



Production Logging Services

Solutions to support safe, cost-effective and efficient production

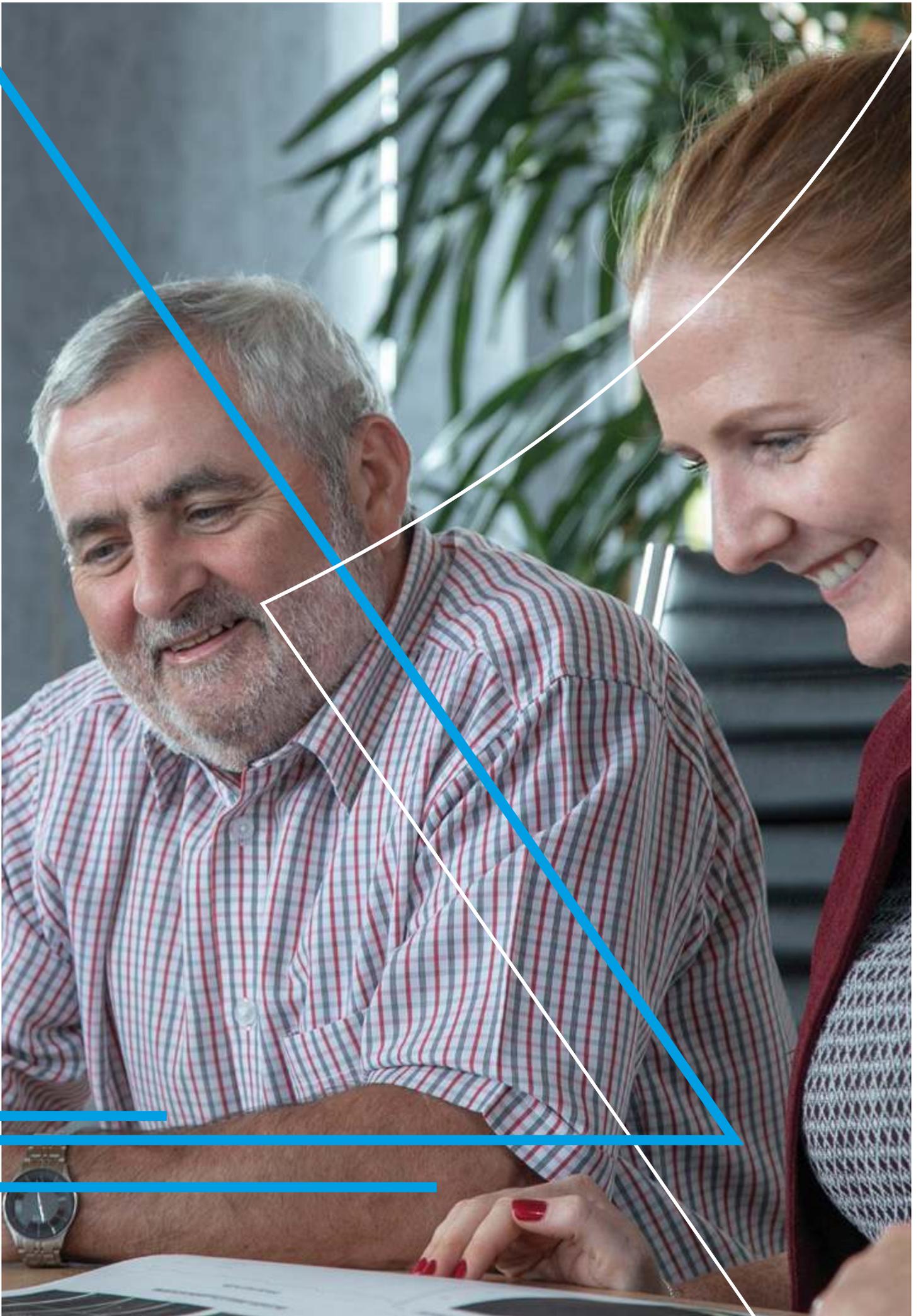


All over the world, customers choose READ's production logging services to better understand their wells.

We have run production logging tools (PLTs) in hundreds of wells and we've acquired and analysed millions of feet of log data - giving you the peace of mind that your assets are in safe and qualified hands.

