



MINING TECHNOLOGIES  
INTERNATIONAL INC.

*A New World of Mining Expertise*

# MTI Raise Bore Drilling Tools



Raise Drill Steel  
Ribbed / Bit Reamer Stabilizers  
Cross Over Subs / Saver Subs  
Stress Modifiers  
Make-Up / Breakout Tools  
Ring Gauge Sets  
Thread Protection  
Lifting Bails / Recovery Tools

# | Raise Drill Steel



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## Raise Drill Steel

**MTI's Raise Drill Steel** is designed to be compatible with individual drilling machine capabilities. As each specific machine determines its own drill steel requirements, **MTI** has strived to meet the needs of every customer, and have added economic features into our designs.

Our raise drill steel has been designed with careful consideration to weight, durability and its serviceability, ensuring that each product lives up to your individual needs and expectations. We also offer larger diameter raise drill rods, stress modifiers, cross over subs and saver subs, available upon request.



# | Stabilizers

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## Integral Rib Stabilizers

**MTI's Integral Rib Stabilizers** are manufactured using the highest quality, high strength alloys available. As most of our customers base their stabilizer selection based on personal preference, **MTI** manufactures both **Straight Rib** and **Spiral Rib** stabilizers. We offer rib surfaces of long-lasting tungsten carbide inserts (TCI), as well as easy-to-rebuild hard facing with crushed carbide overlay.

## Reamer Stabilizers

**MTI's Model 60 Bit Reamer Roller Stabilizers** are designed to centre the bit and dress the pilot hole uniformly to size, resulting in reduced wear rate of the rib stabilizers which follow. The bearing pins for the rollers are made of case hardened alloy steel, and **MTI's** available **Type K "Knobby"** rollers are designed featuring a tungsten carbide compact studded wear surface, which are particularly effective in extremely hard and abrasive conditions. The Aero feature directs air to the bearing surfaces for cooling and to keep them free from dust and rock cuttings. In addition to all these features; our rollers, bearing, pins and blocks are easy to replace.



# DI-22/Tools



## The DI-22 Connection

The **MTI DI-22 Rotary Shouldered Connection** is a High-Torque Connection primarily for use in underground raise drilling. In addition to its deep course threads and our careful consideration to stress reduction, all **MTI** thread connections are treated with kemplating, an anti-gall protection that assist in the retention of thread lubricant.

While rotary shouldered connections are designed to provide years of trouble-free service, damage in handling or makeup can ruin a connection and shorten the lifespan of the entire string. Proper application and care will ensure maximum return on investment. Please refer to the Raise Bore Maintenance Manual, on the **MTI Website**, for care and maintenance procedures.

## Makeup/Breakout Tools

Available for all sizes of stabilizers, **MTI's Remote Makeup/Breakout Tools** were

designed and developed by **MTI** at the request of the Raise Bore industry. They can easily be mounted to a scoop, IT or other carriers, eliminating the need for personnel to work under an open hole during makeup or break-out.

## Ring Gauge Set

For total drilling stability and hole accuracy, chrome-plated **Ring Gauge Sets** are available for all hole sizes. They ensure accurate sizing of all bottom hole components including bits, bit reamers and stabilizer stem diameters.

*From mine development to the production process and movement of ore, **MTI** provides the equipment, the tools and the expertise to make it happen. Our goal is to exceed customer expectations by working closely with each and every client.*

**Find out what MTI can do for you.**  
[www.mti.ca](http://www.mti.ca)

# Drill Steel Considerations

## **Mining Technologies International**

offers two distinct grades of steel, characterized generically as “standard strength” and “high strength”. To the uninitiated, these terms are often misunderstood.

### **Standard Strength**

“Standard strength” is the term applied to the original AISI (American Iron & Steel Institute) 4145H raise drill steel and is still used by **MTI** today. This is a chromium - molybdenum alloy steel which has had its chemistry altered to produce a deeper hardening level below the surface O.D. during the heating, quenching and tempering cycle of heat treatment. The ultimate tensile strength of the 4145H is 135,000 PSI with yield strength of 110,000 PSI. It is used typically for lower torque and pull machines with steel diameters of 5-3/4” thru 11-1/4” O.D.,

### **High Strength**

As higher output raise drills were developed in 1971, the need arose for “high strength” drill rods in the 10 inch and larger diameters. The most logical choice was the common commercial grade of 4340 steel, a nickel, chromium, molybdenum chemistry steel. However, it was discovered that in rods over 10 inch diameter, the physical test properties of 4340 did not extend deep enough below the O.D. to yield the strength and fatigue properties necessary. After extensive testing, the **MTI** grade 4330 VMVD (vanadium modified, vacuum de-gassed) was found to be a superior steel for large diameter raise drill products. The toughness and fatigue strength of the 4330 VMVD is far superior to that of the 4340, with an ultimate tensile strength of 150,000 PSI with a yield strength of 140,000 PSI. It has been used by **MTI** since 1972, proving itself for nearly 40 years and will continue to be the **MTI “high strength”** steel for years to come.

*Please visit us at [www.mti.ca](http://www.mti.ca) for more information,  
and up to date product specifications.*