EA MLA Signatory
Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00 Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products, as amended

CERTIFICATE OF ACCREDITATION

No. 219/2022

České vysoké učení technické v Praze
with registered office Jugoslávských partyzánů 1580/3, 160 00 Praha 6 - Dejvice, Company Registration No. 68407700

to the Testing Laboratory No. **1061**
Klokner Institute Testing Laboratory

Scope of accreditation:

Testing of mechanical, physical and rheological properties of building materials, static and dynamic tests of building structures, parts and components, including the determination of dynamic effects on structures to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of Accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

ČSN EN ISO/IEC 17025:2018

In its activities performed within the scope and for the period of validity of this Certificate, the Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited Conformity Assessment Body.

This Certificate of Accreditation replaces, to the full extent, Certificate No.: 11/2021 of 4. 1. 2021, or any administrative acts building upon it.

The Certificate of Accreditation is valid until: **11. 5. 2023**

Prague: 10. 5. 2022

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Lukáš Burda
Director of the Department
of Testing and Calibration Laboratories
Czech Accreditation Institute
Public Service Company

The Appendix is an integral part of
Certificate of Accreditation No. 219/2022 of 10/05/2022

Accredited entity according to ČSN EN ISO/IEC 17025:2018:

České vysoké učení technické v Praze
Klokner Institute Testing Laboratory
Šolínova 7, 166 08 Praha 6

The laboratory provides expert opinions and interprets test results.
The Laboratory is qualified to carry out independent sampling.

Tests:

Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
1	**Bulk Density**		
1-1*	Determination of fresh concrete density	ČSN EN 12350-6	Fresh concrete
1-2*	Determination of density of fresh mortar	ČSN EN 1015-6	Fresh mortar
1-3	Determination of hardened concrete density	ČSN EN 12390-7	Concrete
1-4	Determination of dry bulk density	ČSN EN 678	Aerated concrete, aerated concrete products
1-5	Determination of mass, bulk density	ČSN 72 2603, p. 1-6, 11-14	Brick products
1-6	Reserved		
1-7	Determination of bulk density	ČSN EN 1015-10	Dry hardened mortar
2	**Dimensions**		
2-1	Determination of dimensions of concrete paving blocks	ČSN EN 1338, Annex C ČSN EN 1339, Annex C ČSN EN 1340, Annex C	Concrete paving blocks Concrete paving flags Concrete kerb units
2-2	Determination of dimensions	ČSN EN 772-16	Masonry units
3	Reserved		
4	**Compressive strength**		
4-1	Determination of compressive strength of test specimens	ČSN EN 12390-3	Concrete
4-2	Reserved		
4-3	Determination of compressive strength	ČSN EN 679	Aerated concrete, aerated concrete products
4-4	Determination of compressive strength	ČSN EN 12190	Products and systems for the protection and repair of concrete structures, rehabilitation materials

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
4-5	Determination of compressive strength	ČSN EN 1354	Porous concrete from porous aggregates
4-6	Determination of compressive strength	ČSN EN 772-1	Masonry units
4-7	Reserved		
4-8	Determination of uniaxial compressive strength	ČSN EN 1926	Natural stone
5	**Bending strength**		
5-1	Determination of flexural strength of test specimens	ČSN EN 12390-5	Concrete
5-2	Reserved		
5-3	Determination of bending strength	ČSN EN 1521	Porous concrete from porous aggregates
5-4	Determination of flexural strength	ČSN EN 1351	Aerated concrete, aerated concrete products
5-5	Measuring of flexural tensile strength (limit of proportionality (LOP), residual strength)	ČSN EN 14651+A1	Metallic fibre-reinforced concrete
5-6	Determination of flexural strength (first peak, ultimate and residual)	ČSN EN 14488-3	Sprayed concrete
5-7	Determination of flexural strength	ČSN EN 772-6	Masonry units
5-8	Reserved		
5-9	Reserved		
5-10	Bend test	ČSN EN ISO 15630-1, chap. 4 and 6	Reinforcing bars, wire rod and wire for the reinforcement of concrete
5-11	Bend test of weld joints	ČSN EN ISO 15630-2, chap. 4 and 6	Welded concrete reinforcing mesh
5-12	Bend test	ČSN EN ISO 17660-1, p. 14.4	Load-bearing welded joints of reinforcing steel
5-13	Reserved		
5-14	Reserved		
5-15	Determination of bending strength	ČSN P 73 2452 ČSN EN 12390-5	Hardened fibre-reinforced concrete
6	**Tensile strength**		
6-1	Tensile testing	ČSN EN ISO 6892-1	Metallic materials

