Designation: F3641 – 23

Standard Specification for Front-Mounted Bicycle Child Carriers (12 kg – 27 kg)[1]

This standard is issued under the fixed designation F3641; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers child carriers that position the child ahead of the rider and behind the handlebar of a bicycle. These child carriers transport children with a minimum weight of 12 kg and a maximum weight of 27 kg who are capable of sitting unaided.

1.2 *Units*—The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

B117 Practice for Operating Salt Spray (Fog) Apparatus

F2793 Specification for Bicycle Grips

2.2 *ANSI Standard:*[3]

ANSI Z535.6-2011(R2017) Safety Information in Product Manuals, Instructions, and Other Collateral Material

2.3 *ISO Standards:*[4]

ISO 8098:2023 Cycles — Safety requirements for bicycles for young children

2.4 *Federal Standards:*[5]

16 CFR 1500.44 Flammability – Method for determining extremely flammable and flammable solids

16 CFR 1500.48 Sharp Points – Technical requirements for determining a sharp point in toys and other articles intended for use by children under 8 years of age

16 CFR 1500.49 Sharp Edges – Technical requirements for determining a sharp metal or glass edge in toys and other articles intended for use by children under 8 years of age

3. Terminology

3.1 *Definitions:*

3.1.1 *additional guard, n*—guard that is always provided with the seat but does not satisfy the definition of an integral guard.

3.1.2 *armrest, n*—position where the child may rest their arms.

3.1.3 *backrest, n*—surface or backrest that will support the child's weight while seated and leaning backward.

3.1.4 *child carrier, n*—seating device, including all equipment and attached hardware that mounts to a bicycle, with a shape that is adapted to the seated position of a child and keeps the child in a comfortable position during a ride.

3.1.5 *footrest, n*—foot pad or platform where the child can rest their feet.

3.1.6 *footstrap, n*—foot retention mechanism.

3.1.7 *front-mounted child carrier, n*—child carrier that positions the child between the saddle and the handlebar.

3.1.8 *handlebar, n*—steering bar that is held by the rider.

3.1.9 *handrest, n*—platform or position where the child may rest their hands or a device they may hold.

3.1.10 *integral guard, n*—guard that is formed as part of the main unit.

3.1.11 *mounting, n*—method for connecting the seat of the child carrier to a dedicated mounting system, and then to the bicycle frame or parts of the bicycle.

[1] This test method is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.10 on Bicycles.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

[4] Available from International Organization for Standardization (ISO), ISO Central Secretariat, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, https://www.iso.org.

[5] Available from U.S. Government Publishing Office (GPO), 732 N. Capitol St., NW, Washington, DC 20401, http://www.gpo.gov.

3.1.12 *normal use, n*—applications described as intended use for the product found within the manufacturer's instructional literature.

3.1.13 *protective devices, n*—all devices that aid in the protection of the child.

3.1.14 *restraining device, n*—device or product that restricts the movement of the child.

3.1.15 *rider, n*—person who controls the bicycle to which the child carrier is attached and who is responsible for the safety of the child passenger.

3.1.16 *seat, n*—part of the child carrier where the child sits.

4. Requirements

4.1 *General:*

4.1.1 The child shall be able to support themselves with the child carrier and not be directly dependent on any part of the bicycle for stability while sitting in or on the child carrier seat.

4.1.2 The child carrier shall not prevent the rider from reaching around the child, holding the bicycle handlebars, or having an adequate field of view, and controlling the bicycle.

4.1.3 The child carrier shall be designed and manufactured to prevent the child or rider from coming into contact with anything that would cause injuries during normal use or when used in accordance with the manufacturer's instructions. Surfaces shall be free from burrs, sharp edges, and points; if such are present, they shall be covered by protective coverings.

4.1.4 The child carrier shall have sufficient size adjustment to fit children at both the upper and lower range of the weight limitation, at the 95 percentile of child-sizing charts.

4.1.5 The child carrier shall have an instruction manual included with the packaged unit.

4.1.6 The child carrier shall have instructions to inform the user of the necessary adjustments to achieve the correct fit onto a bicycle.

4.1.7 No openings that the child's hands can reach shall have dimensions larger than 6 mm nor smaller than 13 mm.

4.1.8 The child carrier shall have a maximum carrying capacity of 27 kg.

4.1.9 The child carrier shall prevent contact of hands and feet with rotational parts of the bicycle that could cause injury. This contact shall be prevented by design or with the addition of protective devices.

4.1.10 The manufacturer shall warn the rider that a load added to the bicycle will lessen the stability, braking performance and alter the riding characteristics of the bicycle.

4.2 *Mounting:*

4.2.1 When assembled in accordance with the manufacturer's instructions, the child carrier components shall be firmly attached to the bicycle.

4.2.2 If the means of attachment of the child carrier to the bicycle is within easy reach of the child and could be loosened by the child, then there shall be a secondary device to restrict movement of the child carrier either by providing an additional and independent attachment, or ensuring that loosening the primary attachment will not fully release the connection.

4.2.3 The child carrier and associated mounting hardware shall attach directly to the bicycle and may be attached to, but not be limited to, the top tube; the stem; or a combination of the seat post, seat tube, and top or down tube.

4.2.4 The child carrier and associated mounting hardware shall be securely fastened to prevent any rearward, rotational, or lateral movement of the seat or mounting hardware.

4.2.5 The mounting hardware shall not interfere with the function of the bicycle or its components.

4.3 *Materials:*

4.3.1 Plastics or other synthetic materials, if used, shall be stabilized against ultraviolet (UV) radiation and resistant to ozone.

4.3.2 The child carrier shall be protected against corrosion.

4.4 *Equipment:*

4.4.1 A seat shall be provided that ensures a flat seating position is available for the child.

4.4.2 The seating area shall accommodate the size of a seated child at both the upper and lower range of the weight limitation at the 95 percentile of child-sizing charts.

4.4.3 The seating surface shall have a minimum width of 120 mm.

4.4.4 The seating surface shall have a minimum length of 203 mm.

4.4.5 Footrests shall be provided that support the feet and have appropriate grip detail to limit a foot from slipping.

4.4.6 Footrests shall have height adjustment to provide both a comfortable foot position for the child and sufficient front wheel contact area clearance.

4.4.7 The footrest shall be designed to not cause a puncture injury to the child or rider.

4.4.8 The foot area shall be adequate for the size of a child with covered-in footwear at both the upper and lower range of the weight limitation of 95 percentile of child-sizing charts.

4.4.9 The footrest should have a minimum width of 25 mm.

4.4.10 Unless the design of the child carrier encloses the child's legs, foot retention straps shall be provided. The foot retention straps shall be at least 20 mm wide and adjustable.

4.4.11 If the child has the ability to remove their feet from the foot retention straps, then a secondary protection method shall be present to prevent foot entanglement with the wheels or other moving parts.

4.4.12 Handrests shall be provided. These handrests shall be designed to allow the child to grip and stabilize their upper body and be appropriately sized to fit children at both the upper and lower range of the weight limitation at the 95 percentile of child-sizing charts, but not so long as to allow the child to overpower the rider steering control.

4.4.13 The handrest shall be designed to not cause a puncture injury to the child or rider. If the design is applicable, then the handrest shall meet Specification F2793, Section 4, 4.1.2 Punch-out.

5. Testing Requirements

5.1 *Test Criteria:*

5.1.1 After testing in accordance with the sections outlined within this specification, the child carrier shall show no visible signs of fracture nor any deformation or displacement that