



GLINIK
DRILLING TOOLS



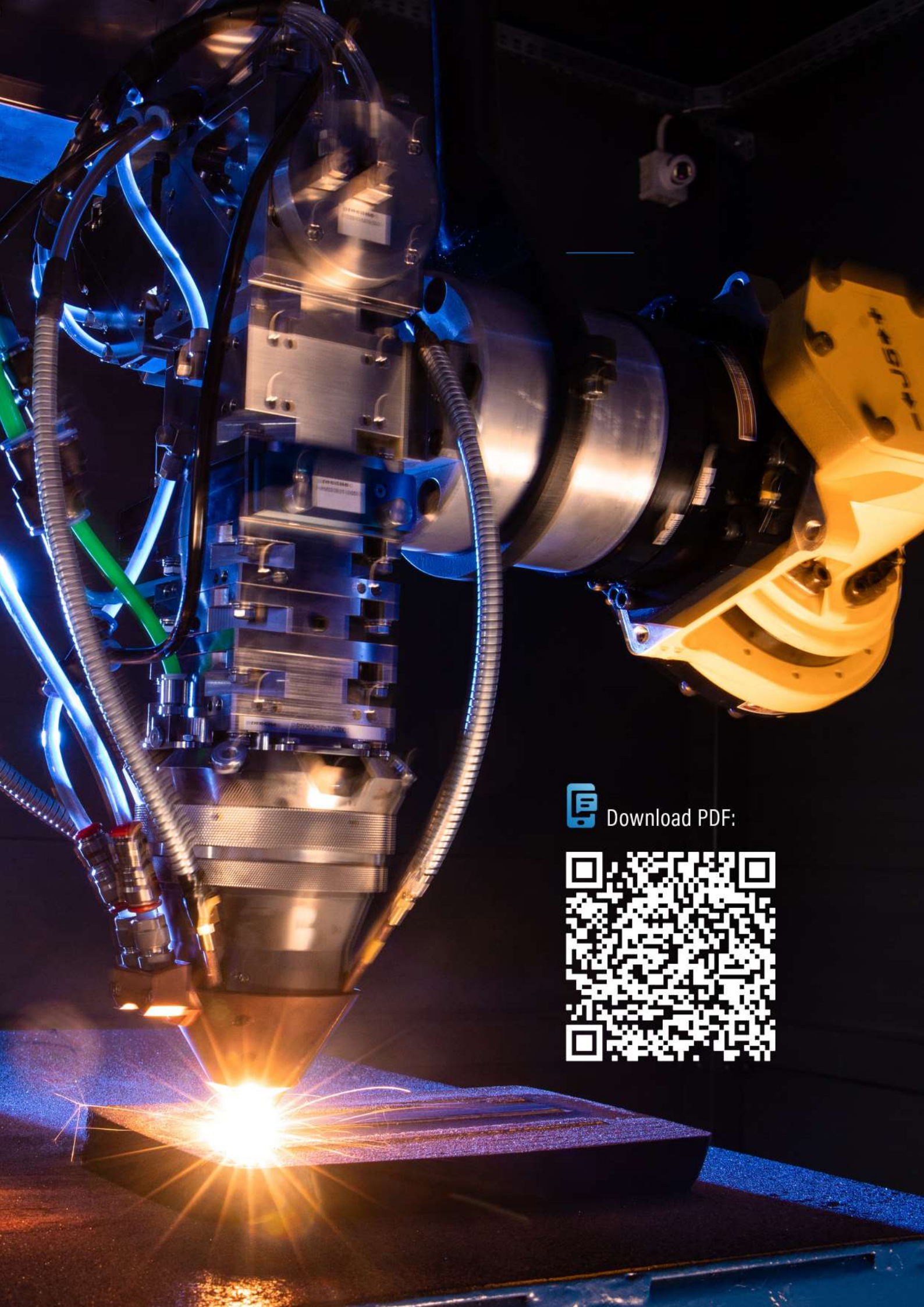
CATALOG 2021



GLINIK
DRILLING TOOLS

**The future
is now!**





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TABLE OF CONTENTS

1. About us	2
2. Quality assurance	5
3. Technical innovation	11
• Bearing system	13
• Flushing system	14
• Cutting structure	16
4. Drill bits for Oil & Gas	18
• Soft formation drill bits	19
• Medium formation drill bits	21
• Hard formation drill bits	23
5. Drill bits for Directional Drilling	25
• Soft formation drill bits	27
• Medium formation drill bits	29
• Hard formation drill bits	31
6. Hole openers	33
7. Drill bits for Hydrogeology	39
8. Drill bits for Geotechnics	43
9. Drill bits for Minerals and Mining	47
10. Other drilling tools	50
11. Heat and Mechanical treatment services	53



GLINIK
DRILLING TOOLS

Glinik core business is the production of Drilling Tools and Equipment

For 140 years in the drilling market, Glinik has produced innovative solutions, superior products and services. Our success is attributed to their quality, which has earned the respect of our customers helping establish long-term business relationships. As an International Manufacturer, we remain a sought-after contributor of top-quality products for the oil and gas, mining, geothermal, geotechnical, HDD and water-well drilling sectors.

Our People are our most valuable asset. They provide extensive knowledge, experience and passion to stay ahead of a continuously changing industry.

We have gradually increased our presence within the international marketplace through continuous innovative advancements. Glinik's development strategy is based on its expertise in engineering (including R&D), product manufacturing and launching of new solutions globally, with our own brand or in partnership with leading global Customers.



We make changes....
Determining the future.





Glinik invests consistently in its Team, New Technologies and Continuous Improvement of the production process

We are part of  TDJ



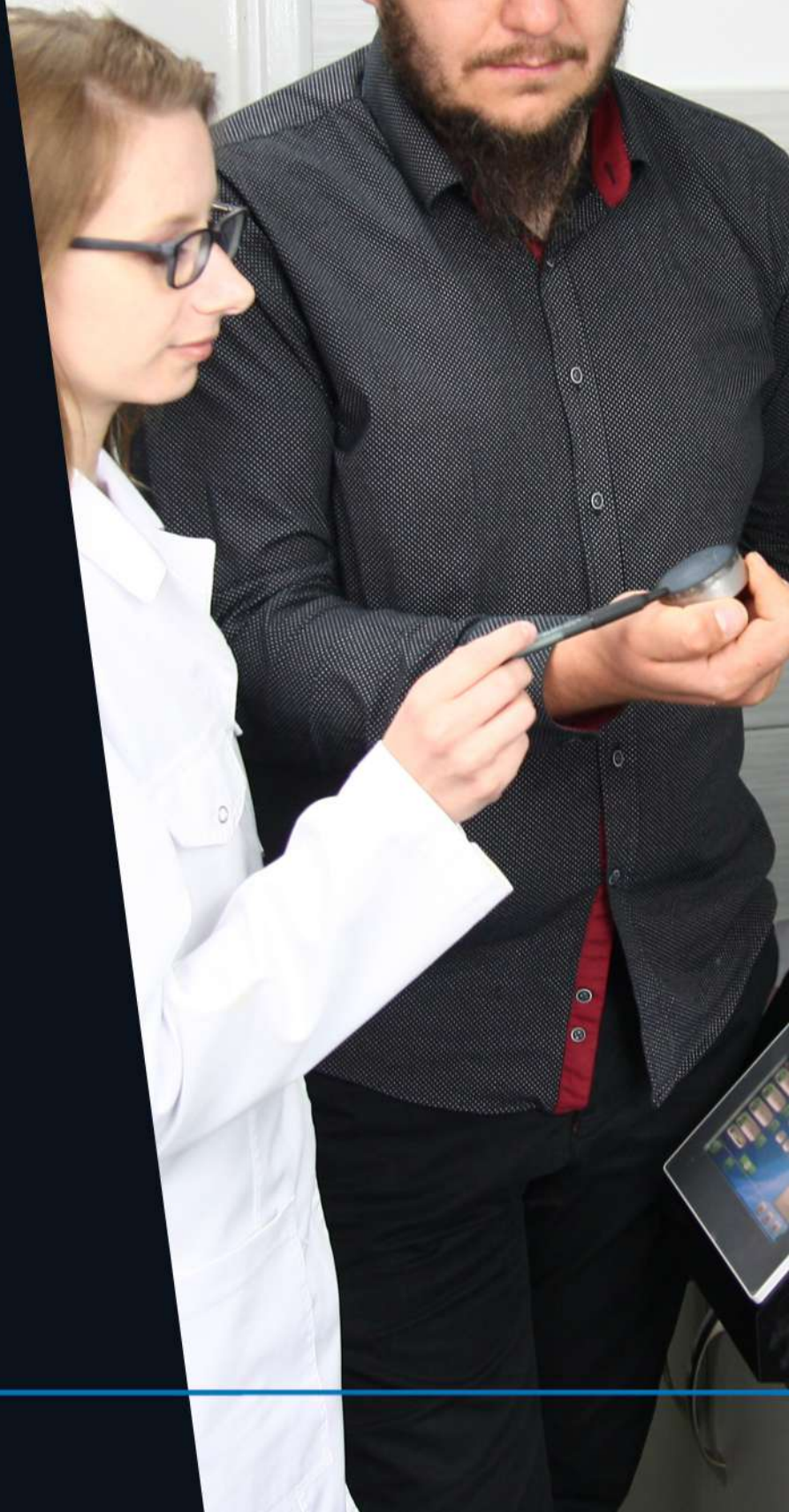
QUALITY ASSURANCE

RESEARCH LABORATORY

Maintaining the highest quality standards requires verification of chosen characteristics in a controlled environment.

Glinik runs its own laboratory and cooperates with accredited certification bodies.

Research domains include metallography analysis, material strength and chemical composition, using state-of-the-art laboratory equipment.



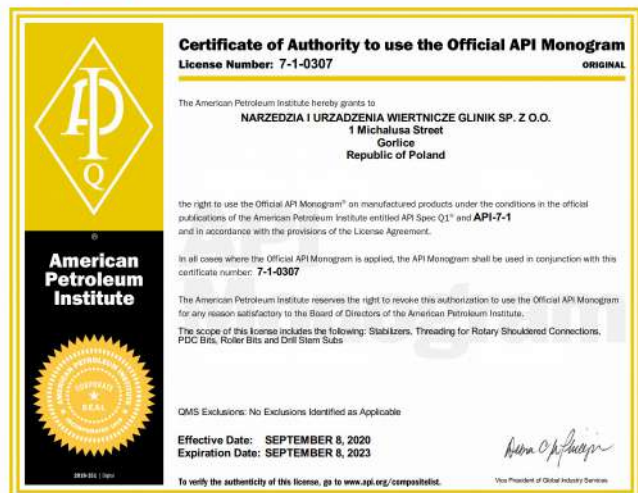
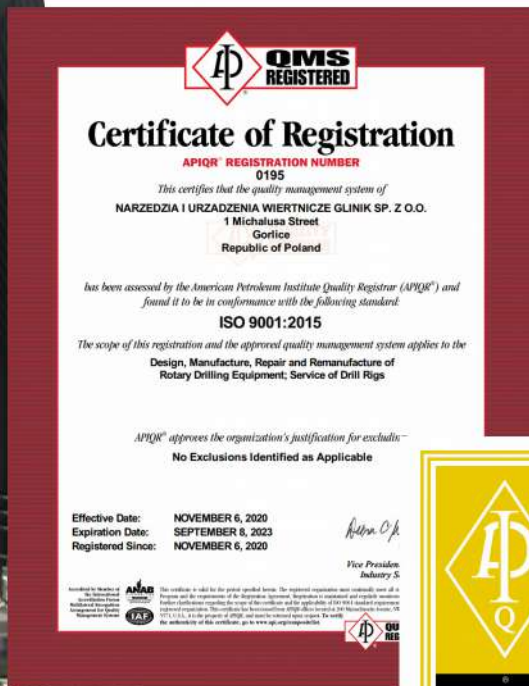
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CERTIFICATES

Glinik's API Q1 and ISO 9001 certification ensures our company operates under the most rigorous standards of a quality management system for the design, manufacturing, repair and refurbishment of drilling tools.

Glinik is licensed to apply the API monogram registered mark to its stabilisers, threaded rotary connections, PDC bits, 3-cutter bits and connectors meeting the API Q1 spec 1-7 requirements.

Continuous improvement of processes, inherent to our Quality Management System, ensures meeting the most stringent requirements of our Customers.





CMM

Key dimensional parameters are validated using numerically controlled coordinate measuring machines, which ensures that measurements are fast and reliable.

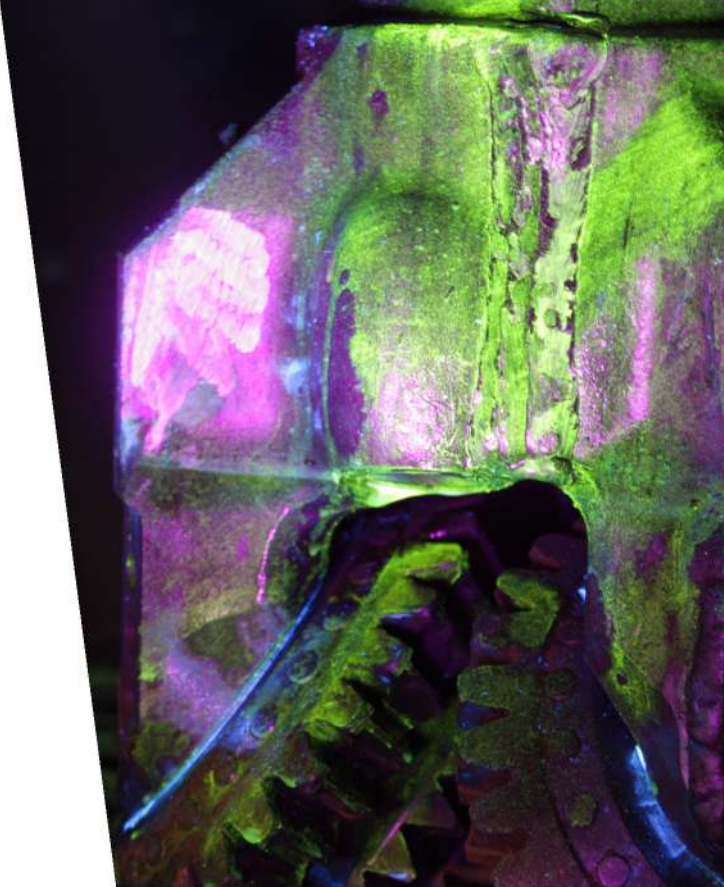
The tests executed at pre-planned stages of production, ensure that only products meeting the acceptance criteria are sent to the subsequent processing phase.



