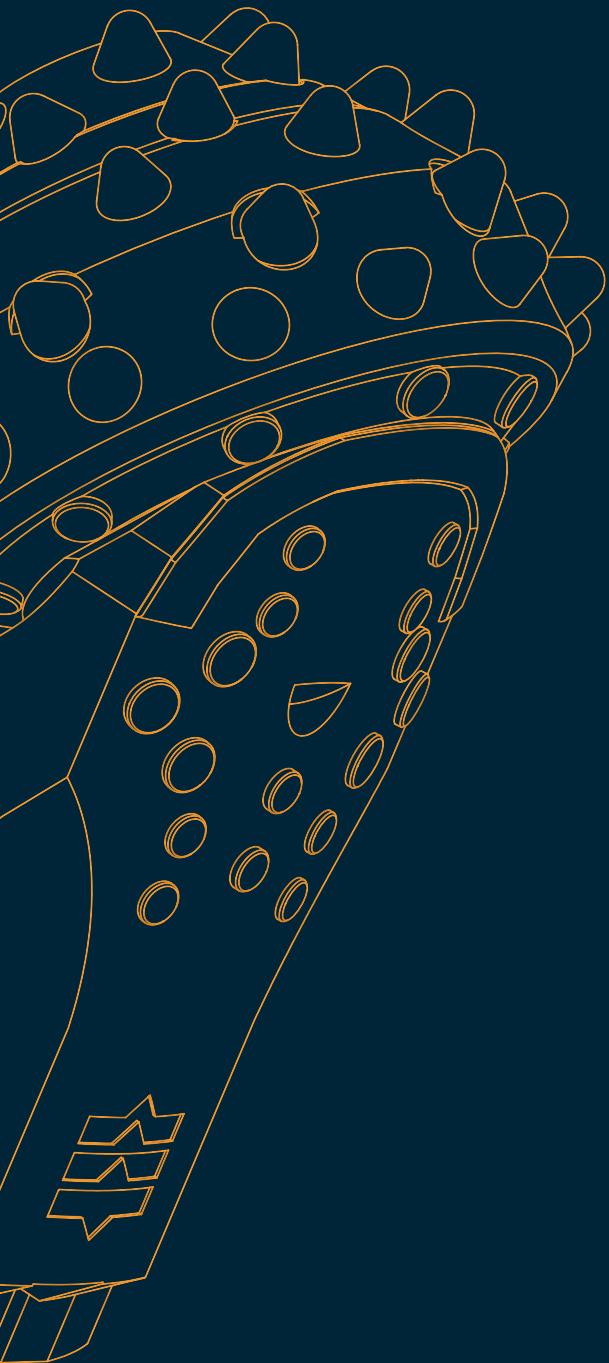




ROLLER BIT | ROUND SHANK CHISEL



[www.drillnova.com](http://www.drillnova.com)

# DRILLNOVA



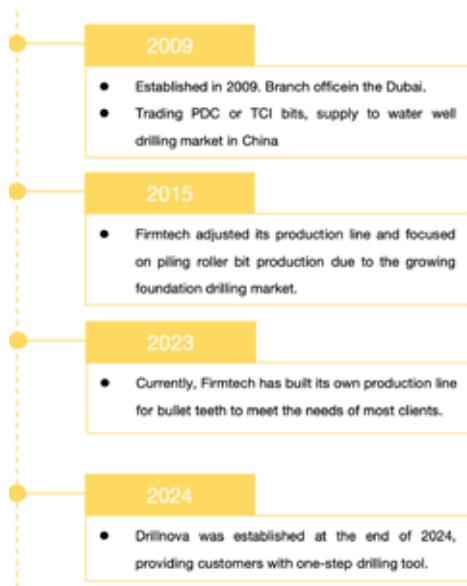
## Welcome to DRILLNOVA

Established as a subsidiary of FIRMTECH, Drillnova carries forward the same spirit of drilling innovation and reliability. Based in Hebei, China, we specialize in the manufacturing of roller bits and bullet teeth for Foundation Piling, Mining, and HDD, providing trusted solutions for demanding drilling environments.

With a global footprint extending from Shenzhen and Guangzhou to Europe, South Asia, and the Middle East, Drillnova products are recognized by customers worldwide. Backed by solid field experience, we focus on enhancing drilling efficiency, reducing operational costs, and keeping you competitive in the marketplace.

