



**R O C K M O R E**  
**I N T E R N A T I O N A L**

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*Rock Drilling Tools*

# **Carbide Sharpening Guide for Button Bits**



# What is the purpose of keeping your carbide buttons sharp?

- Bits need to be sharpened and serviced like any other cutting tool. The sharper the carbide inserts are, the faster the penetration rate will be. Also, the percussive energy from the hammer or drifter will be transferred into the rock rather than be reflected back into the drill string. This will save excessive "wear and tear" on the drill string components and the drilling machine. Rockmore International recommends re-sharpening bits when the carbide buttons attain flats that are 1/4 (one quarter) of the major diameter.
- Drill operators should monitor the condition of the carbides regularly, and frequently. If they do this, they will notice that the machine runs smoother and that the penetration rates are higher with a well maintained bit. Carbide buttons can be sharpened with either portable or stationary grinding machines using grinding pins (cups) or grinder wheels.



# If rock drilling bits are not kept sharp, you can expect:

- Excessive loads on all components of the drill string and rig.
- Early fatigue failures on all drilling products.
- Slower drilling.
- More operation downtime due to unscheduled maintenance.



# The Message

Regrind dull bits earlier ....

..... it will save you time & money!





# Recommendations

Re-sharpen carbide buttons when they attain flats  $1/4$  (one quarter) of their major diameter.

*Best results if sharpening occurs before this point.*



## Button wear

No wear

Slight wear

Normal wear

Very worn

Worn flat

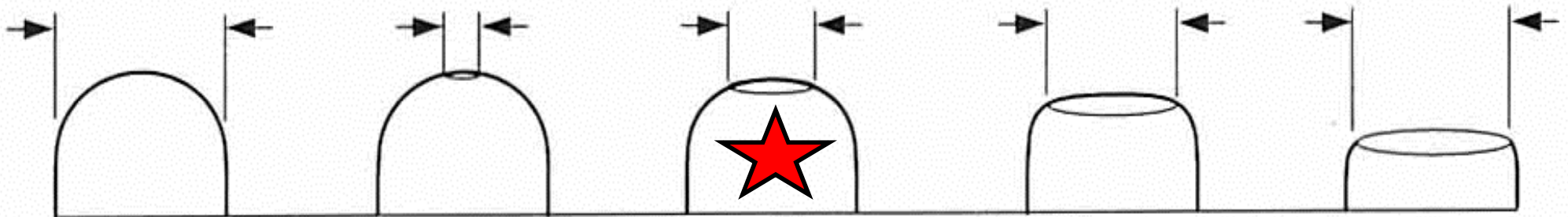
0 Dia.

$< 1/6$  of Dia.

$< 1/3$  of Dia.

$> 1/3$  of Dia.

$> 2/3$  of Dia.





# Sharpening carbide buttons

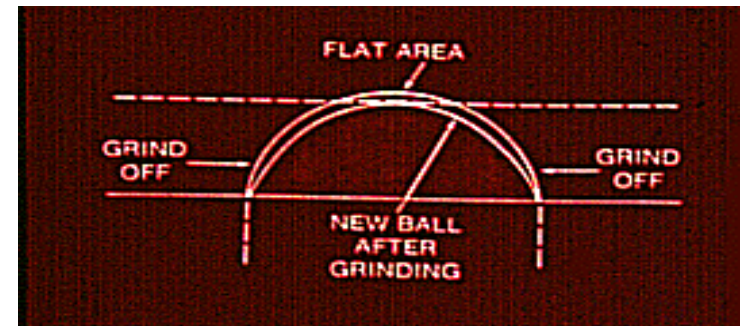
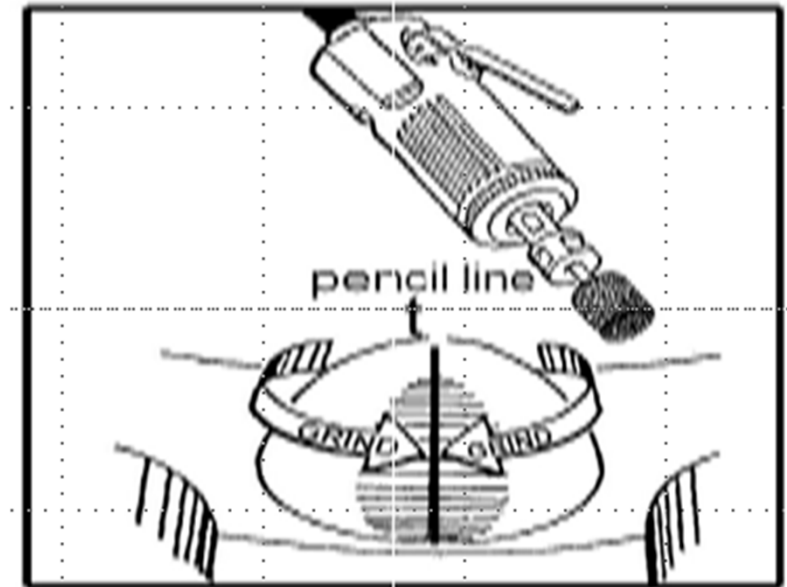
- Draw a pencil line across the carbide flats dividing it into two symmetrical sides.
- In many cases the carbide may wear faster than the body material of the bit. In these cases a grinder should also be used to remove body material to expose more carbide and eliminate any chance of pinching the bit in the hole. Remove any sharp edges on the bit, particularly around the flushing holes and any areas where edges may have rolled over.





