ELSEWEDY ELECTRIC

Oil Distribution Transformers

Efficient Energy for Sustainable Future

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ABOUT ELSEWEDY ELECTRIC

A global leader that has evolved from a local manufacturer of electrical products into an integrated infrastructure solutions provider; with over 19,000 employees and with recorded revenues of more than USD 5 Billion in 2023. We Operate in five key business sectors: Wire, Cable & Accessories, Electrical Products, Engineering & Construction, Digital Solutions, and Infrastructure Investments. With a strong presence in 19 different countries, 31 production facilities spread across African and Asian countries including Egypt, Algeria, KSA, Qatar, Indonesia, Pakistan, and Tanzania. We export a wide range of high-end products to over 110 countries worldwide. At the heart of our approach is an all-in-one integrated Engineering, Procurement & Construction (EPC) service, enabling us to deliver the most complex turnkey projects on time and with the highest efficiency.

WE OPERATE IN FIVE KEY BUSINESS SECTORS

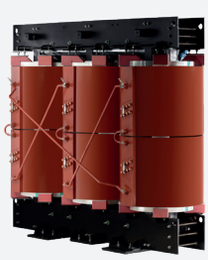
- WIRE, CABLE & ACCESSORIES
- ELECTRICAL PRODUCTS
- ENGINEERING & CONSTRUCTION
- DIGITAL SOLUTIONS
- INFRASTRUCTURE INVESTMENTS

ELECTRICAL PRODUCTS

In an ever-changing world, with new developments arising each day, we strive for consistency by constantly innovating and adapting our electrical products and services to stay one step ahead of our customers' needs. We provide a wide range of world-class, trusted, safe, and reliable solutions. We offer tailored services to a variety of distinct industries worldwide. We offer Transformers, Busways, Motors, and Fiberglass Poles, produced and sold through 10 manufacturing facilities and 12 sales offices across Africa, Asia, and America. Our products' quality has been tested and certified according to international specifications and offered at competitive prices to our customers' convenience.

TRANSFORMERS

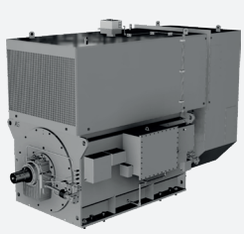
- Power
- Oil Distribution
- Cast Resin Dry



SUBSTATIONS

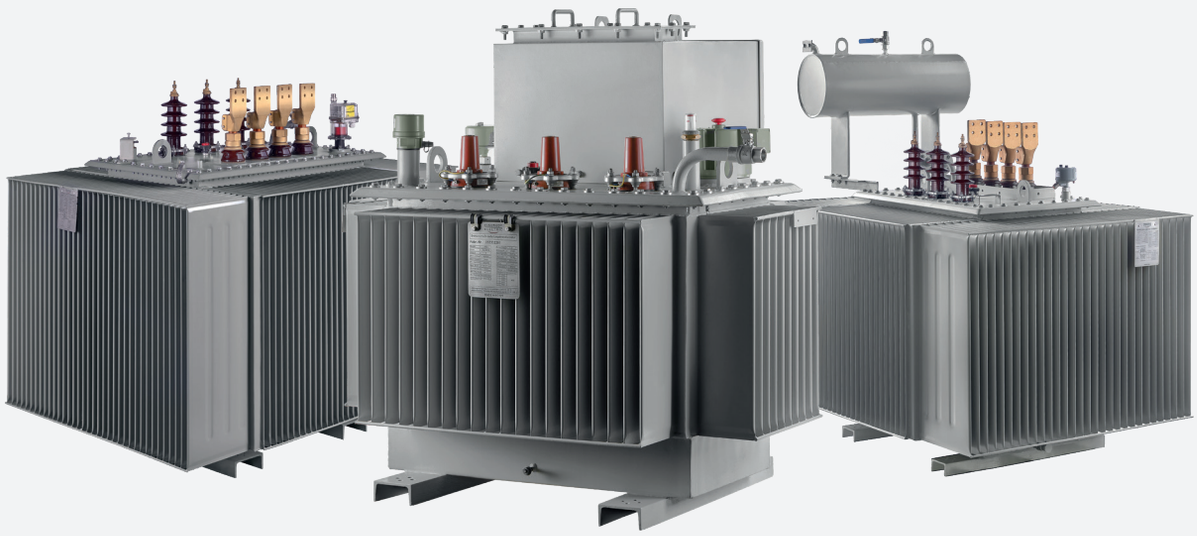
- Mobile
- Package / Compact

MOTION APPLIANCES



BUSWAY SYSTEMS

OIL IMMERSED DISTRIBUTION



ELSEWEDY ELECTRIC OIL DISTRIBUTION TRANSFORMERS

ARE WITH POWER RATINGS UP TO 15 MVA AND VOLTAGE OF UP TO 36 KV.

