 8 years and over B.2.21 Magnetic/electrical experimental sets for children 8 years and over 5.32 Magnetic flux index	4.23.3 Magnetic/electrical experimental sets intended for children over 8 years 8.35 Magnetic flux index (see 4.23.2 and 4.23.3)	4.38.1 4.38.2 8.24 Magnet test methods 8.24.1 Flux density measurement 8.24.2 Area measurement of the pole surface 8.24.3 Calculation 8.24.4 Magnet use and abuse testing
4.31.2 All other toys with magnets and magnetic components 5.31 Tension test for magnets 5.32 Magnetic flux index 5.33 Impact test for magnets 5.34 Soaking test for magnets	4.23.2 Toys other than magnetic/electrical experimental sets intended for children over 8 years 8.34 Tension test for magnets (see 4.23.2 and A.51) 8.35 Magnetic flux index (see 4.23.2 and 4.23.3) 8.9 Soaking test (see 4.11, 4.23.2, 5.1, 5.10 and 5.12)	4.38.3 5.17 Magnets

The requirements for magnets and magnetic components are similar in the three standards but their test methods are not identical.

a) In ISO 8124-1 and EN 71-1, wooden toys, toys intended to be used in water, and mouth-actuated toys shall be subjected to soaking test prior to the other tests. The parameters of water temperature for soaking test are different among these two standards, as shown in Table 100.

Table 100 — Differences in temperature of water for soaking test

	ISO 8124-1:2014	EN 71-1:2014
Water temperature	(21 ± 5) °C	(20 ± 5) °C

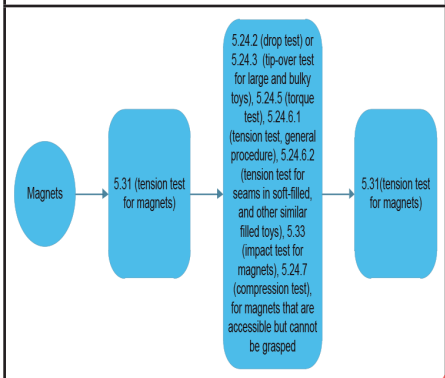
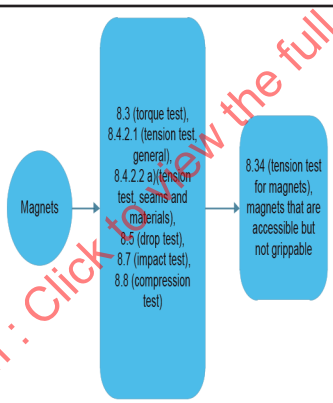
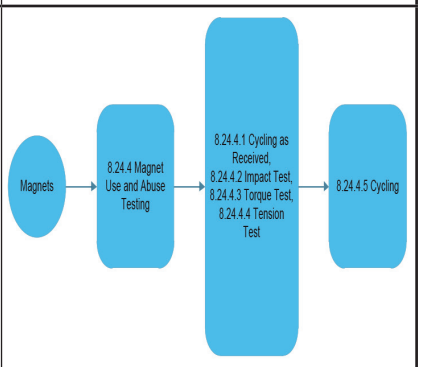
b) Differences between the gauss meter specifications are shown in Table 101.

Table 101 — Differences between the gauss meter specifications

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Resolution	5 G	5 G	5 gauss (G)
Accuracy	1,5 % or better	1,5 % or better	—
Active area diameter	(0,76 ± 0,13) mm	(0,76 ± 0,13) mm	(0,76 ± 0,13) mm
Distance between the active area and probe tip	(0,38 ± 0,13) mm	(0,38 ± 0,13) mm	(0,38 ± 0,13) mm
Probe type	Axial type probe	Axial type probe	Axial type probe

c) The comparisons of the test procedure are shown in Table 102.

Table 102 — Comparisons of the test procedure for magnets and magnetic components

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
		

d) The tension test for magnets in the three standards is mainly for stimulating the intended and reasonably foreseeable play pattern. The tension test for magnets is specified differently, and, the differences are indicated in Table 103.

