



Consumer Safety Specification for Sling Carriers¹

This standard is issued under the fixed designation F2907; 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 is intended to address incidents reported by the U.S. Consumer Product Safety Commission (CPSC) relating to sling carriers. In response to the incident data compiled by the CPSC, this consumer safety specification attempts to minimize the hazards associated with these products from the following: (1) occupant retention, (2) deficiency of consumer education regarding product use. This consumer safety specification is intended to deal with reasonably foreseeable use and misuse of the products. (This consumer safety specification does not apply to products that are blatantly misused, nor does it apply to products used by consumers in a careless manner that violate normal practice or disregard the instructions or warnings provided with the product, or both.)

1. Scope

1.1 This consumer safety specification establishes performance requirements, test methods and marking requirements to promote safe use of sling carriers.

1.2 This consumer safety specification is intended to minimize the risk of injury to an occupant from the normal use and reasonably foreseeable misuse of products.

1.3 For purposes of definition, a sling carrier is a product of fabric or sewn fabric construction, which is designed to contain a child from birth (full term infant weighing 8 lb (3.6 kg) or more) through 35 lb (15.9 kg), in an upright or reclined position, while being supported by the caregiver's torso.

1.4 The sling carrier is normally "worn" by the caregiver, and thus the child is supported from one or both shoulders of the caregiver. These products are worn on the front, hip or back of the caregiver, with the child either facing towards or away from the caregiver or reclined on the front only of the caregiver.

1.5 No sling carrier produced after the approval date of this consumer safety specification shall, either by label or other means, indicate compliance with the specification unless it complies with all of the requirements contained herein.

1.6 This consumer safety specification is not intended to address incidents and injuries resulting from the interaction of other persons or objects with the caregiver and child while the sling carrier is in use.

1.7 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.

1.8 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D3359 Test Methods for Measuring Adhesion by Tape Test

2.2 Federal Regulations:³

16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Product Bearing Lead-Containing Paint

16 CFR 1500.44 Method for Determining Extremely Flammable and Flammable Solids

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

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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

¹ This test method is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.21 on Infant Carriers, Bouncers and Baby Swings.

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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

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *attachment system, n*—fastenings, straps, hoops, buckles or similar parts which are fitted to the sling carrier for the purpose of securing the article to the caregiver's torso.

3.1.2 *conspicuous, adj*—visible when the product is in the manufacturer's use position to a caregiver who is placing the occupant in the sling carrier or when the caregiver places the product on his or her body.

3.1.3 *dynamic load, n*—application of impulsive force through free fall of a weight.

3.1.4 *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.

3.1.5 *full term infant, n*—a baby born 38+ weeks after conception.

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

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

3.1.7 *non-paper label, n*—any label material (such as plastic or metal) that either will not tear without the aid of tools or tears, leaving a sharply defined edge.

3.1.8 *occupant, n*—individual who is placed or carried in the sling carrier in one of the manufacturer's recommended use positions in accordance with 1.4.

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

3.1.10 *reclined, n*—any position other than upright.

3.1.11 *restraint system, n*—a means of securing the occupant in any of manufacturer's recommended use positions.

3.1.12 *seam, n*—a place where fabric components are joined, by means such as sewing, welding, heat sealing, or gluing.

3.1.13 *static load, n*—a force applied by a calibrated force gage or by dead weights.

3.1.14 *support area, n*—the area in the sling carrier where the occupant's weight rests in the product in either a sitting or reclining position.

4. Calibration and Standardization

4.1 The product shall be completely assembled in accordance with the manufacturer's instructions.

4.2 No testing shall be conducted within 48 h of manufacture.

4.3 The product to be tested shall be at an ambient temperature of $73 \pm 9^\circ\text{F}$ ($23 \pm 5^\circ\text{C}$) for at least one hour before testing. All testing shall be conducted in this temperature range.

4.4 All testing required by this consumer safety specification shall be conducted on the same unit in the order presented in this specification, except where directly indicated.

5. General Requirements

5.1 *Laundering*—The sling shall be washed and dried twice in accordance with the manufacturer's instructions. Any resulting shrinkage shall not prevent any removable parts from being refitted without damaging the seams of the fabric and shall not impair the performance and use of the article. *This test will be the first test conducted on the fabric.*

5.2 *Hazardous Sharp Points or Edges*—There shall be no sharp points or edges as defined by 16 CFR 1500.48 and 16 CFR 1500.49 before and after testing.

