

# Manufacturing ENGINEERING

## Shop Solutions

### CNC Lathes Give Cylinder Manufacturer A Big Lift

Godwin Manufacturing (Dunn, NC) is one of the largest manufacturers of dump, platform, and rollback truck bodies in the country. The company also manufactures various styles of hoists, hydraulics, and other related equipment used on the truck bodies.



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Pat Godwin has grown his truck body and hoist manufacturing company through a combination of inventiveness and hard work.

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Its founder Pat Godwin is Dunn, North Carolina, through and through. He grew up just six miles (9.6 km) from what is now his company's headquarters. He and some friends built his current house just down the street from the main plant. He has a civic pride not seen much in today's entrepreneurs. He also has an unrivaled work ethic. Always known as a workaholic, Godwin says he has backed off to part-time today. He only works from 6 a.m. to 6 p.m.

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Clay Dunigan (left), chief engineer, and John Newbold, Hydraulic Division manager, stand in front of one of two Bardons & Oliver CNC hydraulic component manufacturing systems acquired to meet demand for Godwin Manufacturing's hoist products.

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Pat Godwin started the company in 1966 with no formal training in the design and engineering of truck bodies. "We were a farming family. Always have been. My brother needed a dump truck, and we couldn't afford to buy one so I just figured out how to put one together. In the beginning, I had to run the electrical cord from the backyard through the kitchen window and pull out the electric stove plug so I could plug in the cord for my welder.



**"I've always been creative and inventive.** Building that first truck body in the backyard of our house in 1966 was really the start of my business and it just grew from there," Godwin remembers.

A year later, a friend allowed Godwin to use an 80 × 80' (24.3 × 24.3-m) building to continue his work. Within two years, Godwin had grown the business and moved to the first building at his current location on Route 421 in Dunn. Since then, additional buildings have gone up as the business has grown and, today, Godwin Manufacturing stretches over 750,000 ft<sup>2</sup> (69,677 m<sup>2</sup>)—and that is just the Dunn facility. The company, now part of the Godwin Group with two plants in North Carolina, and plants in Kentucky, Ohio, and Puerto Rico, employs close to 500 people.

When Champion sportswear vacated its large plant in Dunn a few years ago, Godwin saw an opportunity. At the time, he was purchasing the hoists for his dump trucks from other companies. But Godwin, who claims to have a photographic memory for how things are built, believed that he could produce these hoists himself.



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Piston rods to 3.5" (88.9-mm) OD are machined complete from chrome-plated bar on the Bardons & Oliver ISC 350 CNC lathe.

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**After about a year of research and experimentation,** Godwin was ready to get into the hoist business. Keeping the Champion name, he christened the plant Champion Hoist and Equipment. Like everything else that Godwin has started in his life, he didn't go half way.

"At the start, we were just making the frames but not the cylinders. A year later, we were making the whole thing. I quickly realized that the

greatest potential for growth for the entire company was with the Champion Hoist and Equipment business.

“Nobody can compete with our quality and pricing,” says Godwin. “The only thing we had to improve upon was our delivery. We were just not making the product as fast as we needed to for our growing business.”

Godwin had been manually processing tube and bar stock for its hydraulic cylinder bodies and piston rods. While quality was not the issue, the time it took to saw-cut material and manually load machines for production was unacceptable to meet growing customer requirements.

**Godwin explored a number** of solutions and finally settled on two Bardons & Oliver Inc. (Solon, OH) CNC hydraulic component-manufacturing systems. Godwin was introduced to the machinery by the Bardons & Oliver distributor, Davis-Taylor-Forster Co. (Richmond, VA) and its president David Lucas.

Godwin purchased a Bardons & Oliver 1SC 350 to machine complete and cut-off piston rods to 3.5" (88.9-mm) OD, and a Bardons & Oliver 2SC 850 to produce complete cylinder bodies to 8.5" (215.9-mm) OD, and dedicated a separate bay in the Champion plant solely to the two systems.

Materials, which include chrome-plated piston rod bar stock and honed steel DOM (drawn over mandrel) cylinder body tubing, are delivered in 26' (7.9-m) lengths. Both machines allow material to be magazine-loaded. The material handling system automatically indexes each new tube or bar into the spindle. The leading end is trimmed, parts are machined complete, and are then carried out of the cutting area to a discharge ramp. Remnant material ends are discharged automatically. Only one operator is required to control each system.

All parts are finished complete, including threads on both ends of the piston rods, if necessary, and any drilling or milling that may be required. Parts are ready for assembly upon exit from the cell.

The 1SC 350 is capable of making complete piston rods to 3.5" (88.9-mm) OD × 124" (3.15-m) long. The 2SC 850 is capable of machining cylinder bodies from DOM tubing to 8.5" (215.9-mm) OD × 124" (3.15-m) long. Not having to saw the rough blank and handle the parts in and out of a CNC lathe reduces the number of operators, reduces the number of machines required, and speeds cycle time considerably. Also with less handling of the material, the parts are not scratched or dented, reducing scrap, especially on the chrome-plated rod material.

Bardons and Oliver, which has developed the process for machining rods and tube bodies over the last several years, has modified and refined it to meet the needs of customers making this type of product. All material handling, tooling, and programming are customized to the exact product requirements. The entire system is built and tested with the customer's material prior to shipment. Upon installation, the machines are ready to run those same parts again, reducing the learning time for the customer and ensuring a fast start-up.

To say Godwin is pleased with the results would be an understatement. Manufacturing times have been dramatically reduced. "The consistency is fantastic. Even though our quality was OK the old way, this computer-operated equipment brings a consistency to the operation we had just not seen before," Godwin says.



"We've cut our lead time from 12 weeks to seven weeks," notes Godwin. "But I'm still not satisfied. My goal is to get our lead time down to four weeks max."

With steel prices so volatile, Godwin is not worrying about if or when he is going to be able to get his raw material. Godwin believes in keeping a substantial amount of raw material in-house to meet demand. "I could build 1000 truck bodies with the inventory I have right now. Getting material has never been a problem for us. When you're a big volume purchaser and you pay your bills on time, the raw material manufacturers take good care of you."

Pat Godwin has high hopes for his hoist manufacturing business. He knows that shorter lead times, greater efficiency, and outstanding quality are required to meet increasing demand. He plans to do whatever it takes to continue to keep Godwin in a leadership position in that market.