



## **MAXDRILL ROCK TOOLS CO.,LTD.**

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



## **Maxdrill Rock Tools Co.,Ltd.**

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## Impregnated Diamond Bits



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The impregnated diamond bits are the most commonly useful bits in the mineral exploration industry. The carefully selected grades of high quality synthetic diamond are distributed in the depth of impregnated bit's matrix series. The matrix layer of the crown contains a uniform distribution of these crystals that are embedded in a powdered metal bond. The matrix of our impregnated diamond bits is designed to expose new diamonds to the bits' cutting face as wear occurs.

Fast penetration rate is maintained as a result of this action, Our impregnated diamond bits are manufactured to give optimum penetration rates and bit life, which is required to keep the coast of diamond drilling to a minimum.



The optimum diamond size, concentration and matrix type are dependent on the hardness and abrasiveness of the formation to be drilled.

Rock Type	Abrasiveness	Rock Hardness	Item No	Color
Clay shale Slitstone Gypsun	Medium	Soft	NF1#	
Ash Stone Coal Argillite Volcanics Sandly Pebble	Very High	Soft	NF1/NF2	

Sandstone Sandy Shale lithoid imestone Limonite Sandstone	Very High	Medium Soft	NF1#/NF2	
Medium-hard Limedtone Medium-hardShale Medium-hard Ash Stone	High	Medium	NF3/NF4	
Marble hard Schist hard streak Stone	Medium	Medium	NF5/NF6/NF7	
Diabase Andesitem Gneiss	Medium	Medium Hard	NF6/NF7	
Grandiorite Limonite	Medium	Medium Hard	NF7/NF8	
Granite Basalt Hard Streak Stone	Medium to low	Hard	NF8/NF9	
Rhyolite Crystauize Genesis Quartz Propyry	Medium to low	Hard	NF9/NF10	
Silicious Stone Hard Sandstone	Medium to low	Extreme Hard	NF11/NF12	
Rhyolite Dense Quartzite Iron Stone	Low	Ultra Hard	NF14	

### Impregnated Bit Matrix Comparison Table

Longyear	Maxdrill	Hobic	Hoffman	Fordia	Huddy
Series#10	NF14	Hobic#10	10-Copper/black	DXP-2	H-10
Series#10/#9/9-F	NF12	Hobic#9	10-Copper/blue	Shank#9	H-8/Gold
Series#9//9-F	NF11 NF10	Hobic#9	9-Copper/blue	Shank#9	H-6
Series#8	NF9	Hobic#8	8-Copper	Shank#7	Copper
Series#8//7-F	NF8	Hobic#7-R/#7-C	8-Copper	Shank#7	Yellow
Series#7	NF7	Hobic#7AA/#7	7-Bronze	P-200/P-150	Orange
Series#7	NF6	Hobic#6	7-Bronze	DXP-33	Red
Series#6	NF5	Hobic#5/#4	6-Gray	P-150	
Series#6	NF4	Hobic#4/#3	6-Gray	DXP-33	Green
Series#4/#2	NF3		5-Blue	P-155	Silver-Blue
Series#2	NF3	Hobic#3	2-Green(Dark)	P-155	Blue
Series#1	NF2	Hobic#2	1-Saper Green(Blight)	P-160	
Series#2/#1	NF1 NF1#	Hobic#1	6-Gray	DXP-2 P-150	Black

**Remarks:** The above comparison is based on the similarity between our bits and other companies' bits. This able just for your reference, when ordering bits, please choose bits according to you rock formations.

## Surface-Set Diamond Bits

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Nature diamond surface set bits differ from impregnated bits, they are only set with a single layer of natural diamonds utilizing a hard matrix compound on the face of the bit. Its waterways are usually shallower than an impregnated bit because of the single layer of the diamonds. Surface-set diamond bits are primarily recommended for use in drilling relatively soft, abrasive, unconsolidated formations that are not effectively drilled by impregnated diamond bit. They are also recommended for use in drilling harder formations where the available rotational speeds and bit load are insufficient to use impregnated diamond bits due to drilling equipment limitations.

We manufacture a wide range of surface set bits, which includes a variety of bit crowns, diamond grades and sizes, designed to provide the biggest cutting efficiency in various rock formations. Some bits are designed with face discharge holes to minimize core wash when drilling in soft and fractured formations.