We produce oil distribution Transformers as hermetically sealed and conservator type, both ground and pole-mounted. our Transformers can be smart, eco design , and also we provide special transformers. Our portfolio of oil distribution transformers is serving a whole electricity distribution application for utilities, industries and infrastructure. Distribution Transformers are manufactured in almost all our manufacturing facilities globally in order to cover our customers needs worldwide in appropriate adaptation to their requirements and the maximum speed in responding to their queries and deliveries.

Elsewedy Electric's oil distribution transformers has passed the short circuit test, routine tests, and visual inspection at KEMA laboratory in Netherlands as per IEC60076 - for for Different Rating from 100 kva to 2MVA (Aluminum and copper Windings) Our Capabilities also comply to Tier 2 Eco design low-losses transformer specification where it is used in Europe and most of gulf areas

PRODUCT RANGE

Small Distribution (50 KVA up to 250 KVA, 36 kV):
Ground / Pole-Mounted / Pad-Mounted / Auxiliary Transformers.

Large distribution (250 KVA up to 5,000 KVA, 36 kV):
Distribution Grid / Auxiliary Transformers / Pad Mounted / Unit Substation / Package Substation.

Medium power (5,000 KVA up to 15,000 KVA, 36 kV):
Distribution Grid / Generation / Auxiliary Transformers.

Wide Range of Special transformers (up to 15,000 KVA, 36 kV):
Solar / Wind / Variable Speed Drive / Converter / Arc Furnace / Traction / Zigzag Earthing / Earthing Auxiliary.

STANDARDS

Elsewedy Electric is capable to produce Transformers according to IEC and ANSI AS, BS standards. However, usually - if not defined by our customers - the Transformers comply with the requirements of the following standards:

IEC 60296	Specification for mineral insulating oil for transformers & switchgear
5-1 60076	Power Transformers
IEC 60354	Loading Guide for Oil Immersed Transformers
IEC 60137	Insulated Bushings
IEEEC 57.12.26	ODT Specifications for American Market
AS 60076	ODT for Australian Market

SMART READINESS

EcoDigital - Distribution Transformer

KNAN COOLING

DIGITAL

New digital era in Distribution Transformers where can be:

- Possibility to implement monitoring of the transformer via WEB, through cloud server for viewing on PC, tablet or Smartphone.
- Data transmission for remote control (Modbus RTU)
- Indication of oil loss or gas formation with double alarm threshold.

GREEN & SAFE

From that concept we redesign transformers and change used fluid from normal mineral oil to K-class ester fluid with the following characteristic:

- Fire safer transformer, 100% Fire safety record, K- class fluid, higher fire flash point.
- Longer life time transformer, with better abilities to over load the transformer.
- Design and build a smaller substation in area size.
- It's a fully biodegradable fluid, No need to containment with the transformer, or at maximum, a reduced one.

BIODEGRADABLE, FIRE SAFETY, LOW SOUND LEVEL

INCREASE FIRE SAFETY

- Removing Fire walls
- Removing fire suppression systems
- Installation on smaller land area

GREATER ENVIRONMENTAL PROTECTION

- Fully biodegradable
- Remove or reduced containment
- Non toxic
- Zero corrosive Sulphur

MOISTURE SIGNIFICANCE IN TRANSFORMERS

- Increase transformers life time (paper life time could go 5 times more)
- Reduce maintenance cost
- Reduce the total ownership cost
- Retro filling existing Mineral oil transformers, to increase the life time of existing transformers

TecSystem [MIDEL® SAFETY INSIDE]

PRODUCT RANGE

Voltage Class (KV)		Power Rating (KVA)
36 24 12		25 500 15,000
■	Small Distribution	■
■	Large Distribution	■
■	Special Transformers	■

