

**The Appendix is an integral part of
Certificate of Accreditation No. 298/2023 of 09/06/2023**

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

ETD TRANSFORMÁTORŮ a.s.
CAB number 1526, ELECTRICAL TESTING LABORATORY
Zborovská 54/22, Doudlevice, 301 00 Plzeň

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 the laboratory's website www.etd-transformers.com/cz/elektrotechnicka-zkusebna in the form „List of activities within the flexible scope of accreditation“.

The laboratory provides opinions and interprets test results.

Tests:

Ordinal number ¹	Test procedure/method name	Test procedure / method identification ²	Subject of the test	Degrees of freedom ³
1*	Verification of degree of protection (IP code) up to the degree IP 4X	SOP_EZ/1 (ČSN EN 60529; ČSN EN IEC 61439-1, art. 10.3; ČSN EN IEC 61439-2, art. 10.3; ČSN EN 62271-1, art. 7.7.1; ČSN EN IEC 62271-100, art. 7.7.1; ČSN EN IEC 62271-102, art. 7.7; ČSN EN 62271-103, art. 6.7; ČSN EN IEC 62271-200, art. 7.7.1; ČSN EN 62271-202, art. 6.7; ČSN EN 50123-6, art. 8.3.6; SOP_EZ/8)	Electrical machines, instruments, switchboards and their functional parts and combinations	A, B, C, D
2*	Temperature-rise test, measurement of temperature and losses	SOP_EZ/2 (ČSN 36 2255, art. 176 to 192; ČSN EN 60034-1, art. 8.3 to 8.10; ČSN EN 60077-1, art. 9.2.3, 9.3.2; ČSN EN 60077-2, art. 9.4.3, 9.3.3.3, 9.3.3.4, 9.3.3.8; ČSN EN IEC 60077-3, art. 9.3.3.4, 9.3.3.8; ČSN EN 60076-2; ČSN EN 60076-6, art. 10.9.6; ČSN EN IEC 60076-11, art. 14.3.2; ČSN EN 62271-1, čl. 7.4, 7.5, 7.10.3, 8.4; ČSN EN IEC 62271-100, art. 7.4, 7.5, 7.10.3; ČSN EN IEC 62271-102, art. 7.4, 7.5, 8.4; ČSN EN 62271-103, art. 6.4, 6.5, 6.10.4; ČSN EN IEC 62271-200, art. 7.4, 7.5, 7.10.3, 8.4;	Electrical machines, instruments, switchboards and their functional parts and combinations	A, B, C, D

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		ČSN EN 62271-202, art. 6.5; ČSN EN 60310, art. 10, 13.2.9 to 13.2.11, 13.3.6, 13.3.8; ČSN EN IEC 61439-1, art. 10.10; ČSN EN IEC 61439-2, art. 10.10; ČSN EN 60947-1, art. 9.3.3.3; ČSN EN 60146-1-1, čl. 7.3.1, 7.3.2, 7.4.1, 7.4.2; ČSN EN 50328, art. 4.2.2, 4.2.3, 4.2.4, 4.2.5; ČSN EN 50329, art. 2.2.3; ČSN EN IEC 60282-1, art. 7.5; ČSN 35 4701-2, art. 8.3; ČSN EN 60269-1, art. 8.3; ČSN EN 50206-1, art. 6.13; ČSN EN 61287-1, art. 4.5.3.13, 7.5.7; ČSN EN 50123-1, art. 7.4; ČSN EN 50123-2, art. 8.3.4; ČSN EN 50123-3, art. 8.3.4; ČSN EN 50123-4, art. 8.3.4; ČSN EN 50123-6, art. 8.3.7; ČSN EN 50152-2, art. 7.1; POM_EZ/1; POM_EZ/2; SOP_EZ/8)		
3*	Test of making and breaking capacity, mechanical and functional tests, verification of strength	SOP_EZ/3 (ČSN 36 2255, art. 153, 193 to 213; ČSN 33 3525, art. 5.6.2; ČSN EN 60077-1, art. 9.3.1, 9.3.4.1, 9.3.4.4, 9.3.8; ČSN EN 60077-2, art. 9.3.6, 9.3.7, 9.4.2, 9.3.3.2, 9.3.3.6, 9.3.4; ČSN EN IEC 60077-3, art. 9.3.3.2, 9.3.3.6, 9.3.4, 9.3.6, 9.3.7, 9.4.2; ČSN EN IEC 60282-1, art. 7.6; ČSN EN 60947-1, art. 9.3.3.5, 9.3.3.6, 9.3.3.7, 9.3.4; ČSN EN 60947-3, art. 9.3.4, 9.3.5, 9.3.8, 9.5;	Electrical switching, isolating and earthing devices, surge arresters	A, B, C, D

