



# INTEGRITY, REPAIR & MAINTENANCE //

Products & Services

INNOVATIVE KNOW-HOW



# ABOUT //

Online Electronics (OEL) was formed in 1996 and acquired by the IK-Group in 2015. OEL provides a wide range of pig locating and detection equipment and datalogging and testing systems for the pipeline industry, from construction, through operational life to de-commissioning.

IK-Group perform corrective maintenance of valves and piping on live systems based on proprietary and field proven methods. The service includes analysis for on-line repair and modifications of Hot and Cold systems focusing on safe solutions that reduce downtime.

Once a pipeline has been commissioned and is operational, pipeline pigging is still an important consideration. Routine maintenance is vital in order to ensure regular and safe operation throughout a pipeline's lifetime.

Routine pipeline cleaning and inspection will improve the efficiency of a pipeline resulting in:

- Reduced operating and maintenance costs
- Increased pipeline lifetime
- Improved product output
- Improved pipeline performance, flow assurance and integrity

When maintenance and repairs are required to be carried out on a pipeline, specialised isolation tools can be used to isolate an area of pipework to enable this work to be carried out safely. This also removes the need to de-pressurise the line keeping downtime and costs to a minimum.

When it comes to pipeline maintenance, repairs & operation, one system does not suit all. The IK-Group work together to establish the optimum solution along with the necessary means of locating, tracking and data logging to ensure our clients can achieve maximum efficiency and performance from their pipelines.



## BRILLIANT ENGINEERING



## PIG TRACKING & LOCATING//

Routine pigging can present several challenges and the risk of a pig becoming lost or stuck should always be considered. Until located, lost or stuck pigs can result in considerable down time and significant extra expense.

### ELECTROMAGNETIC TRANSMITTERS

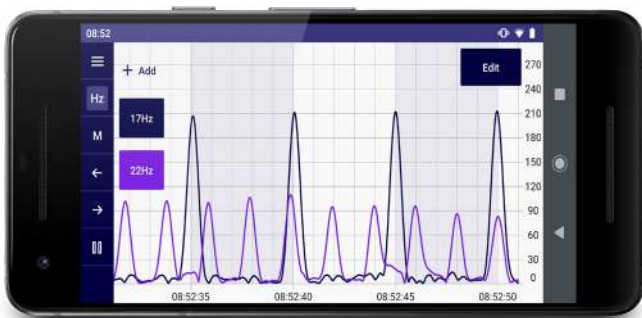
Electromagnetic transmitters allow for precise validation of a stuck pig's location and as a contingency method of confirming launch and receipt of pipeline pigs.

OEL can provide a wide range of ATEX certified EM transmitters designed to work in potentially explosive environments such as FPSOs, platforms, refineries and other locations where equipment must be protected from creating ignition or explosion.

### ELECTROMAGNETIC RECEIVERS

OEL's range of EMRx receiver systems allow for quick and exact tracking and locating of pigs fitted with electromagnetic transmitters. The location of a stuck pig can easily be identified with onshore, ATEX and subsea options.

Detection through very heavy walled receivers/launchers, pipeline bundles or Pipe-in-Pipe is possible.



### ELECTROMAGNETIC RECEIVER APPLICATIONS

OEL's range of intuitive and easy to use EMRx Applications can be used in conjunction with EMRx units and provide a graphical display of the signal being received, further facilitating the process of pig locating and tracking.

The applications also provide additional functionality such as tracking logs, marker placement and the ability to set EMRx parameters such as the colour coded LEDs displaying the received signal.

### FEATURES AND BENEFITS:

- Range of units suit all line sizes
- Specialist operators are not required resulting in less costs than other tracking & location options
- The transmitter can be adapted to become the pig body by fitting pig flanges, increasing the signal considerably.
- Transmitter and receiver parameters can be modified by the user without the need to return to manufacturer.

## PIG SIGNALLING

OEL's range of non-intrusive pig signallers accurately detect, signal and log the passage of pipeline pigs at critical points along pipelines onshore, offshore and subsea. Non-intrusive signallers can be installed quickly and easily to the pipeline. They can also be removed without difficulty if maintenance is required, eliminating the need to suspend production and avoid significant costs as a result.



### MAGNETIC PIG SIGNALLERS

OEL's range of compact pig signallers are for use on onshore pipelines in addition to offshore platforms and FPSOs. In addition, a subsea magnetic signaller rated to 3000m is available.

