

## THE BIT WEAR PATTERNS

Pattern Example Picture	Pattern Description
	<p><b>New condition</b></p>
	<p><b>Ideal wear pattern</b>  The face wear pattern of an impregnated bit should be relatively flat with slightly chamfered sides. Bit feels sharp, comet tails have formed to support diamonds. Diamonds release from matrix as they are worn. Gauge stays within tolerance.</p>
	<p><b>Normal retirement</b>  Full depth of impregnation evenly consumed. Gauge stays within tolerance.</p>
	<p><b>Gauge loss OD</b>  Cause:  (A) Lack of circulation – increase coolant flow rate.  (B) Bit being reamed down under-size hole – Check reamer shell gauge and replace if under-sized.  (C) (C) Vibration – alter rpm.</p>



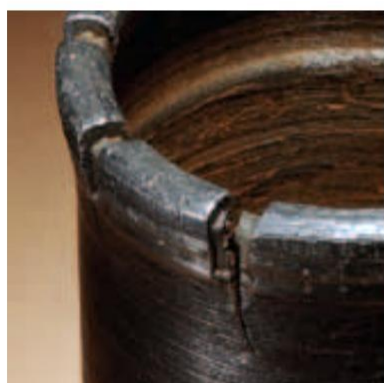
### Excessive diamond exposure

Matrix abrades away before diamonds have worn sufficiently, resulting in high diamond exposure and low bit life. Caused by overfeeding/over drilling – Increase rpi (r/cm), change to a lower series bit or reduce bit weight rpm.



### Face glazed (Diamond polished and metal bound)

Bit does not feel sharp; diamonds flush w matrix; no significant “comet tails” behind each diamond. Sand blast face or use other recommended methods to re-expose diamond. Try again with rpi (r/cm) in the 200/250 (80/100) range. If the face glazes repeatedly, change to a higher bit.



### Cracked waterways(diamonds polished)

Cause:

- (A) Excessive bit load; dropped rods; free fall of (wireline) inner tube in dry hole;
- (B) bit crushed by rod holder, foot clamp or pipe wrench;
- (C) Pushed down an undersized hole (i.e., reaming shell worn out).



### Burnt

Cause:

- (A) Lack of fluid.
- (B) Too high a bit weight being used. – Check pump and rod string for leaks, check inner tube adjustment. Maintain coolant flow rates.