PROCESS CERTIFICATION

We identify and certify the processes that are critical for the quality of the finished product. These processes include holes drilling for TCI pressing, welding, pad welding and NDT.

The stages of these processes, run by highly qualified operators, are monitored and recorded using certified measuring equipment.



FINAL ACCEPTANCE

All our products are 100% verified by the Quality Department prior to shipment to the Customer. This stage involves a diligent verification of the finished product to the Customer specifications and to our internal, stringent quality standards. Following the successful final verification, products are released to the warehouse and shipped to the Customer.





LEAN CONTINUOUS IMPROVEMENT

The growing demands of drilling operators, performance targets and called out cost optimisation requests are the starting point for the LEAN Management team at Glinik. Pursuing the most effective approach, from employees' Kaizen to complex value stream mapping for process optimisation, we are able to continuously improve not only the production processes, but the entire information and material flow - from the requirements study - up to the delivery of the tools to Customer. The commitment of the Company's leadership team, including dedicated, professional LEAN individuals and engagement of every production employee, ensures successful implementation of continuous improvement projects in daily operations. This has a direct impact on the professional and reliable processing of the material and guarantees the quality of the final product.



SAFETY

Employee and workplace safety, as well as care for the environment are key values for Glinik. The life and health of our employees are of overriding importance – safety comes first in everything we do. Our key HSE objectives include meeting our customers' international and local legal requirements, and our internal standards ("ZERO accidents" and "ZERO emissions"). Our focus in HSE also applies to our Customers' products and processes. By using Glinik products to increase the efficiency of drilling operations – Customers enhance their environmental sustainability performance in support of global initiatives – such as increased access to drinking water resources or extraction of minerals used in the electro-mobility sector.





TECHNICAL INNOVATION

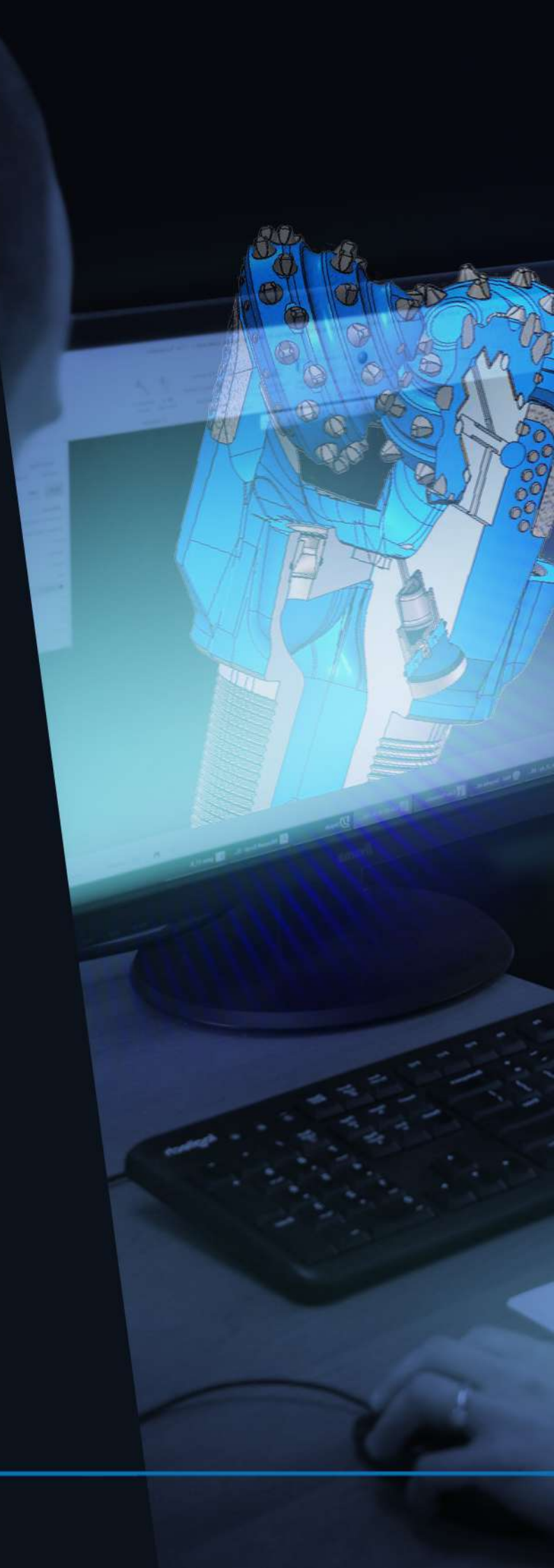
Glinik's Professional Design and Engineering Team is responsible for innovative solutions in the design of broadly defined drilling tools, optimization of the production process to achieve the highest quality of the final product.

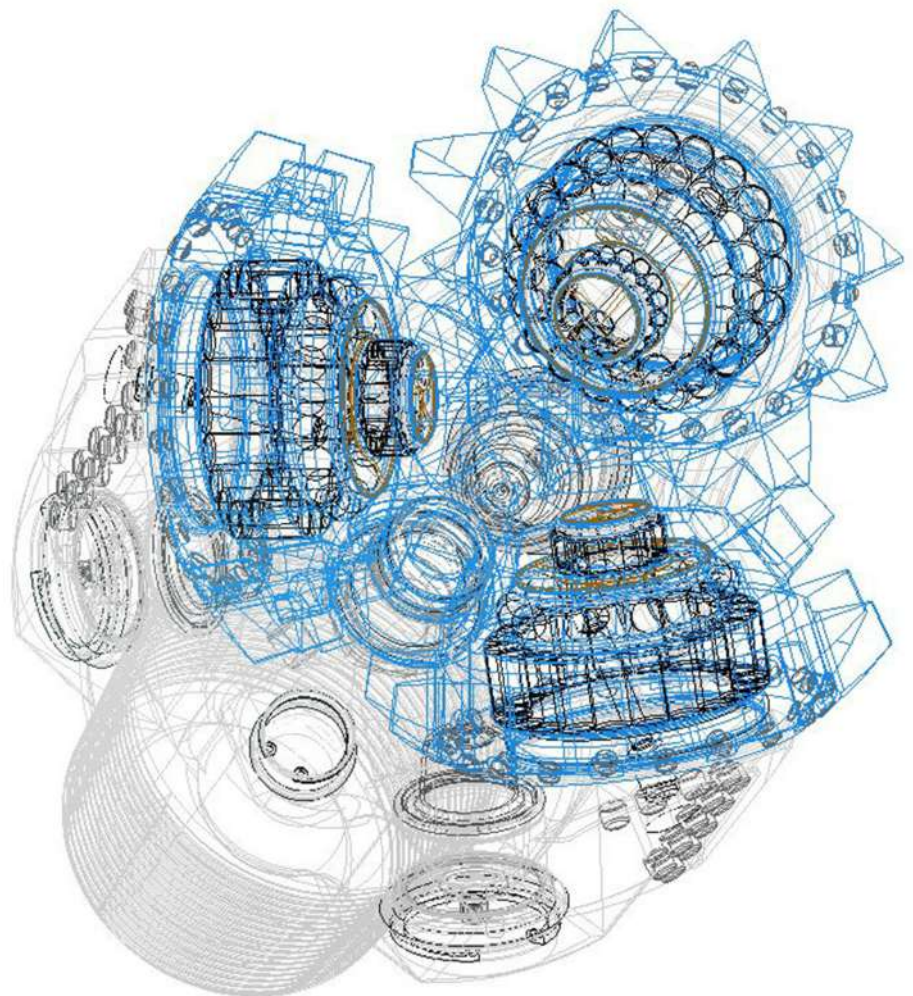
Dedicated engineering personnel is involved in advanced research and development projects, enabling continuous product innovation in the areas of design and implementation of the latest technological solutions.

Experienced experts at Glinik Engineering **provide professional support** to select the most effective tools and drilling parameters for Customer defined applications



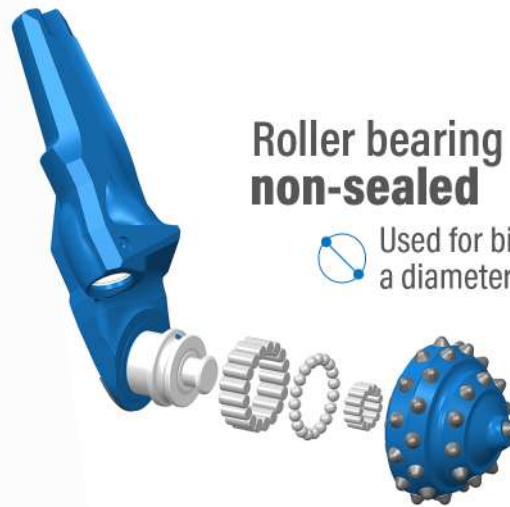
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INNOVATIVE BEARING SYSTEMS

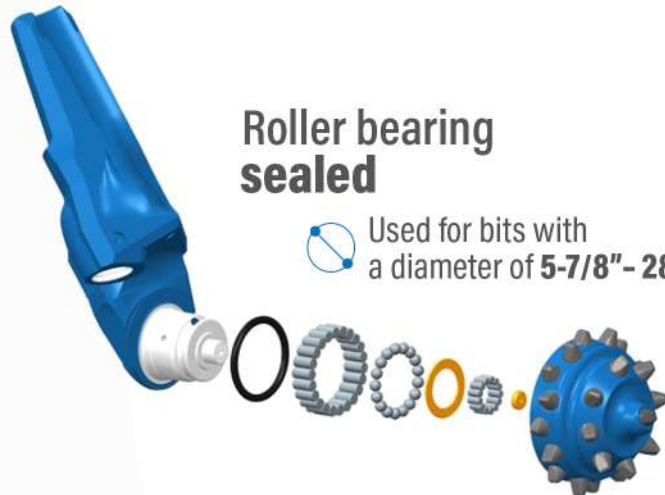
An ideal solution for clients looking for a tool to ensure adequate drilling efficiency at a competitive cost level. Recommended for drilling shorter intervals.



Roller bearing non-sealed

Used for bits with a diameter of **2-3/8" - 42"**

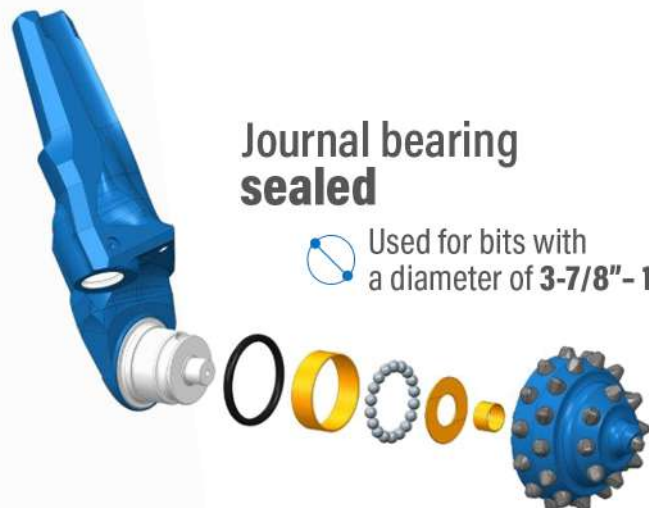
Characterized by the use of a special seal and lubrication system with a compensation system. This solution ensures much longer operational time, protecting the bearing components against migration of drilling fluid and debris.



Roller bearing sealed

Used for bits with a diameter of **5-7/8" - 28"**

Characterized by high durability and wear resistance, thanks to the use of innovative components minimizing friction in the bearing. Sealed drills are earmarked to working in the most demanding conditions. The bearing is sealed and supported by a lubrication system using a compensation system.



Journal bearing sealed

Used for bits with a diameter of **3-7/8" - 17-1/2"**

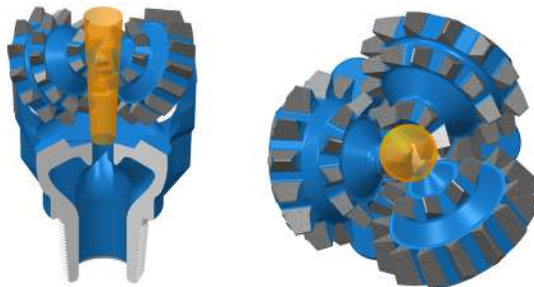


FLUSHING SYSTEM

Size of the drill bit		Nozzle dimensions			
		D	h	d	
mm	inch	mm		mm	inch (1/32)
139,7÷187,3	5-1/2÷7-3/8	20	15,1	4,0; 4,8; 6,4; 7,9; 8,7; 9,5; 11,1; 12,7; 14,3	5; 6; 8; 10; 11; 12; 14; 16; 18
190÷1066,8	7-1/2÷42	33	27	11,1; 11,9; 12,7; 14,3; 15,9; 17,5; 19,0; 20,6; 22,2; 23,8; 25,4	14; 15; 16; 18; 20; 22; 24; 26; 28; 30; 32

Center flushing

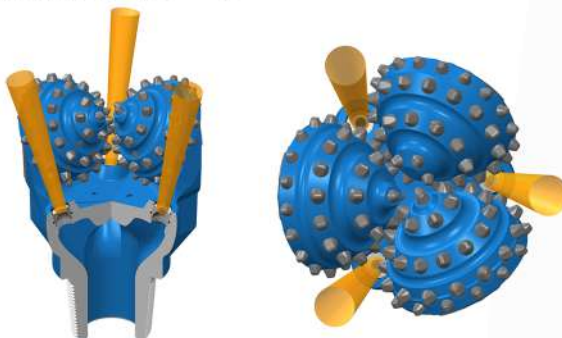
Used for bits with a diameter of **2-3/8" - 42"**



Central flushing is used for bits designed for hydrogeological and geoenvironmental drilling. For bits intended for drilling with reverse flush circulation, the design provides for the use of a center hole with the maximum diameter for a given threaded connection.

