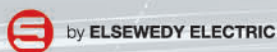


# ELSEWEDY TRANSFORMERS



CAST RESIN DRY TRANSFORMERS



CESI Group

DEKRA



# ELSEWEDY TRANSFORMERS



P2 : About Us

P3 : Elsewedy Transformers

P4 : Why Elsewedy Dry Type Transformer ?

P6 : Cast Resin Dry Transformers

P7 : Technical Data Sheets

P8 : Transformer's Outline Drawing

P9 : Accessories



## About Us

**ELSEWEDY ELECTRIC** Owing to a successful growth rate year after year and aligning with the expansion strategy of the company, by operating in 8 diversified energy segments; Cables & Accessories, Electrical Products, Energy Measurement & Management, Transformers, Communications, Wind Energy Generation, Solar Energy Solutions, Projects & Development.

**ELSEWEDY ELECTRIC** has become a significant contributor to the economic growth in Egypt through its development into a well-established group with extensive holdings, both locally and beyond borders in several other Middle Eastern & African countries as well as some European & Asian countries. With the goal of providing our customers a one-stop solution in terms of Designing, Engineering, Procurement and Construction.

**ELSEWEDY ELECTRIC** has more than 10,000 employees working in 30 production facilities located in 14 countries around the world, exporting

wide range of high quality and safe products to more than 110 countries worldwide. Our turnover has been rapidly rising during the past few years to reach 15 billion EGP in 2013; also our Cables production capacity is the first highest one in the region, with 282 thousand tons/annum in 2013.

Even during lean economic times, Elsewedy Electric has been able to maximize its commitment to improve efficiency by ensuring that its management possesses the expertise and talent necessary for the most critical business needs and has thus succeeded in maintaining a solid financial position.

Therefore, the group has succeeded in becoming, a global leader in cables manufacturing, a regional leader (MEA region) in terms of energy solutions and its related services. All these in addition to: introducing the concept of Energy Management in order to improve energy efficiency and reduce energy use, thereby reducing costs.



## Elsewedy Transformers

We at **Elsewedy Transformers** are committed to providing our customers with distinguished products and services.

We extend to enhance our partnership with our customers by covering all specific requirements and by being available everywhere.

Our factory in 10th of Ramadan city Egypt is built on 35,000 square meters producing 7000 MVA annually of cast resin dry transformers as well as all types of modular solutions.

The policy of **Elsewedy Transformers** is to provide products that conform to our customers' requirements according to international standards and deliver them on time with competitive quality.

This requires all departments to have quality objectives which are reviewed periodically to ensure continuous improvements of quality management system.



# Why Elsewedy Dry Type Transformer ?

Now Elsewedy Transformers made your dreams come true; providing:

## Health & safety

- Hardly inflammable, self extinguishing.
- Highly moisture-proof.
- No pollution to the environment.
- Extremely low content of burnable material.
- No content of any halogen, silicones, nitrogen in the insulation.
- Free from all restrictions that apply oil type transformers.

## Flexibility & Cost Saving

- Minimum maintenance is required.
- No liquids used ; no risk for leakage .
- Repair Possibilities ( at site ).
- Installation close to the center of major consumers .
- Reduce cable costs, transmission losses and installation costs.

## Durability

- Cooling is the most efficient ( up to 40% ).
- Low partial discharge, therefore, high life expectancy.
- Excellent insulation level, short circuit and lightning Impulse.
- Ability to handle greater short time overloads rather than oil type.





## Testing & Quality Control

- **Routine Test**
  - Measurements of Winding Resistance .
  - Measurements of Ratio and Vector group .
  - Measurements of Impedance Voltage .
  - Measurements of Load loss .
  - Measurements of No-load loss .
  - Measurements of Partial Discharge.
  - Applied Voltage Test .
  - Induced Voltage Test .
- **Type test**
  - Lightning impulse Test .
  - Temperature rise Test .
- **Special Tests**
  - Noise level Test .
  - Short-circuit Test .
  - Environmental Test.
  - Fire behavior Test .
  - Thermal shock Test .

## Applications

Proudly serving you in the following three sectors ...

