

World-class FABRICATING

Leading edge technology gives
Alberta fabricator competitive leg up

By Patty Jessome

Ingenuity, opportunity and the ability to see beyond manufacturing restrictions has made Ray Turner and his Edmonton, AB, company, Lenmak Exterior Innovations Inc., a success story.

Turner is a humble visionary who used his knowledge of equipment and his keen sense of research to turn his small shop into a world-class facility. In fact, he invested in a flexible manufacturing system (FMS) made by Prima Power (formerly Prima Finn-Power) and applied it to making exterior building components.

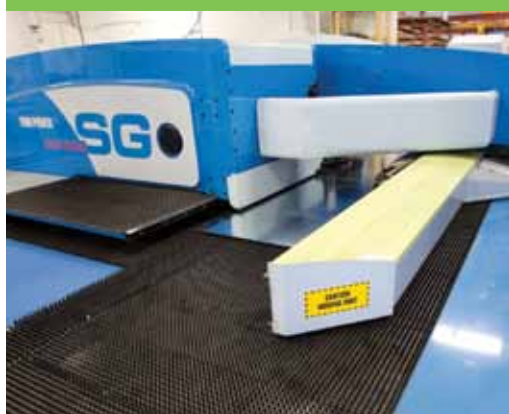
"I don't think anyone else anywhere is doing what I'm doing," says Turner. "I'm using precision equipment and using it in a non-precision environment."

The installation of Prima Power's Punch, Shear and Bend Flexible Manufacturing Cell has given the company a competitive edge with the potential to double earnings over the last three years.

Of course; getting to this point didn't happen overnight.

Thirteen years ago, Turner was a salesman for a residential exterior wholesale distributor, when he recognized an opportunity that turned into a full-fledged business. "We were selling maintenance-free vinyl windows but there was no way to dress up or add character to the windows without adding maintenance to them," he says. "I gave it some thought and came up with a prefinished aluminum window batten that added colour and character without compromising its

The Shear Genius (SG) integrated punch shear combination transforms a full-sized sheet into punched parts.



Prima Power's flexible manufacturing system (FMS) has given Lenmak a strong competitive edge. The system includes an automated bender (Express Bender EBe5), seen here.

maintenance-free quality."

He opened a small shop and started to produce decorative accessories for residential exteriors including linear channels, aluminum shutters and octagon louvers. He had already built a good client base from his former competitors in the residential exterior building business and had a successful start.

Soon after he started his business he attended a metalworking show in Atlanta and began to research equipment. When he returned, he went to his wife Lori (the other part of this successful venture), and asked her if they could remortgage the house to buy a 10 ft folder and a 10 ft shear. She agreed. "Everything took off after that," he says. "We added more equipment and the business expanded to other markets. I was bending pre-finished steel trims for flat roofers, agriculture and standing seam buildings."

In 2004, Lenmak progressed to vertical integration and moved to master coils giving the small but evolving company a lot more flexibility. It also implemented Lean Manufacturing which led to greater company structure. "We learned the power of reducing non-value added activity and how to pull production rather than push."

PRIMA POWER

The company continued to grow. It was producing a very good and substantial product line but Turner had an idea that kept floating around in his mind. "I always wanted to take the FMS concept and see if I could adapt it to manufacture multiple side exterior panels."

Over the years, he had contact with Prima Power's sales rep who shared information about their products to Turner. He also continued his research;

talked to people in the business, and travelled to metalworking shows around the world. When the opportunity came his way, he visited other manufacturing facilities where the equipment was being used. "I talked to people from all over the world who were using the Prima Power equipment and even hung around Prima Power's booth for days at one conference. I did whatever I could to educate myself about the equipment."

Then, in January 2009, just when the recession hit, the opportunity presented itself. Even though the company's sales dropped by 35 per cent and the Canadian dollar started to creep up, Turner kept his eyes on the prize. "Sales for machines world wide were declining because of the recession. There was an opportunity there and I took it," says Turner.

