

HAMMER & BIT MODELS

Small Conventional



The World's **Leading**
Drilling Technology



Down The Hole Hammers and Bits

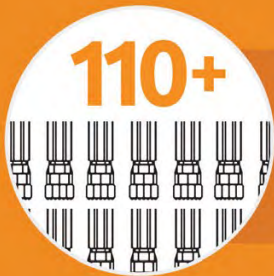
Numa is the world's leading drilling technology provider, dedicated to ongoing product innovation and results-oriented consistency. We've built a strong legacy of high quality, U.S. made DTH hammers and bits for drilling holes 3½ -50½ inches (89 -1283 mm) in diameter.



**Global Drilling
Industries**



**Patents
Pending**



**Hammer &
Bit Models**



**Millions of
Feet Drilled**

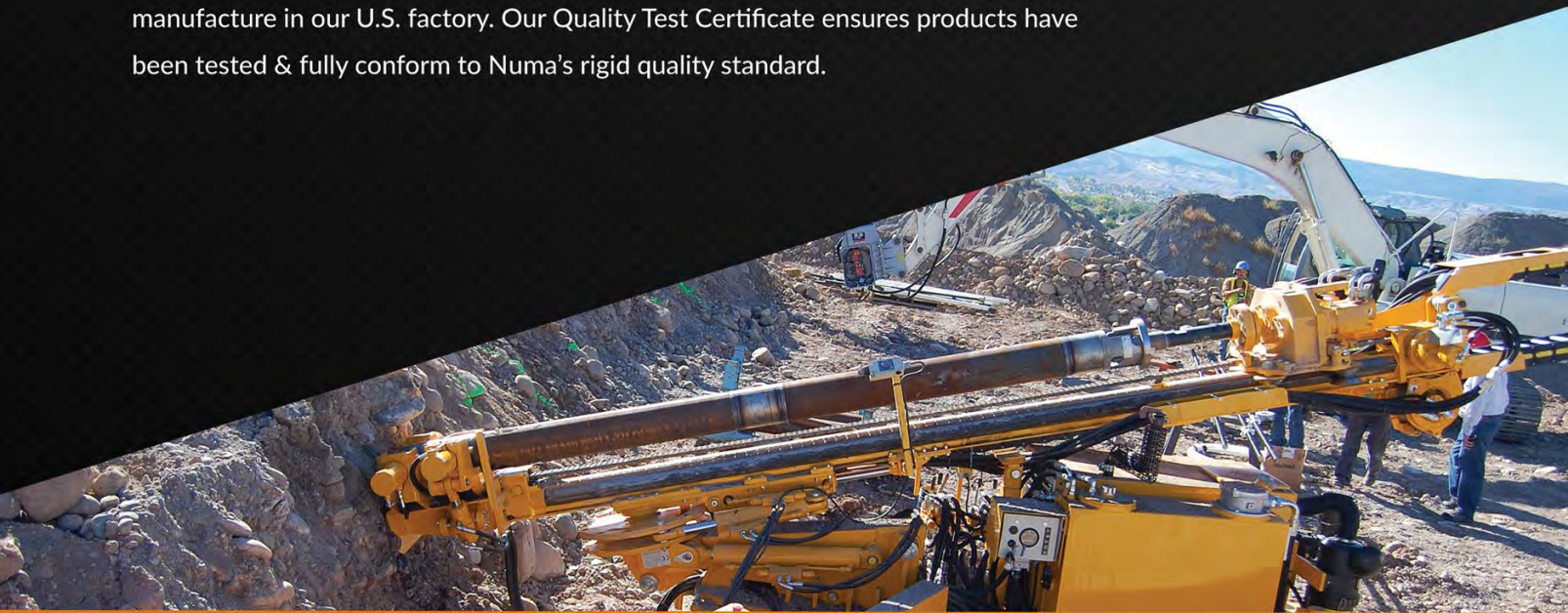
CUSTOMER FOCUSED, INNOVATIVE & RELIABLE

Numa provides our customers with the highest value in quality DTH products, performance, and service available in the drilling industry.

Unparalleled Customer Support by our highly-trained technicians who provide expert, factory-direct technical and product support when and where it is needed most.

Unrivaled Innovation and Configuration options designed to optimize products for drilling in the toughest rock formations in the world. Because all manufacturing is done in-house, we are nimble and can adapt to your unique project needs.

