GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 8361-2001

Replacing GB/T 8361-1987

The surface of cold drawn rounds steel – Method for the ultrasonic inspection

冷拉圆钢表面超声波探伤方法

Issued on: December 17, 2001 **Implemented on: May 1, 2002**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China;

Standardization Administration of the People's Republic of China.

Table of Contents

Foreword

This standard is revised based on GB/T 8361-1987 "The ultrasonic inspection method for the surface of bearing steel (cold drawn rounds)".

The following contents are revised:

- Standard name is changed to "The surface of cold drawn rounds steel - Method for the ultrasonic inspection" which expanded scope of application;
- Diameter scope of application of cold drawn round steel is increased from 6 mm~50 mm to 6 mm~80 mm;
- Inspection principle description is added;
- One detection direction is added to test method, namely, from radial direction of round steel to two reverse directions on circles of round steel; so no part will be undetected due to directionality of flaw;
- artificial defect levels are changed from third levels to six levels; diametric percentage representation of artificial depth of flaw is turned into numerical representation;
- Requirements for inspection equipment are increased.

This standard replaces GB/T 8361-1987 "The ultrasonic inspection method for the surface of bearing steel (cold drawn rounds)" since the day of implementation.

This standard was proposed by former National Metallurgical Industry Bureau.

This standard shall be under the jurisdiction of China Steel Standardization Technical Committee

Drafting organization of this standard: Shanghai Wugang Co., Ltd. of Baosteel Group.

Chief draft staffs of this standard: Jiang Yimin, Wang Yongling, Zhu Qiyun and Ni Xiumei.

This standard was first-time issued in November 1987.

The surface of cold drawn rounds steel – Method for the ultrasonic inspection

1 Scope

This standard specifies principle of cold drawn round steel surface ultrasonic inspection, test method, control sample, inspection equipment, and inspection condition; inspect procedure, result of detection assessment and report.

This standard is applicable to surface inspection of cold drawn round steel with diameter of 6 mm ~ 80 mm. This method is applicable to detect flaws like longitudinal cracks and folds on the surface of cold drawn round steel.

2 Quoted standards

The provisions in the quoted standards become part of this standard by citation. When this standard is published, all editions are effective. All standards are subject to revision; parties who reach an agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

JB/T 10061 Commonly used specification for A-mode ultrasonic flaw detector using pulse echo technique

JB/T 10062-1999 Testing methods for performance of probes used in ultrasonic flaw detection

3 Inspection principle

Longitudinal wave is directional radiated from ultrasonic probe and be transferred onto round steel surface by passing couplant and in the specific angle of incidence. Wave mode will change and surface wave or transverse wave will be formed. Surface wave or transverse wave travelled on the surface of steel and in the still will be reflected when flaw is encountered. Ultrasonic probe will receive the wave. Flaw information can be got when it is processed by instrument.

4 Test methods

6.1.2 Flaw detector shall be with adequate repetition frequency regulating range so as to adapt to variation of speed in inspection.

6.1.3 Other performances of flaw detector shall be able to meet the requirements of automatic inspection and be with adequate working site disturbance-resistance capability.

6.2 Probe

6.2.1 Single probe or multi-probe can be used. Line focusing type acoustic lens can be added to the probe. Crystal plate length or diameter of single probe shall be no greater than 20 mm.

6.2.2 Working frequency of probe can be made between 2.5 MHz ~ 10 MHz.

6.2.3 Probe performance shall conform to requirements of JB/T 10062.

6.3 probe control device

6.3.1 Within certain field, this device shall be with good traceability, namely, with certain inspection, angle of incidence degree and verticality corresponding to round steel remains stable.

6.3.2 There shall be firm and flexible probe clampers to be used for adjustment of probe.

6.4 mechanical drive

This device shall guarantee that round steel can be sent to probe control device steadily and round steel and probe can be stable.

7 Inspection conditions

7.1 Flatness, non-circularity and end quality of round steel shall meet correspondent product standards. Round steel surface shall be clean and be free from scrap iron and contaminations.

7.2 Couplant can be clean water or oil that is free from bubbles and be with acoustic coupling performance. Antirust measures shall be taken to water logging inspection.

7.3 Inspection staff shall be with ultrasonic inspection staff qualification certificate 1 level or above issued by non-destructive testing qualification department. Anyone who signs the report shall be with ultrasonic inspection staff qualification certificate of level II or above.

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