

ICS 77.140.80

CCS J 31



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

GB/T 37400.7-2019

**Heavy machinery general technical specification - Part 7:
Repair welding for steel castings**

重型机械通用技术条件 第7部分：铸钢件补焊

Issued on: August 30, 2019

Implemented on: March 1, 2020

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

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Repair welding defect range
- 4 Pre-weld preparation technical requirements
- 4.1 Defect cleaning and groove form

Foreword

GB/T 37400 "General Technical Conditions for Heavy Machinery" is divided into 16 parts.

- Part 1. Product inspection;
- Part 2. Flame cutting parts;
- Part 3. Welded parts;
- Part 4. Cast iron parts;
- Part 5. Non-ferrous metal castings;
- Part 6. Steel castings;
- Part 7. Repair welding of steel castings;
- Part 8. Forgings;
- Part 9. Machining parts;
- Part 10. Assembly;
- Part 11. piping;
- Part 12. Painting;
- Part 13. Packaging;

1 Scope

Part 7 of China's general technical specification for heavy machinery, covering repair welding of steel castings. It specifies the range of defects that may be repair welded, the pre-weld preparation, the repair welding technical requirements and the post-weld stress relief. Almost every large steel casting is repair welded somewhere, and treating that as a normal part of manufacture rather than as a concealed failure is what this standard does. Solidification defects are inevitable in a section that takes days to freeze, and the ones that

appear at the surface after machining are the ones that must be dealt with. The pre-weld preparation clause is the substance of it: the defect has to be excavated completely, which means going deeper than it looks and verifying by inspection that nothing remains, because a repair welded over a residual crack has buried it where nobody will find it again. Post-weld stress relief then follows, because the repair has put new stress into a component that had just had its old stress removed.

This part of GB/T 37400 stipulates the defect range of repair welding of steel castings, technical requirements for pre-weld preparation, technical requirements for repair welding, and after welding. Stress annealing treatment and inspection. This section applies to the repair welding of carbon steel, low alloy steel and high manganese steel casting steel parts before finishing.

2 Normative references

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

GB/T 984 surfacing electrode

GB/T 5117 non-alloy steel and fine-grain steel electrode

GB/T 5118 heat-strength steel electrode

GB/T 5680 austenitic manganese steel casting

GB/T 6417.1 metal fusion welding head defect classification and description

GB/T 8110 carbon steel, low alloy steel welding wire for gas shielded arc welding

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

GB/T 15169 steel fusion welding welder skill assessment

GB/T 17493 heat-strength steel flux cored wire

GB/T 37400.6 General technical requirements for heavy machinery - Part 6. Steel castings

JB/T 3223 Welding Material Quality Management Procedures

JB/T 6404 large high manganese steel casting technical conditions NB/T 47014 Pressure welding equipment welding process evaluation

3 Repair welding defect range

3.1 The scope of defects refers to defects that exceed the dimensional tolerances of the design drawings, exceed the allowable dimensions of the defects, and are not permitted.

3.2 Repairs that meet the following conditions shall not be repaired.

- a) sand holes, slag inclusions and looseness that cannot be removed;
- b) by machining, it can meet the technical requirements or allowable defects of the pattern;
- c) defects found in the process of processing that cannot meet the requirements of the product after repair welding;
- d) Defects other than repair welding are allowed after processing and the user does not agree with the defects of repair welding.

4.1 Defect cleaning and groove form

4.1.1 The defects shall be thoroughly removed before repair welding, and the groove surface shall be smooth and smooth, and no sharp corners shall be present.

4.1.2 According to the defects of steel castings, the defects in the repair welding area can be shovel, grinding, carbon arc gouging, gas cutting or machining.