CONFIGURATION & FEATURES

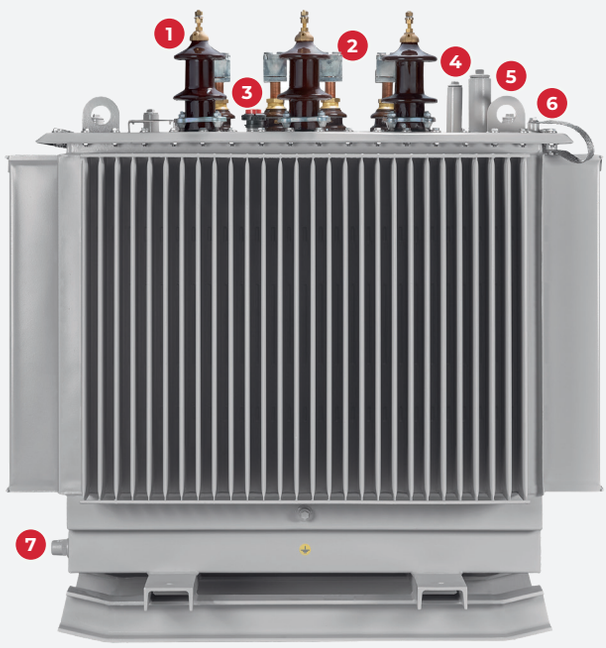
POLE MOUNTED		Small Distribution	Large Distribution	Special Transformer
High quality cold rolled grain-oriented Steel sheets		✔	✔	✔
Winding	Cu	✔	✔	✔
	Al	✔	✔	✔
Insulation Class	A	✔	✔	✔
	F	✔	✔	✔
Tap Changer	OCTC	(±2 x %2.5)	(±2 x %2.5)	(±2 x %2.5)
	OLTC	✔	✔	> 500 KVA
Fluid	Mineral Oil	✔	✔	✔
	Silicon Oil	✔	✔	✔
	Natural Oil	✔	✔	✔
	Synthetic Oil	✔	✔	✔
Cooling	ONAN	✔	✔	✔
	ONAF	✔	✔	✔
	KNAN	✔	✔	✔
Tank	Hermetically Sealed	✔	< 5000 KVA	< 5000 KVA
	With Conservator		5,000 - 15000 KVA	5,000 - 15000 KVA
	With Corrugated wall	✔	< 5000 KVA	< 5000 KVA
	With Radiators		15000 - 5,000 KVA	15000 - 5,000 KVA
	Galvanized Tank		Optional	Optional

Insulation Class A: Insulation rating 105, Maximum Winding temperature 105
Insulation Class F: Insulating rating 180, Maximum winding temperature 180
OCTC: Off Circuit Tap Changer
OFF CTC: On Load Tap Changer
Mineral Oil: (Inhibited and Uninhibited) IEC 600296

CONSTRUCTION

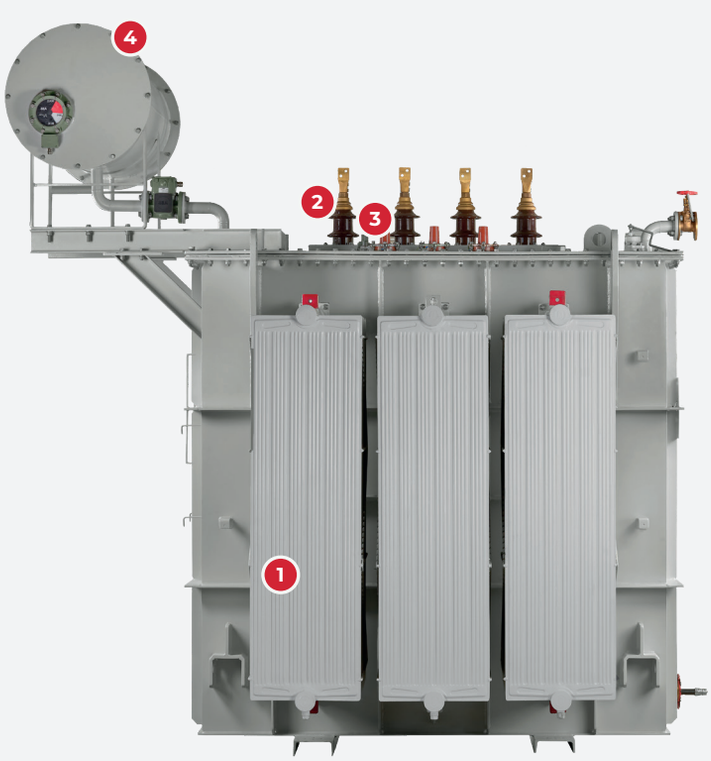
SMALL DISTRIBUTION

1. H.V. Bushings
2. L.V. Bushings
3. Pressure Relief Valve
4. Additional Thermometer Pocket
5. Oil Level Indicator
6. Oil Filling Valve
7. Oil Drain Valve



