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INDUSTRY STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

QB/T 1002-2005

Replacing QB 1002-1997, QB/T 1003~1005-1990

Leather Shoes

皮鞋

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Foreword

On the basis of QB 1002-1997 "Vulcanized Leather Shoes", QB/T 1004-1990 "Sewing Leather Shoes" and QB/T 1005-1990 "Mould Pressing Leather Shoes", this standard integrates leather shoes manufactured with various processes into one standard.

Main revised contents of this standard include:

- Standard name;
- Extend application scope;
- Change the description method of technical requirements;
- Delete thickness recommended value of main components;
- Change the appearance quality to sensory quality. And carry out additions, deletions and modifications to some inspection items;
- Carry out adjustment to indexes of physical and mechanical properties;
- Add requirements of low temperature flexing resistance of upper materials;
- Add provision "defects which may affect wearing shall not exist" in the technical requirements;
- Change the description method of inspection rules.

Appendix A of this standard is informative.

This standard was proposed by the China National Light Industry Council.

This standard shall be under the jurisdiction of Nationwide Standardization Center of Shoemaking.

Drafting organizations of this standard: China Leather and Footwear Industry Research Institute, Jiangsu Senda Co., Ltd., Kangnai Group Co., Ltd., Shishi Fulin Shoe Industry Co., Ltd., Ligang Shoe Industry (Shenzhen) Co., Ltd., and Aokang Group Co., Ltd.

Chief drafting staffs of this standard: Yan Huaidao, Qi Xiaoxia, Zhu Xianggui, Zheng Xiukang, Lin Heping, Sheng Baijiao, and Wang Zhenquan.

The previous editions of the standard replaced by this standard are:

- QB/T 1002-1990, QB 1002-1997;
- QB/T 1003-1990;

— QB/T 1004-1990;

— QB/T 1005-1990.

From the implementation date of this standard, it shall abolish the previous light industry standard QB 1002-1997 "Glueing Leather Shoes" issue by China National Council of Light Industry. And it shall replace light industry standards QB/T 1003-1990 "Vulcanized Leather Shoes", QB/T 1004-1990 "Sewing Leather Shoes", and QB/T 1005-1990 "Mould Pressing Leather Shoes" issued by former Ministry of Light Industry.

Introduction

It has been fourteen years since the issuance and implementation of standards QB/T 1003-1990 "Vulcanized Leather Shoes", QB/T 1004-1990 "Sewing Leather Shoes" and QB/T 1005-1990 "Mould Pressing Leather Shoes". And it has been seven years since the issuance and implementation of QB 1002-1997 "Glueing Leather Shoes". Over the years, product styles of leather shoe have been updated continuously; product quality has been continuously improved; and plenty of changes occur in raw and auxiliary materials and manufacture process. Therefore, standard revision is urgently needed in order to adapt to the industry development and product requirements. This standard integrates leather shoes manufactured with various processes into one standard, on the basis of QB 1002-1997 "Vulcanized Leather Shoes", QB/T 1004-1990 "Sewing Leather Shoes" and QB/T 1005-1990 "Mould Pressing Leather Shoes".

Leather Shoes

1 Scope

This standard specifies the requirements, test methods, inspection rules, marking, packing, transport and storage of leather shoes manufactured with various processes.

This standard is applicable to ordinary wearing leather shoes (including boots) with upper fabric made of natural leather, artificial material, etc.

This standard is not applicable to footwear of safety, protection and specific functions.

2 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this standard. For dated reference, all subsequent amendments (excluding corrigendum content) to, or revisions of, any of these publications do not apply. However, parties that enter into an agreement according to this standard are encouraged to study whether the latest edition of these documents is applicable. For undated references, the latest editions of the normative documents apply.