Unmatched Quality and Consistency in each and every product we design and manufacture in our U.S. factory. Our Quality Test Certificate ensures products have been tested & fully conform to Numa's rigid quality standard.



1000+



Years of
Combined DTH
Experience

105+



Countries
Served

30+



Years of
Unparalleled
Customer Service

2



Of the
Deepest Holes
Ever Drilled



SMALL HAMMERS AND BITS

Drills holes from 3 ½" to 10" (89 - 254 mm)

- Twelve hammer models designed for unique applications
- Hundreds of bit configurations for diverse drilling conditions
- Built for longevity and fast penetration rate
- Drill at high frequency and requires minimal air
- Exceptional performance against high heads of water
- Easy maintenance due to only 8 major hammer parts

DTH PRODUCTS BUILT FOR YOUR NEEDS

Numa provides unparalleled customer support before, during and after your drilling project. Our years of experience working directly with customers on job sites means we consider your needs for every product we design. Some of the many benefits Numa customers enjoy from our Small Hammer & Bit models include:



- Mining & Quarry: Reliable performance in various formations and conditions
- Water Well: Consistent and fast drilling, day in and day out
- Oil & Gas: Tough, dependable, proven deep hole drilling
- Construction: Configurable designs for specific needs
- Geothermal: Fast penetration rates in deep, hot drilling applications
- Horizontal: Efficient hard rock borehole drilling
- And many more...

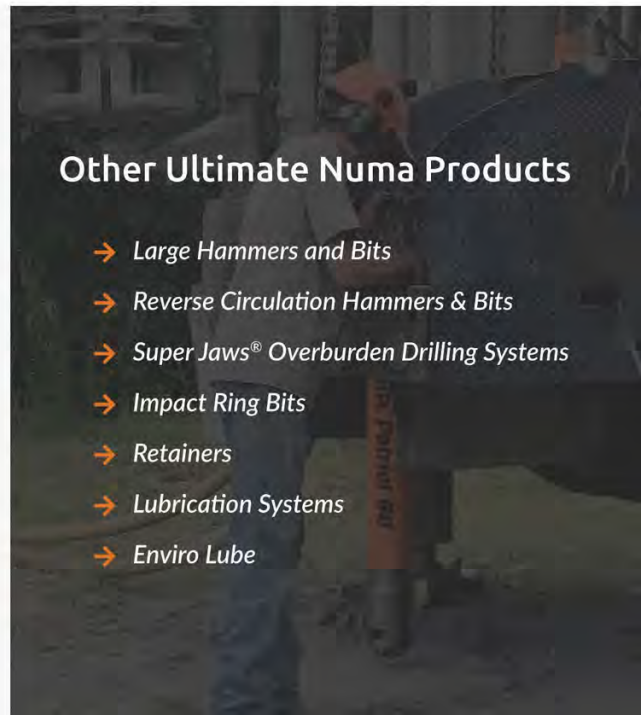
The Ultimate Rock Drilling Technology

Join the growing list of Numa customers experiencing the highest value in products, performance, and service in the drilling industry.

- Designs based upon 30+ years of experience with drillers
- Made in the USA quality and dependability
- Onsite and remote technical and product support
- Configurable DTH designs for every drilling need
- Dedicated, in-house engineering team
- Fully tested products that come with Numa's Quality Test Certificate

Other Ultimate Numa Products

- Large Hammers and Bits
- Reverse Circulation Hammers & Bits
- Super Jaws® Overburden Drilling Systems
- Impact Ring Bits
- Retainers
- Lubrication Systems
- Enviro Lube



Application IN THE FIELD



Fast and Reliable Blast Hole Drilling

A top blast hole drilling company in Pennsylvania has seen all kinds of DTH equipment throughout the years. This experience allows them to quickly evaluate products to determine which ones will stand up to their demanding drilling environment. They found Numa's hammer to be fast and reliable. With its long lasting, easy to use characteristics, it has continued to help them to drill more footage, more consistently. With over 100 years of experience, take it from this top drilling company and use Numa hammers.

"Numa's hammer ran as well as advertised. It was fast, but what it really excelled at was how well it stood up against the hard elements we drill in every day. It is a work horse. Another big benefit was how easy the hammer tears down for maintenance and rebuild. Numa's hammer definitely saves us time and money."

