



At Hydro Tube, Ohio, in the United States, excellence in tube bending and cutting plus brazing and welding are considered the keys to their success. The bender Hydro Tube chose to invest in was an ELECT80 all electric bender by BLM Spa. So far the machine has worked out very well. The set-up time of the tools is actually as fast as expected.

Manufacture the **complex** items

We are in the city of Oberlin Ohio, in the United States, where we meet Richard Cook owner of Hydro Tube Enterprises, a company known for manufacturing high quality complex tubular assemblies. Hydro Tube services a wide range of industries from automotive to off road equipment, water heating, food service equipment, lawn and garden, hydraulic and highpressure air assemblies. At Hydro Tube excellence in tube bending and cutting plus brazing and welding are considered the keys to their success. They operate from their headquarters location in Ohio plus another facility in Sanford, North Carolina

Manual labour has been reduced by about 70%

The company was established in 1969 and therefore has a background of over 40 years of tube fabrication knowledge to call on. An important turning point for the company took place about five years ago when the Cook family acquired the firm. "When we took over the company, the first problem we had to deal with was the age of plant machinery. The equipment roster included several manual hydraulic tube-bending machines dating back to '67 or '68". Mr. Cook realized that "even if the machinery was well maintained we would even-

tually start losing market share due to our outdated equipment."

The decision was made to modernize the plants and invest in new machinery. Mr. Cook had been keeping an eye on the growth of laser tube cutting technology but he did not have enough work to justify buying a new machine. The solution was to purchase a used ADIGE LT712 LASERTUBE and install it in their North Carolina plant. "When we purchased the machine, only 20% of the operating time was covered," That was four years ago: ever since the machine was installed, it has completely changed the production method at the factory. "Previously,



the tube bundle was cut first, and then the tubes were hand deburred one by one. Now, one tube at a time is cut, but deburring is no longer necessary. Moreover, many components that once required the passage through several different operations can now be cut on just one machine. Overall, it is a great advantage; in many cases manual labour has been reduced by about 70% and part accuracy and consistency have improved. By working with a CNC machine such as the laser tube, the problem of length variation no longer exists.

Flexibility is a critical factor

Hydro Tube's approach to the market is to manufacture the complex items that our competitors are unable to do. This operating method requires a trained and competent design staff, a solid knowledge of production processes, but also technologically advanced machinery. "For this reason, I was afraid of losing market share if we continued to work with the old tube bending machines" says Mr. Cook. "When choosing the right product to replace our obsolete tube bending machines, the options were hydraulic, semi-hydraulic or fully electric machines; however, my attention was focused on the speed of job changeover which I consider to be a key aspect especially as regards our production process. Our typical lot sizes range from five parts to several hundred items. It is therefore understandable why the machine set-up time is so important." Mr.

Cook continues: "It's not that large lots have disappeared, but there are customers who have considerable production volumes over a large number of parts. For example in the field of excavators or cranes, a single order might be ten different parts ranging from 5 to 30 pieces each. These are very important customers that you cannot refuse. That's why flexibility is a critical factor."

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Optimize the process while ensuring efficiency

Before an actual example of complex bending, Mr. Cook explains: "Sometimes the production of a piece seems easy, but in reality if the piece was really easy, companies would probably manufacture it themselves." The piece that he shows us is in fact particularly complex. It is a component in a commercial kitchen fryer. It is a highly efficient exchanger to heat the oil. The customer was looking for a source to provide a precision high quality part. They chose Hydro Tube. Upon first review it appeared that both left and right hand bending would be required in order to avoid collision with the die. The plan was to perform a first pass of the all the pieces through the machine making only right hand bends then

make a second pass for the left bends (after changing the bending direction of the ELECT80) but that would not have been efficient.

In the end the best solution turned out to be a clever change to the bender tooling that allows the part to bend back on itself.

There are always several possible solutions, but only one is the most suitable to allow the process to be optimized while ensuring efficiency. As shown in the picture, this made it possible to carry out both bends with a simple and efficient production process.

Hydro Tube's latest equipment upgrade was the recent addition of an ADIGE TS72 cold saw. The quick set up and short job to job changeover of the cold saw lets Hydro Tube quickly and accurately cut the raw tubes for both short run and high volume jobs.

At Hydro Tube they see the key to their next 40 years being the ability to offer their customers innovative approaches to solving difficult tube fabrication challenges. To do that you need flexible, productive equipment coupled with the know-how and innovative thinking of their experienced staff. At the BLM Group, we share this philosophy with Hydro Tube and we cannot help but appreciate it.