
Non-destructive testing — Ultrasonic testing — General use of full matrix capture/total focusing technique (FMC/TFM) and related technologies

Essais non destructifs — Contrôle par ultrasons — Utilisation générale de l'acquisition de la matrice intégrale/technique de focalisation en tous points (FMC/FTP) et de techniques associées



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by the IIW, *International Institute of Welding*, Commission V, *NDT and Quality Assurance of Welded Products*.

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.

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IMPORTANT — The electronic file of this document contains colours which are considered to be useful for the correct understanding of the document. Users should therefore consider printing this document using a colour printer.

1 Scope

This document gives general provisions for applying ultrasonic testing with arrays using FMC/TFM techniques and related technologies. It is intended to promote the adoption of good practice either at the manufacturing stage or for in-service testing of existing installations or for repairs.

Some examples of applications considered in this document deal with characterization and sizing in damage assessment.

Materials considered are low-alloyed carbon steels and common aerospace grade aluminium and titanium alloys, provided they are homogeneous and isotropic, but some recommendations are given for other materials (e.g. austenitic ones).

This document does not include acceptance levels for discontinuities.

For the application of FMC/TFM to testing of welds, see ISO 23864.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5577, *Non-destructive testing — Ultrasonic testing — Vocabulary*

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 16810, *Non-destructive testing — Ultrasonic testing — General principles*

ISO 18563-1, *Non-destructive testing — Characterization and verification of ultrasonic phased array equipment — Part 1: Instruments*

ISO 18563-2, *Non-destructive testing — Characterization and verification of ultrasonic phased array equipment — Part 2: Probes*

ISO 23243, *Non-destructive testing — Ultrasonic testing with arrays - Vocabulary*.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5577, ISO 23243 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>