#### Features and benefits:

- Removes uncertainty of pig passage
- Time and cost saving
- ATEX and UL CSA certified models available
- Acoustic link option allowing vessel to "listen" for pig receipt from launch site (subsea version only)
- Multiple communication options including local indication and remote signalling
- Up to 100 logged events
- Graphical display and high brightness LED
- Single control button and intuitive menu system



### ULTRASONIC PIG SIGNALLERS

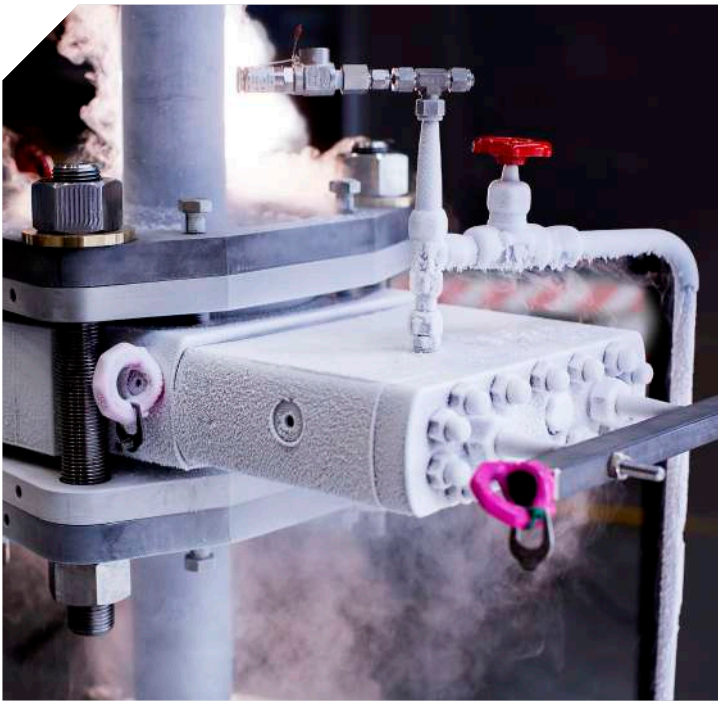
The ID5000 Active Pig Signaller signals the passage of pigs in liquid pipelines with the need for magnets or transmitters. The ID5000A can also be used to confirm the location of pigs in the receiver and for wax or debris analysis.

The ID5001 and ID5002 Passive Signallers signal the passage of pig in any medium without the need for magnets or transmitters.

#### Features and benefits:

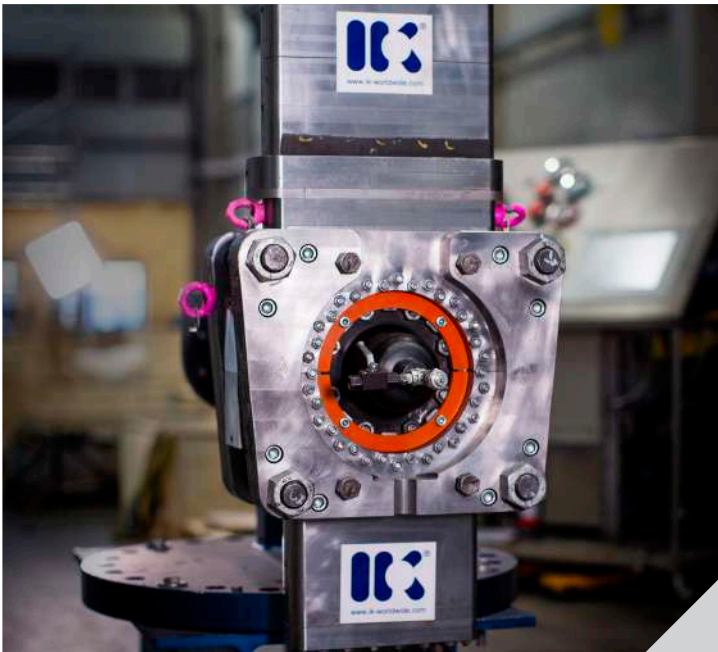
- Removes uncertainty of pig passage
- Time and cost saving
- ATEX certified and intrinsically safe models available
- Up to 100 logged events
- Main housing can be mounted remotely up to 10 metres from sensor for use on buried pipelines or where access is limited





## ISOLATION WITHOUT SHUTDOWN//

The AOGV (Add on Gate Valve) is a field proven patented technology which inserts an isolation spade on a live flanged connection, thereby reducing downtime and eliminating the need for extensive isolation activities.



