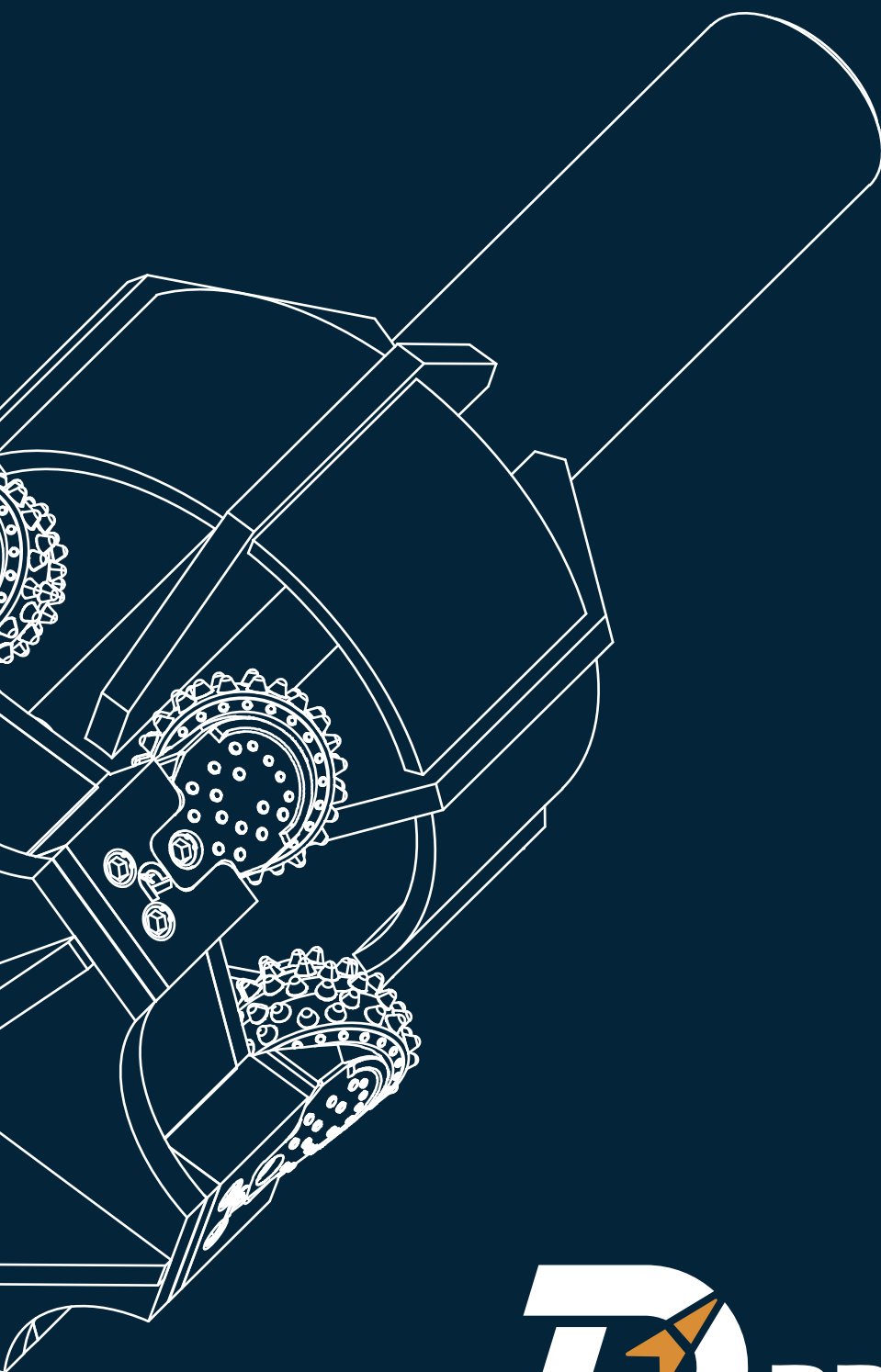




 **DRILLNOVA**

HDD Tools 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.



