



DPC: 25/30509755 DC

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Date: 08 May 2025

Origin: European

Latest date for receipt of comments: 01 July 2025

Project No. 2025/00392

Responsible committee: ISE/111 Steel Castings and Forgings

Interested committees:

Title: Draft BS EN 12680-4 BS Founding - Ultrasonic testing. Part 4: Phased array ultrasonic testing of steel castings.

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- iii) requires additional national guidance or information

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Full document details: 25/30509755 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Founding - Ultrasonic testing - Part 4: Phased array ultrasonic testing of steel castings

Fonderie - Contrôle par ultrasons - Partie 4: Contrôle
par ultrasons multiéléments de pièces en acier moulé

Gießereiwesen - Ultraschallprüfung - Teil 4: Phased-
Array-Ultraschallprüfung von Stahlgussteilen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 190.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 12680-4:2025) has been prepared by Technical Committee CEN/TC 190 “Foundry technology”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

EN 12680-4, *Founding — Ultrasonic testing — Part 4: Phased array ultrasonic testing of steel castings*

This is one of four European Standards for ultrasonic testing. The other standards are:

- EN 12680-1, *Founding — Ultrasonic testing — Part 1: Steel castings for general purposes*;
- EN 12680-2, *Founding — Ultrasonic testing — Part 2: Steel castings for highly stressed components*;
- EN 12680-3, *Founding — Ultrasonic testing — Part 3: Spheroidal graphite cast iron castings*.

Annex A is informative.

1 Scope

This document specifies requirements for phased array ultrasonic examination of steel castings with low ultrasonic attenuation. It is applicable to ferritic, bainitic and martensitic microstructures. It specifies the registration levels and acceptance criteria.

This document applies to the ultrasonic examination of steel castings with a wall thickness of 600 mm or less.

For higher wall thicknesses, special agreements apply regarding the test procedure and recording levels.

This document does not apply to austenitic steels and cast irons, lamellar graphite and spheroidal cast irons and welded assemblies. For other ferrous materials, this document gives guidance. The registration levels and acceptance criteria are to be adapted.

In this document, phased array is used both for phased array technique and TFM technique.

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.

EN 12680-1, *Founding — Ultrasonic testing — Part 1: Steel castings for general purposes*

EN ISO 5577, *Non-destructive testing — Ultrasonic testing — Vocabulary (ISO 5577)*

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

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

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

EN ISO 18563-2, *Non-destructive testing — Characterization and verification of ultrasonic phased array equipment — Part 2: Array probes (ISO 18563-2)*

EN ISO 18563-3, *Non-destructive testing — Characterization and verification of ultrasonic phased array equipment — Part 3: Complete systems (ISO 18563-3)*

EN ISO 23243, *Non-destructive testing — Ultrasonic testing with arrays — Vocabulary (ISO 23243)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 5577, EN ISO 23243 and EN 12680-1 and the following apply.

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

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

3.1

ultrasonic instrument

generic term used for both Phased Array instrument and TFM instrument

3.2

phased array image

one- or two-dimensional display, constructed from the collected information of phased array operation

[SOURCE: EN ISO 23243:2020]

3.3

indication or phased-array indication

pattern or disturbance in the phased array image (3.2) which can need further evaluation

3.4

phased array setup

probe arrangement defined by probe characteristics (e.g. frequency, probe element size, beam angle, wave mode), probe position (3.5), and the number of probes

[SOURCE: EN ISO 23243:2020]

3.5

probe position

PP

position of the probe reference point relative to the part reference point

Note 1 to entry: The position of the probe reference point depends on the equipment used and shall be known by the operator to position the indications.

3.6

scan increment

distance between successive data collection points in the direction of scanning (mechanically or electronically)

[SOURCE: EN ISO 23243:2020]

3.7

active aperture

group of active elements operated together when transmitting and/or receiving

[SOURCE: EN ISO 23243:2020]