### Energy & infrastructure

- Transportation infrastructure
- Airports
- Utilities' infrastructure

### Industry

- Industrial factories
- Wind Farms
- Oil and Gas Sectors

### Buildings

- Office Buildings
- Shopping Centers
- Industrial Buildings
- Hotels, Hospitals
- New Compounds and Resorts

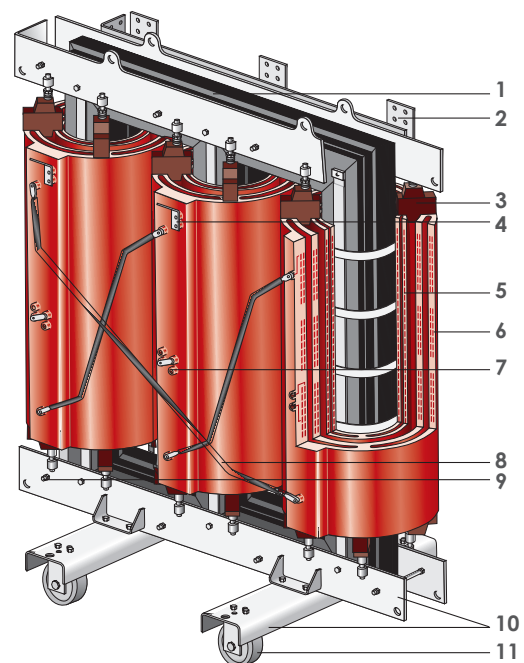
# Cast Resin Dry Transformers

## Technical Specification

- Rated power from 50 KVA up to 15 MVA with rated voltage up to 36 KV.
- Manufactured and tested according to IEC 60076
- Test certificate for our product from KEMA, CESI
- Materials of LV& HV: Aluminium or Copper according to customer request
- Highly moisture-proof(operates up to 100% humidity)
- Insulation level Class F 155 0C
- Low partial discharge ( $\leq 10$  PC)
- Classified E2,C2&F1 according to IEC 60076-11
- Optional enclosure (from IP20 up to IP44) for both indoor and outdoor application according to IEC-60529.The enclosures are specially designed that the heat is dissipated properly .
- Optional forced cooling up to 40% for overloading
- Dual HV winding (22-11, 11-6.6 .../ 0.4)
- Dual LV winding
- HV winding encapsulated Caste Resin in moulds under Vacuum and Pressure
- LV Foil Windings:
  - a- are encapsulated under Vacuum or impregnated with hot polymerised resin according to customer specifications.
  - b- High resistivity to short-circuits reduced axial and radial short-circuit forces to a minimum

## Dry Transformers' Construction

1. Iron Core
2. LV Terminal
3. Fixation Support
4. HV Terminal
5. LV Coil
6. HV Coil
7. Tapping Link
8. Delta connection Rods
9. Earthing
10. Yoke Clamping and Wheelbase
11. Roller