GB/T 230.1-2004 Metallic Rockwell Hardness Test-Part 1: Test Method (Scales A, B, C, D, E, F, G, H, K, N, T) (ISO 6508-1: 1999, MOD)

GB/T 532-1997 Rubber Vulcanized or Thermoplastic-Determination of Adhesion to Textile Fabric (idt ISO 36: 1993)

GB/T 2703-1981 Technical Terms for Leather Shoes Industry

GB/T 3293-1982 Chinese Shoe Sizing and Last Systems

GB/T 3293.1-1998 Shoes Sizes (idt ISO 9407: 1991)

GB/T 3903.1-1994 General Test Method for Footwear - Test Method of Flexing Resistance

GB/T 3903.2-1994 General Test Method for Footwear - Test Method of Abrasion Resistance

GB/T 3903.3-1994 General Test Method for Footwear - Test Method of Peeling Strength

GB/T 3903.4-1994 General Test Method for Footwear - Test Method of Hardness

GB/T 3903.5-1994 General Test Method for Footwear - Test Method of Appearance

GB/T 11413-1989 Test Method for Bond Strength of Leather Shoe Heels

QB/T 1472-1992 Flexing Index of Fiber Board for Shoes

QB/T 1646-1992 Polyurethane Synthetic Leather

QB/T 1813-2000 Test Method of Shank Longitudinal Stiffness of Leather Shoes (eqv BS 5131/4.18-1995)

QB/T 1873-2004 Upper Leather

QB/T 1917-2000 Steel Shank of Leather Shoes

QB/T 2224-1996 Technical Conditions on Flexibility at Low Temperature of Upper Materials

3 Classification

According to using objects, shoes are divided into shoes for men, women and children.

According to upper materials, shoes are divided into shoes with natural leather (top-layer leather and second-layer leather of animals such as pig, cattle and sheep) and artificial material upper.

According to manufacturing process, shoes are divided into the following categories: glueing, sewing, mould pressing, vulcanized, injection molding, filling, etc.

4 Requirements

4.1 General requirements

Leather shoes manufactured with various processes shall meet the following requirements.

4.1.1 Shoes sizes

It shall meet the requirements of GB/T 3293.1-1998.

4.1.2 Shoe tree dimension

It shall meet the requirements of GB/T 3293-1982.

4.1.3 Shoe upper material

It shall meet the requirements of QB/T 1873-2004 and QB/T 1646-1992.

4.1.4 Mark

Table 2

Category	Peeling strength /(N/cm)	
	Superior products	Qualified products
Shoes for men	≥90	≥70
Shoes for women and children	≥60	≥50

4.2.1.5 When one of the following conditions occurs, the peeling strength shall not be less than 40N/cm.

- a) The upper surface is sheep-skin or artificial material;
- b) The thickness of outsole front end is less than 3mm;
- c) The outsole width, at 20mm from the end point of outsole front end, is less than 40mm.

4.2.2 Adhesion strength of outsole and external middle sole

4.2.2.1 The adhesion technical index of outsole and external middle sole is: adhesion ≥20N/cm; when the micropore bottom is split and the glue line does not open, adhesion ≥15N/cm.

4.2.3 Flexing resistance of finished shoes

4.2.3.1 Test condition: precut 5mm and continuously fold for 40000 times.

4.2.3.2 Technical index of flexing resistance of finished shoes is shown in Table 3.

Table 3

Item	Superior products	Qualified products
Flexing resistance of finished shoes	Cut and split length after folding ≤12.0mm. There is no new crack after folding; the upper surface after folding shall be free from crazing, cracked grain or upper-sole delamination.	Cut and split length after folding ≤30.0mm. Length of new crack after folding ≤5.0mm and new cracks shall not exceed 3; the upper surface after folding shall be free from crazing, cracked grain or upper-sole delamination.

4.2.3.3 The natural leather outsole is not cut and subjected to 40000 times folding resistance test; a single crack shall not be larger than 5mm and the crack number shall not exceed 3.

