



ULC

PIPELINE
ROBOTICS

VGC

ROBOTIC VISUAL INSPECTION OF LIVE GAS DISTRIBUTION MAINS

12"-48" | CAST IRON, STEEL & PE MAINS

Using our VGC crawlers, gas companies can assess the conditions of their mains and locate cracks, damaged pipe, unknown branches, service tees, valves, fittings, water intrusion or debris. The inspection is performed while the main remains live without any interruptions in service.



PRODUCT BENEFITS

Safe, No-Blow Launch Into Live Gas Mains

Using our advanced launching equipment, our crews are able to launch our crawler into live gas mains and operate it without disrupting customers' gas service.

High Quality and Detailed Inspection

Our VGC Crawlers feature a high resolution pan/tilt camera as well as high intensity LED lighting for a clear view of details within the gas main.

Reduce Excavation With Trenchless Tech

From one small excavation in the street, our crawler can access up to 1,500' of gas main to reduce the amount of roadworks required to visually assess your gas mains.

Improved Project Performance

Using the VGC Crawlers to inspect live gas distribution mains prior to pipeline rehabilitation projects helps to ensure project efficiency and performance.

Small Work Site Footprint

Our crawlers only require a small excavation in the roadway and can adapt to your gas main using a variety of fitting and valve combinations.

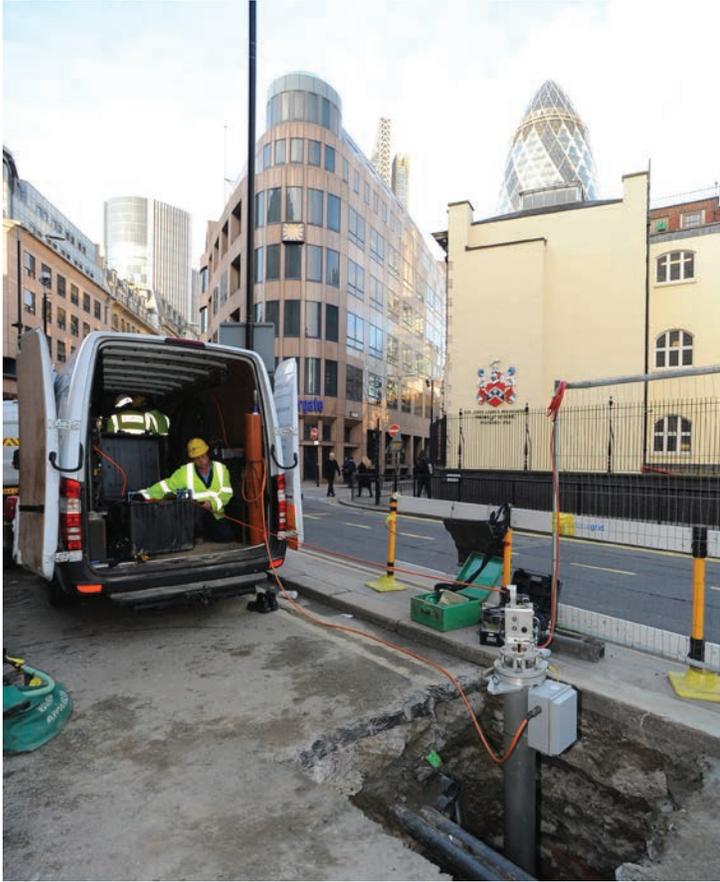
Wide Range of Uses and Applications

VGC Crawlers can also be used to identify graphitization and corrosion, inspect welds, locate debris, identify damage and verify proper valve functionality.

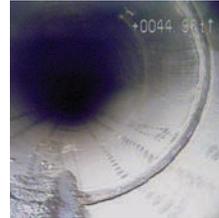
VGC

ROBOTIC VISUAL INSPECTION OF LIVE GAS DISTRIBUTION MAINS

12"–48" | CAST IRON, STEEL & PE MAINS



ULC Pipeline Robotics developed the VGC Crawler Systems to assess and evaluate up to 1,500' of pressurized medium and large diameter gas distribution mains without taking them out of service. These crawlers enter through small tapped holes to provide a detailed look inside the main while reducing disruption caused by excessive excavation and roadworks.



CORROSION INVESTIGATION

High resolution pan/tilt cameras on the crawlers can assist in identifying various types of corrosion or inspecting welds.



AID IN LEAK DETECTION

VGC Crawlers are able to assist in leak detection in gas mains by identifying cracks in the pipe wall or obvious leak paths.



DAMAGE PREVENTION

Pipeline features can be marked out on the street surface prior to excavation to prevent contractor damage to mains and services.



LOCATE AND ASSESS FEATURES

Assess features inside gas mains, such as valves, to determine proper orientation, type and proper functionality.

