DrillMore Rock Tools Co., Ltd.

MINING DRILL AND BLAST

Tricone Bit Introduction

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01 About DrillMore

We are a company passionately dedicated to meticulous production.

About DrillMore

DrillMore Rock Tools Co., Ltd. is a high-tech enterprise engaged in R&D, production and sales of tricone bits size range with 6 1/4~13 3/4 inches, with different type for global customers in open pit mining, quarrying, construction of all kinds of rock conditions.

The quality and ability have been improved rapidly according to innovating production technology constantly. CNC technology has realized parametric design of roller bit, and our experienced experts research the structure, sealing and technology of tri-cone rock bit.

Compared with the traditional products, our rock bits with new technology are of excellent material, reasonable design and advanced technology, which enhances the tricone bits' bearing capacity and working life. The new and high efficient mining rock roller bit manufactured by ourselves is applicable to soft, hard and very hard formation. It has the characteristic of long life, high efficiency and slag discharge easily. And its drill depth is 2 or 3 times than the common tricone bit. Can completely meet the drilling and blasting on surface mines requirements.

DrillMore sincerely hopes to cooperate with both of domestic and foreign customers for the future while its development.

DrillMore

Workshop & Equipment

Robort Welding Equipment

Robort welding equipment performs carbide wear-resistant overlays on the palms to ensure the efficiency and precision of welding.

Heat Treatment Plant

Own heat treatment workshop, accurately control the temperature and time of materials to ensure product quality and improve work efficiency.

CNC Machining

CNC machining center, drilling holes in the roller cones and back of the palm, milling the palm, shape of the roller cones.

DrillMore

Quality Inspection

High-precision microscope

Check the crystalline phase organization of the quenched workpiece, to determine the index of heat treatment quenched workpiece.

Infrared Carbon Sulfur Analyzer

Determines the amount of carbon and sulfur in steel materials to determine properties such as hardness, strength, toughness, and plasticity.

Carbide Density Tester

Examine the density of the tungsten carbide teeth, its size and quality directly affects the performance and use of the tungsten carbide.

DrillMore

Raw Materials

Special Steel for Tricone

Special steel for tricone bits from large steel mills, only the stability of raw materials can guarantee the stability of product quality.

Forged Blanks

Our own forging workshop, and we have a large number of blanks for regular products to ensure fast delivery to our customers.

Mining Carbide

Our company and China's best Cemented Carbide manufacturers jointly developed the mining-specific Cemented Carbide.

02 About Tricone Bit

DrillMore specialize in manufacturing tricone bits for mining.

