PUTTING THE D3 RRC TO THE TEST

North America's first radio remote controlled D3 fared well in its first year of hard use

(left) The company said the T45 steel and this rig's ample power allows them to switch from 3-inch holes for presplitting to 3 ½-inch production work without having to switch steels.

Throughout this past year Maine Drilling and Blasting (MD&B) has been putting the first Atlas Copco ROC D3 RRC™ surface drill rig to the test. It's the first radio remote control ROC D3 in the U.S.

MD&B is one of the largest drilling operations in the United States, with six regional service areas spanning all of New England and much of the Mid Atlantic. They have experience with just about every make and model of surface drill rig available, continually trying out new products to find the most durable, economical, and productive rigs for their fleet, which includes no less than 27 Atlas Copco ROC D7s—18 of which feature radio remote control—and 26 ROC 642/D3 machines. These ROC 642/D3s account for about a third of MD&B's 90-rig drilling operations..

Exceeding expectations

They began by putting the new D3 RRC up against one of their larger capacity workhorses, an Atlas Copco ROC D7, in a side-by-side evaluation in a Connecticut quarry. Jeremy Caron, MD&B's superintendent for that region, said the trial "really wasn't designed as a fair test. But in the 3- to 3 ½-inch hole range at least, the D3 kept pace with the D7. It really did. And its holes were straighter."

They did opt for the larger hammer on their new D3. Mike Wentworth, who is the Northeast Region Store Manager for Atlas Copco, said the D3 comes with two hammer options, the standard Atlas Copco COP 1240™ or the beefier COP 1640™. MD&B requested the COP1640.

Caron believes the reason the compact D3 performs so well is the way it drills. "It 'works itself into' high impact. It sort of builds up to it. I think that's a significant improvement. That's why there's a lack of deviation in a 3 ½-inch hole." He said MD&B's purchase of the rig was "a no brainer—better production, cheaper cost.…"

Dave Bijolle, MD&B's training manager and service representative why the D3 is such boon to production. "Previously, if there was deviation, we'd have to detune the drill and usually end up losing production because we'd slow things down so much to try to get a straighter hole. But we didn't have to sacrifice production with the D3. The drill control systems of the D3 let us deal with changes in geology. We increased daily production."

Less silica exposure

Terry Bower, the MD&B equipment manager involved in the testing of the unit, listed a number of improvements in the rig and its radio controls compared to earlier remote control models in their fleet. Safety, he said, was the biggest benefit.

One of the more surprising safety discoveries was that remote control operators in general are exposed to less silica dust than operators in sealed cabs. Silica sensors were placed on operators' shirts to collect ambient air samples during their 8-hour shifts. Although cab operators were exposed to levels far below health requirements, radio remote operators, who operate in open air away from the drilling, encountered less dust. One theory is that the air circulation systems were picking up minute amounts that operators unavoidably bring into their sealed cabins on their boots and clothing.

Bower judged the RCC model to be even safer to operate than their early model D3s, which have platforms that operators work from and that they ride on as they tram over terrain. Drillers at first worried that they wouldn't be able to "feel the terrain" in the D3 RCC, making them less capable of protecting the rig from precarious situations. But Bower said after using the radio control, none wanted to give it up. The long boom of the D3 reaches high faces, too, without the operator ever entering the "danger zone" as the rig stretches itself out to full utility.

Bower also listed various operational enhancements he liked right away. Although radio remote controls have featured automatic shutdown for some time, previous versions were subject to interference that shut them down unexpectedly during operation. However, the D3 RRC includes improved signal transmission that is less vulnerable to unproductive disruptions.

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>
> **Jeremy Caron**
> MD&B Superintendent

Rig of choice

Caron could also list several reasons why the D3 impressed MD&B, and just as Bower did, Caron placed safety first. "RC winch work is fantastic. You can winch off, say on a 45 degree slope, and then you can get a 360 [degree] walk-around, see things from all sides before you tram over top of them. It's safer for my crews, who can work it from back where they have good footing.

"There's the mobility of it and the fact it's an RC. And it has automatic rod handling. So, I used to have to tie up three men drilling a hole on steep grades. But this, just one person."

As for upkeep, Caron says they have experienced "no mechanical issues. It's been a good rig from a maintenance point. Even as hard as we've used it in line drilling, presplit, mass production…."

While he listed the variety of applications, Caron was reminded of yet another D3 benefit: "Nice thing with its T45 steel is, we can use it for 3-inch holes in line or presplit. Then we can use the same drill steel »

MD&B's regional superintendent, Jeremy Caron, said that "for construction work, when we're drilling 3 ½-inch holes with cuts of 30 feet or less, it's definitely my rig of choice. If I had a chance to pick up a couple more D3s tomorrow, I certainly would."

for 3 ½-inch production work. The D3 has the power, and we're using the same steel, so we don't need to change anything."

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First-year appraisal

MD&B has by now used the D3 RRC in a variety of jobs. "The first two were in Connecticut," Caron said, "doing a variety of line drilling and production work of 3 to 3 ½-inch holes, 10 to 40 feet deep, on a highway project and on a railroad job, cutting roadway and leveling a site for future construction projects. [The D3] drilled 3 ½-inch holes with its T 45 steel as well as the D7 on T 51. Even 50 to 55 feet deep, drilling straighter holes. No deviation."

Nine-year veteran MD&B driller Brett DeMayo was the D3 operator on the railroad job. He said he has worked other rigs but "They should get more of these [D3 RRCs].

"I really like this drill, I really do. I ran an older style D7—and I love the D7, don't get me wrong—but by the third hole [with the D3] I had it down. It's not a D7, but it can really climb around on angles. I'm more comfortable tramming it over rough ground. Compared to the D7 I was used to, and in the 3- to 3 ½-inch range, [the D3] is pretty close in drilling."

DeMayo said, "The D7s, they drill harder and push harder right away. The D3 doesn't do that. So 3-, 3 1/2- and even 4-inch holes can be straighter, without losing production."

He said he got drill footage comparable to the larger D7 and offered a tip to drillers who make the switchover: "Take your time, and learn it at your own pace."

To date, MD&B still owns the only radio remote controlled D3 in the country but they are in the process of purchasing their second.