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

IADC Range: 517 / 537 / 617 / 637

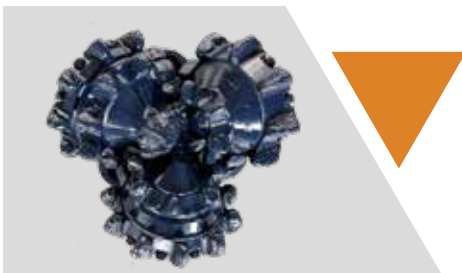
Bearing Type: Rubber & Metal sealed journal bearing

Recommended WOB (kN/mm): 0.37-1.2

Recommended RPM: 140-40

Applicable Formations:

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



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: 180–50

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

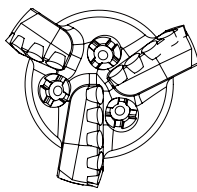
Engineered for precision and performance, the NovaPilot™ Series **PDC bits** are purpose-built for HDD pilot hole applications in soft to medium formations. Featuring a fixed-cutter body and high-grade PDC inserts, they deliver high penetration rates, smooth directional control, and extended bit life with minimal wear.

Compared to conventional tricone bits, NovaPilot™ bits drill 2–4× faster in formations like sandstone, shale, and limestone, significantly reducing tool change frequency and lowering cost per meter in trenchless projects.

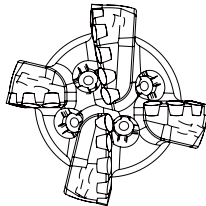


Why Choose Drillnova PDC Bits?

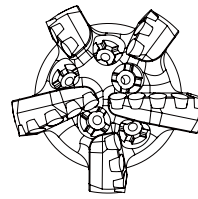
- **Optimized for HDD rigs** – Compatible with Vermeer, Ditch Witch, Tracto and others
- **Blade options** – 3 to 6 blade configurations



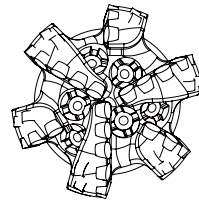
3-Blade



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

Pouplar 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	200-280	70-90	Clay, soft sandstone
6-1/2"	5	Up to 4	200-280	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 toughrock for HDD
- PDC not recommended for granite, quartzite, high-silica ironstone or very hard basalt– use roller bits in those cases

Field Tested in Australia

“We used Drillnova 4-blade PDC bit for hard clay and sandstone. Penetration rate was 5–8 mins per 3 meters with smooth torque. Very aggressive cut and stable mud return.”

— Directional Driller, QLD, Australia

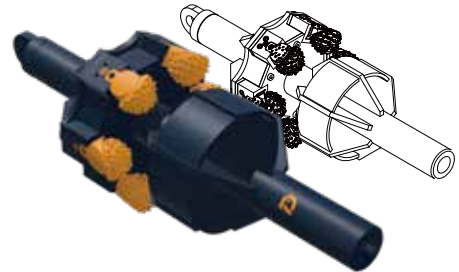


Have Questions ?

Talk directly with our drilling engineer.

Bolt-on Hole Opener

NovaForce™ R hole openers 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 **Bott-on** cutter is engineered for high-efficiency field maintenance in HDD and Microtunneling reaming projects.

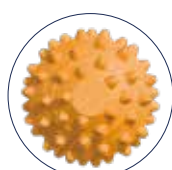
Each cutter uses a refined insert layout, tailored for directional drilling—minimizing vibration, enhancing steering precision, and increasing ROP across soft to hard formations.



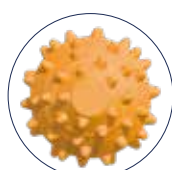
Featuring a Slot pocket & 3-bolt + spring-lock design, it enables secure and fast cutter replacement without welding, reducing downtime and labor on site.

