

**The Appendix is an integral part of
Certificate of Accreditation No: 133/2024 of 20/03/2024**

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

Materiálové laboratoře Chomutov s.r.o.
CAB number 1155, MTL Testing Laboratory
Luční 4624, 430 01 Chomutov

The laboratory applies a flexible approach to the scope of accreditation.

The current list of activities carried out within the flexible scope is publicly available on <https://mtl.cz/cz/podpora.html#kestazeni> in the form „List of activities within the flexible scope of accreditation“.

The laboratory provides opinions and interprets test results.

Detailed information on activities within the scope of accreditation (determined analytes) is given in the section „Specification of the scope of accreditation“.

Tests:

Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Subject of the test	Degrees of freedom ³
1	Tensile test			
1.1	Tensile test	ČSN EN ISO 6892-1; ČSN EN ISO 6892-2; ASTM E8/E8M; ASTM E21; ASTM A370, cl. 6 to 14	Metallic materials	A, D
1.2	Tensile test	ČSN EN ISO 4136; ČSN EN ISO 5178; ČSN EN ISO 14270; ČSN EN ISO 14273	Welded joints of metallic materials	A, D
1.3	Tensile test	ČSN EN 12814-2	Welded joints of plastics	A, D
1.4	Torsion test	13-MTL-01/01 (ČSN EN ISO 898-5; ČSN EN ISO 16047; ČSN EN ISO 17653)	Structural and welded joints	A, D
2	Hardness tests			
2.1	Brinell hardness tests	ČSN EN ISO 6506-1; ASTM A370, cl. 16 and 17; ASTM E10	Metallic materials	A, D
2.2	Vickers hardness tests (HV 0,1 - HV 120)	ČSN EN ISO 6507-1; ASTM E92, except cl. 5.9	Metallic materials	A, D
2.3	Rockwell hardness tests	ČSN EN ISO 6508-1; ASTM A370, cl. 16 and 18; ASTM E18	Metallic materials	A, D
2.4	Hardness test	ČSN EN ISO 9015-1; ČSN EN ISO 9015-2; ČSN EN ISO 14271	Welded joints of metallic materials	A, D
2.5	Determination of the thickness of surface-hardened layers	ČSN EN ISO 18203	Steel	A, D
2.6	Hardenability test	ČSN EN ISO 642	Steel	A, D

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Subject of the test	Degrees of freedom ³
3	Impact bend tests			
3.1	Impact bending test	ČSN 42 0382; ČSN 42 0383; ČSN EN ISO 148-1; ASTM A370, cl. 20 to 27; ASTM E23	Metallic materials	A, D
3.2	Impact bending test	ČSN EN ISO 9016	Welded joints	A, D
4	Technological tests			
4.1	Bend test	ČSN EN ISO 7438; ASTM A370, cl.15	Metallic materials	A, D
4.2	Bend test	ČSN EN ISO 8491; ASTM A370, A2.5.1.6	Metal tubes	A, D
4.3	Flattening test	ČSN EN ISO 8492; ASTM A370, A2.5.1.1	Metal tubes	A, D
4.4	Flaring test	ČSN EN ISO 8493; ASTM A370, A2.5.1.5	Metal tubes	A, D
4.5	Flanging test	ČSN EN ISO 8494; ASTM A370, A2.5.1.4	Metal tubes	A, D
4.6	Ring expanding test	ČSN EN ISO 8495	Metal tubes	A, D
4.7	Ring tensile test	ČSN EN ISO 8496	Metal tubes	A, D
4.8	Upsetting test	ČSN 42 0426; ASTM A370, A2.5.1.3	Metallic materials	A, D
4.9	Bend test	ČSN EN ISO 5173; ASTM A370, A2.5.1.7	Welded joints	A, D
4.10	Fracture test	ČSN EN ISO 9017	Welded joints	A, D
4.11	Weld bead bend test	SEP 1390	Welded joints	A, D
4.12	Peel and chisel testing	ČSN EN ISO 10447	Spot, seam and projection welds	A, D
4.13	Peel test by compression	ČSN EN 12814-4, cl. 7	Welded joints of thermoplastics	A, D
5	Corrosion resistance tests			
5.1	Test of resistance to intergranular corrosion	ČSN EN ISO 3651-1; ČSN EN ISO 3651-2; ASTM A262; ASTM G28-02; GOST 6032, method AMU, VU, DU	Corrosion-resistant steels and alloys	A, D
5.2	Test or resistance to pit and crevice corrosion	ASTM A923, method C; ASTM G48	Corrosion-resistant steels and alloys	A, D

