Quality Wireline and Cable Inc.

Where Quality Runs Deep

By AL PICKETT
Contributing Writer

When Quality Wireline and Cable, Inc., was formed in 2009 and began construction on a new manufacturing facility in Calgary, Alberta, company officials knew they had to do things differently.

"Most of the wireline manufacturers operate in emerging economy countries, so we had to be able to compete with companies that can keep their costs down with lower labor rates than we can have here in Canada," explains Terry Moffatt, president of Quality Wireline. To compete we have to make a superior product and run a lean operation."

Quality Wireline equipped its new manufacturing facility with the latest technologically-advanced machinery and quality control systems. "Our goal has the primary purpose of producing the perfect cable," continues Moffatt, who notes the company's slogan is "quality runs deep" within the organization at all levels.

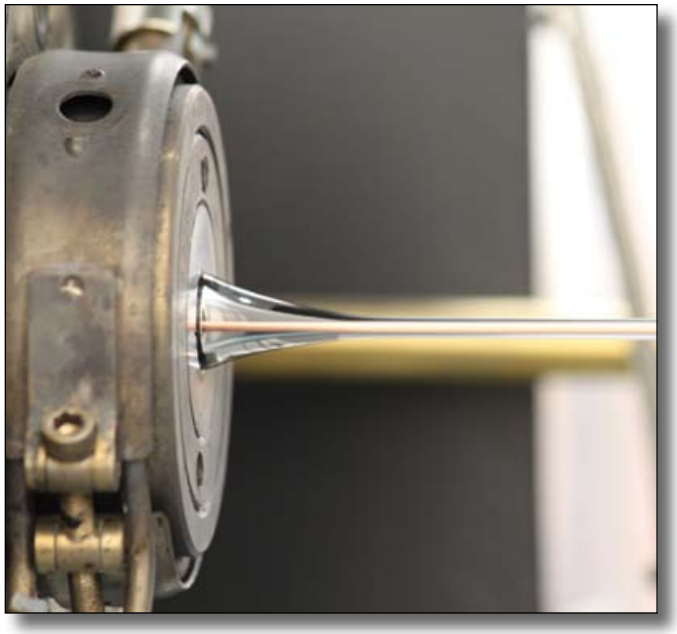
Moffatt says he did not plan to go into the wireline manufacturing business when he graduated from college with a mechanical engineering degree in 1990. "I worked for a research company," he recalls, "and then I left to start PROMORE Engineering, which made permanent monitoring tools. The cables we used at PROMORE were wireline cables. Bill Roberts sold me the cables and then one day he approached me about starting a wireline manufacturing company, so we started Wireline Works, Inc. in 2003."

Moffatt claims the two primary differences that separate Quality Wireline from its competitors are a superior high quality product; and a sales, service and support team that brings over 75 years of troubleshooting cable problems.

They sold Wireline Works in 2007 and the new owners moved the business to Mexico, according to Moffatt, and a group of guys that had worked for the company started Quality Wireline in 2009 and approached Moffatt to run the company in 2010. Moffatt says he hired Roberts in 2011 to be the company's vice president of sales, bringing the experienced group back together.

Quality now has 50 employees and specializes in cased hole wireline cables for all environments.

Moffatt claims the two primary differences that separate Quality Wireline from its competitors are



a superior high quality product; and a sales, service and support team that brings over 75 years of troubleshooting cable problems.

He says in order to have the highest quality product every detail counts. Beginning with using the best raw materials from companies such as DuPont, Bridon, Bekaert and International Wire, all of which have their own five-star quality control programs.

The first step in the manufacturing process, according to Moffatt, is the copper stranding to make the copper conductor. He calls it a "two-pass operation" in which six wires are twisted over the top of the center wire and then 12 wires are twisted over the top of the seven-wire core, giving its wireline a 19-strand copper conductor.

