STRUCTURAL STEEL FABRICATION SYSTEM
"We’ve been able to pass along to our customers the savings of reduced time in the shop, so we’re getting more jobs because we’ve been able to reduce our operating costs."

- Bob Reiman, Anderson Steel
Great Falls, MT, USA

In Structural Steel Fabrication, the **Lowest Cost Per Ton Producer** usually wins.

But if you pay about the same as your competitor for steel and labor, how do you get the lowest cost per ton?

**You Get Lean.** *PythonX™* is the lean machine that lets you do more with less:

- Less Time per Piece
- Less Material Handling
- Less Inventory
- Less Waiting
- Less Waste
- Less Space
- Less Overhead
- Less Programming
- Less Errors
- Less Scrap
15 YEARS OF EXPERIENCE & OVER 300 MACHINES IN SERVICE WORLDWIDE

PythonX is the robotic CNC plasma cutting system that has revolutionized structural steel fabrication. More than a machine, PythonX has created a NEW STANDARD in the way you think about running a fabrication shop.

Compared to traditional machines, PythonX:
» Uses just a fraction of the floorspace
» Needs only a fraction of processing time
» Requires only One Operator and No Programming
» Offers complete fabricating capability for a fraction of the price

PythonX users are processing steel at the lowest cost per ton in the following Industries:
» Buildings
» Oil and Gas
» Industrial
» Mining
» Off Shore Rigs
» Pipe Racks
» Transmission
» Towers
» Stadiums
» Elevators
» Trailers
» Shipbuilding
» Bridges
» Equipment
» Manufacturers

HOW LONG TO FABRICATE THIS BEAM IN YOUR SHOP?

4 MINUTES 26 SECONDS

Total time it took PythonX to make all these features, start to finish, with unmatched location accuracy.

How does traditional fabrication compare?
Not too well. Considering time needed for reading the drawing, measuring/marking the piece, and actually making the cuts, this same beam took 89 minutes in a shop using a combination CNC drill line/bandsaw unit and manual coping/torching. It took two hours in an all-manual shop. And in those cases, time to move the beam between operations wasn’t counted in the total.

The chart on the left shows where time was consumed. Or, with PythonX, where it was saved.
1. MEASURING CART

The measuring cart relays the exact position of the work piece to the robot.

- Precision machined rollers with no flat spots for ultimate accuracy.
- 4in (101.6mm) diameter on heavy duty welded frames.
- Built to last with oversized 7.5hp motors, compared to most others using 2.0hp.
- Superior accuracy and measurement compared to pinch roll systems, which can slip.
- Initially measures and displays the full length of the beam, which is not possible on pinch roll systems.

PythonX is the only Structural Fabrication machine that has a written guarantee of 1mm accuracy over 12m or about 1/32in over 40ft.

2. INFEED/OUTFEED CONVEYORS

Infeed/Outfeed conveyors are designed for the most accurate and reliable feed of material to the cutting area.

- Attachable to any Length, Width, or Height of machine.
- Opens up the ability to cut different sizes of material.
- Designed to accommodate different lengths of cut material.
- Ideal for difficult or hard-to-reach areas.

3. HIGH DEFINITION TORCH

High Definition Plasma technology aligns and focuses the plasma arc, improving arc stability and energy for more powerful precision cutting.

- Tuned twice for absolute best in class accuracy and least cut-path following error.
- PATENTED hole taper compensation and advanced bevel tuning.
- Complete with collision detection.
- Stronger with a higher payload, further reducing vibration and sway.

4. MULTI-AXIS ROBOTIC ARM

Multi-axis robotic arm provides precise control and positioning for cutting and material handling.

- Complete with collision detection.
- Complete with a high-speed, high-resolution vision system.
- Updated with state-of-the-art technology.
- Stronger with a higher payload.

5. NEW! OPERATOR CONTROL SYSTEM

Versafab Studio is the most advanced robotic plasma cutting software ever with over 15 years in development.

- Touchscreen industrial PC.
- Networked.
- Upgradeable.
- Reduces material handling, increases output.
- Heavy duty motor and gear reducer controlled by a variable frequency drive.
- Separate Operator Station.

