

**DRILLNOVA**

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**HDD TOOLS** [www.drillnova.com](http://www.drillnova.com)

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## About DRILLNOVA

**DRILLNOVA** is a dedicated brand under FIRMTECH, specializing in the research, development, and manufacturing of high-performance trenchless drilling tools and accessories. With over a decade of industry expertise, we focus on delivering reliable and innovative solutions for Horizontal Directional Drilling (HDD), microtunneling, auger boring, and other trenchless applications worldwide.

Our product portfolio covers a full range of drilling and wear parts, including **PDC bits, reamers, hole openers, roller cutters, tricone bits, pulling eyes, auger flights, auger connections, and other customized trenchless accessories**. Each product is engineered to meet the demanding requirements of utility installation, pipeline crossings, fiber optic deployment, and complex ground conditions.

At DRILLNOVA, **quality, efficiency, and service** are at the heart of everything we do. We support contractors and dealers with:

- **Fast delivery** through streamlined production and logistics,
- **Stable performance** with proven designs and strict quality control,
- **Technical customization** tailored for diverse ground formations—from soft clay to abrasive hard rock.

By choosing DRILLNOVA, you gain a trusted partner dedicated to advanced trenchless solutions, helping your projects succeed with reliability and precision.

## Tricone Bit

**NovaPilot™ Series Tricone bits** are purpose-built for Horizontal Directional Drilling (HDD) operations. Engineered to deliver smooth guidance, rapid penetration, and extended durability, these bits perform exceptionally across diverse ground formations—from soft soils to abrasive rock layers.



### TCI Bit

**Size:** 5.5", 6", 6.5", 7.875", 8.5"

**IADC Range:** 517 / 537 / 617 / 637

**Bearing Type:** Rubber & Metal sealed journal bearing

**Recommended WOB (kN/mm):** 0.37-1.2

**Recommended RPM:** 40-140

#### Applicable Formations:

- Shale & Limestone
- Sandstone
- Quartz-rich formations- Granite
- Basalt, and other high-strength igneous rocks



### Milled Tooth

**Size:** 5.5", 6", 6.5", 7.875", 8.5"

**IADC Range:** 117 / 127 / 217

**Bearing Type:** Rubber sealed journal bearing

**Recommended WOB (kN/mm):** 0.35–1.2

**Recommended RPM:** 50–180

#### Applicable Formations:

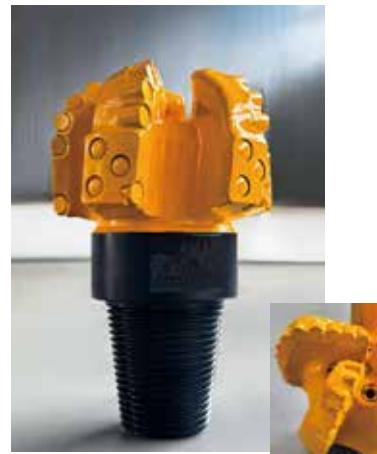
- Clay, Mudstone
- Chalk, Shale,
- Limestone & Sandstone

DRILL RIG	HOUSING OPTIONS	BIT SIZE	PIN SIZE
JT2720AT	w/ 3.75" dia. Rockmaster® housing	4 3/4" – 5"	2 7/8" Reg.
JT2720AT	w/ 4.75" dia. Rockmaster® housing	5 1/2"	2 7/8" Reg.
JT30AT	w/ 3.75" dia. Rockmaster® housing	4 3/4" – 5"	2 7/8" Reg.
JT30AT	w/ 4.75" dia. Rockmaster® housing	5 1/2"	2 7/8" Reg.
JT3020AT	w/ 3.75" dia. Rockmaster® housing	4 3/4" – 5"	2 7/8" Reg.
JT3020AT	w/ 4.75" dia. Rockmaster® housing	5 1/2"	2 7/8" Reg.
JT4020AT	w/ 5" dia. Rockmaster® housing	6" – 6 1/2"	3 1/2" Reg.
JT60AT	w/ 5" dia. Rockmaster® housing	6" – 6 1/2"	3 1/2" Reg.
JT100AT	w/ 5" dia. Rockmaster® housing	6" – 6 1/2"	3 1/2" Reg.
D36X50DR		6" – 6 1/2"	3 1/2" Reg.

