



SLOVENSKI STANDARD

SIST EN 1917:2003

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Betonski vstopni in revizijski jaški, nearmirani, z jeklenimi vlakni in armirani

Concrete manholes and inspection chambers, unreinforced, steel fibre and reinforced

Einsteig- und Kontrollschächte aus Beton, Stahlfaserbeton und Stahlbeton

Regards de visite et boîtes de branchement ou d'inspection en béton non armé, béton fibré acier et béton armé

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Ta slovenski standard je istoveten z: **EN 1917:2002**

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ICS:

93.030 Zunanji sistemi za odpadno vodo External sewage systems

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1917

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English version

**Concrete manholes and inspection chambers, unreinforced,
steel fibre and reinforced**

Regards de visite et boîtes de branchement en béton non
armé, béton fibré acier et béton armé

Einsteig- und Kontrollschächte aus Beton, Stahlfaserbeton
und Stahlbeton

This European Standard was approved by CEN on 18 August 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

	page
Foreword.....	6
1 Scope	7
2 Normative references	9
3 Terms, definitions and symbols	9
3.1 Terms and definitions.....	9
3.2 Symbols	15
4 General requirements.....	17
4.1 Materials.....	17
4.1.1 General.....	17
4.1.2 Joint seals.....	18
4.2 Concrete.....	18
4.2.1 Concrete materials.....	18
4.2.2 Concrete strength	18
4.2.3 Concrete quality	18
4.2.4 Water content of concrete.....	18
4.2.5 Cement content of concrete	18
4.2.6 Chloride content of concrete	18
4.2.7 Water absorption of concrete.....	19
4.3 Units	19
4.3.1 General.....	19
4.3.2 Finish.....	19
4.3.3 Geometrical characteristics.....	19
4.3.4 Durability of joints between vertical units and connecting pipes or adaptors	21
4.3.5 Crushing strength of chamber and shaft units.....	21
4.3.6 Vertical strength of reducing units and capping units	21
4.3.7 Installed steps	21
4.3.8 Watertightness	22
4.3.9 Serviceability	22
4.3.10 Durability.....	22
5 Special requirements.....	22
5.1 Steel fibre concrete units	22
5.1.1 Steel fibre content.....	22
5.1.2 Crushing strength of chamber and shaft units.....	22
5.2 Reinforced concrete units.....	23
5.2.1 Reinforcement.....	23
5.2.2 Concrete cover	23
5.2.3 Crushing strength of chamber and shaft units.....	23
5.2.4 Vertical strength of cover slabs, reducing slabs and capping units.....	23
5.2.5 Conformity of proof (crack) load tested units.....	23
5.2.6 Loading requirements for units not subject to 5.2.3 or 5.2.4	24
6 Test methods for finished products.....	24
6.1 General.....	24
6.2 Joint profiles.....	25
6.3 Reinforcement	25
6.3.1 Placing and content of reinforcement	26
6.3.2 Concrete cover	26
6.4 Crushing strength of chamber and shaft units.....	26
6.5 Vertical strength of reducing units and capping units	26
6.6 Watertightness	26
2	

6.7	Water absorption	26
6.8	Concrete strength in base units, capping unit walls, adjusting units and certain tapers	26
6.9	Installed steps	26
7	Conformity evaluation	27
7.1	General.....	27
7.2	Product evaluation procedures.....	27
7.2.1	General.....	27
7.2.2	Initial type testing	27
7.2.3	Factory production control.....	27
7.2.4	Further testing of samples taken at the factory	27
7.2.5	Tasks for a certification body.....	28
8	Marking	28
Annex A	(normative) Test method for crushing strength of chamber and shaft units.....	29
A.1	Principle.....	29
A.2	Apparatus	29
A.3	Preparation	29
A.4	Procedure	29
A.4.1	Horizontal arrangement	29
A.4.2	Vertical arrangement	30
A.4.3	General.....	32
A.5	Expression of results	32
Annex B	(normative) Test methods for vertical strength of reducing units and capping units	33
B.1	Principle.....	33
B.2	Apparatus	33
B.3	Preparation.....	33
B.4	Procedure	33
B.4.1	Unreinforced and steel fibre concrete units	33
B.4.2	Reinforced concrete units	33
B.5	Expression of results	36
B.5.1	Vertical crushing load tests.....	36
B.5.2	Vertical proof load tests.....	36
Annex C	(normative) Test methods for watertightness	37
C.1	Principle.....	37
C.2	Apparatus	37
C.3	Preparation.....	37
C.4	Procedure (vertical unit hydrostatic test - routine and initial type tests)	37
C.5	Procedure (joint assembly test)	37
C.6	Alternative procedure for assembled structures	38
C.7	Procedure (joint between a vertical unit and a connecting pipe or adaptor)	38
C.7.1	General.....	38
C.7.2	Watertightness during angular deflection	38
C.7.3	Watertightness under shear load.....	39
C.7.4	Watertightness during angular deflection under shear load	39
C.8	Expression of results	40
Annex D	(normative) Test method for water absorption.....	41
D.1	Principle.....	41
D.2	Sample	41
D.3	Apparatus	41
D.4	Procedure	41
D.4.1	Determination of mass of immersed sample m_1	41
D.4.2	Determination of mass of dried sample m_2	41
D.5	Expression of results	42
Annex E	(normative) Test methods for installed steps.....	43
E.1	Principle.....	43
E.2	Apparatus	43
E.2.1	Vertical loading test.....	43
E.2.2	Horizontal pull-out test.....	43