# Sharpening carbide buttons with a grinder wheel

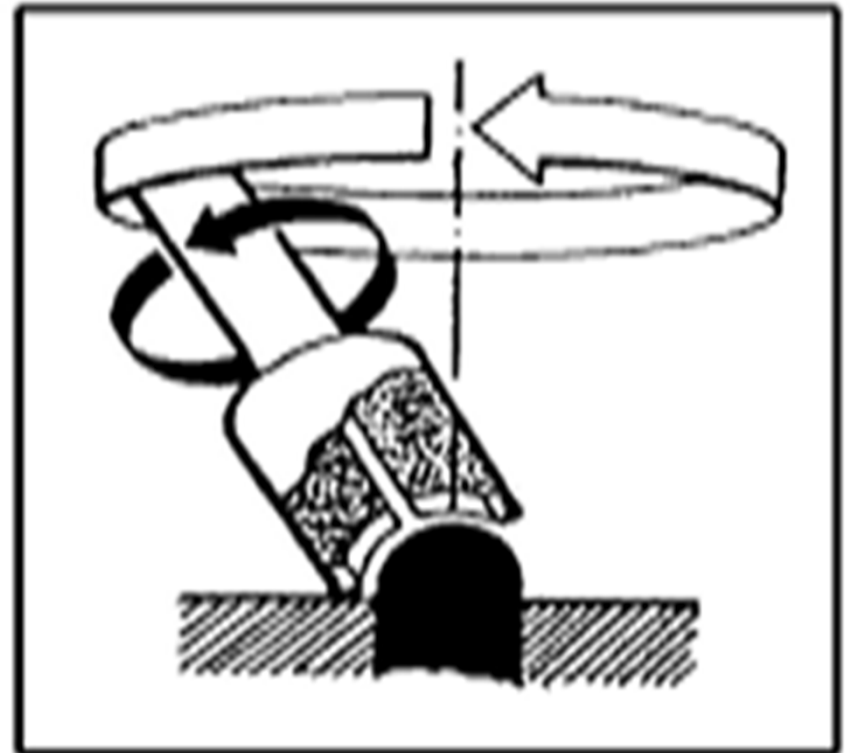
- Grind each side without touching the pencil line.
- Grind to the pencil line by removing as little material as possible.
- The reground carbide should be a slightly smaller version of the original shape.





# Sharpening carbide buttons with grinding pins (cups)

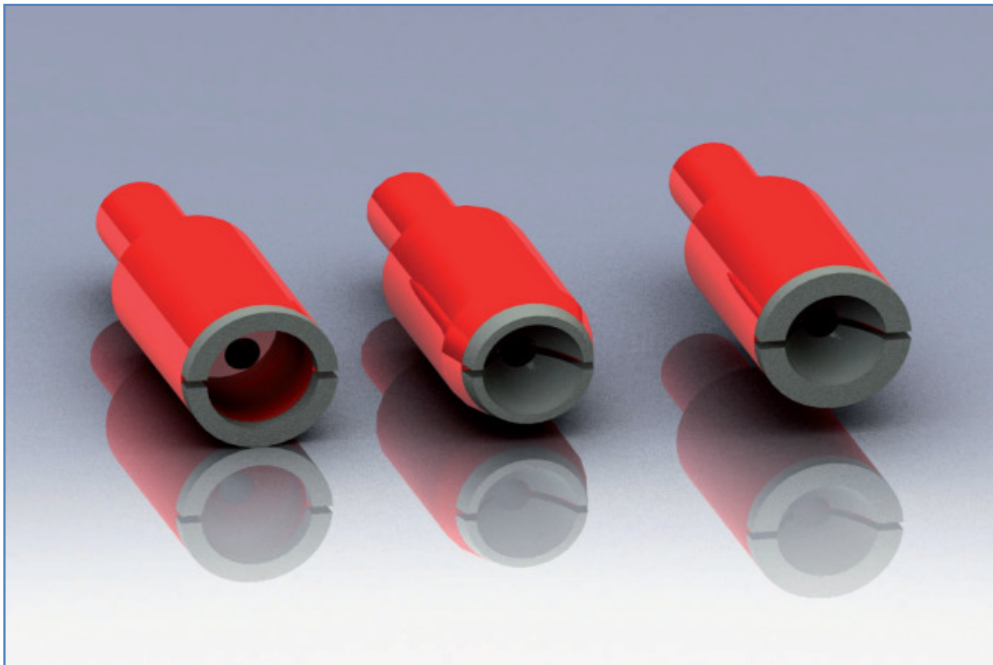
- Rotate the grinder in a cylindrical way around the carbide.
- Remove as little material as possible, maintaining the original carbide shape.
- At least 1/2 (one half) of the carbide diameter should protrude.
- If you grind into the steel, avoid under cutting the carbide or grinding too much material. Carbides should not protrude more than 3/4 (three quarters) of the carbide diameter. Removing excessive steel body will result in carbide failure.
- Use adequate coolant flow to prevent damage to the carbide from overheating.
- Note: Choose grinding pins (cups) that are closest in diameter and shape to the carbide button being sharpened. Measure both the gauge and face (front) carbides, as many times they are different diameters.







