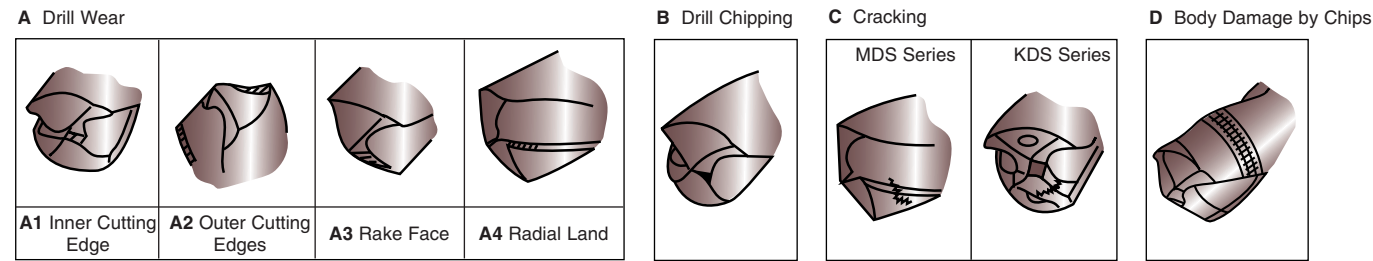
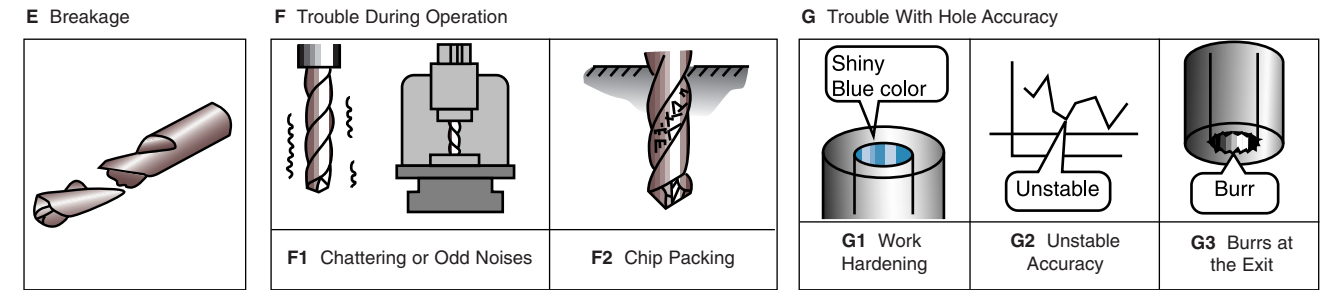