**Diamond Size Selection:** The harder the rock is , the smaller the diamonds we should use

The amount of diamonds is one of very important factors to the bit cutting efficiency, Our engineers use mathematical formulae to set each diamond on bit cutting area to ensure proper overlap with a minimum of diamonds to keep the initial bit cost as low as possible in a balance design.



## Reaming shell

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The reaming shell is set with natural or synthetic diamond, and it is used to couple the drill bit with the core barrel. Its main function is to ream the hole to the correct constant specific diameter which ensures adequate clearance for the core barrel and sufficient clearance for the new bit which replaces an old one. It also acts as a stabilizer for drill bit. We can produce reaming shells with 6",10"and 18" length.

Reaming shells(with double pads or three pads) are suitable to use in all formation conditions ranging from broken and abrasive to consolidated and non-abrasive. As this kind of reaming shell is physically longer than the standard type, it is necessary to use an appropriate inner tube extension in order to compensate for the difference in overall reaming shell length.

Combined high quality and design make our reaming shells the best in the industry. With several different types, we're got you covered no matter what your requirements are.



## Tungsten Carbide Bit

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This type of bit uses tungsten-carbide as the cutting media. Tungsten-carbide does not possess the hardness of diamond and as such has a limited range of application as a core drilling cutting media. T.C bits are however a very cost-effective means of drilling softer unconsolidated formations.



## Regular T.C Core Bit

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These bits are set with rectangular-shaped or octagonal-shaped tungsten-carbide elements that are physically embedded into the crown of the bit. The bit crown itself is composed of a tough, wear resistant metal-bond matrix material. The application of this bit is primarily in geotechnical soil investigation or for core drilling in overburden layers that are mainly composed of clay, sand, gypsum or soft shale.



## Broken Carbide Bit

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The cutting media used in this type of core bit are crushed tungsten-carbide that are bonded in a metallic alloy, this type of core bit has more cutting edges than regular tungsten carbide bit and as such have a wide range of application in some formations, which is similar to impregnated diamond core bits in that the bit crown is composed of several layers of cutting media. The bit face regenerates itself with new cutting edges by wearing away the metallic alloy during operation to continually expose new layers of carbide-chips until the bit crown is consumed.



## TSP Core Bits

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The TSP core bits are set with thermally stable polycrystalline cutters, mounted in the bit crown matrix.

The bit is extremely tough and will cope with massive or broken formations, from soft to hard, highly abrasive formations.

With consistent performance across a wide range of formations, this kind of bit offers a very cost-effective drilling solution in many circumstance, and at the same time allows bit inventory costs to be much reduced.

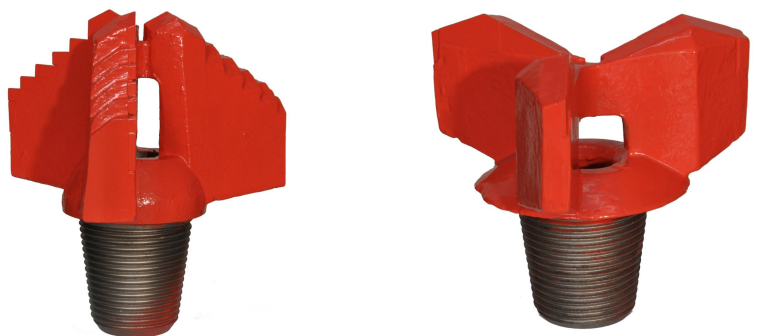


## Drag bit

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Drag bit is manufactured from forged high quality alloy steel and premium tungsten carbide insert, plus state of art welding technology to provide highest penetration rate and longest life.

Drag bits can be used for many soft rock formations like sand, clay etc. We supply drag bit with three wings or four wings, step type and chevron type. The size is from 2" to 17 1/2"



## Sonic Bit

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Our sonic bits are manufactured from premium quality materials and field tested under a variety of conditions to ensure excellent performance and resistance to wear.

Customer's special bit designs and thread profiles are available on request.



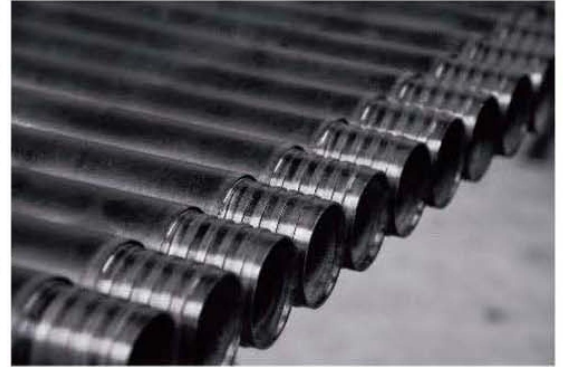
## Wire line drill rod

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Our wireline drill rods are manufactured from the best quality heat-treated seamless steel tubes according to S135 Steel Grade standard. Ultimate tensile strength, high precision and good straightness provide the best performance under different drilling conditions.

