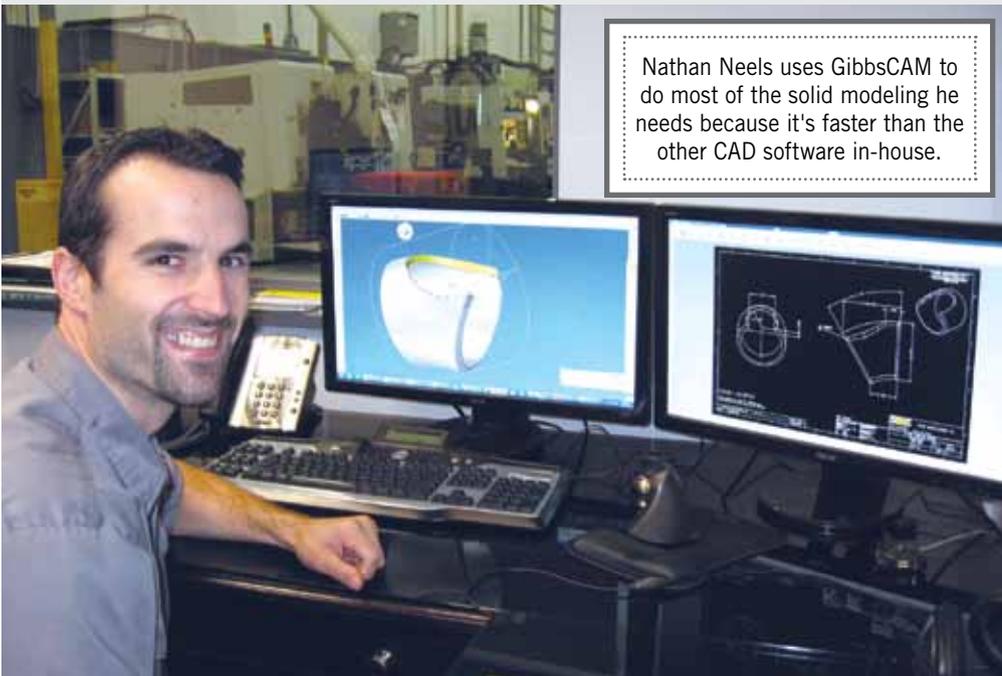# Learning from EXPERIENCE

CNC machines, software, drive growth for BC machine shop

Nathan Neels uses GibbsCAM to do most of the solid modeling he needs because it's faster than the other CAD software in-house.

In 1997, Gerald Neels purchased an older 356 x 1,016 mm (14 x 40 in.) manual lathe as a teaching tool for his sons to learn about machining. It was the first piece of his future shop, Harmonic Machine Inc., in Chilliwack, BC. The lathe was set up to run effectively for repetitive work, and the boys went into production. Gerald's eldest, Nathan Neels, then in grade 10, continued working in the shop and is now general manager and CNC programmer.

The lathe led to the addition of a turret mill, and in 2000, the shop acquired a CNC lathe, launching Nathan Neels' CNC programming career. In 2001, Harmonic acquired its first CNC mill, which Neels learned to program with G and M codes. As machines were added, Neels continued to program them manually, until 2005, when the shop purchased

The Problem
Managing increasing part complexity, multi-task machine programming

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The Solution
Modular CNC programming software

GibbsCAM Production Milling from 3D Systems-GibbsCAM (formerly Gibbs and Associates), to speed up and simplify the work. It was chosen for its ease of use and extensibility through addition of modules that integrate into a single interface so users need to learn only new functions, not a new system.

Two years later, the shop added GibbsCAM Production Lathe, which Neels says cut programming time on a family-of-parts roll-forming dies by 80 per cent and cut production time in half. In the past, it took a machinist 10 minutes to program a part with a conversational control, tying up the machine for the duration, and 10 minutes to run it. Using GibbsCAM to do the programming himself, Neels reduced programming time to 1.5 minutes, leaving machine and machinist producing parts. "It's error proof," he says. "The customer's solid CAD model comes into GibbsCAM, and the toolpath snaps to it. I run the program with left and right-hand tools to rough and finish both sides in one program, post-process it, and it's done."

Through the shop's growth, which included the addition of several CNCs, Neels continued to program all the machines with GibbsCAM, adding modules as part and machine complexity increased. Over time, he added solids machining, multi-axis machining, multi-task machining, machine simulation, and GibbsCAM VoluMill for high speed roughing.