6. CROSS TRANSFERS

A single PythonX™ machine replaces all traditional equipment:

- Beam Drill Line
- Angle Line
- Bandsaw
- Plate/Bar Line
- Coping Machine/Torch
- Marking Machine/Torch

New features and capabilities let you get more done, more quickly and easily.

- 24in (60.96 cm) HMI with ergonomic/industrial designed handles that allow ease of movement into optimum positions for any Operator.
- Intuitive touch screen.

Accumulate and transfer material for Infeed and Outfeed conveyors (optional feature).

- Reduces material handling, increases output.
- Heavy duty motor and gear reducer controlled by a variable frequency drive.
- Separate Operator Station.
“Python has made us more competitive. We are able to take on larger projects with a reduced margin of error. And because errors are costly, that has increased our margins on structural projects.”

- Paul David Stehl, Stehl Corporation
Phoenix, AZ, USA

**PART LENGTH:**
A standard system accommodates 40ft (12m) lengths. Can increase up to 80ft (24m) by increments of 4ft (1.2m) at a time.

**MATERIAL THICKNESS:**
Max pierce thickness is 1.5in (38mm);
Edge start max thickness is 2in (51mm),
Upgrade Available: 2in (50mm) pierce, 3in (75mm) edge

**OTHER MATERIALS:**
Bolt, Feather, Strip Plate, Aluminum, Stainless

### MATERIAL CAPACITY

<table>
<thead>
<tr>
<th>Beam</th>
<th>Minimum Capacity</th>
<th>Maximum Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width (in)</td>
<td>Height (in)</td>
</tr>
<tr>
<td>Beam</td>
<td>4 (101)</td>
<td>8 (203)</td>
</tr>
<tr>
<td>Channel</td>
<td>3 (76)</td>
<td>3 (76)</td>
</tr>
<tr>
<td>HSS Tube</td>
<td>2 (51)</td>
<td>2 (51)</td>
</tr>
<tr>
<td>Angle</td>
<td>2 (51)</td>
<td>2 (51)</td>
</tr>
</tbody>
</table>

### CUTTING CAPABILITIES

- **HOLE REFERENCING**
- **PART CUT TO LENGTH**
- **STEM CHAMFER**
- **DEEP CUPS**
- **WELD PREP BEVEL ANGLES**
- **PART MARKING/SCRIBING**
- **BEAM SPLIT**
- **TAPERLESS**
- **NEARLY TAPERLESS**
- **STRUCTURAL BOLT HOLES**
- **HOLE CUTTING**
- **FLUSH CUT**
- **SHALLOW COPE**
- **DEEP COPES**
- **MITER CUTS**
- **COMPOUND ANGLES**
- **4 SIDE TUBE CUTTING**
- **MITS**
- **FLUTE FOR THE STRUCTURAL CONNECTIONS**
- **STAIR STRINGER SLOTS FOR BRACING CONNECTIONS**
- **STAIR STRINGER SLOTS FOR BOLTED CONNECTIONS**
- **FLUSH WELD ACCESS HOLES/RAT HOLES**
- **SHALLOW BLOCK COPE CUT**
- **DEEP BLOCK COPE CUT**
- **MITER CUTS**
- **COMPACT ANGLES**
- **COMPOUND ANGLES**
- **4 SIDE TUBE CUTTING**
- **HOLE CUT TO WIDTH**
- **BOLT HOLES**
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- **COMPACT ANGLES**
- **COMPOUND ANGLES**
- **4 SIDE TUBE CUTTING**
- **HOLE CUTF
1. **ONE PIECE WELDED BOX FRAME**
   Heavy, strong and designed to be extremely rigid. The uni-body welded frame provides the most stable vibration free foundation for the cutting system.

2. **FIXED STATIONARY ROBOT BASE**
   A fixed non-moving base welded to the box frame lets the PythonX use only the robot motion to perform cutting. There are no additional axes of motion which add vibration, backlash and sway leading to poor cut quality.

3. **UNDERSIDE CUTTING**
   The underside cuts are performed in a separate zone where no scrap pieces fall and no crash can occur.

4. **CUTS AND SEVER**
   All sever operations occur in this zone, which allows ample room for endcuts and scrap to accumulate without having to worry about crashes since no underside cutting is performed here.

