DIASET

*"Built to last, built to cut fast"*

PREMIUM DIAMOND DRILLING BITS, SHOES & EQUIPMENT

# How to Select the Correct Diaset Core Bit

**If drilling conditions are unknown, start with a Matrix #7X, Heavy Duty (HD) crown design**

## Selection Guide & Troubleshooting Tips

### A Define rock hardness

1. **For softer rock:** (MOH's hardness to 5). Use lower matrix numbers #2X - #7X
2. **For very soft rock** (MOH's hardness to 3, use a PCD, Polycrystalline or Surface Set
3. **Harder rock:** Use higher matrix number #8X - 13X

### B Define the degree of abrasiveness, fractures or breaks within a particular rock formation

1. Coarse grained and fractured: use a lower matrix number
2. Fine grained and solid: use a higher matrix number

### C Define type of diamond drill used:

1. **High powered drills** (>100 h.p.), choose lower matrix numbers to maximize bit life.
2. **Low powered drills** choose a higher matrix number to get better penetration.
3. If ground or rig conditions force you to turn at lower RPM, then choose a lower matrix number. (Low RPM makes a matrix act differently)
4. Always use the highest RPM that suits the conditions.

### D Tips for selecting the correct matrix type

If you started with a Diaset matrix #7X HD, and if productivity is too slow, try a #8X or higher matrix number. A Turbo crown design will cut the fastest in hard, solid rock. If bit life is too low, try a lower matrix number, such as matrix #6X. Review the troubleshooting guide to pinpoint specific formation problems, to help you fine tune for the selection of the next bit.

**Call the factory or your representative for additional help.**


QAS INTERNATIONAL
ISO 9001:2008
REGISTERED FIRM
Certificate No. CAN1872

Canada / U.S.A. Toll-free
1.800.663.5004 | diaset.com

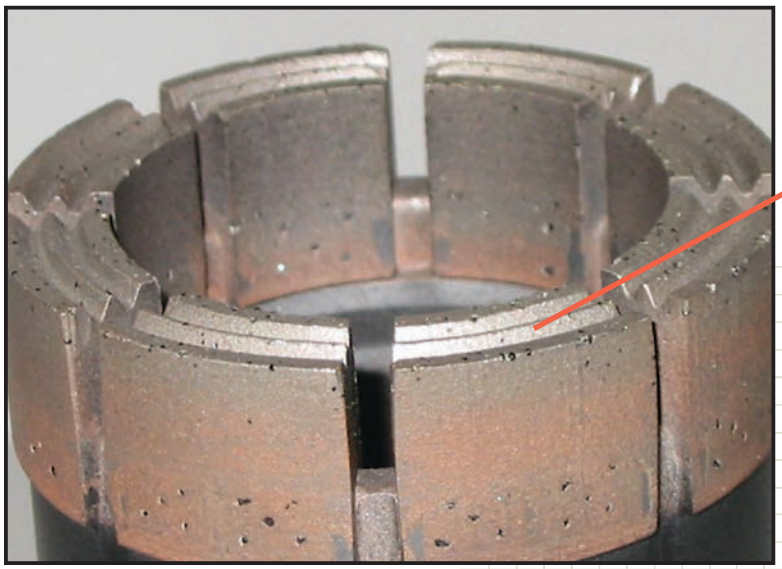
**Diaset Products Ltd. Head Office:** #6 – 7191 Progress Way • Delta, British Columbia • Canada V4G 1K8
Phone: 1.604.940.9507 • Fax: 1.604.940.9534 • Skype: diaset.sales • E-mail: bits@diaset.com

DIASET

*"Built to last, built to cut fast"*

PREMIUM DIAMOND DRILLING BITS, SHOES & EQUIPMENT

# New Bit & Normal Wear Pattern



## New Bit Observation

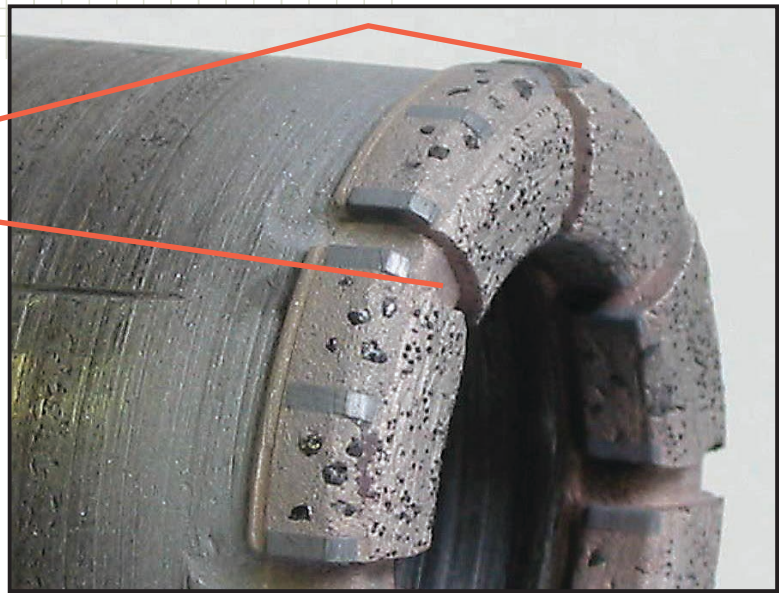
- v-ring pattern allows bit to start drilling quickly, stabilizes bit to bottom of hole.

