

# Writing and marking instruments —

## Part 2: Specification for end closures

ICS 97.180; 97.190

## Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee PAI/42, Writing instruments, upon which the following bodies were represented:

British Office Systems and Stationery Federation  
British Retail Consortium  
British Toy and Hobby Association  
British Toy Importers and Distributors Association  
Child Accident Prevention Trust  
Consortium for Purchasing and Distribution  
Consumer Policy Committee of BSI  
Cosmetic Toiletry and Perfumery Association  
Department of Trade and Industry  
Institute of Trading Standards Administrators  
Local Authority Organisations  
Royal College of Paediatrics and Child Healthcare  
Royal Society for the Prevention of Accidents  
Writing Instruments Association

This British Standard, having been prepared under the direction of the Materials and Chemicals Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 September 2000

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### Amendments issued since publication

Amd. No.	Date	Comments
13209 Corrigendum No. 1	June 2001	Correction to Figure A.1

The following BSI references relate to the work on this standard:  
Committee reference PAI/42  
Draft for comment 99/402192 DC

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## Foreword

This British Standard has been prepared by Technical Committee PAI/42.

The Committee recognizes that suppliers of products within the scope of this British Standard may require time to comply. For this reason, the provisions of this British Standard become effective 21 months after the publication date.

If a child accidentally inhales an end closure it may become lodged in the airway. The danger can be reduced if the end plug is securely attached, ventilated, flush or too large to swallow. Of course, children should be actively discouraged from sucking, chewing or otherwise putting pens in their mouths. It should, however, be recognized that despite any discouragement that they may receive, children will continue to do so. A way of avoiding the risk of inhalation of end closures is to manufacture products without end closures. However, if end closures are essential, the application of the provisions of this British Standard reduces risk as it specifies the design and/or the security of attachment, which reduces the likelihood of inhalation.

The Technical Committee recognizes that whilst it is possible to identify the age range of the children who are most at risk, it is not possible to identify with certainty any writing instruments with end plugs that would never be accessible to children and hence never pose a risk. It is, however, acknowledged that certain products are not designed for use by children and such items should be clearly labelled to that effect.

Annexes A and B are informative.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 5 and a back cover.

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## 1 Scope

This British Standard specifies requirements for end closures incorporated into writing and marking instruments which are designed or clearly intended for use by children up to 14 years of age.

This British Standard is not applicable to the following:

- writing and marking instruments which are not designed or intended for use by children, e.g. jewellery pens, expensive fountain pens, professional technical pens;
- end closures for refills;
- erasers and their protective covers;
- parts which are severed by the test equipment.

## 2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this British Standard.

BS 7272-1:2000, *Writing and marking instruments — Part 1: Specifications for safety caps*.

## 3 Terms and definitions

For the purpose of this British Standard the following terms and definitions apply.

### 3.1

#### writing and marking instruments

instruments for writing or marking including pens with a self-contained reservoir of ink or other marking fluid, crayons, pencils for colouring and graphite pencils

### 3.2

#### end closures

caps and plugs (including those fitted to detachable caps) which are not designed to be removed during normal use of the product

### 3.3

#### grippable surface

any part of the accessible surface of the end closure which has a tangential angle less than 30° from the longitudinal axis inclined towards the centre of the writing or marking instrument

## 4 Requirements

### 4.1 General

End closures shall conform to at least one of the following requirements:

- 4.2 Size;
- 4.3 Security;
- 4.4 Inaccessibility;
- 4.5 Minimal protrusion or;
- 4.6 Air flow (see annex A for the recommended test sequence).

Where tensile testing is required it shall be in accordance with clauses 5 and 6.

NOTE Annex A is provided for guidance for users of this standard.

### 4.2 Size

An end closure shall not pass through a  $16^{+0.05}_0$  mm diameter ring gauge of 19 mm thickness under its own weight.

NOTE End closures which conform to this subclause are deemed to be too large to present an inhalation hazard.

### 4.3 Security

The end closure shall not be removed when subjected to a force of  $50^{+2}_0$  N applied in line with the body of the writing or marking instrument.

NOTE End closures conforming to this subclause are deemed to be securely affixed and therefore not to present an inhalation hazard.

