

Wireline Intervention



Delivering the complete package of wireline intervention solutions across the lifecycle of your wells



# Wireline intervention



Expro is a leading global provider of wireline intervention services. We are the world's largest independent wireline service company, employing more than 700 people in support of our wireline operations globally.

We have an established track record across all aspects of wireline intervention and employ some of the industry's most experienced hands.

This experience, combined with a reputation for technical excellence and innovation, allows us to deliver tailor-made solutions to meet our customers' well data needs, providing the enhanced data they need, when they need it.

Focusing on well performance and service, we provide the complete package of wireline intervention services that can be run across the lifecycle of any well.

Our teams across the world make approximately 12,000 wireline runs into our customers' wells every month and we continue to invest in developing the leading-edge technologies needed to optimise performance from their wells.

The reliability of our slickline services – and the solutions provided by our leading-edge electric line technologies – ensures Expro can meet all your well data needs.



# Explosive services

The ability to perform cost-effective intervention programmes is critical to ensure that performance is optimised throughout the life of the well. Expro's range of wireline intervention services ensures that the latest tools are always available and our customers are offered the optimal solutions.

Expro's philosophy is rooted in a continuous cycle of measurement, intervention and assessment at a field and well level, where Expro ensures the tool string deployed is designed to provide the information required for accurate and confident decision making.

## Perforating

Expro provides a comprehensive range of perforating services, with gun systems able to be deployed on electric line or using Expro's Slickline Depth Correlation system and slickline triggers for slickline operations.

## Slickline Depth Correlation System

The Slickline Depth Correlation System applies corrections to each perforating run to compensate for the various factors that affect slickline depth. For example, wellhead pressure, surface tension, logging tension, wire length, tool length and tool weight are all accounted for. This step change in slickline accuracy and versatility is backed up with an extensive track record.

## Slickline memory triggers

Expro has the ability to deploy a large range of explosive services conveyed by slickline using our Combined Trigger Unit. This has the capability of initiating all industry standard detonators and igniters.

## Stimulation

StimGun™ and the Horizontal Stimulation Tool™ are oxidiser-based tools designed for near wellbore reservoir stimulation. In new wells they can be used for pre-hydraulic frac perforating to reduce horsepower requirements during hydraulic fracturing by up to 35%. In addition, StimGun and StimTube® can dramatically improve frac pack operations by opening up all the perforations in the interval prior to the pack.

## Well abandonment services

A complete service is provided to enable the abandonment of wells. This service can be deployed on either slickline or electric line. In collaboration with our suppliers, Expro can provide innovative solutions, to offer a cost-effective package to any well abandonment project.



## Bridge plugs / packers

Expro can supply and run the full range of industry standard plugs, packers and patches. These can be deployed on electric line using standard correlating methods or on slickline using our innovative Slickline Depth Correlation System to set on depth.

## Tubing punches

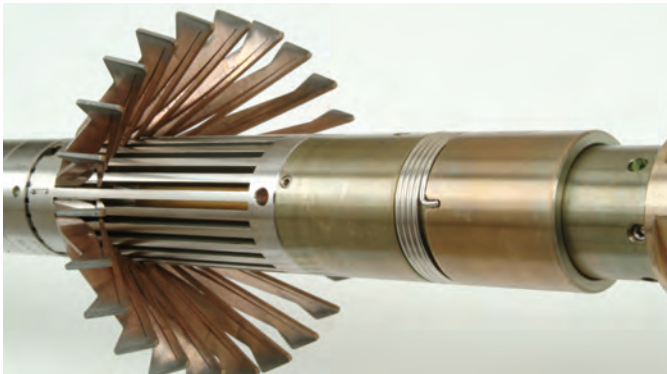
Industry standard explosive and non-explosive tubing puncher guns are offered that enable circulation to be achieved between tubing and annulus without damaging external casings. In addition, Expro's unique Kinley Perforator Tool range provides slickline solutions for wells. The perforator can be used to punch a single shot circulating hole, insert a check valve or orifice to enable a cost effective solution for remedial gas lift operations.

## Tubing cuts

Explosive or non-explosive tubing cutters can be supplied. These are available in standard sizes to cut any size of tubing used in the oil industry. Where these cutters are unable to access the required cut depth due to a mechanical restriction, Expro can provide alternative solutions including special sized cutters or split shot cutters.

