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# **Baby carriers**

婴幼儿背带 (袋)

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### **Baby carriers**

## 1 Scope

This document specifies the requirements, instructions for use, inspection rules, as well as marking, packaging, transportation and storage of baby carriers, and describes the corresponding inspection methods.

This document applies to carriers used by babies who have a certain degree of head support and can be attached vertically to an adult's torso (ages  $4 \sim 36$  months).

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB/T 5456, Textiles - Burning behaviour - Flame spread properties of vertically oriented specimens

GB 6675.2-2014, Safety of toys - Part 2: Mechanical and physical properties

GB/T 15557, Standard terminology relating to apparel

GB/T 17593 (all parts), Textiles - Determination of heavy metals

GB 18401-2010, National general safety technical code for textile products

GB/T 20388, Textiles - Determination of the phthalate content - Tetrahydrofuran method

GB/T 21294, Testing methods of physical and chemical performance of garments

GB/T 22048, Determination of certain phthalate esters in toys and children's products

GB/T 23315-2009, Touch and close fasteners

GB/T 24121, Textile products - Determination of the remains of broken sewing needle

GB/T 30157, Textiles - Determination of total content of lead and cadmium

GB 31701, Safety technical code for infants and children textile products

#### 4.3.9 Overall bearing strength of the product

After testing according to 5.3.8, there shall be no damage or tearing of joints, fasteners, strips and other structures.

#### 4.4 Overall combustion performance of the carrier

Test the overall combustion performance of the carrier in accordance with 5.4, and the flame spread rate shall be less than or equal to 30 mm/s. When the flame spread rate is less than 10 mm/s, it means that the carrier can be used normally; when the flame spread rate is between  $10 \text{ mm/s} \sim 30 \text{ mm/s}$ , a warning shall be set on the carrier or its packaging, "Warning: Do not approach fire"; when the flame spread rate is greater than 30 mm/s, the combustion performance of the carrier is unqualified and it is prohibited to use.

#### 4.5 Rope belt

- **4.5.1** The free end length of ropes, straps and similar components shall not exceed 220 mm, see Figure 3 a) and b).
- **4.5.2** If ropes, straps and similar components are connected together at the same position on the product or the interval shall not exceed 80 mm, the free end length of any rope shall not exceed 220 mm, and the length from one free end to the other free end shall not exceed 360 mm; see Figure 3 c).
- **4.5.3** Where ropes, straps and similar components are likely to form loops, their circumference shall not exceed 360 mm.
- **4.5.4** The requirements of  $4.5.1 \sim 4.5.3$  do not apply if the width of ropes, straps and similar components is not less than 19 mm.
- **4.5.5** Monofilament wire shall not be used.

**Note:** Monofilament wire refers to a single filament or single thread.

Dimensions in millimeters



a) Schematic diagram of the connection requirements for single free-end rope

#### 5.2.1 Textile fabrics

- **5.2.1.1** The formaldehyde content, pH, odor, degradable carcinogenic aromatic amine dyes and color fastness of textile fabrics on the carriers shall be tested in accordance with the provisions of GB/T 21294.
- **5.2.1.2** For textile fabrics on the carriers, the total lead and total cadmium content in heavy metals shall be tested in accordance with the provisions of GB/T 30157, the extractable heavy metal content shall be tested in accordance with the provisions of GB/T 17593 (all parts), and the phthalate content shall be tested in accordance with the provisions of GB/T 20388.

#### 5.2.2 Filling

The filling test shall be carried out in accordance with the provisions of GB 31701.

#### 5.2.3 Accessories

- **5.2.3.1** The plastic buckles on the carriers shall be tested according to the method of QB/T 5247-2018 for 1 000 times; other types of buckles and other accessories shall be manually opened and closed once and tested 200 times, respectively.
- **5.2.3.2** The shear strength and peeling strength of the touch and close fasteners shall be tested in accordance with the requirements of 6.1 and 6.2 of GB/T 23315-2009, respectively.
- **5.2.3.3** The phthalate content in plastic accessories shall be tested in accordance with the provisions of GB/T 22048.
- **5.2.3.4** Accessories on carriers that can be touched by the baby' teeth shall be sampled according to material and color and their total lead content shall be tested in accordance with the provisions of GB/T 21294.

#### 5.3 Structure

#### 5.3.1 Integral leg opening

After fixing the carrier, make the leg opening in a horizontal position during the test. If the leg opening size is adjustable, adjust it to the minimum according to the carrier instructions.

Slowly place a test ball with a mass of 2.27 kg  $\pm$  0.02 kg, a diameter of 120 mm  $\pm$  2 mm and a surface made of hard and smooth material into the leg opening within 5 s and keep it there for 1 min. Repeat this step on the other leg opening.

**Note:** Two people work together to complete the test. When fixing the carrier, no additional tensile force shall be applied to the leg opening, so that the test ball is not obstructed when passing through the leg opening.

