



Designation: F3317 – 20

Standard Consumer Safety Specification for Infant Floor Seats¹

This standard is issued under the fixed designation F3317; 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.

INTRODUCTION

This consumer safety specification addresses incidents associated with Infant Floor Seats that were identified by the US CPSC including injuries as a result of falls and tip-overs from both elevated and floor level surfaces. This specification does not cover infant floor seats that were either blatantly misused or used in a careless manner with disregard to the warning statements and safety instructions provided with each product. This specification is written within the current state-of-the-art of infant floor seat technology. It is intended that this specification will be updated whenever substantive information becomes available that necessitates additional requirements or justifies the revision of the existing requirements.

1. Scope

1.1 This consumer safety specification covers the performance requirements and methods of test to ensure the satisfactory performance of infant floor seats.

1.2 This consumer safety specification is intended to minimize injuries to children resulting from normal usage and reasonably foreseeable misuse or abuse of infant floor seats. This consumer safety specification is not intended to address accidents and injuries resulting from the interaction of older children with children in infant floor seats.

1.3 For purposes of this consumer safety specification, an infant floor seat is a seat which is placed on the floor that is intended to contain a child who can hold his/her head up unassisted (approximately 4 months of age) until the child can either walk (approximately 12 months of age) or get in and out of the product by themselves. An infant floor seat may include a tray, toys, or a restraint system. This consumer safety specification does not include pillow-like infant positioners that are generally constructed from fabric and stuffing for the purposes of positioning or lounging and do not have an active or passive restraint.

1.4 No infant floor seat produced after the approval date of this consumer safety specification shall, either by label or other

means, indicate compliance with this specification unless it conforms to all requirements contained herein.

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.6 The following precautionary caveat pertains only to the test method portion, Section 7, of this specification: *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.*

1.7 *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
[D3359 Test Methods for Rating Adhesion by Tape Test](#)
[F404 Consumer Safety Specification for High Chairs](#)
[F963 Consumer Safety Specification for Toy Safety](#)

¹ This consumer safety specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.16 on Highchairs, Hook-On Chairs and Expandable Gates.

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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.

F2167 Consumer Safety Specification for Infant Bouncer Seats

2.2 Federal Regulations:³

16 CFR 1500.48 Technical Requirements for Determining a Sharp Point in Toys or Other Articles Intended for Use by Children Under Eight Years of Age

16 CFR 1500.49 Technical Requirements for Determining a Sharp Metal or Glass Edge in Toys or Other Articles Intended for Use by Children Under Eight Years of Age

16 CFR 1501 Method for Identifying Toys and Other Articles Intended for Use by Children Under Three Years of Age Which Present Choking, Aspiration, or Ingestion Hazards Because of Small Parts

16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint Consumer Product Safety Improvement Act

2.3 ANSI Standards:

ANSI Z535.4 American National Standard for Product Safety Signs and Labels⁴

ANSI Z535.6 American National Standard for Product Safety Information in Product Manuals, Instructions, and Other Collateral Materials⁴

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 conspicuous, adj—visible, when the product is in the manufacturer’s recommended use position, to a person positioned near the infant floor seat at any one position around the seat but not necessarily from all positions.

3.1.2 double action release system, n—a mechanism requiring either two consecutive actions, the first of which must be maintained while the second is carried out, or two separate and independent simultaneous actions to fully release.

3.1.3 fabric, n—any woven, knit, coated, laminated, extruded, or calendered flexible material that is intended to be sewn, welded, heat sealed, or glued together as an assembly.

3.1.4 front torso support, n—a barrier extending horizontally across the seat of the product that is the primary support intended to restrict forward movement of the occupant’s torso and creates a completely or partially bounded opening in front of the occupant.

3.1.5 manufacturer’s recommended use position, n—any position that is presented as a normal, allowable, or acceptable configuration for the use of the product by the manufacturer in any descriptive or instructional literature.

3.1.5.1 Discussion—This specifically excludes positions that the manufacturer shows in a like manner in its literature to be unacceptable, unsafe, or not recommended.

