Ultrasonic Examination of Heavy Steel Forgings

This application note describes how to inspect forged and cast components with ultrasonics.

Ultrasound Inspection

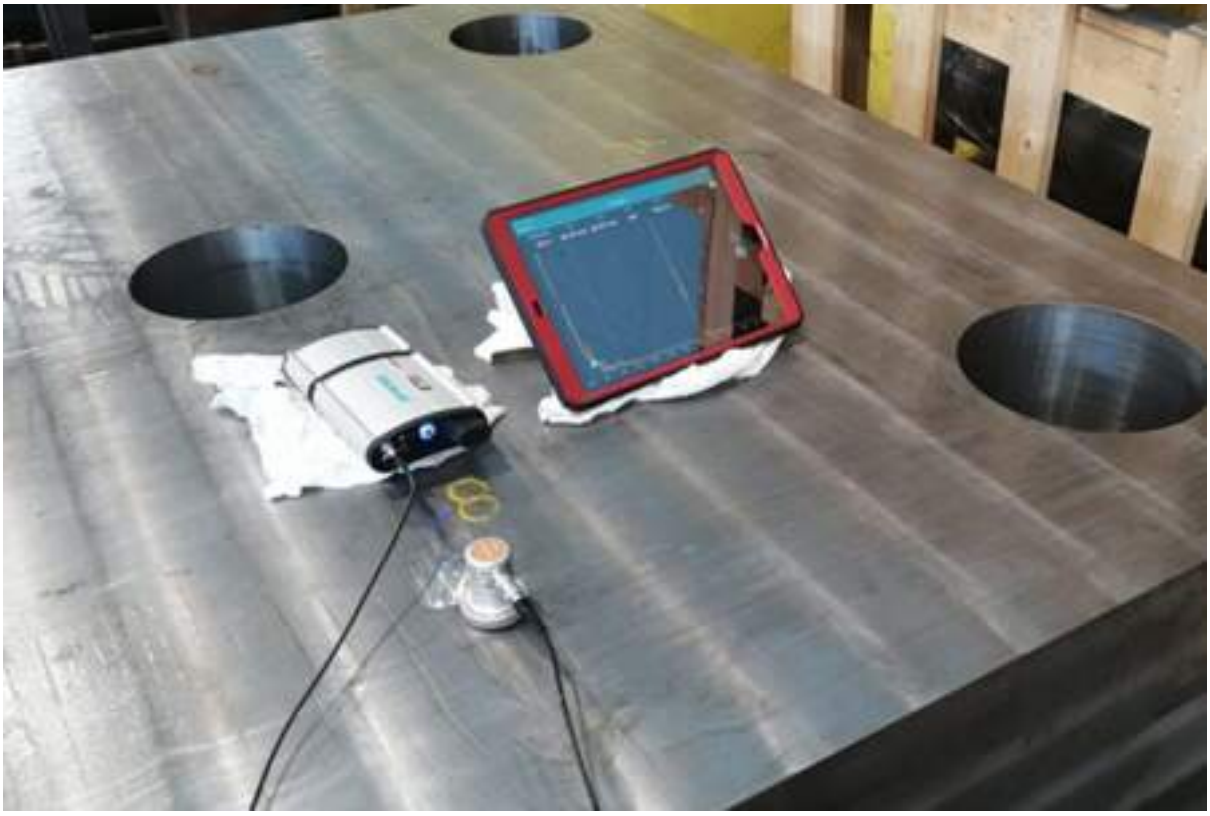
Assessment, research and sizing of the defect are the main priorities during an ultrasonic inspection of large steel forgings. For this, straight beam and angle beam ultrasonic inspections are used.

Straight beam inspection is very straight forward. Back reflection technique, reference-block technique, or DGS Calibration are the three methods used. DGS is a method of setting sensitivity or assessing the signal from an unknown reflector based on the theoretical response of a flat-bottomed hole reflector perpendicular to the beam axis

Casting and Forged quality inspection

Because of the attenuation factor, inspecting forged and cast components is more difficult than inspecting other components. Non-homogeneity of the grains, caused by an unequal final lamination temperature between the center and the surface, or a heat treatment with insufficient time, is the most common cause of different attenuation in the components.

DGS inspection method is the most common and tradition method to identify and characterize the defects on this kind of components.



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DGS solution

DGS was implemented with a user-oriented approach, in keeping with our philosophy. The architecture of the Proceq UT8000 is based on ease of use and full adaptability for each project.

Furthermore, thanks to the excellent signal to noise ratio, we can go beyond the standard requirements with a level of quality that will astound even the most skeptics. The UT8000's features, along with the iPad screen and DGS KK probes, provide the best response to your needs.

Learn more about ultrasonic testing and other related topics in our Tech Hub.