Other required accessories from our customers (DGPT, Oil Reduction Relay, OTI, WTI)

We provide both off circuit Tap changer and Onload tap changer Eco tap



LARGE DISTRIBUTION

1. Radiators
2. H.V. Plug in Bushing
3. L.V. Plug in Bushing
4. Conservator with Air Bladder to the Tank via Buchholz Relay

ACCESSORIES

STANDARD	OPTIONAL
Porcelain HV and LV Bushing 	Plug-In Bushing 
Earthing Terminals 	Cable Box 
Thermometer Pocket 	Neutral CT 
Pressure Relief Valve 	DGPT2 
Visual Oil Level Indicator 	Dial Thermometer with 2 Contact 
Lifting Lugs 	Oil Level Indicator with 2 Contact 
Drain Cock 	Pressure Relief Valve with Contact 
Rating Plate 	Automatic Breather - Tank with Conservator 
Silica Gel Breather - Tank with Conservator 	Winding Temperature Indictor is Recommended For Large Distribution & Special Transformers 

TESTING

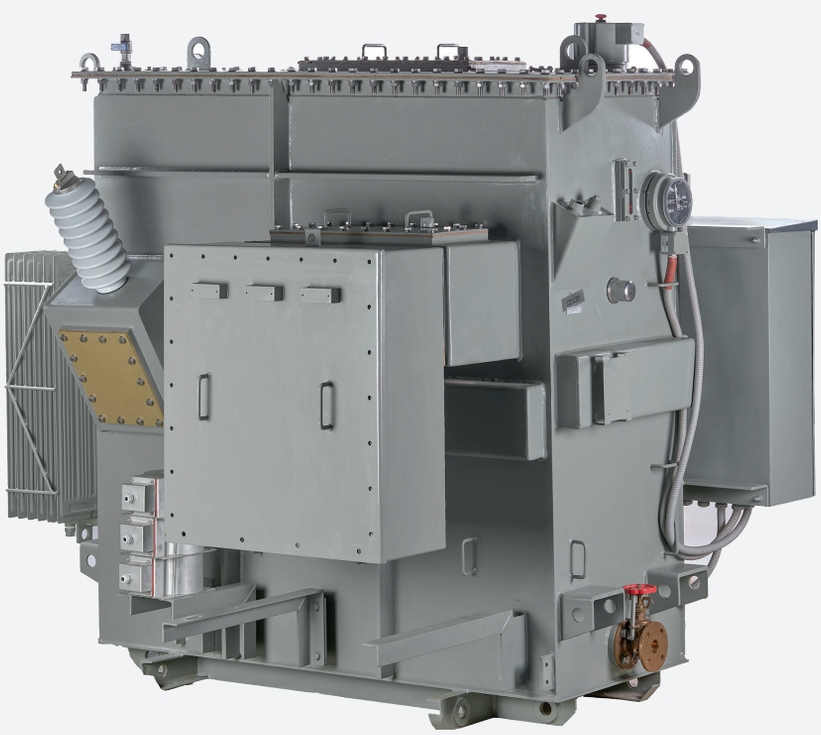
ROUTINE	TYPE & SPECIAL
Measurement of voltage ratio and check of vector relationship	Temperature rise test
Measurement of winding resistance	Measurement of zero-sequence impedance
Measurement of impedance voltage and load loss	Measurement of voltage and current harmonics
Measurement of no-load loss and current	Measurement of insulation resistance
Dielectric tests	Measurement of capacitance and tan δ
Separate-source voltage withstand test	Partial discharge measurement
Induced over-voltage withstand test	Lightning impulse test
Test on on-load tap changer	Switching impulse test
	Measurement of acoustic sound level

COMPETITIVE EDGE

EARTHING TRANSFORMERS

Grounding Transformers are designed to provide an artificial, neutral point for ungrounded three phase power systems. During the line-to-ground faults, grounding transformers provide an easy path to ground faults, thus limit the fault currents and transient over-voltages. Grounding transformers normally carry short-circuit ground current until the circuit breaker clears the fault.