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
6-2	Tensile testing	ČSN EN ISO 15630-1, chap. 4 and 5	Reinforcing bars, wire rod and wire for the reinforcement of concrete
6-3	Tensile testing	ČSN EN ISO 15630-3, chap. 4 and 5	Steel for prestressing
6-4	Tensile test	ČSN EN ISO 15630-2, chap. 4 and 5	Welded concrete reinforcing mesh
6-5	Tensile test	ČSN EN ISO 17660-1, p. 14.2	Load-bearing welded joints of concrete reinforcing steel
6-6	Tensile test	ČSN EN ISO 17660-2, p. 14	Non-structural welded joints of concrete reinforcing steel
6-7	Reserved		
6-8	Determination of uniaxial tensile strength	ČSN 73 1318, Annex 1	Concrete
6-9	Reserved		
6-10	Reserved		
6-11	Determination of tensile strength	ČSN EN 50182, p. 6.4.1 to 6.4.8, Annex C	Conductors for overhead lines
7	**Cement and mortar strengths**		
7-1	Determination of flexural strength and compressive strength	ČSN EN 196-1	Cement
7-2	Determination of flexural strength and compressive strength	ČSN EN 1015-11	Mortars, ready-mix plasters and binders
8	**Shear strength**		
8-1	Determination of tensile shear strength of weld joints	ČSN EN ISO 15630-2, chap. 4 and 7	Welded concrete reinforcing mesh
8-2	Shear test	ČSN EN ISO 17660-1, p. 14.3	Load-bearing welded joints of concrete reinforcing steel
8-3	Reserved		
8-4	Reserved		
8-5	Determination of shear adhesion of steel to concrete	ČSN EN 15184	Coated steel rods in reference concrete
8-6	Determination of shear adhesion of steel to concrete	ČSN 73 1328	Reinforcing bars in concrete
8-7	Determination of shear adhesion of steel to concrete	ČSN 73 1333	Steel for prestressing in concrete

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
9	**Indirect tensile strength**		
9-1	Reserved		
9-2	Determination of the indirect tensile strength	ČSN EN 12390-6	Concrete
9-3	Determination of the indirect tensile strength	ČSN EN 1338, Annex F ČSN EN 1339, Annex F ČSN EN 1340, Annex F	Concrete paving blocks Concrete paving flags Concrete kerb units
10	**Tensile bond test**		
10-1*	Test of adhesion of surface finish of building structures and components	ČSN 73 2577, p. 1-14	Surface finish of building structures and components
10-2*	Determination of layer adhesion and tensile strength of surface layers	ČSN 73 6242, Annex B	Surface finish of building structures and components
10-3	Measurement of bond strength by pull-off	ČSN EN 1542	Products and systems for the protection and repair of concrete structures, rehabilitation materials
11	**Static modulus of elasticity**		
11-1	Determination of static modulus of elasticity in compression	ČSN ISO 1920-10	Concrete
11-2	Determination of static modulus of elasticity in compression	ČSN EN 1352	Autoclaved aerated concrete or lightweight aggregate concrete
11-3	Determination of modulus of elasticity in compression	ČSN EN 13412	Mortars, ready-mix plasters and binders
11-4	Determination of static modulus of elasticity	ČSN EN 14580	Natural stone
11-5	Reserved		
11-6	Reserved		
11-7	Determination of secant modulus of elasticity in compression	ČSN EN 12390-13	Concrete
12	**Hardness testing of concrete**		
12-1	Determination of hardness by hardness testing method	ČSN 73 1370 ČSN 73 1373	Concrete
13	Reserved		

