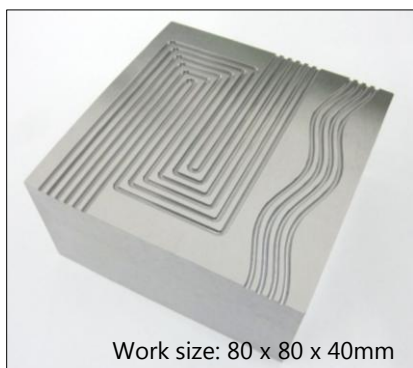


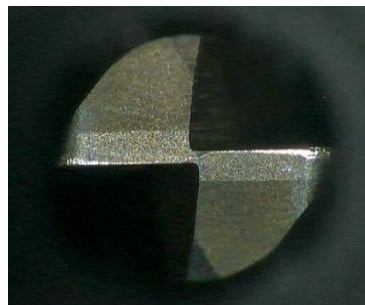
CBN-LRF SKH51 Press Mold - Fuel Cell Separator



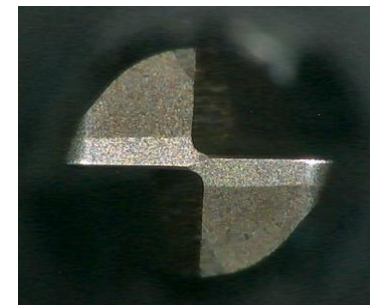
Tool for finishing : 2-flute high grade long neck radius **CBN-LRF $\phi 1 \times CR0.1 \times L1$**
 Model : Press mold of fuel cell separator
 Work material : SKH51 (63HRC)



$\phi 1$ tool after finishing of crank shape
(Cycle time: 10 hr 23 min)



$\phi 1$ tool after finishing of wave shape
(Cycle time: 2 hr 58 min)



Process	Tool Geometry	Series / Size	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	Finishing Allowance (mm)	a _p (mm)	a _e (mm)	Coolant	Cycle Time
Roughing (crank 1)	4-flute long neck radius	HLRS $\phi 1 \times CR0.3 \times L2$	10,900	710	—	0.03	0.27	Air blow	1:04:31
Roughing (crank 2)	4-flute long neck radius	HLRS $\phi 1 \times CR0.3 \times L2$	10,900	710	—	0.03	0.27	Air blow	1:02:50
Roughing (wave)	4-flute long neck radius	HLRS $\phi 1 \times CR0.3 \times L2$	10,900	710	—	0.03	0.27	Air blow	0:36:24
Semi-finishing (crank)	4-flute long neck radius	HLRS $\phi 1 \times CR0.2 \times L2$	10,900	710	0.015	0.03	0.1	Air blow	2:26:30
Semi-finishing (wave)	4-flute long neck radius	HLRS $\phi 1 \times CR0.2 \times L2$	10,900	710	0.015	0.03	0.1	Air blow	0:40:39
Finishing (crank)	2-flute high grade long neck radius	CBN-LRF $\phi 1 \times CR0.1 \times L1$	30,000	525	0.005	0.01	0.1	Oil mist	10:23:44
Finishing (wave)	2-flute high grade long neck radius	CBN-LRF $\phi 1 \times CR0.1 \times L1$	30,000	525	0.005	0.01	0.1	Oil mist	2:58:13

Total: 19 hr 13 min