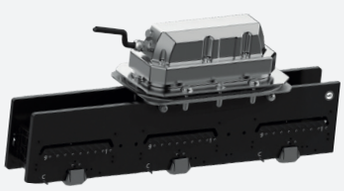
Therefore, they have short time ratings.
4-Earthing Auxiliary Transformers It is combined Transformer 2x1 Where it can provide grounding for 3 phase power systems in the mean time the Auxiliary transformer can supply the substation light loads.

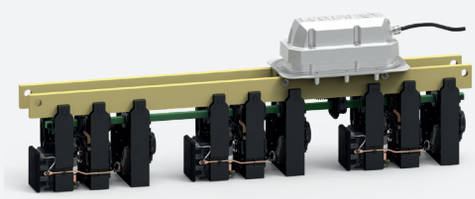


ECO TAP OLTC

MR ECOTAP VPD Distribution Transformer On Load Tap Changers is the solution for all operators who have to maintain voltage, it turns fixed distribution grid transformers into regulating transformers which keep voltage stable in public, industrial, and private distribution grids.

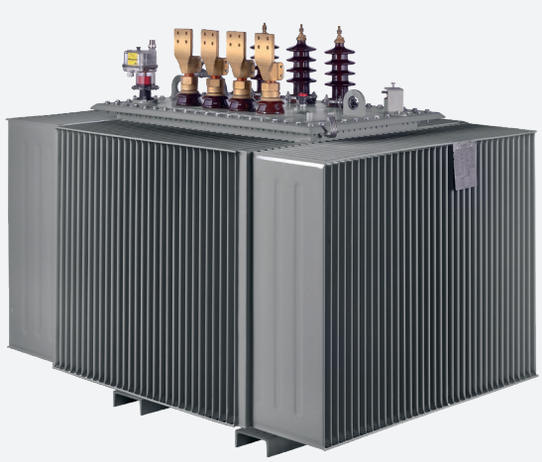
- Large regulating range with up to 17 operating positions simple replacement.
- Standard for all grid types and applications.





LOW LOSSES TRANSFORMERS

Low Loss transformers is art of technologically advanced core materials with low loss Winding which lead to significant reduction of both load and no load losses comply to Tier2 Eco design. operating costs can be reduced, loss savings over lifetime, improving the energy efficiency and resilience of your site.



EGYPT TECHNICAL DATA SHEET

3 PHASE OIL IMMERSED DISTRIBUTION TRANSFORMERS			
Item	**Description**	**Units**	**Particulars**
1	Rated power	kVA	1000
2	Applied Standard		IEC 60076
3	Primary Voltage	V	11000
4	Secondary Voltage (at No-Load)	V	400
5	Rated Primary Current	A	52.49
6	Rated Secondary Current	A	1443.38
7	Frequency	Hz	50
8	Vector Group		Dyn11
10	Voltage Regulation on HV winding	%	From 10- % to 5+ % in step by 2.500 %
12	Maximum Ambient Temperature	°C	45
13	Maximum Top oil Temperature Rise	K	45
14	Maximum average winding Temperature Rise	K	55
15	No-Load Losses	W	1222
16	Load Losses (at 95 °C)	W	9450
17	Impedance Voltage (at 95 °C)	%	5
18	Transformer Type		Conservator
19	Cooling Method		ONAN
20	Winding material		Copper / Copper
21	Type of oil		Uninhibited Mineral Oil
22	Weight of oil	kg	520
23	Total Weight of Transformer	kg	2920
24	Overall dimensions		
	Length	mm	1880
	Width	mm	1340
	Height	mm	1730
25	Devices equipped with transformer		
	magnetic oil level inicator	pcs	1
	Bimetal thermometer indicator with two contacts	pcs	1
	Buchholz relay	pcs	1
	Dehydrating Breather (Silica gel)	pcs	1
26	Protection surface & Finish color		C4H (RAL 7033)