# PDC Bit

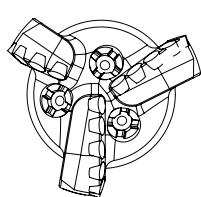
**NovaPilot™ Series PDC bits** redefine pilot-hole drilling efficiency. Built for soft to medium formations, they combine **precision engineering** with **durable PDC cutters** to deliver **high ROP**, **superior steering response**, and **long service life**.

In comparative field results, **NovaPilot™** drills up to four times faster than traditional tricone bits in **sandstone, shale, and limestone**, cutting **downtime and overall project cost** across trenchless HDD operations.

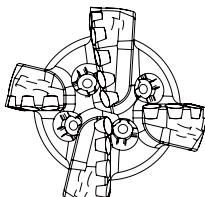


## Why Choose Drillnova PDC Bits?

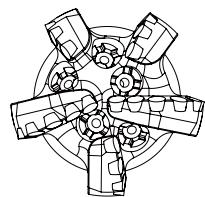
- **Optimized for HDD rigs** – Compatible with Vermeer, Ditch Witch, Tracto and others
- **Blade options** – 3 to 6 blade configurations



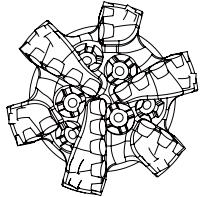
3-Blade



4-Blade



5-Blade



6-Blade

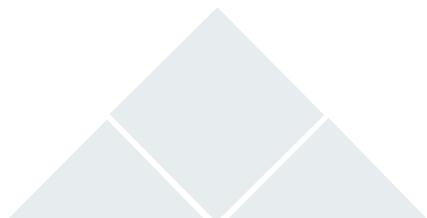
- **Durable cutters** – Cutter sizes 13mm, 16mm, 19mm, high-grade for extended life in abrasive formations

- **Hard-Facing**



- 40% higher carbide density
- Longer hours in abrasive formations
- Reduces Lost Cutters & Ring Out

- **Compact short shank** – Enhanced directional control



Better steering performance in HDD rigs

**Short Shank**

## Technical Parameters & Drilling Settings

### Popular Spec. For HDD

Size (in)	Cutter Size	Blade	Pin Connection	Rig Compatibility
5-1/2"	1313	4/5	2-7/8" API Reg	JT2720AT/JT30AT/JT3020AT/D23x30DR S3/ACS130
6"	1313	4/5	3-1/2" API Reg	JT4020/JT60AT/JT100AT/D36X50DR/18ACS/20ACS/ACS300
6-1/2"	1313	4/5	3-1/2" API Reg	JT4020/JT60AT/JT100AT/D36X50DR/18ACS/20ACS/ACS300

Other sizes & API connections available upon request, from 89mm to Maximum 700mm

### Recommended Weight & RPM Settings

Size (in)	Blade	Thrust (ton)	RPM	Mud Flow (L/min)	Typical Ground
5-1/2"	4	Up to 4	120-280	70-90	Clay, soft sandstone
6-1/2"	5	Up to 4	120-280	70-90	Medium sandstone, shells

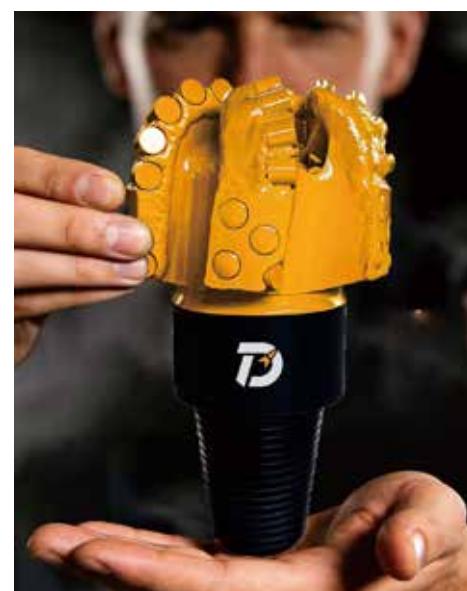
### Additional Notes from Field for using PDC bit:

- 200-300 RPM for most HDD rigs
- Torque monitoring is essential –if torque spikes & ROP drops → rock too hard → stop
- 4-blade bit, Very aggressive on hard clay / soft rock, 6-blade is slower, smaller chips – not ideal in tough rock for HDD
- PDC not recommended for granite, quartzite, high-silica ironstone or very hard basalt– use roller bits in those cases



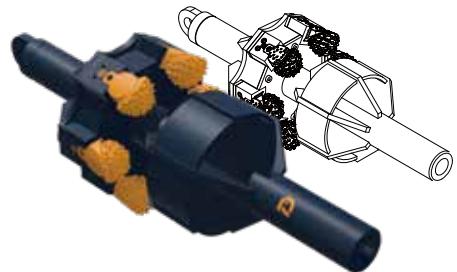
### Have Questions ?

