The IK Group consists of three companies: Online Electronics, IK-UK and IK-Norway. 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 for the pipeline industry, from construction, through operational life to de-commissioning. Its sister company IK-UK was formed in 2010 and acquired and renamed by IK Group in 2013. IK-UK designs, manufactures and tests pipeline pigs and isolation tools for the Oil & Gas Industry. IK-Norway is a niche supplier of solutions to the pipeline industry, focusing on products and services for subsea during pre-commissioning and pipeline operations.

The IK Group is also in JV in Saudi Arabia through IK-Saudi - a manufacturing company meeting its local content obligations whilst providing international standard pigging/scraping tools in Saudi Arabia, with both manufacturing and engineering domiciled in Dammam, Eastern Province.

With over 20 years’ experience, OEL is the technological market leader in pig tracking and pig detection. Using acoustic, electromagnetic, magnetic and ultrasonic technologies combined with electronics expertise, OEL can meet the demands of any given application.

IK-UK provide an integrated pigging solution by combining a full range of pipeline pigs along with tracking and locating devices. Pigs can be fitted with magnets to remove ferrous debris from the inside of the pipeline or to operate magnetic non-intrusive signallers. The majority of IK-UK pigs can be designed to house Online Electronics tracking devices.

IK-Norway 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.

Working directly with the client and utilising the latest CAD-CAM systems and production methods, IK together with Online Electronics can provide solutions for integrity maintenance, repair and operation of a pipeline throughout its lifetime.
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.

All pipelines will deposit unwanted materials onto the internal pipe walls that over time can build up causing a restriction to the flow and negatively impacting the pipeline’s performance. In addition, operating pressures will rise resulting in increased load on pumps and ultimately higher operating costs. Pipeline corrosion is another issue resulting from the absence of a regular pipeline maintenance program.

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 depressurise 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.
A regular pipeline cleaning and inspection program is vital to ensure efficient performance. IK-UK have a sound capability in design, manufacture & testing of a wide range of pigs capable of addressing the potential challenges facing a client during the maintenance & operation of their pipeline.

**BI-DIRECTIONAL DISC PIGS**

Bi-Directional Disc Pigs are used for condensate removal, pipeline cleaning, product batching and removal of debris from the pipeline. Bi-Directional Disc Pigs can also be configured specifically for wax removal operations.

**BRUSH PIG**

Brush pigs are designed to remove debris and deposits from the pipeline. There are a variety of brush materials which offer excellent cleaning properties to suit all pipeline materials and by-pass ports allow removed debris to be flushed clear of discs and brushes.

Bi-Directional Brush Pigs can also be configured specifically for wax removal operations.

**GAUGING PIG**

Gauging pigs are used to identify whether there are any items protruding into the pipe as well as to check for ovality in the line. When combined with an OEL SMART GRID® system, the approximate position of the defect in the pipeline can be established, resulting in significant cost savings.

**HIGH FRICTION PIGS**

High Friction / High Sealing Pigs are used to temporarily isolate a pipeline to allow for modification, maintenance or repair operations to be undertaken, resulting in reduced downtime and costs.

**CUP PIGS**

Cup Pigs are designed for condensate removal, pipeline cleaning, product batching, as well as the removal of debris from the pipeline. Cup pigs are especially suitable when encountering pipe ovality and varying pipeline internal diameter.
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 (EM)

OEL’s Electromagnetic transmitter and receiver systems enable quick and accurate locating and tracking of a stuck pipeline pig in a topside or subsea pipeline and with any pipeline medium.

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

Electromagnetic receiver systems allow for quick and exact tracking and locating of pigs fitted with electromagnetic transmitters. The location of a stuck pig can be identified with onshore, ATEX and subsea diver and ROV options.

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
- USB and/or Bluetooth endcap allows the transmitter parameters such as pulse rate, pulse width and power output to be modified by the user without the need to return the unit to manufacturer
- Can be configured at site if required with dedicated software

ACOUSTIC

If a pig is to be located in a subsea, liquid filled line over longer distances, OEL’s Acoustic pinger and receiver system enables quick and accurate detection from a support vessel, resulting in significant savings in vessel, equipment and personnel costs.

The location of a stuck pig can be identified using diver and ROV held hydrophone solutions including the option to relay the received acoustic signal to the surface via the ROV’s umbilical.
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.

