

5.3.9. METROLOGICAL ASPECTS OF NON-DESTRUCTIVE TESTING

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Non-destructive testing and diagnostics methods are the most spread ones for determination of quality, operability and fail-safety.

High quality of products can be attained only there where measuring equipment is an integral part of the production process. Besides, required improvement of quality imposes constantly growing demands to the efficiency of measuring equipment itself. Therefore, provision of quality and measuring equipment are going hand in hand with each other in production processes.

Measurement, control, technical diagnostics and recognition of images that are widely used currently in non-destructive testing include:

- perception of studied (measured, tested) values by technical means with quite often transformation into some interim values;
- their empirical comparison with known values, with descriptions of object states or properties;
- formation and output of results in the form of denominated numbers, their relationships, opinions based on the quantitative relationships.

In order to improve accuracy and trustworthiness, as well as efficiency of non-destructive testing, it is necessary to resolve problems of metrological support in the field of non-destructive testing. Under metrological support in this case, not only the state of measurements in testing of any kind, when their results are expressed in legalized units and errors are known with given probability, is understood, but availability of the well-proportioned metrological infrastructure, including reference base, measurement and testing means, methods of measurement performance, testing methods, standards and other normative documents, personnel, accredited non-destructive testing laboratories, as well.

Non-destructive testing means used currently for testing and technical diagnostics of especially hazardous and crucial objects grow continuously in number. Respectively, demand in improvement of normative and technical base for implementation of the State control and supervision over non-destructive testing means grows as well.

In order to improve works on metrological support in the field of non-destructive testing (NDT), it is necessary:

- To put in order metrological characteristics of NDT means.
- To provide traceability of measurement results up to the SI units and national references.
- To create hierarchic scheme of NDT means calibration.
- To harmonize national standards with international ones and other foreign normative documents.
- To automate the process of NDT means verification (calibration).