Expro provides a full range of services to ensure our clients can both maintain and demonstrate well integrity. These services range from integrity surveillance, using multi-finger calipers and downhole video cameras, to a full data analysis service and our bespoke software solution, SafeWells, to monitor and report well integrity.

In addition to this we can supply remedial solutions, from tubing patches, well isolation and completion retrieval, to wellhead maintenance.



## SafeWells Well Integrity Management Software

SafeWells has been developed to provide an effective well integrity management solution. The software monitors and reports on well integrity performance in a real-time environment, highlighting problems and prompting remedial actions as issues arise. The software is fully customisable, to easily align with clients' policies and procedures and provides a clear understanding of asset integrity to management and legislative authorities.

## Multi-finger callipers

Expro has a wide selection of callipers to suit every well. From microscopic mechanical callipers to 60-arm extended multi-finger callipers. With this capability, Expro can specify the best tool for the survey, ensuring optimisation of the data collected.

## Electronic callipers

Expro's electronic callipers are capable of being run in either memory or surface readout mode. With an unsurpassed accuracy, the data can be quickly verified on site and transmitted to one of Expro's data analysis centres (DACs). The calliper tools are combinable with other electronic sensors, such as thickness tools or correlating sensors.

## Kinley Mechanical Calliper

Expro has the largest mechanical calliper inventory in the industry. With the tools being fully mechanical, they are capable of surveying wells that are beyond the temperature and pressure limits of electronic calliper tools.

Almost every well can be logged in a single pass. Once recovered to surface, the data from the tool can be digitised in the field and transmitted electronically to one of Expro's DACs.

## Thickness tools

The Magnetic Thickness Tool (MTT) is designed to investigate variations of metal thickness within the well. Used in conjunction with multi-finger calliper data, the MTT enables metal loss to be monitored on the outside wall of the casing or tubular.



# Production monitoring

During the well lifecycle, production monitoring data analysis can indicate that optimum production requires intervention operations. These operations can improve performance of existing zones, open new un-perforated sections or isolate trouble zones.

Expro's world-class pre-intervention modelling and analysis service assists operators to choose the most effective technique to perform the required operation, following which Expro provides a full range of services to perforate, stimulate and isolate using toolstrings that can be deployed on slickline or electric line.

Post job, Expro provides a production analysis service to check intervention effectiveness and help plan future/similar intervention programs.

## Production logging

Expro has established itself as the global market leader in cost-effective memory production logging. In addition, surface read-out PLTs are also available where Expro provides electric line services. The on-site acquisition services are backed up by DACs which provide expert analysis to fit client needs.

Expro's production logging strings can be deployed via slickline, coil tubing and electric line in vertical, deviated or horizontal wells. A range of sensors can be incorporated depending on the client needs.

## Memory gauges

Expro's downhole memory gauges have established a global reputation for reliability, providing the industry with bottom hole pressure and temperature data of the highest integrity. Expro's downhole gauges cover a complete range of applications including high pressure/high temperature testing at 20,000 psi and 200°C, extended surveys in excess of one-year duration and short gauges for side pocket mandrel installations or restricted height rig-up applications.

Fast sampling can be achieved with large memory capacity, allowing better characterisation of early-time data.

## Water Investigation Tool

The Expro Water Investigation Tool combines a downhole video camera with several logging sensors to give a tool that is designed to pinpoint hydrocarbon and water entry points in wells where water cuts are in excess of 50%. It is especially suited for deviated wells where segregated flow makes fluid ingress and identification more challenging.



Expro is the market leader in providing a complete solution for all customers' well integrity needs using a combination of calipers, logging tools and downhole video cameras. All services can be deployed on electric line or slickline to ensure the customer is offered the maximum versatility.

Expro's market leadership in downhole video is based on technology and service. Our operators are skilled at well preparation to ensure the greatest chance of successful pictures. Patented lighthouse design, superior transmission rates and patented lens surfactant ensure that we provide superior picture quality and service.

## Fibre-optic camera

Real-time, full-motion downhole video services provided by Expro utilise a fibre-optic telemetry system that allows distortion-free transmission of clear, sharp video from downhole. The key to the system is the dedicated logging cable containing an optical fibre for transmitting video from the downhole camera to the surface equipment over long cable lengths.

For 'fibre jobs', Expro's team will bring out their own logging truck with the fibre optic cable.

