

Acousto Ultrasonic-Echo (AU-E)

Refractory Lining Measurement



AU-E Data Collection



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Acousto Ultrasonic-Echo (AU-E) is a patented Non-Destructive Testing (NDT) technique for measuring the thickness and condition of refractory linings within operational metallurgical process vessels. AU-E provides valuable information about the vessel's condition without any disruption or modification to the production schedule. Hatch's AU-E technique can detect refractory wear and deterioration, metal impregnation into the brick, metal penetration within refractory lining, refractory hydration and oxidation, build-up and refractory thickness, and evaluate refractory quality. The technique has been developed exclusively to serve the metallurgical industry.

ISSUES

During the operation of metallurgical vessels aggressive mechanical, thermal, and chemical reactions cause deterioration of the refractory lining and tapholes. Damage to or the loss of refractory material could ultimately cause metal run-outs resulting in injuries or death, furnace structural damage and lost production.

SOLUTION

AU-E uses stress waves to measure the thickness of refractory linings and to detect defects such as cracks, refractory hydration, refractory oxidation, metal

penetration and impregnation. AU-E is a method that allows for measurement of the refractory lining from the vessel's exterior surface while the furnace or vessel is in operation.

BENEFITS

By using the AU-E technique, Hatch specialists are able to determine the thickness and location of defects within the refractory lining of operating furnaces rapidly, accurately, and at low cost. Through regular inspections the trend of refractory deterioration can be determined and proactive and predictive maintenance actions can be implemented to assure long term furnace operation and extension of its campaign life.

The sensor is portable and can resist extreme temperatures, dust, and water. Hatch personnel have years of experience using the AU-E system to perform safe inspections in extreme environments.