



## Cross Rib Electrode (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



### 3-axis vs. 5-axis Cycle Time

#### 3-axis

Process	Cutter	Spindle Speed [min <sup>-1</sup> ]	Feed Rate [mm/min]	a <sub>p</sub> / a <sub>e</sub> [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
<b>Total Cycle Time</b>					<b>61</b>

#### 5-axis

Process	Cutter	Spindle Speed [min <sup>-1</sup> ]	Feed Rate [mm/min]	a <sub>p</sub> / a <sub>e</sub> [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
<b>Total Cycle Time</b>					<b>5.5</b>