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**BEST IN CLASS CUT QUALITY AND ACCURACY**

Poor hole quality and cut finish can lead to failed inspections, lost jobs and a damaged reputation. Due to its stable, stationary base the PythonX pioneered robotic plasma hole technology and has been producing the undisputed **best bolt holes** and cuts in the industry for many years. The bolt holes have been lab tested and AISC compliant.

**BEST BOLT HOLES**

PythonX automatically tilts the cutting torch using a patented process resulting in a perfectly straight through hole that is NEARLY TAPERLESS.

**SLOTS**

PythonX cuts slots and other shapes to the exact specified dimensions allowing for perfect fitup.

**COPES**

Copes are produced with a mirror like finish and a smooth corner radius on the PythonX. No touch-up is required.

**NOTCHES**

Notches, cutouts and flush cuts are smooth and do not require additional grinding or shaping. A perfect fitup also results in less welding.
After years of field testing, the PythonX Structural Steel Fabrication System is faster, more accurate and more reliable, further strengthening it as the #1 choice with structural steel fabricators.

1. 4-SIDE TUBE CUTTING WITH BEVEL/MITER
With one stationary robotic arm the machine cuts the underside of square or rectangular tubes and processes all 4 sides in 1 error free pass. The first and only robotic plasma to achieve 4-side cutting without mounting the robot on a moving or rotational base, which greatly sacrifices cut quality.

2. PART TABLING
Part tabbing allows for shorter structural steel parts to remain attached to the main beam for easier handling and storage. The type of tab and tab length is programmable by the operator.

3. SHORTER PIECE TRANSFER
Advanced software combined with closer roller spacing allows for short parts to be transferred from the cutting area after a cut to length operation.

4. LARGER WORK ENVELOPE
Expanded robot cutting area allows for more features to be cut at once, reducing material indexing, leading to even lower total time per piece.

Patented Bolt Hole Process
PythonX tilts the torch, instantaneously changes speeds and uses sophisticated software to produce straight through holes that are NEARLY TAPERLESS.

ONLY AVAILABLE WITH PYTHONX
OPEN A PART FILE

The PythonX is capable of reading DSTV files from 3D detailing software such as TEKLA, SDS2, AceCAD, ProSTEEL and others. 2D DXF AutoCAD files can also be read by the PythonX.

PRESS START

The PythonX takes it from here by identifying all the features and dimensions required and generates the cut sequence. The pieces are probed to determine exact position and the robot automatically adjusts to the exact dimensions. After completion, the part is shuttled out on the outfeed conveyor for transfer to fitup, welding and painting.

LOAD THE WORKPIECE

Load piece on the infeed conveyor. The measuring cart shuttles the work piece into the work envelope, measures and displays the length of the piece on the operator screen.

A new standard for what is already the world’s most advanced structural steel fabrication system. It makes PythonX better than before. It makes PythonX more capable than ever. And now it opens up amazing possibilities for your structural steel fabrication business. PythonX is the most PROFITABLE, powerful, productive and time saving equipment that you will ever own.

FEATURES

- 24in (60.96 cm) Operator Control System with ergonomic/industrial designed handles that allow ease of movement into optimum positions for any Operator
- 3D Part visualization with our NEW intuitive touch screen
- Rotate, zoom in and out of cut features with the touch of your fingers
- Tool Path Simulations further enhancing our collision avoidance portfolio
- Consumable Arc and Start Display and Monitoring that helps to ensure optimum cut quality
- Production Queue display that shows a Production Run in sequence
- Production Reporting
- Laser Measuring
- Regularly scheduled release of software enhancements and NEW innovations

New features and capabilities let you get more done, more quickly and easily, making the PythonX phenomenally powerful. Now more than ever, PythonX is the single most important PROFIT CENTER for any Fabricator.
### Machine Capability Comparisons

