BWX Technologies, Inc. (BWXT) is at the forefront of the development of high-speed industrial Full Matrix Capture (FMC) inspections and holds five related patents. FMC allows inspections to be performed that dynamically adapt the focusing of the ultrasound to correct for a variety of surface conditions.

BWXT FMC ultrasonic inspections provide many advantages over phased array inspections:

- More effective inspection of components with arbitrary curved, rough or wavy surface geometries
- Precise surface mapping
- Raw ultrasonic data collected during scanning can be reprocessed at any time with different beam characteristics for enhanced indication characterization
- FMC can provide ultrasonic inspections that are continuously focused throughout the inspection zone in real time
Full Matrix Capture Dynamic Surface Corrected Inspections for Arbitrarily Wavy and Curved Surfaces

Simulated weld surface test piece with side drilled holes (bottom)

$0^\circ$ beam angle scan over the axially flat region

$0^\circ$ beam angle scan over the simulated weld crown using surface correcting FMC

$0^\circ$ beam angle scan over the simulated weld profile without correcting for the surface geometry