

ELETTROMECCANICA
P I O S S A S C O



 Since 1962



english

OIL

IMMERSED DISTRIBUTION
TRANSFORMERS

ELETTROMECCANICA PIOSSASCO was created from the transformation of *Elettromeccanica Luparia* established in the beginning of the 1950s by Mr. Giacinto and his son Eng. Alessandro.

At the beginning the production was including *a wide range of electrical machinery, power generator set included.*

In 1962 with the building of the factory in Piovascote (To), the firm changed its name to **ELETTROMECCANICA PIOSSASCO**, with manufacturing distribution transformers exclusively.

Since years past to today the continuous growth has been thanks to our willingness and serious and persistent efforts of **EP** firm which is now well known in Italy and worldwide.

Today the firm is controlled by the sons of the Eng. Alessandro, Mr. Giacinto, Lorenzo and Andrea and it is looking to make their own mark through adapting to the market and offering a greater level of service



Our products



**OIL IMMERSED
DISTRIBUTION
TRANSFORMERS**



**CAST RESIN
DISTRIBUTION
TRANSFORMERS**



**DRY TYPE
TRANSFORMERS AND
AUTOTRANSFORMERS**



Experience and quality

Since 1962, our transformers are manufactured using materials sourced exclusively from Europe, taking advantage of the best technological products that guarantee the durability and functionality over time.

The goal of our company is to provide our customers with the best solutions in terms of quality and reliability across a range of transformers that meets the demand of the domestic and international market.



OIL IMMERSED TRANSFORMERS

Thanks to the experience attained over the years, our range of three-phase oil transformers is able to satisfy even the most demanding customers in terms of:

- High efficiency and energy saving
- Low noise level
- Possibility of installation in countries with tropical conditions and ambient temperatures up to +55°C and Arctic environment up to -40°C;
- Special executions following customer specifications
- Sales and technical support during the project development.

SILICAGEL BREATHER WITH SALT (FOR TRANSFORMERS WITH OIL KEEPER)

BROWN PORCELAIN BUSHING FOR LV AND NEUTRAL

BROWN PORCELAIN BUSHING FOR HV

DIAL THERMOMETER (ON REQUEST)

LIFTING LUGS

THERMOMETER POCKET

EARTHING TERMINAL

BI-DIRECTIONAL ROLLERS

BURSTING VALVE
TYPE1: RELIEF VALVE FOR TRANSFORMERS WITH OIL KEEPER
TIPO2: OVER PRESSURE VALVE FOR HERMETICAL TRANSFORMER

OIL KEEPER (FROM 1000KVA UP TO 3150KVA)

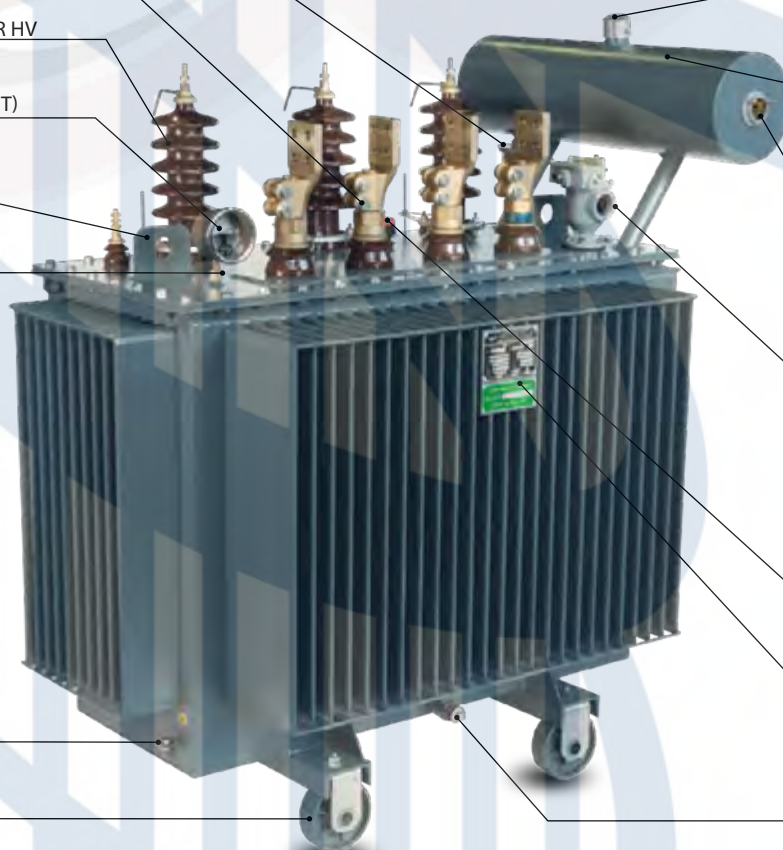
OIL LEVEL INDICATOR (FOR TRANSFORMERS WITH OIL KEEPER)