## Normal Wear

- O.D. and I.D. gauge intact
- flat to slight rounded profile
- "teardrop" matrix wear pattern behind diamond

## Comments

- correct drilling procedure
- correct matrix selection



QAS INTERNATIONAL
ISO 9001:2008
REGISTERED FIRM
Certificate No. CAN1872

Canada / U.S.A. Toll-free
1.800.663.5004 | diaset.com

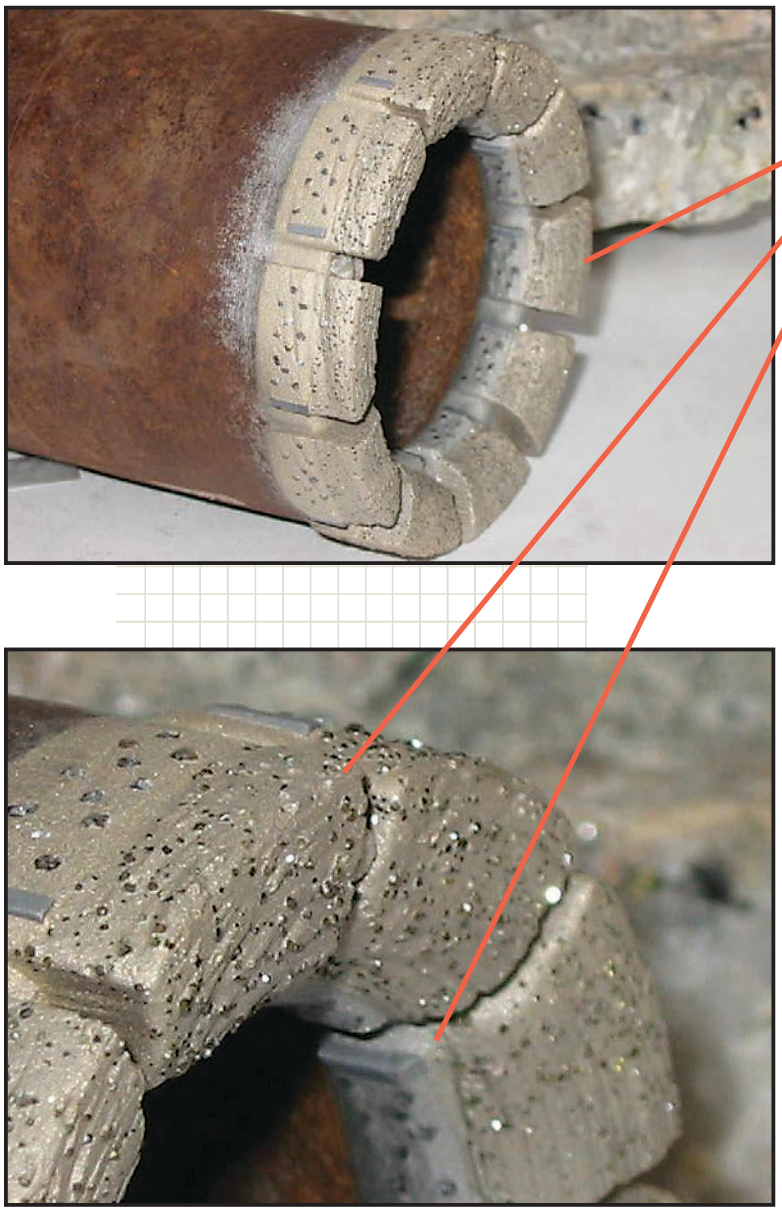
**Diaset Products Ltd. Head Office:** #6 – 7191 Progress Way • Delta, British Columbia • Canada V4G 1K8
Phone: 1.604.940.9507 • Fax: 1.604.940.9534 • Skype: diaset.sales • E-mail: bits@diaset.com

DIASET

*"Built to last, built to cut fast"*

PREMIUM DIAMOND DRILLING BITS, SHOES & EQUIPMENT

# I.D. Gauge Problems



### Observations:

- rounded wear to I.D.
- excessive diamond exposure
- complete loss of I.D. gauge

### Probable causes:

- Hard, broken or fractured formation
- excessive penetration rate for the RPM used
- insufficient fluid flow
- mis-latched innertube
- high bit load
- improper innertube adjustment