3.1.6 nonpaper label, n—any label material, such as plastic or metal, which either will not tear without the aid of tools or tears leaving a sharply defined edge.

³ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

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

3.1.7 occupant, n—individual who is in a product that is set up in any of the manufacturer’s recommended use positions.

3.1.8 paper label, n—any label material which tears without the aid of tools and leaves a fibrous edge.

3.1.9 protective component, n—any component used for protection from sharp edges, points, or entrapment of fingers or toes.

3.1.9.1 Discussion—Examples of protective components include caps, sleeves, and plugs.

3.1.10 seam, n—means of joining fabric components, such as sewing, welding, heat sealing, or gluing.

3.1.11 seating surface, n—seat support surface for the occupant that exists between the side surfaces, seat back surface, and the INNER SURFACE of the passive crotch restraint.

3.1.12 static load, n—vertically downward load applied by weights or others means.

3.1.13 test surface, n—impregnated high-pressure laminate of unspecified color with a smooth matte finish.

4. Calibration and Standardization

4.1 All testing shall be conducted on a concrete floor that may be covered with 1/8 in. (3 mm) thick vinyl flooring covering, unless test instructs differently.

4.2 The product shall be completely assembled, unless otherwise noted, in accordance with the manufacturer’s instructions.

4.3 No testing shall be conducted within 48 h of manufacturing.

4.4 The product to be tested shall be in a room with ambient temperature of 73 °F ± 9 °F (23 °C ± 5 °C) for at least 1 h prior to testing. Testing shall then be conducted within this temperature range.

4.5 All testing required by this consumer safety specification shall be conducted on the same unit.

5. General Requirements

5.1 There shall be no hazardous sharp points or edges as defined by 16 CFR 1500.48 and 16 CFR 1500.49 before or after testing to this specification.

5.2 There shall be no small parts as defined by 16 CFR 1501 before testing or liberated as a result of testing to this specification.

5.3 Product shall comply with 16 CFR 1303 – Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint.

5.4 Product must comply with the applicable requirements of the Consumer Product Safety Improvement Act.

5.5 Prior to testing, any exposed wood parts shall be smooth and free from splinters.

5.6 Latching or Locking Mechanisms—If a product is designed with a latching or locking device that prevents unintentional folding, the product shall meet either **5.6.1** or **5.6.2**. The latching or locking device shall remain engaged and operative after all testing.

5.6.1 The latching or locking device shall be a double action release mechanism.

5.6.2 The latching or locking device shall not release and shall remain operative when tested in accordance with 7.2.

5.7 *Scissoring, Shearing, and Pinching*—The product, when in the manufacturer’s recommended use position(s), shall be designed and constructed to prevent injury to the occupant from any scissoring, shearing, or pinching when members or components rotate about a common axis or fastening point, slide, pivot, fold, or otherwise move relative to one another. Scissoring, shearing, or pinching that may cause injury exists when the edges of the rigid parts admit a probe greater than 0.210 in. (5.33 mm) and less than 0.375 in. (9.53 mm) diameter at any accessible point throughout the range of motion of such parts.

5.8 *Openings*—Holes or slots that extend entirely through a wall section of any rigid material less than 0.375-in. (9.53-mm) thick and admit a 0.210-in. (5.33-mm) diameter rod shall also admit a 0.375-in. (9.53-mm) diameter rod. Holes or slots that are between 0.210 in. and 0.375 in. (5.33 mm and 9.53 mm) and have a wall thickness less than 0.375 in. (9.53 mm) but are limited in depth to 0.375 in. (9.53 mm) maximum by another rigid surface shall be permissible (see Fig. 1). The product shall be evaluated in all manufacturer’s recommended use positions.

5.9 *Exposed Coil Springs*—Any exposed coil spring which is accessible to the occupant, having or capable of generating a space between coils of 0.210 in. (5.33 mm) or greater during static load testing in accordance with 7.4 shall be covered or otherwise designed to prevent injury from entrapment.

