

MANUFACTURER FILLS BENDING NEEDS

...with Finn-Power Servo Hydraulic Press Brake

In 1984, Luigi Casasanta Sr. established LC Bakery Equipment Services Ltd. in Brantford, Ont., to provide 24/7 maintenance service on all types of bakery equipment.

As its well-deserved reputation for reliable service and quality workmanship grew, the company moved into a 6,300 square-foot facility in 1988. In order to meet the equipment demands of his customers, Casasanta purchased some fabrication equipment and began manufacturing bakery equipment on a small scale.

In 1998, LC Bakery Equipment moved to its present location where it now occupies a 35,000 square-foot facility. Joining Casasanta and his wife Ernesta in the family business were their three sons - Robert, vice president of engineering, Vic, vice president of operations and Luigi Jr., vice president of engineering.

With many years of experience in manufacturing and maintenance of bakery equipment, LC Bakery Equipment began the development its own line of high-quality bakery equipment.

Today, the company has evolved from its humble beginning as a service oriented company in southwestern Ontario, to a full-fledged manufacturing company. According to Robert Casasanta while service is still a vital part of the company operations, LC Bakery Equipment is focused on the manufacturing of custom bakery equipment, including ovens, proofing systems, flour silo systems, racks, etc., for the industrial/commercial international market.

"We will always maintain our service division due its importance as a valued resource to our customers," he explained.

Fabrication

As production increased, it became apparent that the current press brake was becoming a limitation for the company in terms of quality, speed and flexibility. The company focused on the purchase of a new Servo Hydraulic Press Brake in order to alleviate this problem.

"Our focus was to find a high quality press brake, designed and manufactured to help automate our

rapidly growing manufacturing process," he added.

In order to meet their current and future requirements, several key features were considered as important. It was imperative that the press brake be more technologically advanced, be designed and manufactured to provide increased manufacturing flexibility, have higher tonnage and bend length abilities, have superior bend repeatability and accuracy and allow for rapid manipulation of press brake set-up with respect to tooling and programming changes.

The press brake also needed to integrate into the company's flexible manufacturing environment,



The Casasanta family management team includes (from left to right): Robert, vice president of engineering, Luigi Sr., president, Luigi Jr., vice president of engineering, and Vic, vice president of operations.

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which utilizes three-dimensional design software to design and manufacture all components. These 3D parts are directly imported into the press brake off-line software, which uses the 3D format to create a bend program. This program is then sent to the press brake via network communication where the operator can then access and view the 3D program to produce a finished part.

Servo Hydraulic Press Brake

LC Bakery Equipment did an extensive one-and-a-half year search for the ideal press brake. In August, 2005, the company purchased the H Series servo hydraulic press brake from Finn-Power.

The Finn-Power H Series 240 metric ton press brake is designed for precision and high productivity. By applying servo hydraulic drives, independent measuring frames, and CNC control to a rigid machine structure, the H Series press brake provides high accuracy, increased productivity, improved flexibility and a high degree of reliability and safety.

Productivity

The servo hydraulic system is designed to maximize ram speeds. Ram approach can reach speeds of 472 IPM (200 mm/sec) and ram return can reach speeds of 283 IMP (120 mm/sec). The unique design of the servo hydraulic system and fast acting servo valve circuits yield extremely short cycle times at very low power and energy consumption. The working speed is completely programmable to ensure bending is made without loss of product quality or operator safety. Fast positioning speeds ensure the back gauge will be ready when the part is presented for each operation.

Easy Set-up

The H Series press brake supports all the available tooling styles to provide the quickest means of tool set-up available regardless of the users requirements. The ram is universally machined to accept a variety of optional clamping systems for different style tooling. LC Bakery Equipment selected the tooling from Wila.

The lower beam top on the H Series is also universally machined to support a variety of tables for manual or CNC crowning, mechanical or hydraulic clamping, American, Wila or European die set-ups and a CNC hemming shelf.

Standard on the H Series press brake is the Touch Screen (TS 1) Control. The Pentium PC based system runs under Microsoft Windows with information presented on a 12.1" TFT color display. An

operator friendly Touch Screen user interface leads to a significant improvement of data input rates and a considerable reduction in programming time. The multi-axis control capability and variety of available back gauges systems can be selected to minimize or eliminate set-up requirements of the back gauge fingers.

A 20 GB hard drive, 3.5" floppy disc drive, and standard network (100mb Ethernet UTP) connection provides for unlimited memory. A large program storage capacity with a database of 30 upper and 30 lower tools substantially reduces the setup time on repetitive jobs.

Complete control of the ram and back gauge axis is available at the operator's fingertips with use of the standard hand wheel. Programming operation is direct and straightforward and the error message system will assist in making even first time operators productive. Management data is available for machine time, product and stroke counters.

Easy Bend

Easy Bend is a mechanical angle measurement system to guarantee the accuracy of the angle during the bending cycle. It compensates for variations found in the material (both thickness and tensile) and is fully programmable. You can program its use for all bends or only some of the bends in a program. Its measurements can be shared from one bend to another. Its position along the bed is programmable for each bend. And it is fast, only adding approximately three seconds to a bend cycle.



