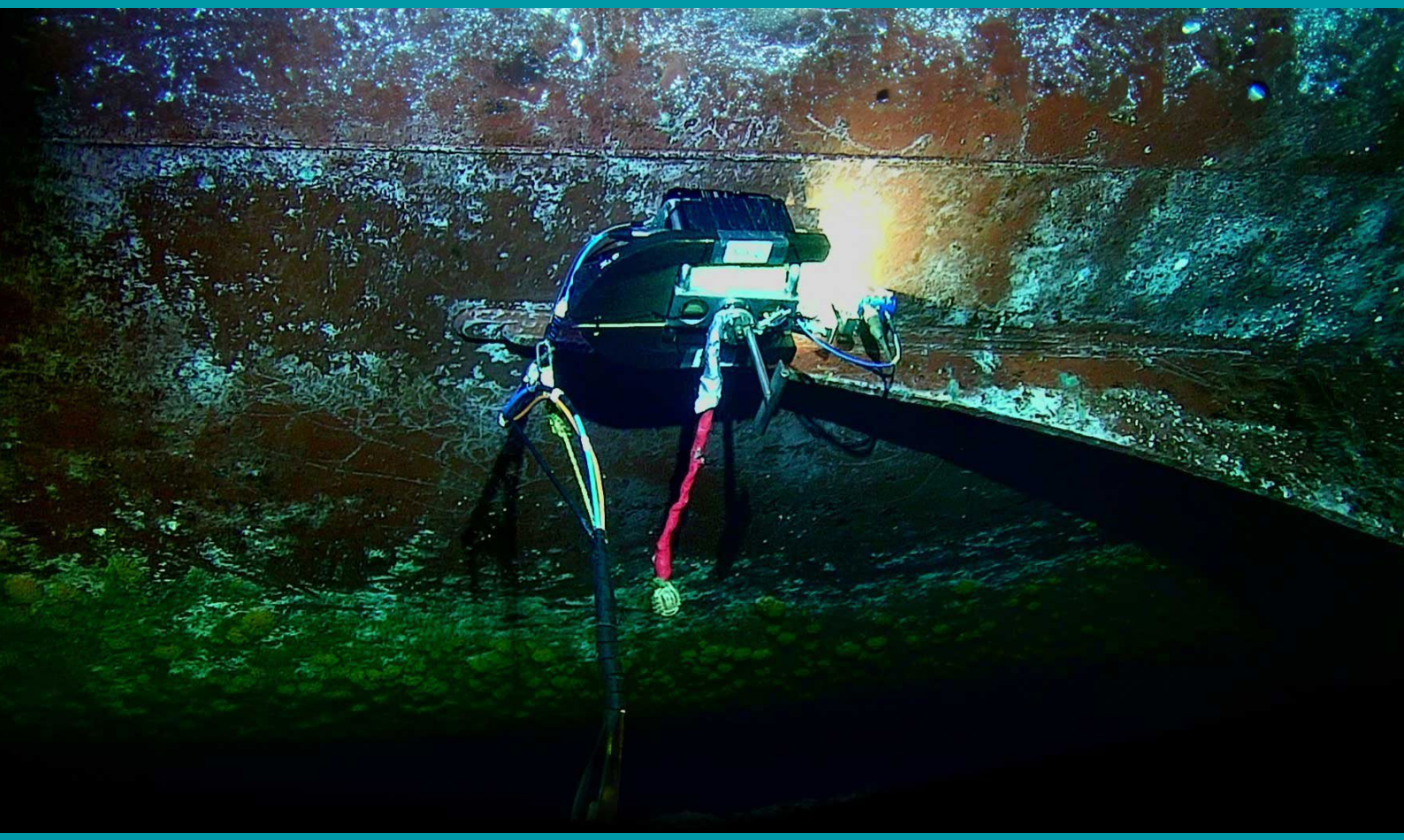
TSC SUBSEA

MagCrawler™

Robotic Crawler for Subsea NDT Inspections.



- Inspects a wide range of subsea geometries.
- Supports ACFM, ART, SPA, and SPECTA methods.
- Effective in restricted access areas, confined compartments, and splash zones.

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MagCrawler™

Proven robotic solution for diverless inspection of subsea welds, structures and pipelines.