Natural Gas Exploration to Great Depths

Geological studies showed one of the world's leading natural gas producers that there were promising natural gas deposits in West Texas. The problem was that the natural gas was extremely deep - an estimated 17,600 feet (5364 m) below the surface. Due to this depth, the drilling contractor required a hammer that could provide continuous drilling without the incident of drill or bit failure and a costly restart. Inherent in the design of all Numa hammers is the ability to efficiently handle increased volume and back pressures.

Supplied with 4800 cfm (2266 l/sec) and drilling over 3 miles (5 km) below the surface, the Numa hammers were able to keep drilling where other hammers would have quit. The Numa DTH product line proved it has the muscle and longevity for even the most demanding drilling conditions.



Hammer & Bit Specification Charts

DTH HAMMERS Small Conventional Hammer Models

| Hammer | Bit Shank | Hole Sizes | | Diameter | | Bore | | Stroke | | Weight | | Length Shoulder to Shoulder | | Length Shoulder to Bit Face | | Thread Connection | Min Oil Required Quart/Hour | Blows/Min | |
|--------------|-----------|----------------|------------|----------|-----|------|-------|--------|-------|--------|-----|-----------------------------|--------|-----------------------------|--------|-------------------|--------------------------------|------------|-------------|
| | | inch | mm | inch | mm | inch | mm | inch | mm | lbs | kg | Inch | mm | inch | mm | | | psi | bar |
| Patriot 35A | 3.5 | 3 1/2 to 4 1/8 | 89 to 105 | 3 3/8 | 79 | 2.5 | 63.5 | 3.1 | 79.4 | 44 | 20 | 28.6 | 727.1 | 31.1 | 790.6 | 2 3/8 API Reg Pin | 1 | 1750 @ 350 | 1750 @ 23.8 |
| Patriot 40 | 340A | 4 1/4 to 5 1/4 | 108 to 133 | 3 3/4 | 95 | 3.1 | 77.5 | 4.0 | 101.6 | 78 | 35 | 36.1 | 917.6 | 39.4 | 1000.1 | 2 3/8 API Reg Pin | 1 | 1960 @ 350 | 1960 @ 23.8 |
| Patriot 40HD | 340A | 4 1/4 to 5 1/4 | 108 to 133 | 3 7/8 | 98 | 3.1 | 77.5 | 4.0 | 101.6 | 89 | 40 | 36.1 | 917.6 | 39.4 | 1000.1 | 2 3/8 API Reg Pin | 1 | 1960 @ 350 | 1960 @ 23.8 |
| DCS5 | QL50 | 5 1/2 to 6 1/8 | 140 to 156 | 4 7/8 | 124 | 4.0 | 101.6 | 3.0 | 76.2 | 138 | 63 | 36.4 | 925.5 | 40.1 | 1019.2 | 3 1/2 API Reg Pin | 2 | 2050 @ 350 | 2050 @ 23.8 |
| DCS5HD | QL50 | 5 3/4 to 6 1/4 | 146 to 159 | 5 | 127 | 4.0 | 101.6 | 3.0 | 76.2 | 165 | 75 | 36.4 | 925.5 | 40.1 | 1019.2 | 3 1/2 API Reg Pin | 2 | 2050 @ 350 | 2050 @ 23.8 |
| Patriot 50 | QL50 | 5 1/2 to 6 1/8 | 140 to 156 | 4 7/8 | 124 | 4.0 | 101.6 | 3.5 | 88.9 | 140 | 64 | 36.4 | 925.5 | 40.1 | 1019.2 | 3 1/2 API Reg Pin | 2 | 1950 @ 350 | 1950 @ 23.8 |
| Patriot 60 | QL60 | 6 to 8 3/4 | 152 to 222 | 5 1/2 | 140 | 4.5 | 114.3 | 4.0 | 101.6 | 184 | 84 | 38.8 | 985.5 | 43.2 | 1097.3 | 3 1/2 API Reg Pin | 2 | 1950 @ 350 | 1950 @ 23.8 |
| Patriot 60HD | QL60 | 6 1/4 to 8 3/4 | 159 to 222 | 5 3/4 | 146 | 4.5 | 114.3 | 4.0 | 101.6 | 196 | 89 | 38.8 | 985.5 | 43.2 | 1097.3 | 3 1/2 API Reg Pin | 2 | 1950 @ 350 | 1950 @ 23.8 |
| Patriot 60W | 360 | 6 to 8 3/4 | 152 to 222 | 5 1/2 | 140 | 4.5 | 114.3 | 4.0 | 101.6 | 204 | 93 | 43.2 | 1097.0 | 44.8 | 1138.2 | 3 1/2 API Reg Pin | 2 | 1800 @ 350 | 1800 @ 23.8 |
| Patriot 80 | 380 | 7 7/8 to 10 | 200 to 254 | 7 1/8 | 181 | 6.0 | 152.4 | 3.8 | 95.3 | 364 | 165 | 45.1 | 1146.2 | 49.9 | 1266.8 | 4 1/2 API Reg Pin | 3 | 1850 @ 350 | 1850 @ 23.8 |
| Patriot 85 | 380 | 7 7/8 to 10 | 200 to 254 | 7 1/8 | 181 | 6.0 | 152.4 | 3.8 | 95.3 | 419 | 190 | 52 | 1320.8 | 57.3 | 1455.4 | 4 1/2 API Reg Pin | 3 | 1850 @ 350 | 1850 @ 23.8 |
| Patriot 85Q | QL80 | 7 7/8 to 10 | 200 to 254 | 7 1/8 | 181 | 6.0 | 152.4 | 3.8 | 95.3 | 406 | 185 | 51.2 | 1300.5 | 56.0 | 1422.5 | 4 1/2 API Reg Pin | 3 | 1850 @ 350 | 1850 @ 23.8 |

