

FlexDrill Testimonial



CNC Drilling

Deep freeze

By Gretchen Salois

Above: The FlexDrill allows Richards Refrigeration to use up to a 30-ft.-wide table where the spindle moves, not the table.

Demand pushes one fabricator to invest in equipment that is fast and consistent

April 2018 - When you walk into a grocery store, there are display cases with everything from milk and ice cream to beer and produce. Richards Refrigeration in Elizabeth City, North Carolina, has been in the super market refrigeration business for more than two decades.

The company's capabilities expanded beyond display cases and piping to include heavy-duty freezer doors. "When a delivery is made with a pallet jack—especially the more heavy-duty electric pallet jacks—the metal edges of the door can be damaged until eventually a new door is needed," says Randy Richards, owner of Richards Refrigeration.

The doorway keeps cold air contained within the freezer. When it is damaged, that cold air leaks out. "Once the door heater is damaged, the door ices over and warps the door," he explains. When the door warps, it no longer closes properly, allowing cold air to escape.



Coolant helps the spindle achieve heavier cuts, while cutting at higher feed rates, and perform deep drilling with better surface finishes.

“So we started building freezer doors,” Richards says. “We use 1/4-in. carbon steel that is galvanized and painted with a two-part epoxy special coating and weld the entire door frame together. We make everything from the frame to the door hinges, hinge brackets, and door catch.”

Each component of Richards Refrigeration’s door designs is welded on so when people go in and out of the freezer they can hit the door with their pallets without damaging the doorframe. “You could hit it with a sledge hammer and it wouldn’t damage the door,” Richards says, adding that once grocery store owners noticed the sturdier door design, demand followed.

No time wasted

Richards Refrigeration previously used an old laser to cut stainless and aluminum for the freezer doors. “We used a laser and plasma table for all of our sheet metal cutting needs and cut up to 1/2-in.-thick for hinge straps and hinge brackets,” Richards says.

The 4-in. by 1/4-in. angle iron proved challenging. “We found that there isn’t really a machine out there to do 4-in. angle iron unless you buy a high-end, expensive laser,” he says. “We also need to create a groove for the heater cable in the angle iron that can’t be done with a laser.”

Previously, Richards Refrigeration used a time-consuming ironworker to cut, notch and punch the angle iron parts for the frame. This method left a margin of error and required workers to handle parts by hand.

“Consistency was an issue because one guy does it a little different from the next,” Richards says. “I looked for a machine that would do the milling as well as drill the holes and pockets for the corners where the heater hides in.”

Richards did his research until he learned about [FlexDrill](#), which allows him to use up to a 30-ft.-wide table where the spindle moves, not the table. “This was the perfect machine because I could build fixtures and the spindle mills those parts out. The guy running it could do the first fixture and work on a fresh angle iron creating a continuous process for setting up fixtures for mill and thresh plates.”



Richards Refrigeration manufactures heavy-duty freezer doors from 1/4-in.-thick galvanized carbon steel. The sections are welded together to withstand wear and tear.

FlexDrill CNC is the first large bed open-faced CNC vertical milling machine for fabricators with simple 3-axis capabilities for straightforward drilling, milling, tapping. “The FlexDrill is able to handle three 8-ft.-long parts that can go onto the machine bed at a single time. Users don’t lose time shoving material side to side and refixturing,” says Neil Recker, territory sales manager. “It’s like using a pendulum mode that enables fabricators like Richards Refrigeration to use each third of the 35-ft. machine for separate parts.

“At any time the spindle is running and machining and the user can access the machine bed to break down a fixture, take off a part, and put new material on without risking downtime,” Recker says.

The FlexDrill is affordable, offering an alternative for shops not in the market to invest in expensive lasers, for example. “It’s extremely price-conscious. As far as price per square foot of machine bed, there is no other CNC mill in the marketplace that is even close,” Recker claims.

A simple yet powerful control allows for an easy learning curve. This means a mid-level operator can work the CNC controls and plug-and-play from a 2D print without issue. “In addition to being able to machine more parts at once, the size, and length of machine is made more practical with light curtains and the use of pendulum mode, allowing Richards to access the machine bed safely,” Recker says.

Compared to conventional CNC machines, Recker says the 35-ft. open bed is capable of handling any fixturing and eliminates set-up time. “Most conventional CNC machines stop moving the spindle when the operator opens the doors. When those doors are open, you’re not making money,” Recker says “Since we use light curtains, the opening to the machine bed is not enclosed by physical doors. An operator can access a different part while the head moves along. It doesn’t interfere with production, and it dramatically improves operator efficiency.”



Randy Richards sought a machine on which he could build fixtures using a spindle to mill parts out. Operators can complete one fixture and work on a fresh piece of angle iron, creating a continuous process for mill and thresh plates.

FlexDrill technology has been available in Europe for 17 years but is gaining traction since its introduction to the U.S. market in the fall of 2016 “We’ve been growing,” Recker says. “We recognized an opportunity in the U.S. market. Customers want a solution to simply drill or bore holes—something our FlexArm Tapping machines can’t do efficiently.”

Since introducing the FlexDrill to the U.S. market, demand has been “exponential,” says Recker. “For the last year and a half our goal was to sell six FlexDrill machines—we’re up to 22 and counting.”

The FlexDrill’s design offers a more efficient way to move material and drill holes. “Our advanced software also offers operational analysis that we believe is unique compared to traditional CNC machine builders,” Recker says. “The software will show users how long it will take to put a part on the machine and take it off and analyze ROI—it’s a big advantage that works well for those processing large parts.”

The FlexDrill allowed Richards to make thresh plates (where you step when entering the freezer) and mill all his angle iron parts without repositioning the material. “The spindle can travel from one end of the machine to the other,” says Richards. “We can mill it all the way down the table whereas with the manual mill we had to continuously reposition the parts, then take them to the ironworker to punch holes, make notches, and finally weld up the frame, which someone would finish by taking a hand-held plasma torch to make a few more final notches—we don’t have to do that anymore.

“Now we saw the piece of angle iron, carry it to the FlexDrill and only need to fixture it twice,” Richards continues. “We run a program that runs and rotates the angle iron so we don’t have to carry it to a manual mill or use a hand-held plasma cutter or the ironworker. The corners of the door frame fit together like a puzzle, which allows us to have a perfect alignment each time.”

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