

# LASER VIDEO INSPECTION

ANALYSES & IDENTIFIES ACCURATE  
INTERNAL PIPELINE CONDITION  
AND FLOW CAPACITY IN "REAL-TIME".



# PIPELINE INSPECTION

AGR LASER VIDEO INSPECTION ANALYSES AND IDENTIFIES ACCURATE INTERNAL PIPELINE CONDITION AND FLOW CAPACITY IN “REAL-TIME”.

AGR Laser Video Inspection is performed using robotics, laser and video technology to collect and report internal pipeline data, condition and flow capacity.

## ANALYSES & IDENTIFIES

- Flow Capacity
- Internal Pipeline Diameter
- Pipe Distortion and Ovality
- Defects and Imperfections
- Corrosion, Scaling & Deposits
- Cement Lining Damage
- Foreign Obstructions
- Welding Quality



Typical inspection crawler with camera



SuperVision line feeder and crawler

## PIPELINE INSPECTION

A robotic vehicle travels through the pipe projecting a 360° line with a laser using Hough Random Sampling around the internal wall of the pipe.

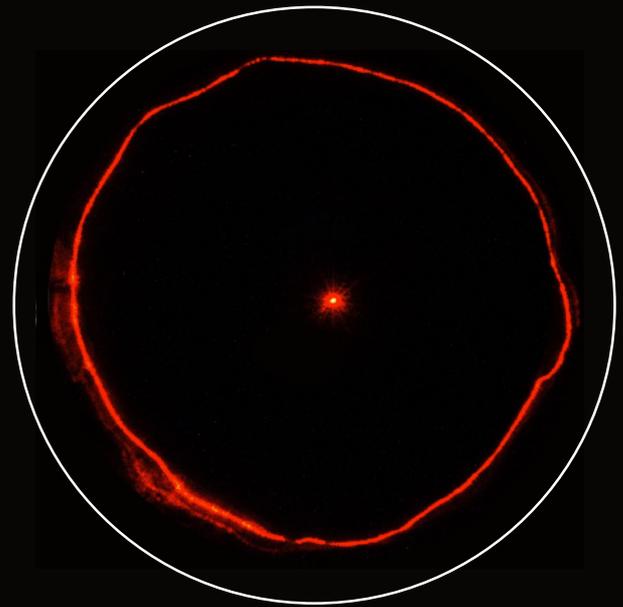
The visual appearance of this line is recorded in real-time at 30 frames per second using a Closed Circuit Television Video Camera (CCTV). Still video images are extracted from the video using a recursive Gaussian filter to produce clear live video or still-images of the inside of the pipe wall.

This data can then be mapped using profile points from the internal structure of the analyzed pipe to construct a 3D OpenGL model of a pipe section.

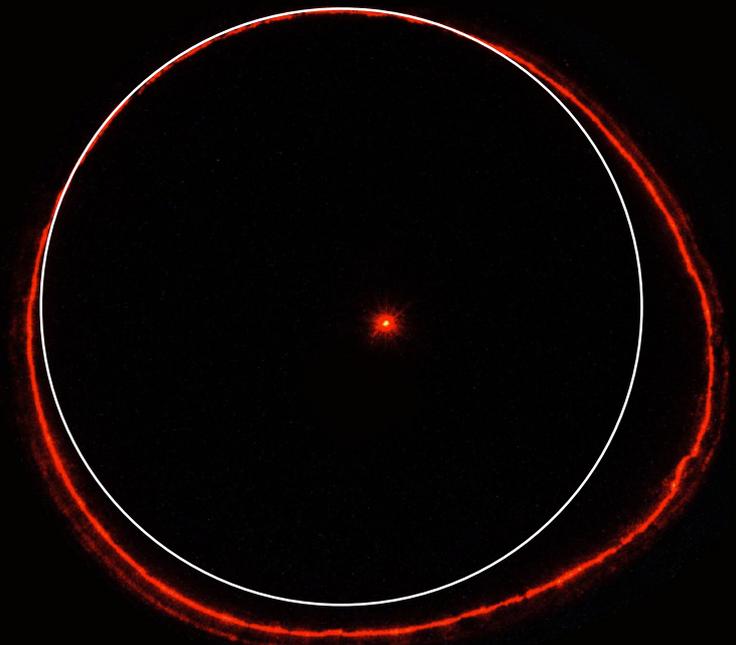
## BENEFITS

- Real-Time Accurate Results
- Immediate Identification and Localisation of Problems
- Quickly Determine Size of Defects and Foreign Obstructions
- Simple Visual Presentation of Results (Digital)
- Adaptable to All Pipe Sizes
- Can also be used in Liquid Filled Pipes
- Easy to Quality Control the Inspection

A ROBOTIC VEHICLE TRAVELS THROUGH THE PIPE PROJECTING A 360° LINE WITH A LASER USING THE HOUGH RANDOM SAMPLING METHOD (HRSM) AROUND THE INTERNAL WALL OF THE PIPE.



