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## Condition monitoring and diagnostics of power transformers

*Surveillance et diagnostic de l'état des transformateurs de puissance*



Reference number  
ISO 18095:2018(E)



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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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.