At Drillnova, we are more than a tool manufacturer — we are your drilling solutions partner. Leveraging industry expertise and advanced technology, we help you stay **"ALWAYS ONE TURN AHEAD"** in every project.

Join us as we continue to support your success with professional knowledge, reliable products, and a commitment to solving the toughest drilling challenges.



## Your Trusted Partner On-Site



# ROLLER BIT MH-3

## PREMIUM TYPE

### 52-Inserts Full Coverage

Ensures optimal rock contact for higher penetration and extended working life, boosting overall field performance.



**3<sup>rd</sup> Generation Cone**



### Wear-Resistant Alloy Bearings

Bearings coated with a high-durability alloy, providing longer service life and stable performance - even under harsh drilling conditions.

Real-world tests show an average depth increase from 35m to 45m per run.

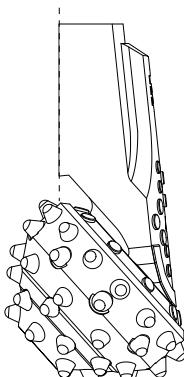
Beyond standard O-ring seals, we add a protective layer using high-precision machinery. This design shields the O-ring from cutting wear, further extending the bit's overall lifespan.



## 4<sup>th</sup> Generation Body

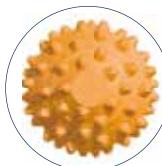
### Preloaded Welding Angle

Specially engineered for piling operations, each leg arrives preset with the optimal welding angle. No measuring or adjustments needed—just place it on the cutting ring.

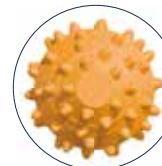


### Select Cone Design

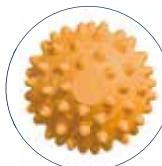
### 3rd Generation



**Chisel**  
60-110MPa  
Medium-Hard



**Conical**  
100-180MPa  
Balanced Option



**Spherical**  
150-280MPa  
Ultra-Hard

### Vacuum Grease System

Upgraded lubrication system outperforms traditional methods, optimizing grease flow and effectively reducing heat from friction.

*"This design innovation has simplified our daily workflow, allowing us to focus on productivity rather than tedious angle checks."*

*— On-Site Feedback*

### Faster, More Accurate Welding

Real-world tests show up to 20% less setup time and fewer alignment errors, boosting both workshop and on-site

# DESIGN EVOLUTION

Continuous innovation for better penetration, simpler welding, and stronger durability

## Cone Generation

Smarter Insert Layouts, Better Penetration



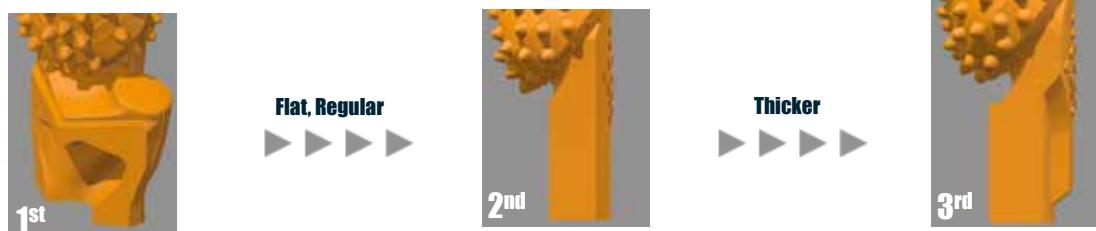
- Tricone Bit Structure (OD 118mm)
- Limited Inserts → Low penetration rate
- Blind grooves → Basic layout, less durability

- Piling Bit Structure (OD 118mm)
- Increased Inserts → Reduced blind spots, better cutting contact
- Challenges → Medium penetration, still room for improvement

- Full Coverage Inserts (OD 120mm)
- No Blind Spot → Maximized penetration, longer lifespan
- Field Result → +10% Drilling Efficiency vs. 2nd Gen

## Body Generation

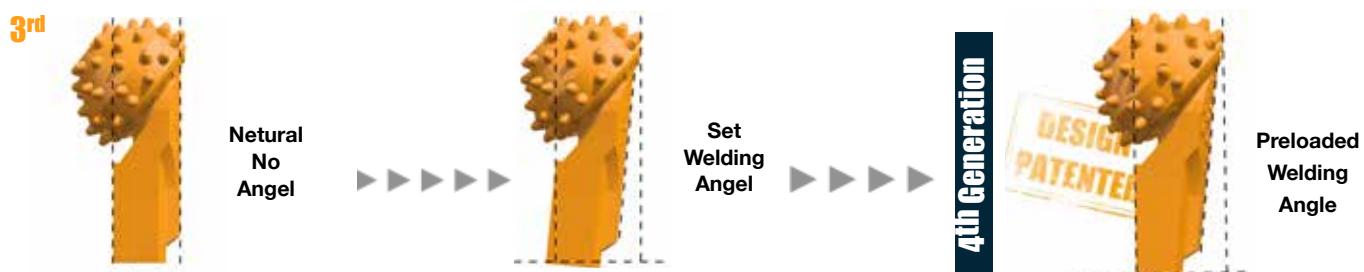
Refining shape & welding angles for robust performance



