

1.13.16. RELIABILITY OF ROLLED BARS ULTRASONIC TESTING ON THE AUTOMATED INSTALLATION FOR ULTRASONIC TESTING VOLNA-7

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The report presents an operation experience description for automated installation for ultrasonic testing Volna-7 developed by company Nordinkraft for round rolled bars in diam. 80 – 190 mm and length 4 – 12 m. The installation is intended for internal and surface defects testing of hot-rolled and mechanically treated rolled products using EMA-method. Internal defects testing is conducted with the help of acoustic system which consists of eight EMA transducers as per degrees of quality specified in GOST 21120 and SEP 1920. Surface defects testing is conducted by 16-channel acoustic system which consists of 8 EMA transducers as per API 5L. Instructive set of additional reference blocks used for internal and surface defects testing is given. The surface defects testing methods were revised in order to increase testing results reliability. The report presents the analysis of the factors which influence the reliability of the results and the preciseness of the defect equivalent sizes evaluation when implementing the given testing scheme.

Effectiveness of the rolled products quality inspection fulfilled by means of the automated installation Volna-7 is based on the following principles:

- modular concept of the automated installation arrangement which enables the inspection system adjustment for each channel;
- effective analysis and subsequent correction of bars manufacturing technology according to the results of ultrasonic testing using an integrated information computer network;
- flexible system of tested rolled bars stream organization, the possibility of sorting as per given features;
- organization complex maintenance of installation systems;
- systematic training of nondestructive testing operators working at the installation and assessing the products quality in accordance with standards of GOST and foreign organizations.

The implementation of the installation enables the provision of competitiveness of the rolled products manufactured at OAO ChMK, enlarges the stock of orders for hot-rolled products under obligatory ultrasonic testing.

References:

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