EN 1917:2002 (E)

E.3	Preparation	43
E.4	Procedure	43
E.4.1	Vertical loading test	43
E.4.2	Horizontal pull-out test	44
E.5	Expression of results	44
E.5.1	Vertical loading test	44
E.5.2	Horizontal pull-out test	44
Annex F	(normative) Manufacturer's quality assurance system	45
F.1	Organization	45
F.1.1	Responsibility and authority	45
F.1.2	Management representative for factory production control	45
F.1.3	Management review	45
F.1.4	Factory documents	45
F.2	Factory production control system	46
F.3	Inspection and testing	46
F.3.1	General	46
F.3.2	Inspection and test status	46
F.3.3	Testing	46
F.3.4	Inspection and test records	46
F.3.5	Complaints	46
F.4	Action required in the case of defectives	47
F.4.1	Unsatisfactory results	47
F.4.2	Defectives	47
F.4.3	Purchaser information	47
F.5	Handling, storage, packing and delivery of units	47
F.5.1	General	47
F.5.2	Handling	47
F.5.3	Storage	47
F.5.4	Packing and marking	47
F.5.5	Traceability	47
F.6	Training and personnel	47
F.7	Materials control	48
F.8	Equipment control	50
F.9	Process control	51
F.10	Control of laboratory equipment	52
Annex G	(normative) Sampling procedures for inspection of finished products	53
Annex H	(normative) Sampling procedures for continuous inspection of crushing strength, vertical strength and watertightness (vertical unit hydrostatic)	55
H.1	Inspection rates and interpretation of results	55
H.1.1	Inspection rates	55
H.1.2	Interpretation of results	55
H.2	Operating of switching rules	55
H.2.1	Tightened to normal inspection	55
H.2.2	Discontinuation of inspection	55
H.2.3	Normal to reduced inspection	56
H.2.4	Reduced to normal inspection	56
H.2.5	Normal to tightened inspection	56
H.3	Tightened, normal and reduced inspection	56
H.3.1	Tightened inspection	56
H.3.2	Normal inspection	56
H.3.3	Reduced inspection	58
	Reduced inspection corresponds to half the sampling rate of normal inspection.	58
H.3.4	Examples	58
H.4	Acceptability determination	60
H.4.1	Inspection on the basis of individual assessments	60
H.4.2	Inspection of crushing strength on the basis of statistical assessment	63
Annex I	(normative) Tasks for a product certification body	66
I.1	Initial inspection of factory and factory production control	66
I.2	Evaluation and approval of initial type testing of units	66

I.3	Periodic surveillance, evaluation and approval of factory production control.....	66
I.4	Audit testing of samples taken at the factory.....	66
I.5	Quality system	67
Annex J (normative)	Procedure for unreinforced concrete chamber and shaft units where routine (continuous) inspection of crushing strength is primarily to minimum crushing load	68
Annex ZA (informative)	Clauses of this European Standard addressing essential requirements or other provisions of EU Directives	70
ZA.1	Scope and relevant characteristics	70
ZA.2	Procedure(s) for the attestation of conformity of concrete manholes and inspection chambers	71
ZA.2.1	System of attestation of conformity	71
ZA.2.2	Declaration of conformity	72
ZA.3	CE marking.....	72
Bibliography	75

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SIST EN 1917:2003

<https://standards.iteh.ai/catalog/standards/sist/49425637-2c7e-4408-8568-df3d9c49f270/sist-en-1917-2003>

EN 1917:2002 (E)**Foreword**

This document EN 1917:2002 has been prepared by Technical Committee CEN/TC 165 "Wastewater engineering", the secretariat of which is held by DIN.