He went to Lori for guidance. She agreed to buy the equipment but with one stipulation. "She wanted to stay in the same location and I knew that would be difficult considering the space restrictions we had."

Prima Power had a solution to his space problem. They told him about a 90° line they created for a company in Italy for making pizza ovens that might work in his facility. It did.

Today the company is using Prima Power's Punch, Shear and Bend Flexible Manufacturing Cell, which includes the Shear Genius (SG) punch/shear combination (model SG6: 3,074 mm x 1,565 mm (120 in. x 60 in.) and the EBe automated bender.

SHEAR GENIUS FLEXIBILITY

The SG integrated punch shear combination machine transforms a full-sized sheet into punched parts. These parts can be moved



Ray and Lori Turner are big believers in investing in leading edge technologies: "invest in as much automation as you can. You will compete and win," says Ray.

to secondary operations using sorting and stacking automation and then on to bending operations without being touched by human hands.

Mike Stock, vice president and bending products manager for Prima Power North America Inc., says the combination delivers finished parts with a dramatic reduction in scrap and manual labour along with increased profitability.

The SG also eliminates wasteful skeletons and costly secondary operations such as deburring. It allows the automated process to begin with a full-sized sheet of material and

Jet Edge
WATERJET SYSTEMS

90,000 PSI Waterjet Technology!

Cut Costs...Increase Productivity with Jet Edge Waterjet!

MACHINE OPTIONS

- Mid Rail, High Rail, and Low Rail, Gantries
- Many Sizes 30'x30' to 30'x100'
- Supports Multiple Cutting Heads
- 30-200Hp Intensifier Pumps
- 60,000 psi and 90,000 psi models

A CUT ABOVE THE COMPETITION

- Industry-Leading Precision and Accuracy
- Widest Variety of Intensifier Pumps
- Free Lifetime Training
- Industry-Leading Warranty
- Vertically-Integrated Manufacturer
- One call for sales, parts, service, warranty work
- 24/7 Service 365 Days a Year
- 99% On-time Parts Delivery
- 97% of Jet Edge Customers say they would buy from Jet Edge again!

Michael Waltrip Racing waterjets 250 parts for each of its racecars. Since installing their Jet Edge Waterjet, MWR has increased productivity 50% and gets new design improvements to the race track 2 weeks faster.

On one part alone, MWR saves \$130,000 per year

WHENEVER YOU NEED IT . . . RECUTS FAST

- RAMS & CLAMPS • DIE RAILS
- BRAKE DIES (RECONDITIONED TO ORIGINAL SPECIFICATIONS)
- STANDARD DIES FROM STOCK

Mecon Industries Limited
17 Matley Rd., Scarborough ON M1L 2E4
Telephone: (416) 751-1901 Fax: (416) 751-6603
mecon@mecon.com www.mecon.com

Jet Edge
WATERJET SYSTEMS

CALL 1.800.JET.EDGE (538-3343)
JET EDGE, INC.
ST. MICHAEL, MN 55376
SALES@JETEDGE.COM
WWW.JETEDGE.COM

michael waltrip racing
TECHNICAL PARTNERS



The Prima Power flexible manufacturing system includes the Express Bender (EBe5) automated bender, seen in top image, and the Shear Genius (SG) punch/shear combination machine, seen below in the background, with transfer table in forefront.



end with a punched part after automated loading, punching, forming, shearing, stacking and unloading — all in one operation. “This allows true single-piece flow to be synchronized with a customer’s takt time,” says Stock.

The Sorting and Stacking Robot automatically unloads the parts from the SG and loads the parts to the Express Bender (model EBe5) automated bender. “The EBe is designed specifically for each fabricator’s production requirements to achieve maximum productivity, quality, and repeatability,” says Stock.

The bending operation is fully automated, from the loading of flat punched parts to unloading of the finished product. It has a maximum bending length of 2550 mm (100.39 in.) and a maximum opening height of 200 mm (8 in.). The new construction features actuations of the bending blade movements (vertical and horizontal) by NC servo axes instead of hydraulic cylinders. The upper tool movements are also made by another NC servo axis.

