



International
Standard

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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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Diagnostics and its relation to condition monitoring	2
5 Requirements to set-up condition monitoring and diagnostics	3
5.1 General	3
5.2 Establishing diagnostics needs	3
5.3 Failure mode symptoms analysis (FMSA)	4
5.3.1 General	4
5.3.2 Usage guidance	4
5.3.3 Rating guidance	5
5.3.4 Assessing FMSA results using a monitoring priority number (MPN)	6
5.3.5 Assessing FMSA results using a diagram	7
5.4 Diagnostics requirements report	8
6 Elements used for diagnostics	8
6.1 Condition monitoring data	8
6.1.1 Parameters and measurements	8
6.1.2 Descriptors	9
6.1.3 Symptoms	9
6.1.4 Fault	10
6.2 Machine system data	11
6.3 Maintenance data and events related to the machine system	11
7 Diagnostic approaches and models	11
7.1 Definition of diagnostic approaches	11
7.2 General guidelines for developing a diagnostic model	12
7.3 Data-driven approach	13
7.3.1 General	13
7.3.2 Building the model	14
7.3.3 Strengths and weaknesses	14
7.4 Knowledge-based approach	15
7.4.1 Fault-symptom diagnostics	15
7.4.2 Causal trees	16
7.4.3 First-principle models	18
7.5 Confidence factor determination	19
Annex A (informative) Example of diagnostic report	20
Annex B (informative) Failure mode symptoms analysis (FMSA) worksheet	23
Annex C (informative) Examples of ratings used for failure mode symptoms analysis (FMSA)	25
Annex D (informative) Effectiveness of the diagnostics system	26
Annex E (informative) Description of selected methods used to build diagnostic models	28
Annex F (informative) Overview of diagnostic model applicability by monitoring technique	35
Annex G (informative) Example of bearing spalling modelled with a causal tree	36
Annex H (informative) Example of diagnosis confidence level determination	38
Bibliography	39

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*.

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](#);

A list of all parts in the ISO 13379 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

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.

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