



Cross Rib Electrode (5-Axis)

Comparison of 3-axis vs 5-axis

- Machine:** D200Z
- Material:** POC03 Graphite
- Cycle Time:** 5 minutes 30 seconds
- Machining Details:** 5-axis Tool Height Reduction
5-axis Cycle Time Improvements
- Key Technologies:** DD Motor
Core and Jacket Cooled Spindle
Core Cooled Ballscrews
SGI.5
- Impact:** Decreased cycle time by 90%
with much lower L:D



3-axis vs. 5-axis Cycle Time

3-axis	Process	Cutter	Spindle Speed [min ⁻¹]	Feed Rate [mm/min]	a _p / a _e [mm]	Cycle Time [min]
	Rough	Ø12 Flat Endmill	16000	1800	12.0 / 8.0	4
	Rough	R30x30 Ball Endmill	16000	2000	0.5 / -	4
	Finish	R1x20 Ball Endmill	27000	3000	0.1 / -	20
	Finish	R1x52 Ball Endmill (0.5deg)	12000	1800	0.1 / -	33
	Total Cycle Time					61

5-axis	Process	Cutter	Spindle Speed [min ⁻¹]	Feed Rate [mm/min]	a _p / a _e [mm]	Cycle Time [min]
	Rough	Ø10 Flat Endmill	20000	8500	8.0 / 10.0	0.5
	Finish	R6xR0.3 Radiused Endmill	30000	2700	9.0 / 3.0	1
	Finish	R1x3 Ball Endmill	30000	4000	- / 0.1	4
	Total Cycle Time					5.5