**PROBLEM: SCALING**  
BUILD UP OF DEPOSITS



**PROBLEM: OVALITY**  
DEFORMATION OF PIPE GEOMETRY



IMMEDIATE REAL-TIME VISUAL IDENTIFICATION  
AND LOCALISATION OF PROBLEM AREAS

# FREE-FLOATING HYBRID PIG INSPECTION

HIGH SPEED REAL-TIME DIGITAL PIGGING & INSPECTION WITH UNLIMITED PIPE LENGTH AND BENDS

## HYBRID PIG INSPECTION

AGR Free-Floating Hybrid Pig Inspection enables simultaneous pigging and inspection, all in one operation.

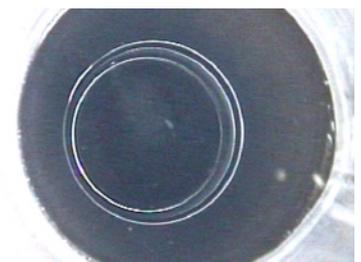
It can also deliver accurate digital visual inspection results at a rate of 6m per minute. In addition it has an unlimited theoretical inspection length and equally unlimited number of pipe bends.

This unique solution provides versatile real-time inspection which is flexible and customized to suite any type of pigging and inspection operation .

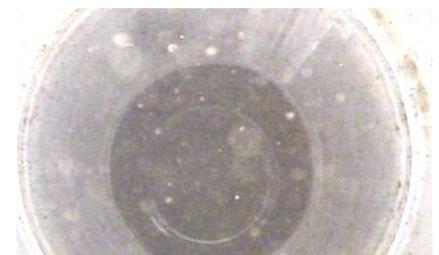
## BENEFITS

- High Speed Pigging and Inspection
- Unlimited Bends
- Unlimited Inspection Length
- Digital Real-Time Inspection
- 6m pr sec Data Transfer
- Customises to all Pipe Sizes
- Liquid & Gas Filled Pipes
- Real-Time Accurate Results
- Immediate Identification and Localisation of Problems
- Quickly Determine Problems
- Simple Post-Inspection Quality Control

Typical Flexible Riser Inspection Tool



Auto focus CCTV Camera



CCTV Camera with Halogen Lighting

# SUBSEA FLEXIBLE RISER INSPECTION

A NEW METHOD FOR REAL-TIME PIGGING AND INSPECTION USING FIBER OPTIC TECHNOLOGY



## SUBSEA INSPECTION

The AGR Subsea Flexible Riser Inspection Tool uses super thin fiber optic cables enabling high speed data transfer which can be integrated into the ROV eliminating the need for a separate umbilical.

Also by using fiber optic technology the AGR Subsea Flexible Riser Inspection Tool has a longer inspection length than traditional methods.

