

VARIABLE GEOMETRY CRAWLER

Robotic Internal Inspection Device for Large Diameter Gas Mains

The ULC Robotics Variable Geometry Crawler (VGC) provides gas companies with live, high-resolution video inspection of large diameter gas mains. Using the VGC, gas companies can assess the conditions of their mains as well as locate cracks, damaged pipe, unknown branches, service tees, valves, fittings and water intrusion or debris. This inspection is performed while the main remains live without any interruptions in service.

No-Blow Conditions

Developed specifically for the inspection of live gas mains, the VGC enters the main under no blow conditions. The VGC is designed to operate in pressures up to 100 psi.

Flexibility

The VGC is very flexible in its usage. The crawler can operate in pipes with diameters ranging from 20- to 48-inches. The crawler was designed with a variable geometry frame to make the transition to different pipe sizes very simple.

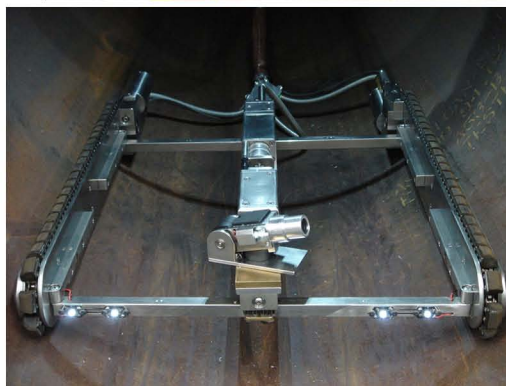
Professional Inspection Services

ULC Robotics will help you plan your next pipeline inspection project and provide professional inspection services using the VGC Robot. Pre-project planning assisted by ULC can help you maximize the benefits of live internal inspection. As part of our inspection services, ULC will provide video recordings in the format of your choice as well as detailed reports and documentation designed to aid in the engineering evaluation of your pipelines.

Applications

Inspection of 20-48-inch live mains operating at up to 100-psi, under no blow conditions including:

- Assessment and Evaluation
- Location of Water Infiltration Sources
- Location of Broken or Cracked Pipe
- Location of Joints, Taps, or Branches
- Valve inspection for proper operation, setting and type
- Pre-lining and Post-lining surveys



Entry System

Crawler

Developed with Support from NYSEARCH and the Northeast Gas Association

VARIABLE GEOMETRY CRAWLER

Features

- Robotics Pipeline Inspection Services Using VGC provided by ULC Robotics
- Perform Inspection of 20" to 48" Cast Iron and Steel Pipelines
- Inspection of 12" to 18" Pipelines Available in Spring 2008
- Operates in Pressures up to 100 PSI
- Enters Pipeline through 4" Tap Hole
- For Entry into Cast Iron Pipe use ALH System Three or other Conventional Tapping Equipment
- For Entry into Steel Pipe use TDW Weld Fittings or other Conventional Weld Fittings
- Crawler can Travel up to 750' in each Direction for a Total Inspection Distance of 1500'
- Navigates through a Limited Number of Bends and Offsets
- High Resolution Pan and Tilt Camera Provides Detailed Inspection of Pipe Wall
- Entry System Retractable Bullet Includes Camera and Lighting to Aid Robot Launch and Retrieval and Protect Cable
- Monitor Displays Digital Line Distance

Specifications

Environment

Pressure Rating: 100 psi
Access Hole: 4-inch diameter

Entry System

Description: Launch tube with a retractable bullet, No-Blow packing gland
Requirements: 4-inch tap hole; control valve such as ALH System One

Camera

Description: High-resolution miniature pan and tilt camera
Camera: 1/2 ccd chipset
Resolution: 470 lines, color
Light Sensitivity: 0.05 lux
Construction: Aluminum housing

Monitors

CRT Monitor: Two 14-inch color monitors
Resolution: 480 lines, color
Accessories: Two optional-use sun visors

Crawler Motors

Drive Motors: Two 24-volt variable speed
Scissor Motor: 24-volt variable speed
Pan & Tilt Motor: 12-volt variable speed
DC Motor Controller: Current limiting
Performance: Gripping adjustment with variable wheel friction
Construction: Aluminum housing with stainless steel hardware

Launch Tube

Thether Feed Motor: 12-volt variable speed, sealed motor
DC Motor Controller: Current limiting
Construction: Aluminum with stainless steel hardware

Reel System

Description: Reel with 1000' cable
Construction: Kevlar reinforced polyethylene cable, rollers to protect against cable chafing
Strain Relief: Cable is attached to crawler with a strain relief



12-18-inch Version
Coming Spring '08

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