

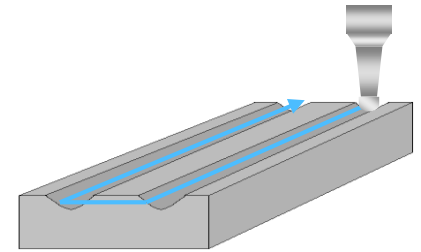
HTNB Comparison of tool damage & surface quality

Tool : **HTNB 2020-160-3** (R1 x EL16 Neck taper angle 1°30')
 Conventional (R1 x EL16 Long neck ball)

Work material : SKD61 (50HRC)

Milling method : Slotting (One way) Length 105 mm x 2, depth 1 mm

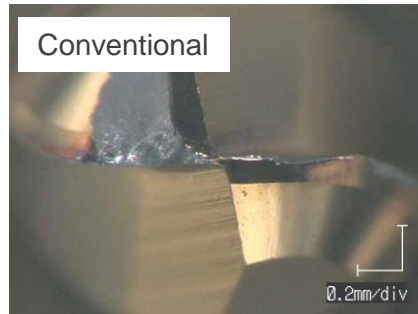
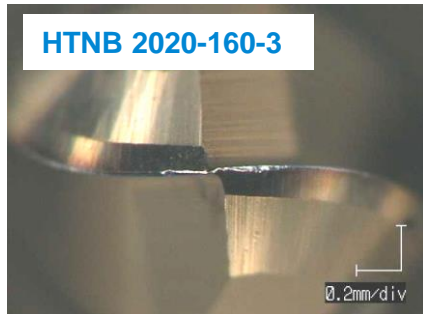
Coolant : Air blow



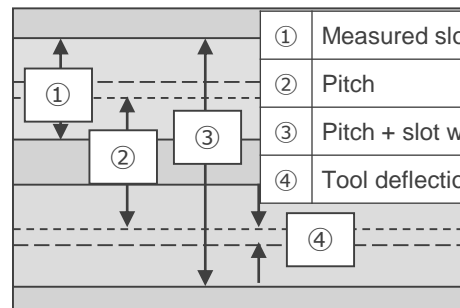
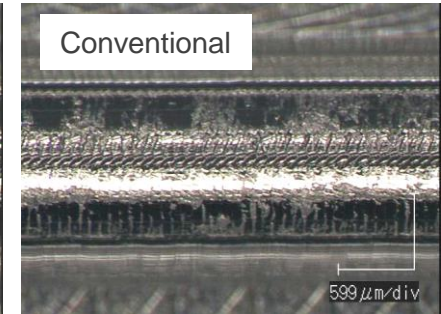
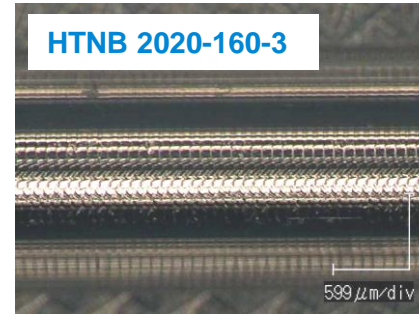
Milling condition

Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p (mm)	Cycle Time
10,000	800	0.03	12min

Tool wear



Surface



Model	HTNB	Conventional
Tool diameter	1.996	1.995
Tool deflection ^④ = {(③-①)-②}/2	0.05	0.1
Slot width error =(①-tool diameter)	0.084	0.155

HTNB has smaller tool wear and better accuracy.

The tool deflection was half of the conventional long neck ball.