

The best platform for transformers' testing

The right facility for **each kind of transformer.**

Power transformers are the key components in the power production, transmission and distribution sectors, at the same time interconnecting systems at different rated voltages from power plants to final users and also protecting the different systems by reducing the short circuit current flowing from the system, where the fault happened, to the others. Following the needs of the industrial and transport sectors, special transformers have been developed over the years and, since then they have been playing a crucial role, too. Furthermore also the measuring of current and voltage in each sensible point of a power system and in particular the reliability of these values are of vital importance for the power grid management and the controlling of the correct operation of all interconnected equipment. That's exactly where the instrument transformers come into play. Therefore, in order to guarantee a precise and effective monitoring of the power grid's behavior and to keep high reliability of such systems in particular in cases of extreme faults, an accredited, experienced and third party testing of these components is a fundamental requirement.



CESI, IPH and FGH test transformers since more than 40 years, counting on the great experience of their engineers, especially for electrodynamic tests, who have been participating and still participate to the Working Groups where most of the IEC standards are discussed. The fact that CESI/IPH/FGH is one of the few skilled testing laboratories in the world capable of performing all tests prescribed for dry type transformers in the relevant standard, is itself the best evidence of CESI Group's rare skills in the transformers' testing business.

CESI

Trust the Power of Experience

Testing • Consulting • Engineering • Environment

What we do

CESI can provide tests on power transformers (both oil-immersed and dry-type) and instrument transformers according to internationally recognized standards:

Product	Standard
Oil-immersed power transformers	IEC 60076-1, IEC 60076-2, IEC 60076-3, IEC 60076-5, IEC 60076-10
Dry-type power transformers	IEC 60076-11
Instrument transformers	IEC 60044-1, IEC 60044-2, IEC 60044-3, IEC 60044-5, IEC 60044-7, IEC 61869-1 -2 -3 -5

Further tests according national standards and specific customer requirements are also available on request.

Our Facilities

	Milan/Rondissone		Berlin		Mannheim	
	Power tests	Dielectric tests	Power tests	Dielectric tests	Power tests	Dielectric tests
Distribution	No limitation	No limitation	No limitation	No limitation	No limitation	No limitation
Power	400 MVA	–	36 MVA	–	20 MVA	–
Current	No limitation	800kV	No limitation	500kV	No limitation	800kV

Milan

- Complete Type Tests on Cat. I* oil-immersed and dry-type transformers.
- Short Circuit Test and other special tests** are also feasible.
- Short-circuit Tests on Cat. II* Transformers up to 220kV.

Rondissone

- Short circuit tests on Cat. III* Transformers up to 600MVA, 220kV and 400kV.

Berlin

- Complete Type Tests on Cat. I* oil-immersed and dry-type transformers.
- Short circuit tests on Cat. II* Transformers up to 36MVA, 36kV.
- Current and Voltage Transformer: Complete Type Test up to 36kV according to IEC 61869-1 -2 -3 -5; IEC60044.

Mannheim

- Complete Type Tests on Cat. I* oil-immersed transformers and dry type.
- Current Transformer: Complete type test.

Seriate

- Structural Tests (vibration and seismic) on all kind of transformers up to 30 Tons.

* According to IEC 60076-5:

- Cat I: Transformers up to 2500kVA;
- Cat II: Transformers up to 100MVA;
- CAT III: Transformers larger than 100MVA.

** Dry-Type Transformers:

- partial discharge measurement;
- short circuit test;
- climatic test;
- environmental test;
- fire behavior test.

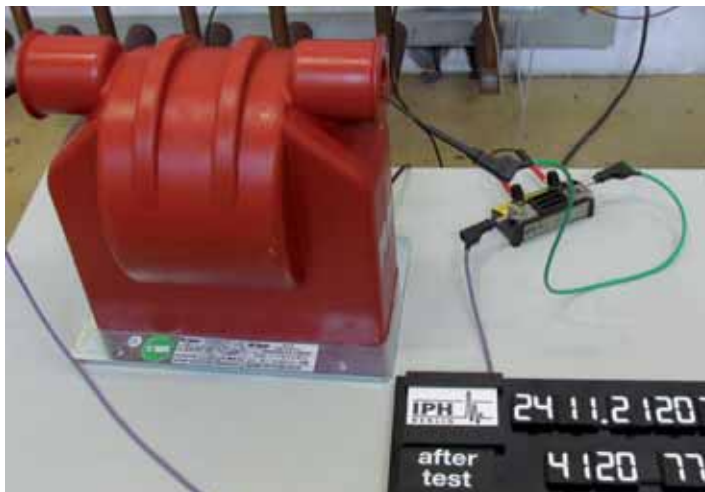
Additional Services available in our laboratories

- Engagement of CESI assembly hall for works on the transformer (included the use of suitable cranes and assistance by a CESI crane operator);
- CESI Inspection Activities (for tests performed at Manufacturer Factory):

Dielectric routine tests and untanking for visual inspection after short-circuit test (and any other possible test) on category II and III transformers can be performed in any properly equipped plant in presence of a CESI inspector.

The identification of the tested object will be made by CESI Inspector, with the aim to verify the correspondence to the dimensional and technical characteristics referred in reference drawings and documents, supplied by the Manufacturer.

Voltage Transformer



Dry-Type Transformer



CESI's Business Areas:

- **Testing, Inspection and Certification** services for HV, MV and LV electrical components;
- **Engineering and Consulting** services for power systems and markets, transmission and distribution grids, generation plants, renewable and hydro plants;
- **Environmental Consulting and Structural Engineering** services for Energy, T&D, Industry and Transport sectors;
- Production of **Solar Cells** for Space and Terrestrial (CPV) applications.

For further information please visit www.cesi.it, e-mail at info@cesi.it.

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