



CAPACITANCE TO GROUND TEST

IDENTIFIABLE FAILURE MODE

- Contamination build-up on resistor banks, cables, stator windings and rotor windings.

DESCRIPTION

Motor insulation systems create a capacitor effect between the motor windings and the frame of the motor. As the insulation system deteriorates or becomes contaminated with dirt, moisture or conductive site product the capacitance to ground changes.

The capacitance to ground test is performed by the application of a known high frequency AC voltage between the test winding and the ground plane. The test results are recorded in pF and are trended for change over time.

The test can be applied to stator and rotor windings on asynchronous motors, stator and rotor windings on synchronous motors and the armature and field windings on DC motors.

ANALYSIS APPLICATION

The capacitance to ground value is unique for every motor installation. Trending over time is required to identify contamination and degradation problems.

A stable trend with less than 10% variation is considered acceptable, between 10% and 80% change indicates some deterioration, an upward trend over 100% change is indicative of surface leakage current and a change over 200% is indicative of severe surface leakage and is usually reflected in low DA and PI ratios.

APPLICABLE STANDARD / ACCEPTANCE CRITERIA

Due to the unique motor signature for every motor no applicable standard is available.



The capacitance to ground readings on this winding were trended over 5 years with a 90% variation being recorded from the baseline to the final reading taken prior to removal. The contamination to the winding can effect the cooling of the insulation system and damage the insulations and varnished over time