A detailed introduction to the threaded button bit

This Beentools article introduces the **Threaded Button Bit**, a type of **top hammer rock drilling tool** widely used in heavy industries such as mining, construction, railways, and other engineering applications.

Threaded button bits are also commonly known as **Threaded Rock Drill Button Bits** or **Threaded Tungsten Carbide Button Bits**.

FAQ Frequently Asked Questions About Threaded Button Bits

What is a threaded button bit?

A threaded button bit is a drill bit installed at the front end of a rock drill rod and connected to the rod through a threaded interface. It is equipped with tungsten carbide buttons inserted into the bit body, which are used to efficiently crush and drill through rock.

What are the components of a threaded button bit?

1. **Threaded connection**
2. **Bit body**, made from high-strength 45CrNiMoVa alloy steel, capable of withstanding impact and torsional loads.

3. **Tungsten carbide buttons**, the core cutting components of the button bit. These are made of high-strength YK05 cemented carbide and act directly on the rock surface to achieve efficient rock breaking through high-frequency impact and rotation.
4. **Flushing holes**, used to discharge rock cuttings by compressed air or water flushing.

What thread specifications of threaded button bits does Beentools offer?

Beentools offers the following thread specifications for threaded button bits:

1. R28 threaded button drill bit
2. R32 threaded button bit
3. R35 threaded button bit
4. R38 threaded button drill bit
5. T35 threaded button bit
6. T38 threaded button bit
7. T45 threaded button bit
8. T51 threaded button bit
9. ST58 threaded button bit
10. ST68 threaded button drill bit

What is 45CrNiMoVa alloy steel?

45CrNiMoVa is a low-alloy ultra-high-strength steel independently developed in China and manufactured according to GB/T 3077-1988. It is similar to D6AC steel in the United States.

Its chemical composition (mass fraction) is:

- Carbon (C): 0.42-0.49%
- Silicon (Si): 0.17-0.37%
- Manganese (Mn): 0.50-0.80%
- Chromium (Cr): 0.80-1.10%
- Nickel (Ni): 1.30-1.80%
- Molybdenum (Mo): 0.20-0.30%
- Vanadium (V): 0.10-0.20%
- Phosphorus (P): ≤0.025%
- Sulfur (S): ≤0.025%
- Copper (Cu): ≤0.25%
- The balance is iron (Fe) and unavoidable impurities

This material offers a high yield ratio, ultra-high strength, good toughness, high-temperature strength, and no temper brittleness.

What manufacturing process is used for the bit body of a threaded button bit?

The bit body of the threaded button bit is manufactured using a forging process, which enhances fatigue resistance and impact resistance, allowing it to withstand continuous impact loads.

A 21-hour carburizing process is also applied. The carburized layer depth can reach 2 mm, and the surface hardness can reach 50 HRC, which helps extend fatigue life.

What is YK05 tungsten carbide?

YK05 is a grade of tungsten carbide. Its main chemical elements include tungsten, cobalt, and carbon.

- Tungsten is the key element that improves hardness and wear resistance.
- Cobalt acts as a binder and enhances toughness.
- Carbon exists in the form of carbides and helps increase hardness.

YK05 has extremely high hardness, with a Vickers hardness of 1600-1800 HV, and offers high strength, excellent wear resistance, and corrosion resistance. Because of these properties, YK05 tungsten carbide is highly suitable for button drilling tools.

What button insertion technology is used?

The threaded button bits supplied by Beentools use hot assembly and copper shim button installation. This process avoids the cracking risks associated with cold pressing. The copper interface helps dissipate heat and ensures a gap-free button installation.

What surface treatment is used for threaded button bits?

Threaded button bits are treated with shot peening and anti-rust passivation.

What is a gauge button?

A gauge button, also called a peripheral button, is the button located on the outermost ring of the bit and is responsible for maintaining the drilling hole diameter.

What is gauge button angle?

The gauge button angle refers to the angle between the outer gauge buttons and the center axis of the drill bit.

This angle affects:

- how the gauge buttons contact the hole wall,
- the wear rate of the gauge buttons,
- the bit's ability to correct the borehole wall,
- and the straightness of the drilled hole.

If the gauge button angle is too small, the buttons are more likely to sink inward, resulting in weaker correction ability and poorer hole straightness. If the angle is too large, the gauge buttons bear a heavier load and wear faster, although they can correct the hole wall more effectively.

Beentools offers gauge button angles of 30 degrees, 35 degrees, and 40 degrees.

- 30 degrees is suitable for hard rock drilling, with weaker correction ability but slower wear.
- 35 degrees is the most commonly used middle value, offering balanced overall performance.
- 40 degrees is suitable for softer rock or applications requiring stronger correction ability, but wear is relatively faster.

In most working conditions, 35 degrees is the most commonly used and balanced option. For ultra-hard formations, 30 degrees can be selected. If stronger correction is required, 40 degrees may be considered.

What is a center button?

A center button is the button located at the very center of the drill bit face. During drilling, it works on the central part of the rock surface.

What face shapes are available for threaded button bits?