5.3 *Small Parts*—There shall be no small parts as defined by 16 CFR 1501 before testing or liberated as a result of testing to this specification.

5.4 *Lead in Paint*—The paint or surface coating on the product shall comply with 16 CFR 1303.

5.5 *Wood Parts*—Prior to testing, any wooden parts shall be smooth and free of splinters.

5.6 *Locking and Latching*—Any product designed with a locking or latching attachment system must remain in the manufacturer's recommended use position before and after completion of all tests in this standard.

5.7 *Labeling*—Warning labels (whether paper or non-paper) shall be permanent when tested in accordance with 7.3.

5.7.1 Warning statements applied directly onto the surface of the product by hot stamping, heat transfer, printing, wood burning, and so forth shall be permanent when tested in accordance with 7.4.

5.7.2 Non-paper labels shall not liberate small parts when tested in accordance with 7.4.

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. (5.33 mm) and 0.375 in. (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 manufacturers' recommended use positions.

5.9 *Scissoring, Shearing, and Pinching*—A product, when in a manufacturer's recommended use position, shall be designed and constructed so as 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 shall not be permissible when the edges of any 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.

5.10 *Monofilament Threads*—Monofilament threads shall not be used.

5.11 *Flammability*—Fabrics and plastics shall not produce any flash effect when tested in accordance with 16 CFR 1500.44(c) (6) (vi). This test will be the last test conducted on the fabric.

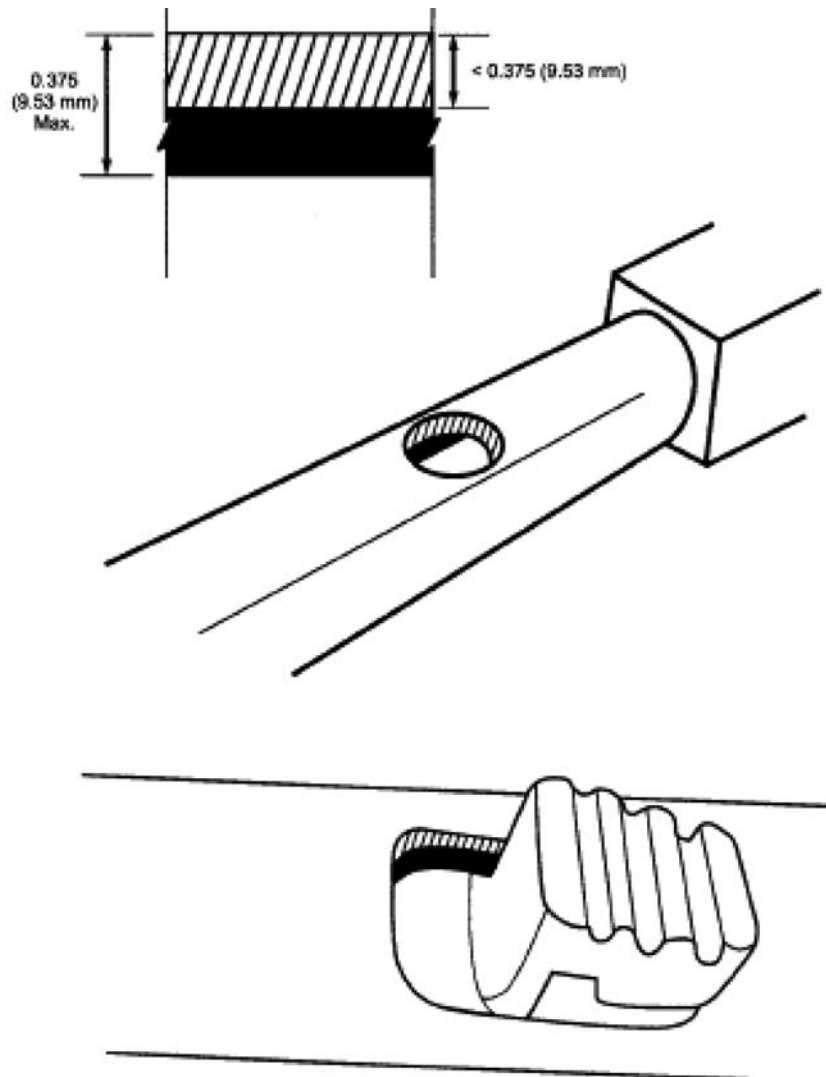


FIG. 1 Opening Example

6. Performance Requirements

6.1 *Structural Integrity*—At test conclusion, there shall be no seam separation, breakage or disengagement of attachment systems, or a hazardous condition as defined in Section 5. Adjustable attachment systems of the sling carrier shall not slip more than 1 in. (25.44 mm) per element.

