EPOXY CAST RESIN POWER TRANSFORMERS

RITZ produces transformers in Glass Fibre reinforced Vacuum Technology (GVT) for ratings up to 25 MVA and 40,5kV voltage class for various applications as follows:

- Power Distribution
- Rectifier Drives
- Generator Excitation
- Transmitter Systems
- Earthing Systems
- Traction Supply Systems
- Oil Platforms / Vessels
- Injection Systems
- Laboratory Systems

All transformers can be supplied inside enclosures up to protection class IP54.

RITZ offers a customized service by providing:

- Transformer Installation
- Disposal of existing oil and PCB transformers
- Start-up

Glass Fibre reinforced Vacuum Technology (GVT) is used for High Voltage coils and optionally for Low Voltage coils in order to guarantee the highest possible quality and reliability to avoid cracks or voids during manufacturing and service. The main design features are:

- Protection against power surges
- Free of partial discharge
- Protection against short circuits
- High mechanical strength
- Cooling Channels in HV&LV coils
- Pre-galvanised steel frame

RITZ transformers are designed according to the required international standards such as IEC, IEEE, UL, etc. Furthermore, they fulfil all climatic, environmental and fire protection requirements:

- Environmental class E2
- Climate class C2
- Fire protection class F1
- Basic surge level, list 2

The environmental protection requirements are taken into account in the design of RITZ cast resin transformers.
HIGH VOLTAGE COIL
The copper winding of the High Voltage (HV) coil is insulated using a glass fibre epoxy resin laminate. The HV coil is cast into moulds in a vacuum process with pure epoxy resin. The manufacturing process ensures a cavity free insulating system of the highest quality. The HV coil is free of partial discharge and protected against surges. Tapping links are brought onto the outside of each coil and are readily adjustable when switched off. The HV coils are flame-retardant and self extinguishing. The HV coil can be designed with air ducts to cool the windings efficiently at a technically suitable coil length. Tapping links are brought out onto the outside face of each coil and are readily adjustable in deenergized state. In case of fire, no toxic fumes are produced.

LOW VOLTAGE COIL
The Low Voltage Coil (LV) consists of copper conductors formed in a vacuum process with epoxy resin impregnation to temperature class F. As an option, LV coils can be supplied as HV (GVT) design. This is usually undertaken for voltage ratings above 1kV.

CORE
The core laminations are made of no-load losses, cold rolled, grain oriented silicon steel. The cross-section of the iron has a circular shape. The core is cut and stacked using a Step Lap formation to keep the no-load losses and magnetising currents as low as possible. The core is completely coated with epoxy resin to protect it against corrosion and is earthed in accordance with the required standards.

ASSEMBLY
The coils are mounted on pre-adjusted fibreglass reinforced supports with excellent thermal expansion and noise-absorbing properties. The complete assembly is mounted on bi-directional rollers which allow movement in both directions. HV terminals and LV bus bars are normally on opposite sides of the transformer and mounted at easily accessible positions.

ACCESSORIES
Thermistors (PTC) are embedded in each LV coil and connected to terminals mounted on the upper clamp.
As an alternative, Pt100 sensors can be provided. An electronic relay with alarm and trip contacts (voltage free) is provided.

**TEST**
RITZ is certified according to DIN EN ISO 9001 : 2000 and undertakes testing to all applicable international standards. The complete transformer is subject to all routine testing including partial discharge test (pre-tested and complete). Type testing and special tests can be performed on request.

**DRY TYPE TRANSFORMERS**
Productions facilities allow manufacturing of custom made dry type transformers and reactors. Flexible winding and core design is available to meet a wide range of transformers for special applications and requirements. Different manufacturing technologies such as Glass fibre reinforced Vacuum Technology (GVT), vacuum impregnation, or encapsulation with mineral filled epoxy resin can be used. Application of heat shrinking tapes and protective resin provides the highest mechanical strength and good moisture protection.

Dry type transformers are available for the following applications:
- Injection transformers for ripple control applications
- Reactors for ripple control applications
- High current transformers
- Earthing transformers
- Medium frequency transformers
- Filter and blocking reactors
- Smoothing reactors

**POLE MOUNTED TRANSFORMERS**
RITZ offers a wide range of pole mounted transformers with outdoor weatherproof enclosures specially designed for pole mounting. RITZ pole mounted cast resin transformers are the preferred substitute for the liquid filled transformers particularly in environmentally sensitive areas. The transformers are designed and tested as a complete assembly unit ensuring safe use and protection against electric shock. The transformers have undergone testing in both wet and dry conditions.
RITZ PRODUCT OVERVIEW

MEDIUM VOLTAGE INSTRUMENT TRANSFORMERS
UP TO 72.5 KV
- Indoor and Outdoor
- Metal Clad Design
- Metalized Design
- Sensor Types
- Explosion Proofed
- Metering Voltage Transformers for Railway Vehicle

LOW VOLTAGE INSTRUMENT TRANSFORMERS
UP TO 1.2 KV
Current Transformers for Measuring & Protection Purposes
- Wound primary CT
- Auxiliary CT
- Summation CT
- Window type CT
- CT for switch fuses
- Tube type CT
- Window type CT for high currents
- Multi-range CT

Transformers for Measuring Purposes
- 3-phase CT
- Laboratory Current and Voltage Transformers

Instrument Transformers for Bill / Tariff Metering
Damping Inductance Devices against Ferroresonance

SIS CAST RESIN BUS BAR SYSTEMS
UP TO 72.5 KV & 7000 A -
The Alternative to Parallel-Connected Cables
System Specific Benefits
- Compact design
- Reduced requirements for the installation space
- Small bending radii
- 3-dimensional geometric shape is possible
- Natural cooling due to effectual conductor design
- High operational reliability due to factory routine test of each bus bar
- No maintenance

Safety Benefits
- Touch Safe
- Fully insulated and capacitive graded system
- High thermal and dynamic short circuit current withstand capabilities
- Excluded phase to phase short-circuits
- No toxic fumes in case of fire
- Self extinguishing

ELECTRONIC INSTRUMENT TRANSFORMERS AND SENSORS
FREQUENCY FROM 0 TO 10 KHZ
Voltage-Sensoric
- Voltage up to 90 kV
- Accuracy of 0.2 %

Current-Sensoric
- Current up to 24000 A
- Accuracy of 0.01 %

Applications
- Power Engineering
- Switchgear Systems
- Grid Analyse
- Environment
- Traction Power Engineering
- Distribution Systems
- Automobile Industry
- Protection Technology
- Research
- Elektrochemistry

CUSTOMISED CAST RESIN PARTS
- Development and formulation of cast resin moulding materials for electrical low and medium voltage applications
- Design and production of cast resin mouldings e.g. special bushings, fuse housings etc.
We are the leading specialist for instrument transformers, cast resin parts, solid bus bar systems and power transformers.

We develop your standard equipment, but also put your own ideas into customized products. Make us your requirements, we develop the solution.

For more information visit www.ritz-international.com or contact us at info@ritz-international.com