The Appendix is an integral part of
Certificate of Accreditation No. 480/2023 of 08/09/2023

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

SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Testing laboratory locations:

1. **Workplace ZL 30** Tovární 2053, 250 88 Čelákovice
2. **Workplace ZL 31** Tovární 2053, 250 88 Čelákovice
3. **Workplace ZL 34** Tovární 2053, 250 88 Čelákovice

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	**Tests of mechanical properties**			
1.1[1]	Static tensile test	ČSN EN ISO 6892-1; ASTM E8; ČSN EN ISO 6892-2; ASTM E21; ČSN EN ISO 15630-1, cl. 5; ASTM E 111	Metallic materials	-
1.2[1]	Static tensile test	ČSN EN ISO 4136; ČSN EN ISO 9018; ČSN EN ISO 17660-1, cl. 14.2; ČSN EN ISO 17660-2, cl. 14; ČSN EN ISO 15630-2, cl. 5; ČSN EN ISO 14555, cl. 11.4, 12.4; ČSN EN ISO 15614-1, cl. 7.4.1; ČSN EN ISO 15614-2, cl. 7.4.2; ČSN EN ISO 15614-5, cl. 7.4.2; ČSN EN ISO 15614-11, cl. 7.4.1	Welded joints	-
1.3	Reserved			
1.4[1]	Static tensile test	ČSN EN 13261; ČSN EN 13262	Railway wheels and axles	-
1.5[1]	Static tensile test	ČSN EN 15566; UIC 833	Railway vehicles	-
1.6[1]	Impact bend test	ČSN EN ISO 148-1; ASTM E23	Metallic materials	-

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SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
1.7[1]	Impact bend test	ČSN EN ISO 9016; ČSN EN ISO 15614-1, cl. 7.4.4; ČSN EN ISO 15614-11, cl. 7.4.3	Welded joints	-
1.8[1]	Impact bend test	ČSN EN 15566	Railway vehicles	-
1.9[1]	Impact bend test	ČSN EN 13261; ČSN EN 13262	Railway wheels and axles	-
1.10[1]	Hardness test	ČSN EN ISO 6506-1; ČSN EN ISO 6507-1; ČSN EN ISO 6508-1; page A, B, C	Metallic materials	-
1.11[1]	Hardness test	ČSN EN ISO 9015-1; ČSN EN ISO 9015-2; ČSN EN ISO 15613, cl. 7; ČSN EN ISO 15614-1, cl. 7.4.5; ČSN EN ISO 15614-7, cl. 7.4.3, 7.5.2; ČSN EN ISO 15614-11, cl. 7.4.4	Welded joints	-
1.12[1]	Hardness test	ČSN EN 14587-1, cl. 5.4.8, Annex E; ČSN EN 14587-2, cl. 5.3.8, Annex E; ČSN EN 14587-3, cl. 10.4.11, Annex F	Rails	-
1.13[1]	Hardness test	ČSN EN 15566	Railway vehicles	-
1.14[1]	Hardness test	ČSN EN 13262	Railway wheels and axles	-
1.15[1]	Bend test	ČSN EN ISO 7438; ČSN EN ISO 15630-1, cl. 6	Metallic materials	-

