



Case Study

Schramm Inc. (West Chester, PA) is a manufacturer and global supplier of mobile, top-head hydraulic drilling rigs to the mining, energy, geothermal and water well industries. Schramm consulted with ifm efector (Exton, PA) to apply sensors and controls on their equipment.

Results

- Schramm is at the forefront of the industry in terms of new technologies and innovations for efficient drilling rig operation.
- ifm has worked with Schramm for more than five years and supplies them with hardened PLC controllers, pressure sensors, temperature sensors and input/output devices for Schramm air-CONTROL system.
- Unlike traditional vendor relationships, ifm offers their customers engineering support during the design phase, on-site commissioning support during prototype startup, and technical support during validation testing.



Schramm Inc. hydraulic drilling rigs are a recognized global leader for reliability, high performance and drilling industry standards.

Schramm Inc. Hydraulic Drilling Rigs Are Built on a Foundation of Engineering Skill and Reliable Partnerships



The Schramm T130XD deep-drilling rig was instrumental in the Chilean mine rescue in 2010, drilling a 28-inch-wide hole through solid andesite rock to extract 33 miners.

Setting yourself apart from the competition is considered good business strategy in the industrial mobile market. Establishing yourself as innovative, technology-driven and unconventional can put you miles ahead of the pack.

Schramm, Inc. (West Chester, PA) is a manufacturer and global supplier of mobile, top-head hydraulic drilling rigs to the mining, energy, geothermal and water well industries. The century-old manufacturer is known as an industry leader of unconventional hydraulics with full automation.

The fourth-generation, employee-owned company is based in southeastern Pennsylvania and has close ties to the surrounding area. Many Schramm employees attended local schools in the area and have chosen to work for one of the leading equipment manufacturers in Pennsylvania.

Schramm employees exhibit a level of expertise that mirrors the quality of the equipment they build. Over the past 100 years, Schramm hydraulic drilling rigs have become a recognized global leader for reliability, high performance and drilling industry standards. The Schramm T130XD deep-drilling rig was instrumental in the Chilean mine rescue in 2010, drilling a 28-inch-wide hole through solid andesite rock to extract 33 miners.

Schramm's equipment is well traveled. More than 75 percent of their hydraulic drilling rigs are shipped overseas to remote areas of the world. From the high altitude of Chile's Andes Mountains, to the Brazilian rain forests, to the rugged terrain of Senegal, Africa, Schramm drilling rigs can end up 1,000 miles from the nearest supply chain. If something breaks, help is not typically right around the corner. Supplying customers with

reliable equipment that can endure these harsh conditions is paramount to Schramm, and their goal is to ship their machines right, the first time.

Designing and building drilling rigs that are equipped with the highest degree of reliability ensures that an end-user won't have component failure or freeze-up while drilling 15,000 feet on top of a Chilean mountain or in frigid, below-zero temperatures in Manitoba, Canada.

"It's incredible to work for a company that can make equipment that operates under all of these varied conditions," says Fred Slack, Vice President of Business Development for Schramm. "It's a remarkable feat of American reliability and a rare testimony to U.S. design engineering."

Schramm's R&D and engineering teams design their equipment according to the needs of their global customers. Schramm is at the forefront of the industry in terms of new technologies and innovations for efficient drilling rig operation. Rather than develop technologies that are years from arriving to market, the company stays grounded in its efforts to design only real-world, practical innovations that quickly translate into cost savings, efficiency and ease of operation for the end-user.



A control panel of one of Schramm's hydraulic drilling rigs.

One of the company's recent developments includes the LoadSafe Pipe Handling System that eliminates an old-style method of pipe handling which utilizes cables and slings to lift the tubulars and maneuver them into position. As an alternative to a manual practice, Schramm's LoadSafe hands-free system is fully automated and safely lifts pipes from a horizontal position into alignment with the top head of the drill rig. For the end-user this means increased speed, less labor and improved safety.



Schramm's air-CONTROL system manages a vehicle's compressor and variable speed fan to maintain constant pressure and temperature.

Another major contribution to the world of electro-hydraulic controls is the air-CONTROL system. air-CONTROL manages a vehicle's compressor and variable speed fan controls to maintain constant pressure and temperature. "air-CONTROL gives the operator the ability to change the compressor volume, vary system pressure and dial back air delivery with a simple toggle switch," says Tim Thomas, Schramm Controls Systems Engineer. "Before, the operator would have to climb up on a rig and turn regulators." air-CONTROL provides an end-user with up to 12% fuel savings, increased production, and easy troubleshooting via a central display screen on the dashboard.

Not only does Schramm demand the highest level of reliability from their hydraulic drilling rigs, but also from the vendors who support them. They are selective with whom they choose to develop and maintain vendor partnerships. For Schramm, traditional partnerships don't contribute to future goals. Schramm's vendors must be innovative thinkers, use cutting-edge technology and apply unconventional methods to solve challenges quickly.

For mobile equipment content such as sensors and controls, Schramm only has to look to the next town. Located five miles east of the Schramm manufacturing plant is the global sensors and controls company ifm efector inc. (Exton, PA). ifm has worked with Schramm for more than five years and supplies them with hardened PLC controllers, pressure and temperature sensors and input/output devices for their air-CONTROL system.

ifm efector is an innovative manufacturer of control systems and HMI displays for mobile machines. Over the past 10 years, ifm has supplied vehicle equipment manufacturers worldwide with control solutions that increase uptime and reduce installation costs.

According to Thomas, there are inherent advantages to working with a vendor located near their plant. Thomas has spent time with the ifm engineers at their office in Exton to learn about new control technologies. ifm is also able to offer engineering support during the design phase, provide on-site commissioning support during prototype startup, and technical support during validation testing.

In addition to local support, ifm's global network reaches more than 70 countries around the world making the vendor an ideal partner for Schramm. ifm designs their mobile controls to withstand the severe environments in which drilling rigs must perform. Controls are encased in robust, completely sealed housings that resist high levels of shock, vibration, electro-magnetic interference and temperature extremes.



ifm's R360 hardened PLC controllers are used on Schramm's air-Control systems. The R360 offers up to 4 CAN networks, built-in I/O and SAE J1939 functionality.



ifm temperature sensors are Pt1000 RTD based units that are ideal for monitoring hydraulic fluid. They feature a high accuracy 0.5V to 4.5 V analog output.



Compact pressure sensors feature both analog voltage and current outputs. High accuracy and repeatability provide reliable pressure indication in harsh environments.

Schramm considers ifm an extension of their R&D department based on years of interaction. ifm efector, in return, has established themselves as a new benchmark for vendor partnerships.

In today's world of short-lived business relationships and lowest-bid sales agreements, Schramm and ifm efector exhibit the perfect balance of mutual trust and respect between customer and vendor.

For more information about Schramm, Inc., visit www.schramm.com. To learn about ifm efector, visit www.ifm.com/us or call 800-441-8246.