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		ČSN EN IEC 61439-1, art. 10.2.8; ČSN EN IEC 61439-2, art. 10.2.8; ČSN EN 62271-1, art. 7.10.2, 7.10.3, 7.10.4; ČSN EN IEC 62271-100, art. 7.10.2, 7.10.3, 7.10.4, 7.101, 7.102, 7.103.2, 7.105, 7.106, 7.107; ČSN EN IEC 62271-102, art. 7.101, 7.102, 7.103, 7.104; ČSN EN 62271-103, art. 6.10.2, 6.10.3, 6.10.4, 6.10.5, 6.101, 6.102, 7.101; ČSN EN IEC 62271-200, art. 7.10.2, 7.4.3, 7.10.3, 7.10.4, 7.101, 7.102, 8.102; ČSN EN 50123-1, art. 7.3, 7.8; ČSN EN 50123-2, art. 8.3.2, 8.3.6, 8.3.7, 8.3.8; ČSN EN 50123-3, art. 8.3.2, 8.3.5, 8.3.6, 8.3.9; ČSN EN 50123-4, art. 8.3.2, 8.3.5, 8.3.6, 8.3.8; ČSN EN 50123-6, art. 8.3.5, 8.3.8; PNE 35 4212, art. 9.6; POM_EZ/2; SOP_EZ/8)		
4	Test of short-circuit capacity	SOP_EZ/4 (ČSN 36 2255, art. 214 to 219; ČSN EN 60077-2, art. 9.3.4.2; ČSN EN 50123-1, art. 7.6, 7.7; ČSN EN 50123-2, art. 8.3.9; ČSN EN 50123-3, art. 8.3.8; ČSN EN 50123-4, art. 8.3.1.2, 8.3.9; ČSN EN 50123-6, art. 8.3.4; ČSN EN 50119, art. 8.11.1.3, 8.11.2; ČSN EN 50152-2, art. 7.1; ČSN EN 62271-1, art. 7.6, 7.10.3; ČSN EN IEC 62271-100, art. 7.6, 7.10.3;	Electrical machines, instruments, switchboards, surge arresters and their functional parts and combinations	A, B, C, D

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		ČSN EN IEC 62271-102, art. 7.6; ČSN EN 62271-103, čl. 6.6, 6.10.4; ČSN EN IEC 62271-200, art. 7.6, 7.10.3, 7.105; ČSN EN 62271-202, art. 6.6, 6.102, Příloha AA; ČSN EN 60947-1, art. 9.3.4; ČSN EN 60947-3, art. 9.3.6, 9.3.7; ČSN EN IEC 61439-1, art. 10.5, 10.11; ČSN EN IEC 61439-2, art. 10.5, 10.11; ČSN EN 61643-11, art. 8.3.5.3, 8.3.8.2; ČSN EN 50328, art. 4.2.9; ČSN EN 60076-5; ČSN EN IEC 60076-11, art. 14.4.3; ČSN EN 60076-6, art. 11.8.13; ČSN 35 4701-2, art. 8.5.5.1; ČSN EN 60310, art. 13.2.15, 13.3.12; ČSN EN 61869-2, art. 7.2.201; ČSN EN 60076-13, art. 12.4.9; POM_EZ/2; SOP_EZ/8)		
5*	Measurement of ventilation and hydraulic quantities	SOP_EZ/5 (ČSN 12 3061, art. 28 to 36, 44 to 51, 65 to 84, 110 to 115; ČSN EN 61287-1, art. 4.5.3.5.2, 4.5.3.5.3; ČSN ISO 7194:1994; POM_EZ/2; SOP_EZ/8)	Equipment with flowing or pressure liquid	A, B, C, D
6*	Dielectric test	SOP_EZ/6 (ČSN EN 60060-1; ČSN EN 60060-2; ČSN EN 60076-3; ČSN EN 60076-4; ČSN EN 60270; ČSN EN IEC 60076-11, art. 14.2.5,	Electrical machines, instruments, switchboards and their functional parts and combinations	A, B, C, D

