

Roller Bogie[®] Wireline Conveyance



WIREFLINE
ENGINEERING

WE Deliver

Original, innovative products
that enhance oilfield wireline
operations

WE Are Wireline Engineering



○ Wireline Engineering offices

• Countries where we do business

Working in the upstream oil & gas sector, WE specialize in creating products that allow wireline tools to be deployed and operated efficiently in deviated and difficult wells.

We strive to be recognized as a responsive and trusted partner for our customers, aligned to their business and operational objectives, and with a reputation for providing world-class products that really do add value.

WE Think Smarter

Meeting the challenge of wireline operations in deviated wells

As wells are drilled deeper, more highly deviated, or their profiles become more challenging, it is increasingly difficult to perform efficient wireline operations. In some wells, frictional resistance caused by wire and wireline tools lying on the low side of the well can prevent the installation of vital equipment or severely inhibit its operation.

Complex and expensive solutions are often recommended to overcome this inhibiting friction. Wireline Engineering has taken a more innovative approach, deciding instead simply to eliminate the friction.

We have developed a range of unique conveyance solutions for deviated wells, to eliminate contact friction and enable gravity-deployed wireline operations to be conducted routinely at higher deviations and in deeper wells than was previously possible.

This includes the market-leading Roller Bogie® products that have transformed the effectiveness of wireline services in deviated wells and brought real operational benefits to well operators throughout the world.

WE Innovate

Enabling technologies that
deliver tangible benefits

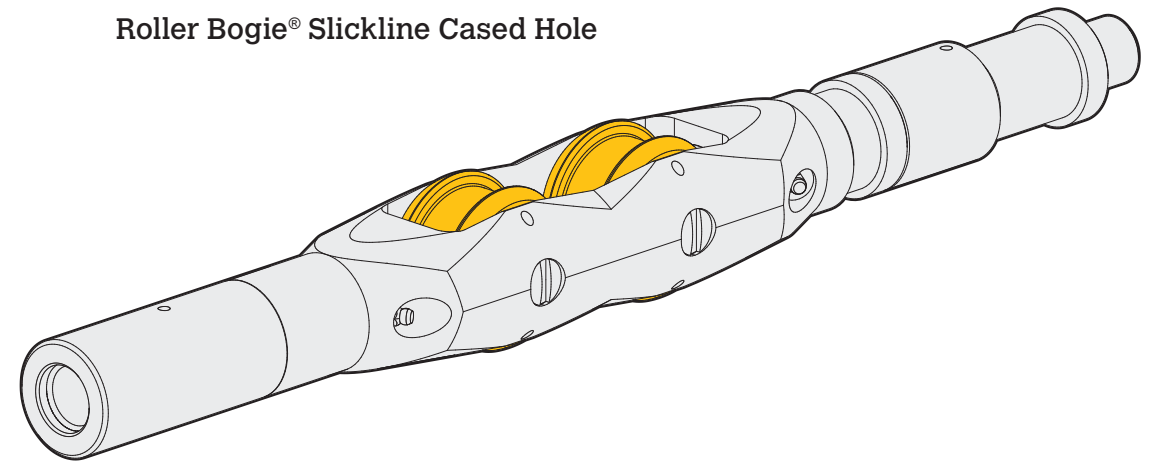
Roller Bogie® Tools

Used and trusted by more than 200 customers in nearly 60 countries for slickline, electric line and perforating applications, Roller Bogie® is the name on the world's most trusted, most effective wireline conveyance tool.

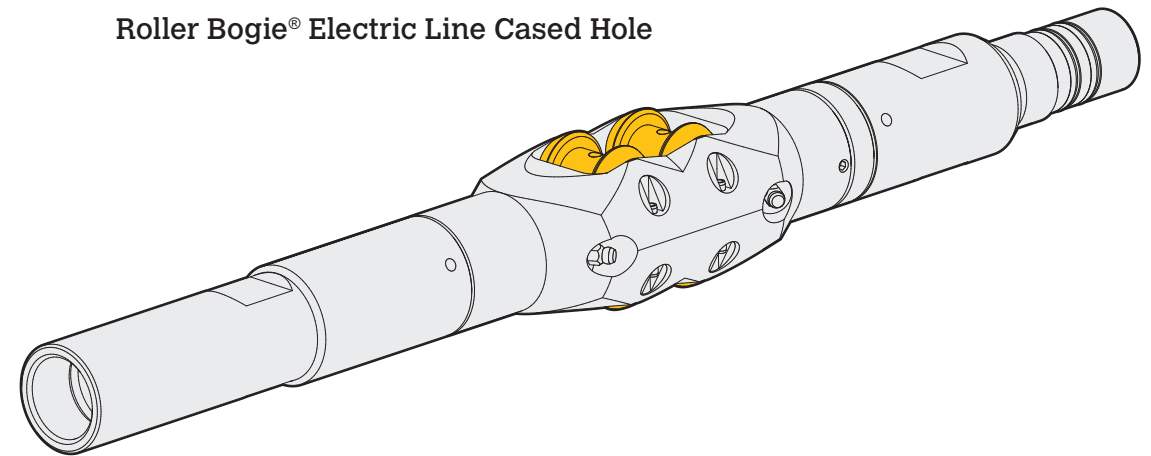
A unique patented cost-reducing roller technology, the Roller Bogie® product enables wireline access in deviated wells previously considered difficult or impossible and has become the industry standard in wireline conveyance as a direct result of its incredibly successful track record.

