



# MALAYSIAN STANDARD

MS EN 12390-3:2012

## Testing hardened concrete - Part 3: Compressive strength of test specimens (Second revision)

ICS: 91.100.30

Descriptors: hardened concrete, compressive strength, specimen

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## Committee representation

The Industry Standards Committee on Building, Construction and Civil Engineering (ISC D) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia  
Construction Industry Development Board Malaysia  
Department of Irrigation and Drainage Malaysia  
Department of Standards Malaysia  
Federation of Malaysian Manufacturers  
Jabatan Bomba dan Penyelamat Malaysia  
Jabatan Kerajaan Tempatan  
Jabatan Kerja Raya Malaysia  
Malaysian Timber Council  
Malaysian Timber Industry Board  
Master Builders Association Malaysia  
Pertubuhan Akitek Malaysia  
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Suruhanjaya Perkhidmatan Air Negara  
The Cement and Concrete Association of Malaysia  
The Institution of Engineers, Malaysia  
Universiti Sains Malaysia  
Universiti Teknologi Malaysia

The Technical Committee on Concrete and Concrete Products which recommended the adoption of the EN Standard as Malaysian Standard consists of representatives from the following organisations:

Association of Consulting Engineers Malaysia  
Construction Industry Development Board Malaysia  
Department of Irrigation and Drainage Malaysia  
IKRAM QA Services Sdn Bhd  
Jabatan Kerja Raya Malaysia (Cawangan Kejuruteraan Awam, Struktur dan Jambatan)  
Jabatan Kerja Raya Malaysia (Cawangan Pengkalan Udara dan Maritim)  
Master Builders Association Malaysia  
National Ready Mixed Concrete Association  
Pertubuhan Akitek Malaysia  
SIRIM Berhad (Secretariat)  
SIRIM QAS International Sdn Bhd  
The Cement and Concrete Association of Malaysia  
The Institution of Engineers, Malaysia  
Universiti Teknologi Malaysia  
Universiti Teknologi MARA

## NATIONAL FOREWORD

The adoption of the EN Standard as a Malaysian Standard was recommended by the Technical Committee on Concrete and Concrete Products under the authority of the Industry Standards Committee on Building, Construction and Civil Engineering.

This Malaysian Standard is the second revision of MS 26: Part 2, *Methods of testing hardened concrete*.

This Malaysian Standard is identical with EN 12390-3, *Testing hardened concrete - Part 3: Compressive strength of test specimens*, published by the European Committee for Standardization (CEN) with the exceptions as listed below.

### MALAYSIAN STANDARD EXCEPTIONS

- a) in the source text, “this European Standard” should read “this Malaysian Standard”,
- b) the comma which is used as a decimal sign (if any), to read as a point;
- c) **Clause/Subclause** **Modification**
- NA National Annex Adding “Adjustment for test specimens”
- d) reference to European Standards should be replaced by corresponding Malaysian Standards as follows:

<u>Referenced European Standards</u>	<u>Corresponding Malaysian Standards</u>
EN 12350-1, <i>Testing fresh concrete - Part 1: Sampling</i>	MS 26-1-1, <i>Testing fresh concrete - Part 1: Section 1: Sampling</i>
EN 12390-1, <i>Testing hardened concrete - Part 1: Shape, dimensions and other requirements for specimens and moulds</i>	MS EN 12390-1, <i>Testing hardened concrete - Part 1: Shape, dimensions and other requirements for specimens and moulds</i>
EN 12390-2, <i>Testing hardened concrete - Part 2: Making and curing specimens for strength tests</i>	MS EN 12390-2, <i>Testing hardened concrete - Part 2: Making and curing specimens for strength tests</i>
EN 12390-4, <i>Testing hardened concrete - Part 4: Compressive strength - Specification for testing machines</i>	MS EN 12390-4, <i>Testing hardened concrete - Part 4: Compressive strength - Specification for testing machines</i>
EN 197-1, <i>Cement - Part 1: Composition, specifications and conformity criteria for common cements</i>	MS 522, <i>Composition, specifications and conformity criteria for common cements</i>

**NATIONAL FOREWORD** *(continued)*

This MS EN 12390 consists of the following parts, under the general title *Testing hardened concrete*:

*Part 1: Shape, dimensions and other requirements for specimens and moulds*

*Part 2: Making and curing specimens for strength tests*

*Part 3: Compressive strength of test specimens*

*Part 4: Compressive strength - Specification for testing machines*

*Part 5: Flexural strength of test specimens*

*Part 6: Tensile splitting strength of test specimens*

*Part 7: Density of hardened concrete*

*Part 8: Depth of penetration of water under pressure*

This Malaysian Standard cancels and replaces MS 26: Part 2:1991.

This standard is published with the permission of the European Committee for Standardization. Such permission is hereby acknowledged.

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

English Version

## Testing hardened concrete - Part 3: Compressive strength of test specimens

Essais pour béton durci - Partie 3: Résistance à la compression des éprouvettes

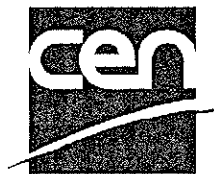
Prüfung von Festbeton - Teil 3: Druckfestigkeit von Probekörpern

This European Standard was approved by CEN on 27 December 2008.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This document (EN 12390-3:2009) has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

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 August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

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

This document supersedes EN 12390-3:2001.

It is recognised good practice to include measurement of density prior to the determination of compressive strength.

The methods for adjusting the ends of test specimens, given in Annex A, have been validated in a laboratory inter-comparison, part-funded by the EC under the Measurement and Testing Programme; contract MATI-CT-94-0043.

This standard is one of a series concerned with testing concrete.

The series EN 12390 includes the following parts:

EN 12390 Testing hardened concrete –

- Part 1: Shape, dimensions and other requirements for specimens and moulds;
- Part 2: Making and curing specimens for strength tests;
- Part 3: Compressive strength of test specimens;
- Part 4: Compressive strength - Specification for testing machines;
- Part 5: Flexural strength of test specimens;
- Part 6: Tensile splitting strength of test specimens;
- Part 7: Density of hardened concrete;
- Part 8: Depth of penetration of water under pressure.

The following amendments have been made to the 2001-12 edition of this standard:

- editorial revision
- the compressive strength to be expressed to the nearest 0,1 MPA (N/mm<sup>2</sup>) instead of 0,5 MPA (N/mm<sup>2</sup>)
- the loading rate has been changed from between 0,2 MPa/s and 1,0 MPa/s to 0,6 ± 0,2 MPa/s
- the allowable tolerance for specimens which do not meet the tolerance given in EN 12390-1 for designated size has been increased

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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