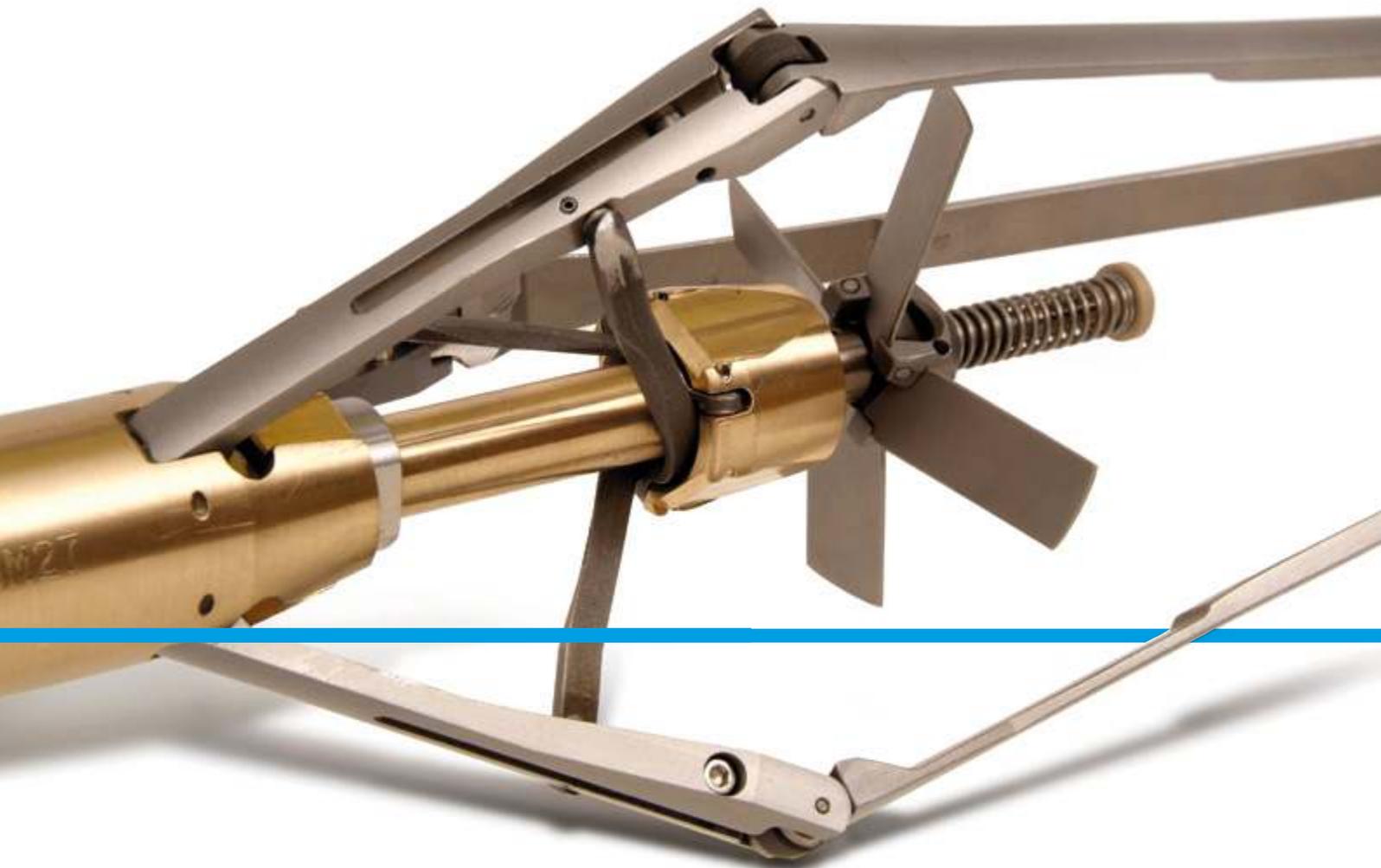
Using state-of-the-art centreline, MAPS and FAST tools, we offer valuable insight into the nature and behaviour of fluids inside your well - during production or injection - and we'll help you identify and quantify hydrocarbons in each zone.





We understand the challenges facing operators today

Achieving sustainable and profitable extraction is more complex than ever - but it doesn't have to be complicated. We have the experience, technical knowledge and expertise to cut through complexity, work around the challenges and get the job done - efficiently, cost-effectively and expertly.

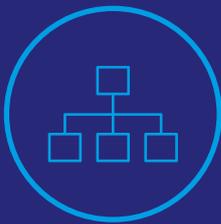


Data analysis for production logging

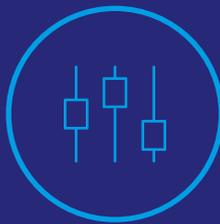
We offer independent and reliable data analysis services from READ ANSA for all of your production logging needs. You'll receive fast, flexible data analytics solutions from highly experienced and qualified analysts that maximise the value of your assets.

Find out more at www.read-ansa.com

We help you unlock the potential from your well and exceed your operational targets by:



Advising on your operational logging strategy



Monitoring and maximising production levels



Identifying defects early



Delivering accurate and fast data interpretations



Enhancing production rates



Managing risk



Ensuring well control



Our Production Logging Services

FAST PLT

The ultra-compact flow array sensing tool (FAST) provides the third generation (Gen3) in production logging. It delivers improved accuracy of production evaluation through a highly modular high-resolution platform in deviated wells.

