

Structural fixings in concrete and masonry —

Part 1: Method of test for tensile loading

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee B/514, Access and support equipment, to Subcommittee B/514/41, Tests for fixings, upon which the following bodies were represented:

- Association of Building Component Manufacturers
- British Board of Agreement
- British Precast Concrete Federation Ltd.
- Concrete Society
- Construction Fixings Association
- Department of the Environment
- Institution of Civil Engineers
- Institution of Structural Engineers
- London District Surveyors Association
- National Association of Scaffolding Contractors
- Stainless Steel Fabricators Association of Great Britain
- Suspended Access Equipment Manufacturers Association
- Suspended Ceilings Association

This British Standard, having been prepared under the direction of Technical Committee B/514, was published under the authority of the Standards Board and comes into effect on 15 February 1993

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Amendments issued since publication

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Foreword

This Part of BS 5080 has been prepared under the direction of Technical Committee B/514, Access and support equipment. This edition introduces technical changes but it does not reflect a full review or revision of the standard which will be undertaken in due course. It supersedes BS 5080-1:1974 which is withdrawn.

The principle changes from the 1974 edition are as follows:

- a) a restriction has been added on the location of any reinforcement in the standard specimen;
- b) precautions have been included when using resin adhesives for bonding fixings;
- c) modifications have been made to the load application procedure;
- d) a new figure has been included to clarify the definition of an undercut anchor.

This Part of BS 5080 describes a standard method for conducting tests under axial tensile forces on structural fixings installed in concrete or masonry materials used in building and civil engineering construction. Part 2 describes a standard method for conducting tests under shear forces on structural fixings.

A structural fixing joins, supports or retains components, and is designed to resist some form of loading since its failure will have structural significance.

This method of test applies to fixings installed according to the supplier's recommended procedure in a solid base material. This test applies to the fixing assembly comprising the fixing and the base material and not just the fixing itself. Failure of a fixing assembly under an axial tensile force may be due to failure of the material from which the fixing was manufactured, failure of the base material in which it was installed or loss of adhesion between them.

This test does not apply to fixings used in conjunction with woodscrews, e.g. small plugs of metal, plastics or fibrous composition, or fixings used with thin rigid sheet materials, e.g. walls, roofs, partitions, or cavity fixings for use with hollow clay or concrete block masonry.

Displacement fixings (pins or studs inserted by a cartridge operated tool) are not included, as the method of test is not appropriate to their use. However, should a design demand structural considerations and testing, the procedures given in this standard should be followed as far as possible.

The test does not cover fixings when used in timber.

If this method of test is used for proof testing the applied load and/or relative movement limits should be specified by the user.

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 10, 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

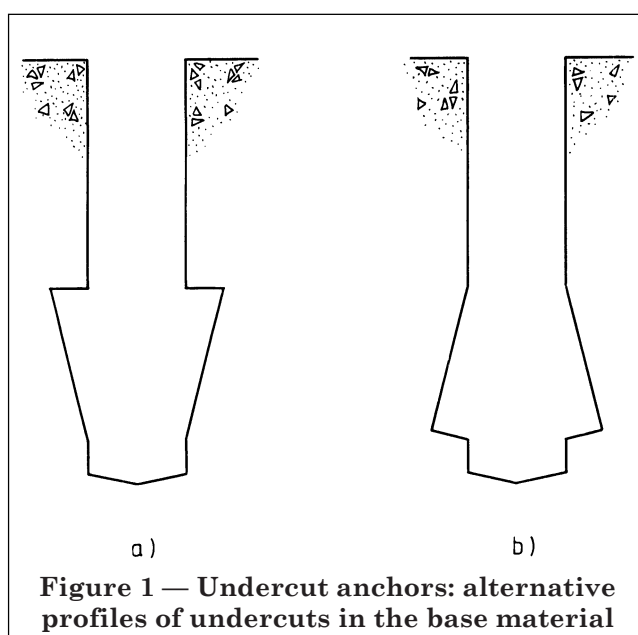
This Part of BS 5080 specifies a method for conducting tests under axial tensile forces on structural fixings installed in concrete or masonry used in building and civil engineering.

The test applies to the following types of fixing installed in concrete, natural stone, cast stone or brick or block masonry.

- a) *Expanding anchors*. Anchors held in drilled holes by friction or wedging action.
- b) *Bonded fixings*. Fixings held in drilled holes by grout or other bonding material.
- c) *Cast-in fixings*. Anchor bolts and sockets cast into the material during construction.
- d) *Channel inserts*. Slots and channels cast into the material during construction.
- e) *Undercut anchors*. Anchors held in drilled holes by interlocking in under-reamed shapes formed during drilling or setting (see Figure 1).

The two distinct situations in which the test can be applied are as follows:

- 1) for comparative or reference purposes, for which a standard specimen of base material is specified in 4.1;
- 2) for a specific application, for which the base material should be appropriate to the intended use of the fixing. In this situation the base material may be either a specimen manufactured for the purpose or a representative section of the base material in place.



2 References

2.1 Normative references

This Part of BS 5080 incorporates, by reference, provisions from specific editions of other publications. These normative references are cited at the appropriate points in the text and the publications are listed on the inside back cover. Subsequent amendments to, or revisions of, any of these publications apply to this Part of BS 5080 only when incorporated in it by updating or revision.

2.2 Informative references

This Part of BS 5080 refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

3 Definitions

For the purposes of this Part of BS 5080 the following definitions apply.

3.1

supplier

person who supplies or sells the fixing, and who may be the manufacturer, a selling agent or retailer

3.2

user

person who specifies the fixing for installation and who may be the architect, consulting engineer, contractor or subcontractor, according to the circumstances of the project

3.3

testing agent

person who carries out the tests described in this standard, and who is responsible for ensuring compliance with the standard

NOTE It is assumed in this standard that the test is commissioned by the user although it may be commissioned by the supplier who then becomes the user in this context.

4 Base materials

4.1 General

The dimensional criteria given in this clause are intended to ensure that the behaviour under test of any one fixing does not affect that of adjacent fixings. The dimensions given are not to be taken in any sense as guidance for field installation.

The standard specimen of base material shall be manufactured from concrete in accordance with the dimensional and casting requirements given below.