Case hardening on rods end protects thread connecting and increases its wear resistance and rod life.

The standard effective lengths of drill rods are 3.0&1.5 meters. Other lengths can be manufactures according to customer’s special requirement. We have many years of experience in manufacturing coring drill rods; we try to provide you the most cost-efficient products.

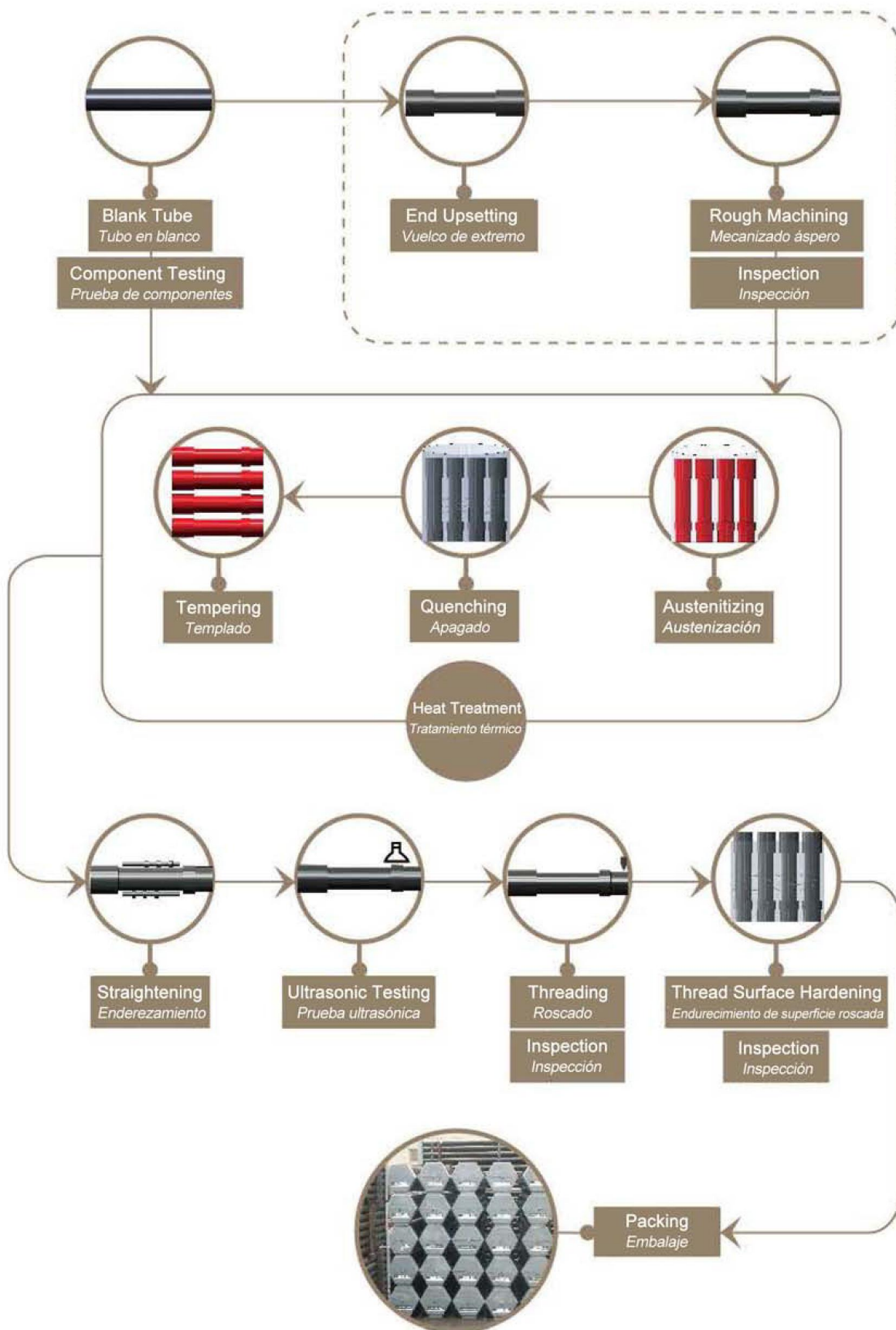


<b>Drill Rod Size Available</b>	
Wireline Series	A, B, N, H, P
Metric Series	33, 42, 50, 60, 75, 89, 114
“W” Design	RW, EW, AW, BW, NW, HW
“WJ” Design	AWJ, BWJ, NWJ, KWJ, HWJ
Others	BTW, NTW, HTW, LTK48
Chinese Standard	S56, S59, S75, S95, S110, S127, SA56, SA59, SA75, SA95, S75ZD, SA95ZD

\*We always have large quantity of drill rods in stock.