We can tailor the toolstring to suit your specific well issues. Whether the requirement is to identify gas hold-up, water entry points to within a small fraction of hold-up or sand entry points, or if the requirement is extremely high velocity PLT logging in dry gas wells, FAST offers the perfect solution within these challenging and complex logging environments.

READ is the only company capable of deploying FAST in both memory and surface read out.

By working with us, we help you see what's happening in your well in real-time. With a complete toolstring length of just one metre, FAST can operate on slickline, electric wireline or coiled tubing, and this versatility enables our customers to enter into virtually any well in the world.

- Memory or surface read-out
- Gen3 modular probes include electrical water hold up, optical gas hold up, micro-array spinners, sand detection, temperature and pressure
- 1 m (3 ft) total length - can be combined with other production logging tools with Ultrawire telemetry
- Track record of more than 100 runs globally
- Detection of three phase layers on the high or low side of a well
- Extremely short tool length has minimum possible effect of well bore flow profile
- Doppler spinner ultrasonic fluid velocity measurement

MAPS PLT

We are highly experienced in running our multiple array production suite (MAPS) tools and delivering efficient and accurate data interpretations. Combined with our centreline sensors, our MAPS system can offer unique insight into your highly deviated and horizontal wells.

Array PLTs cover the entire wellbore with sensors and record all three phases involved in complex flow regimes associated with deviated or horizontal wells. We can advise you on your logging strategy to ultimately help you plan better and deploy your people and resources more effectively.

An industry standard for the past 20 years, the Multi Array Production Suite (MAPS) has a global track record that is unmatched in logging downhole producing and water injector wells. With the familiar names of the array sensors - Capacitance Array Tool (CAT), Spinner Array Tool

(SAT) and Resistance Array Tool (RAT) - coupled with complementary sensors from the centreline suite of tools, this technology has dominated deviated and horizontal well production logging with answers not achievable with other production logging techniques.

- Memory mode or surface read-out deployed on all conveyance techniques
- Unrivalled track record in successfully logging deviated/horizontal wells
- Combinable with any other Ultrawire telemetry suite of tools
- Sensor orientation determined by an internal relative bearing sensor
- Detection of phase layers on the high or low side of a well
- Operates in all inclinations from horizontal to vertical