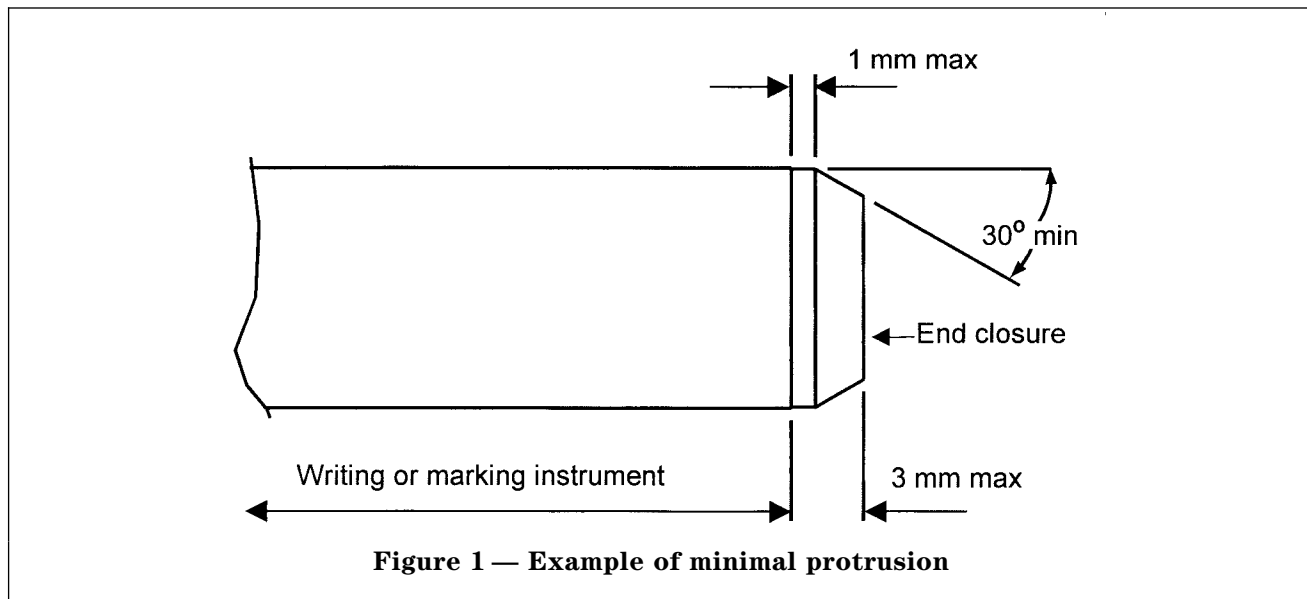
#### 4.4 Inaccessibility

The end closure when in the form of a plug shall be completely recessed, and be reasonably secure by withstanding a minimum force of 10 N applied in line with the body of the writing or marking instrument.

NOTE End closures conforming to this subclause are deemed not to be removable and therefore not to present an inhalation hazard.

#### 4.5 Minimal protrusion

The grippable surface of an end closure, when in the form of a plug (see Figure 1), shall not extend more than 1 mm beyond the end of the writing or marking instrument and overall the end plug shall not extend more than 3 mm beyond the end of the writing or marking instrument. It shall be reasonably secure by withstanding a minimum force of 10 N applied in line with the body of the writing or marking instrument.



NOTE 1 The 30° minimum angle, 1 mm and 3 mm maximum dimensions indicate the limits of the protrusion. Within these boundaries there is no restriction on shape other than defined in the text, e.g. hemispherical, concave, pointed are acceptable.

NOTE 2 End closures conforming to this subclause are deemed not to be grippable and therefore not to present an inhalation hazard.

#### 4.6 Air flow

An end closure shall meet the requirements of BS 7272-1:2000, 3.4 and be reasonably secure by withstanding a minimum force of 10 N applied in line with the body of the writing or marking instrument.

NOTE End closures conforming to this subclause are deemed to not present an asphyxiation hazard.

### 5 Test apparatus

Test apparatus shall consist of a tensile testing machine or a dead weight arrangement fitted with suitable clamps, straps or other attachments.

The test apparatus shall not distort or damage the components being tested in a way that will materially affect the test results.

