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Condition monitoring and diagnostics of power transformers

Surveillance et diagnostic de l'état des transformateurs de puissance

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Foreword

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This document was prepared by Technical Committee ISO/TC 108, *Mechanical vibration shock and condition monitoring*, Subcommittee SC 5, *Condition monitoring and diagnostics of machine systems*.

Introduction

This document provides guidance for condition monitoring and diagnostics of power transformers using parameters (such as oil condition, oil contamination, dielectric condition, temperature, power, voltage and current) typically associated with performance, condition and quality criteria. The evaluation of the power transformer function and condition may be based on performance, condition or output quality.

This document is aimed at asset managers, equipment specifiers, owners, operators and reliability and maintenance engineers. It provides a selection process "road map". The parameters and techniques are directed towards best-practice condition-based maintenance, detecting fault conditions, directing maintenance decisions and estimating asset health.

It is principally aimed at people who are not transformer experts, but who have a small number of transformers; for example, supplying power into a manufacturing site where many other items of equipment depend on the power continuing to be supplied by the transformers. The upper limit for the size of such transformers is probably around 50 MVA. While the same principles will also apply to owners and operators of large numbers of transformers such as utilities, which can exceed 50 MVA, it is expected that they will already have their own internal company guidelines and procedures for monitoring their transformers and so are not the primary target of this document.

This document follows on from ISO 17359, which outlines the general process of implementing a condition-based maintenance programme.