

ABSTRACT

This master's dissertation consists of 80 pages, 42 figures, 24 tables and 20 sources according to the list of references.

Keywords: robot-manipulator, eddy-current control, a convex eddy current sensor, positioning error.

The object of research - the process of automated eddy current testing of metal products.

Subject of research - systems of automated eddy current testing for products with complex geometry.

The purpose of the study is to develop a robotic system of eddy-current testing for products with complex geometry of the surface.

Methods of research - theoretical studies of the process of eddy current testing and testing object; model experiments on the processing of information signals; modeling the work of individual nodes.

Scientific novelty of the obtained results:

1) According to the results of the study kinematics of the manipulator, the main errors of the positioning of scanners in the automated systems of eddy current control were identified and were proposed methods of their reduction.

2) The combination of eddy current testing and the capabilities of industrial manipulators is proposed, which allows to implement eddy current non-destructive testing in automatic mode and reduce on this basis the influence of the human factor on the results of testing.