Even after thousands of jobs and hundreds of millions of feet, Roller Bogie® tools continue to demonstrate near-perfect reliability. Roller Bogie® tools are simple, robust and reliable, reducing operational complexity and ultimately dramatically reducing cost compared to other conveyance methods such as coiled tubing, drill pipe or wireline tractors.

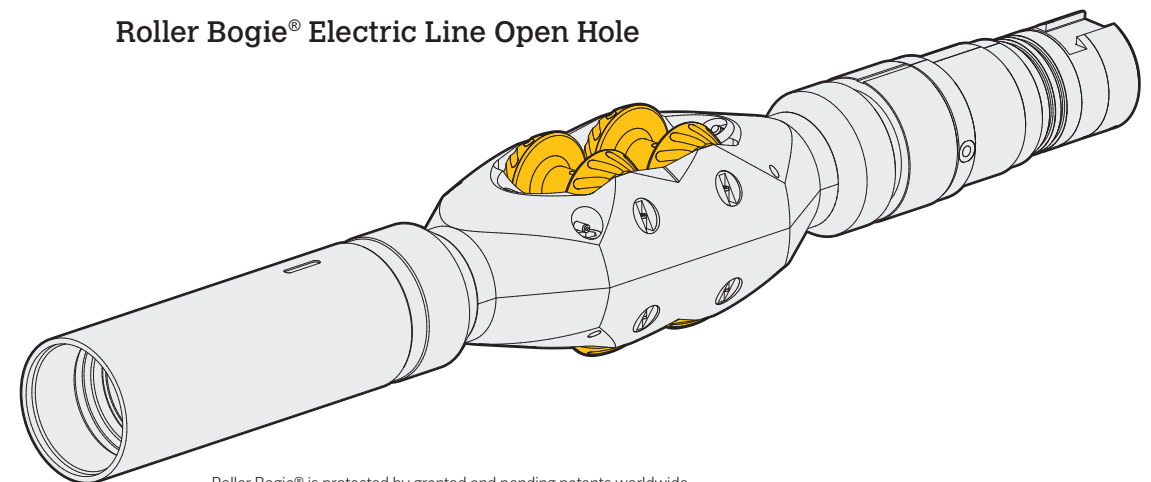
Roller Bogie® Slickline Cased Hole



Roller Bogie® Electric Line Cased Hole



Roller Bogie® Electric Line Open Hole



⊕ Widely used in over 50 countries in six continents

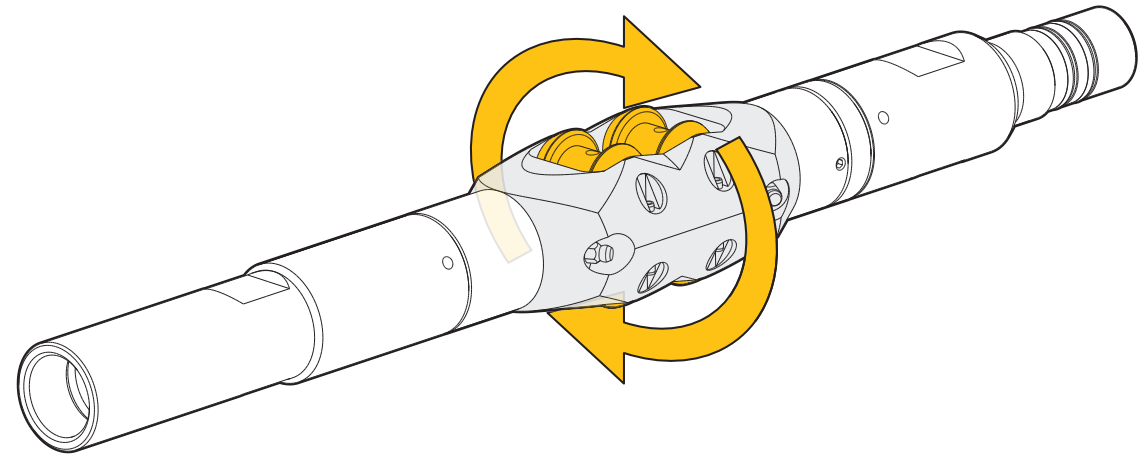
✓ Proven track record at inclinations up to 87°