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

SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
1.16[1]	Bend test	ČSN EN ISO 5173; ČSN EN ISO 17660-1, cl. 14.4; ČSN EN ISO 15630-2, cl. 6; ČSN EN ISO 14555, cl. 11.3, 12.3; ČSN EN ISO 15614-1, cl. 7.4.2; ČSN EN ISO 15614-2, cl. 7.4.3; ČSN EN ISO 15614-5, cl. 7.4.3; ČSN EN ISO 15614-7, cl. 7.4.4, 7.5.2; ČSN EN ISO 15614-11, cl. 7.4.2	Welded joints	-
1.17[1]	Bend test	ČSN EN 14587-1, cl. 5.4.5, Annex A and B; ČSN EN 14587-2, cl. 5.3.5, Annex A and B; ČSN EN 14587-3, cl. 10.4.7, Annex B and C	Rails	-
1.18[1]	Fracture test	ČSN EN ISO 9017; ČSN EN ISO 15614-2, cl. 7.4.4	Welded joints	-
1.19[1]	Determination of fracture toughness	ASTM E399; ČSN 42 0347	Metallic materials	-
1.20[1]	Determination of fracture toughness	ČSN EN 13262	Railway wheels and axles	-
1.21[1]	Determining the depth of decarburization and the thickness of surface-hardened layers	ČSN EN ISO 18203; ČSN EN ISO 3887	Non-alloy and low-alloy steels	-
1.22[1]	Determining the thickness of coatings	ČSN EN ISO 1463; ČSN EN ISO 2064	Metallic and other inorganic coatings	-
1.23[1]	Mechanical testing of fasteners	ČSN EN ISO 898-1, cl. 9.1, 9.2, 9.6, 9.7, 9.9, 9.10, 9.11, 9.14; ČSN EN ISO 3506-1, cl. 9.1, 9.3, 9.6	Bolts	-

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

SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
1.24[1]	Mechanical testing of fasteners	ČSN EN ISO 898-2, cl. 10.1, 10.2; ČSN EN ISO 3506-2, cl. 10.1, 10.2	Nuts	-
2	**Tests of mechanical properties**			
2.1[1]	Dynamic fatigue test	ČSN 42 0362; ČSN 42 0363; ČSN 42 0368; ASTM E606; ASTM E466; ASTM E468; ČSN ISO 3800; ČSN ISO 12107; ČSN ISO 1143	Metallic materials	-
2.2[1]	Dynamic fatigue test	ZP 01-21 (ČSN EN 13103-1+A1; ČSN EN 13260; ČSN EN 13261; ČSN EN 13262)	Railway wheels and axles	-
2.3[1]	Dynamic fatigue test	ČSN EN 15566; UIC 833	Railway vehicles	-
2.4	Dynamic fatigue test	ČSN EN 14587-1, cl. 5.4.9, Annex C and B; ČSN EN 14587-2, cl. 5.3.9, Annex C and B; ČSN EN 14587-3, cl. 10.4.8, Annex D and C	Rails	-
2.5[1]	Measurement of fatigue crack growth rate	ČSN ISO 12108; ASTM E647	Metallic materials	-
2.6[1]	Thermomechanical behaviour test	ČSN EN 13979-1	Railway wheels	-
2.7[1]	Performance testing	ČSN EN 12082+A1, cl. 7, Annex A	Axle boxes	-
2.8[1]	Static and dynamic tests	ČSN EN 15551, cl. 5.4, 5.5.2 and table 2, Annex B, D and F	Railway vehicle bumper	-
2.9[1]	Static and dynamic tests	ZP 02-09 (ČSN EN 13749; ČSN EN 15827)	Bearing box	-

The Appendix is an integral part of
Certificate of Accreditation No. 480/2023 of 08/09/2023