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Subject of the test	Degrees of freedom ³
5.3	Testing of coatings, layers and corrosion resistance based on changes in mass and dimensions	13-MTL-05/02 (ČSN EN ISO 8407; ČSN EN 10346; ČSN EN ISO 1460)	Metallic materials	A, D
6	Metallographic tests			
6.1	Macrostructure tests	13-MTL-06/01; ASTM E340	Metallic materials	A, D
6.2	Microstructure tests	13-MTL-06/02; ASTM E407	Metallic materials	A, D
6.3	Determining volume fraction of structural parts	ASTM E562; ISO 9042	Metallic materials	A, D
6.4	Microscopic length measurement	13-MTL-06/03	Metallographic macro and micro section	A, D
6.5	Determining the content of non-metallic inclusion	ČSN ISO 4967; ASTM E45; DIN 50 602; GOST 1778-70	Steel	A, D
6.6	Determining grain size	ČSN EN ISO 643; ASTM E112; ČSN 42 0462	Metallic materials	A, D
6.7	Metallographic test of coatings and surface layers	13-MTL-06/04 (ČSN EN ISO 1463; ČSN EN ISO 3887); ČSN EN ISO 1463; ČSN EN ISO 3887	Metallic materials	A, D
6.8	Metallographic test of corrosion attack	ČSN 03 8137; ČSN EN ISO 11463	Metallic materials Corrosion-resistant steels and alloys	A, D
6.9	Metallographic test	ČSN EN ISO 17639; ČSN EN ISO 6520-1; ČSN EN ISO 14329	Welded joints of metallic materials	A, D
6.10	Microstructure test	ČSN EN ISO 945-1; ČSN 42 0461	Cast iron	A, D
6.11	Determining σ -phase and other detrimental phases	13-MTL-06/05 (methodology Sandvik company); ASTM A923, method A	Duplex steel	A, D
6.12	Determining ferrite content by EMG method	ČSN 42 0470	Austenitic steel	A, D

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Subject of the test	Degrees of freedom ³
7	Spectrometric tests			
7.1	Determination elements by OES method	12-MTL-7.2/07; 13-MTL-07/01 (manual SPECTRO company)	Steel, casts, iron alloys and products from these	B
7.2	Determination elements by OES method	12-MTL-7.2/07; 13-MTL-07/02 (manual SPECTRO company)	Aluminum, aluminum alloys and products from these	B
7.3	Determination elements by OES method	12-MTL-7.2/07; 13-MTL-07/03 (manual SPECTRO company)	Cuprum, cuprum alloys and products from these	B
7.4	Determination elements by OES method	12-MTL-7.2/07; 13-MTL-07/04 (manual SPECTRO company)	Nickel alloys and products from these	B

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 valid edition of the specified procedure is used (including any changes)

³ degrees of freedom: A – Flexibility concerning materials/products (subject of the test), B – Flexibility concerning components/parameters/characteristics, C – Flexibility concerning the performance of the method, D – Flexibility concerning the method

The laboratory can modify the test procedures with the specified degree(s) of freedom in the scope of accreditation while maintaining the principle of measurement. If no degree of freedom is specified, the laboratory cannot apply a flexible approach to the scope of accreditation for the test.