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
14	**Hardness testing of metallic materials**		
14-1	Brinell hardness test	ČSN EN ISO 6506-1	Metallic materials
15	**Testing of electrical insulators, wires and elements of overhead lines**		
15-1	Verification of dimensions, test of mechanical failure force and determination of deflection under load	ČSN EN 60168 p. 5.1, 5.2, 5.3, 5.8, 5.9, Annex A; IEC 60168, p. 5.1, 5.2, 5.3, 5.8, 5.9, Annex A	Indoor and outdoor post insulators of ceramic materials or glass
15-2	Test of mechanical failure load	ČSN EN 62155, p. 7.2, 8, 10.5, 10.6; IEC 62155, p. 7.2, 8, 10.5, 10.6	Hollow pressurized and unpressurized ceramic and glass insulators
15-3	Dimension verification and mechanical tests	ČSN EN 60137 ed. 3 p. 8.9, 8.13	Insulated bushings for alternating voltage
15-4	Test of mechanical failure force	ČSN IEC 383-1, chap. 19 IEC 60383-1, chap. 19	Ceramic or glass insulator units for overhead lines
15-5	Load test of the assembled core	ČSN EN 61952 ed. 2, p. 10.4, 11.2, 12.4, 13; IEC 61952, p. 10.4, 11.2, 12.4, 13; ANSI C29.11, p. 7.2.2, p. 8.3.1.3.1; ANSI C29.17, p. 7.2.2	Composite post insulators for overhead lines
15-6	Tensile load test	ČSN EN 60383-2	Insulator springs and insulators sets
15-7	Ultimate mechanical-strength tests and time-load-withstand-strength test	ANSI C29.1, p. 5.1, 5.3	Electric power insulators
15-8	Tensile load test	ANSI C29.13, p. 7.7	Distribution dead-end type composite insulators
15-9	Test the behaviour of the assembled cores under load, depending on the duration of load	ČSN EN 61109, p. 10.4, 11.2; IEC 61109, p. 10.4, 11.2	Composite suspension and tension insulators for overhead lines

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
15-10	Load test of the assembled core	ČSN EN 62231, p. 8.3, 9.3, 10.4, 11.3; IEC 62231, p. 8.3, 9.3, 10.4, 11.3; ANSI C29.11, p. 8.3.1.3.2, p. 8.3.2	Composite station post insulators
15-11	Mechanical tests of fittings	ČSN EN 61284, p. 11; IEC 61284, p. 11	Fittings for overhead lines
15-12	Mechanical tests of spacers	ČSN EN 61854, p. 7.5.1, 7.5.2, 7.5.3; IEC 61854, p. 7.5.1, 7.5.2, 7.5.3	Spacers for overhead lines
15-13	Bending moment test	ČSN EN 60099-4 ed.3, p. 8.11, 10.8.11, Annex G	Surge arresters
15-14	Mechanical tests of composite hollow insulators	ČSN EN 61462, p. 8.5, 9.3, 10.4, Annex A, C; IEC 61462, p. 8.5, 9.3, 10.4, Annex A, C	Pressured and unpressured composite hollow insulators for use in electrical equipment with rate voltage greater than 1 000 V
15-15	Test of mechanical properties of porcelain insulators	ANSI C29.9, p. 5, 7.2.6, 7.2.7, 7.3.3-7.3.5, 7.4.2	Ceramic insulators
15-16	Mechanical tests of earthing equipment in bending and torsion	ČSN EN 61230 ed. 2, Annex B	Equipment for earthing and short-circuiting
15-17	Wrapping test	ČSN ISO 7802	Metallic wires
15-18	Mechanical tests of wires	ČSN EN 50183, p. 6, 9, 11.3, 11.4 ČSN EN 50189, p. 11.2 - 11.5 ČSN IEC 889, p. 5, 7, 10.1, 10.2	Wires for overhead line conductors
15-19	Determination of thickness and adhesion of non-ferrous metallic coatings	ČSN EN 50189 p. 11.6 - 11.8 ČSN EN 10244-1 ČSN EN 10244-2, except p. 5.2.3	Steel wires with non-ferrous coating
15-20	Determination of resistance to chemical attack	IEC TR 62039 p. 3.8	Polymeric insulating materials in outdoor high voltage electrical applications