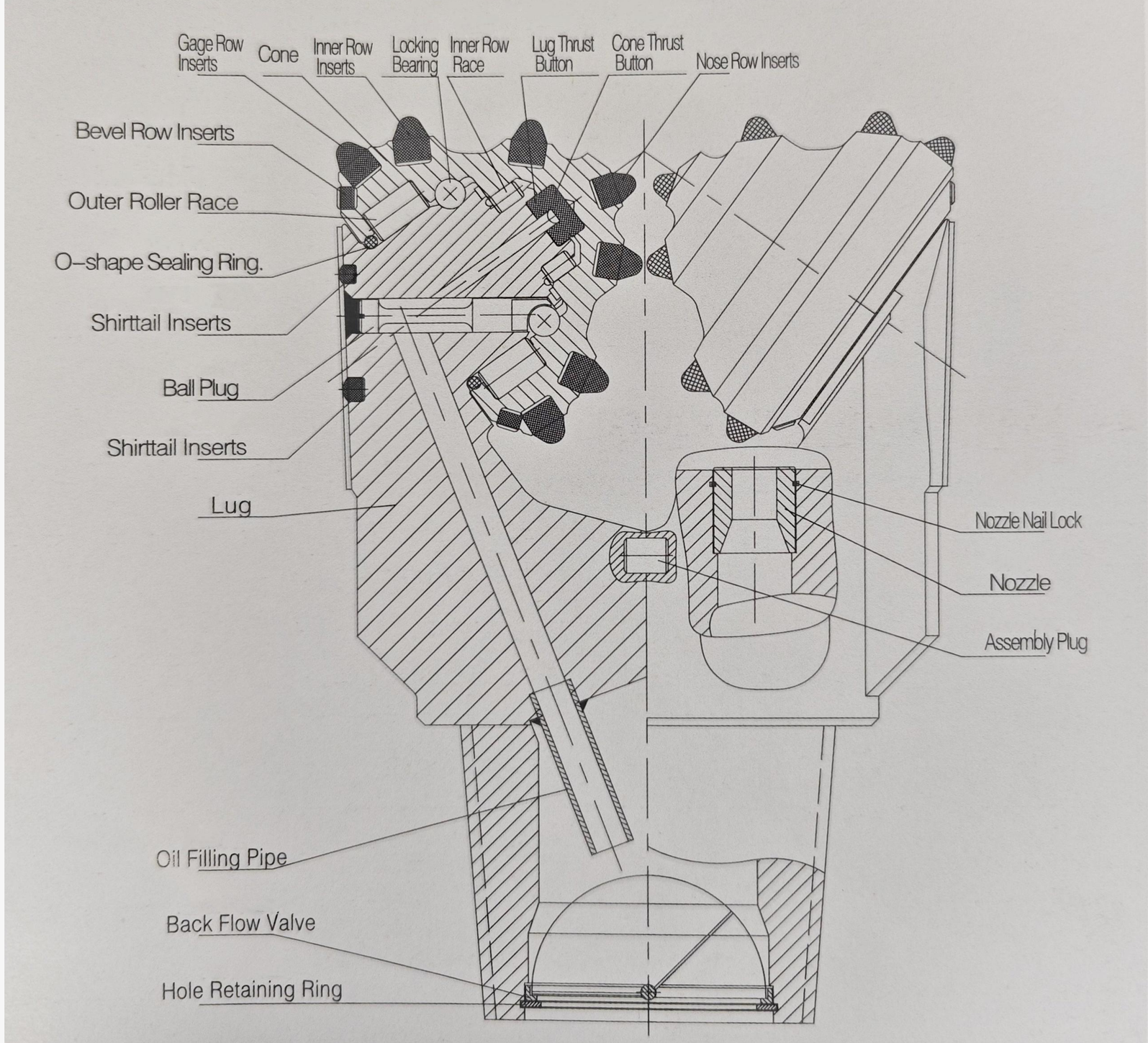
What is a Tricone Bit?

A mining drill and blast tricone bit is a specialized tool used in the drilling and blasting operations within mines. It features three rotating cones, each equipped with durable teeth made of tungsten carbide. These teeth grind and break rock formations efficiently as the cones rotate independently on bearings within the bit.

It is connected to a drill string and driven by a drilling rig. The rig's rotary motion enables the tricone bit to penetrate hard rock formations, facilitating the placement of explosives for controlled blasting.