## Technical Data Sheets

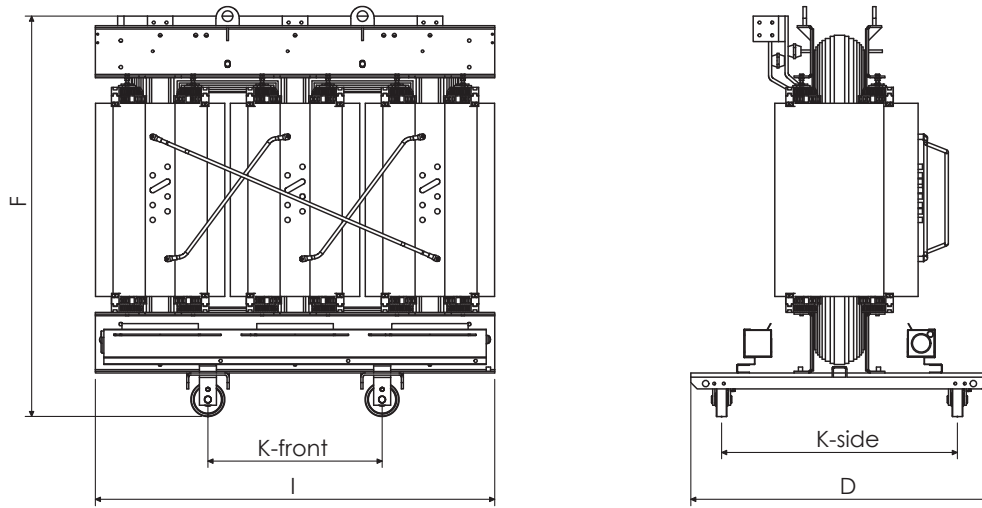
**Table 1:  
Aluminum Winding**

Rating (KVA)	High Voltage (KV)	Impedance (%)	No-Load Losses (KW)	Load Losses at 75 C (KW)	Load Losses at 120 C (KW)	transformer without enclosure				Transformer with enclosure				Distance Between Wheels (K) (mm) FRONT	Distance Between Wheels (K) (mm) SIDE	Noise Level (dB)
						Length (l) (mm)	Width (D) (mm)	Height (F) (mm)	Weight Without Enclosure (kg)	Length (L) (mm)	Width (Y) (mm)	Height (Z) (mm)	Weight With Enclosure (kg)			
160	12	4	0.61	2.3	2.7	1130	1100	1380	1000	1450	1100	1760	1300	520	850	50
	24	4	0.65	2.3	2.7	1300	1200	1430	1100	1600	1200	1860	1400	520	890	50
250	12	4	0.82	3.1	3.5	1160	1050	1370	1150	1760	1450	1760	1500	520	860	53
	24	4	0.88	3.3	3.8	1470	1300	1680	1300	1800	1300	2210	1650	520	950	53
315	12	4	0.95	3.6	4.2	1330	1100	1380	1300	1600	1100	1510	1650	670	800	54
	24	4	1.03	4	4.6	1360	1400	1620	1650	1850	1400	2160	2100	670	800	54
400	12	4	1.15	4.3	4.9	1240	1100	1580	1500	1600	1100	1960	1850	670	880	55
	24	4	1.2	4.8	5.5	1400	1250	1670	1750	1700	1250	2210	2150	670	900	55
500	12	4	1.3	5.1	6	1310	1150	1610	1850	1600	1100	2060	2100	670	900	56
	24	4	1.5	5.6	6.5	1450	1350	1640	2050	1850	1350	2210	2560	830	930	56
630	12	4	1.5	6.4	7.3	1700	1150	1660	2350	1700	1150	2110	2650	670	900	57
	24	4	1.65	6.8	7.8	1950	1400	1730	2550	1950	1400	2310	2900	670	930	57
800	12	5	1.7	7.7	8.8	1560	1250	1700	2500	1900	1250	2160	2900	670	990	58
	24	5	2	8.2	9.4	1560	1450	1930	3000	2050	1450	2560	3450	670	990	58
1000	12	5	1.85	8	9.2	1540	1250	1910	2600	1900	1250	2400	3000	820	880	59
	24	5	2.2	8.9	10.3	1610	1500	2010	3100	2100	1500	2600	3600	820	1010	59
1250	12	5	2.5	10.5	12	2050	1450	1890	3100	2050	1450	2450	3600	820	900	59
	24	5	2.8	11.5	13.1	1610	1450	2120	4000	2100	1450	2700	4400	820	1010	59
1500	12	6	2.6	11.2	12.9	1770	1350	2030	3700	2100	1350	2600	4050	820	960	61
	24	6	2.8	12.8	14.8	1690	1500	2220	4150	2200	1500	2900	4650	820	1040	61
1600	12	6	2.8	12.3	14	1880	1400	1920	3900	2200	1400	2450	4350	820	1000	61
	24	6	3.1	14	16	1990	1600	2090	4200	2400	1600	2800	4700	1070	1130	61
2000	12	6	3.5	14.9	17	1940	1450	2010	4400	2200	1450	2720	4850	1070	1170	62
	24	6	4	17.5	20	2020	1600	2230	5100	2500	1750	2750	5550	1070	1170	62
2500	12	6	4.3	18.3	21	2150	1500	2100	6000	2400	1500	2900	6550	1070	1180	65
	24	6	5	20	23	2010	1550	2230	6150	2450	1650	3070	6850	1070	1180	65
3150	12	7	5.5	22	25	2370	1600	2520	7300	2650	1600	3200	7900	1070	1290	65
	24	7	6.3	23	26	2500	1850	1070	8200	3000	1800	3300	8900	1070	1360	65