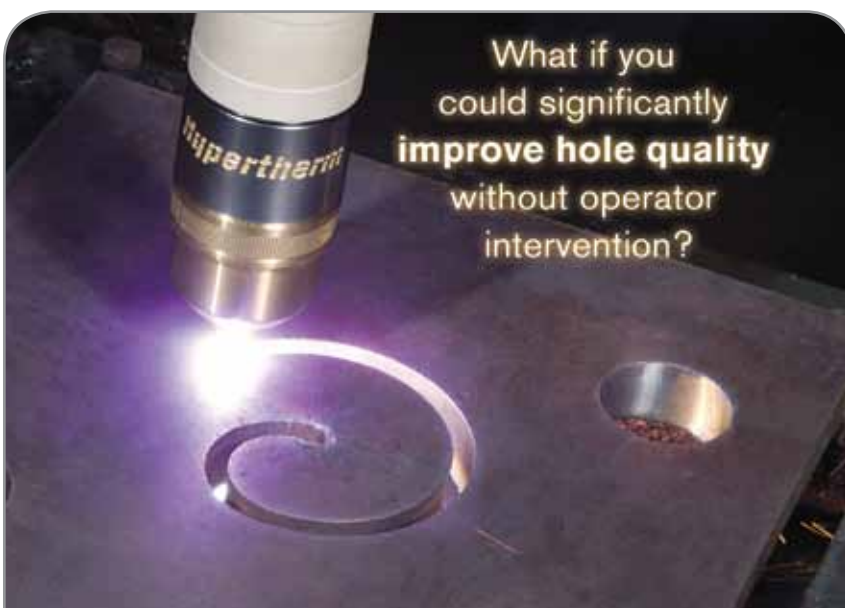
A MANUFACTURING MARRIAGE

The automated system married well with Lenmak’s previous business and Turner was able to continue working with master coils

without losing on his investment. “We cut all of our sheet, which the new system required.”

Lenmak is making a distinct product with the Prima Power manufacturing cell: decorative exterior panels (up to 42 x 96 in./1066 x 2438 mm). “I created my own market for the panels just by looking at my existing equipment and seeing if it could make something I hadn’t thought it could.”

The line has certainly changed the manufacturing process. “We do it from start to finish; from cutting the sheets to bending the final pieces,” he says. “A job that used to take 20 minutes, now



With Hypertherm’s True Hole™ technology, now you can.

The patent-pending True Hole process delivers bolt-quality holes on mild steel without operator intervention, giving you consistent results from operator-to-operator, shift-to-shift, and site-to-site.

To learn how True Hole works, visit www.truehole.com or scan the tag below to watch a short video that explains the process.



Get the free mobile app at <http://gettag.mobi>

Hypertherm®

Cut with confidence™

MANUAL PLASMA | MECHANIZED PLASMA | AUTOMATION | LASER | CONSUMABLES



Fabrication challenge?

We'll solve it.

Mate will take your sheet metal forming problem and develop a fully vetted tooling solution. Once we do, Mate will deliver your tools to you fast. Really fast.

- Lightning fast quotations.
- Expert consultancy.
- Fully tested to guarantee your uptime.
- Delivery times are fast and getting faster!

See more at mate.com

MATE[®]
M
PRECISION
TOOLING

TRUSTED | QUALITY | SERVICE | SOLUTIONS

takes a fraction of the time.”

But the benefits don't stop there. He says part quality, along with increased production and flexibility is due to Prima Power SG and EB technology. There's been elimination of labour costs due to automation and improved operator safety due to the structural integrity of the line, which removes the operator from the process area.

There is also a tremendous value



or awkward that are made in a facility of where a building is being built, bring in more LEED credits. We should be looking at this as a marketable edge.”

COMPETING WITH CHINA

Turner believes if Canadian manufacturers tool up and offer world-class in manufacturing capabilities and equipment, they can compete, and they can look after their own needs. “We can potentially make better products and move them to other parts of the world.”