- Shape: Irregular 120° & nozzle segment
- Challenges:
  - Difficult welding & positioning
  - Risk of heat damage when cutting nozzle

- Shape: Flat, regular body
- Advantages: Fast welding to cutting ring
- Challenges: Reduced strength due to thinner body

- Shape: Flat & thicker body
- Advantages: Better drilling weight tolerance
- Challenges: Manual angle alignment still needed

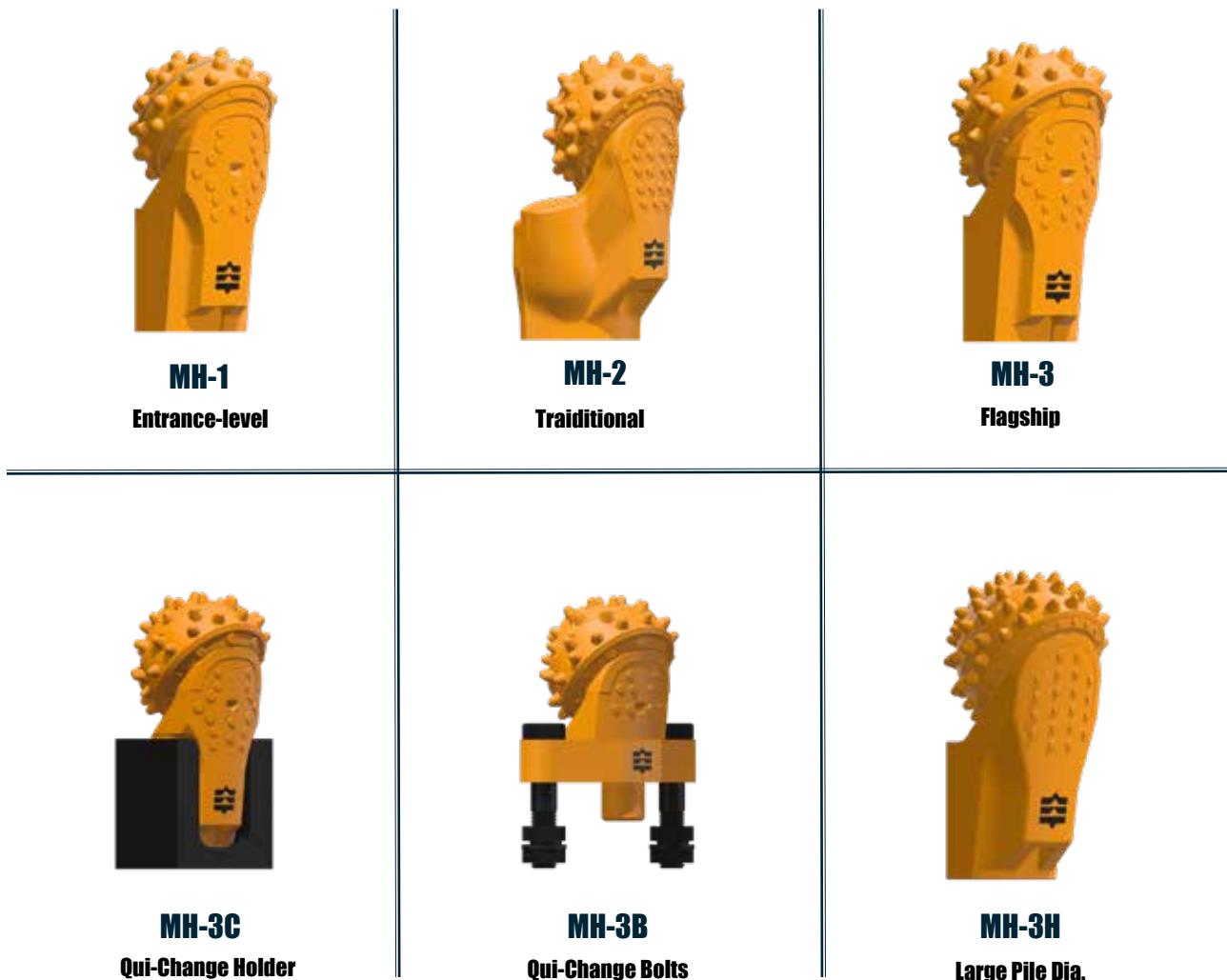


- Automatic alignment
- Higher load capacity
- +20% Faster welding

**DRILLNOVA - ALWAYS ONE TURN AHEAD**

# ROLLER BIT DATA SHEET

DRILLNOVA offers multiple Roller Bit models to tackle varied formations



Model	Cone Type	Cone (Teeth Dia. x Qty-Dia.)	Body Type	Connect	Selection Advice
<b>MH-1</b>	2 <sup>nd</sup>	13x45-132	4 <sup>th</sup>	Welding	Smaller piles / moderate rock; cost-effective in construction
<b>MH-2</b>	3 <sup>rd</sup>	14x52-139	1 <sup>st</sup>	Welding	Widely used in oil & gas; stable penetration in mediumhard formations
<b>MH-3</b>	3 <sup>rd</sup>	14x52-139	4 <sup>th</sup>	Welding	For tough, abrasive rock; +20% faster drilling in field tests
<b>MH-3H</b>	3 <sup>rd</sup>	17x74-191	4 <sup>th</sup>	Welding	Large-diameter boreholes (OD>2000mm); robust torque capacity
<b>MH-3C</b>	3 <sup>rd</sup>	14x52-139	Holder	Qui-Change	Holder-based quick-change; easy on-site swaps, minimal downtime
<b>MH-3B</b>	3 <sup>rd</sup>	14x52-139	Bolts	Qui-Change	Bolt-type quick replacement; extra stability for specialized core barrels

\* MH-1 Raw Material 20CrNiMo

\* All models come standard with Journal bearing, Double sealing, and a Vacuum grease system.



## ROUND SHANK CHISEL

### *Bullet Teeth*

### **Ultra-Coarse Carbide of World-Class Top Level**

DRILLNOVA round shank chisel features top-grade, Ultra-coarse tungsten carbide, offering superior heat transfer capabilities. Even in hard and highly abrasive formations, the inserts effectively maintain a relatively low temperature, ensuring exceptional performance and durability.

### **Master of Brazing Technology**

DRILLNOVA utilizes state-of-the-art automatic welding technology for the production of bullet teeth. The advanced welding system ensures precise control of brazing temperatures, maintaining a strict tolerance of  $\pm 10$  degrees Celsius. By seamlessly combining brazing and heat treatment into a single, efficient heating process, it effectively reduces decarburization and enhances the overall quality and durability of the product.

