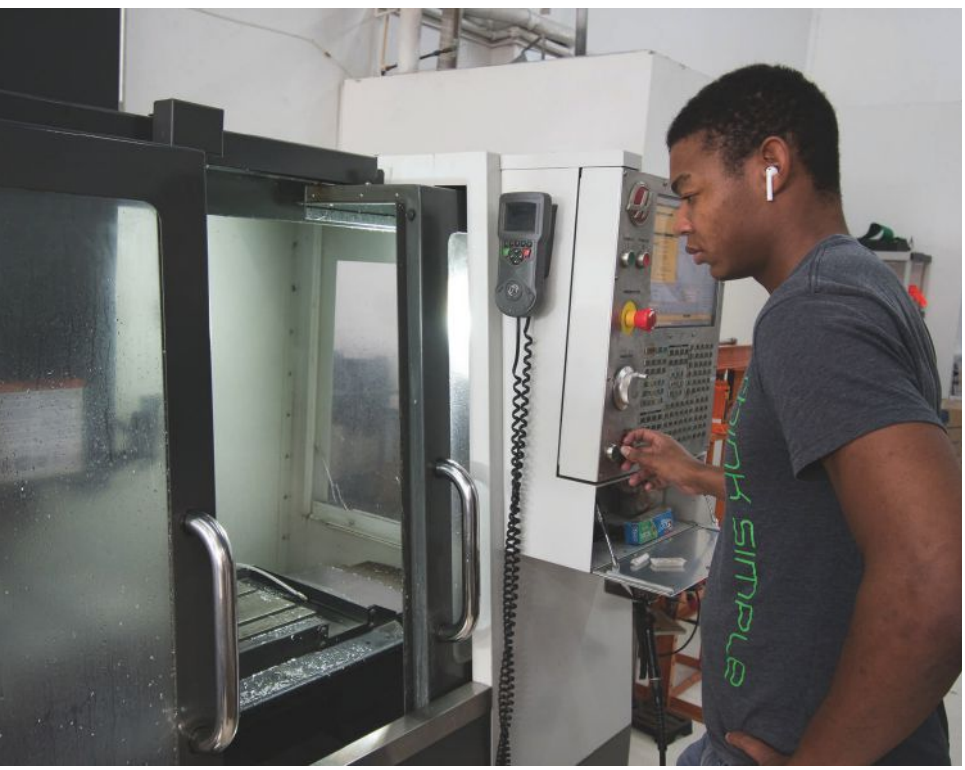
Integrator Gets into Heavy Metal

Florida-based Think Simple takes manufacturing matters into its own hands for custom work to satisfy discerning clients and solve demanding applications.

BY DON KRESKI



Think Simple's Chris Yee works the milling machine to cut a set of polished nickel switchplates for a popular dimming system.

IN THE FORT LAUDERDALE, Fla., warehouse of A/V integrator Think Simple, there's something unusual: a Haas VF2 vertical milling machine, on which the company manufactures a wide range of custom products for its residential, hotel and corporate clients.

"We had searched far and wide for someone who could build switchplates, mounts for cameras and control panels, and other metal items of the quality we need, but we couldn't find anyone," says partner Will Gilbert. "Most A/V integrators make do with what's available, but we decided we could do better."

The Haas, a popular CNC (computer numerical control) machine, is an industrial device that accepts files from Computer Automated Manufacturing programs such as MasterCAM or Fusion 360. Gilbert and partners Rock Scofield and Greg Michelier felt owning such a machine would be a great addition to their company's integration business, giving Think Simple a major differentiator.

Thus, for the past nine years, Think Simple has been a manufacturer as well as an integrator, adding a new source of revenue for the company while, at the same time, dramatically improving its ability to serve clients.

Faceplates and Speaker Brackets

When they purchased their CNC machine, Gilbert says they were thinking in terms of making smaller items of very fine quality, but over the years Think Simple staff has used the skills they learned to manufacture a wide variety of components.

For example, in 2014 the firm built two complete medicine cabinets for a home in Naples, Fla., each of which holds a Séura mirror TV. "The architect came to us for help in finding cabinets of the right size that would match the Séura glass," Gilbert recalls. "We couldn't find any, so we offered to build them ourselves."

Each cabinet has more than 65 glass and aluminum pieces, which Geoffrey Ranson, design engineer and programmer, drew up in SolidWorks, then cut, slotted and milled on the Haas. "Some of the pieces had to run with the doors open, so they would fit into the machine," he recalls.

Next the company sent the glass pieces out for electroplating, to precisely match the Séura glass. Then the team assembled

and installed the cabinets. "We learned a lot about manufacturing with glass, including the fact that you have to plan your cuts to avoid the flaws that glass sheets always include," Ranson says. "Still, it was a lot of fun."

Another problem led the firm to design and build a very different kind of component: a Bluetooth audio player, which it offers in standalone and single-gang wall-mount versions.