3-jet flushing

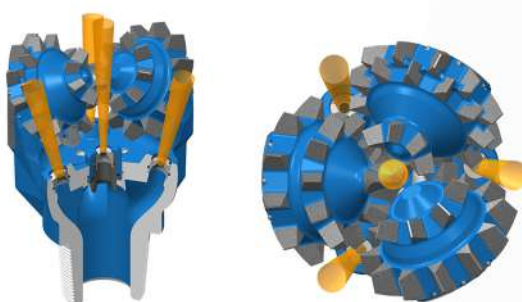
Used for bits with a diameter of **3-7/8" - 36"**



The arrangement of the nozzles and the direction of the flushing outflow allows for effective cleaning of the drill cutting structure and the bottom of the hole. This solution is designed to achieve maximum drilling progress.

Multi-jet flushing system

Used for bits with a diameter of **5-1/2"-42"**



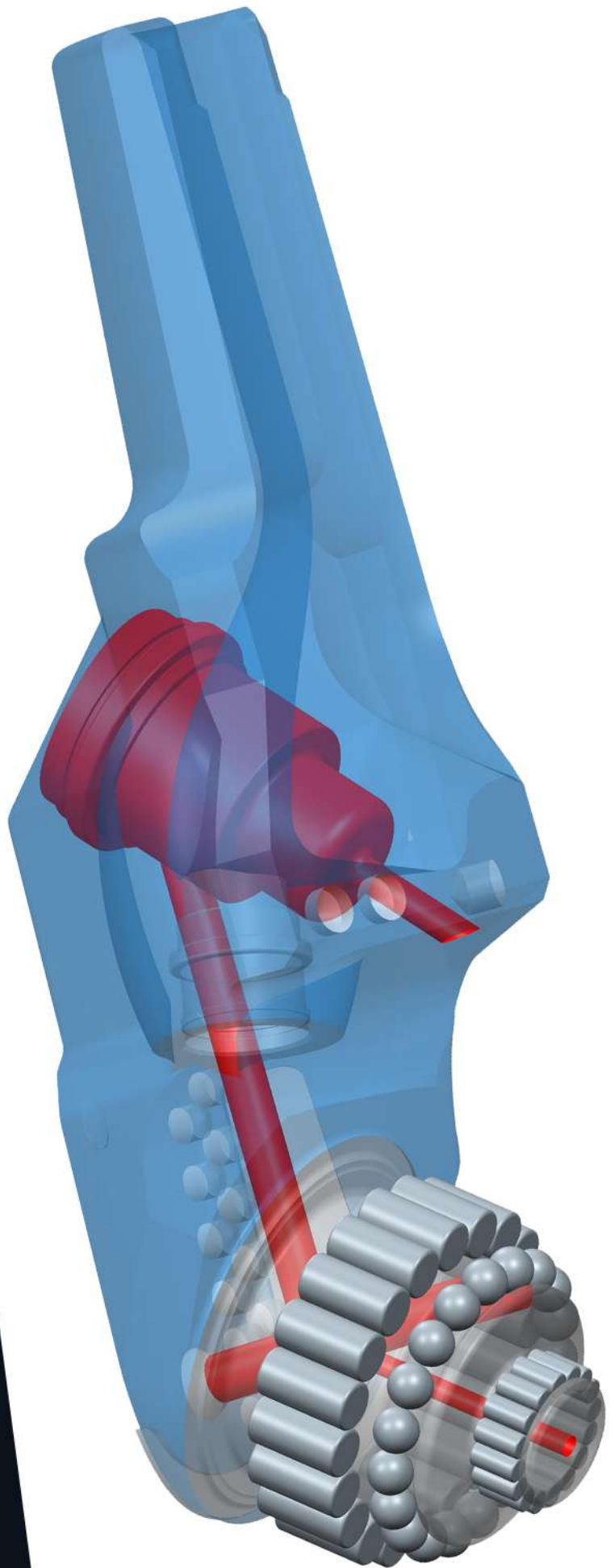
The advanced flushing system extended by additional nozzles in relation to the 3-jet flushing system allows for more effective cleaning of the cutting structure and the bottom of the hole, and thus maintaining high drilling progress.



BEARING LUBRICATION SYSTEM

The patented compensation system supplies grease to each bearing component. The compensator keeps the grease pressure constant so that the drill bearing works effectively during the entire drilling process.

Lubrication channels are made with the utmost care delivering grease to each rolling component. The high quality seal prevents the flushing fluid from entering the bearing and protects the bit from seizure.



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The protection of drill bits is accomplished using materials with the highest abrasion resistance. The protection is applied using various methods, depending on the surface material.

Plasma Transferred Arc Welding (PTAW) technology allows for repeatable and high quality adhesion and wear resistance.



PROTECTION OF DIAMETER AND CUTTING STRUCTURE



SELECTION OF THE DRILL BITS

FOR VARYING ROCK FORMATIONS

Rock strength		Type of drill				Type of formation
[psi]	[Mpa]	BM	M	S	T	
below		●				claystone, siltstone
8000	55	●				soft shale, sandstone
10000	69	●	●			consolidated sandstone
12000	83		●			medium-hard shale
14000	97		●			tuff, shale
16000	110		●			andesite, rhyolite
18000	124		●			quartz (sandstone)
20000	138		●			limestone, marble
22000	152		●			granite
24000	165		●	●		gneiss
26000	179		●	●		diorite, diabase
28000	193		●	●		hard shale
30000	207			●		limestone, dolomite
32000	221			●		basalt
34000	234			●		tectite
36000	248			●		granodiorite
38000	262			●	●	taconite
40000	276			●	●	quartzite
42000	290			●	●	syenite
44000	303			●	●	gabbro
46000	317			●	●	
48000	331				●	iron ore
50000	345				●	taconite
52000	359				●	chert
54000	372				●	
56000	386				●	quartzite
58000	400				●	
60000	414				●	amphibolite
above					●	hematite ore





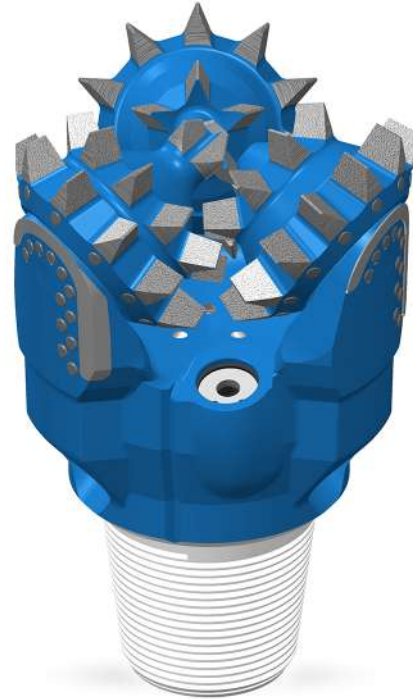
OIL & GAS

Glinik, having API certification, has confirmed its competence in meeting the most stringent requirements for the production of drilling tools. Our products are made using the highest quality systems, manufacturing methods and standards.

Our Clients' continued trust and our long history, starting in the oil industry's infancy, provides confidence that Glinik is the partner of choice for the world's largest energy related projects.

SOFT FORMATION DRILL BITS

8-1/2" IADC 117



Diameter inch _____ 8-1/2"

Diameter mm _____ 215,9mm

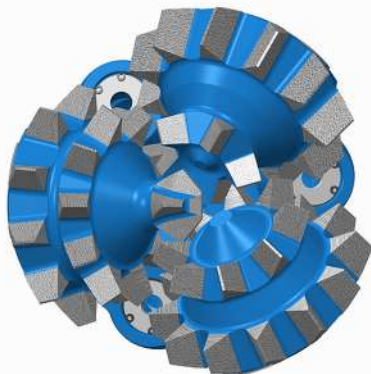
Drill bit type _____ BM1HSX

IADC code _____ 1-1-7

CUTTING STRUCTURE:

Tall teeth with a small sharpening angle.


The placement as well as the geometry of the teeth are designed using 3D simulation. The teeth are reinforced with a tungsten carbide hardface coating, preventing tooth wear during the drilling process. In addition, the bit surf row is reinforced with carbide inserts which protect the drill bit from loss of diameter. The location of the nozzles and the direction of flow of the drilling fluid is optimized for faster cleaning of the cutting structure to achieve maximum rate of penetration (ROP).



TYPES OF ROCK:

Designed for very soft, unstratified and poorly concise rocks with a high degree of water permeability, such as: shale, clay, poorly concise slate and sandstone marl limestone, salts, gypsum, coal, earthy iron ores.

Drill bits are offered in a wide range of diameters from:

 **4"** (101,6mm) to **42"** (1066,8mm).

 We offer the possibility of customized product designs for individual client needs.

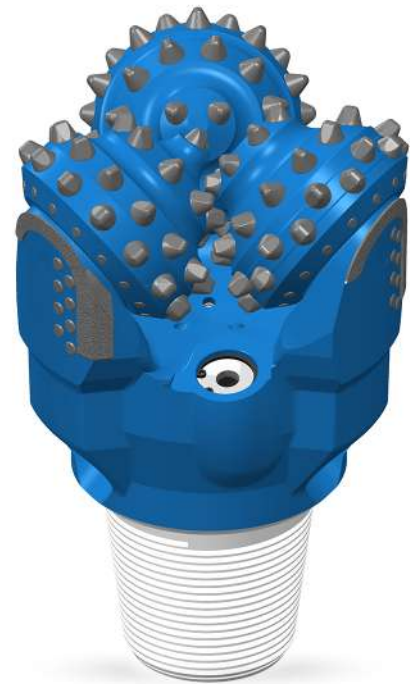


 We offer the option of adapting the cutting structure to the individual needs of the client.



8-1/2"

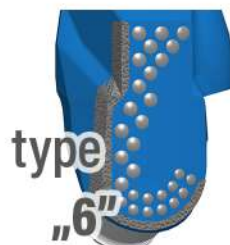
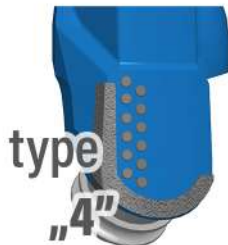
IADC 537



LEG BACK PROTECTION TYPES:

As a standard, we offer **TYPE "4"** reinforcement with hardfacing on the outer surface of the segment and with tungsten carbide inserts on the entire attack surface.

For more demanding applications we offer the **TYPE "6"** reinforcement with tungsten carbide inserts spread over the entire wear surface.

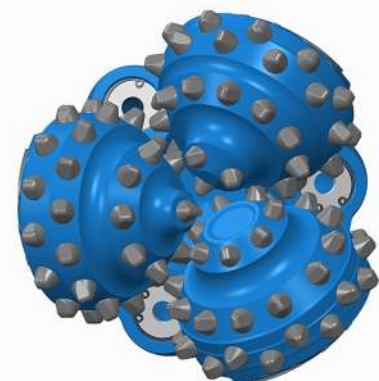


CUTTING STRUCTURE:

High prismatic posts. The proper placement of the inserts as well as the positioning cones enable the drill able to drill large intervals in a relatively short time.

The wide range of available inserts allows for the selection of the optimum cutting structure for maximum drilling efficiency.

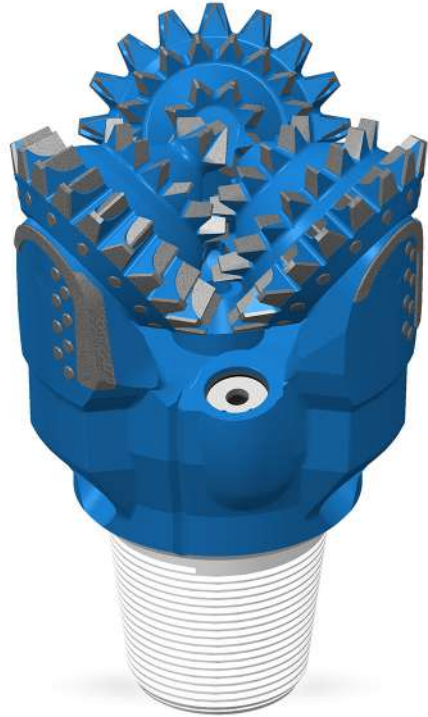
The geometry of the bit is developed using 3D simulation.



Our knowledgeable engineering team can provide consulting to select the best possible drilling solutions.

MEDIUM FORMATION DRILL BITS

8-1/2" IADC 237



Diameter inch _____ 8-1/2"

Diameter mm _____ 215,9mm

Drill bit type _____ S2THSX

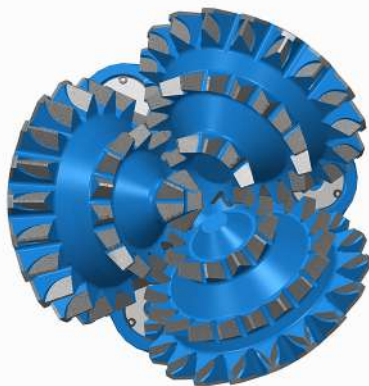
IADC code _____ 2-3-7

CUTTING STRUCTURE:

Medium height teeth.

A larger number of teeth and an increased tooth blade angle provide enhanced performance in more variable medium and medium-hard formations.


Additionally, the bit's surf row is strengthened with carbide inserts protecting the bit from loss of diameter. The location of the nozzles and the direction of the flow of drilling fluids is optimized for faster cleaning of the cutting structure and the bottom of the hole to achieve maximum rate of penetration (ROP)



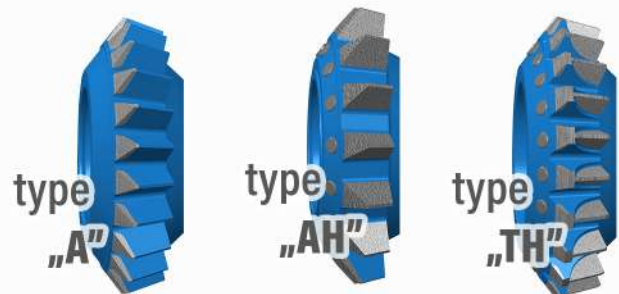
TYPES OF ROCK:

Hard and medium abrasive rocks such as: sandstones with quartz veins, hard limestone or keratinized conglomerates with iron or silica binder, crystalline dolomites, haematite ores, siderites, limonite, hard slates.