Tolerance in Weight & Dimensions ±10%

Tolerance for Impedance according to IEC 60076

USA TECHNICAL DATA SHEET

3 PHASE OIL IMMERSED DISTRIBUTION TRANSFORMERS			
Item	**Description**	**Units**	**Particulars**
1	Rated power	kVA	1000
2	Duty		Bi-directional
3	Operation		Outdoor
4	Applied Standard		ANSI C57
5	Primary Voltage	V	24940
6	Secondary Voltage (at No-Load)	V	480
7	Rated Primary Current	A	23.15
8	Rated Secondary Current	A	1202.81
9	Frequency	Hz	60
10	Vector Group		Yyn0
11	Voltage Regulation on HV winding	%	From 5- % to 5+ % in step by 2.500 %
12	Maximum Ambient Temperature	°C	50
13	Maximum Top oil Temperature Rise	K	50
14	Maximum average winding Temperature Rise	K	55
15	No-Load Losses	W	960, tolerance as per C57.12.00
16	Load Losses (at 85 °C)	W	7600, tolerance as per C57.12.00
17	Impedance Voltage (at 85 °C)	%	"5.75 with %7.5± tolerance as per C57.12.00 min. 5.32 max. 6.18"
18	BIL HV	kV	125
19	BIL LV	kV	30
20	Transformer Type		Hermetical
21	Cooling Method		ONAN
22	Winding material		Aluminium / Aluminium
23	Type of oil		Mineral oil
24	Weight of oil	kg	1825
25	Total Weight of Transformer	kg	6350
26	Overall dimensions	mm	Length: 2360 Width: 2258 Height: 2358
27	Paint System and Colour	-	"C-5I 7GY 1.5/3.29 pad-mount green"
28	Devices equipped with transformer		
	Hv Dead Front Bushing	pcs	6
	10 Hole Lv Integral Porcelain Bushing	pcs	4
	Off Load Tapchanger	pcs	1
	Magnetic Oil Level Indicator	pcs	1
	Pressure Relief Device	pcs	1
	Oil Thermometer	pcs	1
	Pressure / Vacuum Gauge	pcs	1
	Drain Valve	pcs	1
	Sampling Valve	pcs	1
	Pressure / Vacuum Device	pcs	1
	4 Pos Lbor Switch	pcs	1
	Bayonet Fuse	pcs	3
	Current Limiting Fuse	pcs	3

CERTIFICATES


intertek

ASTA CERTIFICATE OF TYPE TESTS

Project No: G104489401 Certificate No: ASTA-TYPE-000790

Applicant: Elsewedy Transformers, 10th of Ramadan City Zone A4, Egypt.

Apparatus: Three-phase, 50Hz, ONAN, Category 1, Dyn11, oil immersed transformers fitted with a manually operated tap-changer:
1. 100 KVA, 11± 2x2.5% / 0.415kV (LL), LI/AV: 75 kVp / 28 kV, - /3 kV
2. 500 KVA, 11± 2x2.5% / 0.415kV (LL), LI/AV: 75 kVp / 28 kV, - /3 kV
3. 1250 KVA, 11± 2x2.5% / 0.415kV (LL), LI/AV: 75 kVp / 28 kV, - /3 kV
4. 630 KVA, 22± 2x2.5% / 0.415kV (LL), LI/AV: 125 kVp / 50 kV, - /3 kV
5. 1250 KVA, 22± 2x2.5% / 0.415kV (LL), LI/AV: 125 kVp / 50 kV, - /3 kV
Each transformer has 5 taps and the principal tap was nominated by the manufacturer as tap 3.

Manufactured By: Elsewedy Transformers, 10th of Ramadan City Zone A4, Egypt.

Test Report No: 1112004-3/01 to 05

Designation: SWD 100/11, SWD 500/11, SWD 1250/11, SWD 1250/22 and SWD 630/22

The apparatus which is representative of the designation, supplied drawings and photographs has been evaluated in accordance with:
IEC 60076-1: Edition 3.0 2011-04 Clauses 11.2, 11.4, 11.5 and 11.1.3 e)
IEC 60076-2: Edition 3.0 2011-02 Clause 7
IEC 60076-3: Edition 3.1 2018-03 Clauses 10, 11.2 and 13.2
IEC 60076-10: Edition 2.0 2016-03 Clause 11
and the STL Guide to IEC 60076, Issue 6.0, 1st June 2019, where applicable.

