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

GB/T 33214-2016

**Laser-arc hybrid welding joints of steels, nickel and nickel
alloys -- Quality levels for imperfections**

钢、镍及镍合金的激光-电弧复合焊接接头 缺欠质量分级指南

(English Translation)

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the re-drafting method to modify the use of ISO 12932.:2013 "welding steel, nickel and nickel alloy laser-arc composite welding Connector defective quality grading".

The differences between this and ISO 12932.:2013 technologies are as follows.

- Consolidated the definition of "short defect" in ISO 9.432.:2013 3.4, 3.5.

--- ISO 12932.:2013 cited in other ISO standards, with our corresponding standard instead, the adjustment of the situation reflected in the Chapter 2, "normative reference documents", the specific adjustments are as follows;

Replace GB 2553 with GB/T 324-2008 with international standard.

Replace ISO 6520-1 with GB/T 6417.1-2005 with equivalent international standard.

Replace ISO 5817.:2003 with GB/T 19418 with equivalent international standard.

This standard has also made the following editorial changes.

--- the standard name to "steel, nickel and nickel alloy laser - arc composite welding joint failure quality classification guide." this standard is proposed by the National Welding Standardization Technical Committee (SAC/TC55).

The drafting of this standard unit. Institute of Mechanical Science and Technology Harbin Institute of Welding, Xugong Group Construction Machinery Co., Ltd. Construction Machinery Division Company, Guangzhou Special Pressure Equipment Testing and Research Institute, Dongguan City is willing to Industrial Co., Ltd.

1 Scope

This standard specifies the quality of the joint of the laser-arc composite welding of steel, nickel and nickel alloys.

This standard applies to the thickness of 0.5mm and above steel, nickel and nickel alloy materials.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 324-2008 Weld symbol representation (ISO 2553.:1992, MOD) GB/T 6417.1-2005 Classification and description of metallic fusion welded joints (ISO 6520-1.:1998, IDT) GB/T 19418 steel arc welding joint defect quality grading guide (GB/T 19418-2003, ISO 5817.:1992, IDT)

3 Terms and definitions

GB/T 19418 Definitions and the following terms and definitions apply to this document.

Composite welding

The use of two (or more) heat source to form the same bath for welding process, see Figure 1.

Description.

1 --- laser beam;

2 --- welding torch.

Figure 1 Laser-arc composite welding diagram

Quality class quality level the weld quality level is based on the type, size and quantity of the particular defect.

Applicability fitness for purpose Under certain conditions, a product, method, or service applies to the ability to target a goal.