Talk directly with our drilling engineer.



# Bolt-On Hole Opener

**NovaForce™ B Bolt-on hole opener** are designed for contractors who need maximum on-site flexibility. With a bolt-on replaceable cone system, operators can easily swap out different cone types--chisel, conical, or spherical--directly on the jobsite to adapt to changing ground conditions.



## Specifications

- **Hole Opener Dia.:** 12" - 48"
- **Cutter Types:** Bolt-on type for fast field maintenance
- **Cone Sizes:** MH-7R, MH-3R, 12MH-3R
- **Thread:** API REG / IF / NC threads available
- **Soil Condition:** Ideal for reaming soft to hard formations

OD Size	Roller Bit Size Recommended	Rollers No. Recommended
12"	MH-7R	3
14"	MH-3R	4
16"	MH-3R	4
18"	MH-3R	5
20"	MH-3R	6
22"	12MH-3R	4
24"	12MH-3R	4
26"	12MH-3R	5
28"	12MH-3R	6
30"	12MH-3R	6
32"	12MH-3R	7
34"	12MH-3R	7
36"	12MH-3R	8
38"	12MH-3R	9



# Replaceable Cutter

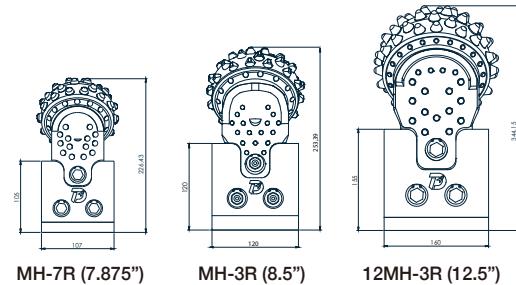
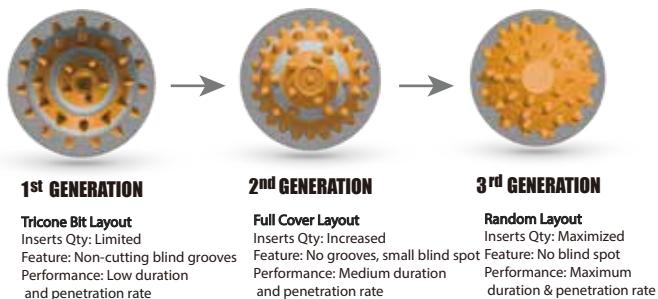
Drillnova **Replaceable Cutter** is engineered for high-efficiency field maintenance in HDD and Microtunneling reaming projects. Each cutter uses a refined insert layout, tailored for directional drilling—minimizing vibration, enhancing steering precision, and increasing ROP across soft to hard formations.



Featuring a Slot pocket & 3-bolt + spring-lock design, it enables secure and fast cutter replacement without welding, reducing downtime and labor on site.

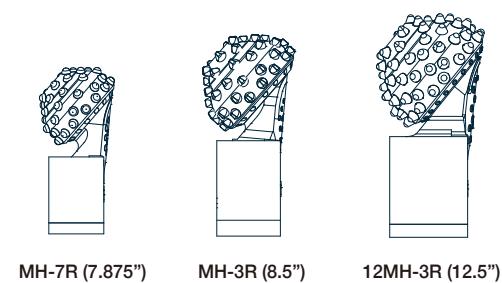
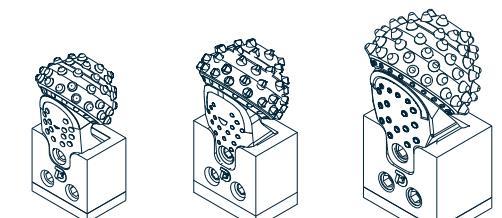
## Available Cone Sizes & Configurations

