

# **Improving the quality of performing in-service inspections using manipulators**

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Many in-service inspections, mainly carried out by the ultrasonic method, were until recently carried out manually or semi-automated with the use of encoders. These types of inspections usually lack data recording and are dependent on the experience of the operator performing these inspections. For these reasons, in recent years one of the important activities carried out within the Research Centre Rez has been the development and production of manipulators for non-destructive testing. This article will describe in more detail the manipulators used for ultrasonic testing of the reactor head nozzles, nozzles of the emergency power supply system of steam generators treated with weld overlay, inspection of low-pressure blade dovetails and others. The developed manipulators will make it possible to refine and improve the repeatability of inspections that were previously carried out manually (more precise guidance of probes, etc.) or were not carried out at all due to inaccessibility for operators. Among other examples of the use of manipulators is in conditions where manual testing is not possible. One of the applications can be measurement using the phased array technique on pipelines during service, when the temperature on the surface of the pipeline can be up to 320°C (the maximum temperature of the primary pipeline of a nuclear power plant).