5.10 *Protective Components*—If the child can grasp components between the thumb and forefinger, or teeth, or if there is

at least 0.04 in. (1.0 mm) gap between the component and its adjacent parent component, such component shall not be removed when tested in accordance with 7.1. All protective components that are accessible to a child in the product or accessible to a child from any position around the product shall be evaluated.

5.11 *Labeling:*

5.11.1 Warning labels (whether paper or non-paper) shall be permanent when tested in accordance with 7.8.1 – 7.8.3.

5.11.2 Warning statements applied directly onto the surface of the product by hot stamping, heat transfer, printing, wood burning, etc. shall be permanent when tested in accordance with 7.8.4.

5.11.3 Non-paper labels shall not liberate small parts when tested in accordance with 7.8.5.

5.12 *Toys*—Toy accessories attached to, removable from, or sold with an infant floor seat, as well as their means of attachment, shall comply with the applicable requirements of Standard Consumer Safety Specification for Toy Safety F963.

5.13 If the infant floor seat can be converted into another product for which a consumer safety specification exists, the product shall comply with the applicable requirements of that standard.

6. Performance Requirements

6.1 *Stability:*

6.1.1 Products which include an active restraint system shall not tip over when tested in accordance with 7.3.1.

6.1.2 Products which do not include an active restraint system shall not tip over when tested in accordance with 7.3.2.

6.2 *Structural Integrity*—At test conclusion there shall be no failure of seams, breakage of materials, or changes of adjustments that could cause the product to not fully support the child or create a hazardous condition as defined in Section 5.

6.2.1 *Static Load*—The infant floor seat shall support a static load in accordance with 7.4 and not create any failures as listed in 6.2.

6.2.2 *Dynamic Load*—The infant floor seat shall support a dynamic load in accordance with 7.5 and not create any failures as listed in 6.2.

6.3 *Restraint*—The infant floor seat shall have a means of containing the occupant within the product. If the product includes an active occupant restraint system, the restraint system shall comply with the following:

6.3.1 The restraint system shall include both waist and crotch restraint designed such that the use of the crotch restraint is mandatory when the restraint system is in use.

6.3.2 The anchorages for the restraint system shall not separate from their attachment points when tested in accordance with 7.6.

6.3.3 Before shipment, the restraint system shall be completely attached to the seat in a manufacturer’s recommended use position and in such a manner as to not become detached through normal use.

6.4 *Bounded Openings*—Any completely bounded opening that exists in the front, sides, or back of the occupant seating

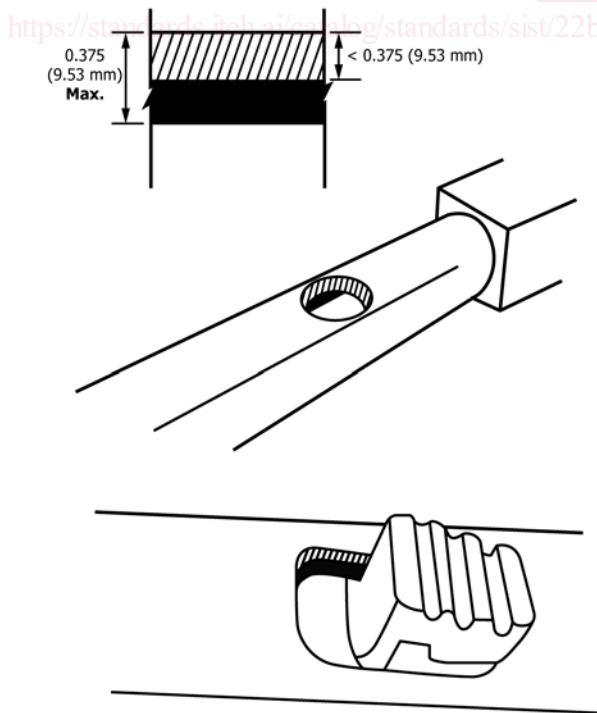


FIG. 1 Opening Example

area, or that is created when a tray, front torso support, or other accessory is attached to the product, shall not allow complete passage of the wedge block when tested in accordance with 7.7. During testing in accordance with 7.7, the tray, front torso support, or other accessory that creates all or any part of the bounded opening shall remain functional and shall not exhibit breakage.