### Production Procedure of Drill Rod



## Core Barrel & Overshot

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We offer a complete line of single & double and triple tube core barrels, which will provide superior performance and obtain the full recovery of the sample in any application of diamond core drilling.

Using a wireline system, core is recovered quickly by retrieving the inner tube directly through the drill string. The rods remain in the hole until the bit needs to be replaced. This has big cost advantages when drilling deep holes for mineral exploration.

The core barrel assembly is composed of the inner-tube group and outer-tube group.



The inner-tube group collects the core sample during the drilling process and is independent of the outer-tube group. The outer-tube group always remains at the bottom of the hole and houses the inner-tube group during the drilling process. The standard wireline Double tube inner-tube group is composed of Head Assembly, inner-tube, Core lifter case, Core lifter, Stop ring.

The outer-tube group is composed of the remain of the core barrel components: Locking coupling, Adapter coupling, Outer-tube, Landing ring, Inner-tube stabilizer.

Standard Wireline Double tube Core Barrels are ideal for use in most of the drilling conditions and are available for application in standard hole sizes(B, N, H, P).

Wireline Triple tube Core Barrels enable integral core recovery when drilling coal, clay bearing or highly fractured formations. The split retain the core sample in its received state for easier loading into sample trays or for storage and subsequent presentation to the geologist. The Triple tube Core Barrels is available in N,H and P sizes.



When the inner-tube is full, device called an overshot is lowered down the hole via a wireline cable and brought to the surface by use of a winch.

Once the inner-tube assembly is at the surface, an empty inner tube is lower into the hole so drilling can resume.

An overshot is available for each size of core barrel.

Size Available	
Wireline Series	B, N, N-2, N-3, H, H-3, P, P-3(Surface&Underground); BTW, BTW-U, NTW, NTW-U
Conventional	LTK48, LTK60, T2 76, T2 101
Chinese Standard	SC56, S59, S75, S95, SCA56, SA59, SA75, SA95, S75ZD, SA75ZD, SA95ZD, P56, P59, P75, P91, PA-110, PA-130, P150
	Customer's special requirement is also available.

## Wireline Core Drilling Tools

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We supply a complete system of wireline core drilling equipment.



Water Swivel  
*Junta giratoria de agua*



Subs  
*Suscriptores*



Hoisting Plug  
*Enchufe de elevación*



Rod/Casing Tap  
*Tapa de barra /  
tubería de revestimiento*



Heavy Duty Pipe wrench  
*Tubería pesada Llave*



Heavy Duty Foot Clamp  
*Abrazadera de pie pesada*



Slant Hole Clamp  
*Abrazadera de agujero inclinado*



Mud Mixer  
*Mezclador de barro*



Hydraulic clamp  
*Pinza hidráulica*



Thread Grease  
*Grasa de roscas*



Wireline Wunch  
*Cabrestante por cable*



Standard Foot Clamp  
*Abrazadera de pie estándar*



Casing Cutter  
*Cortador de tubería*



Tube Wrench  
*Llave de tubo*

## PDC bits

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We manufacture different types of PDC Coring and Non-coring bits, which are widely used from soft to medium hard rock formations. PDC bits we manufactured are always with good cutting, fast penetration and long bit life, so they're preferred by our domestic and foreign customers.

Customer's special requirement is also available.



### PDC Coring Bits

Good cutting fast penetration, long bit life, water pass through fluently and high efficiency in getting core. It is applied to soft to medium hard rock formation.



## PDC Non-coring Bits

Fast penetration, strong abrasion resistance, long bit life. It has good performance and good stability and universality for various rock formations, and it could be the first choice for general drilling.



We can design and manufacture various types of PDC matrix bits with 3 to 7 blades, size ranging from 3 1/2"~12 1/2", which are widely used in water well drilling as well as oil & gas industry.