DRILL BITS Conventional Models

S= Standard O= Optional

| Size Class | Bit Shank | Diameter Hole | | Weight | | Air Slots | Face | | | Gauge Buttons | Carbide Size | | | | | Diamond | Wear Protection | Retained |
|------------|-----------|----------------|------------|------------|----------|-----------|------|----|---|---------------|--------------|-------|------|------|------|---------|-----------------|----------|
| | | inch | mm | lbs | kgs | | CC | CV | F | | 7/16" | 9/16" | 5/8" | 3/4" | 7/8" | | | |
| 3" Class | 3.5 | 3 1/2 to 4 1/8 | 89 to 105 | 14 to 15 | 6 to 7 | 2 | | S | S | 8 | S | | | | | | | |
| 4" Class | 340A | 4 1/4 to 5 1/4 | 108 to 133 | 18 to 22 | 8 to 10 | 2 or 3 | S | S | S | 8 | | S | O | | | O | O | |
| | TD40 | 4 1/4 to 5 1/4 | 108 to 133 | 21 to 24 | 10 to 11 | 2 or 3 | S | S | S | 8 | | S | O | | | O | O | |
| 5" Class | QL50 | 5 1/2 to 6 1/8 | 140 to 156 | 33 to 36 | 15 to 16 | 2 or 3 | S | S | S | 8 or 10 | | | S | O | | O | O | O |
| 6" Class | 360 | 6 to 6 3/4 | 152 to 171 | 52 to 55 | 24 to 25 | 2 | S | S | S | 8, 9 or 10 | | | S | O | | O | O | O |
| | 360 | 7 to 8 3/4 | 178 to 222 | 63 to 76 | 29 to 34 | 3 | S | | S | 9 | | | S | O | | O | O | |
| | QL60 | 6 to 6 3/4 | 152 to 171 | 52 to 55 | 24 to 25 | 2 or 3 | S | S | S | 8, 9 or 10 | | | S | O | | O | O | O |
| 8" Class | QL60 | 7 to 8 3/4 | 178 to 222 | 63 to 76 | 29 to 34 | 3 | S | | S | 9 | | | S | O | | O | O | |
| | QL80 | 7 7/8 to 10 | 200 to 254 | 106 to 125 | 48 to 57 | 3 | S | | | 12 | | | | S | O | O | O | O |



FLAT

Provides good performance in medium to hard formations. The strongest face design producing durable, long lasting drilling.



CONCAVE

Provides consistent drilling in all formations. The cone shaped depression in the face has piloting effect to drill straighter holes.



CONVEX

Provides fast penetration rates in hard and abrasive formations. Face design allows for increased body support for gauge carbide.



SPHERICAL

Provides best overall performance in granite hard rock and granite formations. Known as the strongest carbide for deep hole drilling.



BALLISTIC

Provides fastest penetration rates in soft/medium, less abrasive formations. Produces larger spoils/cuttings.



DOUBLE DOME

Provides best performance in limestone and sandstone formations. Much stronger than ballistic and still performs when not sharpened.



The World's **Leading**
Drilling Technology

860.923.9551
www.numahammers.com

646 Thompson Rd
PO Box 348
Thompson, CT 06277
USA



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