



Industrial Mechanical Integrity

MI Solutions is uniquely qualified to be a high quality, proactive partner with our clients for the provision of inspection and testing services. Our business model focuses on providing cost-effective inspection solutions to minimize our client's risk.

#### OUR FOUNDATION:

INNOVATION, QUALITY, AND SAFETY

## Advanced Ultrasonic Applications

**MI SOLUTIONS IS AMONG THE INDUSTRY LEADERS USING EVOLUTIONARY TECHNOLOGY AS WELL AS HIGHLY TRAINED PERSONNEL TO PROVIDE ADVANCED ULTRASONIC INSPECTIONS.**

Continually working with our equipment manufacturers and clients to find solutions not readily available. We pride ourselves in finding solutions for our clients' needs with constant in-house development of techniques and practices.

### Phased Array (PAUT)

- Multi-element ultrasound pulsed independently to form an array of beams
- Versatile inspections ranging from weld inspections, corrosion monitoring and crack/indication sizing

### Time of Flight Diffraction (TOFD)

- Rapid ultrasonic inspection with very high sensitivity
- Most accurate for height and length sizing of discontinuities
- Generally coupled with PAUT for inspection of new construction vessels, spheres and tanks

### Electro Magnetic Acoustic Transducer (EMAT)

- Qualitative screening of piping
- Pipe scanning up to 36" diameter and 400' a day
- Single sided inspection of soil or cement to air interfaces

### Automated Corrosion Mapping (AUT C-scan)

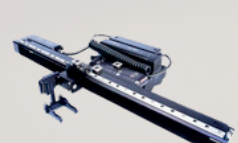
- Repeatable and reliable corrosion examination
- Used for in lieu of internal inspection along with trending growth of corrosion on repeat inspections
- Readings can be exported for remaining strength calculations

### Guided Wave (GUL)

- Qualitative screening of piping
- Inspection of up to 200' of piping in a single shot
- Compact rings with multi row modules for inspection across an ultra-wide band frequency without having to swap modules
- High temperature rings and modules rated up to 600° F

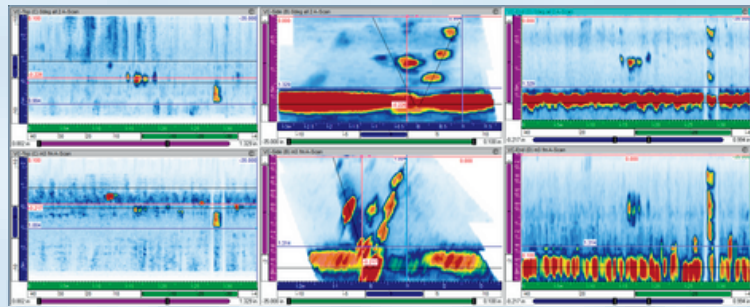
#### Inspection Techniques:

- Conventional UT
- In Service Weld Inspection
- Automated PAUT & TOFD for ASME Sec VIII Div. 2 and API 620/650 code inspections
- Automated Corrosion Mapping
- Raised Face Flange Inspection
- High Temperature Hydrogen Attack
- Dissimilar Metal Weld Inspection
- Guided wave
- EMAT



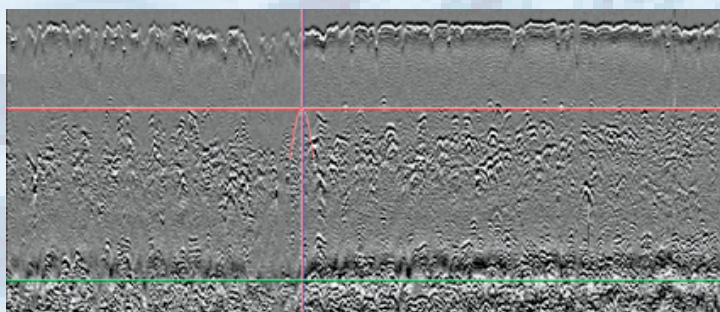
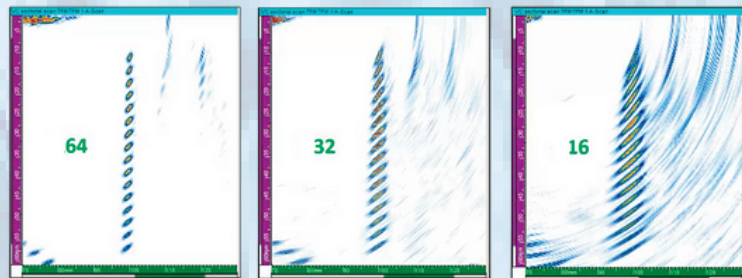
## Dissimilar Metal Weld Inspection

- Fully automated Refracted Longitudinal Wave
- Plots all indications into multiple views overlaying data for confirmation of data between different group sets
- Zero degree scans produced simultaneously with angle beam scans reducing set up time for multiple techniques



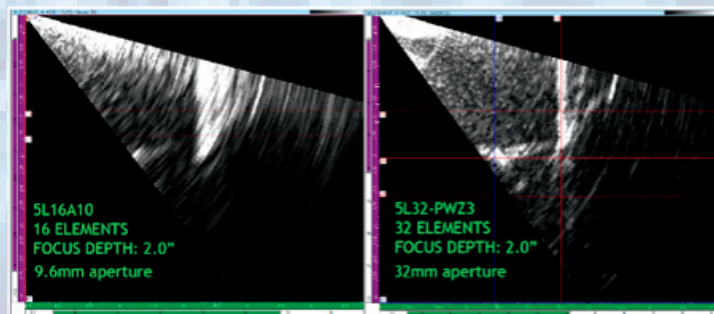
## High Temperature Hydrogen Attack

- Technicians are certified by third party training specified for this method. Training is performed on actual samples taken from the field with various stages of HTHA
- TOFD is used as the first inspection method due to its high speed of collection along with its sensitivity to detect small changes in the grain boundary
- Phased array is used as a confirmation method along with its ability to validate location in reference to centerline of the weld
- Utilizing instruments capable of 64 element excitation allows us to inspect for this damage with the required resolution necessary



## Raised Face Flange Inspection

- Inspection of the raised face section of flanges for corrosion from the bolting face
- Specialized probes designed specifically to assess smooth tapering along with general corrosion



Standard phased array probes (shown above on the left) do not have the appropriate amount of elements or size to guarantee the penetration and sensitivity required to assess smooth or minimal corrosion. Custom designed probes are required for these inspections for these factors along with the size of the probes to be allowed to fit into tight bolt spacing's.

## LOCATION:

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## CONTACT US:

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**MI**  
**SOLUTIONS**

Industrial Mechanical Integrity



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