6.1.1 *Static Load*—The sling carrier shall support a static load when tested in accordance with 7.1.

6.1.2 *Dynamic Load*—The sling carrier shall support a dynamic load when tested in accordance with 7.2.

6.2 *Restraint System*—If the manufacturer includes a restraint system on the product:

6.2.1 The restraint system shall include both waist and crotch restraint, where the crotch restraint's use is mandatory when the waist restraint system is in use.

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

6.3 *Occupant Retention*:

6.3.1 When tested in accordance with 7.5, after 90 cycles the maximum slippage of the attachment system and the restraint system (if applicable) shall be 1 in.

6.3.2 When tested in accordance with 7.5, after the completion of 1000 cycles the attachment system and the restraint system (if applicable) shall not be released.

7. Test Methods

7.1 *Static Load Test*:

7.1.1 Fasten the sling carrier to a test torso (see Fig. 2) as directed in the instruction manual supplied with the product. If the sling carrier is manufactured in multiple sizes, the size that fits the test torso is the required size for the sample submission.

7.1.2 Using a 6 in. (150 mm) standard weld cap (see Fig. 3), center a weight equal to three times the maximum manufacturer's recommended weight in the support area of the sling carrier. Include the weight of the weld cap in the total. Gradually apply the weight within a 5-s period and maintain for an additional 1 min.

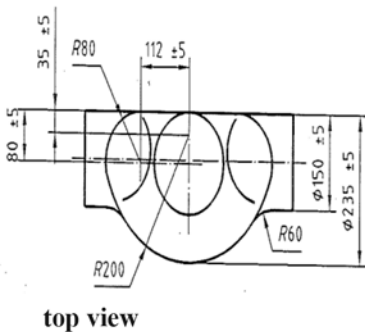
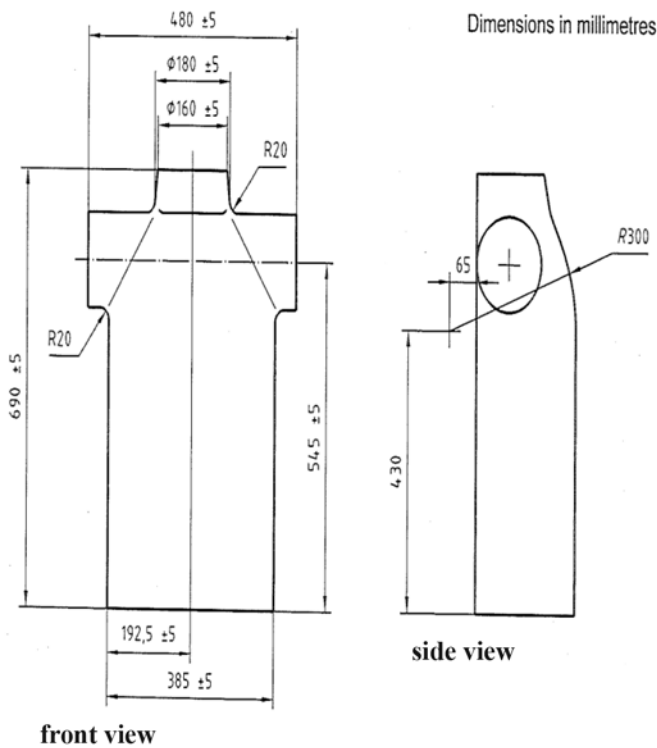


FIG. 2 Test Torso

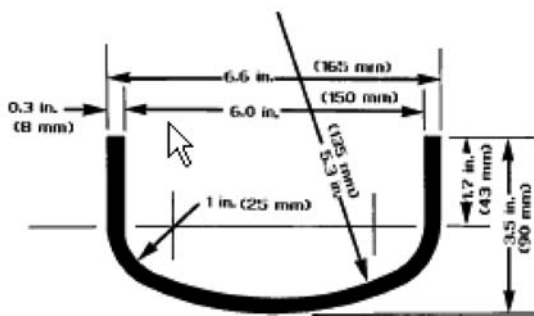


FIG. 3 Standard 6 in. (150 mm) Weld Cap

7.1.3 Repeat 7.1.1 and 7.1.2 for all manufacturers' recommended use positions.

7.2 Dynamic Load Test:

7.2.1 Fasten the sling carrier to a test torso (see Fig. 2) as directed in the instruction manual supplied with the product. If the sling carrier is manufactured in multiple sizes, the size that fits the test torso is the required size for the sample submission.