1. **Concave** During rock drilling, the gauge buttons contact and penetrate the rock first. This helps the bit quickly establish a center point at the collar, automatically align with the hole axis, and stay centered more easily. It helps reduce deviation and improves hole straightness and drilling accuracy. It is suitable for applications requiring high hole straightness, such as blast hole drilling and tunnel excavation.

2. **Convex (Domed)** At the beginning of drilling, the center buttons contact the rock first, and the other buttons engage afterward. This design can break and remove the rock core more quickly, making it suitable for applications requiring high productivity or fast core breaking, such as high-speed drifting operations.

3. **Flat** All buttons are arranged at the same height on the same plane and distributed evenly. External forces and impact loads are distributed more uniformly across the bit face, reducing the risk of localized damage, cracking, or premature failure. This allows each button to bear a more similar load during drilling, improving bit life and stability. It is suitable for highly abrasive formations with high silica content, such as quartzite and flint.

4. **Drop Center** This design features a recessed center on the bit face. It helps the bit maintain the intended drilling path, reduce deviation, and improve borehole straightness and stability. It is commonly used for deep anchor holes and reinforcement holes in geotechnical and mining applications.

What are the common button shapes for threaded button bits?

1. **Spherical Button** The top is rounded in a dome shape. It is thick, strong, durable, and highly resistant to impact and wear. Although drilling speed is slightly slower, spherical buttons are highly resistant to breakage and are very suitable for very hard rock formations or high-impact drilling environments.

2. **Ballistic Button** This button has a sharp, streamlined top design. It offers higher drilling speed and deeper rock penetration, with efficiency typically 10% to 20% higher than spherical buttons. It is suitable for soft to medium-hard rock and projects requiring faster penetration.

3. **Parabolic Button** This is a balanced hybrid design between spherical and ballistic buttons. It combines the high penetration rate of ballistic buttons with the longer service life of spherical buttons. It is a popular all-purpose choice for independent job sites and offers excellent cost performance.

4. **Conical Button** This button has a conical top and is suitable only for soft rock. It can concentrate force and achieve very fast drilling speed. Typical applications include soft chalk, clay, and soil formations.

What is a retrac button drill bit?

A threaded retrac button bit is a threaded button bit with a retrac skirt design. "Retrac" refers to a special skirt profile featuring a retracted, narrowed, or relieved outer shape, often with grooves or ribs, somewhat like a "waist" or "slot" design.

This design helps prevent the bit from getting stuck in complex formations, fault zones, loose ground, or collapsing holes. It improves bit withdrawal and increases jobsite efficiency. It is commonly used in mining, rock bolting, tunneling, and other applications involving fractured zones, faulted ground, and unstable formations.

What is a reaming button bit?

A reaming button bit is a button bit specially designed for hole enlargement. Its main function is to enlarge an existing pilot hole to the target diameter. It is widely used in mining, rock reinforcement, tunneling, and other engineering applications where reaming is required.

"Reaming" means enlarging a previously drilled hole. In rock and mining industries, a smaller pilot hole is usually drilled first, and then a reaming bit is used to enlarge it to the final design diameter.

A reaming button bit is generally larger in size, with multiple rows of reinforced buttons distributed around the face and outer edge. It has strong load-bearing capacity and excellent impact and wear resistance. It is usually used together with a pilot bit, which guides the drilling direction while the reaming bit enlarges the hole.

What types of reaming button bits does Beentools offer?

1. **Pilot Reaming Button Bit** This design has a pilot section at the front and a reaming body with multiple rows of buttons behind it, integrating guidance and reaming into one operation. It can better control direction and reduce deviation in long-hole drilling, and is widely used in high-precision, high-efficiency reaming applications.

2. **Dome Reaming Button Bit** This is a reaming bit with a domed convex face and tungsten carbide buttons inserted on the face. It is specially designed for reaming in hard rock or complex formations and offers high wear resistance, long service life, and high reaming efficiency.

Can threaded button bits be laser marked?

The **beentools** top-hammer drilling tools manufacturing facility was established in the 1950s. With decades of experience in the drilling tools industry in China, it has built strong research and development manufacturing capabilities. Its products are known for stable, reliable quality and are exported to many countries and regions worldwide.

This **Beentools** article explains the professional knowledge, production technology, and manufacturing processes related to **threaded button bits** in detail through a series of frequently asked questions. After reading this article, users can gain a clear understanding of how to select the right model according to their own application scenarios and technical requirements.

In addition, **Beentools** has created second-level product category pages. Products are first classified by application field and then further categorized by thread type under each application field.

For example, under the application category **Open Pit Jumbo Drill Tools**, there are further subcategories such as **R32**, **R38**, **T38**, **T45**, **T51**, and **T60** according to thread type. After entering the **R32** category page, users can choose to visit product detail pages such as **extension drill rod** or **threaded button bit**. On the product detail pages, users can carefully review detailed technical specifications and select the most suitable product.

The purpose of this category structure is to simplify product selection and save users time. By adopting this rigorous logical structure, we help users quickly identify the right product and reduce the risk of selection errors.

Below is the URL link to our product category page:

- **light duty rock drilling tools**
- **rock drill shank adapter**
- **small diameter rock drilling tools**
- **open pit jumbo drill tools**
- **tunneling jumbo drill tools**
- **underground mining jumbo drill tools**