Specification of the scope of accreditation:

Ordinal test number	Detailed information on activities within the scope of accreditation (determined analytes)
7.1	<p>Determination ranges for cast irons and individual steel types:</p> <p>Program Fe-11 (carbon steel, low-alloy and medium-alloy steels): C, Si, Mn, P, S, Cr, Mo, Ni, Al, Co, Cu, Nb, Ti, V, W, Pb, Sn, , Sb, B, N</p> <p>Program Fe-15 (free-cutting steels): C, Si, Mn, P, S, Cr, Mo, Ni, Al, Co, Cu, V, W, Pb, N</p> <p>Program Fe-20 (cast iron): C, Si, Mn, P, S, Cr, Mo, Ni, Al, Co, Cu, Nb, Ti, V, W, Sn, Pb, Mg, Sb, B, N</p> <p>Program Fe-30 (austenitic steels and chromium-nickel steels):</p>

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	<p>C, Si, Mn, P, S, Cr, Mo, Ni, Al, Co, Cu, Nb, Ti, V, W, Pb, Sn, Sb, B, N</p> <p>Program Fe-40 (tool steels): C, Si, Mn, P, S, Cr, Mo, Ni, Al, Co, Cu, Ti, V, W, Sn, N</p> <p>Program Fe-50 (manganese steels): C, Si, Mn, P, S, Cr, Mo, Ni, Al, Co, Cu, Ti, V, W, Sn, N</p>
7.2	<p>Determination ranges for individual types of aluminum alloys:</p> <p>Program Al-10 (aluminum): Si, Fe, Cu, Mn, Mg, Cr, Ni, Zn, Ti, B, Bi, Cd, Ga, P, Pb, Sb, Sn, V, Ce</p> <p>Program Al-01 (aluminum alloys): Si, Fe, Cu, Mn, Mg, Cr, Ni, Zn, Ti, B, Bi, Ga., Pb, Sn, V, Zr</p>
7.3	<p>Determination ranges for individual types of copper alloys:</p> <p>Program Cu-10 (copper) : Zn, Pb, Sn, P, Mn, Fe, Ni, Si, Mg, Cr, Sb, Bi, Co, Al, S, Be, Zr, As, Co, Cd, Ti, Se</p> <p>Program Cu-20 (brass): Zn, Pb, Sn, P, Mn, Fe, Ni, Si, Cr, As, Sb, Bi, Co, Al, S, Be, Se</p> <p>Program Cu-60 (tin and lead bronzes): Zn, Pb, Sn, P, Mn, Fe, Ni, Si, As, Sb, Bi, Co, Al, S</p> <p>Program Cu-70 (aluminum bronzes): Zn, Pb, Sn, P, Mn, Fe, Ni, Si, Cr, As, Al</p>
7.4	<p>Determination ranges for individual types of nickel alloys:</p> <p>Program Ni-20 (alloys Ni+Cu): C, Si, Mn, P, S, Cr, Fe, Cu, Co, Al, Ti, Sn, Mg, Pb</p> <p>Program Ni-30 (alloys Ni+Cr+Mo): C, Si, Mn, P, S, Cr, Fe, Mo, V, Cu, W, Co, Nb, Al, Ti, Zr, Sn, B, Mg, N</p> <p>Program Ni-40 (alloys Ni+Fe): C, Si, Mn, P, S, Cr, Fe, Mo, V, Cu, W, Co, Nb, Al, Ti, Zr, B, N</p>

Explanation of abbreviations:

ASTM	American Society For Testing & Materials
DIN	Deutsches Institut für Normung
SEP	Stahl-Eisen-Prüfblatt
OES	Optical Emission Spectrometry
12-MTL-7.2/xxx	Directive - Internal Instruction of MTL Laboratory
13-MTL-xx /xxx	Procedure - Internal Instruction of MTL Laboratory