7. Test Methods

7.1 Removal of Protective Components:

7.1.1 Any protective component shall be tested in accordance with each of the following methods in the sequence listed.

7.1.2 Secure the product so that it cannot move during the performance of the following tests.

7.1.3 *Torque Test*—Gradually apply a torque of 4 lbf-in. (0.5 N-m) over a period of 5 s to the component in a clockwise direction until a rotation of 180° from the original position has been attained or 4 lbf-in. (0.5 N-m) has been exceeded. The torque or maximum rotation shall be maintained for an additional 10 s. The torque shall then be removed and the test components permitted to return to a relaxed condition. This procedure shall then be repeated in the counter-clockwise direction.

7.1.4 Tension Test:

7.1.4.1 Attach a force gauge to the protective component by means of any suitable device. For components that cannot reasonably be expected to be grasped between thumb and forefinger, or teeth, on their outer diameter but have a gap of 0.04 in. (1.0 mm) or more between the rear surface of the component and the structural member of the product to which they are attached, a clamp such as shown in Fig. 2 may be a suitable device.

7.1.4.2 Be sure the attachment device does not compress or expand the component hindering any possible removal.

7.1.4.3 Gradually apply a force of 15 lbf (67 N) over a period of 5 s in the direction that would normally be associated with the removal of the protective component. Hold for an additional 10 s.

7.2 Single Action Release Mechanism:

7.2.1 Set up the product in the manufacturer’s recommended use position.

7.2.2 If the mechanism requires a pull or push action, gradually apply a force of 10 lbf (45 N) to the latching or locking mechanism in the direction tending to release it. Apply the force within 5 s and maintain for an additional 10 s.

7.2.3 If the mechanism requires a twist or turn action, gradually apply a torque of 4 lbf-in. (0.5 N-m) to the latching or locking mechanism in the direction tending to release it. Apply the torque within 5 s and maintain for an additional 10 s.

7.3 Stability Test:

7.3.1 Place the Infant Hinged Weight Gauge (Fig. 3) in the infant floor seat with the restraint system fastened in accordance with the manufacturer’s instructions. Adjust the waist restraint, using the webbing tension pull device shown in Fig. 4, so that a force of 2 lbf (9 N) applied to the waist restraint will provide a ¼ in. (6 mm) space between the waist restraint and the Infant Hinged Weight Gauge.

15 lb Max TENSION

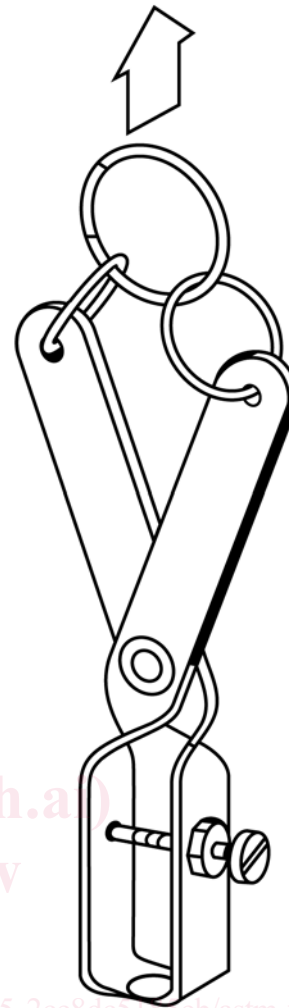


FIG. 2 Tension Test Adapter/Clamp

7.3.1.1 Assemble any positioning accessories (that is, inserts, pads, headrest), front torso support, or tray, or combinations thereof, in the most onerous configuration in accordance with the manufacturer’s instructions, noting that the most onerous configuration may be without any accessories, tray, or front torso support.

7.3.1.2 Position the infant floor seat in the most onerous, forward, sideward, or rearward position on the test surface inclined at 20°. The most onerous position could be a position in between the true sideward and rearward or forward positions. If necessary, place a stop on the test surface to prevent sliding during the test. The stop shall be low profile, minimum height required to prevent sliding, and shall not inhibit the tipping of the floor seat or affect the test results.

