

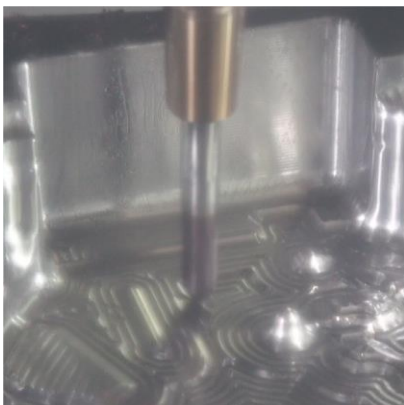
3D CAM Module



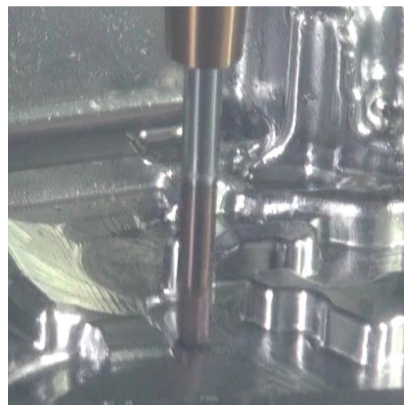
Feature

This is a direct cut sample of die casting part which has deep ditch and flat areas. After the roughing with ball end mill, it was roughed with radius end mill with optimized Z-level Rough Cutting with Multiple Tools. Bottom face is finished by Z-level Re-machining, and some areas are finished by Re-machining with D2R0.5 radius end mill with protruding 51mm. Traditionally, deeper shape has been machined by EDM, though it achieves direct cutting by CAM system which controls tool load and this cutter which has long effective length and stability.

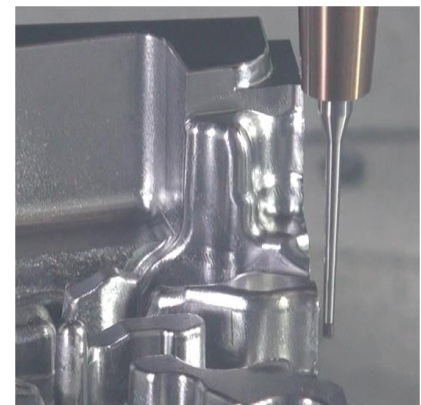
NO.	Process	Tool Dia. (mm)	XY step (mm)	Z step (mm)	Stock (mm)	Speed (r.p.m)	Feed (mm/min)	Cutting time (hh:mm)
1	Rough1	D8R4	2	0.5	0.2	9,500	1,700	2:44
2	Second Rough	D6R3	0.49	0.2	0.05	12,000	1,460	2:28
3	Second Rough	D6R1	2	0.1	0.05	3,300	4,725	1:44
4	Z-level Re-machining	D3R0.8	1	0.05	0.05	9,100	2,460	5:16
5	Z-level Re-machining	D2R0.5	0.75	0.012	0.05	11,000	660	8:13
6	Scanning line area	D6R3	0.1	—	0.05	8,500	1,600	0:28
7	Z-level Finishing	D2R1	0.04	0.03	0	9,000	1,200	13:07
8	Horizontal Area Cutting	D2R0.5	0.1	0.01	0	11,000	700	2:31
9	Re-machining	D1R0.5	0.008	0.008	0	11,000	660	3:36
10	Curve control along surface	D2R1	0.07	—	0	11,000	660	0:39
Total time								40:46



Z-level Rough Cutting with Multiple Tools
Φ8R4 Protruding length 41



Z-level Rough Cutting with Multiple Tools
Φ6R1 Protruding length 54



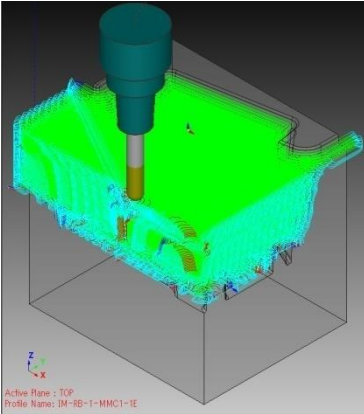
Z-level Re-machining Φ2R0.5
Protruding length 51