# 5.3.6 Attachment systems for restraining the baby and attachment systems for restraining the adult

Place the sample flat on the test table and measure it with a steel ruler with a graduation value of 0.5 mm. Align the "0" point of the ruler with the edge of the belt and make it perpendicular to the edge of the belt. Read its width value, with an accuracy of 0.5 mm. Measure each strip, shoulder strap and waist belt of the sample three times and take the average value as the width value of the part.

#### 5.3.7 Dynamic loading

Perform a dynamic load test on the baby carrier as follows.

- a) Install the carrier onto a test torso 2 in a simulated adult embrace, see Figure 7. For carriers with belts, a layer of rough leather or fabric material can be placed on the surface of the rigid dummy during testing to increase the friction between the dummy and the belt and prevent the belt from slipping.
- b) Select test weight A or B. Test weight A is a baby model or sandbag with a mass of 9 kg, which is used to test baby carriers with a maximum mass of 9 kg (including 9 kg). Test weight B is a baby model or sandbag with a mass of 15 kg, which is used to test baby carriers with a mass greater than 9 kg. The test torso vibrates up and down in the vertical direction, with an amplitude of 120 mm ± 5 mm and a frequency of 2 Hz ± 0.2 Hz.
- c) Vibrate the test torso 10 times and mark all parts of adjustable length on the carrier to fix the baby and restrain the adult; vibrate it again 90 times; measure and record the sliding distance of the parts of adjustable length.
- d) When completing c) and continuing the test, if the strap slips, it shall be readjusted to the original position and appropriate measures shall be taken to prevent it from sliding. Continue the test according to c) with a test cycle of 50 000 times [including the 100 times of c)]. Observe and record whether the attachment system for restraining the adult and any fasteners or adjustment structures for fixing the baby are loose or open, and whether the overall product has any fastener breakage, detachment, seam collapse, separation, fabric tearing, strap breakage, etc. that may affect the safety of the baby.
- **Note 1:** If the maximum load-bearing mass of the baby carrier indicated on the product is greater than 15 kg, the mass of test weight B shall be the maximum value indicated on the product.
- Note 2: The test torso 2 has a size of approximately 385 mm (width)  $\times$  235 mm (thickness)  $\times$  690 mm (height) and is made of rigid material.

Measure the length of cords, straps and similar parts from the point of attachment to the carrier to the free end when tested with an applied force of 25 N.

#### 5.6 Needle detection

The detection of remains of broken sewing needle on the carrier shall be tested in accordance with the provisions of GB/T 24121, using the detection sensitivity (standard iron ball test card): 1.0 mm.

#### 6 Instructions for use

#### 6.1 Basic content

The following contents shall be marked on the carrier product, packaging, label or instruction manual:

- -- Product name;
- -- Name and address of the manufacturer:
- -- Product standard number implemented;
- -- Main raw materials of the carrier (the main textile raw materials shall be marked with fiber composition and content, and other main non-textile raw materials can only be marked with the material name);
- -- The weight range of a baby that the carrier can bear;
- -- Safety warnings;
- -- Maintenance methods.

The durability label shall be obvious, clearly readable, and firmly attached to the product. It shall include the weight range of the baby that the carrier can bear, the main raw materials of the carrier, safety warnings and maintenance methods, etc.

**Note:** The above maintenance method refers to maintenance in accordance with the method recommended by the carrier manufacturer.

#### **6.2 Warnings**

#### 6.2.1 General

A similar reminder shall be marked on each carrier product, packaging, label or instruction manual: Please read this carrier manual carefully before use. Failure to use it according to the instructions may endanger the safety of the baby.

#### 6.2.2 Warning

A similar message shall be marked on each carrier product, packaging, label or instruction manual:

- a) If the weight of the baby is not within the load-bearing range specified on the carrier, please do not use this carrier;
- b) Small babies may slip out of the leg opening of the carrier, so please use this product according to the instructions;
- c) The balance of the carrier wearer may be adversely affected by the movement of the baby and the wearer;
- d) The wearer of the carrier shall be careful when bending or leaning to avoid affecting the safety of the baby;
- e) The carrier is not suitable for use by the wearer while performing physical activities;
- f) The carrier is not suitable for the baby whose head is not strong enough to stand upright;
- g) Do not leave the baby alone in the carrier under any circumstances;
- h) Babies with special physical conditions or physiological diseases shall use this product under the guidance of a doctor.

#### **6.3 Other Information**

The instructions for use shall include at least the following:

- a) Instructions for correctly fitting and adjusting the carrier according to the size of the baby;
- b) Instructions for fitting the carrier to an adult;
- c) Instructions for use of head support parts, if applicable;
- d) Instructions on the facial orientation of the baby corresponding to the various functions of the carrier, such as front-carrying, back-carrying and diagonal-carrying, if applicable.

#### 7 Test rules

#### 7.1 Batch

The products of the same variety and specification produced with the same raw materials and using the same production process are set as one inspection batch.

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