Drill bits are offered in a wide range of diameters from:

 **4"** (101,6mm) to **28"** (711,2mm).

 We offer the possibility of customized product designs for individual client needs.

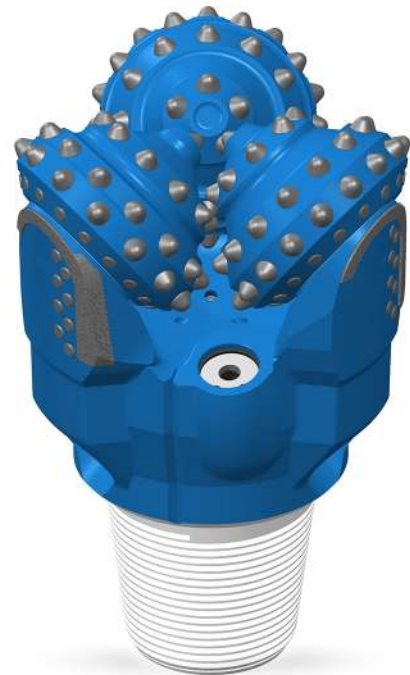


 We offer the option of adapting the cutting structure to the individual needs of the client.



8-1/2"

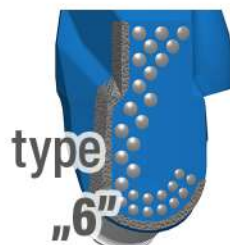
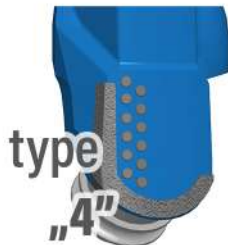
IADC 637



LEG BACK PROTECTION TYPES:

As a standard, we offer **TYPE "4"** reinforcement with hardfacing on the outer surface of the segment and with tungsten carbide inserts on the entire attack surface.

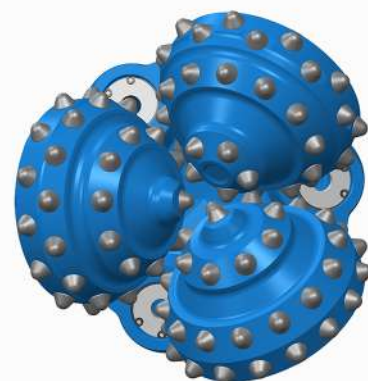
For more demanding applications we offer the **TYPE "6"** reinforcement with tungsten carbide inserts spread over the entire wear surface.



CUTTING STRUCTURE:

The prismatic inserts of high height and diameter and the relatively large offset of the bite axis in relation to the axis of the drill will ensure high mechanical speed of drilling.

The large sharpening angle of the cutting part of the inserts protects it from breaking and provides maximum strength against rounding of the outer diameter of the drill bit



Our knowledgeable engineering team can provide consulting to select the best possible drilling solutions.

HARD FORMATION DRILL BITS

9-7/8" IADC 315



Diameter inch _____ 9-7/8"
 Diameter mm _____ 250,8mm
 Drill bit type _____ T1THX
 IADC code _____ 3-1-5

CUTTING STRUCTURE:


Shorter teeth with a large sharpening angle and small spacing.

The teeth on border flanges have designated calibration surfaces and are reinforced with tungsten carbide inserts to ensure high durability of the drill bit and protect it from loss of diameter when drilling in hard rock formations.

TYPES OF ROCK:

Hard abrasive rocks such as: quartzite binder sandstones, hard sandstones with corn inserts, hard quartzite slates, magma and metamorphic rocks.

Drill bits are offered in a wide range of diameters from:

 **4"** (101,6mm) to **28"** (711,2mm).

 We offer the possibility of customized product designs for individual client needs.

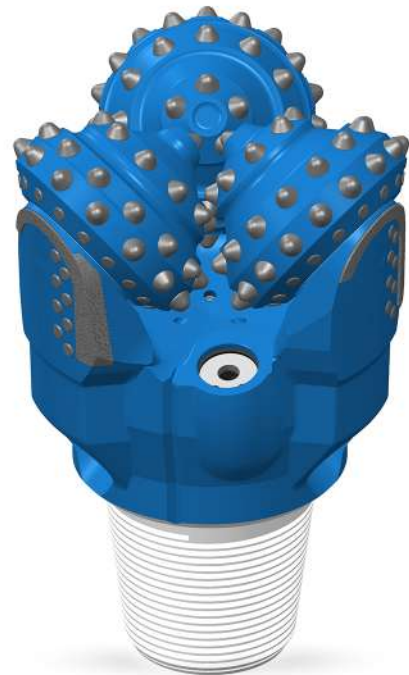


 We offer the option of adapting the cutting structure to the individual needs of the client.



8-1/2"

IADC 737



LEG BACK PROTECTION TYPES:

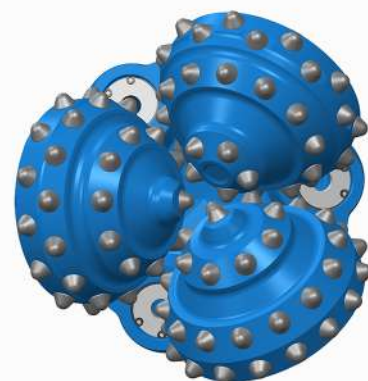
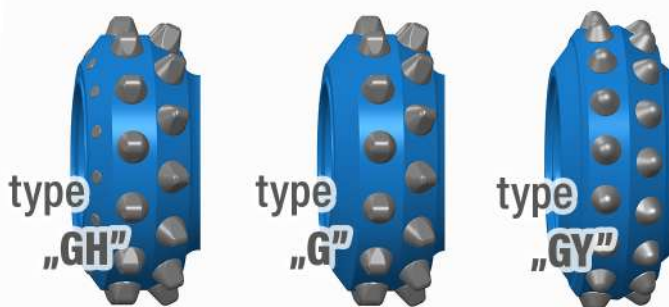
As a standard, we offer **TYPE "4"** reinforcement with hardfacing on the outer surface of the segment and with tungsten carbide inserts on the entire attack surface.

For more demanding applications we offer the **TYPE "6"** reinforcement with tungsten carbide inserts spread over the entire wear surface.



CUTTING STRUCTURE:

A large number of posts with low bowl height and very wide sharpening angle as well as shorter distances between the inserts ensure optimal conditions for hard rock mining. The minimum displacement of the bit axis in relation to the drill axis protects the inserts from breakage. The reinforcement of the bit surf row with numerous carbide inserts ensures that the diameter of the drill bit is maintained throughout the entire lifetime of the bit



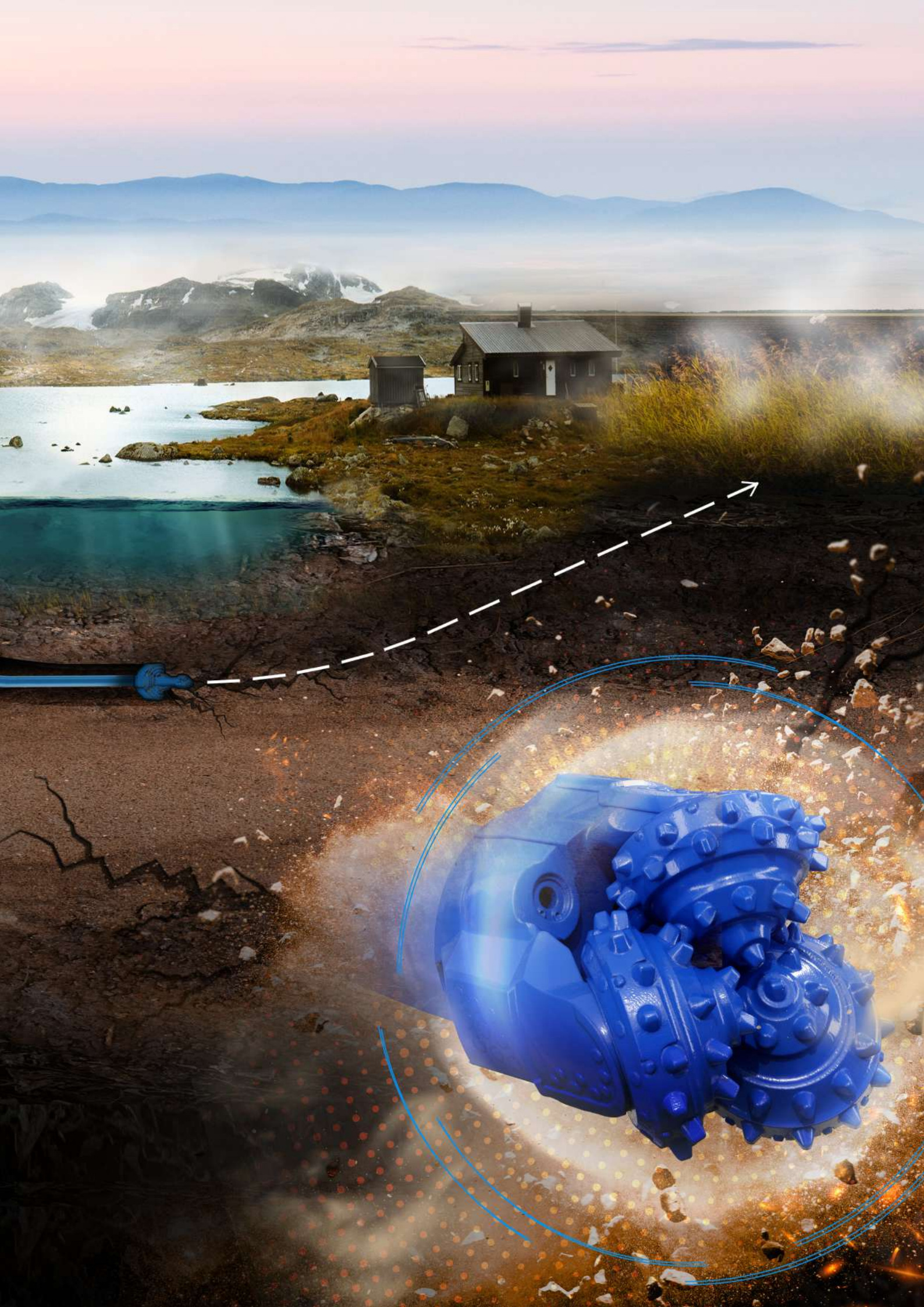
 Our knowledgeable engineering team can provide consulting to select the best possible drilling solutions.



DIRECTIONAL DRILLING

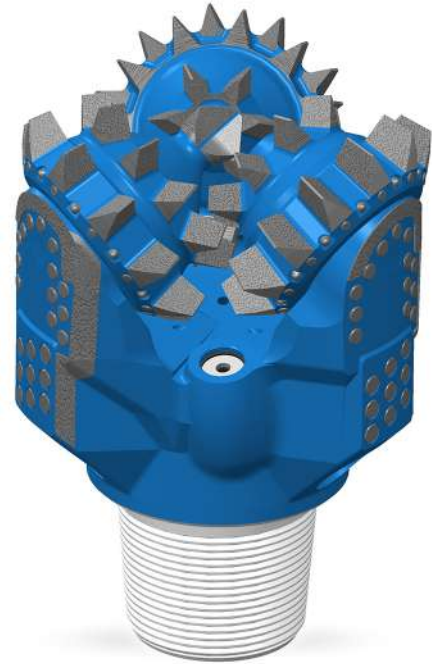
Horizontal directional drilling (HDD) is one of the most modern and increasingly popular solutions for new pipeline or cable infrastructure installations. Professionally conducted drilling allows for boring under the surface of such obstacles as built-up areas, roads, hills, rivers or protected areas of natural environment without the need to interfere with their physical state.

This professional and very practical method of building infrastructure involves the use of modern and proven drilling tools and their appropriate selection for demanding rock formations. NiUW Glinik's product offering includes a full range of drill bits and extensions dedicated to this advanced applications.



SOFT FORMATION DRILL BITS

12-1/4" IADC 115M



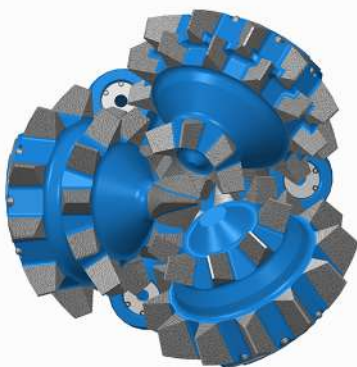
Diameter inch _____ 12-1/4"
 Diameter mm _____ 311,1mm
 Drill bit type _____ MBM1HVX
 IADC code _____ 1-1-5-M

CUTTING STRUCTURE:

Tall teeth with a small angle of sharpening.

Positioning of the cones as well as the geometry of the teeth are designed using 3D simulation. The teeth are reinforced with tungsten carbide hardfacing, which prevents tooth wear during the drilling process. In addition, the bit face is reinforced with carbide inserts which protect the drill from loss of diameter. The location of the nozzles and the direction of flow of the drilling fluid is optimized for faster cleaning of the cutting structure to achieve maximum rate of penetration (ROP).


The structure provides for the possibility of using a mud motor which significantly accelerates the drilling progress.



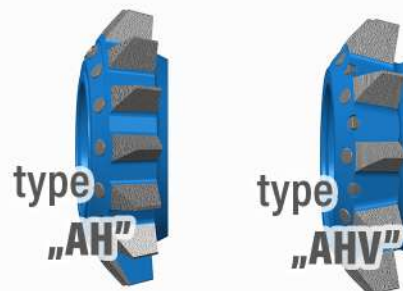
TYPES OF ROCK:

Designed for very soft, unstratified and poorly concise rocks with a high degree of water permeability, such as: shale, clay, poorly concise slate and sandstone marl limestone, salts, gypsum, coal, earthy iron ores.