### Design Revolution



### Select Cone Design

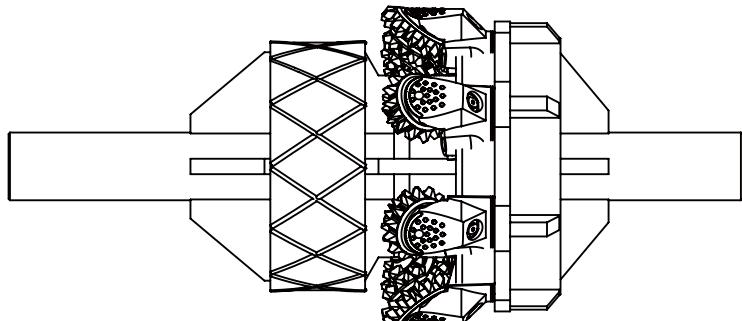
#### 3rd Generation



## Fixed Type Hole Opener

**NovaForce™ F- Fixed Type Hole Opener** is built with a fully welded arm-body structure for maximum strength and simplicity. Designed for cost-effective HDD reaming, it eliminates the need for bolt-on components—ideal for one-pass operations or single-use projects in medium to hard formations.

Equipped with high-quality TCI cones and a solid steel frame, this tool is optimized for straight-line reaming, low maintenance, and stable torque transfer.



## Tricone Roller Cutter

- Welded cone cutter offering high load-bearing capacity and secure welded attachment. They are commonly installed as integrated units, featuring a variety of tooth types to suit different rock strengths.

- **Cone Cutter Structure**

**Steel Tooth:** Suitable for soft to medium formations  
**TCI (Tungsten Carbide Insert):** Suitable for medium to hard rock formations

- **Sealing Options:** Metal/Rubber seal

- **Cone Size Range:** 5.5" 6" 8.5" 12.25" 13.875"

- **OD Size:** 200 mm to 1800 mm

- **IADC Code:** 517 / 537 / 617 / 637 / 737



OD Size	Roller Bit Size Recommended	Rollers No. Recommended
8"	5-7/8"	3
10"	6"	3
12"	8-1/2"	3
14"	8-1/2"	4
16"	8-1/2"	4
18"	8-1/2"	5
20"	9-7/8"	4
22"	9-7/8"	5
24"	9-7/8"	6
26"	12-1/4"	5
28"	12-1/4"	6
30"	12-1/4"	6
32"	12-1/4"	7
34"	12-1/4"	7
36"	12-1/4"	8
38"	13-5/8"	8
40"	13-5/8"	9

## Fixed Type PDC Reamer

**Novacut™ F** is a solid-body PDC reamer engineered for maximum durability and fast penetration in HDD applications.

With a fixed blades, it offers zero-maintenance performance and is ideal for contractors seeking a simple, robust solution for single-pass or long-distance reaming in abrasive and consolidated formations.

Made from 42CrMo alloy steel (Tempered) and equipped with premium polycrystalline diamond cutters, it excels in sandstone, shale, limestone, and similar formations. No moving parts. Just cut, clean, and finish.

**Rugged Simplicity. Extended Tool Life. High-Speed Cutting.**

### Key Features

- One-piece solid body
- Available in 3-7 blade designs
- Longer tool life with premium steel + wear-resistant hardfacing
- Jetting ports optional for improved cuttings evacuation
- One-pass large diameter expansion

**“Bolt-On PDC Reamer helped us finish a 500m HDD bore in shale two days ahead of schedule.”**

— HDD Contractor, Australia



Spec Item	Details
Size Range	8"-36"
Blade Count	3/4/5/6/7
Cutter Sizes	13/16/19mm
Connection	API RED/IF/NC (customizable)



*Built to last. Cut once, cut right.*

# Bolt-On PDC Reamer

**Novacut™ B** is a modular PDC reamer featuring a bolt-on blade system, purpose-built for horizontal directional drilling (HDD) projects that demand flexibility, fast turnaround, and long tool life.

## Replace blades, not your reamer.

The Novacut™ B modular body allows contractors to change worn blades directly on-site using basic tools — no welding, no waiting. Its reusable steel body paired with premium diamond PDC blades ensures superior cutting performance in abrasive and medium-hard formations while reducing spare inventory and downtime.