<table>
<thead>
<tr>
<th>Machine Capability</th>
<th>Single Spindle Beam Drill Line</th>
<th>Three Spindle Beam Drill Line with Band Saw</th>
<th>PythonX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produces Quality Bolt Holes (Approved for Structural Joints)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Maximum Hole Diameter</td>
<td>2 in (50mm)</td>
<td>2 in (50mm)</td>
<td>24 in (609mm)</td>
</tr>
<tr>
<td>Produce Layout Marks for Clips &amp; Stiffeners</td>
<td>LIMITED</td>
<td>LIMITED</td>
<td>YES</td>
</tr>
<tr>
<td>Downloads from Design / Detailing Software (TEKLA, SDS/2, StruCAD, ProSTEEL, AUTOCAD)</td>
<td>YES</td>
<td>YES</td>
<td>ANY SHAPE</td>
</tr>
<tr>
<td>Time to Cut-to-Length one W24 x100</td>
<td>INCAPABLE</td>
<td>5 MINUTES</td>
<td>1 MIN 15 SEC</td>
</tr>
<tr>
<td>Automatic Part Handling (set it and forget it)</td>
<td>FLIP MANUALLY</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Cut Copes with CNC Accuracy</td>
<td>INCAPABLE</td>
<td>INCAPABLE</td>
<td>YES</td>
</tr>
<tr>
<td>Make Cutouts for Bracing &amp; Knife Connections</td>
<td>INCAPABLE</td>
<td>INCAPABLE</td>
<td>YES</td>
</tr>
<tr>
<td>Text Scribing (any size)</td>
<td>INCAPABLE</td>
<td>INCAPABLE</td>
<td>YES</td>
</tr>
<tr>
<td>Fabricate Complete Stair Stringers (including Tread Layout)</td>
<td>INCAPABLE</td>
<td>INCAPABLE</td>
<td>YES</td>
</tr>
<tr>
<td>Miter Cut</td>
<td>INCAPABLE</td>
<td>COSTLY OPTION</td>
<td>YES</td>
</tr>
<tr>
<td>Cut Slots &amp; Any Other Shapes</td>
<td>INCAPABLE</td>
<td>INCAPABLE</td>
<td>YES</td>
</tr>
<tr>
<td>Weld Prep Bevel Cut</td>
<td>INCAPABLE</td>
<td>INCAPABLE</td>
<td>YES</td>
</tr>
<tr>
<td>Rip I-Beams into T-Beams</td>
<td>INCAPABLE</td>
<td>INCAPABLE</td>
<td>YES</td>
</tr>
<tr>
<td>Tool Change Required</td>
<td>YES</td>
<td>YES</td>
<td>NEVER</td>
</tr>
<tr>
<td>Overall Production Output</td>
<td>SLOW</td>
<td>AVERAGE</td>
<td>FASTEST</td>
</tr>
<tr>
<td>Price</td>
<td>LOWEST</td>
<td>HIGHEST</td>
<td>MID RANGE</td>
</tr>
</tbody>
</table>
4 WEEKS DELIVERY
Machine starts paying for itself 4 to 6 months sooner than others; Results in the fastest return on investment (ROI).

<table>
<thead>
<tr>
<th>Machine</th>
<th>Setup</th>
<th>Build</th>
<th>Installation</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>PythonX</td>
<td>1 WEEK</td>
<td>4 WEEKS</td>
<td>1 WEEK</td>
<td>4 WEEKS</td>
</tr>
<tr>
<td>Other #1</td>
<td>16 WEEKS</td>
<td>4 WEEKS</td>
<td>1 WEEK</td>
<td>4 WEEKS</td>
</tr>
<tr>
<td>Other #2</td>
<td>25 WEEKS</td>
<td>4 WEEKS</td>
<td>1 WEEK</td>
<td>4 WEEKS</td>
</tr>
<tr>
<td>Other #3</td>
<td>4 WEEKS</td>
<td>4 WEEKS</td>
<td>1 WEEK</td>
<td>4 WEEKS</td>
</tr>
</tbody>
</table>

SERVICE COMMITMENT
Our expert trained technicians are committed to helping you by providing:
- A single focus and dedication to the only system that we build, the PythonX
- 24/7 access to support specialists
- Remote access control with online diagnostics
- Advanced troubleshooting techniques and procedures
- Sophisticated Service Tracking system and logging
BURLINGTON AUTOMATION

Burlington Automation, a Lincoln Electric Company, is focused on applying LEAN Manufacturing and Automation Principles to structural steel industries through the implementation of the PythonX Structural Fabrication System. The drive to improve the capabilities of our clients, to ensure they are better than their competitors, is a passion our employees embrace every day. We are dedicated to making our clients as good as they can be, better tomorrow than today, by committing to continued Research and Development, providing value added industry leading upgrades as well as real-time & interactive remote support on the PythonX system.

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers’ particular purpose is specifically disclaimed.

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