He believes efficiency equals pricing and manufacturers should buy good equipment and be efficient and let the



The sorting and stacking robot, seen here, automatically unloads parts from the Shear Genius (SG) and loads them to the Express Bender (model EBe5) automated bender.

to the customer with delivery times drastically cut. “What used to take six to eight weeks to deliver now takes one to two,” Turner says.

LEEDING THE WAY

Turner also saw the advantages of Lenmak earning Leadership in Energy and Environmental Design (LEED) credits from his new line. Something Turner sees as a marketable advantage. (LEED sets new parameters to develop sustainable and environment friendly buildings.)

“This is becoming a significant issue in the building materials business,” Turner says. “Buildings provide 48 per cent of the carbon worldwide and the construction industry is under pressure to produce sustainable buildings.”

The challenge is to produce structures with the least amount of carbon footprint during and after construction. “The more commodity items or items that are bulky

price look after itself. “Prima Power is an excellent example of the quality equipment I'm referring to.”

FUTURE FRIENDLY

Turner sees a bright future for Lenmak. “I will survive. I'm out in front and will always buy top-of-the-line. I see a new custom building in our future with more capacity and we will gain more LEED credits as we more forward.”

Turner's advice to Canadian manufacturers is simply this. “All you have to do to compete is buy quality equipment and believe in yourself,” he says. “Labour will become less of an issue when more automation is used. To keep just-in-time delivery, invest in as much automation as you can and you will compete and win.” **CM**

Patty Jessome is a freelance writer based in Edmonton, AB.

PRODUCT REPORT

Amada

With models varying in capacity from 55-600 tons, Amada's new HD NT press brake series can handle a full range of applications in bend lengths from 79 to 276 in. (2000 to 7010 mm). This series features a Hybrid Drive system engineered for low energy consumption and requires less hydraulic fluid than conventional machines. In addition to being eco-friendly, the Hybrid Drive system maintains a high rate of repeatability ($\pm .00004$ in./0.001 mm).



Available on most models, Amada's patented variable slit crowning feature ensures consistent angle accuracy. Larger models are equipped with an auto-crowning feature that provides precise results based on calculations created by the AMNC-PC control. Additional features of the new HD series include:

- High speed, high precision bending sensor that eliminates test bends.
- Increased distance between tooling and greater stroke length provides for a larger processing area.
- Expanded processing area enables deep box bending.
- Increased distance between punch and die allows for safe and easy processing of heavy materials.

To maintain bending accuracy while processing materials that vary in type, thickness and grain direction, the HD series is equipped with BI (Bend Indicator) sensors that utilize probe and laser technology. BI-S (probe type) or BI-L (laser type) result in trial-free bending. Bend angles are measured and adjusted on the fly to provide the correct angle on the first bend and to monitor and adjust angles throughout the run. BI technology boosts bending repeatability and reduces QA inspection and rework.

Fabricators processing thin sheets will benefit from the HD's consistent accuracy and ease of use. The combination of an eco-friendly, Hybrid drive system and BI sensor technology ensures precision bending even if the operator lacks experience. Fabricators

processing medium and thick sheets will profit from consistent angle accuracy, fewer trial bends, reduced material handling and the ability to perform deep box bending. Additionally, fabricators processing thick and large sheets will welcome safe and easy processing of heavy materials, easy to adjust angles plus simplified tool changes.

A wide variety of part geometries can be accurately processed thanks to a high precision ($\pm .0004$ in./0.010 mm) tapered backgauge. For precise bending control, the backgauge provides continuously updated feedback to the AMNC/PC NT-based control where exact positioning can be viewed at any time.

To provide maximum productivity, the HD's intelligent control digitizes the bending process and delivers offline programming. Enhanced network functions within the AMNC control allow operators to call up complete sets of bending data from the server. In addition, the AMNC control can create 3D images from DXF, DWG and IGES files. Programming bending data using 3D images makes programming a more intuitive process. More importantly, 3D simulation enables the identification of problems before they can occur.

www.amada.ca

Bystronic

Bystronic's enhanced version of the Xpert press brake incorporates a high speed ram positioning system and the new Fast Bend+ safety system for reduced bending cycle times. The high speed ram positioning system is capable of reducing bend cycle times by 15 to 35 per cent, approach speeds of up to 600 ipm and bending speeds up to 47 ipm without sacrificing accuracy. The company claims it is the only press brake on the market that introduces no angle errors itself with a ram positioning accuracy of .00015 in./0.0038 mm.