↓ Successful operations down to 31,000 feet (9,450m) and up to 500°F (260°C)

Function

Self-orienting Roller Bogie® tools lift and support the wireline toolstring off the low side of the well. Large rollers eliminate contact friction making it easier to convey the toolstring to working depth. Once at depth, results are more assured.

With reduced frictional drag, weight transfer is improved and wireline operators can be much more confident of what is happening downhole: running weight remains positive and steady, pick-up weight is lower. The risk of wire breakage is reduced and the toolstring can be manipulated more accurately, more effectively, whether running sensitive logs, working in a gas lift mandrel or precision jarring.



Features

- 🔄 Patented self-orienting design means the toolstring always rolls, never slides
- 🔄 Integral swivels for independent component rotation – less wire stress
- 🛠️ Dual rollers distribute loads and bridge over tubing upsets
- 📍 Integrated virtually anywhere in the toolstring for optimum positioning
- 📏 Streamlined profile – large by-pass area minimizes fluid resistance
- 🛡️ Robust, durable design – leave nothing downhole
- 🔧 Simple maintenance maximizes longevity and tools are easily redressed

Benefits

- ⚠️ Lower pick-up weights means reduced risk of wire breakage
- ⊕ Running weight remains positive due to reduced slip-stick
- 📶 Better data results from more constant logging speeds
- ↕️ More effective and visible jarring due to better weight transfer
- 🛡️ Coated and high-chrome tubing are better protected
- 🛡️ Toolstring components are protected from frictional wear
- ⊗ Avoid the need for costly and complex coiled tubing, drillpipe or wireline tractors at high deviations

Slickline Applications

Slickline Roller Bogie® tools enable slickline operations to be performed more quickly, more easily, with less risk to the well and without changing wireline operating procedures. This means that the same people can perform the same work with the same equipment but in less time and at less risk.







For deviated intervention work, this is the most efficient conveyance system available.

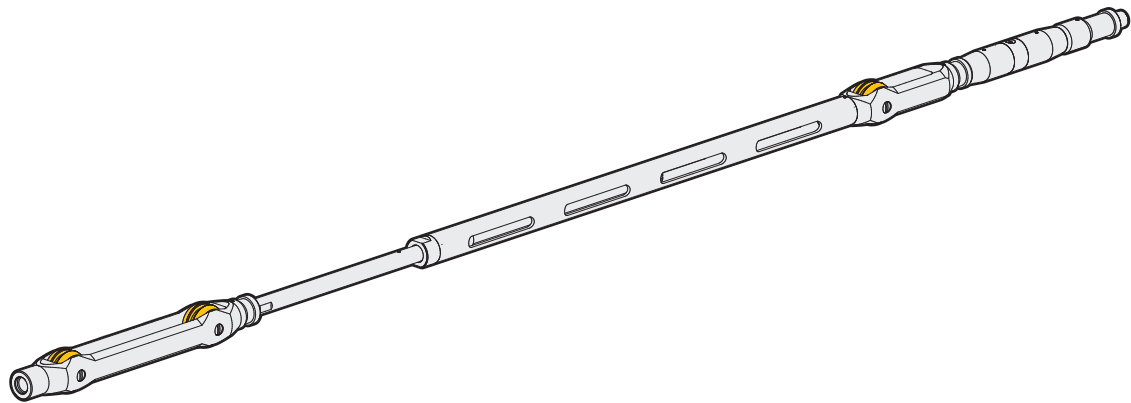
Used in almost all circumstances and wellbore conditions, from 35° to 87° deviation, slickline Roller Bogie® tools can be installed virtually anywhere in a slickline toolstring.

With independent swivels, the self-orienting roller housing ensures the rollers are at all times aligned to the low side of the well. The toolstring is lifted on to large, highly-efficient rollers, eliminating contact friction and allowing the toolstring to be transferred easily to target depth. Running weight remains positive and steady, pick-up weight is greatly reduced and the risk of wire breakage is lowered; jarring can be precise and more effective.