7.2.2 Position a weight of 35 lb (15.9 kg) using a 6 to 8 in. diameter shot bag a distance of 1 in. (25 mm) above the support area of the sling carrier. Drop the weight onto the support area ten times with a cycle time of 4 ± 1s/cycle to preset the attachment system. By some appropriate means, mark the position of the attachment system. If sling does not have any hardware and is fastened by means of fabric, mark the position on the fabric. This will be the start point of the remainder of the test.

7.2.3 Drop the weight onto the support area an additional 1000 times with a cycle time of 4 ± 1s/cycle. If the sling, according to manufacturer's instructions, has more than one usage position, the 1000 cycles will be divided among the different usage positions.

7.3 Permanency of Labels and Warnings:

7.3.1 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.

7.3.2 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.

7.3.3 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 0.75 in. (19 mm) diameter clamp surface (see Fig. 4). Gradually apply the force over 5 s and maintain for an additional 10 s.

7.4 Adhesion Test for Warnings Applied Directly onto the Surface of the Product:

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

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

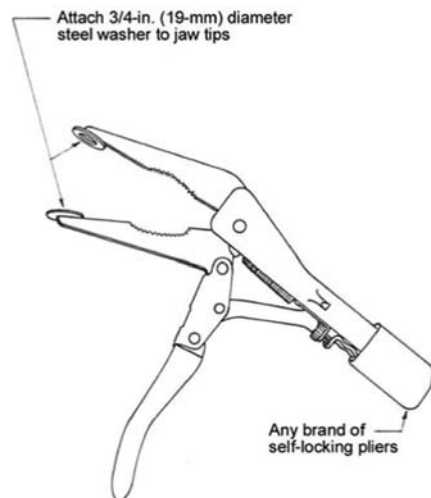


FIG. 4 Label Permanency Test Clamp

7.4.3 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.

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

7.5 *Occupant Retention Test:*

7.5.1 *Test Equipment:*

7.5.1.1 *Test Torso*—A rigid test torso with dimensions as specified in **Fig. 2** fitted on a rigid plate. The plate shall be subjected to an alternating vertical sinusoidal movement through 4.75 ± 0.25 in. at a frequency of 2 Hz (± 10 %).

7.5.1.2 *Test Masses*—Test mass A is a bag filled with sand to a total mass of 20 lb, the shape and size of which are adjustable so that it can be firmly restrained by the sling carrier. This test mass is for use for testing sling carriers intended for children up to and including 20 lb.

7.5.1.3 Test mass B is a bag filled with sand to a total mass of 35 lb, the shape and size of which is adjustable so that it can be firmly restrained by the sling carrier. This test mass is used for testing sling carriers intended for children over 20 lb.

7.5.2 *Test Procedure*—Place the sling on the test torso in accordance with the manufacturer’s instructions. Select either test mass A or test mass B. Place the appropriate test mass into the sling carrier and firmly secure any restraint system (if applicable). Carry out the test for 10 cycles. Mark all straps to enable measurement of slippage of straps in buckles or other devices. Carry out the test for 90 additional cycles and measure any slippage. Carry out the test for a further 900 cycles. If the sling, according to manufacturer’s instructions, has more than one usage position, divide those 900 cycles equally among the different use positions.

7.6 *Restraint System:*

7.6.1 Secure the sling carrier to a horizontal test plane so that it cannot move vertically or horizontally.

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 that attachment. Gradually apply the force within 5 s and maintain for an additional 10 s.

7.6.3 Place a CAMI Infant Dummy, Mark II in the carrier with the restraint system adjusted in accordance with the manufacturer’s instructions.

7.6.4 Apply a pull force of 45 lbf (200 N) horizontally on the approximate centerline of either leg of the dummy (at the ankle). Gradually apply the force within 5 s and maintain for an additional 10 s.

7.6.5 Repeat this procedure five times with a maximum interval of 5 s between tests.

8. Marking and Labeling

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

8.1.1 Name and principal place of business (city, state, and mailing address, including zip code and telephone number) and website, if applicable, of either the manufacturer, importer, distributor, or seller.

