MineraMP
Oil Immersed Medium Power Transformers

Make the most of your energy™
Minera MP oil immersed medium power transformer

Our company follows a policy of continuous improvement taking into account the latest worldwide developments. This ensures that our transformers are state-of-the-art and fully compliant with the modern world's highest requirements: fast delivery time, improved quality and recycling capacities, reduced size and, on request, very low noise and losses values.

High voltage

The transformer’s magnetic core is manufactured from a high grade, cold-rolled, grain-oriented silicon steel. The core stacking is of the lap type. The magnetic core is generally a multi-layer circular cross section and the slitting and cutting of the magnetic core is made by automated machines. In order to reduce transformer sound level to a fully acceptable level, the core material and its frame are carefully sized to minimize the sound interactions and, in particular, magnetostriction effects, which constitute the main sources of sound in medium power transformers. Moreover, in order to reduce the no-load and core losses and to optimize the transformer’s current, the quality of the magnetic steel and the induction, together with the design of the magnetic core, are carefully chosen to meet the requirements.

Tank construction

The high voltage winding type is panel/radial type. The corrugated wall tank is also available in some ranges. Radiators are welded or removable. Tank welding is done by qualified welders. To validate the oil tightness after complete assembly the tank is leak tested under gas or liquid overpressure.

Low voltage windings

The low voltage winding type is copper or Aluminium according to the need. The shape of the conductors is rectanglar or foil type. To obtain a controlled temperature gradient, cooling ducts are added in the coil. The low voltage winding is build around the magnetic core. An insulating barrier is wound or installed around the low voltage windings in order to prevent an electrical separation between LV and HV coils.

Surface protection

One of our major quality commitment is to provide high-quality surface protection. The coating (painting) type is chosen in accordance with the environmental conditions considering the degree of pollution, humidity, etc. Hot dip or spray galvanized tiers, HV/LV covers and conservator can also be provided.

Minera MP oil immersed medium power transformer is dedicated to all applications up to 80 MVA and is designed to meet your needs. Our broad range for Minera MP transformers includes:

• Three phase units (single phase available on request)
• Ratings up to 80 MVA, Step 5 to 170 kV
• Breathing or sealed type
• A wide range of accessories
• High-capacity cooling options such as ONAN, OAF, OATF or in oil upon request
• Standard or non standard noisy level
• Off-circuit tap changer (OCTC) or on load tap changer (OLTCT)

Minera MP oil immersed transformers meet the requirements of international standards such as ANSI, IEC as well as other international/national standards.

Minera MP transformers are available upon request for special applications including rectifier, hazard area transformers, reactors (shunt and series), auto-transformers, step-up transformers, etc.

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The right tune for your network

Depending on your application and the different environmental influences you meet, we are able to offer transformers designed by Schneider Electric’s R&D team that have created special designs for all your particular needs:

• Breathing type and sealed type,
• Normal, low or very low level of losses

As customer satisfaction is our main concern, we constantly improve our manufacturing process, thus we are able to speed up delivery time while ensuring that all ISO 9001, ISO 14001 and/or ISO 18001 requirements are met at each production step. To ensure this high level of quality, our Minera MP transformers undergo routine tests in accordance with international standards such as IEC, ANSI standards. We can also provide type tests or special tests on request.

High quality level for more reliability

High voltage winding

The high voltage winding material is copper or Aluminium according to the rated power. To obtain a controlled temperature gradient, the cooling ducts are added in the oil. High voltage coils are in long layers or disk type. Due to recent developments in the winding process, interlayer insulation and oil insulation have allowed the automation of the winding process.

Tap changers

The tap changers allow voltage adjustment for a variation of the supply voltage networks on the primary side of the transformer or for increasing or decreasing the secondary voltage. Tap changers are provided on the primary winding connected to an off-circuit or on-load tap changer. The operating handle for hand operated tap changer is mounted outside. In general, tapping range for oil load-lap-change is 3, 5 or 7 positions for oil insulated lap change or it is from 7 to 27 positions.

Customer benefits

Extremely versatile

• Robust construction
• High quality and reliability
• Continuous improvement
• Tailor made

Highly economical thanks to reduced operating and maintenance costs

Strong after sales support

Technical characteristics

High voltage

• Rated frequency
• Short circuit withstand ability
• Rated short circuit impedance
• Rated current (on request)
• Rated voltage (on request)
• Rated power (on request)
• Number of phases
• Type of cooling
• Type of terminal connections
• Standard vector group
• Rated frequency
• Short circuit impedance
• Short circuit withstand ability
• One or three phase unit

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When using numerical values, the temperature of the oil cooling air should not exceed:

- 40°C at any time
- 20°C yearly average

The measurement (A-weighted sound pressure LpA) and the population level of sound pressure (LWA sound weighted sound pressure) are done in accordance with IEC 60874. The sound level requirement are in accordance with national standards.

We designed the transformers to withstand the numerous and dynamic effects resulting of a secondary short-circuit on transformer winding. The temperature of the oil cooling air should not exceed:

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