Slickline Roller Bogie® tools are available in a wide range of sizes to pass through wellbore restrictions and can be ordered with a choice of connection types to suit individual toolstring requirements.

Ask your Wireline Engineering representative for guidance and best practices.

-  Lower pick-up weight means reduced wire loading
-  More effective and visible jarring at greater depth or higher deviation due to better weight transfer
-  Maintain completion integrity by protecting coated and high-chrome tubulars
-  Easier deployment and operation of heavy tools such as packers, plugs, kickover tools at higher deviations
-  Make routine medium-angle work simple with less risk, every time
-  Better data from memory tools due to more constant logging speed



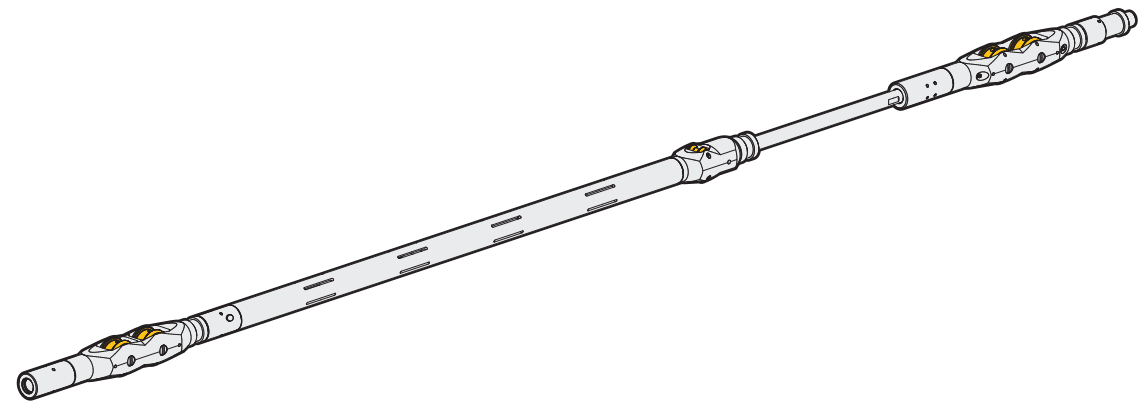
Low Loader Roller Bogie® Jar

The Low-Loader Roller Bogie® Jar is deployed at the bottom of a slickline toolstring to provide the additional lift required for larger bottom-end tools.

The Low-Loader Roller Bogie® Jar is used in conjunction with Slickline Roller Bogie® tools placed throughout the toolstring above.

- Ø Larger diameter tools such as kickover tools, plugs or drifts do not cause avoidable frictional drag
- ☉ Fully aligned tubular jar delivers efficient jarring action to actuate bottom-end tools
- ☑ Effective high deviation mechanical jarring
- ⤵ Axis-shift knuckle unit transfers jarring forces efficiently

Roller Bogie® is protected by granted and pending patents worldwide.



High Deviation Roller Bogie® Jar

A radical step forward in mechanical jarring technology and performance, there's nothing else like it.

Unique to Wireline Engineering, the High Deviation jar has virtually no internal resistance and, in a Roller Bogie® equipped toolstring, provides an ultra-low friction system that allows maximum acceleration of toolstring mass at elevated deviations. The High Deviation jar takes conventional slickline operations well beyond previous boundaries.

- ☑ Effective extreme deviation mechanical jarring action
- ↔ Sized to match toolstring Roller Bogies®
- ↔ Bi-directional jarring

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Electric-Line Applications in Cased Hole

With a proven track record of success from 35° to 87°, Roller Bogie® tools for electric-line applications are available in mono-conductor, multi-conductor or perforating configurations. Installed at any point in the toolstring, they can be used for virtually all electric-line operations.

The roller body rotates freely around the tool body and the unique shape of the housing ensures the rollers are at all times oriented to the low side. The toolstring is lifted and the high-efficiency rollers eliminate contact friction, allowing easier and deeper well access.

Roller Bogie® tools are routinely used to convey perforating gun assemblies and can be placed above, below or between gun sections, with the detonating cord being transferred through the central mandrel.

Roller Bogie® tools are available in a wide range of sizes and connections, including profiled bullnose guides when run at the bottom of wireline toolstrings.

