Sizing of flaws in thermite welds in rails using TOFD combined with hardness testing

Thermite welding employs molten metal to permanently join the conductors. As with any welding process, if it is incorrectly performed defects will occur. At worst, an improper weld in rails can lead to train derailment. The customer was using Dye Penetrant Inspection (DPI) to identify surface cracks but wished to examine the rail head volume and determine the size of the surface breaking cracks. Proceq’s unique portable 2 channel Proceq Flaw Detector 100 TOFD gives a volumetric inspection of the thermite weld with excellent crack sizing. Hardness tests with the wireless Equotip Live complement the inspection, providing an overall picture of the weld.