

**ISO**

*Transféré*

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION  
R 1920

CONCRETE TESTS

DIMENSIONS, TOLERANCES AND APPLICABILITY OF TEST PIECES

1st EDITION

October 1971

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Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

## BRIEF HISTORY

The ISO Recommendation R 1920, *Concrete tests – Dimensions, tolerances and applicability of test pieces*, was drawn up by Technical Committee ISO/TC 71, *Concrete and reinforced concrete*, the Secretariat of which is held by the Oesterreichisches Normungsinstitut (ON).

Work on this question led to the adoption of Draft ISO Recommendation No. 1920, which was circulated to all the ISO Member Bodies for enquiry in September 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Italy	Romania
Austria	Korea, Rep. of	South Africa, Rep. of
Belgium	Netherlands	Sweden
Chile	New Zealand	Turkey
Greece	Norway	U.A.R.
India	Poland	United Kingdom
Israel	Portugal	U.S.A.

The following Member Bodies opposed the approval of the Draft :

France  
Germany

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

## FOREWORD

This ISO Recommendation is one of a series dealing with concrete testing.

While awaiting the conclusions of present studies intended to eliminate international differences in test conditions for concrete, it has seemed necessary, as a first step, to provide for comparison of test results by fixing specifications for test pieces and limits for their validity.

For that reason this ISO Recommendation contains only the essential specifications for :

- (a) the series of nominal dimensions characterizing the categories of test pieces with equal validity;
- (b) the permitted tolerances of shape;
- (c) the applicability of different shapes of test pieces;
- (d) some particular rules for the expression of test results.

### CONCRETE TESTS

#### DIMENSIONS, TOLERANCES AND APPLICABILITY OF TEST PIECES

##### 1. SCOPE

This ISO Recommendation sets down the nominal dimensions and tolerances of shape of concrete test pieces in the form of cubes, rectangular cylinders and rectangular prisms with a square cross-section, as well as their respective applicability.

##### 2. DIMENSIONS

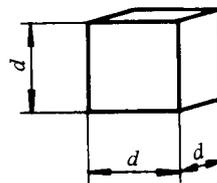
The basic size  $d$  of test pieces used in any country should be within  $\pm 10\%$  of the nominal size  $d_n$  given below, except as provided under clause 2.2.

The dimensions printed in bold type are preferable.

For each shape of test piece, the basic dimension  $d$  should be chosen at least four times the nominal maximum size of the aggregate in the concrete.

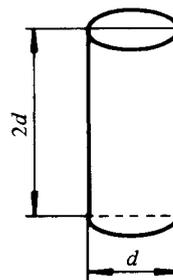
##### 2.1 Cubes

$d$ , mm	100	<b>150</b>	200	250	300
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##### 2.2 Cylinders

$d$ , mm	100	<b>150</b>	200	250	300
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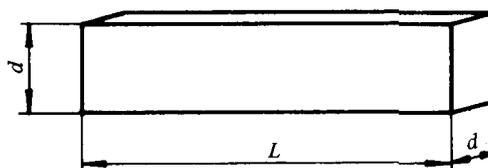


A cylinder of load-bearing area  $10\,000\text{ mm}^2$  is also permitted and is given the nominal diameter of 100 mm.

##### 2.3 Prisms

$d$ , mm	100	<b>150</b>	200	250	300
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$L$	$4d$	$5d$
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**3. TOLERANCES OF SHAPE \***

3.1 The tolerance on the flatness of the load-bearing surfaces of cubes and prisms used in all tests, and of cylinders used in compression tests, should be  $0.0005 d$ .

The tolerance on the generatrix of cylinders used in splitting tests should be  $0.001 d$ .

3.2 The angle between adjacent faces of cubes and prisms and that between top and bottom surfaces and the generatrix of cylinders should be  $90 \pm 0.5^\circ$ .

**4. APPLICABILITY OF TEST PIECES**

**4.1 Cubes**

Cubes are used for compression and indirect tension (by splitting) tests on the faces.

**4.2 Cylinders**

Cylinders are used for tests for axial compression, direct tension and also splitting along the generatrix.

**4.3 Prisms**

Prisms are used primarily for bending tests; the portions of prisms remaining after bending tests may be used for compression and indirect tension (by splitting) tests.

**5. PARTICULAR RULES**

If the actual dimensions of the test piece are within  $\pm 1\%$  of the basic size, the strength may be calculated on the basis of the basic size. If the actual dimensions are outside this tolerance, the strength calculation should be based on the actual dimensions of the test piece measured to the nearest millimetre.

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\* For the present, the tolerances of shape given above have reference chiefly to test pieces produced in laboratories.