

Natural stone test methods - Determination of flexural strength under concentrated load

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NATIONAL FOREWORD

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English Version

Natural stone test methods - Determination of flexural strength under concentrated load

Méthodes d'essai pour pierres naturelles -
Détermination de la résistance à la flexion sous charge
centrée

Prüfverfahren für Naturstein - Bestimmung der
Biegefestigkeit unter Mittellinienlast

This European Standard was approved by CEN on 10 January 2022.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 12372:2022) has been prepared by Technical Committee CEN/TC 246 “Natural stones”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2022, and conflicting national standards shall be withdrawn at the latest by September 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12372:2006.

In comparison with the previous edition, the following technical modifications have been made:

- inclusion of an informative annex (Annex B) presenting an alternative method for calculation of flexural strength for off-centre specimen fracture.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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1 Scope

This document specifies a test method for determination of flexural strength under a concentrated load for natural stone. Both an identification and a technological product testing procedure are included.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12390-4, *Testing hardened concrete - Part 4: Compressive strength - Specification for testing machines*

3 Terms, definitions and symbols

3.1 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.2 Symbols

For the purposes of this document, the following symbols apply.

Symbol	Quantity	Unit
F	breaking load	N
L	total length of the specimen	mm
R_{tf}	flexural strength	MPa
V	loading rate	N/s
a	load rate	MPa/s
b	width of the specimen adjacent to the plane of fracture	mm
h	thickness of the specimen adjacent to the plane of fracture	mm
l	distance between the supporting rollers	mm

4 Principle

The principle of this method is to place a specimen on two rollers and to progressively load the specimen in the middle. The breaking load is measured and the flexural strength calculated.

5 Apparatus

5.1 Balance

A balance capable of weighing the specimen with an accuracy of 0,01 % of the mass of the specimen.