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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 26953-2011

**Non-destructive testing of welds -- Penetrant testing of welds --
Acceptance levels
(English Translation)**

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020

"Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents".

This document replaces GB/T 26953-2011 "Non-destructive testing of welds - Penetrant testing of welds - Acceptance levels". Compared with GB/T 26953-2011, apart from structural adjustments and editorial changes, the main technical changes are as follows.

- a) ADD the relationship between this document and other documents, and a provision that this document does not specify acceptance levels for group indications (see Clause 1 of this document);
- b) ADD the requirements for separate evaluation of adjacent imperfections and methods for improving the surface condition of welds (see 5.1 of this document);
- c) MODIFY the evaluation requirements for indications (see 5.2 of this document;

5.2 of the 2011 edition);

- d) DELETE group indications (see 5.2 of the 2011 edition).

This document is identical to ISO 23277.2015 "Non-destructive testing of welds - Penetrant testing - Acceptance levels".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by China Machinery Industry Federation.

This document shall be under the jurisdiction of National Technical Committee on Welding and Related Processes of Standardization Administration of China (SAC/TC 55).

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Non-destructive testing of welds - Penetrant testing -
Acceptance levels

1 Scope

This document specifies the requirements for acceptance levels for penetrant testing of surface breaking imperfections in metallic welds.

The acceptance levels specified in this document are primarily intended for testing during the manufacturing phase, but can also be used for in-service testing under appropriate circumstances.

The acceptance levels specified in this document are based on the testing capabilities expected to be achieved when complying with the technology specified in the ISO 3452 series of standards and the parameters recommended in Annex A. The acceptance levels are related to welding documents, application documents, technical conditions or

regulations, etc. The relationship between acceptance levels and ISO 5817 or ISO

10042 is shown in ISO 17635.

This document does not specify acceptance levels for group indications.

2 Normative references

The following referenced documents are indispensable for the application 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 3452-1 Non-destructive testing - Penetrant testing - Part 1.General principles

NOTE: GB/T 18851.1-2024 Non-destructive testing - Penetrant testing - Part 1.General principles (ISO 3452-1:2021, IDT)

ISO 3452-2 Non-destructive testing - Penetrant testing - Part 2.Testing of penetrant materials

NOTE: GB/T 18851.2-2024 Non-destructive testing - Penetrant testing - Part 2.Testing of penetrant materials (ISO 3453-2:2021, MOD)

ISO 12706 Non-destructive testing - Penetrant testing - Vocabulary

NOTE: GB/T 34628-2017 Non-destructive testing of welds - General rules for metallic materials (ISO 17635:2016, IDT)

ISO/TS 18173 Non-destructive testing - General terms and definitions

NOTE: GB/T 20737-2006 Non-destructive testing - General terms and definitions (ISO/TS 18173:2005, IDT)

3 Terms and definitions

For the purpose of this document, the terms and definitions defined in ISO/TS 18173 and ISO 12706 apply.

3.1

linear indication

An indication whose length is greater than three times its width.

3.2

non-linear indication

An indication whose length is less than or equal to three times its width.

4.1 General

Many parameters, individually or in combination, affect the shape and size of the penetrant indication of a weld imperfection.

The following subclauses are important factors affecting the shape and size of penetrant indications.

4.2 Sensitivity

Penetrating materials, including those used for detecting small imperfections, are classified according to ISO 3452-2. Generally, penetrating materials with a higher sensitivity are preferred for detecting small imperfections.

4.3 Surface condition

The minimum detectable imperfection size is directly related to surface condition.

Smooth surfaces usually yield the best testing results. Rough or irregular surfaces (such as undercut, spatter) tend to create high background and non-relevant indications, resulting in a lower detection rate for small imperfections.

4.4 Process and technique

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