



TECHNICAL SPECIFICATIONS

Hybrid crawler

Hybrid crawler for liner and coating inspection services

While everyone preaches 'time is money', most companies are still spending a lot of time and funds on erecting and removing scaffolding. Not to mention the unnecessary risks taken by personnel entering confined spaces and working from heights. Invert Robotics offers an innovative solution to tackle both business barriers and offers additional benefits besides.

Our hybrid robotic crawler can assist on all your inspections of lined or coated assets. The revolutionary vacuum system is even combined with rare earth magnets. This ensures improved adhesion with only rubber/silicone tracks touching your liner. The hybrid model was originally developed in 2019 in conjunction with a large chemical manufacturer to inspect their glass-lined reactor vessels. From these early testings we have seen interest beyond glass-lined vessels, such as rubber/PTFE storage tank linings or fragile vessel paint coatings.

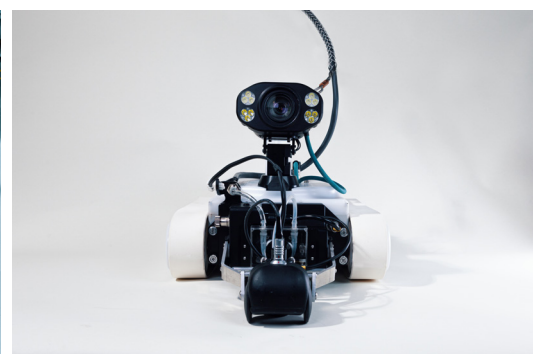
Our hybrid crawler is, unlike regular models, designed to allow ½" offsets between the carbon steel and neodymium magnets. The vacuum system is also particularly advantageous because it guarantees

adequate adhesion throughout the inspection, while traversing over repaired or lapped sections. The crawler is connected to the control case via an umbilical, this provides the robot with power and supports all kind of data communications. The user-friendly software enables the inspector to prepare customer reports and review previous documentation, in addition to driving the robot and controlling the camera.

Our hybrid solution is optimal for visual inspections due to its 30x optical zoom camera. With this resolution, we'll find and measure all kind of defects. It will also allow for an array of different inspection methods and conditions, including UTT measurements (wall thickness).

The robot, controls, and umbilical are packed in two light-weight cases that allow for easy ground and air transportation.

Request a demo or contact your local Invert Robotics sales representative for additional information. With seven offices around the globe, Invert Robotics can quickly respond to your inspection needs.





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Crawler Size

Mass	12.3kg (27.1lbs)
Dimensions	425W x 400L x 300H 16.8W x 15.7L x 11.8H inch
Main construction materials	UHMWPE, Aluminium, Rubber, Magnets
Maximum cable length	Standard 40m (131ft)

Equipment/Asset applications

Maximum height	50m (164ft) Tall
Minimum diameter	Greater than 1.5m (5ft)
Maximum surface roughness	Cleanliness is more important. With increasing roughness (over >Ra 6.3-micron (Ng)) vacuum will contribute less
Surface materials allowed	Any smooth material such as Glass, Plastics, Composites, Stainless steel, Aluminium
Allowable contaminants	Dirt and dust

Suction system

Adhesion mechanism	Active sliding suction Rare Earth Magnets
Adhesion redundancy	Multiple redundancy built into the suction system
Vacuum pump	Yes, integrated
Magnets	Four on outside, four on underside

Payload

5kg (11lbs) payload permissible
Visual inspection offered as standard payload.
Other payloads by request include UTT
Powered from robot

Visual Inspection

Camera specs	1080p, 15fps
Camera streaming	Yes, in real-time
Camera recording	Yes
Optical Zoom	30x
Integrated lighting	Yes
Defect resolution	65 micron (close) 0.6mm at 10m

Performance

Power consumption	200W - Nominal 500W - Peak
Power supply	36VDC
Operational temperature range	0 - 50-degree Celsius 32 - 122-degree Fahrenheit
Maximum linear speed	200mm/sec 7.9inch/sec

Liner Limitations

Liner thickness	Designed for 3.2mm (1/8")
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