Isolation activities and process segregation in plants is necessary to create a safe barrier for intrusive maintenance, such as:

- Drainage (downtime, large volumes)
- Venting (downtime, HSE)
- Flushing (downtime, high volume treatment)
- Recommissioning and start up

Following completion of the isolation operation, the AOGV is removed and the flange coupling is recommissioned to its original state. The AOGV enables safe isolation and segregation of the process system and reduces the volume for cleaning, thereby saving volume of cleaning fluids used, time and cost.



## REPAIR AND SEALING CLAMPS

IK design and deliver clamps for repair and sealing of structures, risers and pipelines. The clamps can be designed for a large variety of dimensions and load situations.

- Caisson clamps
- Conductor clamps
- Remotely operated clamps
- Structural clamps
- Pipeline clamps
- Structural sealing clamps
- Buckle reinforcement clamps

# PATHFINDER FOAM CALIPER

Pipeline Innovations Limited (PIL) is a UK based company that provides pipeline geometry and data acquisition services across all stages of a pipeline life cycle from construction right through to decommissioning and abandonment.

PIL work in partnership with OEL, and IK Norway to support a broad base of pipeline cleaning, inspection, flow assurance and integrity services, working with a wide range of international pipeline operators and pipeline integrity service providers. The full range of services includes pipeline proving, geometry surveys, pipeline data logging, debris mapping and



## PATHFINDER FOAM CALIPER PROVING

The Pathfinder was specifically designed for initial pipeline proving in lines with no pigging history and or potential reductions in bore due to debris build up where an operator plans to initiate a pipeline pigging or ILI campaign. The Pathfinder has established a growing track record as a low risk, cost effective and innovative technology solution for measuring pipeline geometry, internal bore, detecting and measuring dents, ovality, buckles, wrinkles and the presence of debris/pipe wall deposits.

### Typical applications for Pathfinder include:

- Pipeline proving and bore measurement in pipelines with little or no pigging history
- Locate & size bore anomalies such as restrictions, dents, partially closed valves
- Pipeline debris measurement and assessment
- Prior to a cleaning campaign to qualify existing debris volume
- Used during the campaign to confirm pig performance and cleaning progress
- Used at the end, to confirm cleanliness level
- Go/no gauge for ILI and or other technologies
- Pathfinder can be run periodically to trend and monitor the performance of long term operational cleaning strategies

The Pathfinder is currently available from 4" up to 30" nominal size. With a maximum operating temperature of 70°C and a pressure of 400bar it can be used in wide range of applications and demanding environments. Designed to be mechanically simple, easy to handle and easy to use, the Pathfinder does not require specialised technicians infield and can often be used by client personnel.

## PIPELINE PIG DATA LOGGERS (PDL)

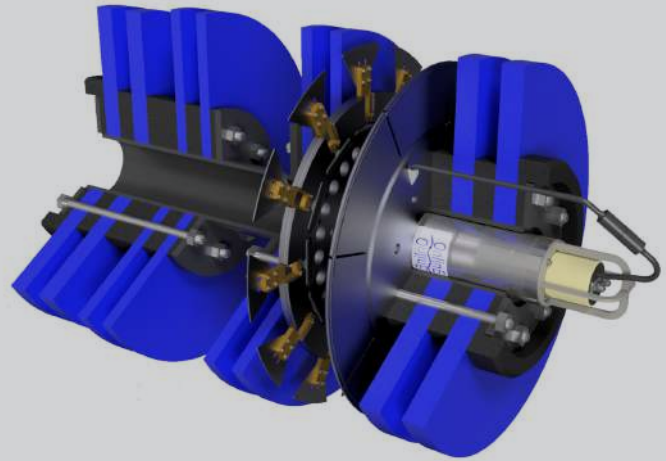
The PDL is a multi channel 'bolt on' device for measuring and recording environmental and ride parameters on utility pigs used in oil and gas pipelines. The PDL uses well proven technology used in the PIL range of geometry inspection tools. The PDL is compact and robust and this easily installed on to most pipeline pigs.

### Typical applications for the Pipeline Logger include:

- Cost effective pig run profile and performance monitoring
- Optimisation of production and or pipeline cleaning programs
- Identify potential reductions in bore due to third party damage, debris or pipewall deposit

# UNPIGGABLE PIPELINE SOLUTIONS

With their versatile product and service range, the IK-Group have the ability to change any pipeline from unpiggable to piggable. The first step is to understand why you want to pig as this helps define the type of pigs that are necessary and as a consequence identifies the extent of the unpiggable problem.