7.3.1.3 Maintain for 1 min.

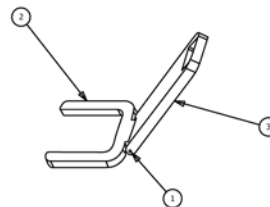
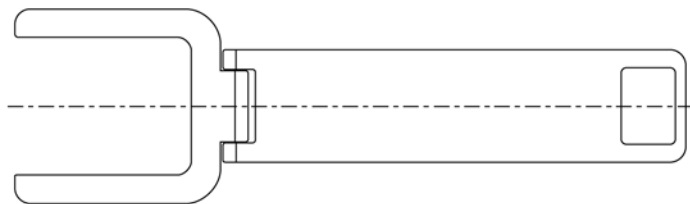
7.3.2 Place the Infant Hinged Weight Gauge (Fig. 3) in the infant floor seat with the hinge located at the lowest point of the seating area.

NOTE 1—Material that has negligible weight, such as EPS (expanded polystyrene) foam, may be used to position and stabilize the hinged weight during the test.



Hinged Weight Gauge - Infant

3	1	Upper Plate	MILD STEEL
2	1	Lower Plate	MILD STEEL
1	1	Dowel Pin	MILD STEEL
ITEM	QTY	PART NAME	MATERIAL



Assembled

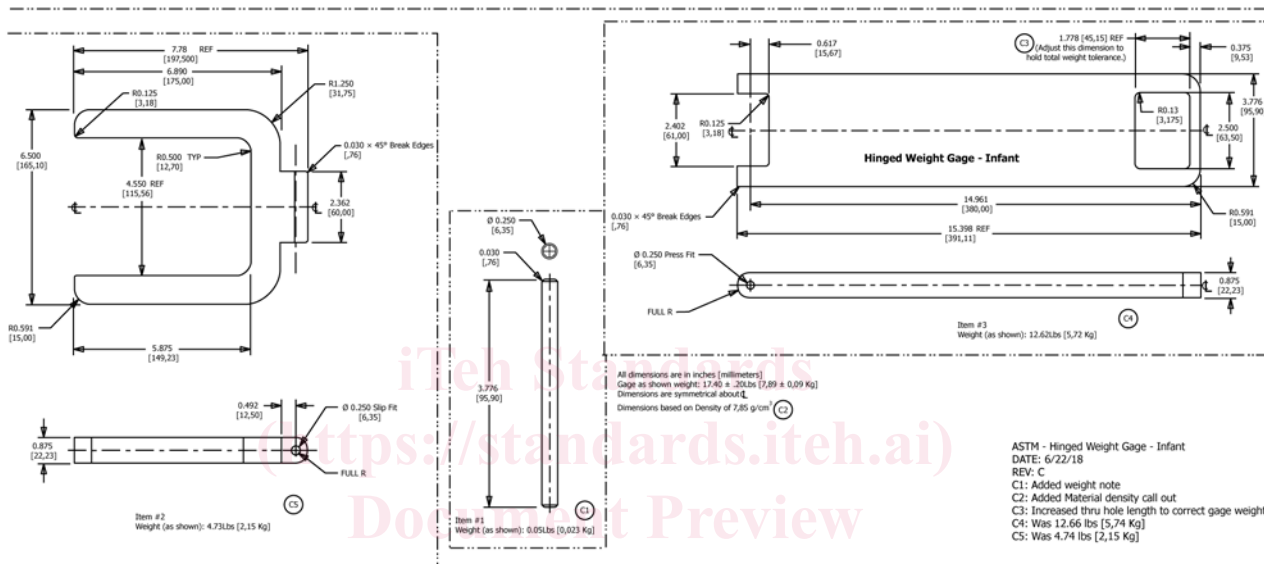


FIG. 3 Hinged Weight Gauge – Infant

ASTM F3317-20

<https://standards.iteh.ai/catalog/standards/sist/22bb73d9-bed7-46f5-a055-2ce8dc5185eb/astm-f3317-20>

7.3.2.1 Assemble any positioning accessories (that is, inserts, pads, headrest), front torso support, or tray, or combinations thereof, in the most onerous configuration in accordance with the manufacturer’s instructions, noting that the most onerous configuration may be without any accessories, tray, or front torso support. Place a stop on the test surface to prevent sliding during the test. The stop shall be low profile, minimum height required to prevent sliding, and shall not inhibit the tipping of the floor seat or affect the test results.