The Fast Bend + safety system allows the machine to draw extremely near the sheet at high speed, so that slow movement is only necessary during the actual bending process. This cuts the time required by

Wow! Look what's new at Reid Supply



Adjustable Cam Levers



Premium Solid Carbide Endmills



Vertical Latch Clamps



Quick Coupler Air Gun System



Pneumatic Impact Marking Hammer



Structural Framing Systems

FREE
2010/2011
CATALOG



**Nobody will serve
the Customer better!**

Reid Supply Company®

800.253.0421

ReidSupply.com

PRODUCT REPORT

approximately 20 per cent. Furthermore, the new safety system adapts itself automatically after each tool change and moves the machine to the correct tool height without any additional intervention. If a tool is not recognized by the system, the machine stops, making it nearly impossible to use an incorrect tool, which increases the safety even more.

Low energy consumption, less machine noise, and less heat characterize the Energy Saver. As soon as the upper beam has reached the top dead centre position after a bend, the main motor of the Xpert switches off automatically until the next bend process is started. This does not change the operational flow and the process speed remains as high as usual. However, it saves up to one third of the energy, produces less noise, and does not produce any excess heat.

The Bystronic Xpert adjusts ram position and crowning during the bending process in response to material properties. With the touch of a single button, the bending sequence and the positioning of the backstops are determined, the tool plan is created, and the process data is generated, all automatically.

www.bystronicusa.com



Cincinnati

The MaxForm hydraulic press brake from Cincinnati Inc. combines state-of-the-art forming speeds and part processing productivity with "smart" controls that speed and simplify programming, setup

and part handling. An industrial PC-based touchscreen control and Windows software eliminate two thirds of the programming steps with conventional CNC controls, while advanced hydraulics and control technologies deliver cycle-eating ram speeds—up to 700 ipm—for more strokes per hour and parts per shift.

The high speed precision forming machine is available in 90 to 350 ton models and lengths to 14 ft (4.3 m). Exceptional ± 0.0002 in. (3 Sigma) repeatability delivers consistency for bending of complex parts without deviation, drift or error stacking. Cincinnati backs the MaxForm with industry-best five-year parts and one-year labour warranties.

Simulation software enables easy offline part programming, while advanced "see and do" 3D graphics and automatic processing intelligence compensate for varied operator

experience levels. A Bend Simulation Module, standard on the machine, allows programs to be created quickly offline or at the machine and proved out step-by-step in realistic 3D views to avoid trial bending. Smart controls automatically calculate and apply adjustments for ram reversal position, bottom bending tonnage, gage allowances, and material springback.

The machine comes standard with bolt-on Cincinnati Quick Clamp ram nose designed for hardened, sectionalized American tooling. It maximizes ram protection by doubling load capacity from 15 to 30 tons psi.

The versatile press brake offers as options Wilson's Power Express hydraulic clamping and a Euro-style Ram Nose for European punch holders.

www.e-ci.com

Haco

The Euromaster CNC press brake line comes standard with an easy-to-use colour graphical 2D Fastbend control (also available with touchscreen). The Syncromaster line has recently been upgraded with a new Linux-based controller line. Both controls can work with the same offline software (available with network connection).



The Syncro system of both lines of machinery works with the highest accuracy. The backgauge fingers from both lines have been upgraded and are easier to use.

Each can be equipped with different type of tool holders: North American Wila Tools and European style of tooling. The controls can work with different safety systems as LaserSafe, Akas Fiesler, Light Curtains, and DSP Laser. Machine construction conforms with North American and European safety standards.