BENEFITS FOR LEAKAGE PROJECTS

The visual inspection provided by the VGC Crawlers can aid in leak detection by performing a high resolution, detailed inspection of the pipe wall. Evidence of leaks can be found in the form of:

- > Cracks in the pipe wall
- > Visual evidence of corrosion
- > Visual identification of water intrusion locations
- > Identification of unknown leak prone features

Using the custom developed onboard sonde, the location of the leak can be pinpointed from above ground for efficient repair.

IMPROVE YOUR INSERTION PROGRAM

01

Identify undocumented offsets, fittings, bends, syphon pots, valves and protruding services that may block the PE pipe as it is being inserted.

02

Reduce delays that cause extended periods of service disruption and prolonged road closures that negatively affect public perception.

03

Locate features in the main that may damage the PE pipe during insertion for repair or removal before damage occurs.

04

Improve your ability to plan insertion projects by avoiding project delays and increased project costs due to unknown obstacles.

05

Ensure the main is a good candidate for insertion and identify all anticipated costs before the insertion project begins.



INSPECTION CRAWLERS

Robotic inspection crews utilize the Small VGC and Large VGC Crawlers to visually assess live medium and large diameter gas mains. These crawlers are equipped with high resolution pan/tilt cameras with high intensity LED lighting to provide a clear and detailed view of the main.



SMALL VGC ROBOTIC INSPECTION CRAWLER FOR LIVE GAS MAINS

The Small VGC is a tracked crawler system that enters 12"-18" mains through a 3" tapped hole. Once inside the main, the camera lifts upwards to center the pan/tilt high resolution camera and lighting in the main.

From a single excavation, the crawler can assess up to 700' of main and, using a custom developed sonde, the crawler is locatable from the street surface with pinpoint accuracy.

- > 12"-18" Metallic Mains and PE Mains
- > Pan/Tilt High Resolution Camera
- > No-Blow Launch
- > Small Site Footprint

LARGE VGC ROBOTIC INSPECTION CRAWLER FOR LIVE GAS MAINS

The Large VGC is a tracked crawler system that enters 20"-48" metallic and plastic mains through a 4" tapped hole. Once fully inside, the tracks expand outward allowing the crawler to ride above the bottom of the main, navigate past debris and provide a more centered camera view.

From one excavation, the Large VGC can inspect up to 1,500' of main. The crawler also has a custom developed sonde to locate features in the main from the street surface.

- > 20"-48" Metallic Mains and PE Mains
- > Pan/Tilt High Resolution Camera
- > No-Blow Launch
- > Small Site Footprint

DETAILED REPORTING AND DATA

VGC Gas Main Inspection		Main Location and Comments
Distance (Meters)	Notes	
5.9	45° Bend	Unmapped Service
19	Service Tap	
42.5	22° Bend	Slight offset
60	Wide Joint Gap	
78.5	Service Tap	Service slightly protrudes into main
96.5	Service Tap	Area of dust and small stones

In addition to viewing the inspection in real-time, inspections can be recorded to DVD or digital media to keep on record. Crews have the ability to detail the inspection through written reports that detail features and anomalies in the pipe as well as their location.



LIVE GAS
MAIN ENTRY
METHODS

ULC's VGC Crawler Inspection Systems can adapt to your mains using a variety of industry standard fitting and valve combinations that include ALH Systems, weld fittings, electrofusion fittings and bond and bolt style fittings. We would be happy to discuss entry methods with you or determine if VGC entry can be accomplished using your preferred equipment and methods.



MINIMAL TAP
HOLE SIZES

The VGC Crawlers enter live gas mains through 3" and 4" tap holes and then expands to provide a more advantageous view from within the pipe.



Left: Small VGC No-Blow Launch Tube installed on an ALH System 3 for crawler entry into a cast iron main. **Middle:** Small VGC No-Blow Launch Tube installed on an ALH System 3 for crawler entry into a cast iron main. **Right:** Illustration shows how the Large VGC tracks are able to expand, allowing the crawler to enter the main through a 4" tap hole.

PIPELINE ROBOTICS | RESEARCH & DEVELOPMENT | UTILITY FIELD SERVICES

On a daily basis, energy and utility companies face infrastructure, technical and operational challenges that range from government mandates to public concern and budget restrictions. At ULC Robotics we develop and deploy technology which assists our clients in overcoming these issues, allowing them to get more done with fewer resources.

Our team develops advanced robotic tools and cameras capable of entering live pressurized gas mains to perform inspection and repair. We can analyze and redesign standard processes in order to decrease the time and costs associated with planning and performing routine work. The results we produce enable utility companies to reduce disruption to the public by minimizing excavation and simplifying the engineering process. ULC Robotics can even supply a supplemental workforce to tackle technical services; such as meter exchanges and inspections.

Contact ULC Robotics at 1-631-667-9200 or visit us on the web at www.ulcrobotics.com