

Manhole steps —

Part 3: Specification for aluminium manhole steps

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Road Engineering Standards Policy Committee (RDB/-) to Technical Committee RDB/35, upon which the following bodies were represented:

- Association of London Borough Engineers and Surveyors
- British Foundry Association
- British Precast Concrete Federation Ltd.
- British Telecommunications plc
- Consumer Policy Committee of BSI
- County Surveyors' Society
- Department of Transport (Engineering Policy and Programme Division)
- Ductile Iron Pipe Committee
- Electricity Supply Industry in United Kingdom
- Institute of British Foundrymen
- Institute of Building Control
- Institution of Water and Environmental Management
- Institution of Works and Highways Management
- Water Services Association of England and Wales

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Institution of Civil Engineers
- Institution of Mechanical Engineers

This British Standard, having been prepared under the direction of the Road Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 28 June 1991

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Foreword

This Part of BS 1247 has been prepared under the direction of the Road Engineering Standards Policy Committee and it supplements BS 1247-1 and BS 1247-2.

Previous editions of this British Standard specified rigid dimensions for steps. This Part specifies performance criteria, based on test requirements, and only key dimensions have been included.

As in BS 1247-1, double steps (also known as rung irons) have been included and this Part deals with aluminium steps with plastics fixings.

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 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 1247 specifies the essential dimensions and general requirements for aluminium manhole steps with plastics fixings.

Aluminium manhole steps are for use in structures such as concrete manholes and inspection chambers.

NOTE 1 This Part of BS 1247 is not intended to cover steps which may be subject to exposure to concentrated acids or alkalis.

NOTE 2 A summary of items to be agreed between the manufacturer and purchaser is given in Appendix A.

NOTE 3 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Materials

2.1 Plastics

The plastics used for fixings shall be a polyolefin specified in accordance with BS 3412 or BS 5139.

2.2 Aluminium

The aluminium used in steps shall comply with grade 6082 of BS 1474.

3 Design features

3.1 Design and dimensions

Steps shall comply with the appropriate dimensions given in Figure 1 and Figure 2.

The minimum outside diameter of the aluminium section of steps shall be 25 mm with a minimum wall thickness of 3 mm.

3.2 Treads

The aluminium tubing extrusion shall be ribbed to a minimum depth of 1.5 mm.

Steps shall have an upstand of at least 20 mm high and 25 mm long on each end of the tread to act as a boot stop.

NOTE The steps shown in Figure 1 and Figure 2 are examples only of typical configurations and are not intended to fix design.

4 Finish

Steps shall be protected from corrosion by anodizing in accordance with grade AA25 of BS 1615.

Steps shall be free from projections or sharp edges likely to cause injury.

5 Design tests

Steps shall be designed to satisfy the test requirements specified in clause 7.

6 Quality control tests

Sample steps shall be tested for compliance with the requirements given in 7.1, 7.2, and 7.4. Sampling procedures shall be in accordance with BS 6001-1 or BS 6002 with a minimum AQL of 1.

7 Test requirements

7.1 Twist

When supported on three props of equal height on a level surface, as shown in Figure 3, the height (H) of the front edge of the tread from that surface shall not vary along its length by more than 3 mm for a single step or more than 5 mm for a double step.

7.2 Bending

When tested in accordance with Appendix B the step shall support a load of 2.5 kN without visible cracking and the deflection shall not exceed 5 mm. After removal of the load, the residual deflection shall not exceed 1 mm.

NOTE The residual deflection is intended to allow for a bedding in factor and not for yield in the material. The graphical plots of load against deflection should exhibit a straight line relationship, i.e. loading is within the elastic range of the materials.

7.3 Pull out test

When tested in accordance with Appendix C steps shall resist a force of 7.5 kN.

7.4 Impact test

When tested in accordance with Appendix D steps shall absorb an impact from a striker of mass 20 kg dropped from a height of 1 m without fracture.

8 Marking

Each step shall be clearly and permanently marked with the following identification in a manner which is visible after installation:

- a) the number and date of this British Standard, i.e. BS 1247-3:1991¹⁾;
- b) the manufacturer's identification;
- c) the year and month of manufacture;
- d) length in millimetres.

¹⁾ Marking BS 1247-3:1991 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.