Available Cone Sizes & Configurations

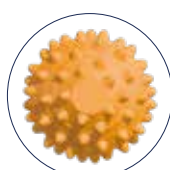
Select Cone Design



Chisel
60-110MPa
Medium-Hard



Conical
100-180MPa
Balanced Option



Spherical
150-280MPa
Ultra-Hard

Design Revolution



1st GENERATION

Tricone Bit Layout
Inserts Qty: Limited
Feature: Non-cutting blind grooves
Performance: Low duration and penetration rate



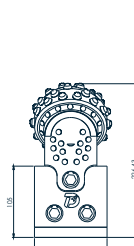
2nd GENERATION

Full Cover Layout
Inserts Qty: Increased
Feature: No grooves, small blind spot
Performance: Medium duration and penetration rate

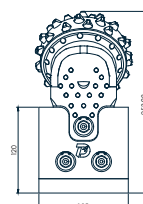


3rd GENERATION

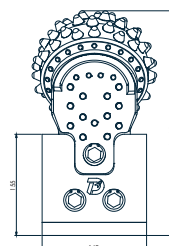
Random Layout
Inserts Qty: Maximized
Feature: No blind spot
Performance: Maximum duration & penetration rate



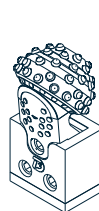
MH-7R (7.875")



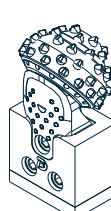
MH-3R (8.5")



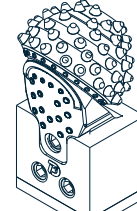
12MH-3R (12.5")



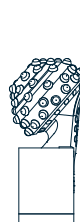
MH-7R (7.875")



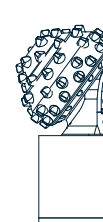
MH-3R (8.5")



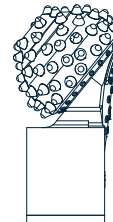
12MH-3R (12.5")



MH-7R (7.875")



MH-3R (8.5")

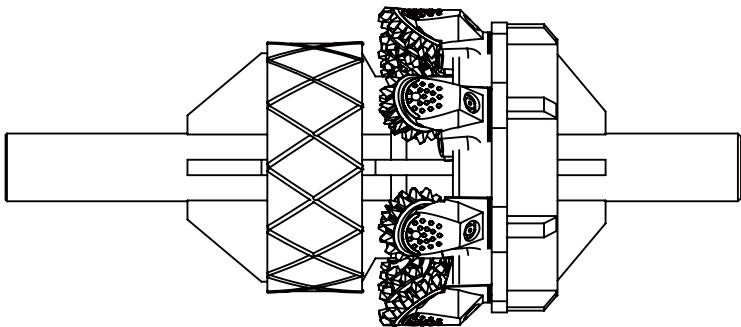


12MH-3R (12.5")

Welded-Type Hole Opener

NovaForce™ W 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™ S is a solid-body PDC reamer engineered for maximum durability and fast penetration in HDD applications.

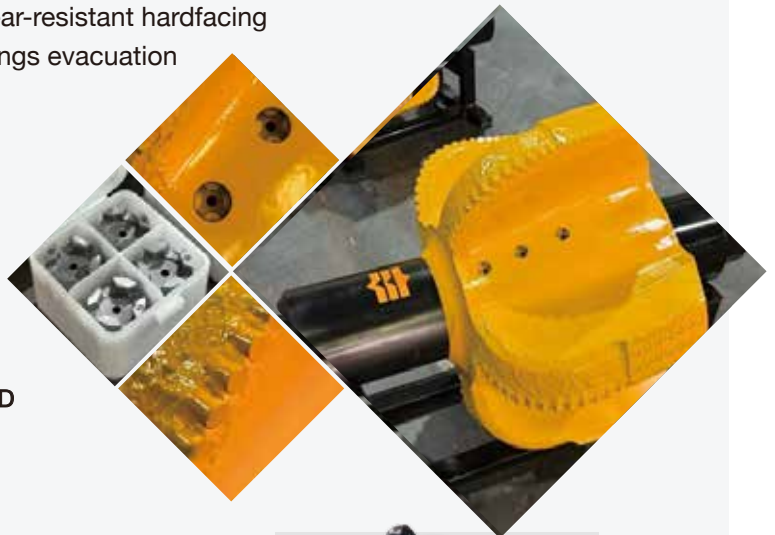
With a fixed blades, it offers zero-maintenance performance and is ideal for contractors seeking a simple, robust solution for single-pass or long-distance reaming in abrasive and consolidated formations.

