

# ELECTROMAGNETIC ACOUSTIC TRANSDUCER (EMAT)



**PROVIDES THE BEST EMAT  
AND TFI SYNCHRONIZATION**

## BUILT WITH HIGH-RESOLUTION EMAT AND TRI-AXIAL HALL SENSORS

PIPECARE's EMAT tool comprises of EMAT sensors and Hall sensors that allows to significantly improve defect characterization and allows to differentiate crack vs crack like features and sharp axial corrosion.

### Key Features

- Electromagnetic Acoustic Transducer (EMAT) crack detection technology for gas lines combined with high resolution tri-axial Hall sensors for metal loss evaluation and auxiliary Eddy current ID/OD discrimination sensors
- Metal loss and crack feature detection in one run. EMAT + tri-axial TFI for axial feature detection

- 120% overlapping pipe surface coverage, no blind zones
- Scalable segmented magnetizers, specially modeled and adjusted for uniform magnetic field in the area of sensors
- Precise and calibrated tri-axial hall sensors for accurate metal loss feature evaluation.
- Down to 2 mm circumferential hall sensor spacing and 1.5 mm axial sampling

For more information on how PIPECARE's EMAT Technology contact PIPECARE at [www.pipecaregroup.com](http://www.pipecaregroup.com). Our team of experts is ready to help.

## ELECTROMAGNETIC ACOUSTIC TRANSDUCER (EMAT) TECHNOLOGY

### PERFORMANCE SPECIFICATIONS

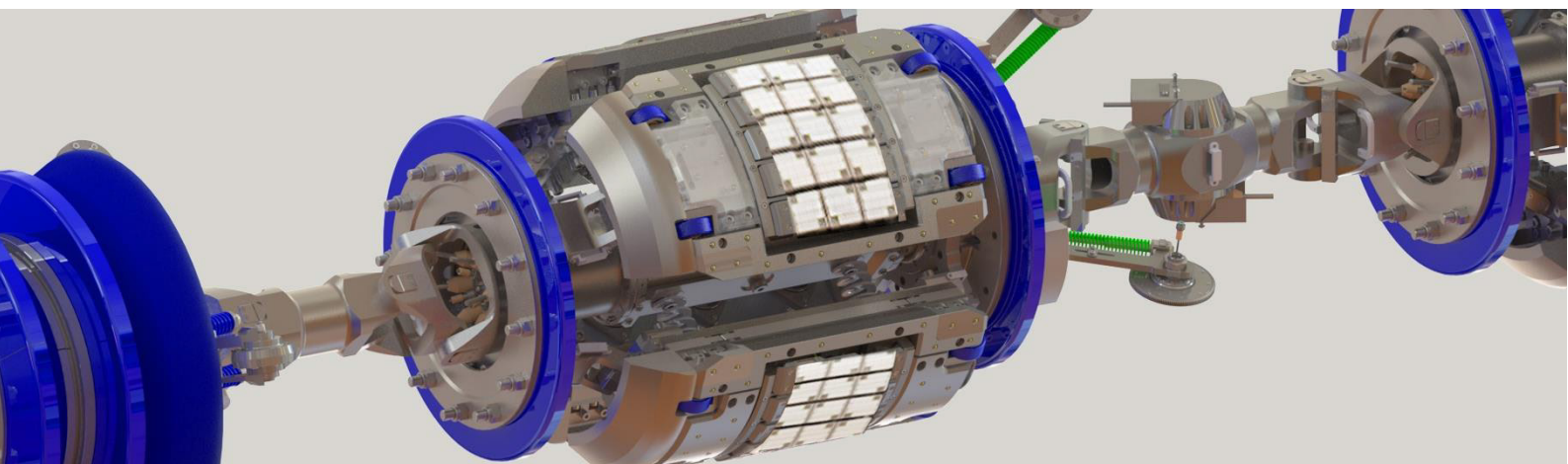
|                                                                         |                                                                                                                                                                                |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feature detection                                                       | Axial oriented cracks and crack like features, longitudinal weld cracking and lack of fusion, SCC, pipe coating disbondment, matching with axially oriented metal loss defects |
| Minimum crack depth @ POD=90% for L ≥ 40mm (1.575 inch)                 | 0.2t in pipe body<br>0.25t in seam welds                                                                                                                                       |
| Crack depth sizing accuracy @ 80% certainty                             | ±0.20t in pipe body<br>±0.25t in seam welds                                                                                                                                    |
| Crack length sizing accuracy @ 80% certainty                            | ±20 mm (0.787 inch)                                                                                                                                                            |
| Coating disbondment area detection @ POD=90%                            | 100 mm (3.937 inch) diameter                                                                                                                                                   |
| Feature location axial accuracy from nearest girth weld @ 90% certainty | +/- 0.1 m (3.937 inch)                                                                                                                                                         |
| Feature location circumferential accuracy @ 90% certainty               | +/- 10°                                                                                                                                                                        |

#### Benefits:

- Reliable detection and sizing of crack and crack-like defects in gas pipelines
- Identification of SCC susceptible locations through the detection of disbonded coating areas for future monitoring or mitigation
- Inspection in gas requires no couplant
- Active Speed control available
- Customizable reporting
- API579 crack assessment available

### GENERAL SPECIFICATIONS

|                                                          |                                                                 |
|----------------------------------------------------------|-----------------------------------------------------------------|
| Tool sizes                                               | Available upon request                                          |
| Pipeline inspection medium                               | Gas or Liquids                                                  |
| Tool inspection speed range                              | 0.3 - 2.0 m/s (0.98 - 6.56 ft/sec)                              |
| Sampling rate                                            | 1.5 ms                                                          |
| Circumferential sensor spacing<br>EMAT<br>Tri-axial Hall | 60 mm (2.157 inch)<br>2.4 mm (0.095 inch)                       |
| Wall thickness range                                     | 4 - 13 mm (0.157 - 0.512 inch)<br>>13 mm available upon request |
| Minimum bend radius                                      | 1.5D 90°                                                        |
| Maximum pipeline medium temperature during inspection    | 70°C (158°F)                                                    |
| Maximum pressure                                         | 80 bar (1160 psi)                                               |



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