The results are shown in the record of tests attached hereto. The values obtained and the general performance is considered to comply with the above Standard(s) and to justify the ratings assigned by the manufacturer as stated on the ratings page(s) of this Certificate. This Certificate applies only to the apparatus tested. Responsibility for conformity of any apparatus having the same or other designations rests with the Manufacturer.

UKAS TESTING 010

Certification Engineer

Certification Officer

1st June 2021

Date

Intertek Page 1 of 6 IT-ASTATYPE-GLo V2 05 Oct 2020

ASTA TYPE 000790


Type Test Certificate
B4014695

Manufacturer
El Sewedy Transformers
10th Ramadan City, 3rd Industrial Zone 3, Square A4
Cairo (Egypt)

Apparatus Designation
Oil-immersed power transformer
Iraq

CESI

Division Testing & Certification
Business Area Testing Operation
Milan Platform

CESI B4014695


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	a PHASE OIL IMMERSED TRANSFORMER Rated power 2000 KVA ; Rated voltages 110,433 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

CESI CONFIDENTIAL USE

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 stated on the ratings page(s) of this Certificate. This 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

Saverio Pierangelo
STL Member Laboratory

The Manager - Arcidiacono Lorenzo
STL Member Document Digitally Signed

Date of Issue

This original reproduction of the Certificate, or reproduction of the page incorporated in any page(s) on which are stated the endorsed ratings of the test object, are permitted without written permission from CESI.
The authenticity of this document is guaranteed by the integrity of hologram.

测思 CESI

CESI B7009461


KEMA

66-07

TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

APPARATUS A three-phase oil-immersed distribution transformer

DESIGNATION 1000 kVA SERIAL No. 07 0001 8

Rated power 1000 kVA
Rated voltage 20 kV ± (2 x 2,5%) / 400 V
Connection symbol Dyn11
Rated frequency 50 Hz

MANUFACTURER El Sewedy Electric Syria, Damascus-Adra, Industrial zone

TESTED FOR El Sewedy Electric Syria, Damascus-Adra, Industrial zone

TESTED BY KEMA HIGH-POWER LABORATORY Utrechtseweg 310 - 6812 AR Arnhem - The Netherlands

DATE(S) OF TESTS 13, 18 and 19 July 2007

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this Certificate, has been subjected to the series of proving tests in accordance with the complete type test requirements of

IEC 60076

This Type Test Certificate has been issued by KEMA 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 page 4 and the dynamic ability to withstand short-circuits.

The Certificate applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

This Certificate consists of 39 sheets in total.

This certificate falls under the scope of the accreditation certificates L 020 and L 218 of the Dutch Council for Accreditation, see annex sheet (page 2).

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KEMA Nederland B.V.

P.P.A. Bos
KEMA T&D Testing Services
Managing Director

Arnhem, 21 August 2007

KEMA 66-07


KEMA Labs

KEMA TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

was issued to
Elsewedy Transformers
Sharqia Governorate, Egypt

for the test object:
a three-phase oil-immersed
distribution transformer
Type: 3 phase oil immersed Transformer
Rating: 1500 kVA – 22 kV ± 2 x 2,5% / 415 V – Dyn11 – 50 Hz

manufactured by
Elsewedy Transformers
Sharqia Governorate, Egypt

The test object has successfully passed the required type tests of
IEC 60076-1, IEC 60076-2, IEC 60076-3, IEC 60076-5, IEC 60076-10

The test results are recorded in Certificate No.
2094-21

This Certificate was first issued on 29 April 2021

KEMA B.V.

Shankar Subramany
Director, High-Power Laboratory

KEMA 2094-21


KEMA Labs

KEMA TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

was issued to
Elsewedy Transformers
Sharqia Governorate, Egypt

for the test object:
a three-phase oil-immersed
distribution transformer
Type: 3 phase oil immersed Transformer
Rating: 1500 kVA – 11 kV ± 2 x 2,5% / 415 V – Dyn11 – 50 Hz

manufactured by
Elsewedy Transformers
Sharqia Governorate, Egypt

The test object has successfully passed the required type tests of
IEC 60076-1, IEC 60076-2, IEC 60076-3, IEC 60076-5, IEC 60076-10

The test results are recorded in Certificate No.
2167-20

This Certificate was first issued on 2 November 2020

KEMA B.V.

