DEPENDABLE BLASTHOLE DRILLS START AT STEP ONE

Collaboration is the first step in purchasing a rock drill that meets your application needs



SUCCESSFUL ROCK AND HARD MINERAL BLASTING REQUIRES EXPERTISE AND MULTIPLE STEPS—AND A GOOD, DEPENDABLE BLASTHOLE DRILL AND STRONG PARTNERS TO SUPPORT THAT EQUIPMENT.

Blasthole rigs and drills don't need much explanation. They're used for drilling a hole into the surface of the rock, packing the hole with explosives and then detonating those explosives in the blasthole to break up rock and hard minerals to make it easier to remove.

Blasthole drilling, whether rotary drilling, down-the-hole or top-hammer drilling, is primarily used on two job sites: all types of mineral quarries (limestone, granite, talcum, etc.) and construction projects (building new roads, pipelines, running new utility lines).

Drilling and blasting (D&B) impacts many areas of a job site that reach beyond the actual blasthole. Creating a hole in the ground to put the correct amount of power in the proper place at the right time at minimal cost seems simple enough, but there are many factors that have to be considered to efficiently reach targeted productivity rates. Those factors include understanding local geological conditions (solid rock, fractured rock, mud seams), choosing the right drilling equipment, climate circumstances, types of explosives required and more.

There are also many technical issues to consider when choosing the right drilling method, such as hole diameter, hole depth/bench height, special techniques required, legal requirements (dust, noise, etc.). All of these factors will impact the actual cost to drill a hole and the overall D&B operation, but there are three primary factors that drive cost:

- The terrain on the job site (mobility/flexibility)
- The size of the hole that needs to be drilled
- Production—how many feet per day or tonnage per day (for quarries, measured after the blast)



CHOOSING THE RIGHT DRILL TYPE

Effective and cost-efficient drilling operations start with choosing the right drill for the job site. Quarries have fewer variables to consider because they have relatively flat surfaces and relatively known, stable conditions. Construction job sites have more variables, requiring the terrain and the mud (overall condition of the site) to be considered, and often drilling a test sample to analyze for mud seams, weathered joints, fractured rock or solid rock to get a picture of what's being drilled. With that information available, it's easier to determine the type of drill that is best suited for the conditions.

On construction sites, the top-hammer drilling method is typically used because these types of drilling rigs are smaller and more agile to go more places on uneven terrain. This method is the most suitable for hole diameters between 1–5 inches and hole depths of generally less than 80 feet.

Larger down-the-hole drills are better suited for when the rock analysis identifies mud seams or other challenges with the rock being drilled. These drills deliver a straighter hole, can go deeper than top-hammer drills and are most suitable for hole diameters larger than 4 inches, with some exceptions. Downthe-hole drilling rigs are typically larger, but there are some smaller rigs available that are more agile that could be used on construction sites.

Rotary drills are primarily used for large holes (such as coal and limestone) with diameters larger than 8 inches and are better suited for soft and medium-hard rock.

"Picking a drill that's suited for the job should be based on the conditions of what a job might be. That means getting a drill that can cover the types of jobs usually done. There's no perfect drill for any one job because every job is different. Pick the drill that is most suitable for the type of drilling conditions that you would typically encounter," said George Hample, regional sales manager, Mid-West, Furukawa Rock Drill USA, Rock Drill Division.



MEETING WORK SITE DEMANDS

To withstand the rigors of day-to-day operations on harsh job sites, most blasthole drills are built on an excavator chassis with high quality steel and oversized pins and bushings and other heavy-duty components.

Safety, reliability and ease of use should also be built into the drill. A drilling rig that is easy to operate and reliable will be safer to use and more cost effective and efficient in the long run. Even as technology changes, simplicity is still important, especially in the working platform. If an underlying platform has proven itself and remains basically the same for many years, it's easier to perform day-to-day maintenance. On newer machines, key elements that might need to be repaired don't change so there isn't a learning curve to perform maintenance.

The same can be said when it comes to operating a rig. If the basic operation of a rig remains relatively standard across models from a manufacturer, there isn't a learning curve for the operator when a new rig from the same manufacturer is purchased, making them easier to operate. There's also a shorter learning curve for new operators with a simple-to-

operate rig, so training is easier and safer. Some manufacturers have drill simulators that dealers might bring to vocational schools when they teach students about drilling or use at open houses to help teach operators how to safely operate rigs.

More complex rigs that are computer-controlled can be easier to operate with their auto feature, but the drilling may be slower than an experienced manual operator who can do more tons or feet in the same amount of time.





BUY WHAT'S NEEDED

Total cost of ownership comes down to many factors, starting with the purchase price. Again, simplicity can be important. To save upfront, the ability to purchase basic drilling rig models without options already included can help reduce the purchase price. Why pay for bells and whistles that might not be needed, but come standard? Options should be able to be added as wanted or needed to meet application requirements. Some of these add-on options might include:

- Water/dust suppression system
- Remote control
- 2D angle indicator
- 3D angle indicator with Length and Speed
- Drill monitoring system with GPS capabilities

- Cold start kit
- Handrails
- Central greasing system
- Back-up camera
- Heavy-duty rearmounted bumper

Of course, comfort and safety features should be built in, like rollover protection, in-cabin HEPA filters, protection in the cab from noise, and a wide field of vision.





AVAILABILITY OF PARTS

Dealers usually stock more common parts that are more likely to need replacing. The drilling rig manufacturer should support dealer inventory by stocking parts that are much less likely to break, even for older equipment. The manufacturer should have a very high fill rate on these less-common parts that dealers generally don't stock, shipping them to a job site within one or two days to further reduce downtime.

All brand new machines will need maintenance and even with regular maintenance, parts will eventually fail. Having a manufacturer that backs their equipment with a full inventory of replacement parts goes beyond the standard warranties they can offer. That's especially critical for older equipment that's well beyond the warranty.





FINDING A DEPENDABLE PARTNER

Looking past the strength of the manufacturer and their equipment, the dealer is equally key. They are the first line of defense if a rig needs to be repaired. At a minimum, dealers should:

- Have trained mechanics for the drills they sell, backed by the manufacturer's tech reps to support them if needed.
- Stock recommended spare parts.
- Have a strong partnership with the manufacturer.

"If a drill breaks down, which they all do, the expectation of a drill owner or operator should be that the drill is back online as quickly as possible. Depending on the severity of the breakdown, at FRDUSA, our expectations are to mitigate downtime, which is why a good dealer is so important. It's too costly for drilling equipment not to be back to being available quickly," said Hample.

Effective drilling and blasting requires high availability and low operating costs, among other things, which makes picking the right equipment and the right partners the difference between a blasthole operation that goes boom and one that goes bust.

FURUKAWA ROCK DRILL USA

The Furukawa Rock Drill (FRD USA) Rock Drill Division offers a complete line of advanced blasthole drills and accessories for construction and quarry sites. FRD rock drills provide the ultimate combination of performance and economy. Built tough, FRD top-hammer, DTH and pneumatic drills are equipped with features that maximize efficiency to assure high-performance at a low operating cost.

Operators appreciate the high performance and reliability of FRD drills, which are packed with features that make operation easy and reduce the worries of downtime. All Furukawa rock drills are equipped with high output compressors and advanced hydraulic and pneumatic systems for superior performance. They are also designed for easy accessibility, so that maintenance is simplified. Comfortable cabs offer operators increased visibility and multiple safety features. Each drill is available with a variety of options to meet different application needs.

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