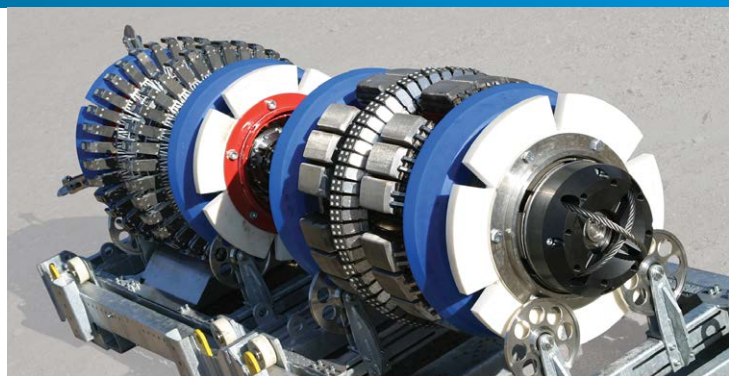
RoCorr MFL-A Plus Service

In-line High-Resolution Metal Loss Detection and Sizing

Detect pinhole corrosion before it impacts performance

Multiple data evaluation algorithms to identify all metal loss threats

Assess the integrity of both onshore and offshore pipeline assets



Pipeline integrity is affected by a multitude of metal loss features. These threats are a concern during the complete life-cycle from commissioning to phase out. In response, ROSEN is offering the RoCorr MFL-A Plus service, which incorporates the latest improvements in data evaluation and anomaly sizing algorithms. This creates a noticeable transformation of the dimension class distribution identified in reporting. This originates from an Artificial Intelligence (AI) approach to data evaluation, focused at minimizing the human factor impact. In addition to reducing human error, the machine-learning algorithms implemented have resulted in significant improvements in dimension classification and sizing accuracy.

The RoCorr MFL-A Plus service expands on ROSEN's dependable high-resolution RoCorr MFL-A service, with the inclusion of standard specification parameters for assessing pinholes and axial slotting, enabling operators to effectively address corrosion threats across the full Pipeline Operator Forum (POF) dimension classifications.

- Machine-learning based data evaluation system used to size corrosion defects (AutoData™).
- The MFL-A Plus sizing approach was developed using an exhaustive data base of laser-mapped real pipe defects enabling detection and identification of smallest defects like pinholes.
- Increasing reliability by reducing 'human factor' impact on feature detection and sizing, while ensuring that ALL features are included in the evaluation process and final report.

Benefits of MFL-A Plus Service

- Versatile Accuracy: Covering all POF anomaly dimension classes, including pinholes, this service allows for more comprehensive integrity assessments.
- Service Flexibility: A three-tiered MFL-A service offering (MFL-A / Plus / Ultra), with progressively rigorous performance specifications, to ensure the provision of the right service at the right time.
- Security of Supply: Largest tool fleet and global presence ensures high tool availability, anywhere and anytime — with optimized scheduling.
- Quality Assurance: Precise and reliable integrity data thanks to a high level of automation.
- Process Safety: In-house integrity expertise allows for well-balanced recommendations and efficient repair plans.
- Cost Savings: Reduced conservatism in integrity assessments ensure mitigation efforts do not become cost prohibitive.

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Service Options

- The RoCorr MFL-A Plus service can be provided via the majority of ROSEN's established and robust high-resolution MFL-A tool fleet. Suitable tools available in all sizes, ≥ 6".
- Automated Speed Control for ≥12" on request.
- High and low pressure tool configurations available.
- All tools can be combined with additional technologies to ensure combined data evaluation/reporting.
- Post-ILI integrity service options, including Fitness-for-Service (FFS) and Corrosion Growth Assessment (CGA) with AutoSCAN™.
- RoMat PGS (Pipe Grade Assessment) on request.

Technical Specifications

Performance Specifications extract

	General metal loss	Pitting	Pinhole[1) 4)]	Axial Grooving	Circumf. Grooving	Axial Slotting[2)]	Circumf. Slotting[1)]
Depth at POD = 90 %	0.10t	0.10t	0.30t[3)]	0.10t	0.10t	0.30t	0.15 t
Depth sizing accuracy at 80 % certainty	±0.10t	±0.10t	±0.20t	±0.15 t	±0.10t	±0.20t	±0.10t
Width sizing accuracy at 80 % certainty	±15 mm (0.59")	±12 mm (0.47")	±15 mm (0.59")	±12 mm (0.47")	±12 mm (0.47")	±15 mm (0.59")	±15 mm (0.59")
Length sizing accuracy at 80 % certainty	±15 mm (0.59")	±10 mm (0.39")	±15 mm (0.59")	±10 mm (0.39")	±10 mm (0.39")	±15 mm (0.59")	±10 mm (0.39")

[1)] Min (L, W) ≥ ½A
[2)] Min (W) ≥ ½A and Max (L) ≤ 30 mm at POD = 80%.
[3)] 0.5t at POD = 80% for pipeline diameters 8" - 12"; no change of the above table for 06"
[4)] For metal loss defects in pipes with WT > 10 mm that fall under the dimension class 'Pinhole', but are larger than 10x10 mm in dimension, the sizing accuracy of 'Pitting' is valid.

Standard Operating Specifications

Tool sizes available	6" - 56"
Pipeline product	Gas or liquids
Product temperature range	0 °C - 65 °C (32 °F - 150 °F)
Maximum operating pressure	15 MPa (2,175 psi) 50 MPa (7,500 psi) optional
Operating speed range	Up to 3.0 m/s (9.8 mph)
Product flow range*	Up to 12 m/s (26.8 mph)
Minimum pipeline bend radius	1.5D
Wall thickness range	4 - 32 mm (0.15" - 1.26")
Maximum operating time	400 hours
Maximum inspection length	800 km (500 miles)

* Fitted with optional speed control system (gas lines only)
Note: Please contact ROSEN for conditions outside of these specifications.

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