The Finn-Power H press at LC Bakery Equipment Services Ltd., is equipped with CNC crowning, bed referencing Y1 and Y2 encoders and an Easy Bend angle measurement system for accurate bending along the entire length of the brake.

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Accuracy

The position of the upper beam, in relation to the lower beam is measured by dual Y1 and Y2 linear encoders that are attached independent of the machine frame and are bed referenced. The Y1 and Y2 cylinders power the upper beam independently using servo hydraulic technology. This design isolates ram positioning accuracy from any deflection in the side frames under load and maintains accurate positioning even during off center bending operations. Ram repeatability on the S Series is +/- .0004" (0.01mm) and bottom bending tonnage is programmable to +/- one ton.

Programmable control of the ram and back gauge movements supports all bending requirements in even the most demanding applications to produce consistent accuracy and product quality.

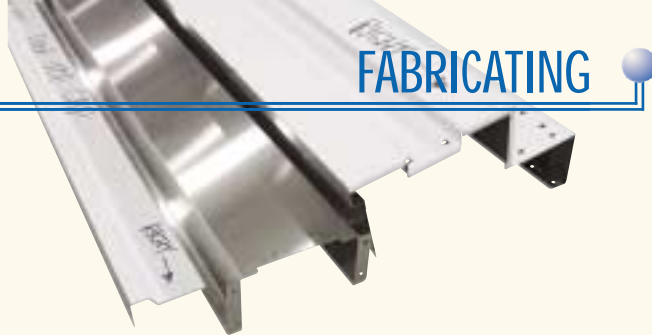
A programmable back gauge is standard on all H Series press brakes. Two rigid fingers are provided with manual adjustment along the length of the gauge via LM-guides and quick release clamps. Three stops are available to maximize the target surface for the operator and extend the back gauge range while providing material support for deep flanges. CNC control of additional axes, i.e.: X1, X2, R1, R2, Z1 and Z2, are optionally available in a variety of back gauge models.



The Easy Bend mechanical angle measuring system ensures the accuracy of the angle during the bending cycle. It compensates for variations found in the material (both thickness and tensile) and is fully programmable.

Flexibility

Whether you are air bending or bottom bending, running small batches with numerous set-ups each day or high production quantities, using Wila, European or American style tooling, require special operations such as hemming or bump radius forming,



the H Series press brake is up to the challenge.

A generous standard open height and stroke length can be increased even further with relative ease to accommodate the various tooling styles. Due to a unique design for connecting the cylinder to the ram the open height can easily be increased 3.94" (100 mm) without delaying shipment.

Operation of the H Series Servo Hydraulic Press Brake enables programmable control of all ram cycling parameters such as desired bend angle, bottoming tonnage, top of material stop, bottom dead stop dwell, Y1 & Y2 ram tilt, ram working speeds, and ram return position. All servo driven back gauge axis positions are programmable including desired flange length and gauge retraction. The integrated PC control and flexible machine design features enable the H Series Press Brake to handle a variety of product requirements while maximizing productivity. Part programs can be linked into a stream for production of parts in a kit or sequentially.

Some models of H Series Press Brakes can be integrated with a robot for unmanned operation and consistent production without limiting flexibility.

Reliability

The H Series frame is one of the heaviest in the industry with minimal deflection under load. The construction of the H Series Press Brake has advanced from decades of proven and innovative servo-hydraulic design. Valves are manifold mounted and easily accessible for maintenance.

According to Casasanta, his company chose the Finn-Power H press brake because of its following features:

- Length
- Rugged design and weight
- Servo-hydraulic design
- Hydraulic clamping top and bottom (Wila) - allowing quick tool change and they quickly seat exactly where you need them. "With the old press brake we could spend two to three hours on set-up to bend just three pieces. That was something we could not live with," he said.
 - CNC crowing (Wila)
 - Touch screen - Ability to adjust as many parameters as possible in order to achieve results. The

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touch screen provides the ability to program and achieve repeatability.

- Back gauge - a rigid five-axis back gauge
- Ability to offline program using the 3D software which integrates with the software at the machine and will let the operator see the part in 3D version and be able to rotate the part, show bends, etc.

Performance

"The H press brake has performed very well at our company," said Casasanta. "It has given us a great deal of flexibility and versatility which has allowed us to increase our overall productivity. This promised performance along with Finn-Power's commitment to flexible manufacturing and total equipment automation and integration, was the driving factor in proceeding with Finn-Power. Finn-Power was really the only company that was promoting this automation integration concept as their past, present and future focus. We also appreciated the personal aspect of working with the Finn-Power team. We focus on working very closely with our customers... we hope for the same in return. The



The H Series press brake is designed with a heavy-duty, five-axis back gauge.

purchasing of equipment for us, whether large or small, is always very personal. We hope to be treated by our suppliers the same way we treat our customers. We are happy to have experienced this with Finn-Power."

For more information, visit www.lcbakery.com and www.finnpower.com.