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 Feature

- 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



“The NovaCut™ S 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

DRILL

NovaCut™ R is a modular PDC reamer equipped with a bolt-on blade system, engineered for horizontal directional drilling (HDD) projects that demand flexibility, fast turnaround, and extended tool life.

NovaCut™ R – Replaceable-Blade PDC Reamer Modular Design. Fast Blade Swaps. Long-Term Value. Each unit allows contractors to swap worn blades on site with basic tools—no welding, no waiting. The reusable steel body paired with premium diamond blades delivers excellent cutting performance in abrasive and medium-hard formations, while minimizing downtime and spare inventory costs.

Replace blades, not your reamer.

Key Feature

- 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

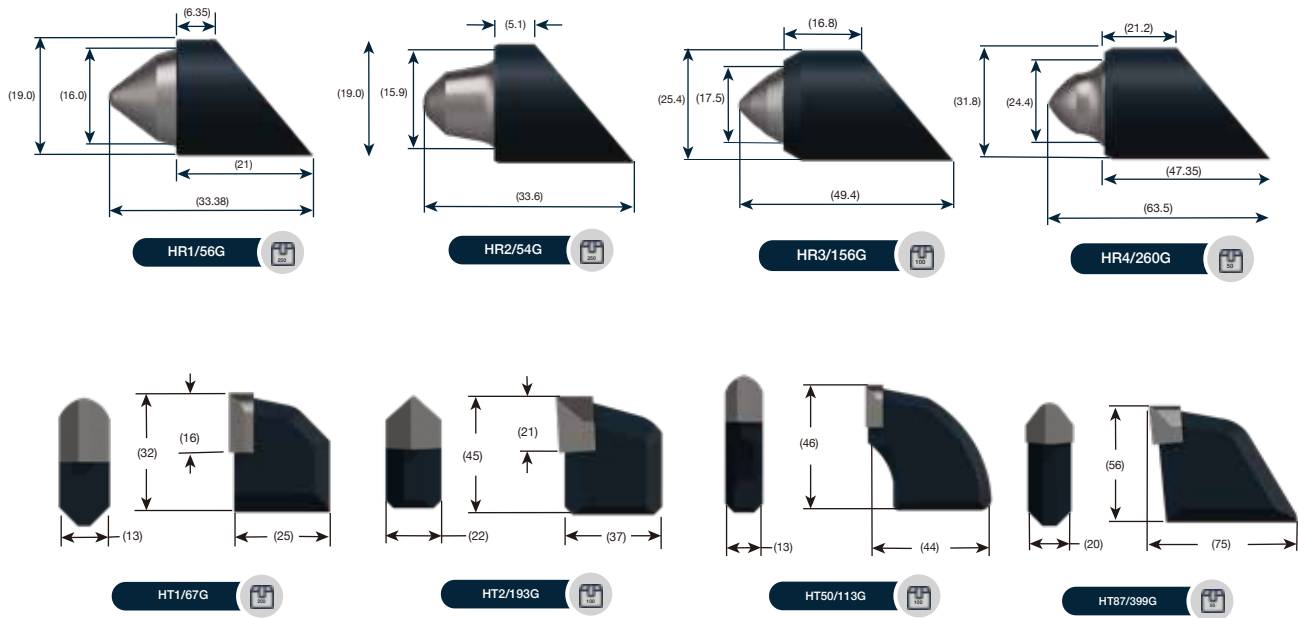
Efficient maintenance + reduced downtime = more profit per meter.

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™ R – Your modular reaming solution.

Weld-on Teeth



Other HDD & Microtunneling Tools



Microtunneling Drill Head



PDC Cone Bit



Pulling Eye



Auger Flight



Drill Rod Pin

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