7.3.2.2 Position the infant floor seat in the rearward position on the test surface inclined at 35° against the stop. Maintain for 1 min.

7.3.2.3 Position the infant floor seat in the most onerous forward and sideward position on the test surface inclined at 20°. Maintain for 1 min.

7.4 Static Load Test:

7.4.1 Place product on the test surface in a horizontal orientation per the manufacturer’s instructions.

7.4.2 Place a load on the center of the seating surface using a 6 in. to 8 in. (150 mm to 200 mm) diameter bag filled with steel shot which has a total weight of 60 lb (27.3 kg) or three times the maximum weight of the child recommended by the manufacturer, whichever is greater. Additional weight(s), if

needed to obtain the proper load, may be stacked on the weight bag, but ensure that the total weight is applied in a vertical orientation to the seating surface. Gradually apply the load over a period of 5 s and maintain for an additional 60 s.

NOTE 2—If the product has multiple use modes, determine the proper load using only the recommended weight for the floor seat use mode.

7.5 Dynamic Load Test:

7.5.1 Place product on the test surface in a horizontal orientation per the manufacturer’s instructions, so it cannot move during the performance of the following tests.

7.5.2 If seat height is adjustable, set seat at the highest setting in accordance with manufacturer’s instructions.

7.5.3 Using a 6 to 8-in. (150 to 200 mm) diameter bag filled with steel shot that has a total weight of 40 lb (18 kg), drop the bag onto the center of the seating surface from a height of 1 in. (25 mm). The drop is to be repeated for a total of 100 cycles. The cycle time is to be 4 s/cycle, ±1 s. The drop height is to be adjusted to maintain the 1 in. (25 mm) drop height as is practical.

7.6 Restraint System:

7.6.1 Secure the infant floor seat so that it cannot move vertically or horizontally.

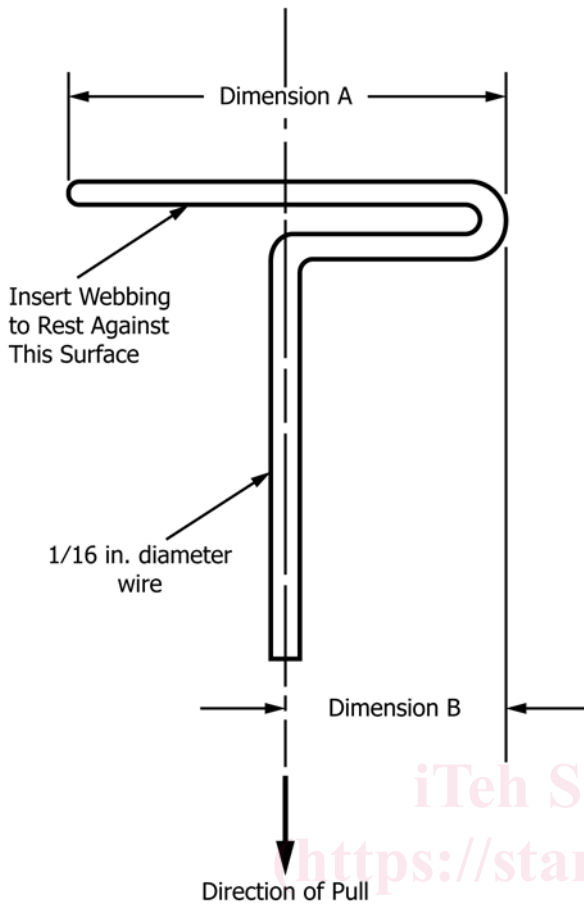


FIG. 4 Webbing Tension Pull Device

7.6.3 Repeat 7.6.2 for each attachment point of the restraint system.

7.7 Test for Completely Bounded Openings:

7.7.1 If the seat of any side or backrest is adjustable, adjust the seat and these other structures to obtain the largest opening.