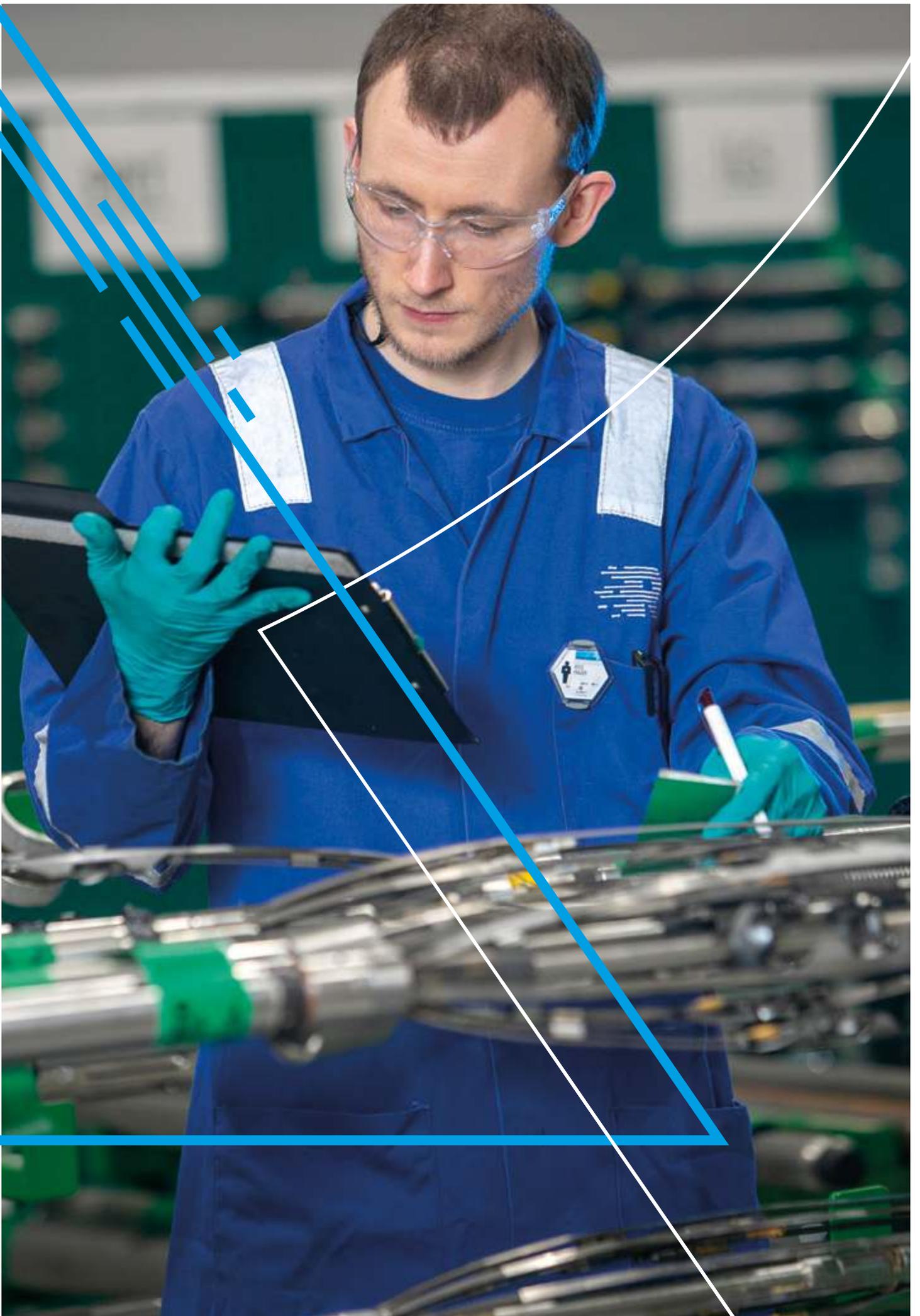
Centreline PLT

Our centreline production logging tools present you with a thorough profile of your well, whether inflow or injection, and are ideal for single or two-phase wells. We can help you identify and locate any issues you may be experiencing within your wells and support you in planning the correct remedial action.

Dependable, reliable and the first line of production logging, centreline PLT logging tools have been the go-to technology for hundreds of companies across the world for many years. Centreline can be used for memory or real time applications, and with no motors to deploy, the sensors offer increased reliability and reduced maintenance costs.

- High-resolution sensors
- Range of inline and fullbore spinners for measuring downhole velocities
- Combined Capacitance/Temperature and flow meters
- Fluid density measurements
- X-Y caliper for measuring internal diameter of wellbore
- Casing Collar Locator (CCL), Gamma Ray (GR) and pressure measurements

We give you the confidence to know that you'll acquire the data you need to make the right decisions for improving well performance.



It's easy to see why operators choose READ as their production logging partner.



We have three decades of oil and gas experience and expertise and we can support you from our dedicated facilities across the globe. Our highly skilled field engineers can mobilise to any worldwide location at the shortest of notice and our expert analysts deliver comprehensive and high-precision data interpretation. We have an impeccable safety track record and robust QHSE management systems.

In short, we are committed to working in collaboration with operators and offering innovative and insightful solutions to support safe, cost-effective and efficient production.

Get in touch and find out how our production logging services can help you optimise hydrocarbon recovery around the world.

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Production Logging Technical Specification

Tool	Centreline PLT	MAPS PLT	FAST PLT
Sensors	Pressure, temperature, gamma ray, CCL, spinner - inline and fullbore, X-Y caliper	CAT, RAT, SAT - capacitance, resistance, spinner	Incorporates pressure, temperature, spinner - inline and fullbore, MML, gas hold-up probes, water hold-up probes, doppler ultrasonic spinner
Tool OD	1 3/8 - 3 1/8 in (34.9 - 79 mm)	1 1/16 in (43 mm)	1 1/16 in (43 mm)
Toolstring length	From 15 ft (4.57 m)	From 25 ft (7.62 m)	34 in (0.86 m)
Tool weight	1.7 - 14.5 lb (0.77 - 6.6 kg)	14.3 - 17.3 lb (6.5 - 8.1 kg)	11 lb (5 kg)
Temperature rating	350°F (177°C)	350°F (177°C)	302°F (150°C)
Pressure rating	15,000 psi	15,000 psi	15,000 psi
Spinner threshold		Water: 1.8 - 5 ft/min (0.009 - 0.025 m/s) Light oil: 2.5 - 6 ft/min (0.125 - 0.03 m/s) Heavy oil: 4.5 - 8 ft/min (0.0225 - 0.04 m/s) Gas: 7 - 10 ft/min (0.035 - 0.05 m/s)	-
Maximum fluid velocity	500 - 4,000 ft/min (2.45 - 20.3 m/s)	-	1968.5 ft/min (10 m/s)
Casing range	2 7/8 - 9 5/8 in (73 - 244 mm)	3 - 7 in (76.2 - 177.8 mm)	Up to 7 in (177.8 mm)
Relative bearing accuracy	-	±5°	±3°
Relative bearing deviation range	-	5° to 175°	0° to 360°
Materials	Corrosion resistant throughout		

Detailed technical datasheets are available for each tool at READCASEDHOLE.COM/Knowledge-Hub





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