

## Customer Showcase

CS-Nagahara Flutes

### Background:

[www.nagaharaflutes.com](http://www.nagaharaflutes.com)

Nagahara Flutes makes custom, one-of-kind flutes for professional and amateur players worldwide, including Sir James Galway, Alberto Almarza, and Ian Anderson of Jethro Tull. They have customized their PCNC 1100 with a 4<sup>th</sup> axis proximity switch for referencing and custom Controller Screen Set for selecting different flute tone hole configurations.

Nagahara Operations Manager David Scarbro explains, "Currently, there are 8 different pages in the custom screenset. Behind this is about 2000 lines of VB. Much of this code is arrays with X, Y & A location data for the different flute models. There are also arrays for the tool numbers, Zs, Feeds and Speeds for the different milling operations. There are approx. 70 different tools. For each flute, the pitch (A=440,442,444), style (inline, 1/2 offset, full offset) and model (Standard or Full Concert) requires a different mandrel and each mandrel has its own set of work offsets. Eventually, we'll have about 40 mandrels. We're still in the process of making the mandrels for all of the pitch/style/model combination on the Tormach. There are special screenset pages for making mandrels. Normally, the screen buttons allow the operator to select model and options for a flute. The operator is then prompted as they work to install the correct mandrel and tools."