Shankar Subramany
Director, High-Power Laboratory

KEMA 2167-20


DNV·GL

KEMA TYPE TEST CERTIFICATE OF SHORT-CIRCUIT PERFORMANCE

was issued to
Elsewedy Transformers
Cairo, Egypt

for the test object:
a three-phase oil-immersed
distribution transformer
Type: 3-phase oil immersed transformer
Rating: 250 kVA – 11 kV ± 2 x 2,5% / 0,433 kV – Dyn11 – 50 Hz

manufactured by
Elsewedy Transformers
Cairo, Egypt

The test object has successfully passed the required type tests of
IEC 60076-5

The test results are recorded in Certificate No.
2417-17

This Certificate was issued on 14 February 2018.

DNV GL Netherlands B.V.

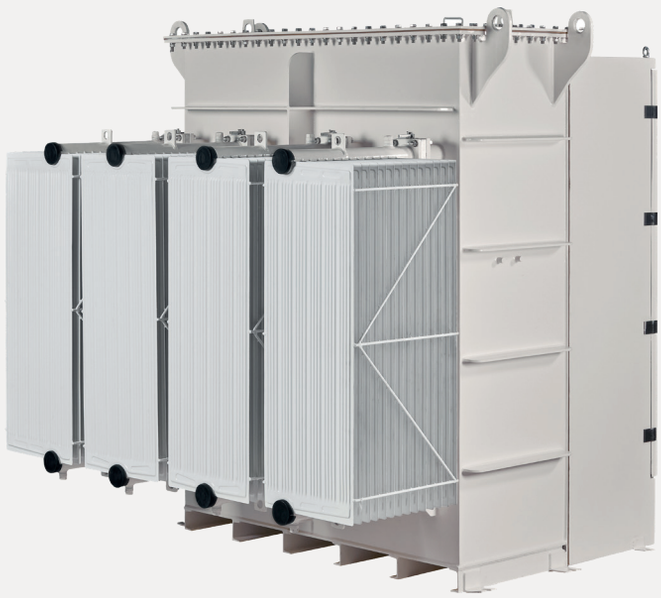
J.P. Ponteijne
Executive Vice President
KEMA Laboratories

KEMA Laboratories

© DNV GL
Please note that this document has been issued for information purposes only, and that the original bound and sealed paper copy of the Certificate including the results of the tests of the object will prevail. This document does not imply that DNV GL has certified or approved any object other than the specimen tested.

KEMA 2417-17

DIFFERENT TYPES OF TRANSFORMERS



2600 INVERTER TRANSFORMER
USA ANSI STANDARD

SMALL DISTRIBUTION
WITH CABLE BOX DRC

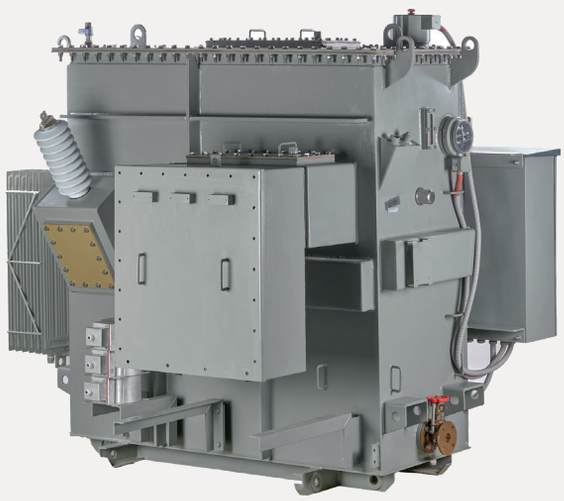
500 KVA LOW SOUND
LEVEL TRANSFORMER

DIFFERENT TYPES OF TRANSFORMERS

1500 KVA DENMARK HERMETICALLY SEALED TRANSFORMER

400 KVA GERMANY ON LOAD ECOTAP TRANSFORMER

KNAN 2800 KVA FOR OIL & GAS UAE BRUJ TECHNO FARM



EARTHING - TRANSFORMER 500 KVA, 33 KV AUSTRALIAN STANDARD

ELSEWEDY ELECTRIC S.A.E
Plot No. 13co3, Cairo Festival City, 5th Settlement, P.O. Box 310, New Cairo, Egypt.

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