

Ferry-Capitain

Phased array for testing ring gears

By choosing phased array testing to inspect ring gear teeth, Ferry-Capitain improves in time, reproducibility and accuracy. The same technique can also be used on other parts with complex geometry.

Ferry-Capitain chose phased array non-destructive ultrasonic testing for the accurate inspection of the teeth on its steel ring gears (8 meters in diameter with 800 mm-wide teeth). This new technology is similar to (2D) echography, whereas the representations in conventional ultrasonic testing are only one-dimensional.

Quicker and safer

Phased array ultrasonic testing is quicker to use and makes it possible to scan all the angles in a single run and to perform the inspection after the final cutting – an operation that is difficult to carry out with standard testing.

Sixty teeth on a quarter ring gear can be inspected in two hours, whereas conventional ultrasonic testing with three different angles would require at least six hours.

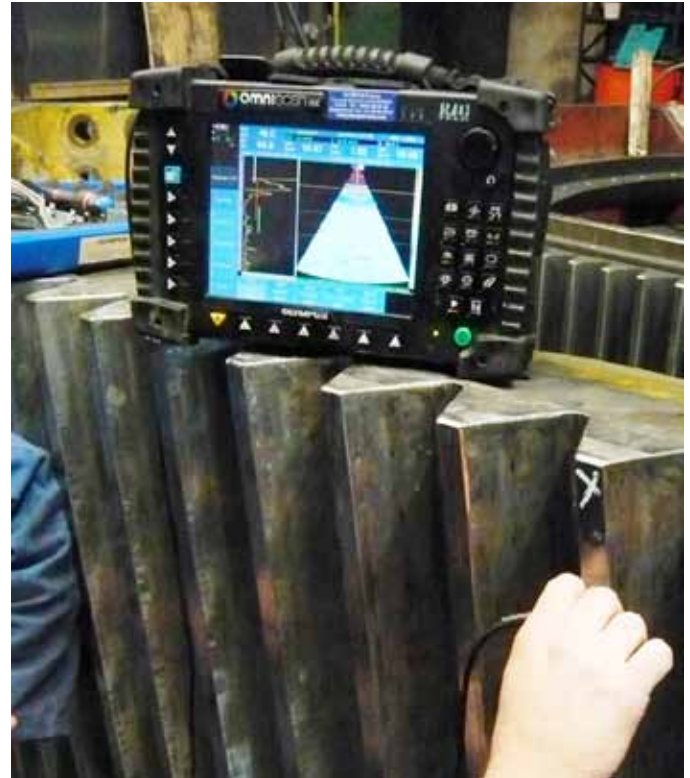
In addition, as Frédéric Rahli, Inspection and Test Manager at Ferry-Capitain, explains: "This new technology means that we can ensure that the ring gears we supply are free from defects".

Complex parts

"The technology is particularly interesting for machined parts with complex geometries and for welded assemblies", says Frédéric Rahli. "It provides a huge amount of data with just one probe".

This method is now well-proven in terms of performance, and the staff at Ferry-Capitain have improved their knowledge of non-destructive phased array ultrasonic testing and signal interpretation with the experts from Cetim. In addition, the method can also be used with other applications.

"We always are on technology survey in these fields", says Frédéric Rahli. "At the moment we are conducting other studies on crusher bottoms assembled with



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welds from 150 to 200 mm thick. If the technological progress made by phased array testing continues and makes it possible to inspect parts that are very thick (>200mm), then that too could be very interesting for Ferry-Capitain."

OUR CUSTOMER

Corporate name
Ferry-Capitain

Area of Activity
Manufacturer of large cast parts (up to 16 meters in diameter): gears, ring gears, crusher bottoms, compressor housings, turbine casings, etc.

Turnover
EUR 80 million

Workforce
450

Cetim's asset



Cetim is an expert in the technology used for phased array ultrasonic testing. Various types of additional systems are implemented during testing by trained specialists.