Drill bits are offered in a wide range of diameters from:

 **5-1/2"** (139,7mm)
to **17-1/2"** (444,5mm).

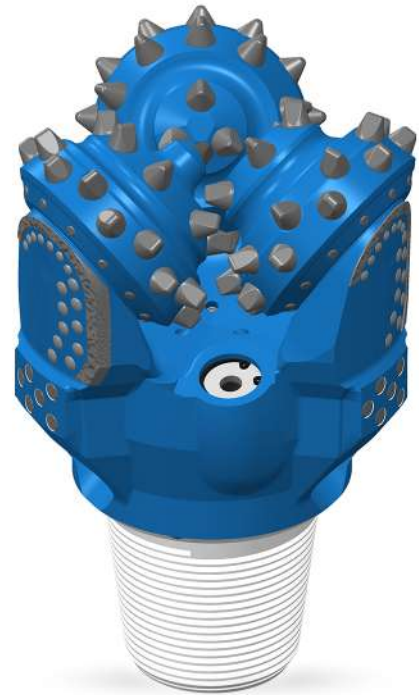
 We offer the possibility of customized product designs for individual client needs.



 We offer the option of adapting the cutting structure to the individual needs of the client.



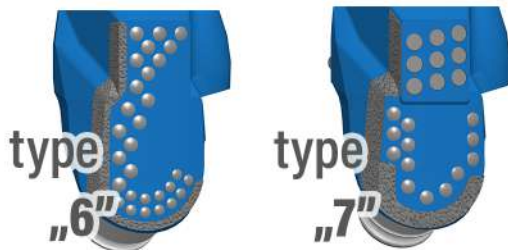
8-1/2" IADC 435M



LEG BACK PROTECTION TYPES:

As a standard, we offer **TYPE "6"** reinforcement with hardfacing on the outer surface of the segment and with inserts on the entire back surface.

For more demanding applications we offer the **TYPE "7"** reinforcement with tungsten carbide inserts located on the whole back surface with additional stabilising inserts.



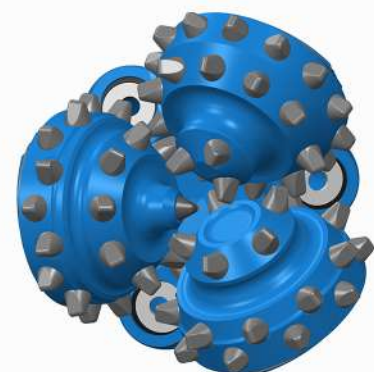
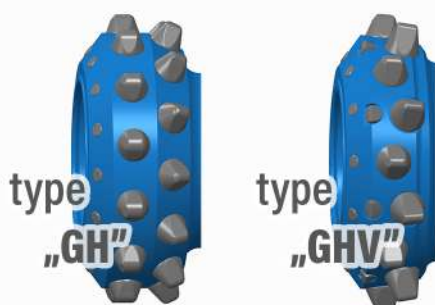
CUTTING STRUCTURE:

Tall prismatic inserts.

The proper location of the inserts as well as the positioning of the cones makes the drill bit able to perform long intervals in a relatively short time.

The wide range of available inserts allows you to select the optimum cutting structure for maximum drilling efficiency.

The geometry of the drill is developed using 3D simulation.



 Our knowledgeable engineering team can provide consulting to select the best possible drilling solutions.

MEDIUM FORMATION DRILL BITS

8-1/2" IADC 235M



Diameter inch	_____	8-1/2"
Diameter mm	_____	215,9mm
Drill bit type	_____	MS2THX
IADC code	_____	2-3-5M

CUTTING STRUCTURE:

Medium height teeth.

A larger number of teeth and an increased tooth blade angle provide enhanced performance in more variable medium and medium-hard formations.

Additionally, the bit's cone surf row is strengthened with carbide inserts protecting the drill from loss of diameter. The location of the nozzles and the direction of the flow of drilling fluids is optimized for faster cleaning of the cutting structure and the bottom of the hole to achieve maximum drilling speeds.

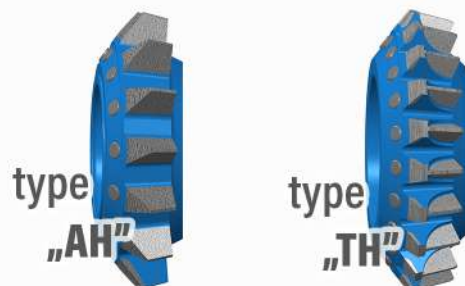
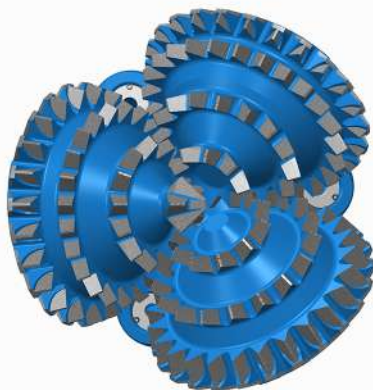
TYPES OF ROCK:

Hard and medium abrasive rocks such as: sandstones with quartz veins, hard limestone or keratinized conglomerates with iron or silica binder, crystalline dolomites, haematite ores, siderites, limonite, hard slates.

Drill bits are offered in a wide range of diameters from:

 **5-1/2"** (139,7mm)
to **17-1/2"** (444,5mm)

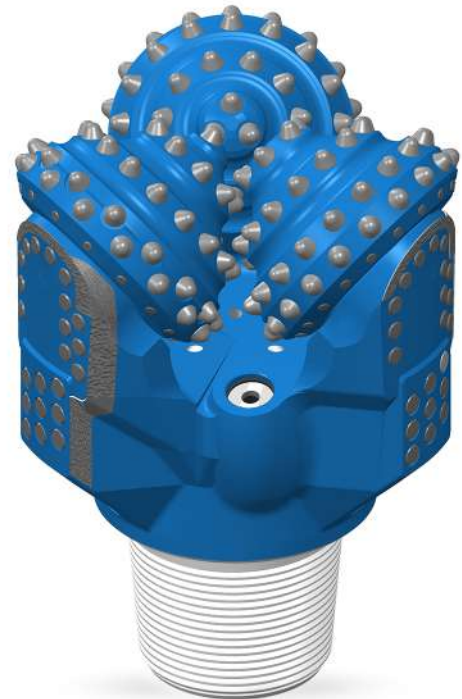
 We offer the possibility of customized product designs for individual client needs.



 We offer the option of adapting the cutting structure to the individual needs of the client



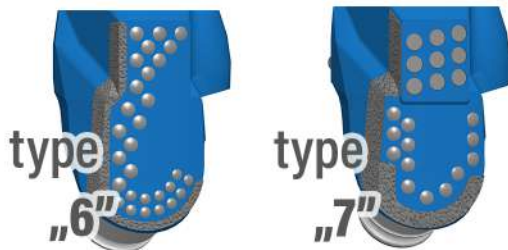
12-1/4" IADC 637M



LEG BACK PROTECTION TYPES:

As a standard, we offer **TYPE "6"** reinforcement with hardfacing on the outer surface of the segment and with inserts on the entire back surface.

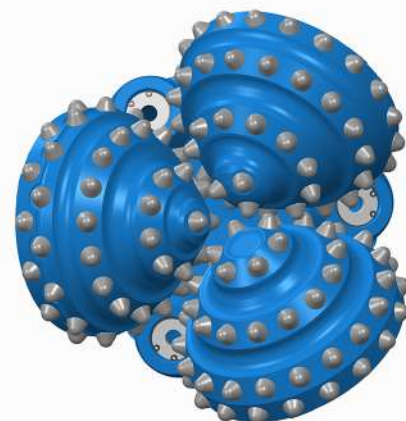
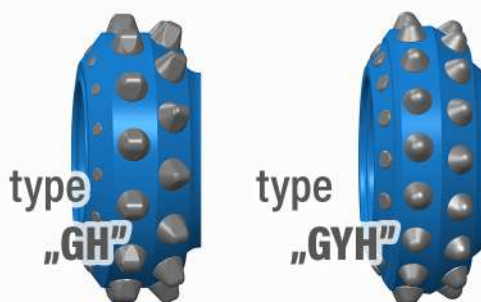
For more demanding applications we offer the **TYPE "7"** reinforcement with tungsten carbide inserts located on the whole back surface with additional stabilising inserts.




CUTTING STRUCTURE:

The prismatic inserts of high height and diameter and the relatively large offset of the bite axis in relation to the axis of the bit will ensure high mechanical speed of drilling.

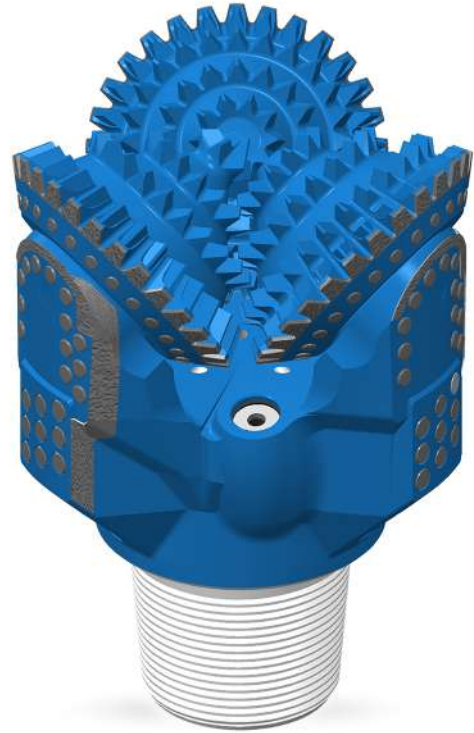
The large sharpening angle of the cutting part of the inserts protects it from breaking and provides maximum strength against rounding of the outer diameter of the bit.



 Our knowledgeable engineering team can provide consulting to select the best possible drilling solutions.

HARD FORMATION DRILL BITS

12-1/4" IADC 315M



Diameter inch _____ 12-1/4"
 Diameter mm _____ 311,1mm
 Drill bit type _____ MT1THX
 IADC code _____ 3-1-5-M

CUTTING STRUCTURE:

Shorter teeth with a wide sharpening angle and narrower spacing.

The teeth on border flanges have designated calibration surfaces and are reinforced with tungsten carbide inserts to ensure high durability of the drill bit and protect it from loss of diameter when drilling in hard rock formations.

TYPES OF ROCK:

Hard abrasive rocks such as: quartzite binder sandstones, hard sandstones with corn inserts, hard quartzite slates, magma and metamorphic rocks.

Drill bits are offered in a wide range of diameters from:

 **5-1/2"** (139,7mm)
to **17-1/2"** (444,5mm)

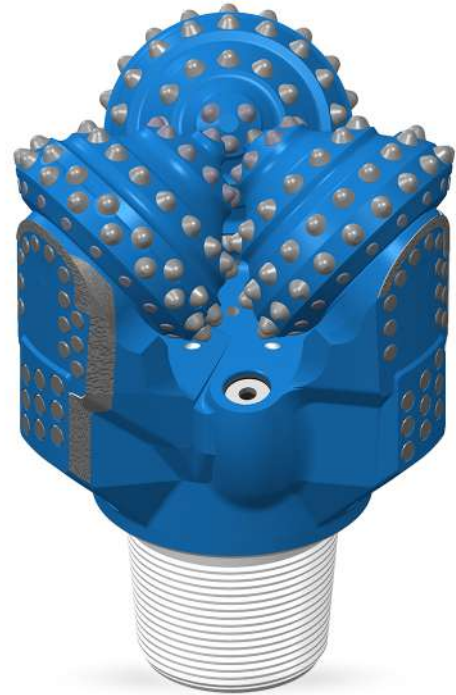
 We offer the option of adapting the cutting structure to the individual needs of the client



 We offer the option of adapting the cutting structure to the individual needs of the client.



12-1/4" IADC 735M



LEG BACK PROTECTION TYPES:

As a standard, we offer **TYPE "6"** reinforcement with hardfacing on the outer surface of the segment and with inserts on the entire back surface.

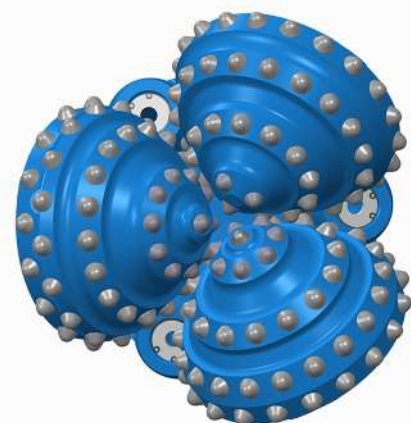
For more demanding applications we offer the **TYPE "7"** reinforcement with tungsten carbide inserts located on the whole back surface with additional stabilising inserts.



CUTTING STRUCTURE:

A large number of inserts with shorter bowl height and very wide sharpening angles as well as the narrower distances between inserts, ensuring optimal conditions for hard rock drilling.

The minimum displacement of the cone axis in relation to the drill axis protects the inserts from breakage. The reinforcement of the cone face with numerous carbide inserts ensures that the diameter of the bit is maintained throughout the entire lifetime of the bit.

