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**LIGHT INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

QB/T 1655-2006

**Roller Ball Pen and Refill
(English Translation)**

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Foreword

This Standard is the modification against QB/T 1655-1992 Ink Pen.

Compared with QB/T 1655-1992, this Standard has the major changes as follows.

- Add the Chapter on terms and definitions (Chapter 3 of this Edition);
- Modify the classification, delete the technical requirements on relevant roller ball microporous ink pen (Chapter 4, Chapter 5 of this Edition; Chapter 3, Chapter 4 of QB/T 1655-1992);
- Add the Chapter on the general test instrument, materials and conditions (Chapter 6 of this Edition);
- Delete three items, namely, initial-writing angle, extended force of the nib, strength of the nib (5.1, 5.4, 5.5 of QB/T 1655-1992);
- Add seven items, namely, ink amount, writing performance, leakage resistance, transparency, temperature resistance, difference between pen-holder head aperture and nib outer diameter, and pull-off force of the cap, etc. (7.2, 7.3, 7.4, 7.8, 7.9, 7.13, 7.17 of this Edition);
- Change the original metal pen clip elasticity into metal clip clipping force (7.14 of this Edition; 5.12 of QB/T 1655-1992);

--- Change the original anti-corrosive property into the physical and chemical property of decorative surface (7.15 of this Edition; 5.9 of QB/T 1655-1992).

The Appendix A of this Standard is normative.

This Standard was proposed by China Light Industry Council.

This Standard shall be under the jurisdiction of National Pen-Manufacturing Standardization Center.

The drafting organization of this Standard. National Pen-Manufacturing Standardization Center, Beifa Group Co., Ltd., Qingdao Changlong Stationery Co., Ltd., Shanghai Jinwannian Industrial Development Co., Ltd., Shanghai Lotus Stationery Co., Ltd., Wenzhou Aihao Pen Trade Co., Ltd., and Wenzhou Tianjiao Pen Industrial Co., Ltd.

The chief drafting staff of this Standard. Chen Rongzhong, Fu Yuanlong, Qi Guangming, and Chen Jingqiang.

Since the date of implementation, this Standard replaced the light industry standard QB/T 1655-1992 issued by the Light Industry Department.

Roller Ball Pen and Refill

1 Scope

This Standard specifies the terms and definitions, classification, requirements, test methods, inspection rules, and marking, package, transportation, storage of roller ball pen and refill.

This Standard is applicable to the various roller ball pens and refills filling water-based ink.

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 191 Packaging - Pictorial Marking for Handling of Goods

GB/T 622 Chemical Reagent - Hydrochloric Acid

GB/T 678 Chemical Reagent - Ethanol

GB/T 1468 Tracing Paper

GB/T 2828.1 Sampling Procedures for Inspection by Attributes - Part 1. Sampling

Schemes Indexed by Acceptance Quality Limit (AQL) for Lot-by-Lot Inspection

GB/T 6388 Transport Package Shipping Mark

GB/T 12654 Writing Paper

QB/T 2774 Pencil

QB/T 3833 Testing Method of the Oxidation Treatment Coatings of the Aluminum and Aluminum Alloys for the Light Industrial Products

7.1.1 Test instrument

60g special counter poise.

7.1.2 Methods and Procedures

Set the 60g counter poise onto the bottom of pen-holder, so that the pen and the writing paper form elevation angle of $50^{\circ}\sim 70^{\circ}$; use hand to draw straight line with the marking line speed of 20 mm/s ~ 25 mm/s, then check whether the handwriting conforms to the requirements of Table 2.

7.2 Out-inking amount test

Out-inking amount indicates the amount of the ink per meter when the pen draws the marking lines within 100m.

7.2.1 Test instrument

Balance with sensitivity accuracy no less than 0.001g.

7.2.2 Methods and procedures

- a) Weigh the mass G1 of the test pen that has not been written on the balance;
- b) Adjust the circle-painting and writing machine to meet the conditions of 6.1; writing paper meets the requirements of 6.2;

- c) Install the test pen onto circle-painting and writing machine, start the circle-painting and writing machine to draw line. Observe whether the line is broken during the line-marking process, if there is line broken, take off the test pen, use the alcohol cotton to wipe the ink accumulated on the nib; then use hand to continuously draw five circles with $\Phi 20\text{mm} \sim \Phi 25\text{mm}$ onto the test paper; if the stitches can be drawn at this time, continue to install the test pen onto the circle-painting and writing machine; the above treatment is only for once; if after the treatment, the stitches are still broken, then it shall be treated as the broken line;
- d) When the marking line length is 100m, take off the test pen, and use the alcohol cotton to wipe the ink accumulated on the ball seat side of the nib; then weigh the mass G_2 of test pen on the balance;
- e) Calculate the out-inking amount W as per Formula (1), check whether the out-inking amount conforms to the requirements of Table 2.

Where.

Test methods and procedures. continue to mark line as per the b), c) methods stipulated in 7.2.2; the accumulated length can meet the requirements in Table 2, and there shall be no broken line.

7.6 Water resistance test

Water resistance indicates the performance of stitches resisting the water erosion.

7.6.1 Instrument and materials

- a) Distilled water;
- b) Beaker with capacity of 500mL.

7.6.2 Methods and procedures

Use hand to draw five consecutive circles with diameter of $\Phi 20\text{mm} \sim \Phi 230\text{mm}$ on the writing paper; after 2h of drawing circle; dip the writing paper with drawn circles into the distilled water; take out the paper as per the time stipulated in Table 2, check the stitches, which shall be identifiable.