



MANUFACTURING

The Process

The Core

Each transformer core is produced using a computer-controlled Georg cutting line. Using interleaved laminations of cold rolled, grain orientated, low loss electrical sheet steel conforming to BSEN 10107. The core employs a mitred step-lap design ensuring minimum noise and loss levels with uniform flux distribution throughout the magnetic circuit.

Windings and Insulation

All windings are manufactured to exacting standards in order to maintain strict dimensional tolerances. Clamping to a pre-determined load pressure during manufacture ensures that each winding is able to withstand the excessive axial forces, which may result from external sources.

All principal components of insulation are pre-fabricated from electrical grade insulating board; pre-shrunk to ensure electrical and mechanical stability throughout the temperatures found in operational service.

Core-Coil Assembly

Each core-coil assembly is rigidly braced using steel frames. Optimum dielectric strength is achieved via processing in accordance with rigorous in-house quality procedures.

Tank Construction and Finish

Transformer tanks are manufactured using mild steel, which is electrically welded. Cooling is effected by pressed steel plate radiators, electrically welded and independently pressure tested. Metal is pre-treated by shotblasting, then immediately covered with corrosion inhibiting zinc phosphate primer and micaceous iron ore. This finish is designed to give maximum world-wide, long term protection in coastal, industrial, and general environments with suitable heat and oil resistance.

Final Assembly

Completed core-coil are dried in thermostatically controlled ovens, fitted into the transformer tank and filled with oil. This is followed by an oil processing system using de-aerated oil. After the tanking process is complete the transformer is prepared for test.

Short Circuit Capability

In order to prevent deformation when subjected to short circuit forces, solid block end insulation, backed-up by substantial supporting frames is utilised. The axial end thrust under fault conditions is minimised by the suitable distribution of Ampere turns over the length of the windings, and by ensuring that the design dimensions are closely adhered to during manufacture. Transformers designed and constructed in this way are capable of withstanding the effect of short-circuit forces.