8.1.2 Model number, stock number, catalog, item number, or other symbol that identifies the specific sling carrier.

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

8.2 Any upholstery label required by law shall not be used to meet the requirements outlined in **8.1**.

8.3 Each sling carrier shall be labeled with warning statements. Warning statements shall be easy to read and understand. The warning statements shall be in contrasting color(s), permanent, conspicuous, and in sans serif font.

8.3.1 In warning statements, the safety alert symbol Δ and the word “WARNING” shall not be less than 0.2 in. (5 mm) high and the remainder of the text shall be at least 0.1 in. (2.5 mm) high.

8.3.2 The following warning statement shall be included exactly as stated below:

WARNING – Failure to follow the manufacturer’s instructions can result in death or serious injury.

8.3.3 Additional warnings shall address the following:

SUFFOCATION HAZARD

- Ensure the infant’s face is above the fabric, visible, and free from obstructions at all times.

- Babies at greatest risk of suffocation include those born prematurely, those with respiratory problems and those under four months of age.

- Ensure the baby does not curl into a “C” position with the chin resting on or near the chest. This position can interfere with breathing, even if nothing is covering the nose or mouth.

FALL HAZARD – Leaning, bending over, or tripping can cause baby to fall. Keep one hand on baby while moving.

Follow the manufacturer’s recommended weight range when using this carrier. Never use this carrier for a preterm infant without seeking the advice of a healthcare professional.

8.3.4 A pictogram comparing proper infant positioning with improper infant positioning, such as the example in **Fig. 5**, must be included on the warning label.

9. Instructional Literature

9.1 Instructions shall be provided with the sling and shall be easy to read and understand. These instructions shall include information on assembly, adjustment, restraint system (if applicable), maintenance, cleaning, storage and use.

9.2 Instructions shall contain an image—pictogram, photograph, or drawing—of each manufacturer recommended use position.

9.3 Instructions shall contain ALL warnings in **8.3**. In addition, instructions shall address the following:

9.3.1 Read and follow all printed instructions and view instructional videos (if applicable) before use.

9.3.2 Check for ripped seams, torn straps or fabric and damaged hardware before each use.

9.3.3 Ensure that the baby is safely positioned in the sling carrier according to manufacturer’s instructions for use.

9.3.4 Never leave a baby in a sling carrier that is not being worn.

9.3.5 Check on the baby often. Ensure that the baby is periodically repositioned.

9.3.6 If using the sling while breast feeding, always move the baby’s face away from the breast after the baby is done feeding.

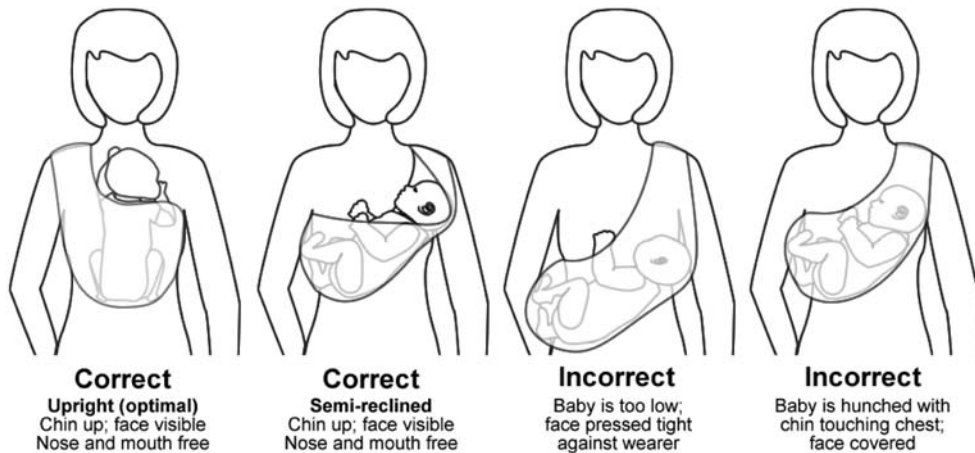


FIG. 5 Example Positioning Pictogram

9.3.7 Never use a sling carrier when balance or mobility is impaired because of exercise, drowsiness, or medical conditions.

9.3.8 Never place more than one baby in the sling carrier. Never use/wear more than one carrier at a time.

9.3.9 Never use sling carrier while engaging in activities such as cooking and cleaning which involve a heat source or exposure to chemicals.

9.3.10 Never wear sling carrier while driving or being a passenger in a motor vehicle.

10. Keywords

10.1 sling carrier

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