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

GB/T 37400.17-2022

**Heavy machinery general technical specification - Part 17:
Repair welding of steel castings and forgings**

重型机械通用技术条件 第17部分：锻钢件补焊

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

1. Structure and Drafting Rules for Standardization Documents" drafting. This document is part 17 of GB/T 37400 "General Technical Conditions for Heavy Machinery". GB/T 37400 has issued the following parts.

1. Product Inspection;
2. Flame cut pieces;
4. Iron castings;
5. Non-ferrous metal castings;
6. Steel castings;
7. Repair welding of steel castings;
9. Machining parts;
14. Non-destructive testing of steel castings;
15. Non-destructive testing of steel forgings;
16. Hydraulic system;
17. Repair welding of steel forgings. Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents. This document is proposed and managed by the National Metallurgical Equipment Standardization Technical Committee (SAC/TC409). This document is drafted by: China Heavy Machinery Research Institute Co., Ltd., China First Heavy Industry Group Dalian Engineering Technology Co., Ltd., Erzhong (Deyang) Heavy Industry Co., Ltd. Type Equipment Co., Ltd., Taiyuan Heavy Industry Co., Ltd., CITIC Heavy Industry Machinery

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GB/T 37400 is not only widely used in metallurgy, mining, lifting, material handling, industrial vehicles and other industries, but also used in engineering. In the equipment manufacturing process of machinery, petrochemical, nuclear power, wind power, large aircraft, rail transit and other industries, it is the largest and medium-sized equipment manufacturing process in various industries in my country. Important basic process standards. GB/T 37400 is classified according to the main process stages in the manufacturing process of heavy machinery products, including material preparation, supporting inspection, Cutting, assembly, painting, packaging, etc., thus constructing a relatively complete standard system, aiming to provide relevant production enterprises, business units. Positions, industry counterparts and departments provide the basis for design, manufacture, inspection and acceptance. GB/T 37400 is proposed to consist of 18 parts.

1 Scope

Part 17 of China's general technical specification for heavy machinery, covering the repair welding of steel castings and forgings. It specifies the range of defects that may be repair welded, the technical requirements for the repair, and the post-weld heat treatment. Repair welding is the operation on which the economics of large castings and forgings depend. A mill housing that has taken months to cast and machine, and in which an inspection then finds a shrinkage cavity, is worth a great deal more repaired than scrapped - and the defect may be entirely acceptable to repair. But the repair introduces its own risks: a weld deposit in a thick section cools fast, hardens, and pulls against a restraint that cannot move, so the repair can crack where the original defect would not have. That is why the standard sets limits on what may be repaired at all, and why post-weld heat treatment gets a clause of its own rather than being left as good practice.

This document specifies the scope of repair welding defects of forged steel parts, technical requirements for repair welding, post-weld heat treatment and inspection. This document is applicable to repair welding of defects in carbon structural steel and alloy structural steel forgings listed in Table 1. This document does not apply to repair welding of forgings that require surface quenching after welding or are in the surface quenched state.

2 Normative references

The contents of the following documents constitute the essential provisions of this

document through normative references in the text. dated citations For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 699 High Quality Carbon Structural Steel

GB/T 3077 Alloy structural steel

GB/T 5117 Non-alloy steel and fine grain steel welding rod

GB/T 5118 heat-strength steel welding rod

GB/T 8110 Non-alloy steel and fine-grain steel solid wire for gas-shielded arc welding

GB/T 10045 non-alloy steel and fine-grain steel flux-cored welding wire

GB/T 17493 Flux-cored welding wire for heat-strength steel

GB/T 19869.1 Welding procedure qualification test for steel, nickel and nickel alloys

GB/T 32533 High Strength Steel Welding Rod

GB/T 33083 Technical conditions for large carbon structural steel forgings

GB/T 33084 Technical conditions for large alloy structural steel forgings

GB/T 36233 Flux-cored welding wire for high-strength steel

GB/T 39255 Shielding gas for welding and cutting

3 Terms and Definitions

This document does not have terms and definitions that need to be defined.

4 Scope of repair welding defects

4.1 Defects that should be repaired. Defects that exceed the size tolerance of the design drawing, exceed the allowable size of the defect, and are not allowed to exist. for defective