



ISO 13379-1

**Condition monitoring and
diagnostics of machine systems —
Data interpretation and diagnostics
techniques —**

**Part 1:
General guidelines**

*Surveillance et diagnostic de l'état des systèmes de machines —
Interprétation des données et techniques de diagnostic —*

Partie 1: Lignes directrices générales

**Second edition
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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*.

This second edition of ISO 13379-1 cancels and replaces the first edition (ISO 13379-1:2012), which has been technically revised. The main changes are as follows:

- the Scope of the document has been extended by the addition of [Clause 1 c](#));
- [Clause 4](#) has been added to outline recommended steps to perform diagnostics;
- new methods for assessing the failure mode symptoms analysis have been added, see [5.3.4](#) and [5.3.5](#);
- new examples and descriptions of elements used for diagnostics have been added in [Clause 6](#);
- information provided in [7.1](#), [7.3](#) and [Annexes E](#) and [F](#) has been updated to reflect the state of the art;
- descriptions of data-driven methods have been moved to (informative) [Annex E](#);

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Effective management of machine systems throughout their life cycles requires maintaining their performance, reliability and availability. One of the key strategies to support this objective is condition monitoring, which provides information on the state of the machine system.

Condition monitoring serves two principal roles:

- a) to identify trends that indicate the remaining useful life of the machine system, deterioration of its performance or increased risk of failures; and
- b) to detect nonconformities, referred to as anomalies in the context of condition monitoring, by identifying deviations from baseline values or expected operating conditions. Such deviations, when compared against predefined criteria, can result in alarms.

Once an anomaly has been detected, it is often needed to identify its cause(s). Identifying the cause(s) of the anomaly is referred to as diagnostics and supports the determination of appropriate corrective actions. Stakeholders typically expect a certain level of accuracy in diagnostics, as its output — a diagnosis — can directly influence machine system operation, maintenance planning and resource allocation. This document supports users in developing diagnostic procedures and models, and in evaluating their confidence level, applicability and limitations.