It is a companion standard to EN 1916 "Concrete pipes and fittings, unreinforced, steel fibre and reinforced".

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 April 2003, and conflicting national standards shall be withdrawn at the latest by October 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

This European Standard includes ten normative annexes and one informative annex. Annexes A, B, C, D, E, F, G, H, I and J are normative, annex ZA is informative.

When the text of this European Standard was approved, complete agreement could not be achieved for all requirements in the existing national specifications of CEN members and so it includes only those requirements and associated test methods for which a consensus could be reached. Consensus was achieved on the requirements for quality control.

NOTE For the time being, for specification purposes, complementary (i.e. non-conflicting) requirements and associated test methods outside the scope of this European Standard (see Table 1) will be needed at national level. In order not to create any barrier to trade, any call for conformity to complementary requirements should always be qualified by incorporating the words 'or equivalent' after the reference to them.

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

1 Scope

This European Standard specifies performance requirements as defined in Table 1 and describes test methods for precast concrete units for inspection chambers designed to be used for inverts not exceeding 2 metres deep and manholes, of circular, rectangular (with or without chamfered or rounded corners) or elliptical internal shape, unreinforced, steel fibre and reinforced, with nominal sizes and normal length not exceeding DN 1 250 (circular) or LN 1 250 (rectangular or elliptical). The intended use is to permit access to, and to allow aeration of, drain or sewer systems for the conveyance of sewage, rainwater and surface water under gravity or occasionally at low head of pressure, mainly installed in areas subjected to vehicular and/or pedestrian traffic. Requirements for joints (elastomeric, plastomeric or other sealing materials, either integrated in the unit or supplied separately) are also specified.

Provision is made for the evaluation of conformity of units to this European Standard.

Marking conditions are included.

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Table 1 — Specified characteristics and exclusions

Characteristic	Exclusions
Materials	— Specifications where relevant European Standards have not yet been published; — any classification of double steps.
Concrete	Types and value(s) of minimum content of cement plus any pozzolanic or latent hydraulic addition, according to serviceability conditions.
Finish	Limitations on size of blemishes.
Geometrical characteristics	— Nominal sizes; — internal dimensions with tolerances; — shape and position of openings in slabs and adjusting units; — benchings; — tolerances on wall thickness of units, and on thickness of slabs and adjusting units; — tolerances on internal height; — deviation from straightness, from squareness of ends and from flatness of end faces.
Joints and joint seals	Provisions for interchangeability.
Crushing strength	Specific strength classes and corresponding minimum crushing loads.
Vertical strength	Vertical loading requirements for units to be installed in areas other than those for all types of road vehicles.
Watertightness	None.
Special requirements for steel fibre concrete units and reinforced concrete units	— Value(s) of minimum concrete cover for reinforced concrete units; — requirements for weld testing of reinforcement cages.
Marking	— Symbols or letters for identifying the material of a unit; — symbols or letters for identifying serviceability conditions other than normal conditions as stated in 4.3.9.
<p>NOTE Provisions for the following are also outside the scope of this European Standard:</p> <ul style="list-style-type: none"> - units with nominal sizes or nominal lengths greater than DN 1 250 or LN 1 250; - units for manholes and inspection chambers with a cross-section other than circular, rectangular or elliptical; - inspection chambers designed to be used for inverts other than those not exceeding 2 metres deep; - lifting facilities; - circumstances other than those stated; - any receiving inspection by, or on behalf of, the purchaser; - durability of joints between vertical units and connecting pipes or adaptors not conforming to EN 1916. 	

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (Including amendments).

EN 681-1, *Elastomeric seals - Materials requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber.*

EN 1916, *Concrete pipes and fittings, unreinforced, steel fibre and reinforced.*

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature.*

ISO 4012, *Concrete - Determination of compressive strength of test specimens.*

ISO 10544, *Cold reduced steel wire for the reinforcement of concrete and the manufacture of welded fabric.*