## BENEFITS

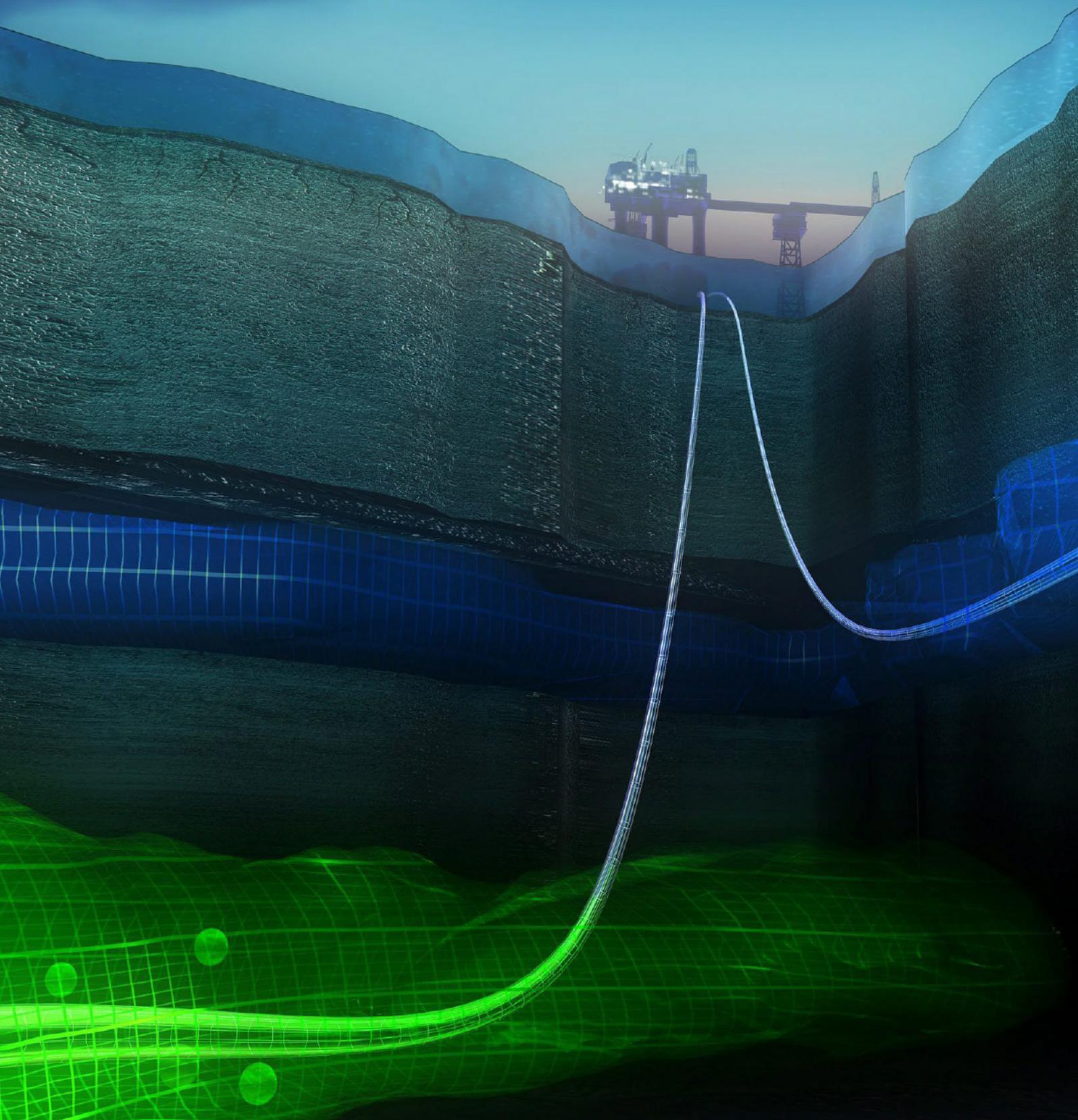
- Longer inspection length than Traditional methods
- Fiber Optic Data Transfer
- Real-Time Accurate Results
- Simple Visual Presentation of Results (Digital)
- Adaptable to All Pipe Sizes
- Can also be used in Liquid or Gas Filled Pipes
- Easy to Quality Control
- ROV Integration

Real-Time Visual Data of Deformities



Easy Identification of Problem Areas





USING SUPER THIN FIBER OPTIC CABLES IT ENABLES HIGH SPEED DATA TRANSFER AND CAN BE INTEGRATED INTO THE ROV ELIMINATING THE NEED FOR A SEPARATE UMBILICAL.

# ABOUT AGR GROUP



AGR Group is a leading provider of essential services and technologies to the international oil and gas industry. Our services range from assisting small exploration companies with their first licence applications, through to constructing and managing ambitious drilling programmes for major organisations. In addition, we provide expertise, technology and critical solutions for exploration, development, production and maintenance projects for some of the world's largest oil companies.

We have a worldwide reputation for our innovative, safe, environmentally-friendly and cost-effective solutions to key exploration and production challenges, and have established a leadership position in a number of key sectors. We focus on growth and earnings performance while pursuing sound and ethical business practices.

We have three operating divisions:

- AGR Petroleum Services
- AGR Drilling Services
- AGR Field Operations

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