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
16	**Masonry testing**		
16-1	Determination of compressive strength	ČSN EN 1052-1	Masonry
17	Reserved		
18	**Testing of injection mortars**		
18-1*	Determination of workability, density, strength and volume changes of injection mortars	ČSN EN 445, p. 4.3.1, 4.5, 4.6, 4.7	Injection mortars for prestressing cables
19	**Cement tests**		
19-1	Determination of setting times and soundness	ČSN EN 196-3+A1	Cement
20	Reserved		
21	**Tests of fresh concrete**		
21-1*	Slump test	ČSN EN 12350-2	Fresh concrete
21-2*	Vebe test	ČSN EN 12350-3	Fresh concrete
21-3*	Flow table test	ČSN EN 12350-5	Fresh concrete
21-4*	Slump-flow test	ČSN EN 12350-8	Fresh concrete
21-5*	V-funnel test	ČSN EN 12350-9	Fresh concrete
21-6*	L-box test	ČSN EN 12350-10	Fresh concrete
21-7*	J-ring test	ČSN EN 12350-12, except p. 4.2	Fresh concrete
21-8	Determination of consistence	ČSN EN 1015-3	Fresh mortar
21-9	Reserved		
21-10	Determination of workable life	ČSN EN 1015-9	Fresh mortar
22	**Determination of air content in fresh concrete and fresh mortar**		
22-1*	Determination of air content	ČSN EN 12350-7 p. 1÷3, 5÷6	Fresh concrete
22-2*	Determination of air content	ČSN EN 1015-7	Fresh mortar
22-3	Determination of porosity	Guideline WTA 2-9-04D, p. 6.3.9	Hardened mortar
23	Reserved		
24	**Freeze-thaw testing**		
24-1	Testing of mortar frost resistance	ČSN 72 2452	Mortars, ready-mix plasters and binders

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
24-2	Determination of concrete frost resistance	ČSN 73 1322	Concrete
24-3	Reserved		
24-4	Determination of resistance to freezing/thawing without the use of de-icing salts	ČSN EN 13198, Annex A	Concrete products and prefabricated products
25	**Determination of water absorption, watertightness**		
25-1	Determination of total water absorption	ČSN EN 1338, Annex E ČSN EN 1339, Annex E ČSN EN 1340, Annex E	Concrete paving blocks Concrete paving flags Concrete kerb units
25-2	Reserved		
25-3	Reserved		
25-4	Reserved		
25-5	Determination of depth of penetration of water under pressure	ČSN EN 12390-8	Concrete
25-6	Reserved		
25-7	Water absorption test	ČSN EN 13369, ed. 2, Annex F	Prefabricated concrete products, terrace tiles
26	**Determination of resistance to de-icing agents**		
26-1	Determination of cement concrete surface resistance to water and chemical de-icing agents	ČSN 73 1326	Concrete
26-2	Determination of resistance to freezing/thawing with the use of de-icing salt	ČSN EN 13198, Annex B	Concrete products and prefabricated products
26-3	Determination of resistance to freezing/thawing with the use of de-icing salts	ČSN EN 1338, Annex D ČSN EN 1339, Annex D ČSN EN 1340, Annex D	Concrete paving blocks Concrete paving flags Concrete kerb units
26-4	Reserved		
26-5	Determination of resistance to freezing and thawing - peeling	ČSN P CEN/TS 12390-9, p. 5	Concrete
26-6	Determination of the resistance to salts	Guideline WTA 2-9-04D, p. 6.3.10	Hardened mortar