3 Terms, definitions and symbols

3.1 Terms and definitions

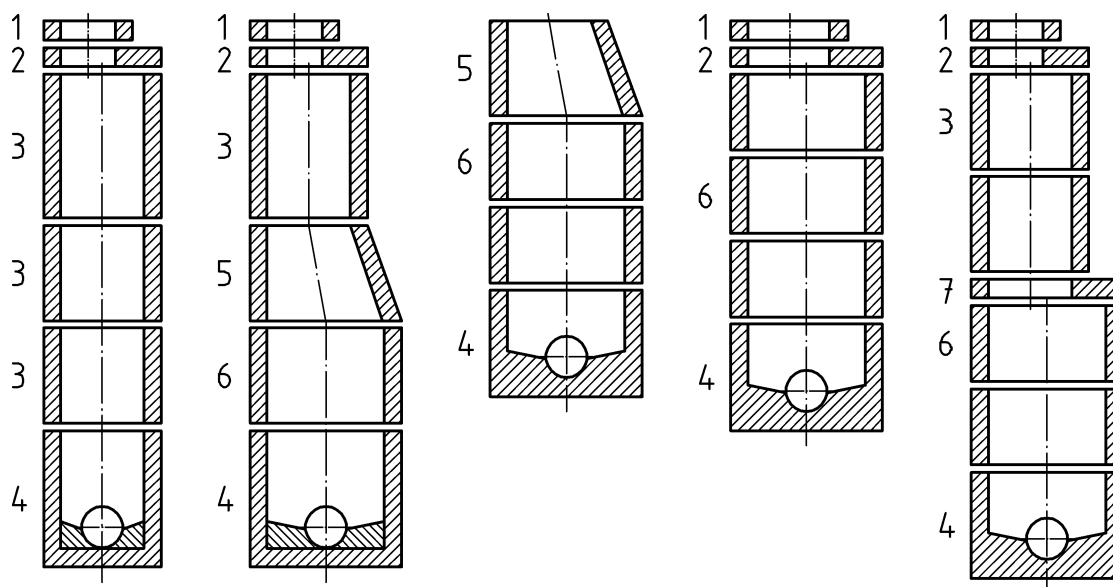
For the purposes of this European Standard, the following terms and definitions apply.

3.1.1

manhole

vertical watertight structure used to connect pipelines, to change direction and/or level, to permit access for personnel and/or equipment for inspection and maintenance and to allow aeration and ventilation

NOTE For the purposes of this European Standard a precast manhole or inspection chamber consists of units defined in this clause and as shown in Figure 1. Typical joint assemblies are shown in Figure 2.

**Key**

- 1 Adjusting unit
- 4 Base unit
- 2 Cover slab
- 6 Chamber unit
- 7 Reducing slab
- 3 Shaft unit
- 5 Taper

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NOTE 1 Joint details have been omitted, for clarity.

NOTE 2 Precast base slabs of structures can be integral with the base unit or a separate slab incorporating construction joints.

Figure 1 — Typical structures

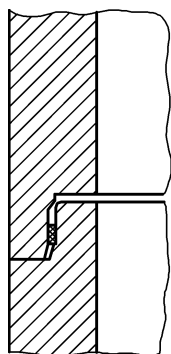


Figure 2.a -
Elastomeric
joint seal

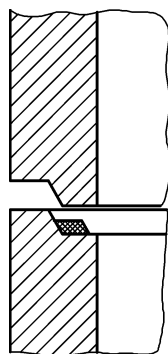


Figure 2.b -
Elastomeric,
plastomeric or other
sealing material

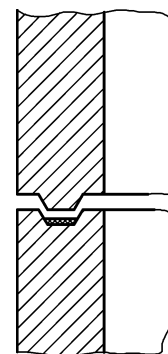


Figure 2.c -
Elastomeric,
plastomeric or
other sealing material

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Figure 2 — Typical joint assemblies
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3.1.2

inspection chamber

structure as a manhole, but without access for personnel

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3.1.3

base unit

vertical component with integral base, with or without benching, and with appropriate flexible joints to provide watertight connections with pipelines, with or without integral connecting pipe(s) or adaptor(s)

3.1.4

chamber or shaft unit

vertical hollow component of uniform cross-section except at the joint profile. Flexible joints to accommodate connecting pipelines may be provided as for a base unit

3.1.5

capping unit

integral shaft unit and shaft cover slab

3.1.6

vertical unit

base, capping, chamber or shaft unit

3.1.7

cover slab

unit forming the horizontal roof of a chamber or shaft and having an access opening, immediately above which an adjusting unit or frame and cover is designed to fit

3.1.8

reducing slab

reducing unit forming the horizontal roof of a chamber and having an opening to accommodate a shaft unit above it

EN 1917:2002 (E)**3.1.9****taper**

unit forming the sloping roof of a circular or elliptical chamber, thereby reducing the chamber to the size of the access opening

3.1.10**reducing unit**

taper (either used as a top or intermediate unit), cover slab or reducing slab

3.1.11**adaptor**

fitting that provides for connections to structures

3.1.12**connecting pipe**

short pipe with plain, spigot or socket ends

3.1.13**adjusting unit**

component without a joint or installed step, to adjust the total height of a structure and/or to accommodate an appropriate frame and cover