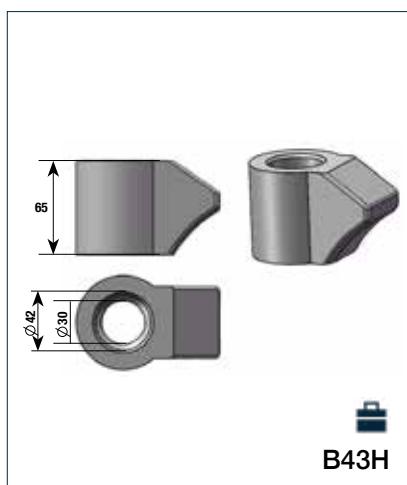
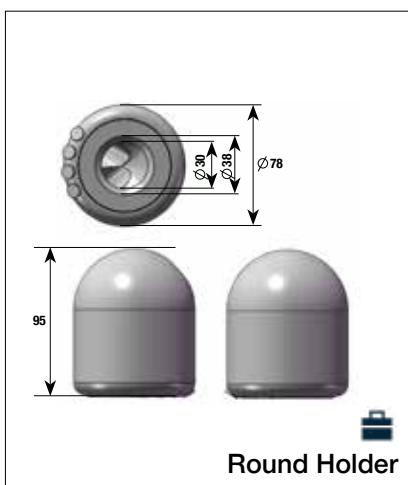
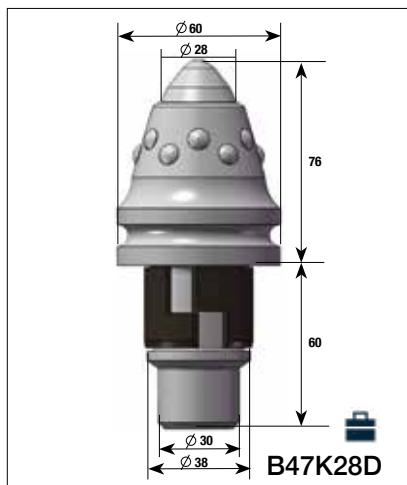
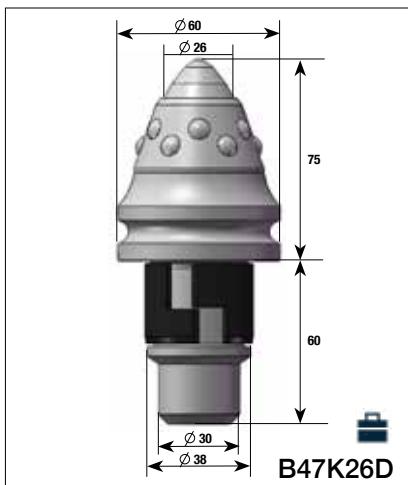
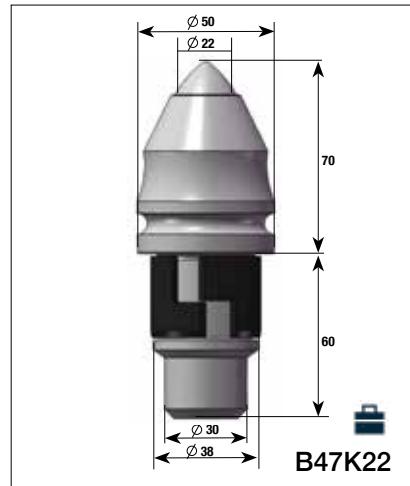
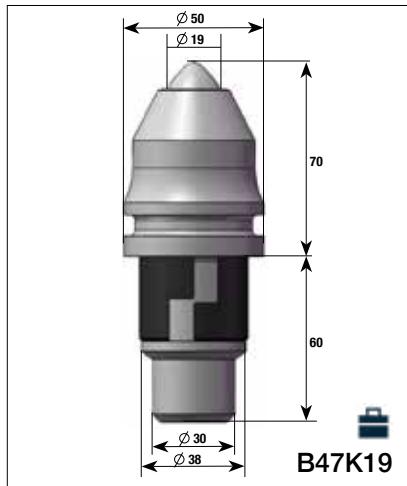
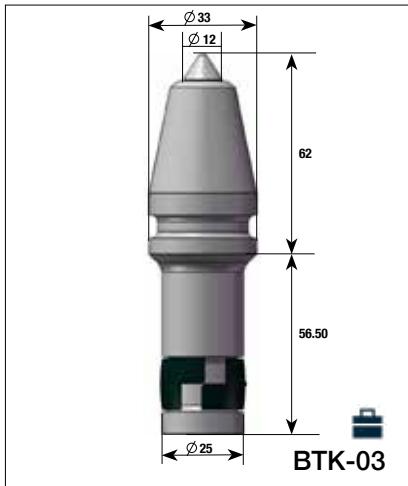
### **Superior Wear-Resistant Body**

Crafted from advanced wear-resistant materials and refined through low-temperature forging, the body achieves exceptional surface hardness while preserving internal toughness.