## Replace blades, not your reamer.

### Key Features

- Swap blades on site – no need to return full body
- Compatible with multiple blade sizes
- Reduced spare inventory and extended tool lifecycle
- Bolt-on structure with anti-loosening lock system

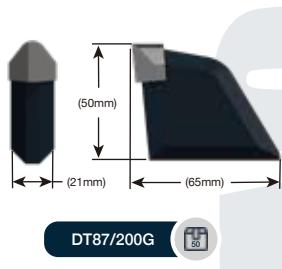
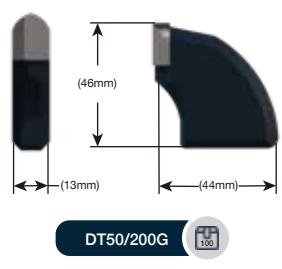
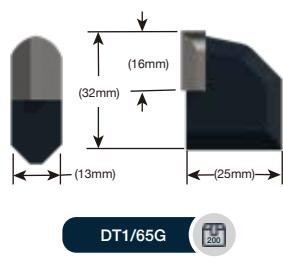
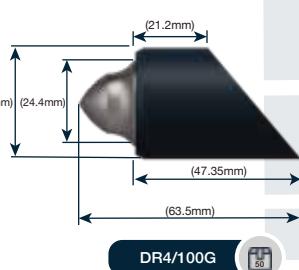
**Efficient maintenance + reduced downtime = more profit per meter.**

Spec Item	Details
Size Range	8"–36"
Blade Count	3 / 4 / 5 / 6 / 7
Cutter Sizes	13 / 16 / 19 mm
Blade Type	Bolt-on PDC blade (single / double-row)
Connection	API REG / IF / NC (customizable)



**Novacut™ B – Your modular reaming solution.**

## Weld-on Teeth



## Other HDD & Microtunneling Tools



Microtunneling Drill Head



PDC Cone Bit



Rock roller Head



Auger Flight



Drill Rod Pin



Pulling Eye

# Soil Drilling Tools

## Barrel Reamer

For HDD Reaming In Normal To Medium Soil Formations

### Hole Diameter Range:

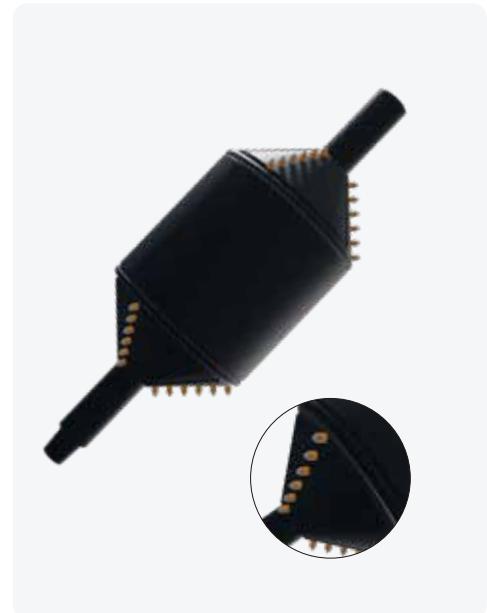
Φ150 mm – Φ1800 mm

### Application:

Barrel reamers are designed for HDD reaming operations in normal to medium-hard rock formations, providing stable hole enlargement and smooth bore walls.

### Key Advantages

- Smooth Reaming Performance
- Angled Welded Cutters
- Stable Bore Diameter Control
- Improved Pipe Pullback Efficiency



Item	Description/Specification	Shaft	
		2 3/8"REG BOX	2 7/8"REG BOX
1	Barrel Reamer-300MM/12"	89mm	108mm
2	Barrel Reamer-350MM/14"	89mm	108mm
3	Barrel Reamer-400MM/16"	89mm	108mm
4	Barrel Reamer-450MM/18"	89mm	108mm
5	Barrel Reamer-500MM/20"	89mm	108mm
6	Barrel Reamer-550MM/22"	89mm	108mm
7	Barrel Reamer-600MM/24"	89mm	108mm
8	Barrel Reamer-650MM/26"	89mm	108mm
9	Barrel Reamer-700MM/28"	89mm	108mm
10	Barrel Reamer-800MM/32"	89mm	108mm

## Fly Cutter Reamer

### Diameter Range:

Φ114 – Φ1800 mm

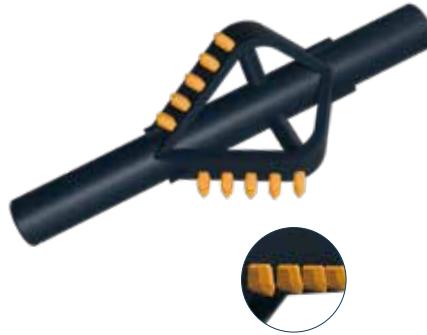
### Application:

Fly cutter reamers are suitable for medium to relatively hard formations, including mixed soil with gravel, fractured rock, and partially cemented layers.

