MV/LV Transformers for Distribution Network Solutions

transforma.smart
Transformer with on-load tap changer

Up to 24 kV 1000 kVA    IEC standards

Reliable innovation. Personal solutions.

www.ormazabal.com
Ormazabal designs, develops, tests, manufactures and supplies medium voltage (MV) distribution transformers (transforma) and has done so for decades. transforma.smart: smart transformers with an on-load tap changer (OLTC) capable of regulating the low voltage are the newest member of Ormazabal's wide range of electrical distribution transformers, with a power range up to 1000 kVA, and insulation levels up to 24 kV.

The smart transformer keeps the voltage stable in distribution grids by compensating for fluctuations in MV and dynamically reacting, at low-voltage, to distributed generation (renewable energy sources) and load changes.

The innovative design of the OLTC allows a compact smart transformer design keeping a similar footprint to that of conventional transforma. Currently more than 170,000 of Ormazabal's transforma are installed in electric distribution networks, industry, wind farms and photovoltaic plants in more than 20 countries.

### Safety
- Tested according to IEC 60076, IEC 60214 and IEC 61000
- Own laboratory facilities: UDEX, Ormazabal Smart Grid Lab connected to our High Power Lab (2500 MVA)

### Reliability
- Maintenance free
- Proven vacuum technology
- Balanced mechanical operation
- Service life equivalent to an off load tap changer transformer

### Efficiency
- Retrofitting: similar footprint as conventional transformers
- Transformer losses according to EU Regulation No. 548/2014 (Ecodesing)

### Standards
- **IEC 60076**
  - Power transformers
- **IEC 60214**
  - Tap-changers
- **IEC 61000**
  - Electromagnetic compatibility (EMC)
- **EU Directive:**
  - Regulation No. 548/2014 (Ecodesign)

### Technical data
- **Rated power** [kVA]: Up to 1000
- **Rated voltage** [kV]: Up to 24
  - Insulation level LI 125 AC 50
  - OLTC positions Up to 9
  - Step voltage [V]: Maximum 600
  - Low voltage [V]: In accordance with customer requirements
  - Winding material Cu or Al
  - Losses According to EU 548/2014
  - Short-circuit voltage In accordance with customer requirements
  - Vector group In accordance with customer requirements
  - Frequency [Hz]: 50 or 60
  - Type of cooling ONAN
  - Max. ambient temperature 40 °C
  - Protective devices / accessories Temperature sensor & customer requirements

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### Design

1. Tank and dielectric liquid
2. MV and LV windings
3. Ferro magnetic core
4. MV plug-in bushings
5. Low voltage (LV) terminals
6. OLTC device
7. OLTC reactors
8. OLTC motor
9. OLTC position indicator
10. Dielectric liquid temperature, pressure and level sensor

### Sustainability
- Renewable energy integration
- CO₂ footprint reduction (investment deferral)
- Reduced volume: oil, steel, weight, height...

### Continuous innovation
- Innovative compact design
- Smart start: temperature checking before OLTC operation
- Easy fit reactor kit
- Control cabinet with LCD display: local status check without PC
- Easy read tap position (periscope)

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For other values, consult Ormazabal