CESI

Copy No. 1 Certificate No B7009461

Type Test Certificate

of Short-Circuit Performance

Test object	Three-phase oil-immersed power transformer, for continuous duty, with external cooling by air natural convection
Designation	3-PHASE OIL IMMERSED TRANSFORMER Rated power 2000 kVA ; Rated voltages 11/0,433 kV ; Rated frequency 50 Hz
Manufacturer	Elsewedy Transformers 10th Ramadan City, 3rd Industrial Zone 3, Square A4 - Cairo - Egypt
Tested for	Elsewedy Transformers 10th Ramadan City, 3rd Industrial Zone 3, Square A4 - Cairo - Egypt
Date(s) of tests	from April 18, 2017 to April 21, 2017
Tested by	CESI S.p.A. Via Rubattino 54 20134 Milano - Italy

The test object, constructed in accordance with the description, drawings and photographs incorporated in this document has been subjected to the series of proving tests in accordance with STL Guides and:

IEC 60076-5 (2006-02)
Clause 4.2

This Type Test Certificate has been issued by CESI following exclusively the STL Guides.
The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standard(s) and to justify the ratings assigned by the Manufacturer as listed on the ratings page.
The Certificate applies only to the test object. The responsibility for conformity of any equipment having the same designations with that tested rests with the Manufacturer.

This Certificate comprises 5 sheet in total.

May 11, 2017

Date of issue	STL Member Laboratory	STL Member
	Beccarini Pierangelo B7009461 2925 AUT	The Manager - Arcidiaco Lorenzo B7009461 821814 APP Document Digitally Signed

测思 CENTRO ELETTROTECNICO SPERIMENTALE ITALIANO CESI

STL

The Short-Circuit Testing Liaison (STL) provides a forum for voluntary international collaboration between testing organisations. The basic aim is the harmonised application of IEC and Regional Standards to the type testing of electrical high-voltage power equipment

LIST OF STL MEMBERS AND RELATED CERTIFICATION BODIES

STL Member	Related Certification Body
CESI * Centro Elettrotecnico Sperimentale Italiano S.p.a. Via Rubattino 54, 20134 Milano MI, Italy	CESI Via Rubattino 54, 20134 Milano MI, Italy
CPRI Central Power Research Institute Post Box No 8066, Prof. Sir C. V. Raman Road Bangalore – 560 080, India	
ESEF Ensemble des Stations d'Essais à Grande Puissance Françaises, EDF-R&D, Avenue des Renardières, 77818 Moret-Sur-Loing Cedex, France	ASEFA 33 avenue du General Leclerc Fontenay aux Roses, France
Intertek (ASTA) Suite 6, 2nd Floor, Hilton House Corporation Street, Rugby, CV21 2DN, England	Intertek Suite 6, 2nd Floor, Hilton House Corporation Street, Rugby, CV21 2DNL, England.
JSTC Japan Short-Circuit Testing Committee c/o The Japan Electrical Manufacturers' Association, 17-4, Ichiban-cho, Chiyoda-ku, Tokyo 102-0082, Japan	
KEMA KEMA Testing, Inspections & Certification Utrechtseweg 310, 6812 AR Arnhem, The Netherlands	KEMA, Certification Business Unit Utrechtseweg 310, 6812 AR Arnhem, The Netherlands.
KERI Korea Electrotechnology Research Institute 12, Bulmosan-ro 10 beon-gil, Seongsan-gu, Changwon-si, Gyeongsangnam-do, 642-120, South Korea	KERI Certification Korea Electrotechnology Research Institute 12, Bulmosan-ro 10 beon-gil, Seongsan-gu, Changwon-si, Gyeongsangnam-do, 642-120, South Korea
PEHLA Gesellschaft für elektrische Hochleistungsprüfungen Hallenweg 40, 68219 Mannheim, Germany	PEHLA Product Certification Hallenweg 40, D-68219 Mannheim, Germany.
SATS Scandinavian Association for Testing of Electric Power Equipment, c/o SINTEF Energy Research AS 7465 Trondheim, Norway	SATS Certification c/o SINTEF Energy Research, 7465, Trondheim, Norway
STLNA Short-Circuit Testing Liaison of the Nations of the Americas, c/o NEMA, 1300 North 17th Street, Suite 1847 Rosslyn, VA 22209 USA	

Certificates

STL as a collaboration does not itself issue Type Test Certificates. Each STL Member issuing a Type Test Certificate is responsible for the validity and contents of that Certificate. A Type Test Certificate is issued by STL Members based on tests performed by an STL Member Laboratory within their accredited scope to ISO/IEC 17025. If the Type Test Certificate is issued under accreditation of ISO/IEC 17065 the name of the issuing body is the one of the Certification Body related to the STL Member.

STL Guides

STL Members pledge that when testing for certification to a Standard in respect of which an STL Guide has been issued they will test only in accordance with the agreed interpretation of the Standard as given in the STL Guide. In addition, STL Members have agreed to present Certificates in the form given in the STL General Guide.

For further information contact your local STL Member from the list above. Detailed contact data are available also at www.stl-liaison.org , or contact the Secretariat of STL at: Hilton House, Corporation Street, Rugby, Warwickshire, CV21 2DN, England.

* for additional information on CESI and his Member Laboratories IPH and FGH link to the Members site of STL homepage.

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1 RATINGS ASSIGNED BY THE MANUFACTURER AS PROVED BY THE TESTS

Oil-immersed power transformer	
Manufacturer	Elsewedy Transformers
Designation	3-PHASE OIL IMMERSED TRANSFORMER
Serial number	532101602
Rated power	2000 kVA
Number of phases	3
Rated voltage of the high-voltage winding (primary winding)	11 kV ± 2x2,5 %
Rated voltage of the low-voltage winding (secondary winding)	433 V
Rated current of the high-voltage winding (primary winding)	104,97 A
Rated current of the low-voltage winding (secondary winding)	2666,7 A
Rated frequency	50 Hz
Connection symbol	Dyn11
Short-circuit impedance	7,58 %
Load loss	14685 W
No-load current	0,55 %
No-load loss	2033 W

2 ADDITIONAL TYPE TESTS

Not applicable.

3 REFERENCE DOCUMENTS

The following reference documents are integral part of this Certificate:

No.	Description	CESI registration
1	Test Report	B7007959
2	Test Report	B7008047
3	Manufacturer's drawings	B7008405

4 ADDITIONAL REFERENCES

The conformity of the apparatus is attested with reference to the Standard mentioned in the front sheet and to the following documents:

IEC 60076-1 (2011-04)	Clauses 11.2 to 11.5
IEC 60076-3 (2013-07)	Clauses 10 and 11.2

5 RECORD OF PROVING TESTS

The table below lists all the tests performed and the references to the relevant Test Reports containing the test values.

No. Standard / clause	Description of tests	Reference documents
IEC 60076-5 / 4.2	Short-circuit test	B7008047
IEC 60076-1 / 11.2 to 11.5	Routine tests measurement before and after short circuit tests	B7007959
IEC 60076-3 / 10 and 11.2	Dielectric routine tests before and after short circuit tests	B7007959

6 IDENTIFICATION OF THE APPARATUS

The Manufacturer guarantees that the tested apparatus is manufactured according to the submitted drawings.
CESI checked that these drawings adequately represent in shape and dimensions the essential details and the main parts of the tested apparatus.
These drawings, identified by CESI and numbered B7008405 No.1 to 8 have been returned to the Client.