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		14.2.6, 14.3.1, 14.2.7, 14.4.1; ČSN EN 61083-1; ČSN EN 61083-2; ČSN EN 60052; ČSN 36 2255, art. 220 to 233; ČSN EN 62271-1, art. 7.2, 7.10.5, 8.2, 8.3.4; ČSN EN IEC 62271-100, art. 7.2; ČSN EN IEC 62271-102, art. 7.2, 8.2, 8.3; ČSN EN 62271-103, art. 6.2, 6.10.6; ČSN EN IEC 62271-200, art. 7.2, 7.10.5, 7.10.4, 8.2, 8.3.4; ČSN EN 62271-202, art. 6.2, 7.10.1, 7.10.2; ČSN EN 60947-1, art. 9.3.3.4; ČSN EN IEC 61439-1, art. 10.9, 11.9; ČSN EN IEC 61439-2, art. 10.9, 11.9; ČSN EN 60077-1, art. 9.3.3; ČSN EN 60077-2, art. 9.3.3.5, 9.4.5, 9.3.3.7, 9.3.5.5; ČSN EN IEC 60077-3, art. 9.3.3.5, 9.3.3.7, 9.3.4.8, 9.3.5.6, 9.4.6; ČSN EN 60310, art. 13.2.12, 13.2.13, 13.2.14, 13.3.9, 13.3.10, 13.3.11; ČSN EN 60146-1-1, art. 7.2; ČSN EN 50328, art. 4.2.1; ČSN EN 61287-1, art. 4.5.3.7, 4.5.3.8; ČSN EN IEC 60282-1, art. 5.2.4, 7.4; ČSN EN 50124-1, art. 7.3, 7.4, 7.5, Annex A, B, C, D; ČSN EN 50123-1, art. 7.5; ČSN EN 50123-2, art. 8.3.3; ČSN EN 50123-3, art. 8.3.3; ČSN EN 50123-4, art. 8.3.3;		

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		ČSN EN 50123-6, art. 8.3.3; ČSN EN 50152-2, art. 7.2; ČSN EN IEC 61133, art. 8.7; PNE 35 4212, art. 9.1, 9.2; POM_EZ/2; SOP_EZ/8)		
7*	Verification of basic parameters (dimensions, weights, perimeter layout and component fitting) according to technical documentation	SOP_EZ/7 (ČSN EN 60077-1, art. 9.2.3; ČSN EN 62271-1, art. 8.6; ČSN EN 50123-3, art. 8.3.1; POM_EZ/2; SOP_EZ/8)	Electrical machines, instruments, switchboards and their functional parts and combinations	A, B, C, D
8*	Measurement of electrical quantities (voltage, current, frequency, power, impedance, resistance, reactance, inductance, capacitance, phase shift, power factor, loss factor, time constant)	SOP_EZ/8 (ČSN 42 0475; ČSN EN 60076-1, art. 11.2; ČSN EN 60076-1, art. 11.3; ČSN EN 60076-1, art. 11.4; ČSN EN 60076-1, art. 11.5; ČSN EN 60076-6, art. 12.8.5; ČSN EN IEC 60076-11, art. 14.2.1, 14.2.2, 14.2.3, 14.2.4; ČSN EN 60310, art. 13.2.5 to 13.2.8, 13.3.5, 13.3.7;	Electrical machines, instruments, switchboards, their functional parts and combinations	A, B, C, D

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 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 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.

Explanations:

- SOP – Standard Operating Procedure
- POM – Working procedure of the method,
- PNE – Energy Industry Company Standard