The "two-pass operation" involves six wires which are twisted over the top of the center wire and then 12 wires are twisted over the top of the seven-wire core, giving the wireline a 19-strand copper conductor.

"You have to have proper tension control," Moffatt explains. "It's imperative to make sure the copper is smooth and has the proper diameter."

Next, Quality uses a state-of-the-art extrusion process that surrounds the copper conductor. "The line speed is controlled by a multi-pass precision capstan at the ends of the extrusion," he continues. "We then use a dual axis laser scanner that can control the overall diameter of the insulated conductor to within 1/10,000th of an inch. The result is a consistent application of insulating material."

The purpose of the precise diameter control is to minimize wireline drawdown and to meet the strict diameter specifications for pressure control work, according to Moffatt.

"We have an ultrasonic measuring device that continuously measures wall thickness 360 degrees around the conductor," he explains. "It measures real-time wall thickness several times an inch over thousands of feet of cable. This tells us exactly what the wall thickness is. That is the only way to tell if the copper is in the middle of the cable. Before this technology, you could only tell what the wall thickness was at either end of the cable. This is a considerable market improvement. It allows the cable to go into a more strenuous environment with less chance of electrical failure, and it provides a cable with better signal response."

Moffatt says Quality also uses a laser surface flaw conductor that can pick up any irregularities. "Every inch of the conductors also go through a spark test, in which 10,000 volts surround the conductor resulting in an electric arc if there is a void or defect in the plastic," he explains.

The final step is the armoring process. This is where Quality puts two layers of armor on the wire to make the wireline. It uses a custom designed synchronous drive system that gives its wireline the ability for infinite lay length. By doing this, the cable has less pull down, offering the wireline operator better depth control.

In all, Quality Wireline and Cable has 1,650 quality control checks throughout its manufacturing process.

The increase in horizontal drilling in the oil and gas industry has changed the wireline business, too, according to Moffatt, because operators are now pumping the cable down the hole instead of letting it fall with its own weight. That changes the stress on the cable, he says.

"It is a learning experience for operators to get the longest life out of the cable,We do 'cable schools' for operators to help them understand how certain field operations can affect a cable and what they can do to improve cable life."

All of the data acquired during that process is logged in a file. In addition, the company keeps a sample of every cable it manufactures.

"We have an extensive history of every cable," Moffatt adds. He also points out that the company's sales team has at least 45 years or more of experience in cable service centers where the wireline is put on trucks.

"We have an ultrasonic measuring device that continuously measures wall thickness 360 degrees around the conductor."

"Those guys are the first line of support if there are problems," he relates. Surprisingly, wireline is most susceptible to damage when it is new. Moffatt says a new cable as delivered by the manufacturer undergoes important changes when it is first put into service, including changes in tension, temperature and rotation.

"A 5/16-inch single conductor wireline could spin 500 to 800 times to balance itself," he explains. "As it gets used more, it becomes more torque balanced. It also gets mud and grime in-between the strands, which helps prevent spinning. That is called seasoning." It's this seasoning that allows the cable to be worked harder with less chance of damage.

"It is a learning experience for operators to get the longest life out of the cable," he continues. "We do 'cable schools' for operators to help them understand how certain field operations can affect a cable and what they can do to improve cable life."

Not only does the wireline have to be durable and able to withstand the corrosive nature of many wells, it also must be able to transmit data in extreme pressures and temperatures. Temperatures can exceed 450 degrees Fahrenheit, with pressures up to 25,000 psi and tensile loads over 10,000 pounds.

Moffatt says Quality Wireline and Cable has made a cable in which the extrusion material can operate in temperatures of 600 degrees Fahrenheit, which can be experienced in certain areas of South Texas as well as thermal operations in California and Canada.

He adds that Quality Wireline and Cable was formed to meet those challenges, claiming his company is a manufacturer that understands both the stringent technical details and the demanding service requirements that stem from operations in the oil and gas services sector — hence the name "Quality" for the company.