

ICS 25.030

CCS H 26



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

GB/T 43615-2023

**Additive manufacturing-Ultrasonic testing for metal parts
produced by directed energy deposition**

增材制造 定向能量沉积金属成形件超声检测方法

Issued on: December 28, 2023

Implemented on: December 28, 2023

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

- Foreword
- 1 Scope
- 2 Normative reference documents
- 3 Terms and definitions
- 4 General requirements

Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying these patents:

This document is proposed by China Machinery Industry Federation:

This document is sponsored by the National Additive Manufacturing Standardization Technical Committee (SAC/TC562) and the National Non-destructive Testing Standardization Technical Committee (SAC/TC56) Joint focal point:

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Additive manufacturing of directed energy deposition metal formed parts Ultrasonic testing method

1 Scope

This document specifies the general requirements for ultrasonic testing of directional

energy deposition metal forming parts, the parts to be inspected, benchmark sensitivity calibration, inspection process, Evaluation of test results and test reports:

This document is applicable to the ultrasonic testing of metal formed parts with a cross-sectional thickness of 6mm~300mm prepared by directed energy deposition process:

For ultrasonic testing, please refer to this document for ultrasonic testing of formed parts of other sizes:

2 Normative reference documents

GB/T 9445

GB/T 12604

GB/T 39253

JJG746

3 Terms and definitions

The terms and definitions defined in GB/T 12604:1 and GB/T 39253 apply to this document:

4 General requirements

4:1 Terms of Agreement 4:1:1 General Before testing, the supply and demand parties should at least reach a consensus on the following relevant contents:

- The area, size and detection surface of ultrasonic testing;
- Testing technology;
- Quality grade requirements for metal formed parts (different areas);
- The forming direction of metal formed parts;
- Inspection requirements for complex formed parts:

Note: The area for ultrasonic testing includes different deposition areas of the formed part, as well as the contact area between the deposition area and the substrate: 4:1:2 Testing process The inspection process covers the scanning methods, inspection methods and ultrasonic types used during inspection: The scanning method can be selected as automatic or