# SPECIFICATION

## Rotary Drilling Teeth

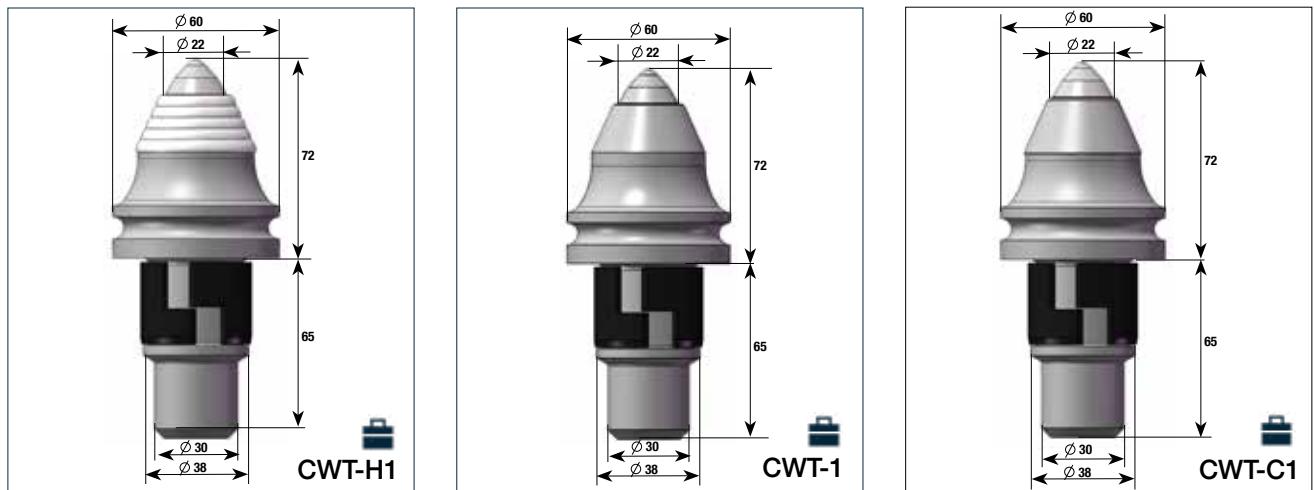


## Body Protections :

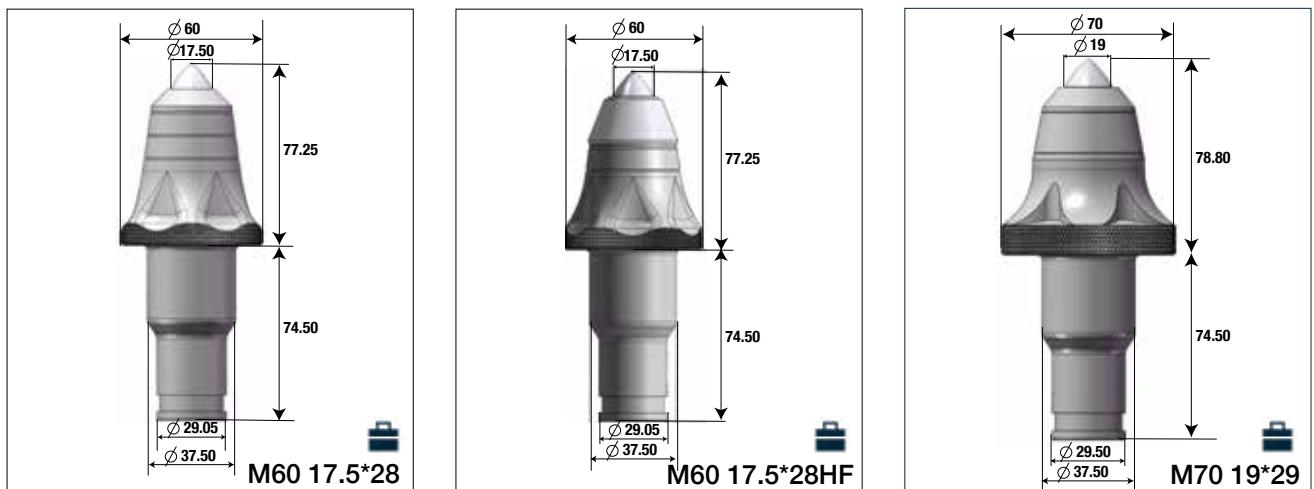
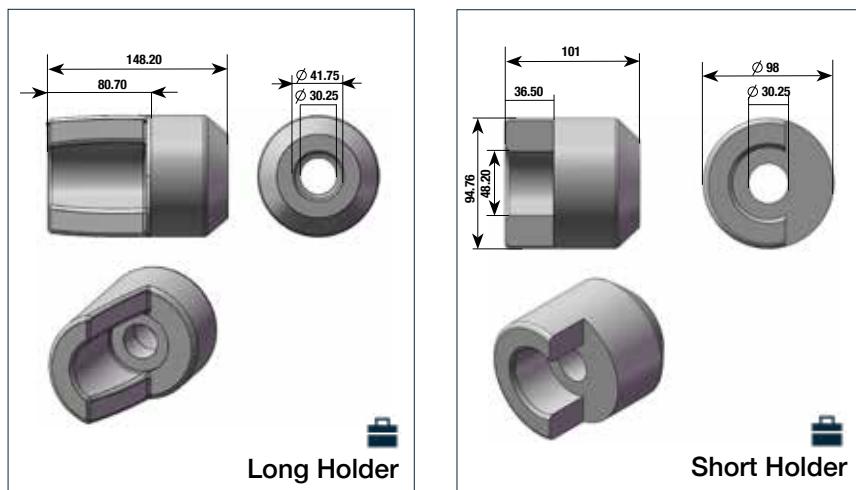