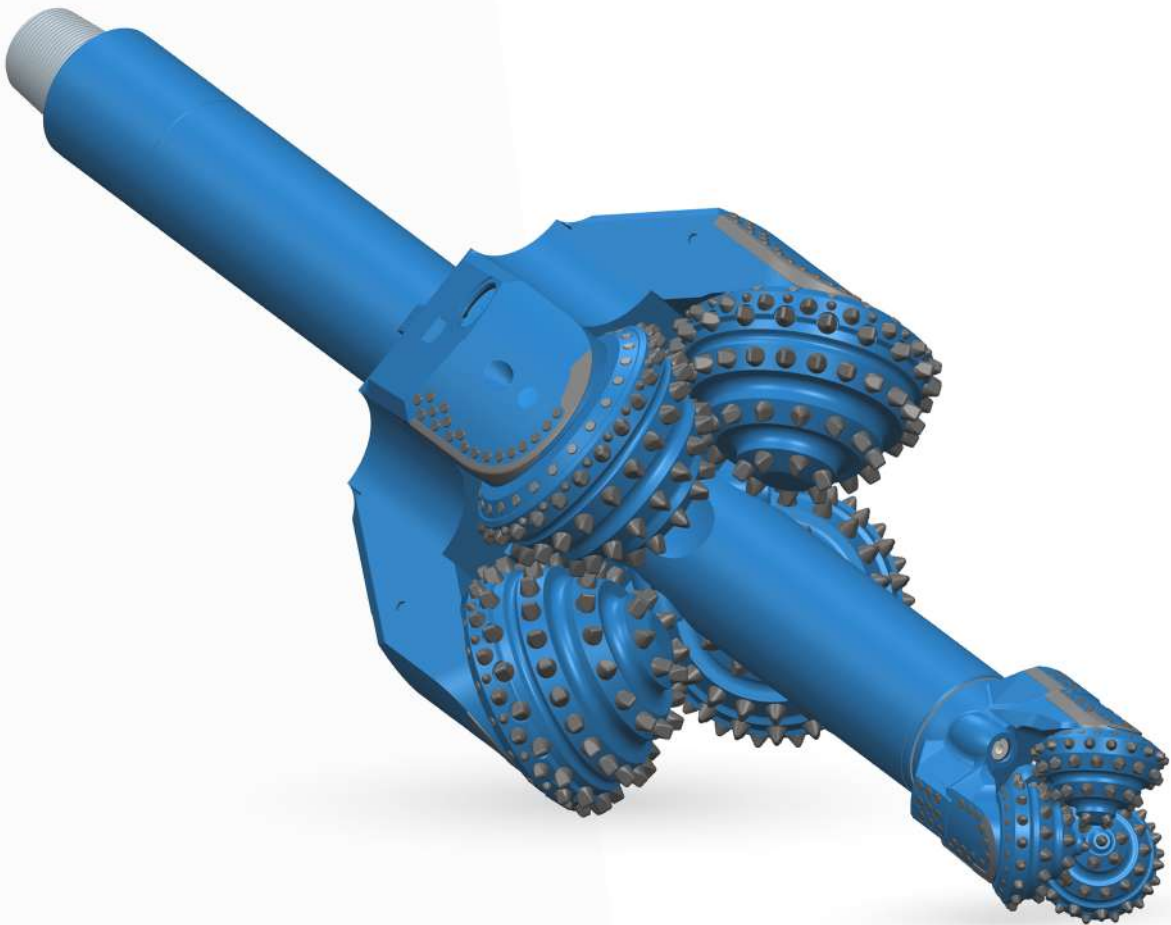


We offer the possibility of customized product designs for individual client needs.

HOLE OPENERS

Vertical

 Diameter range from
5-7/8" (149,2mm)
to **48"** (1219,2mm)

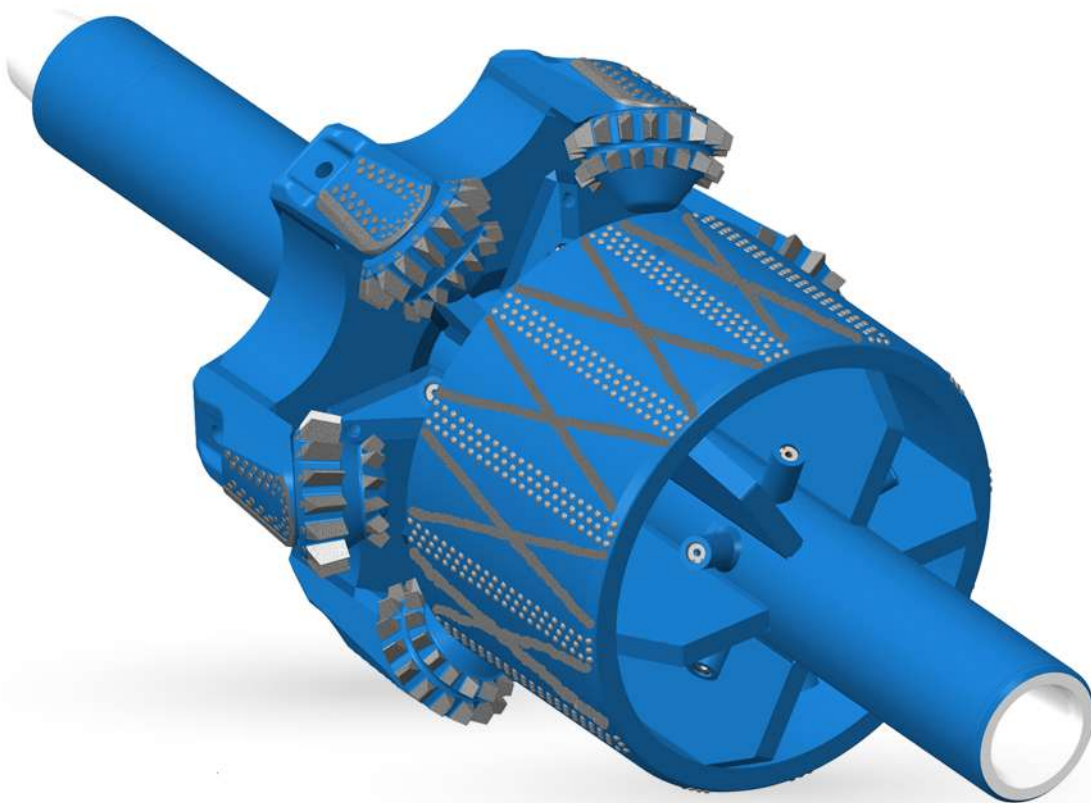


The hydraulic nozzle system provides very efficient flushing of the surface to be drilled as well as the hole opener cones. Interchangeable cone assemblies are also available for all dimensions and types of hole openers. Hole openers for hydrogeological applications can be equipped with a dedicated roller cone drill bit as a pilot.

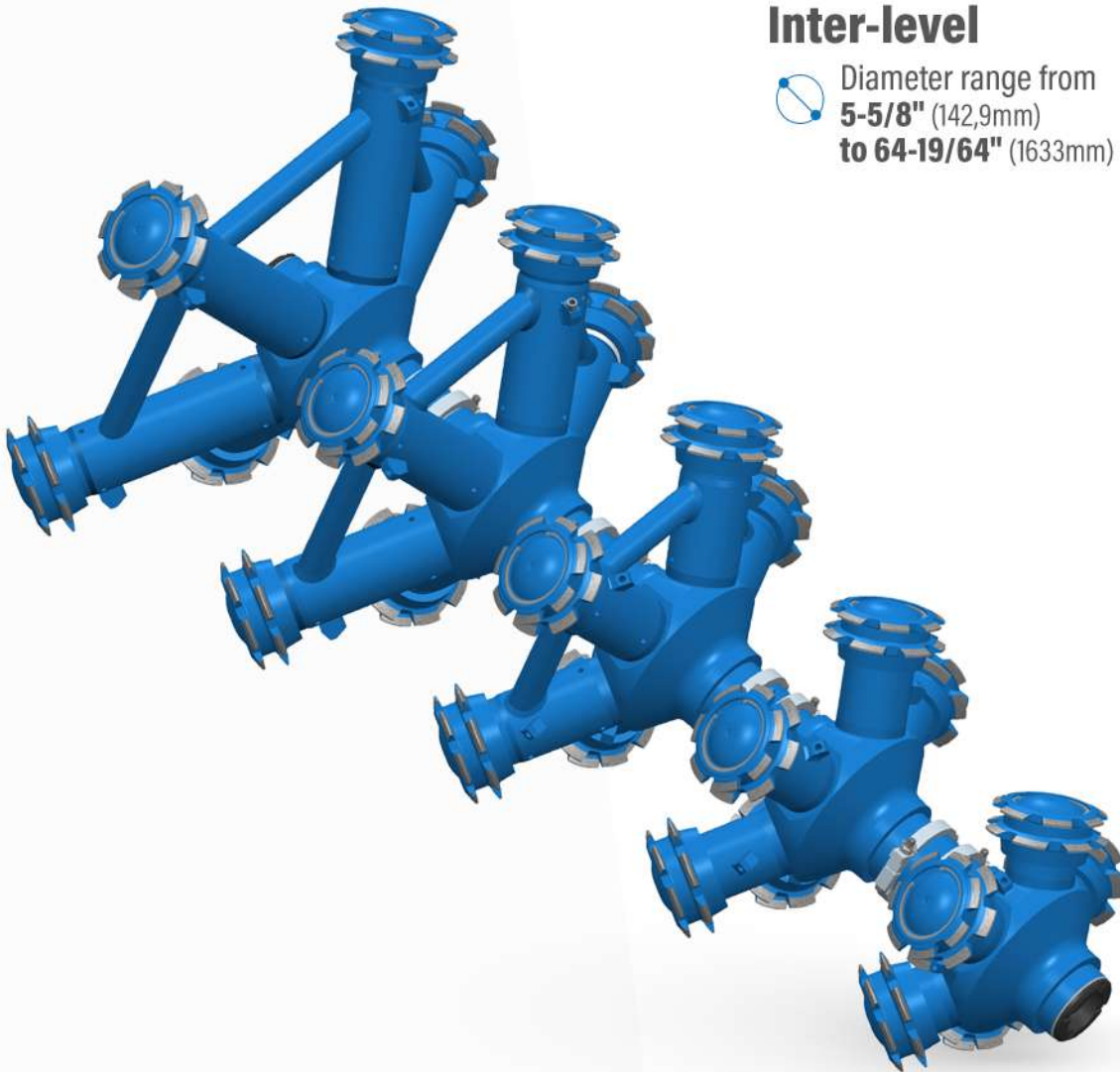


Horizontal

 Diameter range from
12-1/4" (311,1mm)
to 52" (1320,8mm)



Hole openers designed to enlarge the diameter of horizontal holes, e.g. drilling under rivers or roads. These products are equipped with replaceable nozzles enabling selection of optimal hydraulic parameters for proper rock excavation and removal of drilled material. The surface of the main body of hole openers is optimized with hardfaced surfaces and carbide inserts in order to protect against excessive friction wear caused by well walls. To ensure stable and proper operation of the whole drilling string and hole opener, it is equipped (individually upon agreement with the customer) with dedicated pilot cylinders stabilising the walls of the widened hole.



Inter-level

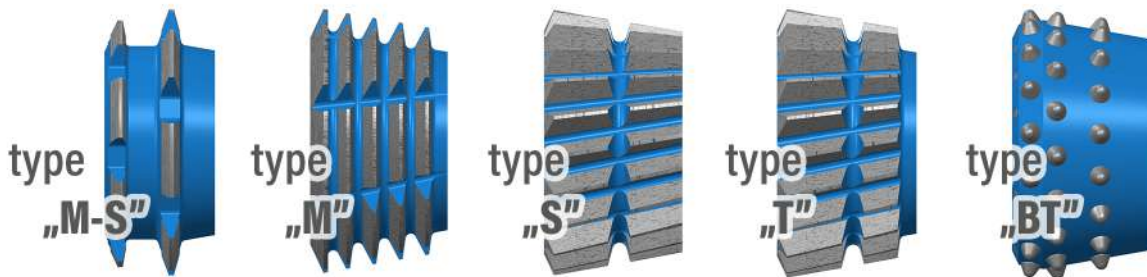
 Diameter range from
5-5/8" (142,9mm)
to **64-19/64"** (1633mm)

Hole openers used in mines where drilling can be carried out with a single hole opener or a set of several, interconnected hole openers system. The body is supplied with threaded connections enabling the assembly of further openers and a drilling string. These connectors are typical threaded connections used in drilling. Custom threaded connections are available based on client's requirement. Hole openers sets can be used as an alternative for riseboring applications.



INTERCHANGEABLE DRILLING CONE SETS

The cutting structure of the cones with both milled and insert teeth, is suitable for soft (M type), medium-hard (S type) hard (T type) and very hard (BT type) rock formations. Depending on the customer's requirements, bearings are used in a non-sealed or sealed version with pressure compensation.



OFFERED SIZE INTER-LEVEL OF HOLE OPENERS

NOMINAL SIZE [mm]	THREADED CONNECTION size	type	NUMBER OF CONES	BITE SIZE [mm]	LENGTH OF THE HOLE OPENER [mm]	WEIGHT OF THE HOLE OPENER [kg]
143 / 270	3 1/2 Reg (WP)	box x pin	3	126	420	58
193 / 305	4 1/2 Reg (WP)	pin x box	3	148	510	65
270 / 406	4 1/2 Reg (WP)	box x pin	3	196	480	101
406 / 610	4 1/2 Reg (WP)	box x pin	3	280	480	228
406 / 610	6 5/8 Reg (WP)	box x box	3	280	590	25
610 / 813	6 5/8 Reg (WP)	box x box	5	280	530	417
813 / 1016	6 5/8 Reg (WP)	box x box	5	280	530	456
1016 / 1219	6 5/8 Reg (WP)	box x box	5	280	530	521
1216 / 1422	6 5/8 Reg (WP)	box x box	5	280	530	579
1422 / 1633	6 5/8 Reg (WP)	box x box	5	280	530	716



