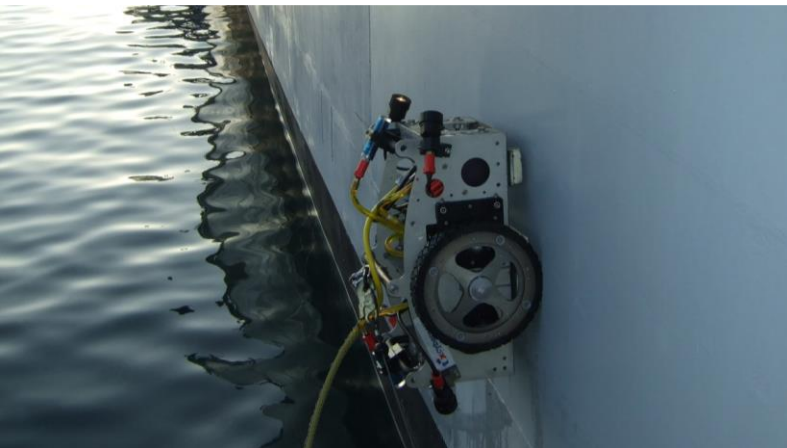


Magnetic Hull Crawler (MHC)

An Amphibious Hull Inspection and Cleaning Robot



Description

The MHC is a remotely operated system dedicated to inspection, cleaning and maintenance of ferromagnetic surfaces.

The MHC can crawl in air or subsea thanks to permanent magnets. Depending on customer needs, the systems can be equipped with various payloads such as cleaning, gauging, thickness measurement, crack detection or surface preparation.

The Magnetic Hull Crawler is particularly well suited for applications such as offshore floating units cleaning and class-certification surveys (ships, O&G drilling rigs or production units, floating offshore wind) or confined spaces (tanks, pressure vessels, offshore wind foundation piles).

Main Components

- An amphibious multi directional carrier with permanent magnets
- A state of the art remote control package for single operator use
- Evolutive payload such as underwater cavitation tool or HP (high pressure) jetting tool, UT probes, cameras.

Value for Clients

HSE risks mitigation

The MHC performs hull cleaning and inspection up to 50m underwater, in the splash zone and above water, removing the need for divers in the splash zone and rope access technicians in highly hazardous areas.

A versatile and evolutive solutions

Thanks to its permanent magnets and its payloads capacities, the MHC performs various tasks from surface cleaning - using cavitation to protect surface coating - to wall thickness measurement for class-certification survey.

Operational efficiency

The MHC can be operated with minimal training of conventional personnel by a reduced team of 2, and hence be deployed off the critical path. Live video stream enables remote expert contribution. It has a minimum footprint of 1 sqm and speed of operations up to 0,3 m/s.

Typical Deployment

- Ship shape vessels (e.g. FPSO, drilling ships)
- Floating offshore wind floaters
- Fixed offshore wind monopiles
- Internal Pipelines (from diam > 1000 mm)
- Internal steel tanks
- Onshore storage tanks



Typical Missions

- Hull, floaters and monopiles remotely operated routine Inspections
- Hull, floaters and monopiles cleaning
- Ultrasonic wall thickness measurements
- Internal and external storage tank inspections
- Internal pipeline cleaning and inspection

Main Characteristics

MHC carrier

- 50m depth rating
- 80m-long umbilical
- Standard power supply & remote controller
- Subsea cameras
- Subsea lights (800 lumens – 85° wide angle beam of light)
- Vehicle weight in air: 60kg (w/o options)
- Vehicle weight in seawater: 35kg (w/o options)
- Permanent Magnet power: 210 Kg @ 20mm

Cavitation tool

- Underwater cavitation cleaning head
- Two rotational jets with a rubber compliance and adjustable wheels kit
- One High Pressure group (46 l/min @ 180 bars) using seawater

Standard Payload

- Cavitation cleaning for underwater application
- UT (ultrasonic) probe for thickness gauging
- Acoustic positioning system for underwater applications

Optional Payload

- High pressure jetting (500bar) for above-water application
- Cathodic protection reading tool for cathodic protection inspection

