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NATIONAL STANDARD OF THE  
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ICS 25.160.40

J 33

**GB/T 34628-2017 / ISO 17635:2016**

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**Non-Destructive Testing of Welds –  
General Rules for Metallic Materials**

**Issued on: October 14, 2017**

**Implemented on: May 01, 2018**

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**Issued by: General Administration of Quality Supervision, Inspection and  
Quarantine;  
Standardization Administration of PRC.**

## Table of Contents

Foreword.....	3
1 Scope.....	5
2 Normative References .....	5
3 Terms and Definitions .....	7
4 Abbreviated Terms .....	8
5 Limitations.....	8
6 Personnel Qualification .....	9
7 Testing Organization .....	9
8 Documentation.....	9
9 Selection of Testing Method .....	10
10 Performance of Testing .....	12
Annex A (Normative) Rules and Standards to be Applied .....	14
Annex B (Informative) Graphs of Standard Context.....	18

## Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard adopts the translation method to equivalently use ISO 17635:2016 Non-Destructive Testing of Welds – General Rules for Metallic Materials.

The Chinese documents that have a consistent relationship with the international documents quoted in the normative references of this Standard are as follows:

- GB/T 9445-2015 Non-Destructive Testing - Qualification and Certification of NDT Personnel (ISO 9712:2012, IDT)
- GB/T 11345-2013 Non-Destructive Testing of Welds - Ultrasonic Testing - Techniques, Testing Levels, and Assessment (ISO 17640:2010, MOD)
- GB/T 18851.1-2012 Non-Destructive Testing - Penetrant Testing - Part 1: General Principles (ISO 3452-1:2008, IDT)
- GB/T 19418-2003 Arc-Welded Joints in Steel – Guidance on Quality Levels for Imperfections (ISO 5817:1992, IDT)
- GB/T 22087-2008 Arc-Welded Joints in Aluminum and Its Alloys - Guidance on Quality Levels for Imperfection (ISO 10042:2005, IDT)
- GB/T 26951-2011 Non-Destructive Testing of Welds - Magnetic Particle Testing (ISO 17638:2003, MOD)
- GB/T 26952-2011 Non-Destructive Testing of Welds - Magnetic Particle Testing of Welds - Acceptance Levels (ISO 23278:2006, MOD)
- GB/T 26953-2011 Non-Destructive Testing of Welds - Penetrant Testing of Welds -Acceptance Levels (ISO 23277:2006, MOD)
- GB/T 26954-2011 Non-Destructive Testing of Welds - Eddy Current Testing of Welds by Complex-Plane Analysis (ISO 17643:2005, MOD)
- GB/T 29711-2013 Non-Destructive Testing of Welds - Ultrasonic Testing - Characterization of Indications in Welds (ISO 23279:2010, IDT)
- GB/T 29712-2013 Non-Destructive Testing of Welds - Ultrasonic Testing - Acceptance Levels (ISO 11666:2010, MOD)
- GB/T 32259-2015 Non-Destructive Testing of Welds - Visual Testing of Fusion-Welded Joints (ISO 17637:2003, MOD)

This Standard was proposed by and under the jurisdiction of National Technical Committee for Standardization of Welding (SAC/TC 55).

Drafting organizations of this Standard: China Special Equipment Inspection and Research Institute; Guangzhou Union Standard Quality Inspection Technology Service Co., Ltd.; Jiangsu Frontier Electric Power Technology Co., Ltd.; Jining Ruixiang Mold Co., Ltd. (Shandong Jining Mold Factory); Hubei Sanjiang Space Jiangbei Mechanical Engineering Co., Ltd.; Fujian Industrial Equipment Installation Co., Ltd.; Shanghai COSCO Kawasaki Heavy Industries Steel Structure Co., Ltd.; TUV SUD Certification and Testing (China) Co., Ltd.; Shanghai Shipbuilding Technology Research Institute; Luoyang LYC Bearing Co., Ltd.; Shanghai Spaceflight Precision Machinery Institute; CITIC Dicastal Co., Ltd., and Wujiang Hyperd Flaw Detection Material Co., Ltd.

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# Non-Destructive Testing of Welds – General Rules for Metallic Materials

## 1 Scope

This Standard gives guidelines for the choice of non-destructive testing (NDT) methods for welds and evaluation of the results for quality control purposes, based on quality requirements, material, weld thickness, welding process and extent of testing.

This Standard also specifies general rules and standards to be applied to the different types of testing, for either the methodology or the acceptance levels for metallic materials.

Acceptance levels cannot be a direct interpretation of the quality levels defined in ISO 5817 or ISO 10042. They are linked to the overall quality of the produced batch of welds.

Requirements for acceptance levels for NDT comply with quality levels stated in ISO 5817 or ISO 10042 (moderate, intermediate, stringent) only on a general basis and not in detail for each indication.

Annex A gives correlations between quality, NDT and acceptance level standards.

Annex B gives an overview of the standards linked to quality levels, acceptance levels and NDT methods.

## 2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

ISO 3452-1 (Non-Destructive Testing – Penetrant Testing – Part 1: General Principles)

ISO 5817 Welding – Fusion-Welded Joints in Steel, Nickel, Titanium and Their Alloys (Beam Welding Excluded) – Quality Levels for Imperfections

ISO 9712 Non-Destructive Testing – Qualification and Certification of NDT Personnel

ISO 10042 Welding – Arc-Welded Joints in Aluminum and Its Alloys – Quality Levels for Imperfections

ISO 10675-1 Non- Destructive Testing of Welds – Acceptance Levels for Radiographic Testing – Part 1: Steel, Nickel, Titanium and Their Alloys

ISO 10675-2 Non- Destructive Testing of Welds – Acceptance Levels for Radiographic Testing – Part 2: Aluminum and Its Alloys

ISO 10863 Non-Destructive Testing of Welds – Ultrasonic Testing – Use of Time-of-Flight Diffraction Technique (TOFD)

ISO 11666 Non-Destructive Testing of Welds – Ultrasonic Testing – Acceptance Levels

ISO 13588 Non-Destructive Testing of Welds – Ultrasonic Testing – Use of Automated Phased Array Technology

ISO 15262 Non-Destructive Testing of Welds – Time-of-Flight Diffraction Technique (TOFD) – Acceptance Levels

ISO 17636-1:2013 Non-Destruction Testing of Welds – Radiographic Testing – Part 1: X- and Gamma-Tray Techniques with Film

ISO 17636-2:2013 Non-Destruction Testing of Welds – Radiographic Testing – Part 2: X- and Gamma-Tray Techniques Digital Detectors

ISO 17637 Non-Destructive Testing of Welds – Visual Testing of Fusion-Welded Joints

ISO 17638 Non-Destructive Testing of Welds – Magnetic Particle Testing

ISO 17640 Non-Destructive Testing of Welds – Ultrasonic Testing – Techniques, Testing Levels, and Assessment

ISO 17643 Non-Destructive Testing of Welds – Eddy Current Testing of Welds by Complex-Plane Analysis

ISO 19285<sup>1)</sup> Non-Destructive Testing of Welds – Phased Array Technique (PA) – Acceptance Criteria

ISO 23277 Non-Destructive Testing of Welds – Penetrant Testing – Acceptance Levels

ISO 23278 Non-Destructive Testing of Welds – Magnetic Particle Testing – Acceptance Levels

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<sup>1)</sup> under draft.

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