Table 103 — Differences for tension test for magnets

	ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Scope	All unique magnetic component(s).	Magnets that are accessible but not grippable.	Each unique component that contain a hazardous magnet.
Toys that contain more than one magnet or magnetic component	Without damaging the toy, place the magnet or magnetic component in the orientation of attraction, as close as possible, making contact if possible, to the magnet to be tested. Gradually apply a pulling force to the magnet/magnetic component until it separates from the magnet under test. Perform the test 10 times or until the magnet under test is detached from the toy, whichever occurs first.	Without damaging the toy, place the magnet or magnetic component as close as possible to the magnet to be tested. Gradually apply a pulling force to the magnet/magnetic component until it separates from the tested magnet or until the magnet is detached from the toy. Perform the test 10 times.	One thousand (1 000) cycles of intended use shall be performed on the as-received magnetic parts or magnetic assemblies. The magnetic parts shall be brought together to a distance that initiates magnetic attraction, released, and then pulled apart to the distance where magnetic attraction ceases. Each attachment and detachment shall count as 1 cycle. If no other magnets or magnetic parts are provided with the toy, then the mating metal part or surface, according to the toy's intended play pattern, should be used for cycling purposes.
Toys that contain one magnet only and a mating metal component	Without damaging the toy, place the metal components as close as possible, making contact if possible, to the magnet to be tested. Gradually apply a pulling force to the metal component until it separates from the magnet under test. Perform the test 10 times or until the magnet under test is detached from the toy, whichever occurs first.	Without damaging the toy, place the flat part of the nickel disc (diameter 30 ± 0,5 mm; length 10 ± 0,5 mm) as close as possible to the magnet to be tested. Gradually apply a pulling force to the disc until it separates from the magnet or until the magnet is detached from the toy. Perform the test 10 times.	
Toys that contain one magnet only and no mating metal component	Without damaging the toy, place the flat part of the nickel disc (diameter 30 ± 0,5 mm; length 10 ± 0,5 mm) as close as possible to the magnet to be tested, making contact if possible. Gradually apply a pulling force to the disc until it separates from the magnet under test. Perform the test 10 times or until the magnet under test is detached from the toy, whichever occurs first.		

6.33 Toy-gun marking

The requirements of toy-gun marking are similar in ISO 8124-1 and ASTM F963, EN 71-1 has no corresponding requirement on toy-gun marking. Details are indicated in Table 104.

Table 104 — Clauses related to toy-gun marking

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
Annex D Toy gun marking	—	4.30 Toy gun marking

6.34 Yo-yo elastic tether toys (no reference in ISO 8124-1)

The clauses for yo-yo elastic tether toys are indicated Table 105.

Table 105 — Clauses related to yo-yo elastic tether toys

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	4.24 Yo-yo balls (see A.52) 8.37 Yo-yo balls measurements (see 4.24)	4.37 Yo-Yo elastic tether toys 8.23 Yo-Yo elastic tether toy test methods

NOTE Work is ongoing in ISO regarding yo-yo elastic tether toys.

There are requirements for the weight and length of the yo-yo elastic tether toy intended for children 36 months and over in ASTM F963 and EN 71-1. However, the requirements and testing method are quite different.

In EN 71-1:2014, 8.37.1, the initial length of the yo-yo ball tether shall not be greater than 370 mm when measured. And the ratio of the mass, m, to the elastic constant, k, of the yo-yo ball shall be less than 2,2 g when measured as described in EN 71-1:2014, 8.37.2, which can be ensured that the total length of the cord of the yo-yo ball during use will be less than 750 mm.

In ASTM F963, toys with an end mass greater than 0,02 kg (0,044 lb) shall have a tether length less than 50 cm (20 in.) measured when the toy is rotating at any speed up to a maximum speed of 80 r/min.

A requirement for yo-yo elastic tether toy is now establishing under a task group.

6.35 Toys attached to food

The clauses for toy attached to food are indicated in Table 106.

Table 106 — Clauses related to toy attached to food

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
B.2.8 – toys in contact with food	4.25 Toys attached to food 8.2 Small parts cylinder (see 4.6, 4.11, 4.18, 4.23.2, 4.23.3, 4.25, 5.1, 5.2 and A.36) 8.32 Small balls and suction cups test (see 4.17, 4.22, 4.25, 5.10 and 5.13)	—

EN 71-1 gives requirements for the toys attached to food and these requirements are intended to address the choking hazard associated with unintentional ingestion or inhalation of toys that are attached to food; the requirements do not apply to foodstuff for consumption.

6.36 Jaw entrapment in handles and steering wheels

The clauses for jaw entrapment in handles and steering wheels are indicated in Table 107.

Table 107 — Clauses related to jaw entrapment in handles and steering wheels

ISO 8124-1:2014	EN 71-1:2014	ASTM F963:2011
—	—	4.39 Jaw entrapment in handles and steering wheels

NOTE Work is ongoing in ISO regarding jaw entrapment in handles and steering wheels.