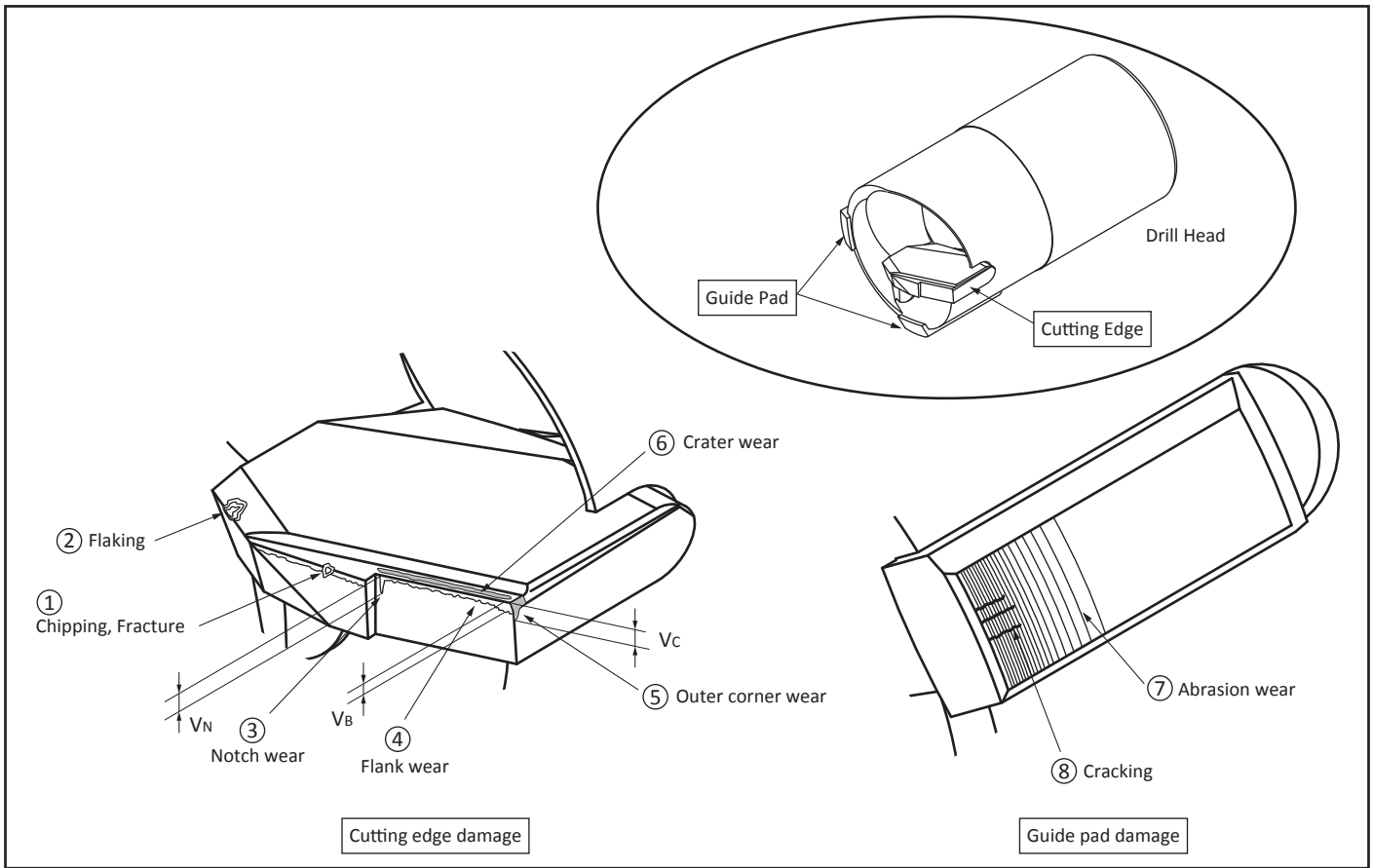


Drill Head Damage

Drill Head Damage

There are several types of damage to a drill head as below.



Damage and Impact

The impact caused by drill head damage is as below.

Type of damage	Impact
① Chipping, Fracture ② Flaking ⑦ Abrasion wear	<ul style="list-style-type: none"> • Variation in hole diameter • Insufficient chipbreaking • Deterioration of surface finish
⑥ Crater wear	<ul style="list-style-type: none"> • Insufficient chipbreaking
④ Flank wear ⑤ Outer corner wear ③ Notch wear ⑧ Cracking	<ul style="list-style-type: none"> • Increased cutting resistance • Tool vibration • Change in cutting noise • Deterioration of surface finish

Tool Life Judgment Conditions

When drill head damage occurs, chipbreaking becomes insufficient and cutting noise and cutting resistance can increase. If a heavily damaged tool keeps running, tool breakage will occur. It is important to replace drill, insert or change insert corner as soon as required.

- Cutting edge chips or fractures
- 0.3mm or more notch wear (V_N), flank wear (V_B) or outer corner wear (V_C) occurs
- Cutting noise or tool vibration noise increases
- Chipbreaking becomes inadequate
- Required cutting power increases by around 30% compared to initial state



By correctly evaluating the drill head condition and cause of any damage, stable deep hole drilling can be achieved.