Smart Data Analysis of the Results of Automated and Manual Ultrasonic Inspections on the Example of Rotor Forgings

Johannes VRANA\textsuperscript{1}, Kai KADAU\textsuperscript{2}, Christian AMANN\textsuperscript{3}, Axel KLEMM\textsuperscript{1}

\textsuperscript{1}Siemens AG, München, Germany
\textsuperscript{2}Siemens Energy, Inc., Charlotte, USA
\textsuperscript{3}Siemens AG, Mülheim, Germany

Contact e-mail: johannes.vrana@siemens.com

Most demanding components – for example heavy rotor forgings for the energy sector – are inspected with volumetric and surface detection NDE methods – either manually or using automated systems. The data collected during automated inspection gets processed and analyzed. Similarly the inspector analyzes the information he sees during the manual inspection. The results, like size and position of indications, and the inspection conditions, like sensitivity information and sound attenuation, are finally condensed into reports both for manual and automated inspections. Finally those reports get printed, signed and archived. However the data reported in most of those reports is a treasure which needs to be exploited by the NDE community.

We suggest a better utilization of the NDE inspection data by the implementation of a state of the art data base for easy access and latest statistical analysis technologies. We report on first results of a newly developed data-base focused on heavy duty rotor forgings, one of the most demanding components from an inspection and design standpoint. Preliminary analysis, including probability of detection, probe usage statistics, as well as detection sensitivity comparisons are presented.