# Grinding Pins (Cups)

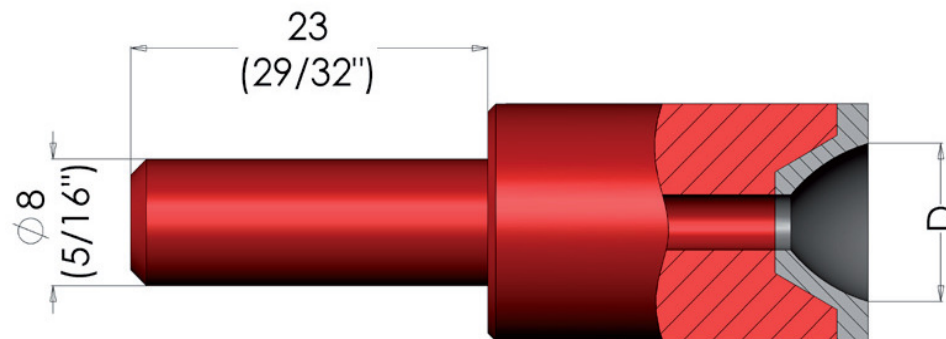




# Grinding Pins (Cups)

## Combination -- *Recommended*

- This type of grinding pin (cup) is used for grinding the carbide button **and** the steel body surrounding the button.
- Available *from Rockmore* for 6mm to 25mm Hemispherical, Semi Ballistic, Full Ballistic, and Conical buttons.
- Avoid under cutting the carbide buttons.
- Using this grinding pin (cup) will help ensure there is adequate carbide button protrusion.

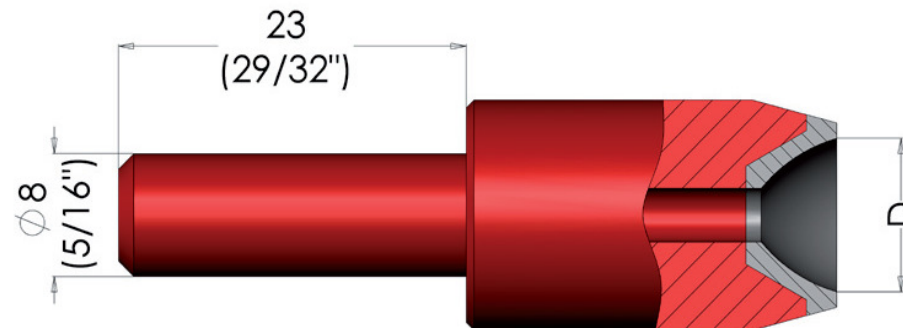




# Grinding Pins (Cups)

## Diaroc

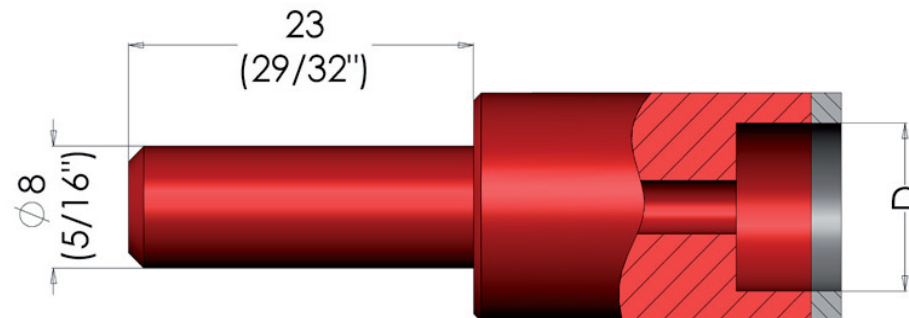
- This type of grinding cup is used for grinding only the carbide button and **not** the steel body surrounding the button.
- For 6mm to 25mm Hemispherical, Semi Ballistic, Full Ballistic, and Conical buttons.
- If the grinding pin (cup) touches the bit body while grinding you will need to also use a Combination or Borroc style to grind the bit body so that proper protrusion of the carbide button is obtained.
- *Special order from Rockmore.*





# Grinding Pins (Cups) Borroc

- This type of grinding cup is used for grinding **only** the steel body surrounding the button to maintain the same amount of button exposure.
- For 6mm to 25mm button sizes.
- Diaroc style will also be needed to grind the carbide buttons.
- Carbide buttons should protrude at least 1/2 (one half) and no more than 3/4 (three quarters) of the carbide diameter.
- *Not available from Rockmore.*





# Hand-Held Air Grinder

For use with liquid cooled grinding pins  
(cups)



*Available from Rockmore*

[www.rockmore-intl.com](http://www.rockmore-intl.com)



# Stationary Table-Top Grinding Machine