4.2.3.4 For shoes with sizes below 230mm, flexing resistance will not be measured; for folding position of sole with thickness larger than 25mm, flexing resistance will not be measured.

4.2.4 Outsole abrasion resistance

4.2.4.1 Technical index of outsole abrasion resistance is shown in Table 4.

4.2.9 The Flexing index of insole fiber board is shown in Table 8.

Table 8

Item	Superior products	Qualified products
Flexing index of insole fiber board	≥ 2.9	≥ 1.9

4.2.10 The low temperature flexing index of upper materials shall meet the requirements of QB/T 2224-1996.

4.2.11 Determination of after-sales quality is shown in Appendix A.

4.3 Shoes shall be free from defects which may affect wearing.

5 Test Method

5.1 Sensory quality

Inspect according to GB/T 3903.5-1994.

5.2 Peeling strength of upper-sole

Inspect according to GB/T 3903.3-1994.

5.3 Adhesion strength of outsole and external middle sole

Inspect according to GB/T 532-1997.

5.4 Flexing resistance of finished shoes

Inspect according to GB/T 3903.1-1994.

5.5 Outsole abrasion resistance

Inspect according to GB/T 3903.2-1994.

5.6 Heel binding force

Inspect according to GB/T 11413-1989.

5.7 Pull-out strength of upper

5.7.1 Specimen: across-cut the test strips in 10mm wide from the front upper and together with sole. Take one specimen from inside and outer flank respectively.

5.7.2 Test equipment: tensile testing machine. The accuracy is 3% and the measuring range is 250N.

5.7.3 Ambient temperature: (23 ± 2) °C.

5.7.4 Pulling speed: (25±2)mm/min.

5.7.5 Both ends of the test strip shall be clamped between the upper and lower holders of the testing machine respectively. The binding portion of upper-sole shall be suspended in the air.

5.7.6 When the upper-sole binding portion is pulled apart, the maximum value is the pull-out force of upper.

5.7.7 The pull-out strength of upper shall be calculated according to Formula (1).

$$\sigma = \frac{F}{B} \quad (1)$$

Where,

σ — the pull-out strength of upper, the unit is Newton per centimeter (M/cm);

F — the pull-out force of upper, the unit is Newton (N);

B — the width of test strip, the unit is centimetre (cm).

5.7.8 The arithmetic mean value of pull-out strength of two sample uppers is the test result.

5.8 Shank flexing resistance rigidity

Inspect according to QB/T 1813-2000.

5.9 Shank hardness

Inspect according to GB/T 230.1-2004.

5.10 Heel hardness of formed bottom

Inspect according to GB/T 3903.4-1994.

5.11 Flexing index of insole fiber board

Inspect according to QB/T 1472-1992.

5.12 Low temperature flexing of upper surface

Inspect according to QB/T 2224-1996.

6 Inspection Rules

Product inspections are divided into ex-factory inspection and type inspection.

6.1 Ex-factory inspection

6.1.1 Inspection items shall meet the requirements specified in Table 9.

6.1.2 For sampled inspection items, take the declared products as a batch. Randomly sample 3 pairs for inspection. For insole fiber board and upper materials, the samples may be randomly selected from the material storage or from the materials that are same as the test products' materials.

6.2 Type inspection

6.2.1 Type inspection shall be carried out when one of the following conditions occurs.

- a) There is significant change in product structure, technique and materials;
- b) When reinstating the production after production halts for more than three months;
- c) In regular production, it shall be carried out once semiannually;
- d) When the state quality supervision organization requires type inspection.

6.2.2 Sampling quantity

Take the inspected product batch as a batch. Randomly take out 3 pairs for inspection.