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
27	**Determination of concrete resistance to chemical attack and carbonation of concrete**		
27-1	Reserved		
27-2*	Determination of depth of carbonation by phenolphthalein method	ČSN EN 14630	Hardened concrete
28	Reserved		
29	Reserved		
30	**Static testing of structures**		
30-1*	Loading tests of building structures	ČSN 73 2030	Building structures and parts
30-2*	Static load testing of bridges	ČSN 73 6209, except p. 7.7	Bridge structures
30-3	Mechanical testing of cold formed members and sheeting	ČSN EN 1993-1-3, Annex A	Steel cold formed members and sheeting
30-4	Mechanical testing of coupling elements and coupled ceiling panels	ČSN EN 1994-1-1 ed. 2, Annex B	Reinforced-concrete structures
30-5	Reserved		
30-6	Reserved		
30-7	Reserved		
30-8	Reserved		
30-9	Reserved		
30-10	Testing of mechanical properties	ČSN EN 1794-1, Annex A, B and E	Road traffic noise reducing devices
31	**Impact tests**		
31-1	Determination of stone impact resistance	ČSN EN 1794-1, Annex C	Road traffic noise reducing devices
32	**Dynamic tests of structures and vibration assessment**		
32-1*	Informative dynamic test	ČSN 73 2044, p. 1-19, 24-43, 58	Building structures
32-2*	Dynamic load test	ČSN 73 2044, p. 1-17, 20-31, 44-56, 58	Building structures
32-3*	Determination of dynamic effects of machines on structures	ČSN 73 0032, p. 99-109, 116-118, 120, 121	Building structures

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
32-4*	Reserved		
32-5*	Dynamic load test of bridges	ČSN 73 6209, p. 4.2, 5.2, 6.1-6.3, 6.3.3, 6.5.2, 7.2 and 8	Building structures
33	**Axial fatigue test**		
33-1	Axial fatigue test	ČSN EN ISO 15630-1, chap. 4 and 8	Reinforcing bars, wire rod and wire for the reinforcement of concrete
33-2	Axial fatigue test	ČSN EN ISO 15630-2, chap. 4 and 8	Welded concrete reinforcing mesh
34	**Testing of soils, fly ash and aggregates**		
34-1	Determination of the water content of a soil	ČSN EN ISO 17892-1	Soils and similar materials used as soil substitute
34-2*	Determination of bulk density	ČSN 72 1010, p. A, C, D; ČSN EN ISO 17892-2	Soils and similar materials used as soil substitute; aggregates
34-3	Determination of particle size distribution of soils	ČSN EN ISO 17892-4	Soils and similar materials used as soil substitute
34-4	Determination of Atterberg limits	ČSN EN ISO 17892-12	Soils and similar materials used as soil substitute
34-5	Reserved		
34-6	Reserved		
34-7	Reserved		
34-8	Determination of the water content by drying in a ventilated oven	ČSN EN 1097-5	Aggregates
34-9	Determination of water absorption	ČSN EN 1097-6, Annex A	Aggregates
34-10	Determination of fineness by wet sieving	ČSN EN 451-2	Fly ash
35	**Determination of moisture, dry matter content**		
35-1	Determination of moisture content by gravimetric method	ČSN EN 13183-1	Sawn timber
35-2	Reserved		
35-3	Reserved		
35-4	Reserved		
35-5	Reserved		

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Ordinal number[1]	Test procedure/method name	Test procedure/method identification[2]	Tested object
35-6	Determination of dry matter content	ČSN EN 480-8	Additives for concrete, mortar, mortar grouting

[1] asterisk at the ordinal number identifies the tests, which the Laboratory is qualified to carry out outside the permanent laboratory premises

[2] if the document identifying the test procedure is dated, only these specific procedures are used. If the document identifying the test procedure is not dated, the latest editions of the specified procedure are used (including any changes)

Sampling:

Ordinal number	Test procedure/method name	Test procedure/method identification	Tested object
V.1	Sampling of fresh concrete	ČSN EN 12350-1	Sampling of fresh concrete
V.2	Sampling of hardened concrete	ČSN EN 12504-1 p. 2 - 6	Samples of hardened concrete
V.3	Sampling and preparation of test mortars	ČSN EN 1015-2	Mortars

[1] if the document identifying the sampling procedure is dated, only these specific procedures are used. If the document identifying the sampling procedure is not dated, the latest edition of the specified procedure is used (including any changes)

Explanations and abbreviations:

ANSI US Standard (American National Standards Institute)
DIN German standard (Deutsche IndustrieNorm)
IEC Standard of International Electrotechnical Commission
WTA WTA Guidelines (Scientific and Technical Association for Building Rehabilitation and Monument Preservation)
OTP Railway Infrastructure Administration - General Specifications
chap. chapter
p. paragraph

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