7.7.2 Secure the product in its normal position on any horizontal surface so that it cannot move in the direction of the force being applied. Attach any tray, front torso support, or other accessories in position(s) that creates the largest opening(s).

7.7.3 Into each opening, insert the wedge block shown in Fig. 5 in the most adverse orientation. Gradually apply a force of 25 lbf (111 N) perpendicular to the base of the wedge block. The force shall be applied gradually within 5 s and maintained for an additional 10 s.

7.7.4 Repeat this procedure with any tray or accessory removed if a completely bounded opening exists after the component is removed.

7.8 Permanency of Labels and Warnings:

7.8.1 A paper label (excluding labels attached by a seam) shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed, it tears into pieces upon removal, or such action damages the surface to which it is attached.

7.8.2 A non-paper label (excluding labels attached by a seam) shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed or such action damages the surface to which it is attached.

7.8.3 A warning label attached by a seam shall be considered permanent if it does not detach when subjected to a 15 lbf (67 N) pull force applied in any direction most likely to cause failure using a 3/4-in. diameter clamp surface (see Fig. 6). Gradually apply the force over 5 s and maintain for an additional 10 s.

7.6.2 Apply a force of 45 lbf (200 N) to a single attachment point of the restraint system in the normal use direction(s) that stress would be applied to the attachment. Gradually apply the force within a period of 5 s and maintain for an additional 10 s.

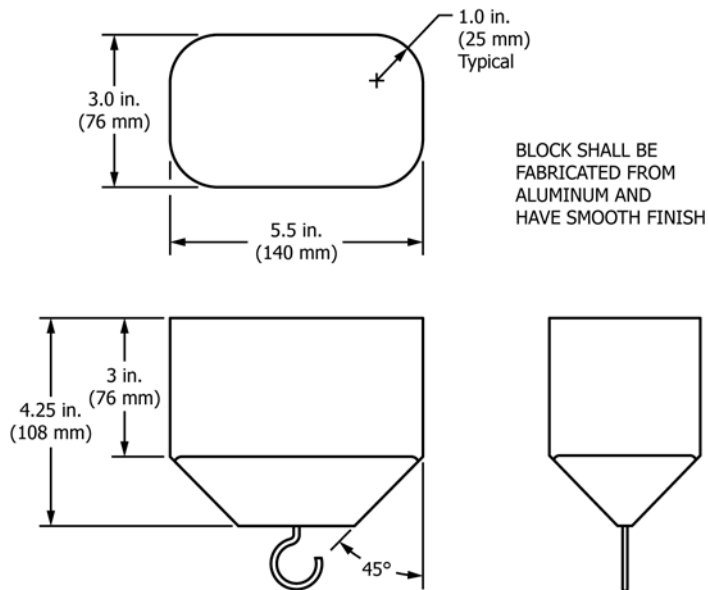


FIG. 5 Wedge Block

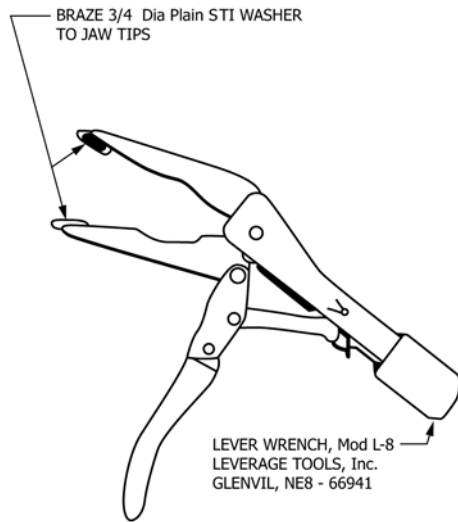


FIG. 6 Tension Clamps

7.8.4 Adhesion test for warnings applied directly onto the surface of the product.

7.8.4.1 Apply the tape test defined in Test Method B—Cross-Cut Tape Test of Test Methods D3359 eliminating parallel cuts.