BUCHHOLZ RELAY FOR TRANSFORMERS WITH OIL KEEPER (ON REQUEST)

TAP CHANGER NO LOAD HANDLING

DATA PLATE

DRAIN VALVE



Special executions on request



- thermometer with two contacts normally open (NO);
- Buchholz Relay with two contacts normally open (NO) for transformer with oil keeper;
- DGPT protection device or DCMR protection device (for transformers hermetically sealed type);
- Electronic device TPL210 with NT210 control unit for controlling the temperature, pressure and oil level in transformers hermetically sealed type;
- overpressure valve with electrical contact;
- primary voltage up to kV36;
- double HV;
- dual secondary voltage or with n. 2-3-4 outputs for PV;
- losses and voltage different than indicated;
- connections and vectorial groups different than indicated;
- frequency 60 Hz;
- HV bushings "plug-in" - elastimold type;
- LV bushings type "passe-bars";
- air cable box for HV and/or LV bushings;
- HV cable box (according BSS);
- skids for pole mounted;
- hook for pole mounting (H61);
- centralized box for auxiliary circuits;
- silicone or vegetal fluids;
- electrostatic screen between HV and LV windings;
- Basin for oil collection, in steel or PVC.



Windings

All windings are mainly manufactured with electrolytic copper grade A, in accordance with UNI 5649-71.

Upon customer's request it is possible to realize windings in aluminium.

The windings are cylindrical, with a circular section, and with concentric layers.

For the primary windings copper wire is used, enamelled or isolated in paper, according to the rated power of the transformer. Wide channels of oil in the central coil, made with slats of new cellulose pre-stressed round edges, ensure an optimal circulation of oil, even within the winding.

The secondary windings are constructed with single or multiple strips of copper or with copper plate, according to the technical characteristics of the transformer.



Core

The core is manufactured with first class Carlite insulated grain-oriented magnetic steel foil.

Cutting is performed at 45° with CNC machines ensuring precision and quality.

Cores are mounted on special benches with STEP-LAP system, through clamps and runners to ensure flawless overlapping of aluminium sheets. Core clamping is ensured by sturdy steel sections.





Tank

The tanks are constructed with cold-rolled sheet, welded and equipped with suitable reinforcements.

For transformers with power ratings up to 1600 kVA tank with fins are used, while for higher powers radiators are used.

For transformers with power up to 800 kVA the tank is sealed type integral filling (without an oil conservator); for higher powers, unless otherwise specified by the customer, an oil keeper is provided.

The tanks are fully leak-proof and the control of the welding is performed by a fluorescent liquid penetrate method, checking with a UVA lamp.

The manufacturing process involves a cycle of blasting to make the surface as uniform as possible for the subsequent painting steps, which consists of applying an high adhesion antirust primer, that will later be covered by the protective varnish, usually with RAL 7031, approved by Enel.



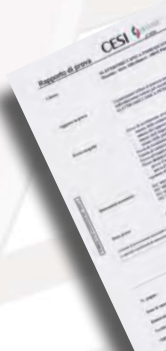
Tap changer

The tap changer for the variation of the primary voltage is a linear type and must be operated exclusively with the transformer disconnected from the network.

