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BRITISH STANDARD 497: 1952

Cast Manhole Covers
Road Gully
Gratings and Frames
For Drainage Purposes

BRITISH STANDARDS INSTITUTION

BRITISH STANDARD SPECIFICATION

CAST MANHOLE COVERS
ROAD GULLY
GRATINGS AND FRAMES
FOR DRAINAGE PURPOSES

B.S. 497 : 1952

6/-
Price ~~8/-~~ net

BRITISH STANDARDS INSTITUTION

Incorporated by Royal Charter

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THIS BRITISH STANDARD, having been approved by the Hardware and Ironmongery Industry Standards Committee and endorsed by the Chairman of the Building Divisional Council, was published under the authority of the General Council on 10th July, 1952.

First published, July, 1933.

First revision, December, 1945.

Second revision, July, 1952.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 1800, indexed and cross-indexed for reference, together with an abstract of each standard, will be found in the Institution's Yearbook, price 7s. 6d.

This standard makes reference to the following British Standards:—

- B.S. 51. Wrought iron for general engineering purposes (Grades A, B and C).
- B.S. 340. Pre-cast concrete kerbs, channels, edgings and quadrants.
- B.S. 369. Phosphor bronze bars and rods for general purposes.
- B.S. 592. Carbon steel castings for general engineering purposes.
- B.S. 723. Methods of testing the zinc coating on galvanized articles other than wire (copper sulphate test and visual examination).

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or edition.

CO-OPERATING ORGANIZATIONS

The Hardware and Ironmongery Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives of the following Government departments and scientific and industrial organizations:—

- British Ironfounders' Association
- British Lock and Latch Manufacturers' Association
- British Metal Window Manufacturers' Association
- British Plastics Federation
- British Plastics Hardware Association
- Cast Butt Hinge Manufacturers' Association
- *D.S.I.R.—Building Research Station
- *Distributors of Builders' Supplies Joint Council
- *Institution of Municipal Engineers
- *London County Council
- Ministry of Housing and Local Government
- *Ministry of Works
- National Brassfoundry Association
- National General Export Merchants Group
- National Federation of Building Trades Employers
- National Federation of Ironmongers
- *Royal Institute of British Architects

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this standard:—

- Association of Metropolitan Borough Engineers and Surveyors
- British Cast Concrete Federation
- British Electricity Authority and Area Boards
- British Valve Manufacturers' Association
- British Waterworks Association
- Crown Agents for the Colonies
- D.S.I.R.—Road Research Laboratory
- General Post Office
- Institute of Works and Highways Superintendents
- Institution of Civil Engineers
- Institution of Sanitary Engineers
- Institution of Water Engineers
- Midland Ironfounders' Association
- Ministry of Transport
- Sanitary Inspectors' Association
- Society of British Gas Industries
- Water Companies' Association
- Individual manufacturers

BRITISH STANDARD SPECIFICATION FOR CAST MANHOLE COVERS, ROAD GULLY GRATINGS AND FRAMES

FOR DRAINAGE PURPOSES

FOREWORD

Previous editions of this British Standard were prepared primarily for use in connexion with the programme of post-war building. In deciding upon the patterns to be included the committee was, therefore, guided by the need to facilitate mass production. Nevertheless, it was felt that the quality of the articles specified should be controlled by means of an adequate testing procedure, in view of the importance of preventing accidents to road users. In preparing the standard the committee also took into account the need to limit, as far as possible, the troubles experienced in the past because of 'rocking'.

The committee responsible for the preparation of this revision felt that it would be of assistance to manufacturers—in enabling them to incorporate new ideas and improvements within the framework of the main dimensions—if the minor dimensions were deleted. The typical drawings have been amended accordingly.

The standard includes a range of covers for heavy duty applications, together with covers for medium duty. The '3-point' system of support was adopted; the circular type of cover has been excluded so far as heavy duty applications are concerned, in order to minimize the tendency to rock. It is appreciated that, initially, the circular cover may provide non-rocking features but because of the effects of wear, it cannot be certain that this condition will continue. Nevertheless, the circular type of cover has been included in the medium duty section as it is felt that the conditions of use are such as to render it less liable to develop rocking. It is pointed out that although the circular cover and frame has been omitted from the heavy duty section the double triangular patterns provided for in this standard are constructed with a circular opening under the squared cover.

The testing procedure requires a proving test on every cover and grating: this course has been adopted because of the unavoidable variations in castings which would not necessarily be revealed by a type test. It has been found that once the preliminary arrangements for carrying out the proving tests are made, the actual testing calls for very little increase in production time.

SPECIFICATION

SCOPE

1. This British Standard specifies requirements for manhole covers and frames and for road gully gratings, covers and frames, intended for use in drainage works.

The standard is divided into four parts, as follows:—

Part 1 specifies general requirements applicable to the articles specified in Parts 2 and 3.

Part 2 deals with manhole covers and frames.

Part 3 deals with road gully gratings, covers and frames.

Part 4 contains tables of dimensions. It includes Fig. 1, 'Detail of keyholes and keys for Grades A, B and C covers'.

PART ONE : GENERAL REQUIREMENTS

MATERIALS

2. *Manhole covers and frames* shall be cast from a mixture of cast iron scrap and a suitable grade of pig iron. The composition of the resultant metal shall be such as to provide a strong grey structure, free from chill.

Grade A (heavy duty) gully gratings shall be manufactured from cast iron of the quality specified above for manhole covers and frames, or from cast steel of Grade A quality as specified in Clause 1 of B.S. 592* as ordered by the purchaser.

Gully gratings (other than Grade A) and gully covers and frames shall be manufactured from cast iron of the quality specified for manhole covers and frames. The grid in Grade C kerb type covers shall be of wrought iron complying with the requirements of B.S. 51†, Grade C.

Bolts for Grade A double triangular covers and frames shall be of phosphor bronze complying with B.S. 369‡; they shall be $\frac{3}{4}$ in. Whitworth hexagon bolts, $3\frac{1}{2}$ in. long, screwed $1\frac{1}{2}$ in. complete with nut and locknut.

NOTE. Owing to the shortage of non-ferrous metals, steel bolts suitably protected against corrosion are permissible, if agreed by the purchaser.

MANUFACTURE AND WORKMANSHIP

3. All covers, gratings and frames shall be cleanly cast and shall be free from air and sand holes and from cold shuts. They shall be neatly dressed and carefully fettled. All castings shall be free from voids, whether due to shrinkage, gas inclusions or other causes.

* B.S. 592, 'Carbon steel castings for general engineering purposes'.

† B.S. 51, 'Wrought iron for general engineering purposes (Grades A, B and C)'.

‡ B.S. 369, 'Phosphor bronze bars and rods for general purposes'.