

Grind Cycloidal Speed Reducer Using X and C Axis Interpolation



**MACHINE:** Accura™ 1210G  
**WORKPIECE:** Cycloidal Speed Reducer  
**OPERATION:** Grind 10-lobed Shape  
**MATERIAL:** AISI 4140, Rc 50+

**OBJECTIVE:** To demonstrate the X and C axis interpolation capability of the Accura 1210G.

**OPERATION DESCRIPTION:** Hold the workpiece in a part-specific fixture. Align the workpiece mechanically. Plunge grind the external shape using X and C axis interpolation. Grind with an electroplated CBN wheel on a 60,000 RPM motorized wheel spindle.

**NOTES:** A data file defining the external shape of the workpiece with Cartesian coordinates was uploaded into the CNC. Tool radius compensation with cubic spline interpolation, and linear-to-rotary path transformation were applied in “real time” by the control. X-Y coordinate shifting was used to compensate for fixturing inaccuracies.

**CONCLUSION:** Substantial time saving over the traditional grinding method was achieved.

**VIDEO AVAILABLE**