

Prevent Motor Failure by Keeping Your Motors Clean

One of the easiest ways to prevent premature electric motor failure is to keep your motors clean and free of foreign contaminants. Many electric motors are fan cooled. When contaminants start to build up around the motor, air flow becomes restricted and reduces the ability for the fan to cool the motor which dramatically reduces the life of winding's insulation due to the increase in heat.

When performing a motor test with Motor Circuit Analysis™ (MCA), one of the first indicators of a contaminated motor is a rise in Dissipation Factor which is an increase in the inefficiency of an insulating material. The insulation material of the Ground Wall Insulation system acts as a natural capacitor. When voltage is applied to the circuit, the electrons that are stored within the insulation material are capacitive. Electrons that flow across or through the insulation material are resistive and result in the leakage of current. Electrical resistance is a measure of the difficulty of passing an electric current through a substance or material, and thus with more resistance in a circuit, less electricity will flow through the circuit.



When contaminants interact with the insulation material, the insulation will start to breakdown which will allow more electrons to flow through the insulation system causing the Dissipation Factor to rise. A healthy motor's Dissipation Factor is typically between 3 to 5 percent, anything over 6% means the insulation material is starting to be affected by contamination and proper cleaning procedures should take place.

The area around the shaft of the motor should also be kept clean to reduce the chance of contaminants getting inside of the motor. Contaminates can also negatively affect the bearings in the motor. Foreign material that seeps into the bearings can break down the bearing grease causing premature bearing failure and stator winding contamination. By implementing Motor Circuit Analysis™ into a maintenance schedule, early detection of winding contamination can be easily detected so you can prevent electric motor failure and ensure uptime.