# HOLDER SPECIFICATION

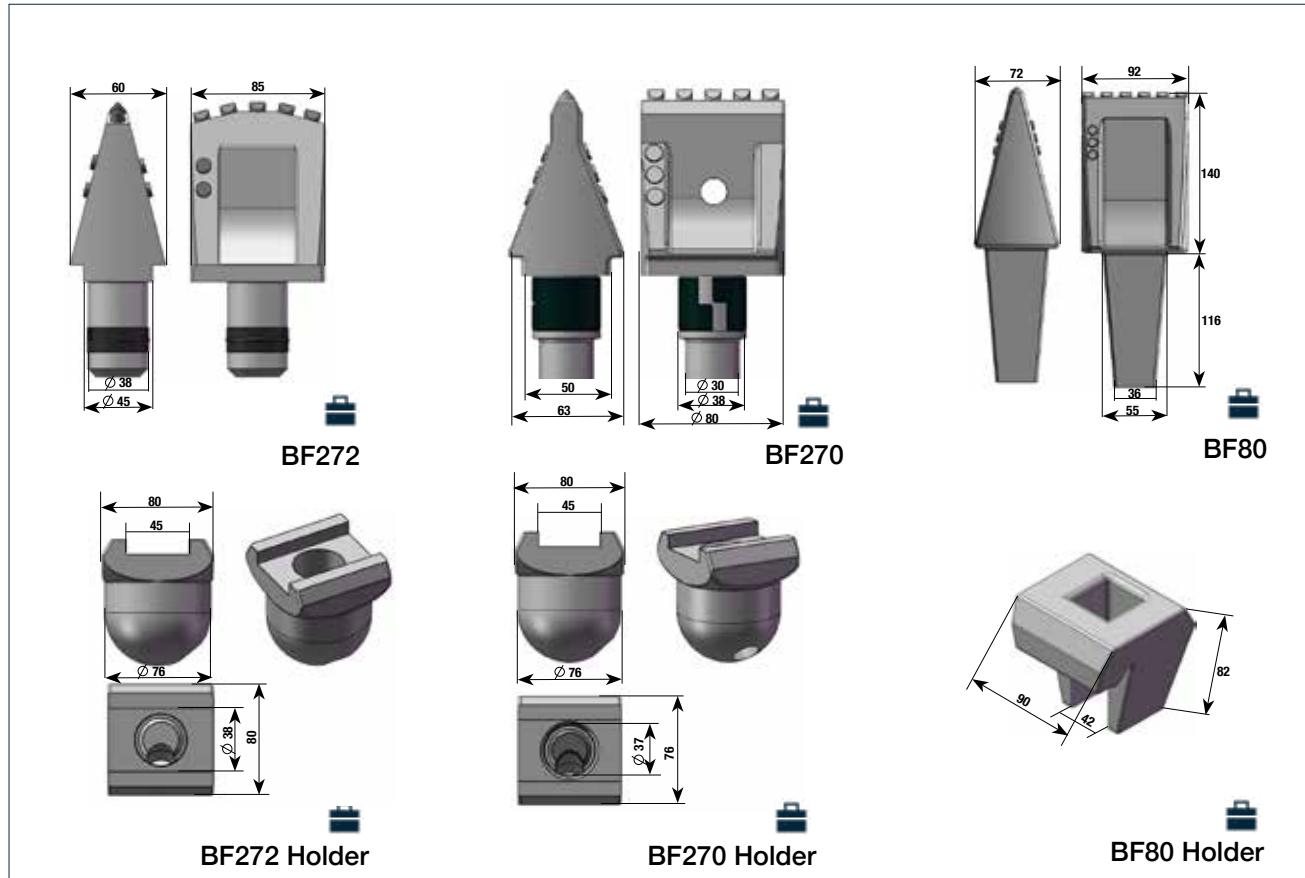
## Hydromill Cutting Teeth



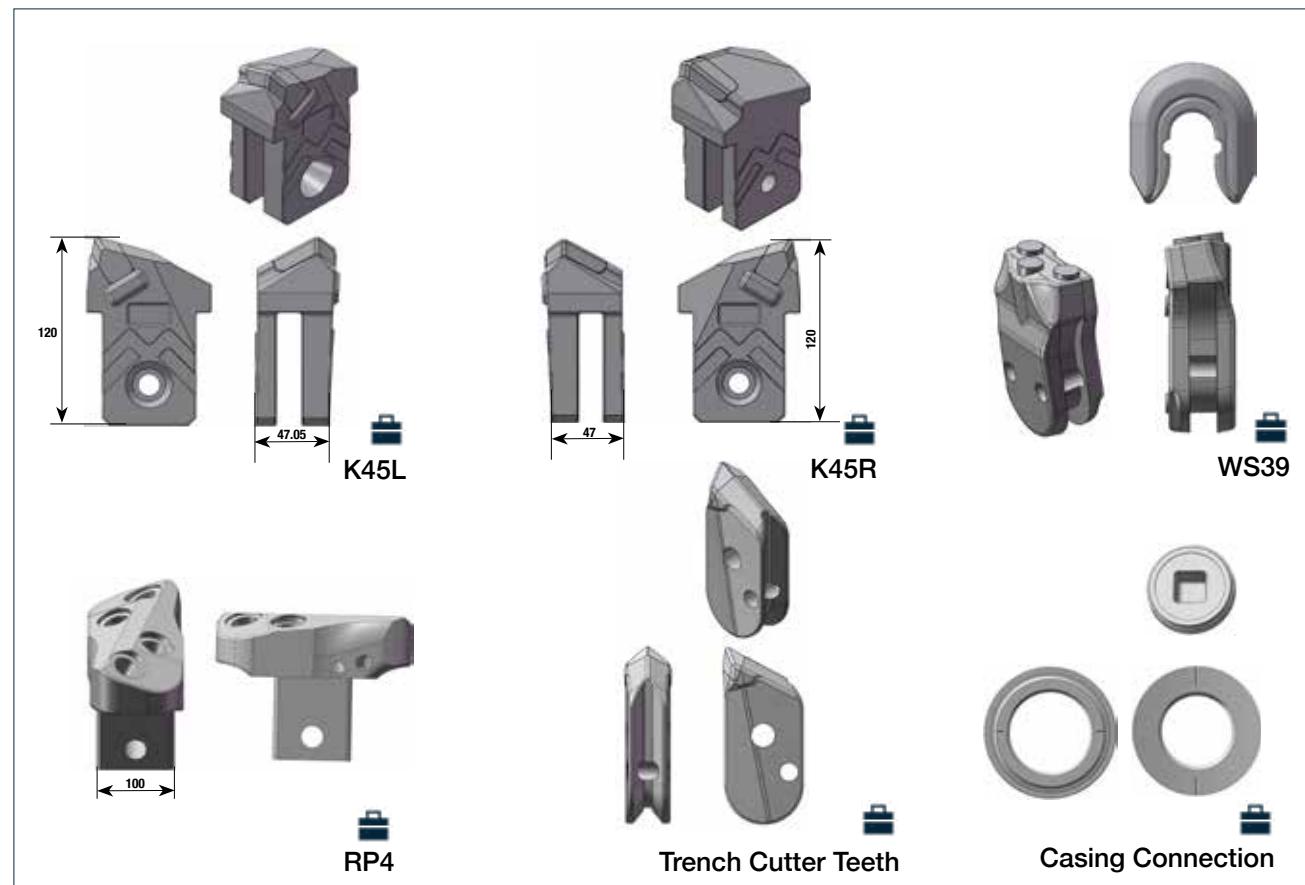
## Coal Mining Picks



## Soil Cutting Teeth



## Other



# Application



## TianGui Intercity Railway, China

**Tools:** RSC CWT-01

**Time:** Dec. 2023

**Location:** Guangzhou, China

**Company:** Guangzhou Shenda Construction

**Formation:** Granite, UCS 100 MPa+

**Performance:** Site feedback



## Shenzhen Wuhe Subway Station, China

**Tools:** MH-3C Roller Bit

**Time:** Sept. 2024

**Location:** Guangdong, China

**Company:** Guangdong Centennial Construction

**Formation:** Granite

**Performance:** Roller bit was used in 1.5m, and 1.8m core barrels. One brand-new set of roller bit achieved around 35 m socketing.



## D'Erica @ Ctr Park D'sara, Malaysia

**Tools:** MH-3H Roller Bit

**Time:** May 2023

**Location:** Malaysia

**Company:** Geotechnical Alliance (a subsidiary of Soletanche Bachy)

**Formation:** Granite

**Performance:** Using MH-3H roller bit, the working life was improved

# DRILLNOVA

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