3.1.14**unit**

precast concrete component of a manhole or inspection chamber structure

3.1.15**type**

units of the same manufacturing process, shape or bore and material (unreinforced, steel fibre or reinforced concrete)

3.1.16**nominal size**

numerical designation of the size of a component within a structure, which is a convenient integer approximately equal to the manufacturing dimension(s) in millimetres; for a circular unit it is the internal diameter (DN), for a unit having a rectangular or elliptical internal shape it is the internal length/width (LN/WN)

3.1.17**rectangular shape**

shape of a rectangle (including a square), or one having chamfered or rounded corners

3.1.18**elliptical shape**

shape approximating to an ellipse, but a compound curve formed by two opposing pairs of circular arcs, the radius of one pair being larger than that of the other pair

3.1.19**internal height**

dimension of a unit relating to the jointing faces or invert as shown in Figure 3

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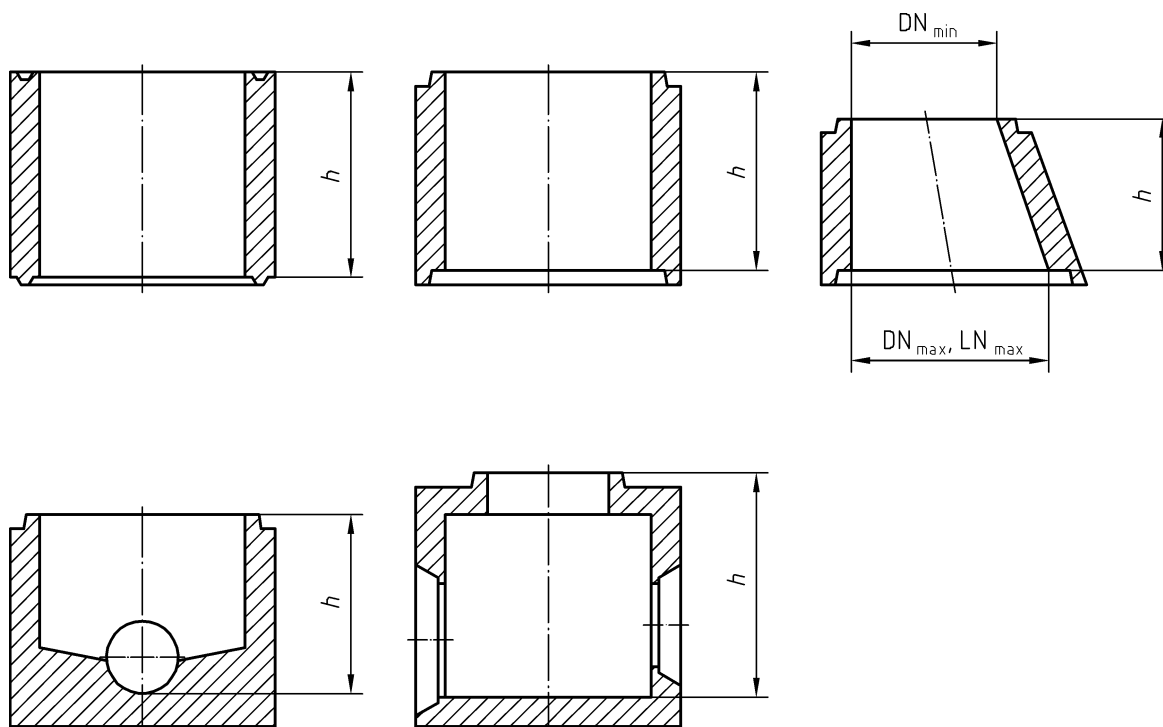


Figure 3 — Illustration of internal height of vertical units and tapers

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3.1.20

integrated seal

seal incorporated into a unit during manufacture

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3.1.21

strength class

minimum crushing load in kilonewtons per metre, divided by one thousandth of either a unit's nominal size (DN) or nominal length (LN)

3.1.22

minimum crushing load

load that a unit is required to withstand

3.1.23

ultimate (collapse) load

maximum load reached by the testing machine during a crushing or vertical strength test (i.e. when the load-recording facility does not show any further increase)

3.1.24

proof load

load that a steel fibre or reinforced concrete unit is required to withstand with a defined limit on cracking

3.1.25

concrete cover

actual thickness of concrete over any reinforcement

3.1.26

characteristic value

that value of a characteristic beyond which, with a 75 % confidence level, 5 % of the population of all possible measurements of the specified material may fall

NOTE A 75 % confidence level is recommended in ISO 12491.