## PIPELINE ACCESS

Lack of pipeline access can be defined a number of ways. The layout can be poorly thought out with little available space or pig traps have not been fitted.

There are many pipeline access solutions from hydrocarbon displacement with hi-friction pigs, to piggable plugs to IK's AOGV that allows for an isolation to be created with zero production losses.

## PIPELINE GEOMETRY

Typically a combination of features can create challenging pipeline geometry. This can range from simple cases such as 3D bends with full bore tees in smaller diameters to the more complex including non-return valves, subsea connectors with differing internal dimensions to the pipe or flowline, dual diameter pipelines and wye pieces. Existing pipelines, third party damage or landslips onshore or offshore can require careful assessment before pigging.

To assess the pipeline Pathfinder can provide a caliper-like survey. Alternatively, a SMART Gauge plate can facilitate the identification of a pipeline reduction location and can communicate this through the pipeline.

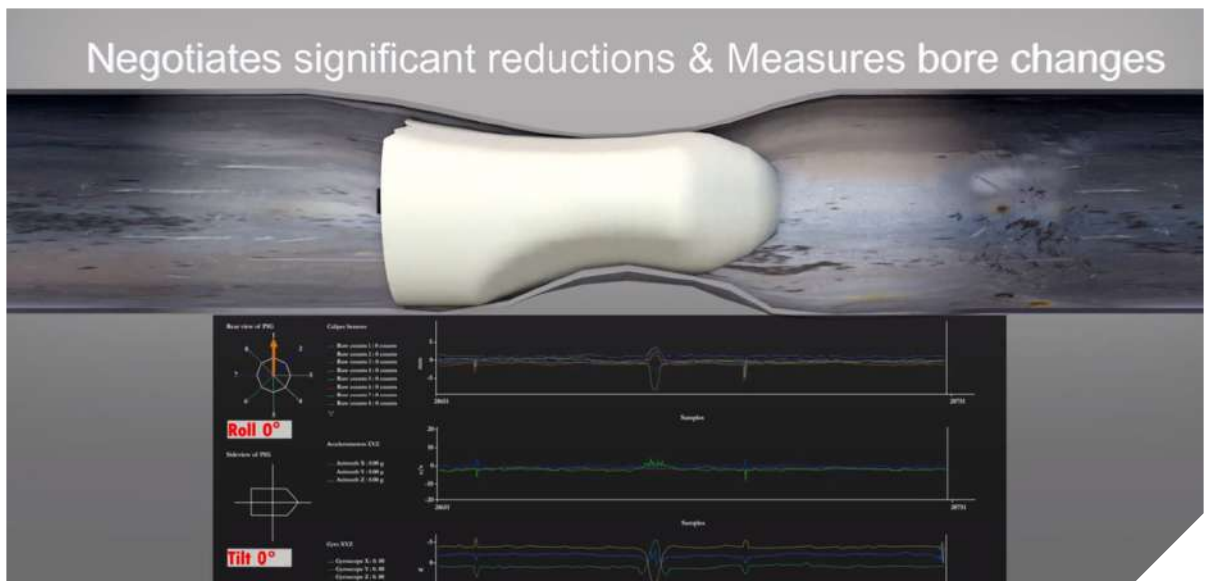
## DEBRIS

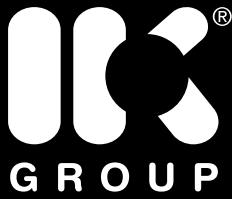
Piggability can be impacted by debris in the system that can inhibit an inspection tool's ability to inspect effectively or it can lead to production issues.

A pigging program can be developed which may start with running assessment tools prior to determining the best process for cleaning the pipeline.

## ASSURANCE

Concerns over locating pigs and knowing that the pig has passed certain is often a point of concern. OEL's range of pig tracking and pig signallers can provide the assurance that the operation is progressing or if this is not the case, can be used to determine where any pig is located with this information being communicated via a multitude of platforms.





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INNOVATIVE KNOW-HOW

## BRILLIANT ENGINEERING IS THE DNA OF THE IK-GROUP //

We make your operations run safely and profitably. Onshore and Offshore, Topside and Subsea. With the clever use of proven technology, we have solved some of our industry's most complex challenges.



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