7.8.4.2 Perform this test once in each different location where warnings are applied.

7.8.4.3 The warning statements will be considered permanent if the printing in the area tested is still legible and attached after being subjected to this test.

7.8.5 A non-paper label, during an attempt to remove it without the aid of tools or solvents, shall not be removed or shall not fit entirely within the small parts cylinder defined in 16 CFR 1501 if it can be removed.

8. Marking and Labeling

8.1 Each product and its retail package shall be marked or labeled clearly and legibly to indicate the following:

8.1.1 The name, place of business (city, state, and mailing address, including zip code) and telephone number of the manufacturer, distributor, or seller.

8.1.2 A code mark or other means that identifies the date (month and year as a minimum) of manufacture.

8.2 The markings on the product shall be permanent.

8.3 Any upholstery labeling required by law shall not be used to meet the requirements of this section.

8.4 Warning Design for Product:

8.4.1 The warnings shall be easy to read and understand and be in the English language at a minimum.

8.4.2 Any marking or labeling provided in addition to those required by this section shall not contradict or confuse the meaning of the required information, or be otherwise misleading to the consumer.

8.4.3 The warnings shall be conspicuous and permanent.

8.4.4 The warnings shall conform to ANSI Z535.4 – 2011, 6.1 – 6.4, 7.2 – 7.6.3, and 8.1, with the following changes:

8.4.4.1 In 6.2.2, 7.3, 7.5, and 8.1.2, replace “should” with “shall.”

8.4.4.2 In 7.6.3, replace “should (when feasible)” with “shall.”

8.4.4.3 Strike the word “safety” when used immediately before a color (for example, replace “safety white” with “white”).

8.4.5 The safety alert symbol and the signal word “WARNING” shall be at least 0.2 in. (5 mm) high. The remainder of the text shall be in characters whose upper case shall be at least 0.1 in. (2.5 mm), except where otherwise specified.

NOTE 3—For improved warning readability, typefaces with large height-to-width ratios, which are commonly identified as “condensed,” “compressed,” “narrow,” or similar should be avoided.

8.4.6 Message Panel Text Layout:

8.4.6.1 The text shall be left aligned, ragged right for all but one-line text messages, which can be left aligned or centered.

NOTE 4—Left aligned means that the text is aligned along the left margin, and, in the case of multiple columns of text, along the left side of each individual column. Please see Fig. X1.1 in Appendix X1 for examples of left aligned text.

8.4.6.2 The text in each column should be arranged in list or outline format, with precautionary (hazard avoidance) statements preceded by bullet points. Multiple precautionary statements shall be separated by bullet points if paragraph formatting is used.

8.4.7 An example warning in the format described in this section is shown in Fig. 7. The warning statements’ wording content, as well as the use of underlining, capital lettering, italics, or bold typeface, or a combination thereof, are at the discretion of the manufacturer.

8.5 Warning Statements—Each product shall have warning statements to address the following, at a minimum.

NOTE 5—Address means that verbiage other than what is shown can be used as long as the meaning is the same or information that is product-specific is presented.

8.5.1 **FALL HAZARD:** Infants have suffered skull fractures falling while in and from floor seats.

- Use **ONLY** on the floor.
- **NEVER** use on an elevated surface.
- **ALWAYS** use restraints. Adjust to fit snugly. [required only if the product includes an active restraint system]
- **NEVER** lift or carry child in the product.
- Use **ONLY** with a child that is able to hold their head up unassisted.
- **STOP** using when the child can climb out or walk.
- **ALWAYS** keep child in view while in product.

8.5.2 **DROWNING HAZARD:** Infants have drowned when floor seat has been placed in a bath tub or pool.

- **NEVER** use in or near water.

9. Instructional Literature

9.1 Instructions shall be provided with the product in written form, shall be easy to read and understand and shall be in the English language at a minimum. These instructions shall include information on assembly, maintenance, cleaning, and use, where applicable.

9.2 The instructions shall contain the warning statements as defined in 8.5.