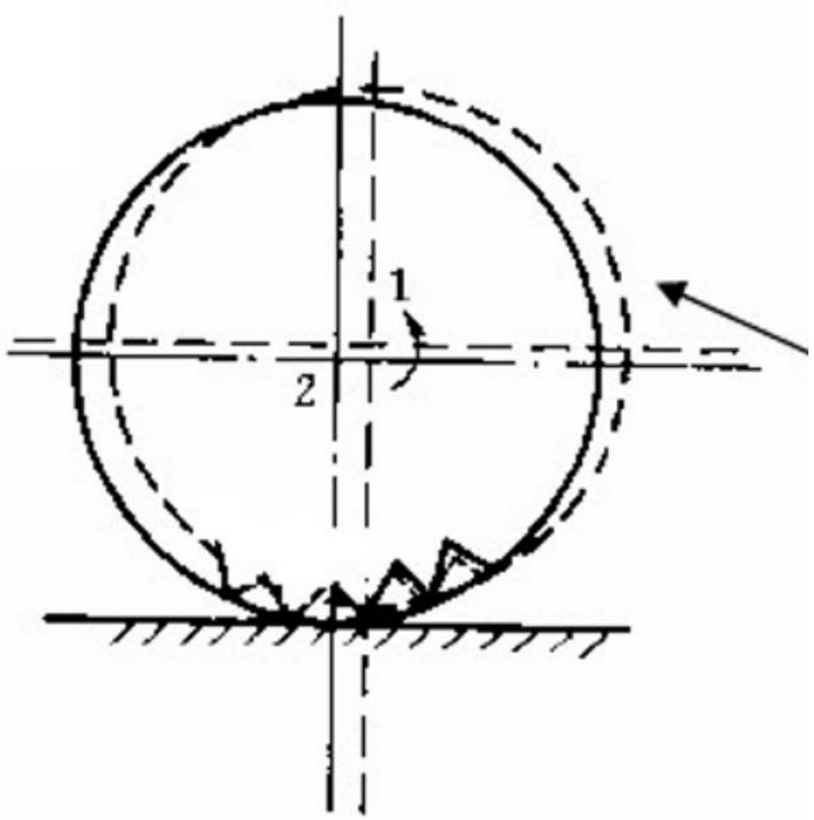
Product Structure

The structure of a tricone bit is highly complex, involving multiple intricate production processes where each step is crucial. Only specialized manufacturers can produce high-quality tricone drill bits due to their precision and attention to detail. This expertise ensures durability and performance.



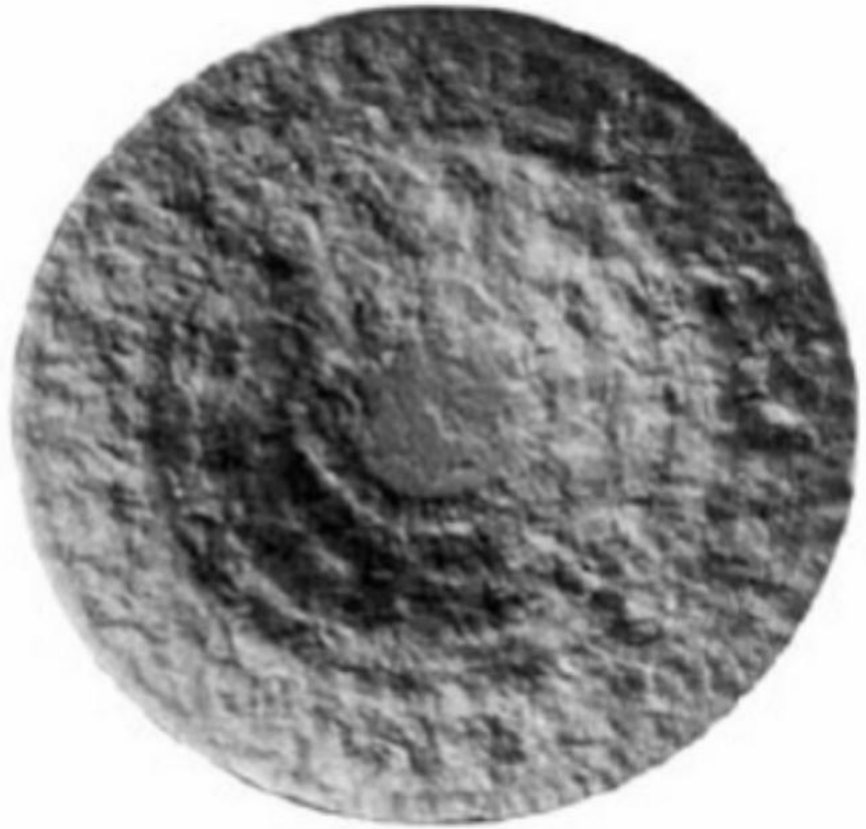
Principle of Rock Breaking by Tricone Bit

The impact crushing effect of the tricone bit on the rock is caused by two factors.
On the one hand, when the bit works, the cone rolls, the teeth touch the bottom of the well is staggered with single teeth and double teeth. When the single tooth touches the bottom of the well, the center of the bit is in the highest position; when the double teeth touch the bottom of the well, the center of the bit drops. In the rolling process of the roller cones, the center of the bit is constantly exchanged up and down, so the bit makes up and down reciprocating motion along the axial direction, which is the longitudinal vibration of the tricone bit.