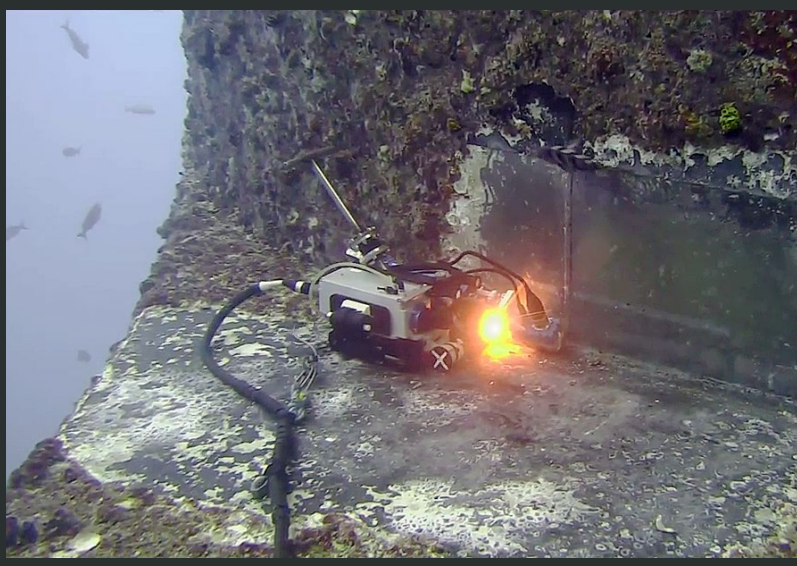
The MagCrawler™ represents the latest advancement in subsea robotic inspection technology. It has been specifically developed to enable ROV deployment of TSC Subsea's advanced subsea Non-Destructive Testing (NDT) methods, including Acoustic Resonance Technology (ART), Subsea Pulsed Eddy Current Testing Array (SPECTA™), and Subsea Phased Array (SPA™).

The crawler is designed to inspect subsea geometries such as circumferential welds in pipes and tubulars, fillet and full-penetration welds in plates, as well as other welds commonly found in the subsea energy sector.

The MagCrawler™ also offers a solution for inspecting areas where access is restricted or costly, such as the splash zone and confined compartments. It can be deployed by either inspection or work-class ROVs and attaches magnetically to the inspection surface.

Once deployed, the ROV can release the MagCrawler™, eliminating the need to hold station and enabling work in turbulent waters. The crawler's traction is provided by two rubber caterpillar tracks, which can be easily manoeuvred to steer the crawler without damaging the inspection surface.

Typical inspection speed is 30 mm/s (1.18 in/s), with multi-pass inspections taking approximately 15 min/m.



APPLICATIONS

- Caisson & Brace Support Structures
- Ship & FPSO Hull Inspection
- Jack-Up unit Spud Can Weld Inspection
- Subsea Pipeline Weld Inspection
- Splash Zone & Restricted Access Areas
- UWILD

