GREAT

## Introduction COMPANY

格锐特石油装备创立于1998年,专业从事特种钢材和金刚石材料的加工研究,致力于石油装备产品的研发、设计、生产与销售,系中石油、中石化、中海油一级物资供应商。公司生产基地位于河北河间、省级开发区,占地40000㎡,拥有多台车铣复合、五轴联动等国际先进的高性能金刚石钻头生产线,年生产能力万只以上,可生产3" —26"各规格的钢体、胎体钻头、牙轮掌片、牙轮钻头、取芯、双心钻头、随钻扩眼等特殊工具。

公司通过先进的设计手段、制造工艺、国际化的管理体系以及持续的技术创新,实现了产品的卓越品质,得到国内外客户高度认同,与国内各大油田建立了战略合作关系,产品远销美国、俄罗斯、加拿大、中东、印尼等国家和地区

本公司始终如一坚持实业报国发展理念,以促进能源开发为己任,创新驱动、科学发展,是PDC钻头和牙轮钻头制造业亚洲地区最大的规模企业之一。

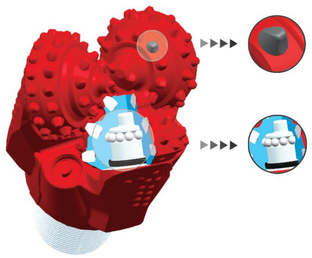
Great Drill Bits Co.,Ltd ,founded in 1998, specializied in processing research of steel and diamond materials, is involved in the R&D, design, production and sales of petroleum equipment, up to now we have being the top material supplier of CNPC, SINOPEC,CNOOC. We have a 40,000 ㎡ of production based in Hebei Heijian provincial development zone, and several international advancedproduction lines featured in turning-milling compound, five-axis linkage, special for high-performance diamond processing with the annualproduction capacity of more than 10,000 pcs We provide the bits from 3"to 26"of different series: such as Matrix body series, Steel body series, Cone cutter, Tricone bit, Coring series, Bi-center series, Reaming tools, etc.

Depending on our advanced design tools, manufacturing processes, international management system and continuous technologicalinnovation. we got the highly-degree recognization to our product quality from both domestic and foreign customers. The well strategic partnership with major domestic oilfields have been sounded, The products also are exported to the United States, Russia, Canada, the Middle East,Indonesia and other countries and regions.

The Company consistently adhere to the concept of industrial development to promote energy development, adhered to innovative drive, scientific development, and is one of the largest scale companies in Asia for PDC bit and tricone bit manufacturer.


## QUALITY INSPECTION PROCESS

## 镶齿系列/TCI bits



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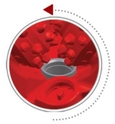
齿形包括：楔型齿、宽顶齿、勺型齿、锥球齿、球头齿、镦球金刚石复合齿、平头金刚石复合齿，根据不同的地层选择不同的齿型。

Tooth shape includes wedge-shaped tooth(X), wide top tooth(K), spoon type tooth(S), conical-ended shape tooth(Y), hemi-spherical ended shape tooth(Y1), gage protection by diamond enhanced cutters on cone ( F ) ,flat diamond tooth(P).Different tooth types are selected according to different strata.



### C-中心喷嘴/C-Center Nozzle

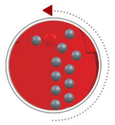
C-中心喷射可有效避免泥包，消除井底流体滞留区，加速岩屑上返，提高钻头机械钻速。适用于低抗压强度、高可钻性的软至中软地层。

C-Center jet can avoid bit balling, eliminate resorting area of fluid at bottom hole, expedite upward flow of cuttings and improve ROP. It is suitable for drilling in soft to medium soft formation with low compressive strength and high drill ability.

### T-修边齿/T- Trimming Cutter

背锥齿与外排齿之间增加了一排齿，具有修整井壁和保护牙轮体的双重作用。

A row of teeth between the back taper tooth and the outer row tooth is added, which has the double function of dressing the wellbore and protecting the body of the wheel.



### G-掌背保径/G-Gauge Protection

钻头掌背镶齿强化，在研磨性地层或定向井和水平井中，能有效降低牙掌磨损，提高钻头的保径性能，延长钻头的使用寿命。

The strengthening of bits and inserts can effectively reduce the wear of tooth palms, improve the diameter protection performance of drill bits, and prolong the service life of drill bits in abrasive or directional wells or horizontal wells.

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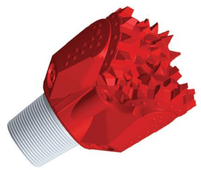
## 钢齿系列/Steel tooth bits



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适用于低抗压强度、高可钻性的极软地层，如粘土、泥岩、白垩等。

It is suitable for low compressive strength and high drillability in extremely soft strata, such as clay, mudstone, Cretaceous and so on.

适用于高抗压强度的中等地层，如中软页岩、硬石膏、中软石灰岩、中软砂岩和有硬夹层的中等地层。

It is suitable for medium strata with high compressive strength, such as medium soft shale, anhydrite, medium soft limestone, medium soft sandstone and medium stratum with hard intercalation.

