

International Construction Editorial

Rockmore ROK 650 DTH Hammer Wins Big in Nevada

Lime is one of the top five chemicals produced in the United States, and is typically manufactured with raw materials from limestone quarries. A typical limestone production process begins with drilling and blasting, before being loaded and transported to a series of rock crushers for refinement. Drilling and blasting can account for up to 25% of cost distribution at limestone quarries, with speed being the key to reducing the cost as much as possible.

The most important component of drilling in limestone is maintaining a high penetration rate of the drill string; due to drilling and blasting being the first step in the production process. Limestone is generally homogeneous, relatively soft, and has low abrasion characteristics, making total footage less sought after when compared to high penetration rates. The characteristics of limestone present problems to a DTH hammer over time. Excessive wear on internal components will not necessarily prevent the hammer from operating, but it will cause the penetration rate to reduce considerably.

A limestone quarry in Nevada showed that the Rockmore International ROK Series DTH hammers and DTH bits consistently exceeded customer expectations. The quarry produces high quality limestone products for use in mining, construction, steel, chemical, and municipal markets. The quarry has 2 DTH drill rigs operating 24 hours per day for drilling and blasting operations. Prior to using the ROK Series DTH hammer and DTH bit, the customer had been using a conventional hammer with limited success; roughly achieving 600 feet per 8-hour shift.

The DTH bit previously used was a flat face design with hemispherical carbide buttons. Typically, this bit configuration is best suited for very hard, fractured, and abrasive rock conditions, and not recommended for high penetration rates. As a result, the bit life was very long but the penetration rate suffered.

After assessing the hammer and bit design for the particular application, Rockmore International technical associates suggested the use of a ROK 650Q-001 hammer. The suggested bit configuration was a convex face design with semi-ballistic carbide buttons, and meant to increase penetration rate as much as possible.

As a result of the changes to the hammer and bit, the customer achieved a 40% increase in penetration rate. The hammer also achieved a greater amount of overall footage until its end of life as compared to the competitor. Achieving over 800 feet in one 8-hour shift was previously unheard of, and the Rockmore products set this as the new standard for this customer.

Since 1948, Rockmore International has developed a vast and diverse line of DTH bits to suit most DTH applications. Different designs, grades, and configurations of carbide buttons provide benefits to the end user at the fundamental level. In addition, hole flushing, penetration rate, longevity, and wear rates are all supported by a variety of bit designs and configurations to optimize drilling in any application.

The Rockmore International ROK series DTH hammers offer a streamlined, efficient, and innovative design that directly benefits the end user. The ROK hammer line offers sizes ranging from 3 to 8 inches in diameter, and is designed for drilling applications in mining, construction, water-well, geothermal and gas fields. The ROK hammer is designed to efficiently manage large air volumes and high pressure flows for a greater overall efficiency.

The patented design incorporates the SonicFlow technology concept, which optimizes airflow by simplifying the path of the airways. Every time the airflow changes direction, the energy lost by the fluid increases via turbulence. With fewer obstructions in the airflow path, more energy is delivered to the piston while minimizing back-flow interference. Smooth radius ports in the airflow chambers minimize energy losses even further. The end result is more energy being transferred to the bit, which increases penetration rate and overall efficiency.

The streamlined design of the ROK hammer utilizes 14 parts total, 3 of which are o-rings, and is able to be easily assembled on the job site with no special tools required. In addition to reducing the overall cost of the hammer, fewer components also reduce the amount of component wear points, and lends itself to the SonicFlow technology concept.

The modular design of the ROK hammer allows components from other ROK series hammers to be interchangeable and reusable. It is common to have hammers run to the end of life with components that are still well within the useable limit. For this reason, Rockmore International has begun incorporating wear indicators to be integrated into the part design to more easily determine what is only used and what is beyond its discard limit. By using replacement parts with used components, the customer will easily be able to rebuild a hammer and continue running at a fraction of the cost of a new hammer.

With more energy supplied to the bit, higher penetration rates, and a better overall performance, SonicFlow Technology raises the standard of the airflow characteristics within the ROK hammer.

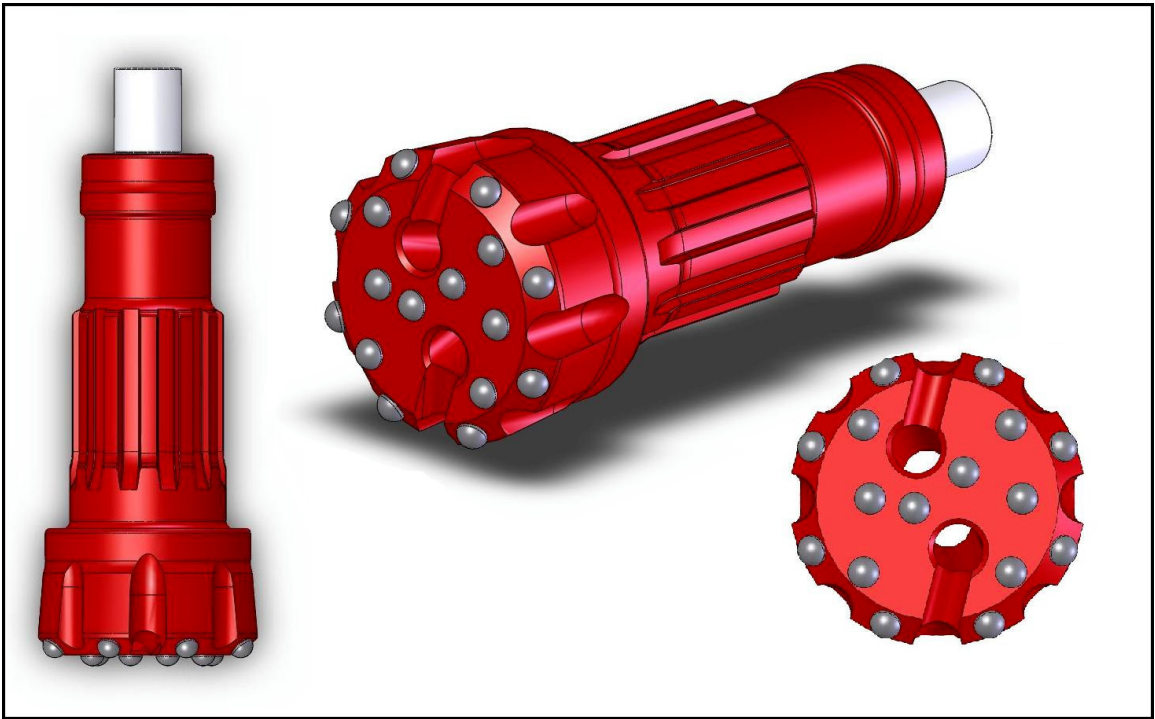
In addition to the development in DTH Hammers, Rockmore International continues to provide the industry with high quality threaded and taper bits, drill rods, couplings, and shank adapters for top hammer drilling. Rockmore International's sales and support personnel are highly trained to offer expert advice on what products will best fit a specific end use application. Rockmore International has two manufacturing facilities in Wilsonville, Oregon and in Judenburg, Austria, exporting to over 75 countries, providing rock drilling tools for use around the globe.



Drill Rig running a Rockmore ROK 650 Hammer and Rockmore DTH Bit in Nevada



The Rockmore ROK Series DTH Hammer offers high performance with SonicFlow technology



Rockmore DTH Bits are designed for virtually every application