TRUBLE

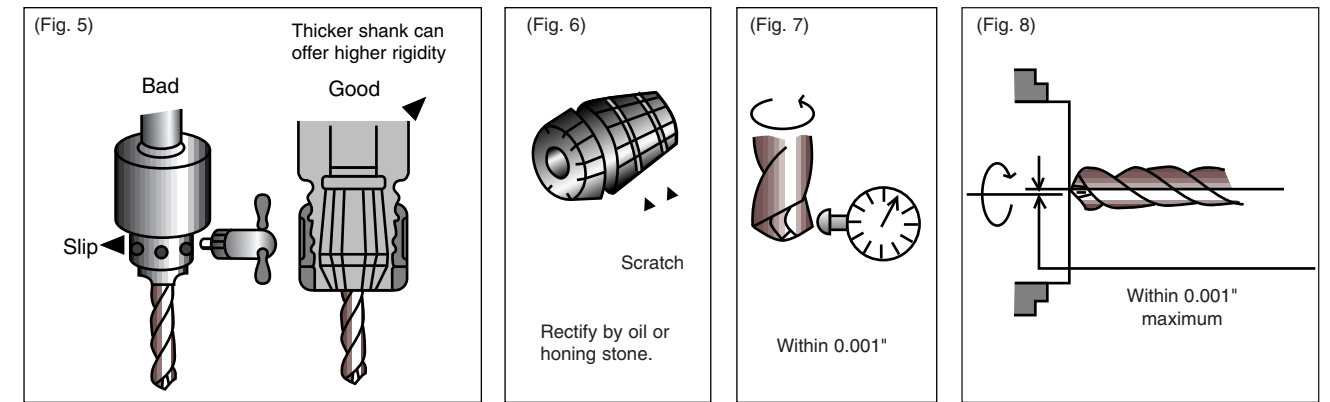


COUNTER MEASURE

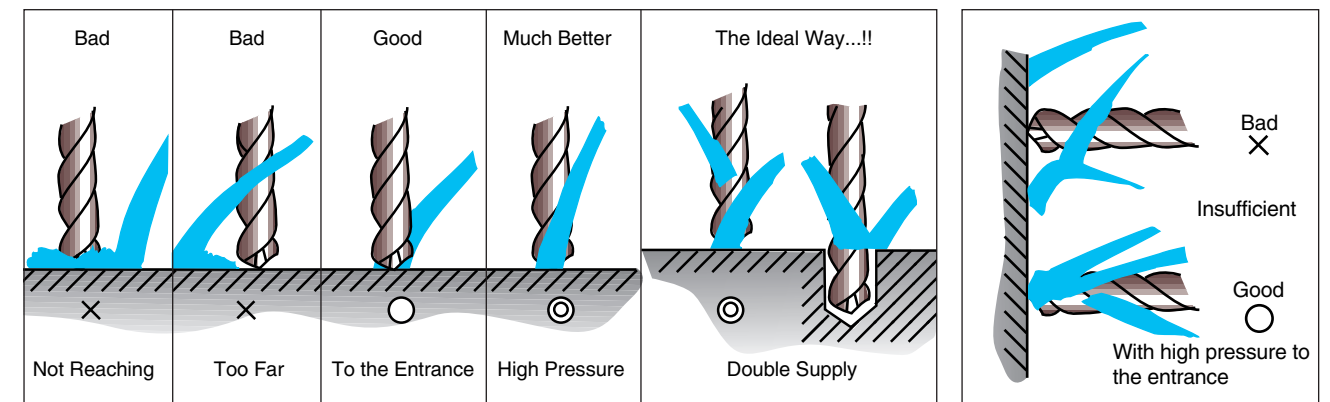
A1	A2	A3	A4	B	C	D	E	F1	F2	G1	G2	G3	Counter Measure
•													(Fig. 1) Bigger clearance angle near drill center.
•			•	•				•	•				The protruding length of drill should be shortened as much as possible without constricting chip flow.
	•												Increase clearance angle at the outer cutting edge.
	•	•	•										The interval between regrinding of drills should be shortened.
		•	•	•	•			•	•				Bigger back taper and narrower width of radial land (Fig. 1).
		•	•	•	•			•	•				Lip height distance and run out of center cutting edges should be within .0008" ~ .001".
			•										Edge treatment should be larger.
			•										Clearance angle should be smaller.
								•	•				Expand the flute width (Fig. 2). Flute length should be maintained (target length is 1.5 L/D).
													Expand flute width
													Point angle should be increased (Fig. 3).
													The helical angle should be reduced (when it is used in horizontal machine). The diameter of body should be smaller (using in horizontal machine, A type drill) (Fig. 4).
													140° 150°
													Edge treatment should be smaller.
•	•	•		•	•	•	•	•	•				The feed rate should be decreased.
	•			•	•			•	•				Cutting speed should be decreased.
													The feed rate should be increased.



- MACHINE...A, B, C, E, F1**
Is there any excessive vibration or odd noise during operation?
- CHUCKING OF DRILL...A, B, C, E, F1**
Is rigidity of drill chuck enough? (Fig. 5)
Is there any dust or scratch inside drill chuck? (Fig. 6)
Is the run out of drill too big when it is held in drill chuck? (Fig. 7)
The drill point should be within 0.001" maximum of the center of work piece (when the work rotates) (Fig. 8)



- CUTTING FLUID...A, C, E, G1**
Make sure it is supplied adequately to the entrance of drill hole.



Are volume and pressure of cutting fluid adequate?...Volume 3 gal./min. or 37-62 lb./in.²
 Is lubricating capability OK?...Water-emulsifiable oil or neat cutting oil should be used and lubricating capability should be maintained at high level.

For large diameter hole drilling, check out our WDS Indexable Drills on pages 38-39.