## 工程片系列/Cone Bit Cutter

GS 637

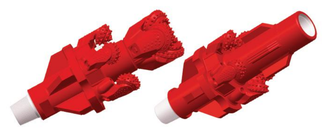
牙轮采用满布齿结构，牙掌部分采用快装式安装，底座采用热锻整体成型，经热处理后采用加工中心铣削内腔，牙轮合金齿采用镦球齿设计，提高了合金齿的耐磨性和抗冲击性。
The roller cone is filled with teeth and the palms are installed with quick mounting;.The base is formed by hot forging, the inner cavity is milled by machining center after heat treatment;The alloy teeth of the gear are designed with conical ball teeth to improve the wear resistance and impact resistance.

GT 537

适用于高抗压强度的中硬地层，如强风化花岗岩、砂岩、板岩、石灰岩等。

It is suitable for medium hard formations with high compressive strength, such as hard shale, limestone, sandstone, dolomite, etc.

## 扩孔钻头/Hole opener



组装钻头、扩孔钻头由四个或更多牙轮组成，主切削齿为敷焊新型耐磨合金的钢齿或优质硬质合金齿，顿眼钻头为三牙轮钻头，适用于大直径表层钻井、矿山钻井及管道穿越等工程领域。

The assembly bit、hole opener is made up of four or more wheels. The main cutting tooth is a new type of wear resistant alloy steel tooth or high quality carbide tooth. The collar bit is a three cone bit, which is suitable for large-diameter surface drilling, mine drilling and pipeline crossing and other engineering fields.

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## PDC钻头分类/PDC Classification

PDC胎体系列
Matrix Body PDC Bit

PDC钢体系列
Steel Body PDC Bit

PDC 取芯系列
PDC Coring Bit

扩眼器系列
PDC-Reamer

PDC双心系列
Bi-Center PDC Bit

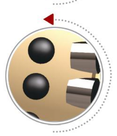
反循环钻头系列
RC PDC Bit

PDC扩孔器系列
PDC Hole Opener

### 限位齿/Limiting Cutter

有效控制前排切削齿的吃入深度，提高钻头的稳定性和减小钻头的方位漂移。

Effectively control the front PDC cutter to drill into the depth, improve the stability and reduce its drift.



### 减震齿/Shock-absorbing cutters

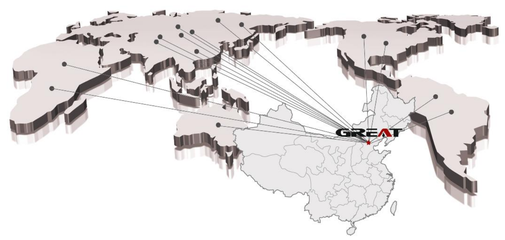
平衡钻头在井底产生的径向震动载荷，使钻头在井下工作更加平稳，防止钻头出现PDC齿先期破坏。

It makes the bit drilling more smoothly,to prevent the PDC cutter damaged in advance .

### 弧形齿保径/Arc PDC cutters gauge

优质弧形PDC复合片保径，有效减小岩石对钻头体的磨损，增强钻头保径的耐磨性和稳定性。

High quality arc PDC cutters gauge, reduce the abrasion of rock on the bit's body, increase wear resistance and stability of the drill gauge.





**GREAT PETROLEUM EQUIPMENT**

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格锐特石油装备

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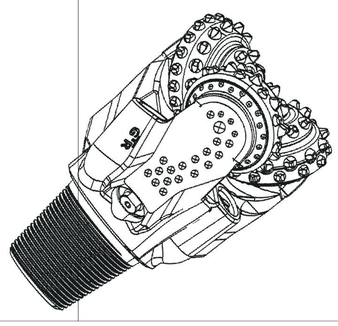

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## PDC钻头/PDC BIT 扭力冲击器/TorkBuster

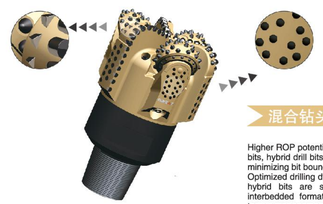
### 扭力冲击器/TorkBuster

扭力冲击器将钻井液动能通过转换将扭矩直接作用在钻头上减少钻头的粘滑运动，可更好的改善机械钻速并可以保护钻头，延长钻头寿命。
减少钻柱组件的疲劳

内部工作原理：钻井液进入腔体内，其中一部分钻井液启动冲击锤，剩余部分钻井液驱动换向套及冲击镦运动，将钻井液的动能转换成冲击锤能量，并利用下接头将能力直接作用于钻头。

Torque impactor converts the drilling fluid kinetic energy to directly apply the torque on the drill through conversion
Reducing the stick-slipping movement of the drill can better improve the mechanical drilling speed and protect the drill to prolong the life of the drill.
Reduce fatigue of drill string components

Internal working principle: After entering the cavity, part of the drilling fluid is used to start the impact hammer, and the remaining drilling fluid is used to drive the reverse valve and impact hammer for movement. The kinetic energy of the drilling fluid is converted into energy to the impact hammer, to directly act on the drill by using the lower joint.



### 混合钻头/Hybrid bits

Higher ROP potential than roller cone drill bits, Compared to roller cone bits, hybrid drill bits can increase ROP, requiring less weight on bit and minimizing bit bounce.
Optimized drilling dynamics compared with PDC Compared with PDCs, hybrid bits are significantly more durable when drilling through interbedded formations. They reduce stick-slip and simplify drilling torque management while making it more consistent, enabling smoother transitions through varied formations. Improved stability and directional control enable better vertical control as well as higher build-up rates in curve sections.