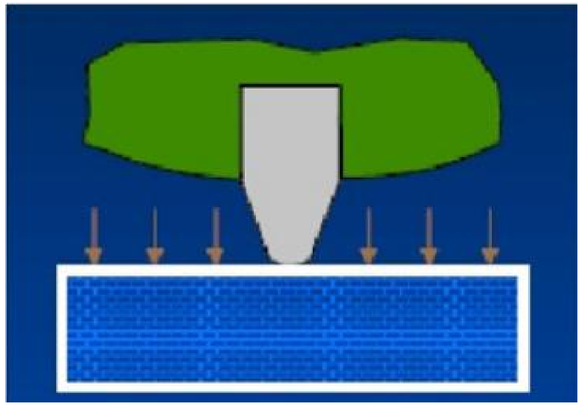
Principle of Rock Breaking by Tricone Bit

On the other hand, due to the unevenness in the bottom of the well and the protruding platform, the longitudinal vibration will be generated during the cone rolling process. The longitudinal vibration of the bit at the bottom of the well causes the drill pipe to continuously compress and extend, and the lower drill pipe transfers this periodically changing elastic deformation energy to the drill bit to form an impact.

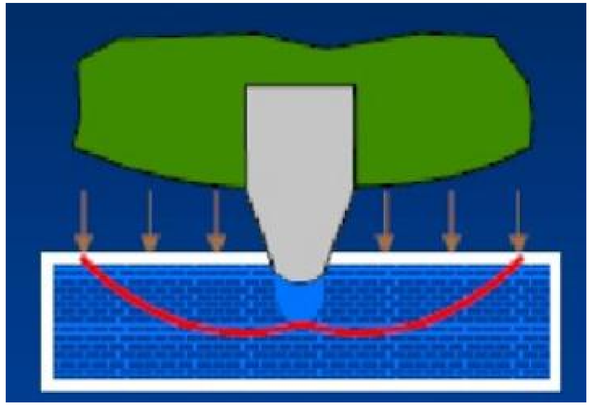


Principle of Rock Breaking by Tricone Bit

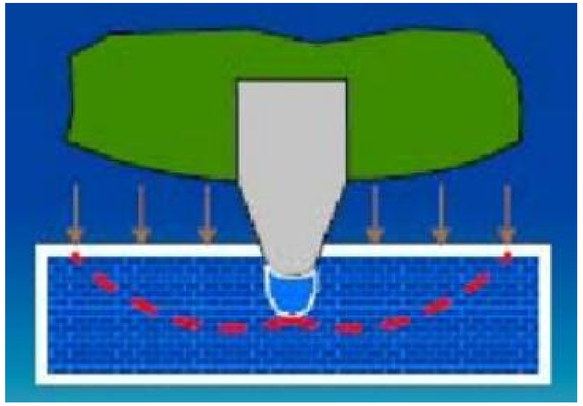
The longitudinal vibration of the bit causes the teeth to generate impact force, which together with the static load indentation force forms the impact and crushing effect on the bit to the ground rock.



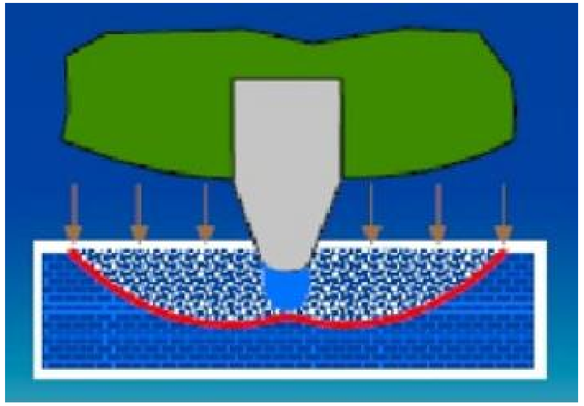
Tooth impact load effect on ground rock



Formation of localized fragmentation in the lower part of the tooth



The impact loads are then transmitted to the surrounding rock layers.



Produces a large volume of rock breakdown, forming craters

Main Specification

Product Photo	Bit Size (inch/mm)	Pin Connection (inch)	Weight (kg)
	6 3/4″ (171mm)	API 3 1/2″ REG	24kg
	7 7/8″ (200mm)	API 4 1/2″ REG	36kg
	8 1/2″ (216mm)	API 4 1/2″ REG	43kg
	9″ (229mm)	API 4 1/2″ REG	50kg
	9 7/8″ (250mm)	API 6 5/8″ REG	67kg
	10 5/8″ (270mm)	API 6 5/8″ REG	74kg
	11″ (279mm)	API 6 5/8″ REG	78kg
	12 1/4″ (311mm)	API 6 5/8″ REG	113kg

IADC Code Classification

To select mining tricone drill bits using IADC codes, understand the formation and rock type you'll be drilling through. Match the IADC code to the specific drilling conditions, higher numbers generally indicate tougher conditions.
Choose a bit with an IADC code tailored to your drilling needs for optimal performance and longevity.