-  Improve data quality by eliminating “slip-stick” and achieving more constant logging speeds
-  Reach extended depths and higher deviations without costly services like coiled tubing, wireline tractors or pipe conveyed logging
-  Run and retrieve longer perforating guns in deviated wells
-  Improve wireline tractor service quality by reducing payload friction
-  Protect high value equipment from frictional wear
-  Improve cable management by reducing erratic loading

Electric-Line Applications in Open Hole

Open hole wireline logging is relatively straightforward in vertical wells. As deviation increases to even moderate angles, the resulting friction between these heavy tools and the variable wellbore surface can restrict wireline conveyance or even make it impossible. Greater deviation also increases the risk of differential sticking and such difficult conditions may cause wireline to be abandoned and hugely increased costs incurred for pipe-conveyed logging operations.

With its long experience in conveyance solutions, Wireline Engineering developed a unique patented roller technology that increases the safe operating envelope for wireline tools in open hole. Wireline can now be run safely at greater deviations than has previously been possible, before costly alternatives such as pipe-conveyed logging needs to be considered.

With a large standoff to protect against differential sticking and high-lift rollers to eliminate friction, the Open Hole Roller Bogie® tool enables easier and deeper access with much reduced risk. Tools are available in a range of sizes and can be re-sized without removal from the wireline toolstring.

- ⊕ Used successfully in North America, South America, Africa, South East Asia, Australasia, Middle East and North Sea
- ∅ Proven in hole sizes from 5 7/8" to 12 1/4"
- ⌋ Achieved target depths below 22,000 feet (6,700m)
- 💰 Saved over \$1m in one North Sea job
- ↘ Achieved target depth at 75° deviation
- ≡ More than 5 million feet recorded
- 🎯 Reached target depth when predictive software said it couldn't be done
- 💧 Operated in both oil and water based mud systems
- 🔴 Operated in the full spectrum of rock types
- 💧 Conveyed toolstrings through extensive washout zones where costly pipe conveyed logging had previously been required
- 📉 Reduced line tension by more than 50%

WE Support

Specialist services that further enhance customers' oilfield operations

There are times when our customers need a little bit of extra support. Whether this is onsite advice, specialist testing or customised project solutions, Wireline Engineering offers a range of services when and where required.

Wellsite Advisors

To ensure the best possible results, particularly where wireline service providers may be unfamiliar with Wireline Engineering's specialist equipment, experienced wellsite advisors can be provided to offer guidance on the most effective deployment, operation and maintenance of these tools.

Test Mast Facility

We know that our success, and ultimately that of our customers, is dependent on the performance of our products which is why we designed and built a unique wireline mast for testing and development. At a height of 13 metres and with 100,000 lbs impact capability, our test mast can simulate any wellbore orientation from vertical to horizontal.

We also offer the opportunity for third parties to rent our test mast facility.




Special Projects

There will be times when problems arise that are just a little bit different and the equipment needed isn't available in someone's catalogue.

Our customers know what they want to achieve but sometimes they just don't have the means at hand to do so. In these instances we can provide the experience and knowledge required to deliver the right solutions, first time.

We work closely with customers to ensure they feel confident our team understands the problem, and has the experience and knowledge to deliver the right solution, first time.

A combination of key critical assets all under one roof provides Wireline Engineering with maximum control over quality and delivery standards:

-  Extensive technical knowledge and operational experience
-  Creative design with state of the art manufacturing
-  Testing facilities and rigorous quality assurance

**Corporate Headquarters –
Central Engineering &
Manufacturing Facility**

Wireline Engineering Ltd
Technology House
Blackburn Business Park
Blackburn
Aberdeen AB21 0PS
United Kingdom

T: +44 1224 798000
F: +44 1224 791410
E: info@wireline-engineering.com
E: accounts@wireline-engineering.com

**Sales & Support –
Asia Pacific**

Wireline Engineering Ltd
Office No. 1536, 15th Floor, West Block
Wisma Selangor Dredging Building (SDB)
142C Jalan Ampang
Kuala Lumpur 50450
Malaysia

T: +60 3 2168 4289
M: +60 12 422 2720
F: +60 3 2168 4201
E: KL.sales@wireline-engineering.com

**Sales & Support –
Europe, Africa and
South America**

Wireline Engineering Ltd
Technology House
Blackburn Business Park
Blackburn
Aberdeen AB21 0PS
United Kingdom

T: +44 1224 798000
F: +44 1224 791410
E: info@wireline-engineering.com
E: accounts@wireline-engineering.com

**Sales & Support –
North America**

Wireline International LLC
1406 West Pinhook Road
Lafayette, LA 70503
United States of America

T: +1 337 267 7888
F: +1 337 267 7476
E: sales@wireline-international.com