Normally three positions are used (for change +/- 5%) or at five positions (for change +/- 2 x 2.5%).

In case of dual primary voltage, the tap changers are fitted with a double exchange external voltage (eg KV10-15, KV15-20, KV10-20, KV11-13, 8).





Bushings

The terminals MV / LV normally used are made in brown porcelain, unified, suitable for operation outdoors.

The bushings are installed on the cover of the transformer and can be replaced easily without the need to open the cover

On request, is possible to provide plug-in bushings Elastimold type for MV and passe-bars terminals for LV.



Insulation Oil

First filling of the transformer is usually by mineral oil, insulating petrochemical, non-polluting, free of PCBs and PCTs, responding to IEC 60296 standards, certified by transformer oil analysis parameters.

Before filling the transformer by a vacuum method, the oil is suitably treated to achieve a perfect dehydration.

On request we can provide vegetable oil, silicone type and MIDEL 7131, with different physical characteristics depending on the installation location and the type of application.



Specific services for specific products

We are able to offer to our customers a range of consulting services, such as:

- technical assistance in the choice of the transformer in relation to the system where it will be installed;
- preparation of detailed tenders to allow the customer an assessment of the technical and economic performance of the product offered;
- commissioning services directly on site, around the world, using internal staff and consultants;
- revisions of transformers and dielectric analysis services, presence of PCBs - PCTs and dissolved gases;
- after sales support.

TESTS AND TRIALS

During the production cycle tests are scheduled, as test "in progress" and final, according to the instructions and procedures by the Technical Department.

Our transformers, before being placed on the market, are individually subjected to testing, in the manner prescribed by the IEC EN 60076, with the execution of the following acceptance tests (routine tests) and issuance of the related "Test Report":

- voltage ratio measurement
- polarity and connection group test
- insulation test with applied voltage
- insulation test with induced voltage
- losses and no load current measurement;
- winding resistance at room temperature measurement
- measurement of losses and short circuit voltage at required reference temperature.

It is also possible, upon customers' request (with extra charge) to run or repeat both routine tests and type tests, in addition to special tests, at accredited external boards facilities (as, for example CESI – Milan Italy).

After-sale assistance is also ensured.

QUALITY ASSURANCE AND CERTIFICATION

The entire production of **ELETTROMECCANICA PIOSSASCO** implements a system of quality assurance developed in accordance with **ISO 9001:2008** accredited and verified by the certification body **DNV (Det Norske Veritas)**.

The constant application of the Quality Manual EP with their own procedures, ensures strict and direct control of all materials and components on arrival, in warehouse, during production processes and on the final testing and packaging procedures.

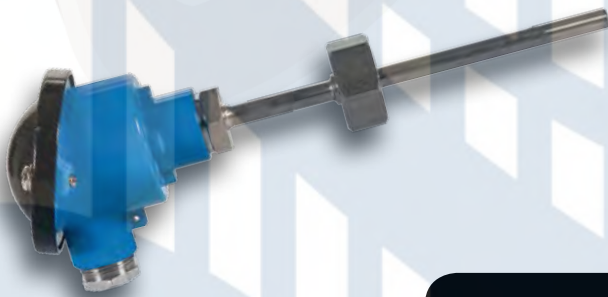
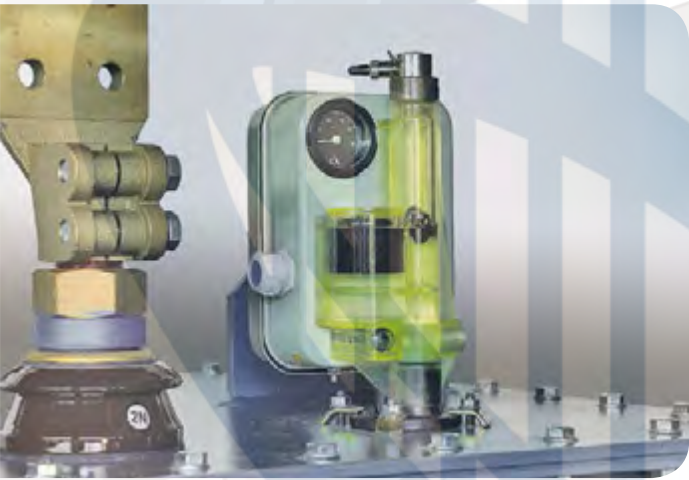
Our goal is to provide our customers with the delivery of a product followed by constant attention from the outset and during each stage of the production process.





