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Condition monitoring and diagnostics of machines — Ultrasound —

Part 1: General guidelines

Surveillance des conditions et diagnostic d'état des machines — Ultrasons —

Partie 1: Lignes directrices générales

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Contents

Page

Foreword iv
Introduction v
1 Scope 1
2 Normative references 1
3 Terms and definitions 1
4 Principle of the airborne and structure-borne method 2
5 Applications of the ultrasound method 2
6 Training requirements 2
7 Ultrasound equipment 3
8 Data collection guidelines 6
8.1 General 6
8.2 Comparative ultrasound 6
8.3 Baseline method — Quantitative ultrasound 6
8.4 Data collection 7
8.5 Assessment criteria 8
9 Sensitivity validation guidelines 8
10 Monitoring interval 9
11 Data interpretations 9
12 Reporting 9
Annex A (informative) **Example of a compressed air leak survey** 10
Annex B (informative) **Typical examples of ultrasound test reports** 14
Bibliography 17

Foreword

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ISO 29821-1 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration, shock and condition monitoring*, Subcommittee SC 5, *Condition monitoring and diagnostics of machines*.

ISO 29821 consists of the following parts, under the general title *Condition monitoring and diagnostics of machines — Ultrasound*:

— *Part 1: General guidelines*

The following part is planned:

— *Part 2: Procedures and validation*

Introduction

This part of ISO 29821 provides guidance for the condition monitoring and diagnostics of machines using airborne and structure-borne ultrasound (A&SB ultrasound). A&SB ultrasound can be used to detect abnormal performance or machine anomalies. The anomalies which are detected are high-frequency acoustic events caused by turbulent flow, ionization events, and friction, which are caused, in turn, by incorrect machinery operation, leaks, improper lubrication, worn components or electrical discharges.

A&SB ultrasound is based on measuring the high-frequency sound that is generated by turbulent flow, by friction or by the ionization created from the anomalies. The inspector therefore requires an understanding of ultrasound and how it propagates through the atmosphere and through structures as a prerequisite to the creation of an A&SB ultrasound programme.