They are commonly used when aggressive cutting action is required.

### Key Advantages

- Aggressive Cutting Performance
- Open Body Design
- Efficient Reaming in Hard Layers
- Easy Tool Maintenance



Item	Description/Specification	Shaft			
		D24*40 BOX	NC23 BOX	2 3/8"REG BOX	2 7/8*REG BOX/NC31 BOX
1	Fly Cutter Reamer-114MM/4.5"				
2	Fly Cutter Reamer-150MM/6"	76mm	82mm	89mm	
3	Fly Cutter Reamer-180MM/7"	76mm	82mm	89mm	
4	Fly Cutter Reamer-200MM/8"	76mm	82mm	89mm	108mm
5	Fly Cutter Reamer-250MM/10"	76mm	82mm	89mm	108mm
6	Fly Cutter Reamer-300MM/12"	76mm	82mm	89mm	108mm
7	Fly Cutter Reamer-350MM/14"	76mm	82mm	89mm	108mm
8	Fly Cutter Reamer-400MM/16"		82mm	89mm	108mm
9	Fly Cutter Reamer-450MM/18"			89mm	108mm

## Beast Reamer

### Diameter Range:

Φ200 – Φ1800 mm

### Application:

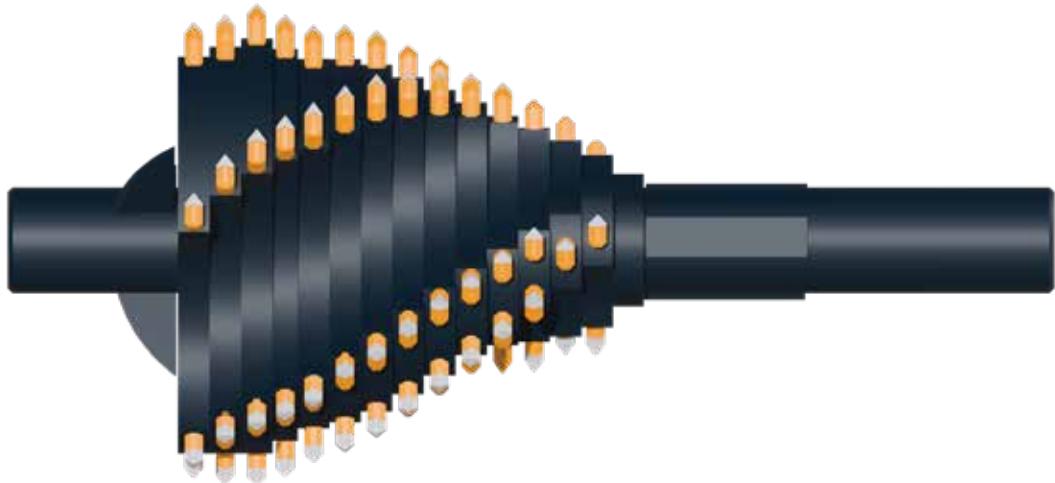
Beast reamers ensure stable and reliable reaming performance in the most demanding ground conditions, reducing project risk and downtime.

### Structural Design

Angular water channels guide drilling fluid directly to the cutters, keeping them clean and cool. Deep spiral flutes efficiently carry debris away from the cutting area.

### Key Advantages

- Excellent Performance in Mixed Ground
- Deep Spiral Flute Design
- Clean Cutter Operation
- Long Service Life



## Cangzhou Drillnova Technology Co., Ltd.

**Unit 1214, Building 3, Jinggui Center,  
Shicheng Avenue, Cangzhou, Hebei, China**

**T:** +86 317 2020557  
**M:** +86 18832751035 (WhatsApp)  
**E:** [Info@drillnova.com](mailto:Info@drillnova.com)



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