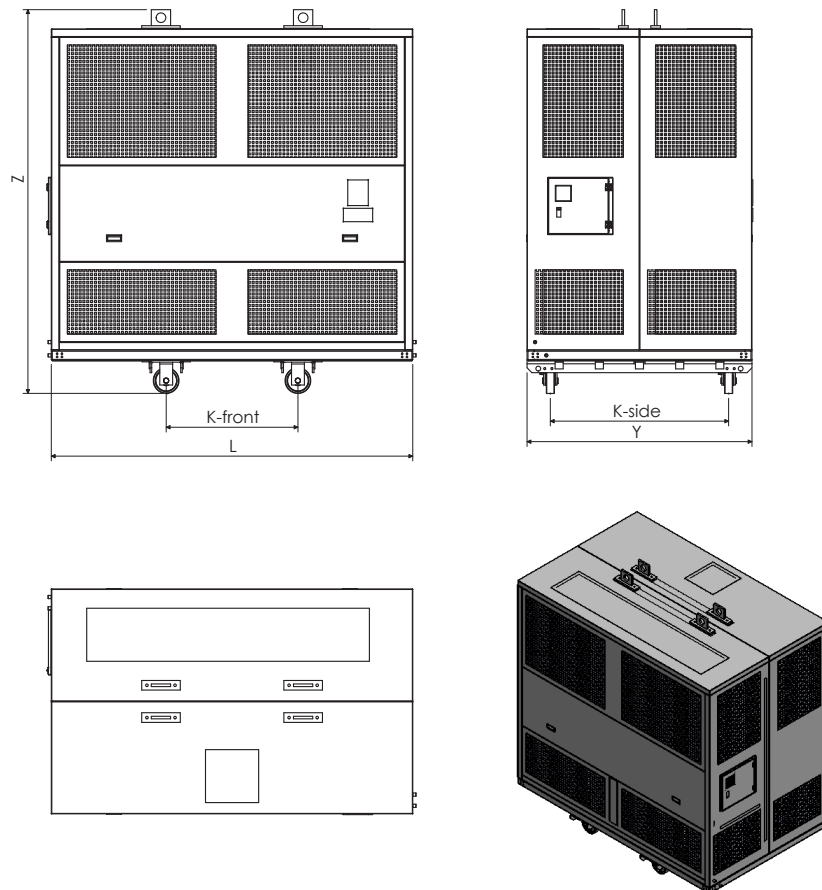
All the dimensions in the Table with approximatly tolerance +/-10- %.  
Tolerance of no load losses, load losses and impedance according to IEC60076

**Copper Winding :**  
**Manufactured as per customers' requirements**

## Transformer's Outline Drawing



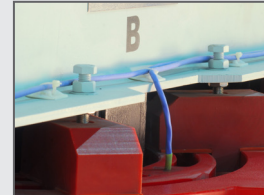
## Enclosure Outline Drawing



# Accessories

## Air-Forced System (optional)

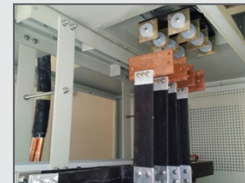
- The transformers can be equipped with enclosures of different protection level according to IEC 60529 for different services conditions.
- The enclosures are specially designed that the heat is dissipated properly
- Elsewedy Transformers can offer enclosures with IP20 to IP44 indoor and outdoor



## Enclosures

- Transformers can be equipped with enclosures of different protection level according to IEC60529 for different service condition with IP20 and up to IP44 for both indoor and outdoor applications

- HV cable Box
- LV cable Box
- Adaptation with Bus-way connections
- Adaptation with Bus-way
- Transformer with Cable Box

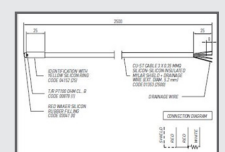
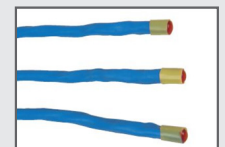


## Temperature Control system

- PT100 linear resistances are used as sensors
- Temperature monitoring control unit with following options:
  - a- Fan control
  - b- Provide Alarm ,Trip and Fault signals
  - c- Possibility to connect with BMS through MOD BUS RS485(optional )
  - d- ETH (Ethernet module ) (optional)



temperature monitoring control unit .



PT100

## Other accessories (optional)

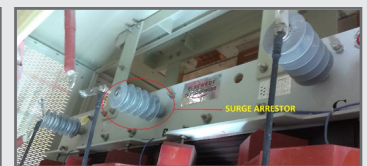
- Surge arrestor
- Roller Anti-vibration damper
- Over current relays
- Current Transformers
- Smart meters
- Space heaters



Smart meter



Roller anti vibration damper



Surge

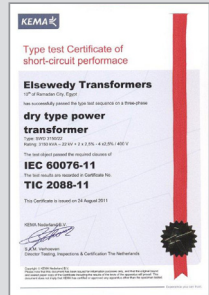
FGH 11 KV 1000 KVA



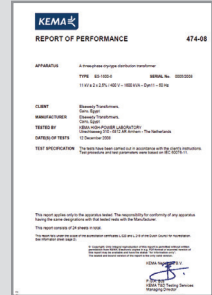
KEMA 11 KV 1500 KVA



KEMA 22 KV 3150 KVA



KEMA 1600 KVA Report of performance



CESI Type Test 1000 KVA



CESI Environmental Test



CESI Fire Test 1000 KVA



ISO 9001-2008



ISO 14001-2004



OHSAS 18001-2007



ISO IEC 17025-2005



Address: Plot no. 27, 1st District, 5th Settlement,  
P.O.Box 311, New Cairo 11835, Egypt.

Tel.: +202 - 2759 9727

Fax: +202 - 2759 9759

E-mail: sales.transformers@elsewedy.com

www.elsewedy.com

19159