### Possible solutions:

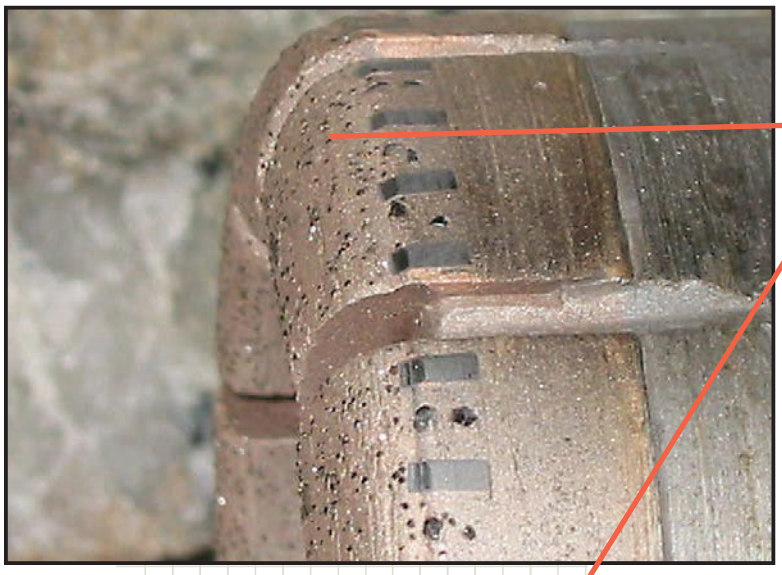
- retrieve innertube immediately upon core block
- clean hole properly before each core run
- use a harder (lower number) matrix
- increase pump output.
- check rod string for leaks, split rods
- adjust innertube to allow more fluid flow
- increase RPM

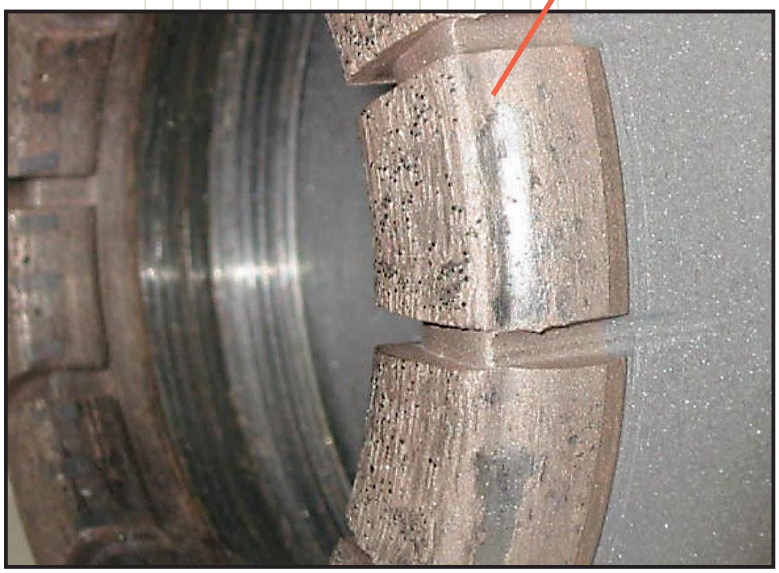
DIASET

*"Built to last, built to cut fast"*

PREMIUM DIAMOND DRILLING BITS, SHOES & EQUIPMENT

# O.D. Gauge Problems





## Observations:

- rounded wear to O.D.
- complete loss of O.D. gauge

## Probable causes:

- vibration
- excessive RPM
- bit reaming down an undersize hole
- bit following a worn bit
- insufficient fluid flow (attempting to make bit cut faster)

## Possible solutions:

- alter RPM to reduce vibration. May have to change matrix to suit new RPM
- stabilize drill string
- adjust bit weight to reduce vibration
- check reaming shell, replace if undersized
- start drilling with new bit well before bottom of hole to ensure hole size matches new bit.
- increase fluid flow
- softer (higher number) matrix

DIASET

"Built to last, built to cut fast"

PREMIUM DIAMOND DRILLING BITS, SHOES & EQUIPMENT

# Burnt & Polished Bits

## Burnt Bit Observations:

- melted crown.
- diamonds and waterways fused

## Probable causes:

- insufficient fluid flow
- split drill rod(s)

## Possible solutions:

- check pump
- check innertube adjustment
- check rods for leaks or cracks
- increase fluid flow

## Polished Bit Observations:

- no or poor diamond exposure
- smooth surface

## Probable causes:

- wrong matrix selection, diamond concentration too high
- drill too small to push this bit

## Possible solutions:

- use a softer (higher number) matrix
- try decreasing fluid flow rate slightly
- sandblast face of bit to expose diamonds
- maintain torque, keep the bit cutting