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SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
3	**Metallography and chemical analyses**			
3.1[1]	Determination of grain size	ČSN EN ISO 643 ASTM E112	Steel	-
3.2[1]	Determination of grain size	ČSN 42 0462	Non-ferrous metals	-
3.3[1]	Determination of content of non-metallic inclusions	ČSN ISO 4967	Wrought steel	-
3.4[1]	Microstructure test	ČSN EN ISO 15614-2, cl. 7.4.5, 7.5; ČSN EN ISO 15614-5, cl. 7.4.4, 7.5; ČSN EN ISO 15614-7, cl. 7.4.6; ČSN EN ISO 15614-11, cl. 7.4.5; ČSN EN ISO 17639; ČSN EN ISO 5817; ČSN EN ISO 10042; ČSN EN ISO 6520-1; ČSN EN ISO 13919-1; ČSN EN ISO 13919-2	Welded joints	-
3.5[1]	Microstructure test	ČSN EN 14587-1, cl. 5.4.7, Annex D.2; ČSN EN 14587-2, cl. 5.3.7, Annex D.2; ČSN EN 14587-3, cl. 10.4.10, Annex E.2	Rails	-
3.6[1]	Microstructure test	ČSN EN 13261; ČSN EN 13262	Railway wheels and axles	-
3.7[1]	Macroscopic examination	ČSN EN ISO 14555; ČSN EN ISO 15613, cl. 7; ČSN EN ISO 15614-1, cl. 7.4.3, 7.5; ČSN EN ISO 15614-2, cl. 7.4.5, 7.5; ČSN EN ISO 15614-5, cl. 7.4.4, 7.5; ČSN EN ISO 15614-7, cl. 7.4.2, 7.5.2; ČSN EN ISO 15614-11, cl. 7.4.5; ČSN EN ISO 17639; ČSN EN ISO 5817; ČSN EN ISO 10042;	Welded joints	-

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

SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
		ČSN EN ISO 6520-1; ČSN EN ISO 13919-1; ČSN EN ISO 13919-2		
3.8[1]	Macroscopic examination	ČSN EN 14587-1, cl. 5.4.6, Annex D.1; ČSN EN 14587-2, cl. 5.3.6, Annex D.1; ČSN EN 14587-3, cl. 10.4.9, Annex E.1	Rails	-
3.9[1]	Macroscopic examination	ISO 4968	Railway vehicles	-
3.10[1]	Corrosion failure test	ČSN 03 8137	Metals, alloys and metallic coatings	-
3.11[1]	Determination of elements by OES method	ZP 04-31 (SPECTRO CS, spol. s.r.o. manual)	Low-alloy steels and products made of them Alloy chromium- and chromium-nickel steels and products made of them	-
4	**Non-destructive testing**			
4.1[1]	Visual testing	ZP 04-01 (ČSN EN 13018; ČSN EN 15566; ČSN EN ISO 17637; ČSN EN ISO 15614-1, cl. 7.1, 7.3, 7.5; ČSN EN ISO 15614-2, cl. 7.1, 7.3, 7.5; ČSN EN ISO 15614-5, cl. 7.1, 7.3, 7.5; ČSN EN ISO 15614-7, cl. 7.1, 7.2, 7.5.1; ČSN EN ISO 15614-11, cl. 7.1, 7.3; ČSN EN 14587-1, cl. 5.4.1; ČSN EN 14587-2, cl. 5.3.1; ČSN EN 14587-3, cl. 10.4.3, 13.3;	Metallic materials Railway vehicles Welded joints	-

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

SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
		ČSN EN 12082+A1, příloha A.8.1; ISO 15243)		
4.2[1]	Penetrant testing	ZP 04-02 (ČSN EN ISO 3452-1; ČSN EN 10228-2; ČSN EN 15566; ČSN EN ISO 15614-1, cl. 7.1, 7.3, 7.5; ČSN EN ISO 15614-2, cl. 7.1, 7.3, 7.5; ČSN EN ISO 15614-5, cl. 7.1, 7.3, 7.5; ČSN EN ISO 15614-7, cl. 7.1, 7.2, 7.5.1; ČSN EN ISO 15614-11, cl. 7.1, 7.3; ČSN EN 14587-1, cl. 5.4.4; ČSN EN 14587-2, cl. 5.3.4; ČSN EN 14587-3, cl. 10.4.5, 13.5; ČSN EN 13261; ČSN EN 13262; UIC 833; ČSN EN 15551, cl. 5.4, table 2, Annex B and F; ČSN EN 13749, Annex G)	Metallic materials Railway vehicles Welded joints	-
4.3[1]	Ultrasonic testing	ZP 04-03 (ČSN EN ISO 16810; ČSN EN 13262; ČSN EN 13979-1; ČSN EN ISO 17640; ČSN EN ISO 13588)	Metallic materials Railway wheels Welded joints	-
4.4[1]	Magnetic particle testing	ZP 04-04 (ČSN EN ISO 9934-1; ČSN EN 10228-1; ČSN EN 15566;	Metallic materials Railway wheels Welded joints	-

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

SVÚM a.s.

CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
		ČSN EN ISO 17638; ČSN EN ISO 15614-1, cl. 7.1, 7.3, 7.5; ČSN EN ISO 15614-7, cl. 7.1, 7.2, 7.5.1; ČSN EN ISO 15614-11, cl. 7.1, 7.3; ČSN EN 14587-1, cl. 5.4.4; ČSN EN 14587-2, cl. 5.3.4; ČSN EN 14587-3, cl. 10.4.5, 13.5; ČSN EN 15551, cl. 5.4, table 2, Annex B and F)		
5	**Creep tests and creep crack growth**			
5.1[2]	Uniaxial creep testing in tension	ZP 01-23 (ČSN EN ISO 204, ASTM E139)	Metallic materials	-
5.2[2]	Creep crack propagation depending on the selected parameter of fracture toughness	ZP 01-24	Metallic materials	-
5.3[2]	Uniaxial creep testing in tension on non-standard samples and real objects	ZP 01-25 (ČSN EN ISO 204)	Metallic materials	-
6	**Reserved**			
7	**Corrosion tests with salt spray and tests of paints and coatings**			
7.1[3]	Corrosion tests in artificial atmospheres – Salt spray tests	ČSN EN ISO 9227, type NSS	Coatings, paints, base material	-
7.2[3]	Determination of film thickness	ČSN EN ISO 2808, method 7B.2 and 7C	Paints, coatings	-
7.3[3]	Cross-cut test	ČSN EN ISO 2409	Paints	-
7.4[3]	Determination of quantity and size of defects, and changes	ČSN EN ISO 4628-1	Paints	-
7.5[3]	Determination of degree of blistering	ČSN EN ISO 4628-2	Paints	-
7.6[3]	Determination of degree of rusting	ČSN EN ISO 4628-3	Paints	-

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CAB number 1151, Testing Laboratory for Material Properties
Tovární 2053, 250 88 Čelákovice

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
7.7[3]	Determination of degree of cracking	ČSN EN ISO 4628-4	Paints	-
7.8[3]	Determination of degree of flaking	ČSN EN ISO 4628-5	Paints	-
7.9[3]	Determination of degree of delamination and corrosion around a scribe	ČSN EN ISO 4628-8	Paints	-
7.10[3]	Determination of degree of protection and change of appearance	ČSN EN ISO 10289	Paints, coatings	-
7.11[3]	Visual assessment of defects under artificial lighting	ČSN EN ISO 13076	Paints, coatings	-
7.12[3]	Evaluation of the method of making cuts for corrosion tests	ČSN EN ISO 17872	Paints	-

[1] asterisk at the ordinal number identifies the tests, which the laboratory is qualified to carry out outside the permanent laboratory premises; the numerical index at the test ordinal number identifies the location carrying out the test (the identification of the locations is given on the first page of this document)

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

[3] the laboratory does not apply a flexible approach to the scope of accreditation

Specification of the scope of accreditation:

Ordinal test number	Detailed information on activities within the scope of accreditation (determined analytes)
3.11	Low-alloy steels and products made of them - program Fe-11-M, Fe-12-M: C, Si, Mn, P, S, Cr, Ni, Mo, Al, Cu, Co, Ti, Nb, V, W, Pb, B, Sb, Sn, Zn, As, Bi, Ta, Ca, Ce, Zr, La, N, Se Alloy chromium- and chromium-nickel steels and products made of them - program Fe-30-M, Fe-31-M): C, Si, Mn, P, S, Cr, Ni, Mo, Al, Cu, Co, Ti, Nb, V, W, Pb, B, Sb, Sn, As, Bi, Ta, Ca, N, Se

Explanatory notes:

ZP Testing Procedure
OES Optical Emission Spectrometry