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EXCAVATORS

Look ma, no mud!

Compressed air-driven HDD rigs arrive from Italy with eyes on the urban market and a bold sales ploy.

by John Latta

Five hundred and nine years after Spain's Queen Isabella sent an Italian adventurer to North America and changed life here forever, an Italian-Canadian company has sent Renzo Chirulli to change life in the HDD industry.

Chirulli arrives with DDD (dry directional drilling) in the form of five mudless machines in SE Industries' Scorpio line. These machines use low-pressure compressed air to drive a rotational-percussive downhole drilling tool, or air hammer, which can deliver up to 1,400 blows per minute. The air also cools the drillhead tool and takes debris out of the borehole.

SE Industries debuts in America with a bold sales pitch: "We'll go to any job a contractor wants to do with one of our machines, and we will work the job with them," says Chirulli. If the job is successful, the contractor buys the machine. But if it is not, SE will take it back. No charge.

SE's history is behind this approach, says Chirulli, the company's general manager. "We were contractors before we built these machines, and we still have the mentality of contractors."

The Scorpio rigs were first built in Italy five years ago to do a massive fiber-optic job for the country's major telecommunications company, Telecom Italia. They were primarily designed to work in densely populated urban areas, says Chirulli, and today the company has machines working in a number of European locations. For now, SE's North American operations are based in Montreal, and the first machines sold in America will be Canadian-built. Chirulli says SE is looking for a U.S. base, with California currently the leading candidate.



The Scorpio 903 is at its best on downtown jobs, but still able to make small river crossings like this one in Germany.



Less than 5 feet long, the compact Scorpio 250PL rides to work on the back of a small truck.

"These machines aren't designed to work in every horizontal drilling situation," says Chirulli, "but when it comes to installing telecommunications, gas, electricity or water in cities, we think they will be extremely effective. While we can't do the jobs the big river-crossing rigs do, we can do 90 percent of the work of horizontal drills.

Chirulli makes some big claims for his product. "We can do the same work as bigger machines that need a lot of fluids on the job," he says, "and we can do it cheaper. Some companies have told us that the operational costs with our rigs can be up to 25 percent less. Not only are we not using mud, we are using less energy and that translates into more productivity."

According to Chirulli, SE drill advantages include:

- no drilling fluids, circumventing environmental concerns.
- an energy savings since air takes little energy to compress.
- no filter cake to line the bore walls, which can sometimes impede drainage.

The SE Scorpios use low-pressure (175-psi) compressed air from a standard compressor. A gasoline engine drives the compressor, plus the drill's hydraulics and downhole tools. The air also cools the downhole guidance and steering systems, and removes debris from the bore.

American manufacturers respond by conceding that the SE drills are good, useful machines with a niche market, but they don't concede that market.

Executives at American horizontal drill makers say that while these dry drills can be competitive in rock or on shorter bores, it's possible that U.S. contractors will continue to do what they did before the arrival of the Scorpios — use mud-motored drills for

most of their work and rely on specialty machines when facing the sorts of bores the Scorpios do best. They also argue that mud-motored drills will remain highly competitive even on those jobs the Scorpios are most eager to take on, such as inner-city utility

installation. These manufacturers are also constantly improving their drills, which means new machines that echo much of the technology of the Scorpions are not out of the question.

Chirulli counters that while the drills do work best in rock, they can produce in any soil conditions. As for distance, he says the Scorpions can bore up to 750 feet, and the 903 has done one job of 1,200 feet. And, he says, SE is providing contractors with what they want most in the next generation of drills. "We surveyed 650 American HDD contractors. More than 80 percent of them said taking mud out of the process was the first step to improving HDD technology."

SE offers five dry-drilling rigs. The Scorpio 250 comes as a standard, pit-launched (PL) or truck-based machine. The engines are mounted only on the two largest machines, the 1203 and the 3003. The three largest

machines come with an automatic rod loader, which is optional on the 503

but not available on the 250.

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Quick Specs
SE Industries Scorpio
dry-drilling rigs

Model	Pullback (lbs.)	Torque (lbs.-ft.)	Thrust (lbs.)	Horsepower @rpm
250	12,125	1,881	8,818	68@2,800
503	29,321	3,983	19,180	83@2,800
903	53,351	6,657	37,478	130@3,000
1203	80,467	8,683	59,744	145@2,200
3003	121,252	22,128	81,570	260@2,100