CTT series

Cable Test Termination System

CTT-700

Application

CTT series cable test terminations are used to test Plastic insulated high-voltage cables. The specific advantages of this series versus conventional terminations are fast and convenient assembly. The terminations can be used for partial discharge (PD) measurements, impulse voltage testing, loss factor (tan delta) measurements and, if the cable ends are carefully prepared, for breakdown testing (step test).

When a cable is being tested, the PD measurement can be followed by an impulse voltage test and by another PD measurement without the need to reconfigure the test arrangement. A loss factor measurement can be made with minor modifications to the arrangement.

The cable is prepared in the same way as for slip-on terminations i.e. by stripping the cable to the outer semi conducting layer and removing the outer semi conducting layer.

The CTT series includes terminations from 75 kV to 800 kV for a maximum cable diameter of 165 mm over the outer semi conducting layer.

PD and tan delta Measurement

Since the CTT series is free of partial discharge, the PD measurement can be performed up to the rated voltage of the terminations.

The SAMGOR (SG4003) PD measurement system can also be used for locating partial discharges in cables.

The tan delta measurement on plastic-insulated cables poses great demands on measurement techniques due to the extremely low loss factor values.

Impulse Voltage Testing

Water of greater conductivity is used for impulse voltage testing to achieve homogeneous voltage distribution along the terminations for transient voltages. This keeps the total resistance of the termination relatively low (approx. 5 kΩ). The half-value decay time of the impulse voltage can be maintained to within normal cable testing tolerances if the impulse system is tuned to the terminations (50 ±10 µs to IEC Pub 230; SEN 2103; IS 2070-1962; VDE 0472, Part 511), GBT3048.13-2007.

Breakdown Testing

The following factors must be considered when breakdown tests are performed. The removal of the outer semi conducting layer basically weakens the insulation on the cable ends. This procedure must be carried out with the utmost care to keep this weakening effect within acceptable limits. However, a breakdown of the cable in the termination tubes and the associated damage to them cannot be completely excluded.