Our customizations





Accessories and Applications





Energy for the environment

Protecting the environment and the containment of excessive use of natural resources is a major problem globally.

We are working to resolve this problem and in fact, we recycle all waste production which is checked during waste collection.

In 2010 **EP** built adjacent to our factory a photovoltaic system that allows us to feed all business activities exclusively with solar energy.



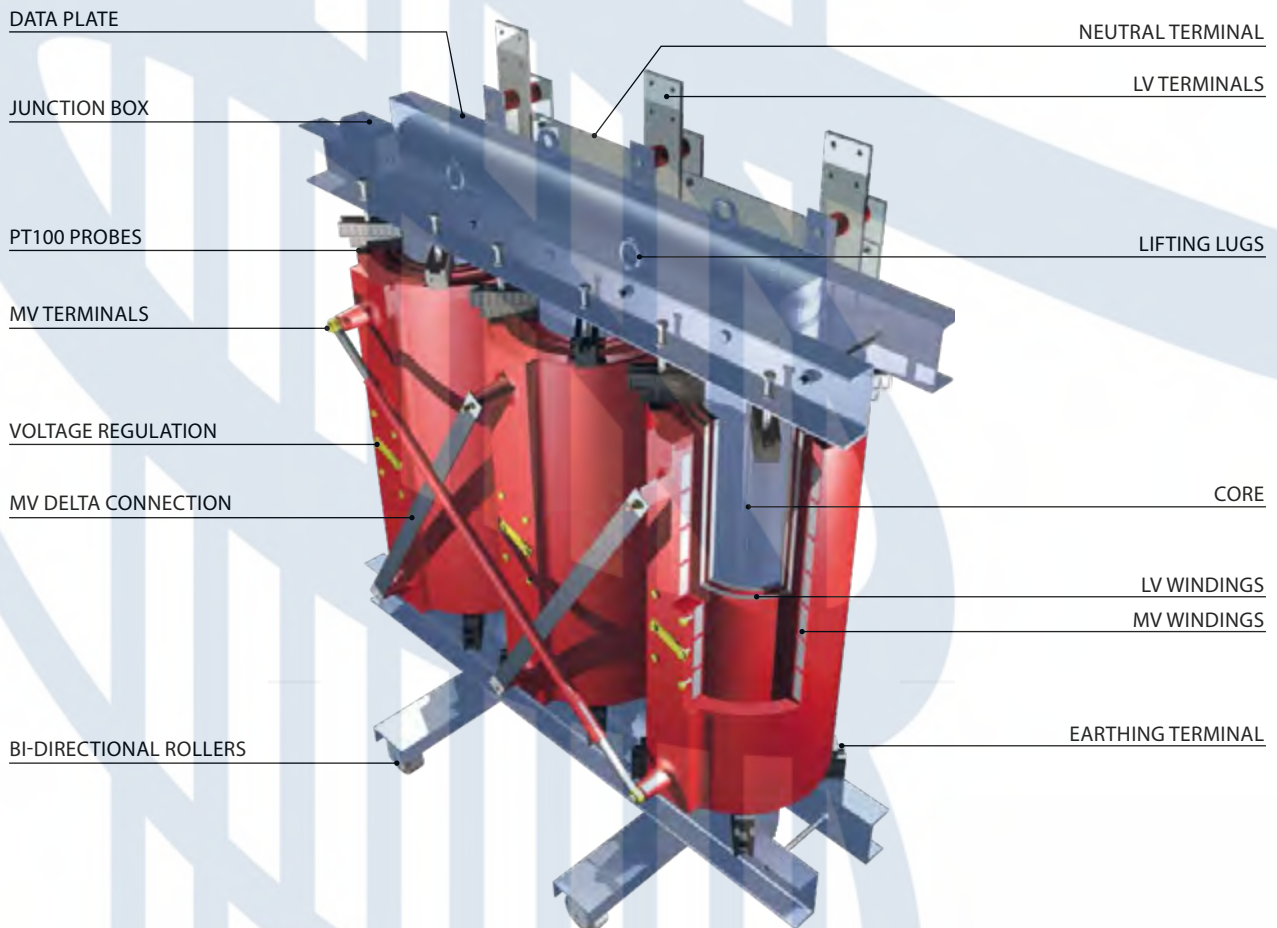
CAST RESIN DISTRIBUTION TRANSFORMERS

In order to implement the range of our transformers, to try to meet the demands of even the most demanding customers, the new series of cast resin transformers manufactured by **ELETTROMECCANICA PIOSSASCO** is able to offer a variety of technical and economic advantages in terms of:

- High efficiency and energy saving;
- Low noise level;
- Possibility of realization with reduced noise for installations inside buildings for civilian use;
- Possibility of installation in tropical climate countries with temperatures up to +55°C;
- Possibility of installation in countries with arctic climate with temperatures down to -60°C;
- Special executions on client specifications;
- Sales and technical support during the project development.

Standard features

- primary voltage: up to 24kV;
- secondary voltage: up to kV 0,690;
- insulation class: up to kV 24;
- windings configuration (from kVA100 to kVA 3150): delta/ star with neutral (other upon request);
- vector group: Yyn0, Dyn11, Dyn5 (other upon request);
- frequency: 50Hz;
- core assembled with layers of grain-oriented steel foil;
- encapsulated aluminium primary winding;
- pre-impregnated aluminium secondary winding;