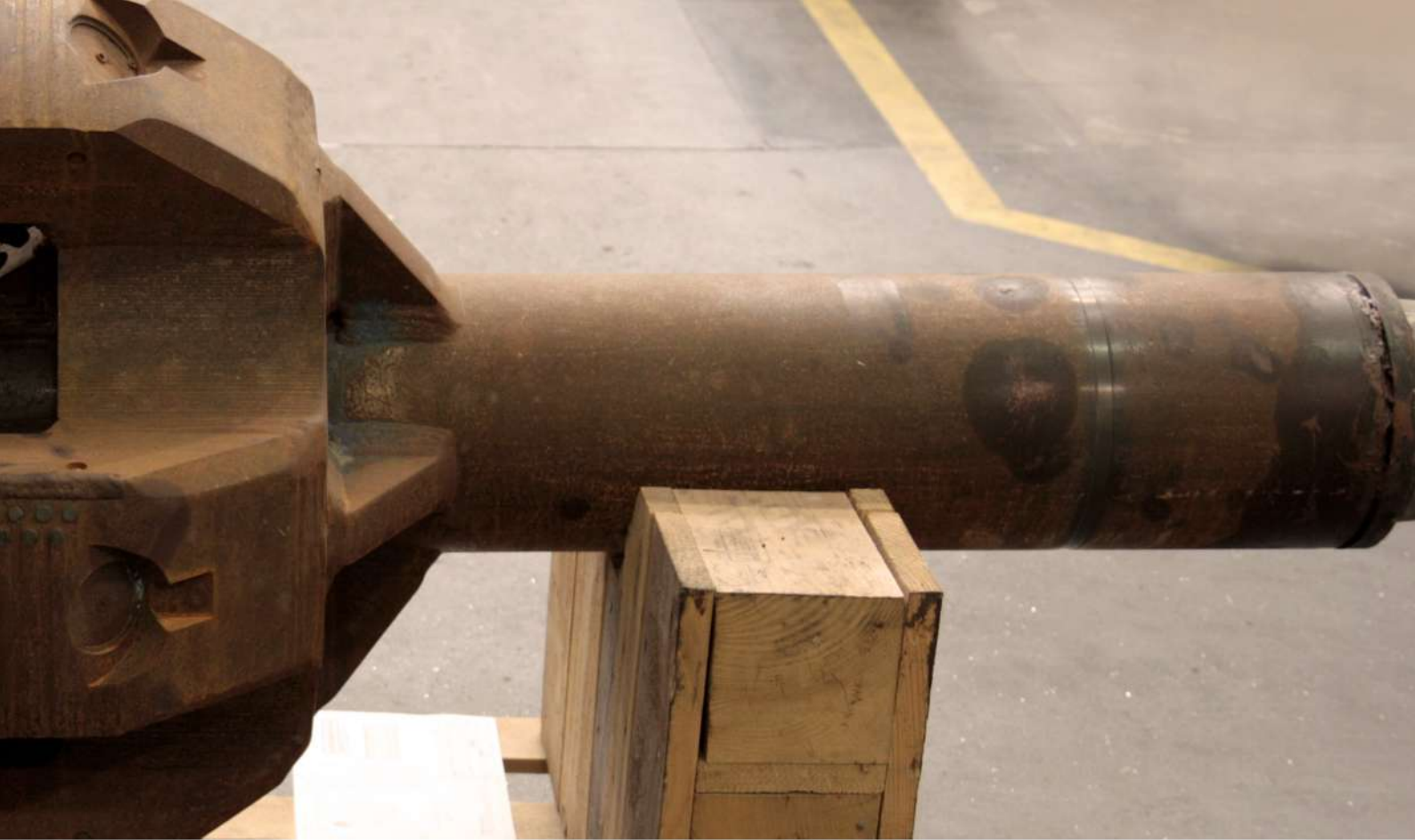
REGENERATION OF HOLE OPENERS

Glinik offers professional regeneration and repair services for drilling tools to reduce the overall cost of customer operations.

We are ready to repair drilling tools manufactured by Glinik, as well as those of other manufacturers. Each tool delivered for regeneration is verified for hidden defects. It is subject to a detailed technical condition assessment. Based on this assessment, the scope of repair work is determined. After extensive analysis, the customer is contacted with full information about the scope, cost and timeline of the regeneration work.



GLINIK
DRILLING TOOLS





HYDROGEOLOGY

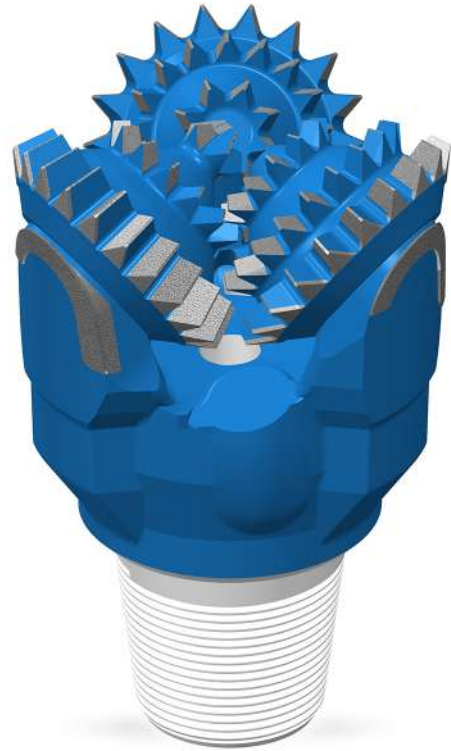
The current worldwide hydrological situation is driving a broader search for available groundwater deposits. To meet the growing customer requirements, Glinik has created tool product line dedicated to hydrogeology exploration drilling.

Our many years of experience and extensive testing of drilling tools has made it possible, to create a drill bit which fits perfectly into the current requirements of drilling companies. In particular, it enables drilling through variable rock formations in one run, directly reducing drilling costs. Depending on the client's preference, drill bits are offered with a milled teeth cutting structure, with wear-resistant hardfaced layers or cones reinforced with tungsten carbide inserts - in a wide range of diameters from 6" (152.4mm) to 36" (914.4m).



HYDROGEOLOGY DRILL BITS

8-1/2" IADC 211



Diameter inch _____ 8-1/2"
 Diameter mm _____ 215,9mm
 Drill bit type _____ S1
 IADC code _____ 2-1-1

CUTTING STRUCTURE:

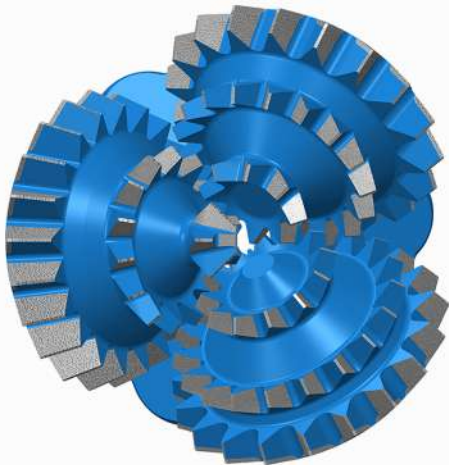
Medium sized teeth that allow drilling through variable hardness formations.

Special design enables use of one drill bit type to achieve the targeted diameter and full hole depth. This is an ideal solution for drilling in unknown rock formation areas.

Drill bits intended for re-drilling and aquifers of variable hardness.

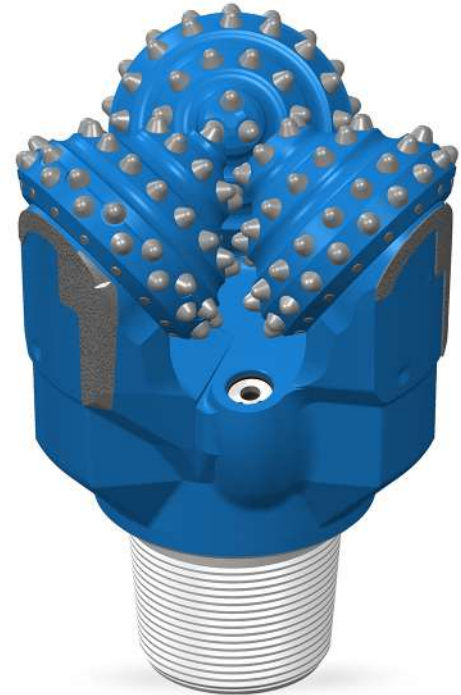
Drill bits are offered in a wide range of diameters from:

 **6"** (152,4mm)
to **36"** (914,4mm)





12-1/4" 633



Diameter inch _____ 12-1/4"
 Diameter mm _____ 311,1mm
 Drill designation _____ S3GY
 IADC code _____ 6-3-3

LEG BACK PROTECTION TYPES:

As standard, we offer TYPE "2" reinforcement with hardfacing on the outer surface of the segment.



Drill bits are offered in a wide range of diameters from:

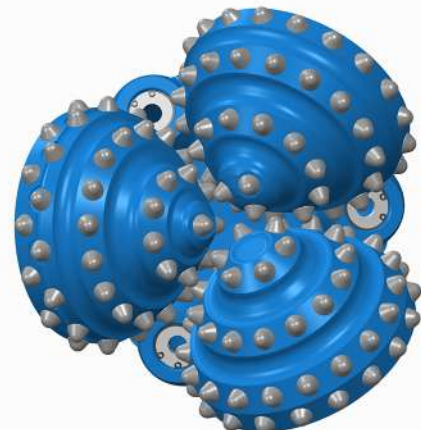
 **6"** (152,4mm)
to **26"** (660,4mm)

CUTTING STRUCTURE:

Optimally selected size and shape of the inserts allow drilling through the variable hardness rock formations.

Special design allows to use one type of drill bit to achieve the targeted diameter and hole depth.

This is an ideal solution for drilling in unknown rock formation areas.



We offer engineering consultancy in order to select the best possible solutions.



GEOTECHNICS

With safety in mind, "NiUW" Glinik has introduced tools dedicated to various types of geotechnical activities. Our products are ideal for all drilling projects related to the ground research.

We are a leader in providing drill bits used for ground improvements/reinforcement for future structural investment projects such as pilings or micro pilings. Our innovative cutting structures combined with an optimized flushing system provides the ideal solution for every drilling operator.





GEOTECHNICAL DRILL BITS

4-1/2" IADC 211



Diameter inch _____ 4-1/2"
 Diameter mm _____ 114,3mm
 Drill bit type _____ S1
 IADC code _____ 2-1-1

CUTTING STRUCTURE:

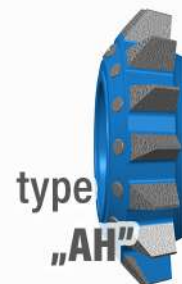
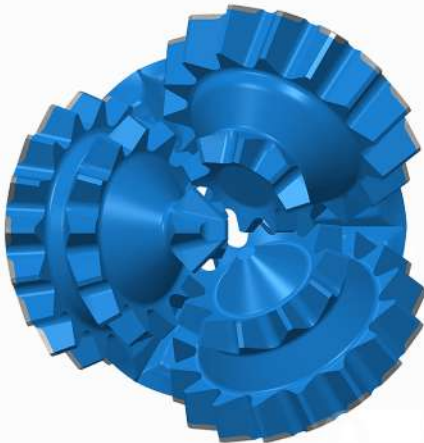
Medium sized teeth that allow drilling through variable hardness rock formations.

Specially prepared designs allows the use of one type of drill bit for efficient engineering works. It is an ideal solution for drilling in unknown rock formation areas.

Drill bits dedicated for drilling pilot holes and all types of ground testing and ground reinforcement projects.

Drill bits are offered in a wide range of diameters from:

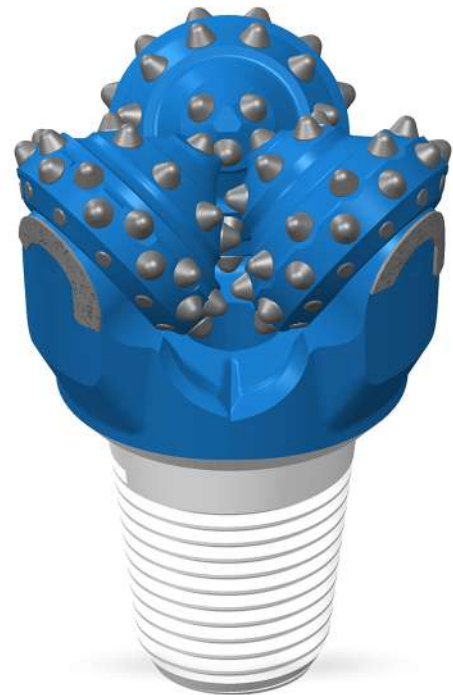
 **2-3/8"** (60,3mm)
to **7"** (177,8mm)



 We offer the possibility of customized product designs for individual customer needs.



4-1/2" IADC 633



Diameter inch _____ 4-1/2"
 Diameter mm _____ 114,3mm
 Drill bit type _____ S3GY
 IADC code _____ 6-3-3

LEG BACK PROTECTION TYPES:

As standard, we offer TYPE "2" reinforcement with hardfacing on the outer surface of the segment.

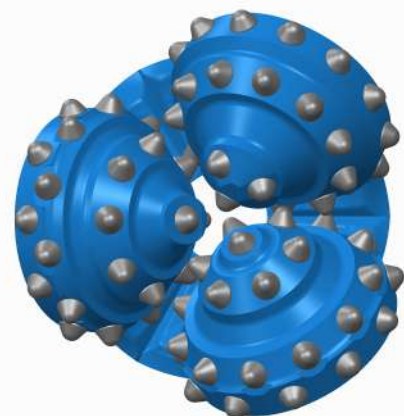


CUTTING STRUCTURE:

Optimally selected size and shape of inserts enables drilling through variable hardness rock formations..

Specially prepared designs allows to use one type of drill bit to achieve the targeted diameter and hole depth.

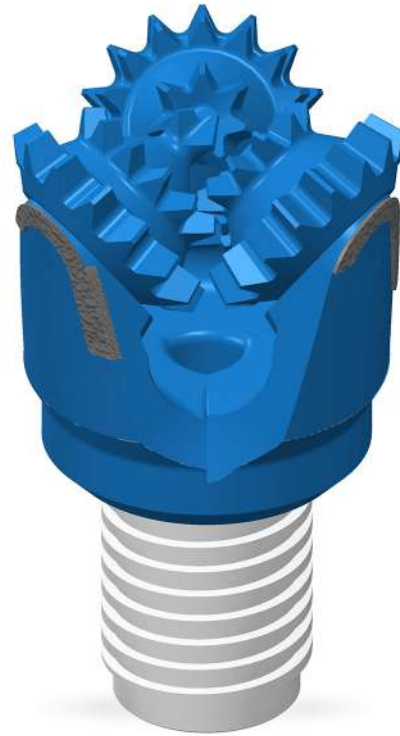
This is an ideal solution for drilling in unknown rock formations.



 We offer engineering consultancy in order to select the best possible solutions.

MINERALS AND MINING

3-1/2" IADC 211



Diameter inch _____ 3-1/2"
 Diameter mm _____ 88,9mm
 Drill bit type _____ S1
 IADC code _____ 2-1-1

CUTTING STRUCTURE:

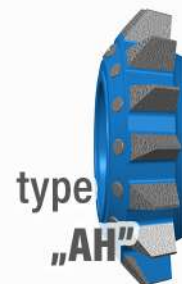
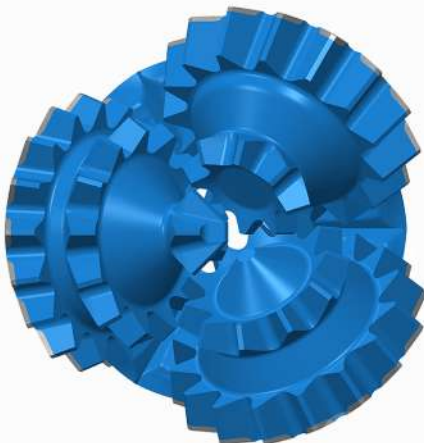
Medium sized teeth that allow drilling through formations of variable hardness rock formations.