The Syncromaster machine can be equipped with three axis capability. The Euromaster machine can be easily equipped with a six axis backgauge system. It can also easily be upgraded with a robot system. The robot and press brake are controlled by the Graphic 3DFastbend control. It offers a unique approach to robotized bending:

seamless fusion of hardware and software that results in fast and accurate production. www.hacocanada.com

LVD

PPS Series of cost effective press brakes offer the precision and reliability of LVD bending technology in a value-minded package. Available in six models from 55 to 220 tons and bend lengths from 78 in. (2000 mm) to 157 in. (4000 mm), the PPS press brake is offered in CNC configurations and is equipped with an easy-to-use touch screen control.

The touch screen control employs the same reliable infrared screen technology used on several LVD products. The 10 in. screen features large buttons that can be seen from a distance and which can be operated using work gloves.



Software developed by LVD allows for fast and simple programming with minimal training thanks to a "spread sheet" program layout in which each row is a bend and each column is a parameter. The user friendly format eliminates the time consuming effort of moving back and forth from page to page when making and reviewing part programs.

The system is ideal for quick programming of all parts and is suitable for all levels of users. It provides a number of user friendly features, including:

- Unlimited tool library for use of any tool, any name and any quantity
- Automatic angle calculation eliminates the need to manually assess ram reversal position
- Automatic bend allowance calculation eliminates manual assessment of bend allowance or back gauge setback

www.lvdgroup.com

Prima Power

Prima Power has introduced the EBe servo-electric bending machine designed for each customer's production requirements to achieve maximum productivity and product quality. It offers complete automation of the bending process. The bending operation cycle is fully

PRODUCT REPORT

automated; from the loading of the flat parts to unloading of the components.

This EBe bending cell has a maximum bending length of 84.65 in. (2150 mm) and maximum opening height of 8 in. (200 mm). The system is operated by CNC control and exchanges information and synchronization with the PLC through digital communication. All machine main functions and all axes involved in the bending process are numerically controlled.

The new construction features actuation of the bending blade movements (vertical and horizontal) by servo NC axes instead of hydraulic cylinders. The upper tool movements are also made by another NC servo axis.

Prima Power EBe provides the high bending quality required in demanding applications such as component production for design products. This is achieved through precise control of bending axes, fast and smooth bending, open programmability, and the construction that is immune to variation in thermal conditions.

New Bending Principle: A fundamental characteristic of the EBe bending technology is the



movement of the blades. For optimum product quality, a new bending principle has been applied for the EBe. With this new principle, when the "rolling mode" is used, there is a wider contact surface between the blade and the sheet but no relative friction. Part marking and tooling wear is minimized.

New Industrial Design: Prima Power EBe has also been designed for the modern manufacturing facility to meet the high ergonomic standards through integrated safety covers. The EBe featuring Prima Power's E-technology offers:

- Reduced labour cost
- Reduced set-up time
- Increased speed/productivity
- Reduced tooling cost
- High component quality

- Off-line programming
- Programmable bending blade crowning
- Energy savings (-50 per cent compared to all hydraulic solutions)
- Low maintenance cost
- Reduced noise level
- Reduced vibrations
- No influence by thermal conditions

www.primapower.com

Safan

The E-Brake from Safan produces the pressing force with synchronized electric motors and transfers via belts and pulleys to the beam. This unique drive principle brings many advantages: No problems with hydraulic oil, low energy consumption as well as higher productivity.

Westway Machinery Ltd. is the exclusive Canadian distributor for Safan equipment.

When a product requires several bends it is common practice to operate the machine at its fastest beam speed. Between the bends, the component is turned and inserted as required for each fold. Most time is lost between the bends by handling, the change over time

Mark your calendar for

THE FUTURE OF Fabricating Cutting CONFERENCE

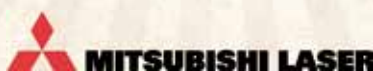
Conference streams

The Future of Fabricating Cutting Conference is a one-day conference organized by **Canadian Metalworking**. One conference stream will educate you on where fabricating cutting technology is going. The other conference stream will help you address issues surrounding key management issues. You can mix and match the presentations you hear based on your needs.