4001D MAGSIG

The 4001D MAGSIG is suitable for pipelines of any size. It is both ATEX and IECEx certified. The 4001D MAGSIG quickly and accurately detects, signals and logs the passage of magnetic pigs at critical points along a pipeline, both onshore and offshore.

4000SD SUBSEA

The 4000SD non-intrusive signaller is a compact, self-contained, magnetic pig signaller which is suitable for harsh subsea applications and has an operating depth of 3,000m.

Features and benefits:

- Removes uncertainty of pig passage
- Quick and easy set up
- Versatile
- Acoustic link option allowing vessel to “listen” for pig receipt from launch site
- Time and cost saving
- Up to 99 logged events
- Graphical display and high brightness LED
- Events can be viewed locally and reviewed later
- Single control button and intuitive menu system
ID5000A™

The ID5000 Active Non-Intrusive Signaller signals the passage of pigs in liquid pipelines without the need for magnets or transmitters. This occurs when the ultrasonic “sound beam” being created and injected through the pipe wall of the line by the signaller is broken.

In addition to pig signalling, the ID5000A™ can be used to confirm the location of pigs in the receiver, providing assurance they have passed any isolation valves. The unit can also provide a profile of debris or wax found within the pipeline. This allows operators to gauge for any cleaning requirements or assess the level of debris in front of the pig to be removed.

ID5001P

The ID5000 Passive Non-Intrusive Signaller signals the passage of pigs in any medium without the need for magnets or transmitters. The ID5001P monitors the acoustic emissions created by the vibrational and acoustic noise generated as a pig moves through the pipeline. The unit then processes the emissions to identify the signature of a pig.

ID5002P

The ID5002P has the same features as the ID5001 with the additional design and certification for ATEX and IECEx for intrinsically safe requirements, and is suitable for liquid, gas and multiphase lines.

Features and benefits:
- Time and cost savings
- Removes any uncertainty over confirmation of pig passage and location
- Quick and easy installation
- Minimal set up required
- ATEX certified
- 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
SCAPER PASSAGE INDICATOR
IK-UK’s Scraper Passage Indicators (SPI) or Pig Signallers are installed into the launcher and receiver units to confirm the launch or arrival of a pig. They can also be installed at any point along the pipeline to indicate that the pig has passed a specific point or pipeline feature. These units can be supplied for mounting via Weld Boss, Flange Mount and with IK-UK supplied Isolation valve.

Local flag indicators, which can be manually reset and/or Relay Outputs for RTU/SCADA indication of pig passage can be specified. Modern design uses magnetic interaction to initiate sensor actuation, minimising complexity and maximising reliability, safety and ease of use.

Features and Benefits:
- Signallers can be mounted horizontally, vertically and on inclined applications
- Non-standard sizes available – please request information
- Customer Specific Materials of Construction for special applications are available
- No special tools required for installation
- Easy to install and remove
- Self-locating capability
- Adjustment for actual field dimension error with the provision of Adjustable Trigger Assembly
- Suitable for use with most test mediums
- Can be used in a range of pipe schedules
- Relay Outputs are either SPDT or DPDT and are complete with ATEX/IECEx/UL/CSA/INMETRO/TRCU certifications
- Custom Flags, Colours, Testing and Data packets quoted upon request.

Hydrostatic test certificates to IK-UK standards supplied with each unit.
IK-UK and IK-Norway deliver isolation services for piping and pipelines for various purposes by applying several techniques and tools. The subsequent reduction in downtime and logistic intensive operations results in vital cost savings for the client.

**FLANGE WELD TESTERS**
IK-UK’s Flange Weld Testers and Internal Weld Testers carry out localised pressure testing on new and existing flange welds and pipe components without the need for special tools. They are easy to install and remove and are suitable for use with most test mediums in a range of pipe schedules.

**HIGH PRESSURE ELBOW PIPE PLUG**
Pressure Pipe Plugs are recommended for hydrostatic test applications. This unit can be inserted directly into the elbow avoiding the need to weld and then remove a temporary flange which is an expensive and time consuming operation.

**TWIN-TYRED FLEXIBLE ISOLATION PLUG**
The Multi Plug or Twin-Tyred Flexible Isolation Plug’s main function is to provide a double block & bleed (DB&B) isolation with by-pass or inert gas purge function during welding, providing a safe working environment. It can be installed horizontally or vertically and is even capable of negotiating a bend if the operator is working directly from an elbow.
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
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, IK-UK 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 assessment.

**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 PIL 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 Shock 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