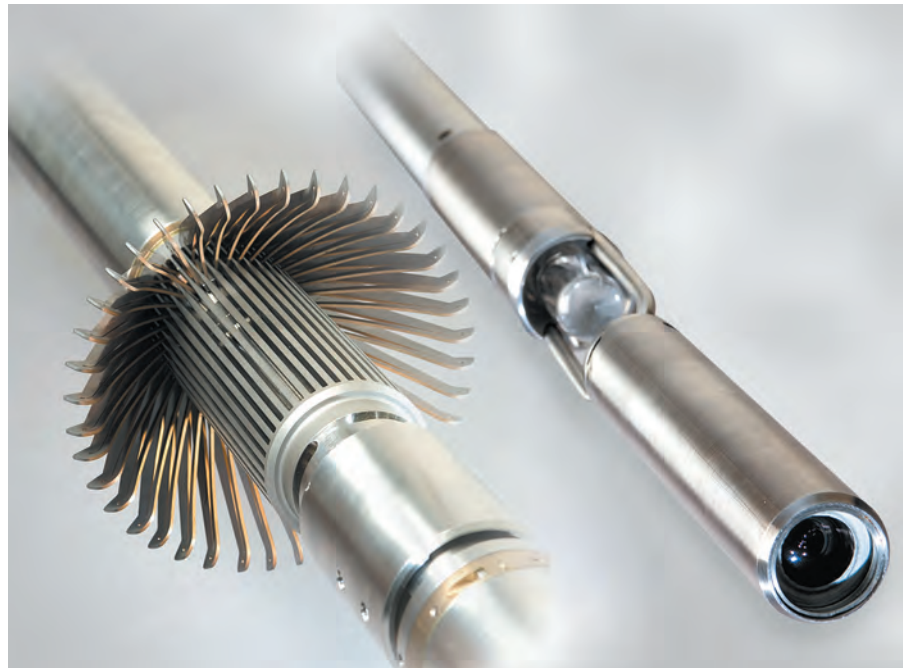
## ViewMax camera

The ViewMax tool incorporates a second camera in the patented backlight camera lighthouse. This second camera is pointed sideways and can rotate allowing unobstructed views of the wall of the pipe or openhole formation, fractures, etc. ViewMax allows operators to acquire the traditional down view ahead of the tool and/or to view the pipe wall on the same trip in the well.

## CalVid

The Expro CalVid system combines the accuracy of an electronic multi-finger caliper with the visual images of a downhole video camera, resulting in a more accurate representation of wellbore conditions.

CalVid allows wellbores to be measured and visualised at the same time giving operators a fuller understanding of the wellbore. Critical decisions regarding their well and production integrity can then be made based on a complete and accurate assessment of the entire wellbore.



## Slickline memory camera

The slickline memory camera enables operators to obtain downhole images on slickline when the cost or logistics of mobilising an electric line unit or fibre-optic unit are prohibitive. This tool is time programmable and captures 2,200 images per trip and can be programmed for three separate image intervals. The tool has provided excellent results in a diverse set of circumstances.

## High-temperature (HT) Hawkeye camera

Where the survey exceeds the 257°F temperature rating of our standard Hawkeye camera, we can deploy our 2 1/8" OD high-temperature camera system. These tools utilise the same proven technology as the standard HawkEye IV electric line system, but have the additional flask protection enabling them to operate in downhole environments up to 350°F.



# Mechanical services

Expro is the leading global provider of mechanical slickline services with more than 25 years of experience. A complete range of slickline intervention services are provided, backed up by industry-recognised training and quality programs to ensure the highest level of personnel competency.

Slickline units and cables are available in a range of styles to meet customers' needs, including Zone II rated units. Specialist units, such as heavy-duty fishing units are also available. Surface computer systems record and store well information, line history, maximum pull and depth run for each job.

## Wireline tools

Expro provides mechanical tools with an advanced fleet of multi-functional features to enhance oil and gas well maintenance for deployment on land, platform and deepwater subsea conditions.

Expro offers a comprehensive mechanical tool list, which can be tailored to meet the client's requirements. Our equipment and personnel provide best-in-class service for each application while enhancing the safety and operational performance.

## Fishing services

Expro provides expert fishing services utilising experienced fishing supervisors and specialist

heavy duty fishing units. Complete fishing tool sets are available including spring jars, hydro-mechanical jars, and accelerators. Specialised fishing tools can be built for any application. The Expro Downhole Video Camera is also used to investigate what needs to be fished and to assist in the building of specialised tools.