DEPLOYMENT/PROBE CONTROL

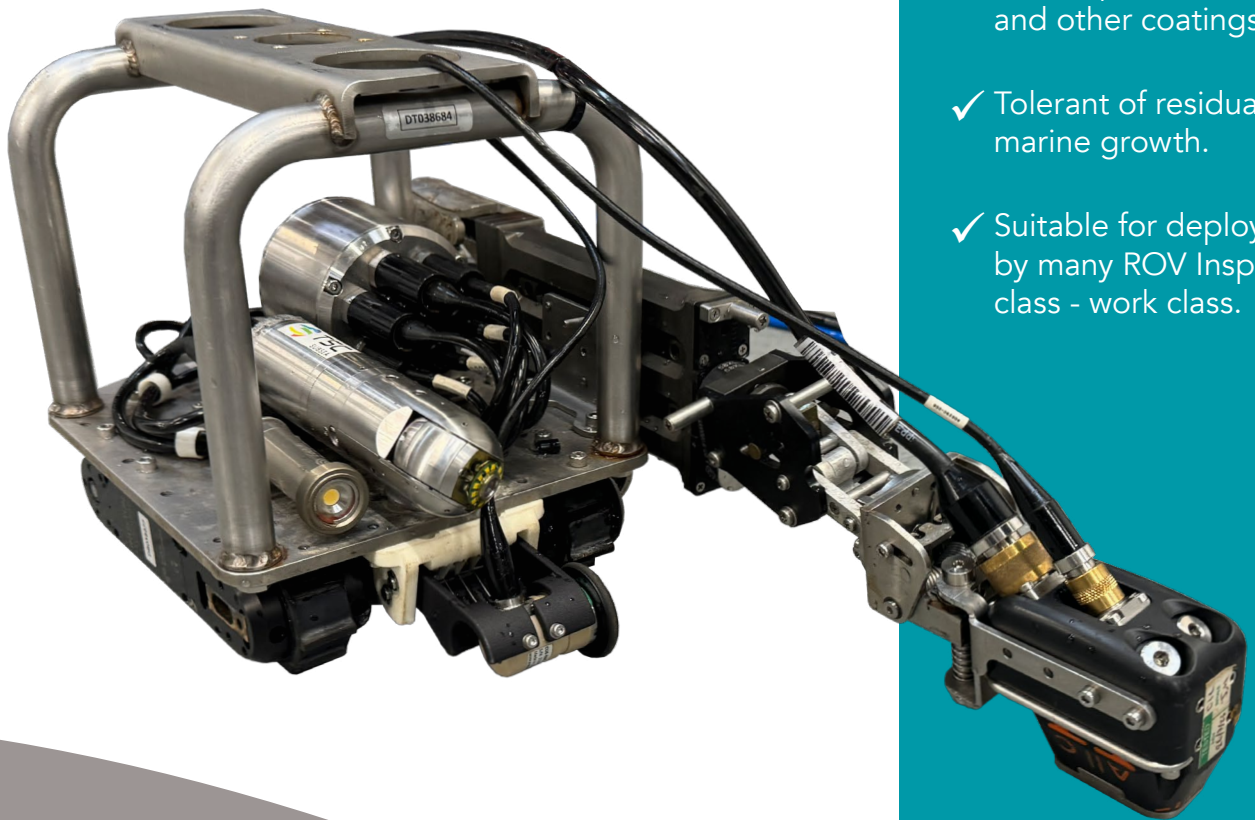
The MagCrawler™ is equipped with motorised mechanisms that allow the probe to be deployed accurately over the weld to be inspected. A 360-degree rotational head enables full coverage of flange welds and the heat-affected zone without the need to resurface for reconfiguration.

The probe maintains contact with the inspection surface using passive compliance, ensuring proper alignment during operation. Closed-loop feedback motor control allows for precise weld tracking and a consistent scan speed.

Positional adjustments can be made in both longitudinal and transverse directions, enabling complete coverage of the inspection area. High-quality inspection data is captured through the crawler's fine motor controls, while onboard cameras provide live visual feedback to confirm full coverage and ensure scan criteria are being met during operation.

FEATURES

- ✓ Applications across a wide range of subsea geometries.
- ✓ Assorted tooling for varied inspection geometry.
- ✓ Onboard 360-degree rotational head for targeted probe steering.
- ✓ Instant data capture for audit and comparison purposes.
- ✓ Can easily manoeuvre on diameters greater than 760mm (30 inches).
- ✓ Rated for water depths up to 150m (493ft).
- ✓ Dedicated control software to follow simple weld geometries.
- ✓ Can inspect through paint and other coatings.
- ✓ Tolerant of residual marine growth.
- ✓ Suitable for deployment by many ROV Inspection class - work class.



MAGCRAWLER SPECIFICATIONS

Unit Mass	9.0kg / 19.8lbs	
Unit Weight in Water	7.0kg / 15.4lbs	Cameras & other tooling excluded
Unit Length	450mm	Buoyancy is depth specific
Unit Width	250mm	Frame modification could be needed outside these diameters
Unit Height	190mm	No real limit in thickness.
Depth Rating	150m/15bar	
Brace Diameter Range	30ins (760mm) to flat surfaces	Scope of work specification is required. Work will be planned to ensure access restrictions are overcome.
Storage Temperate	-20 to 60oC / -4 to 150oF	
Operating Operating	0 to 40oC / 32 to 100oF	
Communications	RS232 38400 Baud, 2 wire & screen RS485 38400 Baud, 2 wire & screen Ethernet 100 Mbps TCP-IP	SIT required to check ROV interfaces. ACFM Instrument is mounted on ROV.
Power	24V, 5A from ROV.	
Maximum ACFM Scan Speed	50 mm/s	

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