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Steel used for heavy roll forgings - Technical specification

大型轧辊锻件用钢 技术条件

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Steel used for heavy roll forgings - Technical specification

1 Scope

This Standard specifies the order requirements, manufacturing process, technical requirements, inspection rules and test methods, quality certificate, marking and packaging for heavy roll forgings, such as cold-rolled, hot-rolled work rolls and backup rolls.

This Standard applies to the order, manufacture, and inspection of heavy roll forgings (hereinafter referred to as forgings).

2 Normative references

The following documents are indispensable for the application of this document. For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

GB/T 223 (all parts) Methods for chemical analysis of iron, steel and alloy

GB/T 228.1 Metallic materials - Tensile testing - Part 1: Method of test at room temperature

GB/T 229 Metallic materials - Charpy pendulum impact test method

GB/T 13313 Methods of Shore and Leeb hardness testing for rolls

3 Order requirements

3.1 The purchaser shall specify in the order contract or technical agreement the purpose, name, quantity, material designation, and delivery status of forgings; various technical requirements and inspection items defined by both the supplier and the purchaser; and inspection items other than those required by this Standard.

3.2 The purchaser shall provide the order drawing and the finishing drawing indicating the dimension and technical requirements of the forgings.

3.3 When the purchaser has supplementary requirements, the supplementary requirements shall be negotiated by both the supplier and the purchaser.

4 Manufacturing process

4.1 Smelting

Steel used for forgings shall be refined by ladle. Vacuum degassing shall be used as much as possible, to reduce the content of harmful gases in steel. With the consent of the purchaser, other methods such as out-of-furnace refining or electroslag remelting that can meet the requirements of this Standard may also be used. The smelting method of hot-rolled work rolls can also be negotiated by both the supplier and the purchaser.

4.2 Forging

4.2.1 Each ingot riser and both ends of the ingot tail shall have enough cut, to ensure that the forgings are free from harmful defects, such as shrinkage cavities and severe segregation.

4.2.2 Forgings shall be forged on a forging press with sufficient capacity, to ensure that the entire section of the forging is fully forged; and the entire forging can be uniformly structured, with a forging ratio of ≥ 3 .

4.3 Heat treatment

Carry out heat treatment according to the delivery status of the forgings specified in the order contract.

5 Technical requirements

5.1 Chemical composition

5.1.1 The analysis results of hot-rolled work rolls shall meet the requirements of Table 1.

5.1.2 The analysis results of cold-rolled work rolls shall meet the requirements of Table 2.

5.1.3 The analysis results of backup rolls shall meet the requirements of Table 3. When multiple furnaces are poured together, the weight analysis results shall prevail.

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