CAM-TOOL

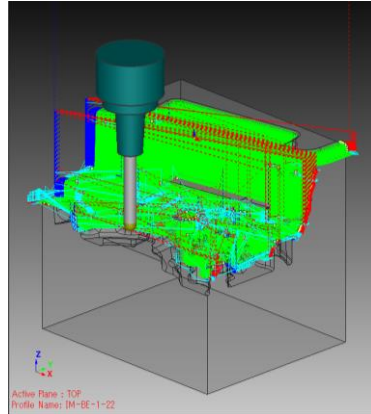
CAD/CAM System for Molds & Dies

Processes

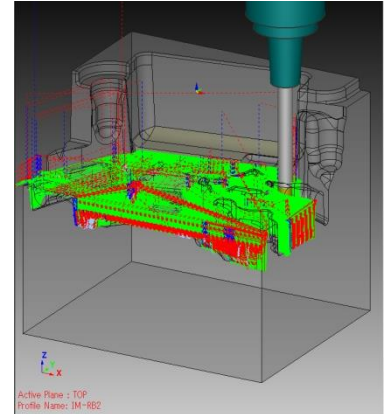
[1.Rough]
Z-level Rough Cutting with Multiple Tools $\Phi 8R4$



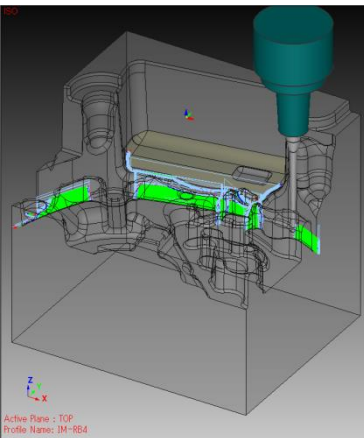
[2.Second Rough]
Z-level Re-machining with Multiple Tools $\Phi 6R3$



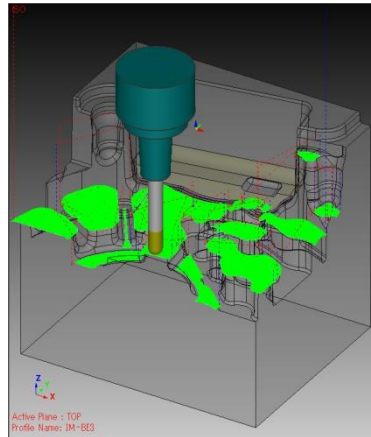
[3.Second Rough]
Z-level Rough Cutting with Multiple Tools $\Phi 6R1$



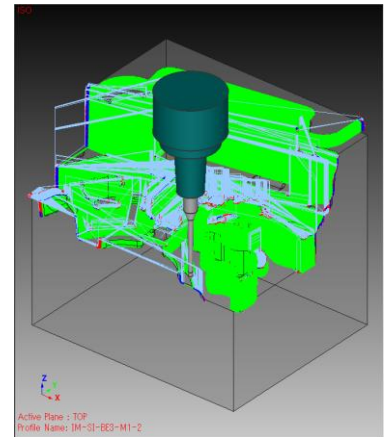
[Second Rough]
5.Z-level Re-machining $\Phi 2R0.5$



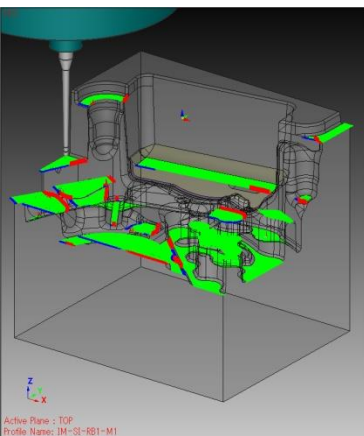
[Second Rough]
6.Scanning-line Area $\Phi 6R3$



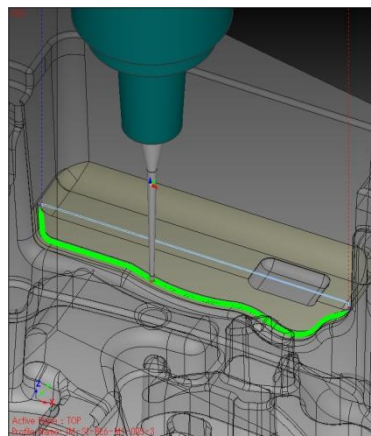
[Finish]
7.Z-level Finishing $\Phi 2R1$



[Finish]
8.Horizontal Area Cutting $\Phi 2R0.5$



[Finish]
9.Re-machining $\Phi 1R0.5$



[Finish]
10.Curve Control Along Surface $\Phi 2R1$