- primary voltage tap changers;
- LV terminal plates;
- bi-directional rollers;
- lifting lugs;
- earthing terminal;
- n. 3 PT100 probes connected in a junction box;
- electronic temperature monitoring unit;
- data plate
- protection grade IP 00.

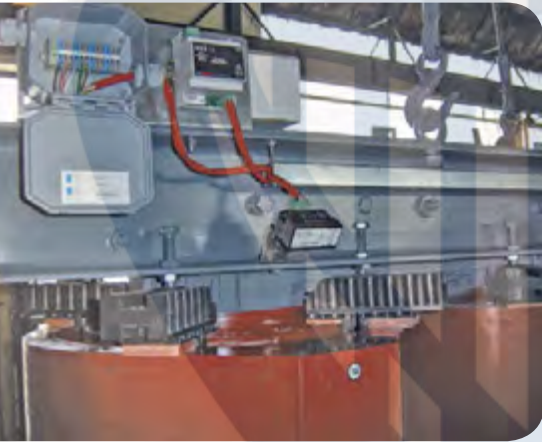




Customization

We are able to produce transformers with specific features based on customer requests, always ensuring quality and functionality:

- primary voltage up to kV36;
- dual primary voltage;
- dual secondary voltage;
- multiple secondary voltage (e.g. for use in photovoltaic systems);
- copper primary and secondary windings;
- non-standard losses and voltages (upon request);
- non-standard connections and vector groups (upon request);
- 60Hz frequency;
- electrostatic shield between primary and secondary windings;
- MV outer cone elastimold type separable connectors;
- forced ventilation fans;
- forced air cooling electronic monitoring unit;
- digital output RS485 module or analogic output 4-20mA module;
- infrared temperature monitoring system (recommended for MV/MV transformers);
- IP 31 protection grade panel enclosure, mounted on the transformer – RAL 9002 paint;
- tropicalization up to +55°C (for installation in countries such as United Arab Emirates, African countries etc.);
- customization for use in arctic weather conditions with temperatures down to -60°C (e.g. Russia);
- surge protection kit (strongly recommended in case of connection to overhead power lines or lines without surge protection);
- other features upon request.



Encapsulation plant



Transformer enclosure



europa

russia

Arabian Peninsula

africa



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