Exhibits

As part of the conference, leading machinery, equipment and services suppliers will be available during breaks and at lunch to discuss problem solving.

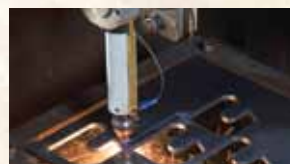
SPONSORS



NOVEMBER 8, 2011

TORONTO CONGRESS CENTRE

Canadian METALWORKING
canadianmetalworking.com



between fast and slow points of the beam and the back gauge positioning speed. With safety on the one hand and the well-known inertia of Hydraulic systems on the other hand being the major limiting factors. Safan's solution is the E-Brake Mechatronic press brake.

The control of the electric motors in the machine are the basis of this innovative system. The principle of the system is a pulley-block, which pulls the Top beam of the press against the effect of laterally arranged return springs into the die and applies the pressing force evenly along the length of the machine. In 98 per cent of cases no crowning table is required.

When rolling the belt up the driving motor pulls the beam downward into the die. The return springs strained during the bending procedure return the beam to its initial position.

The E-Brake is available from 35 to 300 ton pressing force and lengths from 1250 to 4100 mm. The drive is provided by Lenze electric motors. The 4 m machine with 200 ton pressing force requires a total output of 22 kw. The force is distributed evenly over 36 roles attached to the upper beam.



Safan's electronic control system ensures very short response and delay times resulting in bending speeds of up to 20 mm/sec. The high acceleration and other servo motor characteristics mean not only very fast approach speed but also a seamless change over to bending speed.

The absence of hydraulics means no seals, and no pressure valves, resulting in less down-time and lower maintenance costs. As well, the press brake uses less energy than hydraulic machines because the motors operate only when the beam is actually moving.

www.westwaymachinery.com

TRUMPF

TRUMPF's TruBend Series 7000 precision press brake is a compact machine that offers a high quality, efficient solution for the production of small bent parts up to 40 in. (1,016 mm).

Typical applications include sheet metal parts used in the production of vending machines and electrical equipment as well as

in the telecommunications and aerospace industries. Bending such parts with large, heavy press brakes is typically inefficient because of the space and energy requirements involved.

A feature of the TruBend Series 7000 includes the ability to increase its bending speed simply by making adjustments to the machine parts relevant to the bending process: the back gauge and the beam.

The back gauge is made with lightweight carbon fiber, and the surfaces on which the bent part contacts the fingers of the back gauge are made of hardened steel. These design features enable the TruBend Series 7000 to set new standards for achieving accurate results.

In addition, the torque motor, which drives the beam, can deliver power even at low speeds. It ensures rapid axis movements and is low maintenance, since it has no gears and, therefore, needs no gear oil.

The TruBend Series 7000 also features enhanced ergonomics. Optimum working conditions and user friendly operating elements are integrated into the machine design. The

operator can control the machine while sitting down and work without becoming fatigued, which helps ensure the quantity and quality of the fabricated parts. Gas spring supported pedals allow the height and angle of the foot rests to be adjusted. The arm support is also adjustable in height, so that every operator can set up his or her workplace individually.

In addition, the monitor for the TASC 6000 control system of the TruBend Series 7000 can be adjusted electronically and set to the appropriate angle.

Optional TRUMPF LED lighting illuminates the area in front of and behind the beam, ensuring correct lighting conditions precisely at the bend, without heat radiation. A laser diode also projects the bend line onto the surface of the sheet metal, simplifying the accuracy of guiding the workpiece into the back gauge.

www.us.trumpf.com



Pipe Saddle and Hole Cutters from Jesse Engineering



Cuts miters, Y, T & K joints up to 36" diameter.



www.JesseEngineering.com | p. 253/922-7433 | f.253/922-2536
Represented exclusively in Canada by MAG Tool | p. 800/661-9983

Jesse Engineering manufactures pipe benders, pipe shop equipment and PipeShop® software, in Tacoma, WA - USA