### 6 Test method

6.1 Fasten the writing or marking instrument in the test apparatus.

6.2 Apply the force to the component to be tested gradually over 5 s and maintain for 10 s.

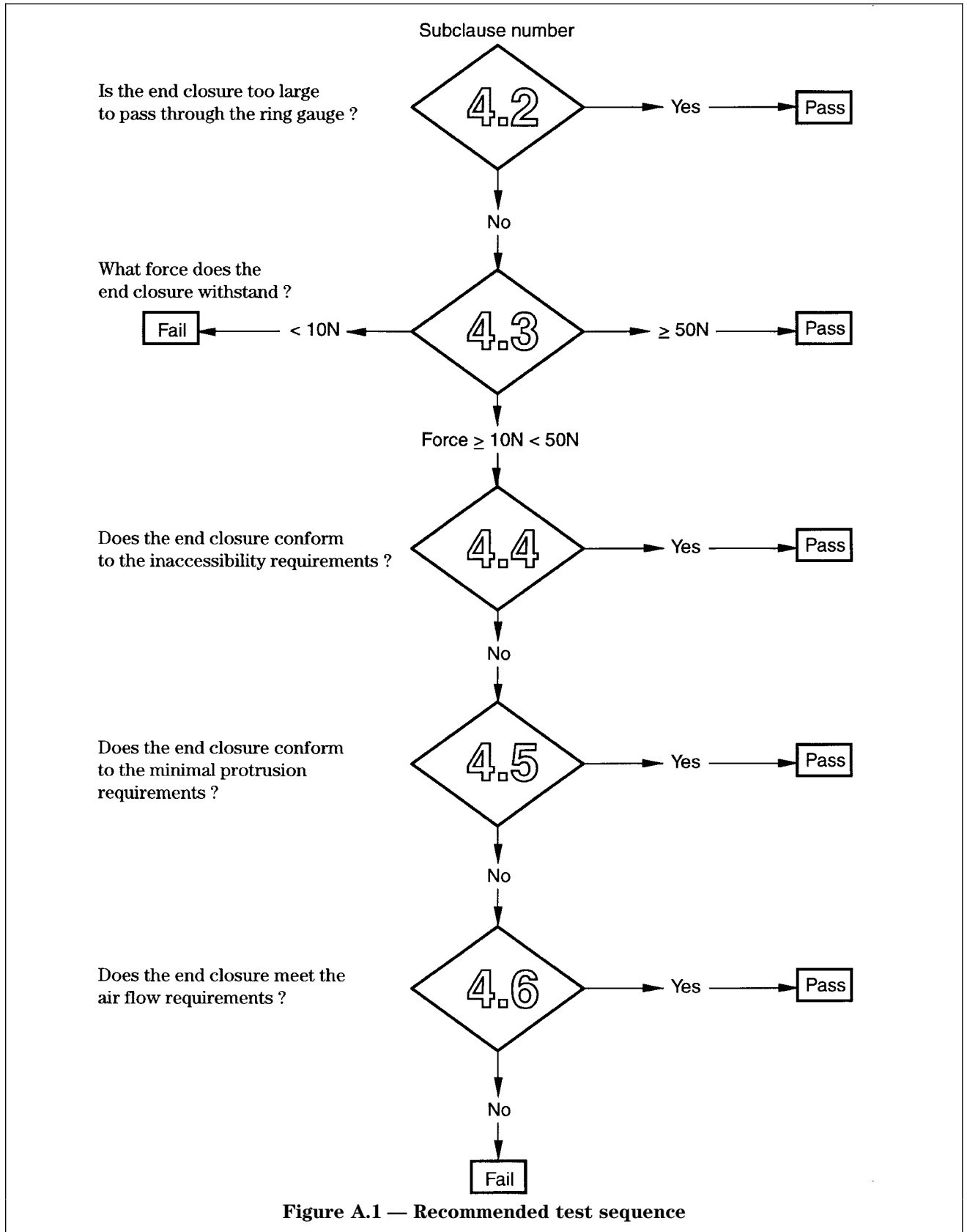
6.3 Examine whether the end closure has been removed from the writing or marking instrument.

NOTE Examples of test methods that may be suitable are given in annex B.

### 7 Identification

Writing or marking instruments, or their packaging or accompanying documentation, shall be legibly and indelibly identified with the name, trademark or other means of identifying the manufacturer/supplier.

**Annex A (informative)**  
**Recommended test sequence**



## Annex B (informative)

### Examples of test methods

**B.1** It is recognized that the variety of present and future designs of end closures for writing or marking instruments is almost infinite.

**B.2** The test method employed should be selected according to the design of the end closure being tested.

**B.3** The examples given are means of applying a repeatable mechanical force without distorting or damaging the components under test in a way that will materially affect the test results. The methods given are not exhaustive and are not intended to replicate actual events in the field that may cause the end closure to become detached.

**B.4** Typical methods used by laboratories may include:

- use of a hot wire inserted through the end closure to provide a means to apply the load;
- rods inserted into the product to push out an end closure. In some cases the product will have to be cut to gain access;
- suitable clamps or fixtures;
- use of glue or solder to attach wires to the end closure to apply the load;
- drilling, tapping and fitting a threaded hook to the end closure to apply the load.

**NOTE** Any laboratory test report should normally indicate the type of test equipment used, the load and/or air flow achieved and the clause numbers of the requirements tested.





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