Specially prepared design allows the use of one type of drill bit for efficient engineering works. It is an ideal solution for drilling in unknown rock formations.

Bits designed for all kinds of applications related to the extraction of solid minerals.

The drill is offered in a wide range of diameters from:

 **2-1/2"** (63,5mm)
to **36"** (914,4mm)

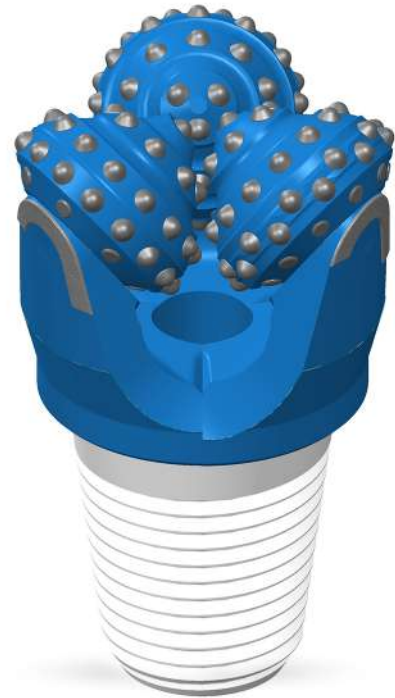


 We offer the possibility of customized product designs for individual client needs.



3-3/4"

IADC 733



Diameter inch _____ 3-3/4"

Diameter mm _____ 95,2mm

Drill bit type _____ T3GY

IADC code _____ 7-3-3

LEG BACK PROTECTION TYPES:

As standard, we offer TYPE "2" reinforcement with hardfacing on the outer surface of the segment.

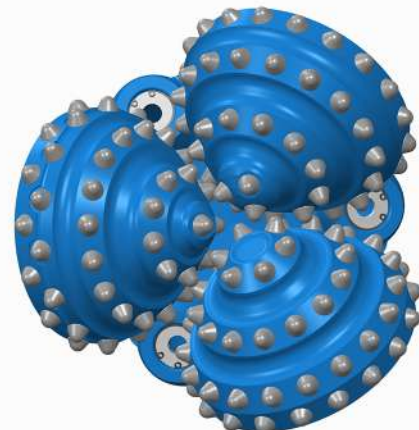


CUTTING STRUCTURE:

Optimally selected size and shape of the inserts enables effective drilling through variable hardness rock formations.

Specially prepared design allows to use one type of drill bit to achieve the targeted diameter and depth of the hole.

This is an ideal solution for drilling in unknown rock formations.

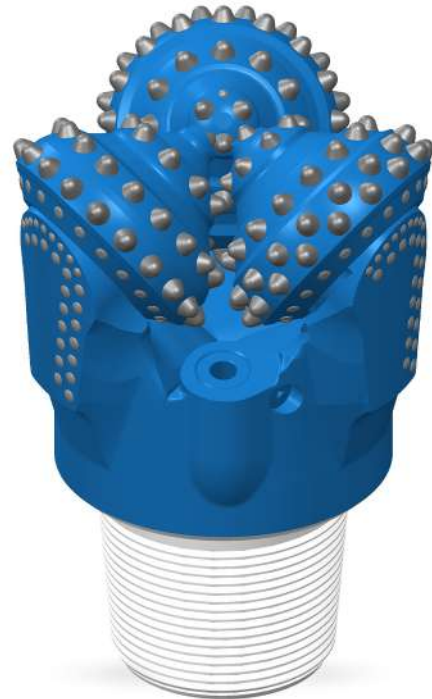


 We offer engineering consultancy in order to select the best possible solutions.



AIR-FLUSHING SYSTEM BITS

9-7/8" IADC 642

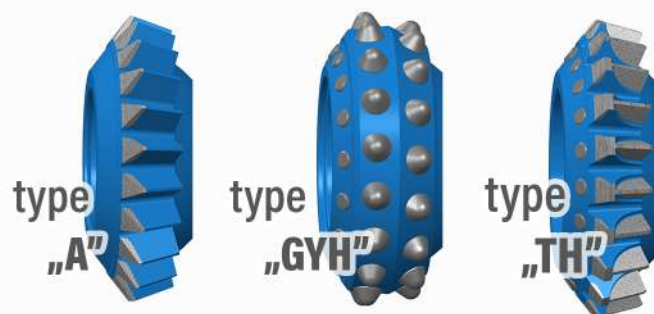
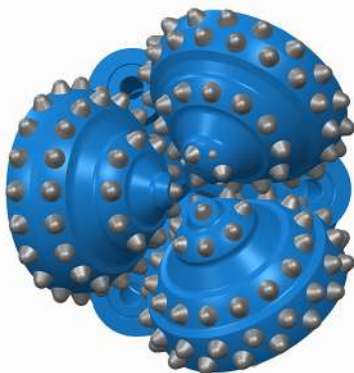
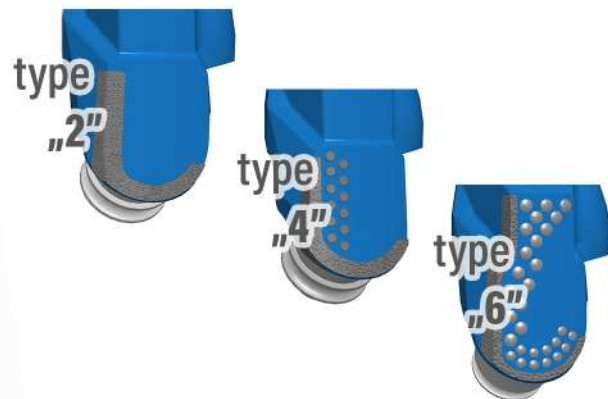


Diameter inch _____ 9-7/8"
 Diameter mm _____ 250,8mm
 Drill bit type _____ S4GY-P
 IADC code _____ 6-4-2

CUTTING STRUCTURE:

Using uniquely designed channels inside the drill bit, bearings receive additional cooling, supporting increased tool life. The unique design of the bearing, through the use of compressed air supply channels, allows cooling of rolling components and prevents drilled materials from entering the bit, ensuring trouble-free drilling operations while optimizing the performance of the drill rig. Optimal cutting structures and the highest quality outside surface wear protection of the tool, minimizes the need of drill bit changes and increases drilling performance.

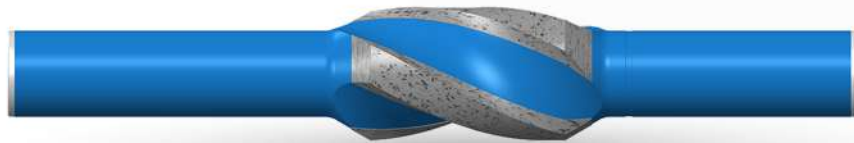
LEG BACK PROTECTION TYPES:





STABILIZERS

Stabilizers are offered in two variants of reinforced stabilising wings with the use of tungsten carbide inserts or covered with wear-resistant hardfacing layers.



SUBS/X-OVERS

NiUW Glinik is also a manufacturer of connectors used in rotary drilling.



THREADED CONNECTIONS

A very important component of every tool used in the drilling process is the threaded connection. Due to the high requirements related with these connections, they are subject to stringent regulations. Each threaded connection is measured, checked and certified. For drill bits we use Reg connections made according to API Spec requirements, 7-2 edition 2.

NiUW Glinik can make other specialised threaded connections used in drilling. We also perform regeneration of worn threaded connections.



Threaded connections are made in accordance with API Spec. 7-2.

DRILL BIT DIAMETER	THREADED CONNECTION SIZE
3-1/2" ÷ 4-1/2"	2-3/8" Reg
4-5/8" ÷ 5"	2-7/8" Reg
5-1/8" ÷ 7-3/8"	3-1/2" Reg
7-1/2" ÷ 9-3/8"	4-1/2" Reg
9-1/2" ÷ 14-3/4"	6-5/8" Reg
14-1/2" ÷ 18-1/2"	6-5/8" Reg 7-5/8" Reg
18-5/8" ÷ 26"	7-5/8" Reg 8-5/8" Reg
27" and larger	8-5/8" Reg



HEAT TREATMENT

NiUW Glinik offers professional heat and thermo-mechanical treatment services in furnaces - with full monitoring, registration and archiving of process data. Depending on the client's requirements, services can be provided in furnaces using protective atmosphere or in a vacuum shield.

After heat treatment processing, stringent quality measurements are carried out such as hardness using Rockwell, Brinell, Vickers or Leeb methods. Mechanical properties (Rm, Re, A, Z, KV) are confirmed after destructive tests.

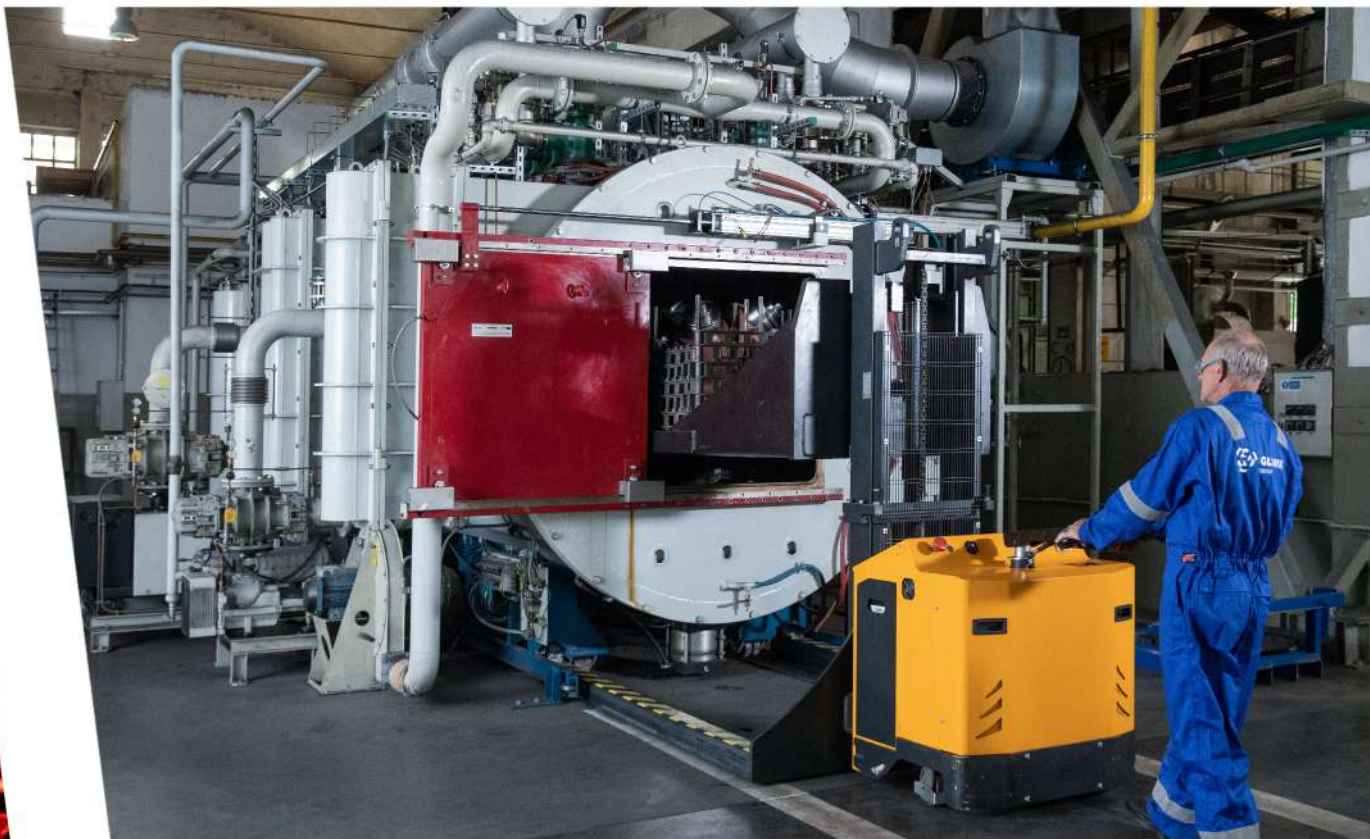
We issue a quality certificate for the service.



GLINIK
DRILLING TOOLS

WE OFFER

- **Annealing:**
 - normalising
 - softening
 - recrystallizing
 - tempering
- **Hardening and tempering of structural, tool and acid resistant martensitic steels**
- **Induction hardening**
- **Vacuum carburizing Fine Carb[®]**
- **Shot-blasting**



MECHANICAL TREATMENT

One of the key competencies of NiUW's production is machining.

Our advanced machining center offers machining services on 2 and 3 axis lathes, 5 axis milling machines, 3,4 and 5 axis vertical milling machines - and 4 axis horizontal milling machines, with a passage in individual axes 1400/1500/1200[mm] (x/y/z)> The maximum turning range above the longitudinal support is 1100mm and above the transverse slide 740mm.

Thanks to the application of modern methods of computer-aided CAD/CAM based manufacturing, we offer a professional approach to execute transfer complex designs to machine performance.

In addition, our machine center is equipped with surface and roller grinders. Production is supervised by our own quality management department, equipped with professional control and measuring equipment, all standardized by certified quality system.

We also provide application of wear-resistant materials welded with gas, arc or plasma methods.

Mazak
SMOOTH





GLINIK
NIUW



**NARZĘDZIA I URZĄDZENIA
WIERTNICZE GLINIK SP. Z O.O.**

www.glinikdrillingtools.pl



**ul. Józefa Michalusa 1
38-320 Gorlice**

POLAND



e: niuw@glinik.com.pl

SALES DEPARTMENT:

e: sales@glinik.com.pl

t: + 48 18 35 49 706

t: + 48 18 35 49 704