IADC Codes for Tricone Bits			
Type of Bit	**1st Digit**	**2nd Digit**	**3rd Digit**
	Formation	**Formation**	**Seal/ Bearing/ Gauge Protection Type**
Steel teeth Bit	1=Soft	1, 2, 3 and 4 help further breakdown the formation with1 being the softest and 4 the hardest.	1.Standard open bearing roller bit 2.Standard open bearing bit for air drilling only 3.Standard open bearing bit with gauge protection which is defined as carbide inserts in the heel of the cone. 4.Roller sealed bearing bit 5.Roller sealed bearing bit with carbide inserts in the heel of the cone. 6.Journal sealed bearing bit 7.Journal sealed bearing bit with carbide inserts in the heel of the cone.
	2=Medium		
	3=hard		
TCI Bit Tungsten Carbide Insert	4=soft		
	5=Mid soft		
	6=Mid Hard		
	7=Hard		
	8=Hardest		

03 Our Advantages

Quality is the life of enterprise, we will defend product quality with our life.

DrillMore

DrillMore Advantages

Technical Support

Personalize the structure and appearance of the product according to customer needs.

Innovative Process

Innovations in heat treatment technology, oiling methods, turning, milling, drilling and welding process.

Quality Control

Raw material selection, forging of blank parts, production quality control, finished product inspection.

Technical Support

01

Customized

Experienced technical engineers make adjustments in terms of tooth layout, number, shape and material according to the different characteristics of rock formation, so that the teeth are more adapted to the changes of strata and improve the stability and working efficiency of the products.

02

Enhanced Product

Strengthening the back of roller cones, palm tip, palm back to improve the working stability of the tricone bit, protect the palm, and prevent bearing failure due to the damage of the palm tip and palm back.

03

Problem Solving

Any need our sales team will be the first time to respond, if encountered technical problems, our experienced engineers can be timely communication with you , analyze and study the situation on the mine site and improve the product until the problem is solved.

Innovative Process

Roller cones and palms heat treatment after carburization process technology to enhances the wear resistance and impact toughness of the palm journal, as well as the fatigue resistance and shock toughness of the roller cones, thereby extending product lifespan.

Developed the vacuum oiling system and method, realized the sealed tricone bit vacuum oiling, so that the bearing cavity is filled with grease more fully, and the bearing lubrication is fuller and more durable.

Drilling and reaming the tooth hole on roller cones in one-time molding processing technology, improve the processing accuracy and efficiency, so that the tooth fixed and cutting structure in line with the design requirements, and at the same time improve the efficiency, to meet the needs of large-scale production.

In the process of wear-resistant reinforcement treatment of the palms, a plasma robot is used for carbide overlay welding on the palms, resulting in higher efficiency and more stable quality.

Quality Control

Raw Material Selection

We use high quality raw materials, steel, tungsten carbide, grease, etc. We forge the blanks ourselves and control the quality from the blank parts.

Production Quality Control

Set up a special technical center to solve the heat treatment core technology of tricone bit, at present, after our finishing heat treatment workpiece, the bearing surface finish can reach 0.2, and the hardness reaches HRC61.

Finished Product Inspection

Developed quality management standards and product improvement program, the finished product must be strictly in accordance with the standards of quality testing, testing unqualified products absolutely can not be sent to customers.

04 Our Commitment

We are partners in growth, moving forward hand in hand.

Our Commitment

01

Samples Support

For our first cooperation, we support half-price sample testing, if the sample results are not good, we communicate with both sides to improve the product technology and on-site operation, free to re-supply samples until the sample is passed.

02

Guaranteed Delivery

We guarantee that our products will be delivered within 30 days after the order is placed, for regular products we can prepare stock for you, when you need it urgently, we can dispatch it for you at the first time.

03

Quality Assurance

If there is a product quality problem, we will deal with it at the first time, and we will improve the product and provide the same type of product for free if there is a quality problem.

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www.drill-more.com

Thank you

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