## Power tools

Expro's Kinley power tools are innovative slickline tools that are activated by a small powder charge with none of the explosive charge being released from the tool.

The Expro Sand Line Cutter is designed to allow the recovery of wireline, slickline and electric line when the attached instrument is

stuck in the hole and pulling out of the rope socket may not be possible. It will cut any wireline up to 1 1/8" including control lines, drilling lines and power cables.

The Expro Power Jar can be run on standard slickline and delivers up to 40 times more impact compared to a conventional slickline jar. It can be used to:

- knock out flapper valves, bridge plugs, and packer ball seats
- shift sliding sleeves
- knock loose tool strings and chokes
- cut tubing bull plugs
- jar loose stuck tool strings
- drive a spear into wire



Expro provides multi-functional deployment equipment for rapid deployment on land, platform and deepwater subsea conditions globally. All our equipment has been specifically developed to enhance oil and gas well maintenance for all interventions.

## Wireline units

We provide a range of wireline units to meet all of our customers' deployment needs. These include:

- **Base-unit** - compact and fully self contained unit, suitable for rapid deployment on onshore or offshore operations in temperate and tropical conditions. Suitable for mounting on a trailer or truck bed for heliportable operations.
- **Fly-unit** - a lightweight, compact dual lift wireline unit, suitable for rapid deployment onshore and offshore in temperate and tropical conditions.
- **Slim-unit** – one-piece winch unit, particularly suitable when space is at a premium, the operator needs an enclosed cabin and the ease of deployment is critical. The standard configuration comprises a self-contained power pack, control cabin and winch module.
- **Split-unit** – two-piece winch unit with separate power pack/cabin and winch module, particularly suitable when rig space is restricted, the operator needs an enclosed cabin and you want to minimise machine movements. This unit can be used in single or dual-drum configurations.
- **Multi-unit** – one-piece wireline winch unit comprising an integral power pack, enclosed medium or long-length operator cabin and single or double-drum winch section. Unit can be transported as a single lift. The system is suitable for cased hole slickline, braided line and mono-conductor operations.
- **Multisplit-unit** - two-piece unit with separate power pack/cabin and winch module which can be transported in single or individual lifts offering great deployment flexibility. This versatile, sophisticated, self-contained wireline winch can be supplied in single or dual drum configuration.
- **Combi-unit** - operating costs are reduced through combined benefits of single vehicle operations using lightweight rugged vehicles with space for all the crew. The crane is rear mounted and the winch skid slews about the winchman seat to align with the wellhead. These can be offshore skid mounted or mounted on trucks.
- **Truck-unit** - the crane and winch are mounted on a single slewing base and the drum can be aligned with the wellhead. This truckline is a versatile well servicing workhorse that proves its value when a remote production/drilling well is visited for intervention requirements.
- **Crane-truck** - to complement our inventory, Expro offers crane trucks with various chassis and boom configurations. The truck is available to hold the pressure control equipment and winch within then flat bed area of the truck chassis.



# Deployment

## Braided line

Expro provides expert braided line services utilising experienced crews and equipment. In addition to 1/8" slickline, all equipment has Dycam cables ranging from 3/16" to 5/16" in size. Complete fishing tool sets are available including spring jars, hydro-mechanical jars, and accelerators. Specialised fishing tools can be built for any application.

## Electric line

Electric line services are available to help you understand both your well and your reservoir to optimise lifetime production. Whether you need engineered perforating, production or cased hole logging, or well integrity evaluation, our comprehensive cased-hole services ensure your wells will continue to reach their full production potential throughout the life of the well.

## Slickline

Expro offers an extensive range of slickline services with innovative equipment, together with highly trained competent experts. We provide every slickline capability from basic completion intervention applications to advanced services. This includes recording accurate flow profiles or reservoir boundaries, perforating, and setting packers and other mechanical interventions typically performed on electric line.

## Pressure control

Expro utilises innovative best in class pressure control equipment suited to each scenario. Ranging from 3" up to 9" ID and 10 to 20K with sweet and sour conditions covering all well intervention applications.



Expro's business is well flow technologies and specialised services, and our mission is to:

- **measure**
- **improve**
- **control** and
- **process**

flow from high-value oil and gas wells.

Our expertise is marketed through five segments:

**Well Testing & Commissioning, Production Systems, Wireline Intervention, Connectors & Measurements and Deepwater Intervention.**





**EXPRO**

For further information on Wireline Intervention services at Expro please contact us at:  
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