6.2.3 The requirements of inspection items are shown in Table 9.

Table 9

Inspection item	Ex-factory inspection item		Type inspection item	Requirements	Test method
	Full inspection	Random inspection			
Sensory quality	●	—	●	4.1.5	5.1
Peeling strength of upper-sole	—	●	●	4.2.1	5.2
Adhesion strength of outsole and external middle sole	—	●	●	4.2.2	5.3
Flexing resistance of finished shoes	—	●	●	4.2.3	5.4
Outsole abrasion resistance	—	●	●	4.2.4	5.5
Heel binding force	—	●	●	4.2.5	5.6
Pull-out strength of uppers	—	○	○	4.2.6	5.7

7 Marking, Packaging, Transportation and Storage

7.1 Marking

7.1.1 Inspection qualification mark and production date shall be provided in every pair of shoes or inside the internal package.

7.1.2 Each pair of shoes shall be provided with the following contents:

- a) Manufacturer's name or trademark;
- b) China shoe size and type.

7.1.3 The internal package may be accompanied with the after sales service provisions or descriptions such as wearing instructions.

7.1.4 The internal package (shoebox) shall be marked with the following contents:

- a) Manufacturer's name, plant location, post code and trademark. Imported shoes shall be provided with the name and domestic address of the domestic distributor. The address shall be marked according to an indeed findable place determined by the government;
- b) For imported shoes, place of origin shall be marked;
- c) Product name [It shall indicate the main upper materials such as cowhide, pigskin, sheepskin, second-layer leather, synthetic (artificial) leather, fabrics, or leather and non-leather mixed upper surface];
- d) China shoe size, article number and product grade;
- e) Color of shoes;
- f) Adopted product standard.

7.1.5 The external packing shall be marked with the following contents:

- a) Manufacturer's name and trademark;
- b) Product name, shoes size, article number and product grade;
- c) Color and quantity of shoes;
- d) Box number, gross weight, volume and packing date;
- e) Storage and transportation requirements and marking, etc.

7.1.6 Manufacturer's name and plant location shall have Chinese characters.

7.2 Packaging

Internal and external packages shall be provided. Where necessary, flexible package, moisture resistant agent, mothproofing agent and mold inhibitor may be added.

7.3 Transportation and storage

7.3.1 During transportation and storage, products shall be free from repressing, dampness, rain, sun-light or being put together with corrosive substance such as oil, acid and alkali.

7.3.2 The warehouse shall maintain ventilation and dry condition. Products shall be above 0.2m from the ground and wall to prevent products from dampness or mouldiness.

7.4 If there are additional requirements on marking, packaging, transportation and storage, they shall be determined through consultation by the purchaser and seller. The export products shall be implemented according to contract.

Appendix A

(Informative)

After-sale Quality Determination of Leather Shoes

A.1 Time limit of after-sales service

It may be determined according to the product grade by the enterprise. Clear declarations shall be made in after-sales service provisions.

A.2 After-sale quality determination

The product may be determined as having quality problem, if the following problems occur within time limit of after-sales service and in normal wearing condition.

A.2.1 Products do not conform to the quality requirements of qualified products in product standard.

A.2.2 The upper surface cracks; the upper-foot breaks and cracks; there are serious hoarfrost and decoloration. The front upper has obvious loose surface; the coating layer falls off or chips; the upper surface contacts the ground and wears off.

A.2.3 Split thread and delamination.

A.2.4 The counter or toe-box deforms.

A.2.5 The heel deforms, cracks, breaks or falls off. The heel surface falls off.

A.2.6 The shank is soft, loose or broken.

A.2.7 The shoe lining has obvious decoloration and contaminates socks. The shoe lining is frizzled.

A.2.8 The outsole or insole cracks, breaks or is uneven which affects wearing.

A.2.9 The foxing strip suffers from delamination and fracture.

A.2.10 Nail spiking (head) protrudes in insole; the insole is not flat and affects wearing.

A.3 Inspection method

According to GB/T 3903.5-1994.

A.4 Treatment method

It can be processed according to the after-sales service provisions formulated by the enterprise or

according to the unified provisions of the local sales organization.

_____ **END** _____