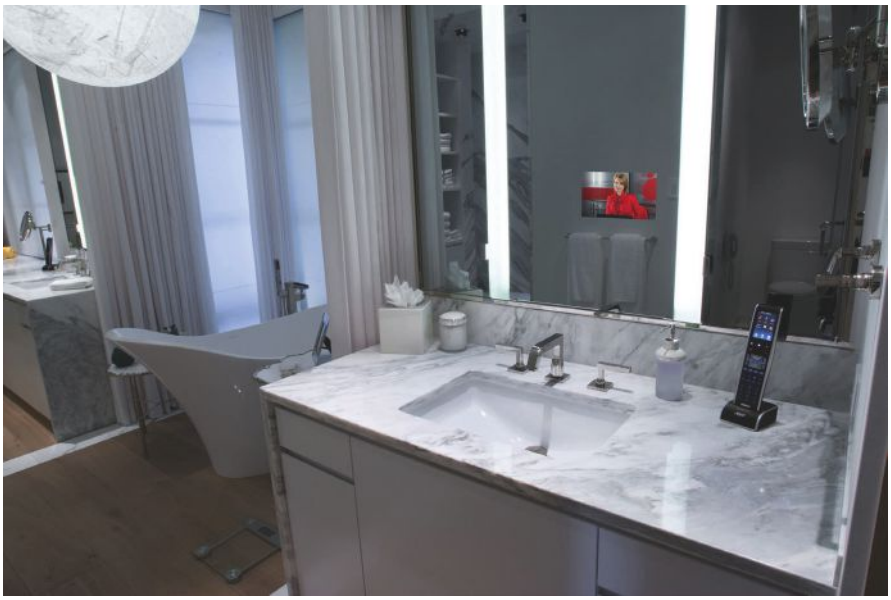
"Imagine you own a luxury hotel and want to give your guests the ability to play audio from their phones on their room's stereo," Gilbert explains. "It sounds like a simple problem, but does someone really want to give up their phone to plug it into the audio system? On the other hand, if you use a Wi-Fi device, how do you make sure the guest connects to the right system and plays their music in the right guestroom?"

Again, the partners decided to build their own solution, designing the circuit boards, housings and firmware themselves. Originally they built the piece in-house, but today they are selling at a large enough volume that they farm out the components to a larger factory.

"The nice thing about our player is that it's very simple to use," Gilbert says. "We program the device so that when you connect, the name comes up as 'Room 220' or, in a home, as 'Master Bedroom' or 'Guest Bedroom.'" And since Bluetooth is such a low energy network, there's very little chance for confusion.

Over the past year, the Think Simple team designed and built its own steel brackets for two QSC line arrays it installed outdoors at the Privilege Pool, a day club at the SLS Baha Mar in Nassau. This job was more challenging in that each bracket had to hold nearly 300 pounds of speakers and withstand 150 mph winds.

Ranson made the initial drawings in SolidWorks, taking advantage of the software's built-in pressure and strength analysis in creating his design. He then sent his file to a local engineering firm to verify his calculations and certify the design. "We attached the mounts to the building with Hilti bolts that are rated for more than 100,000 pounds total," he says. "The building will come down before those speakers come down."



Think Simple's manufacturing ability has aided projects like customizing cabinets for a Séura install at a residence and securing speakers for a club in Nassau.

The Milling Machine at Work

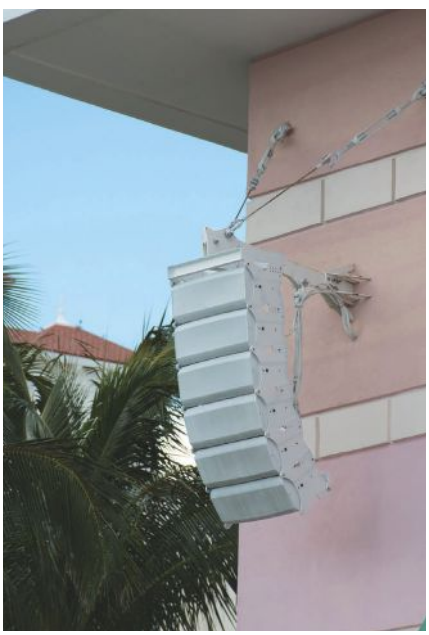
One reason the partners were able to take on the manufacturing role is that they were already comfortable with computer-aided design. The CAM software Think Simple uses allows Ranson to model the operation of the CNC machine before he actually sends it the job. "I can see exactly what the machine is going to do and watch it moving in the 3D model, making sure it's not going to have a crash."

The current operator, Chris Yee, has about two years of experience with the Haas, and he does all of the day-to-day milling work.

He starts with the raw material and applies a surfacing operation, which takes off about a thousandth of an inch. For anodized faceplates, he next machines a brushed finish; he sends the material for polished faceplates out for a mirrored finish.

The surfacing operations all require a 5-inch tool, so he'll do a large quantity at once, finishing about 80 to 100 each day. Next he switches to a smaller tool to cut the blanks to final size, then flips them over and cuts out the backs.

"We cut two of the backs at a time, and that takes about 30 minutes, because it's a lot of material and you have to go slowly," Yee explains. "The machine can't just dive in; if it did it would break our tool. Instead, it starts from the outside going in, and then as it cuts down to the window opening, it cuts from the inside going out, so you get a clean edge without any warping."



Gilbert says the manufacturing operation has been worthwhile mainly as a means of better serving Think Simple clients. "We've done some amazing projects over the years," Ranson adds. "It's been really fun, a real adventure."

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