

PYTHONX STRUCTURAL

Understanding Drives Solutions



INDUSTRY CHALLENGES

The structural steel fabrication industry continues to evolve in response to global economic shifts, technological advancements, and changing workforce dynamics. Fabricators are adapting to a complex landscape that presents both opportunities and obstacles.

Steel fabricators are encountering a variety of challenges worldwide. These include fluctuating steel prices driven by trade tensions and changes in market demand, labor shortages, stricter environmental regulations, and growing competition from alternative materials. Keeping pace with technological progress often requires significant investment in new equipment and workforce training.

Among these challenges, the shortage of skilled labor stands out as particularly impactful. It can lead to delays in project completion and increased operational costs. As a result, many fabricators are exploring training programs to build and retain a qualified workforce. Addressing this issue is essential for meeting customer expectations and maintaining a competitive edge in the market.



LABOUR
SHORTAGES



TIME/COST
INTENSIVE



QUALITY
CONTROL



HEALTH AND
SAFETY ISSUES



OUR SOLUTION

The PythonX® STRUCTURAL cutting system was developed with the needs of structural steel fabricators in mind. It offers a range of features designed to address common production challenges. Below are several ways the system can support fabrication workflows:

The PythonX STRUCTURAL system incorporates material conveyance and automated cutting, which can help accelerate project timelines. By using advanced software and sensors, the system supports high precision and aims to minimize errors and rework. It is designed to operate with a single operator, which may reduce the need for manual labor and associated costs. Faster project completion has the potential to enhance customer satisfaction and contribute to business growth. Additionally, the system is capable of fabricating a wide range of steel profiles and shapes, offering flexibility for steel fabricators to take on a broader variety of projects."



SAVE
VALUABLE TIME



ONE-PERSON JOB



REDUCE
ERRORS



REDUCE LABOR COSTS



The system is designed to deliver consistent cut quality and support efficient operation. These features aim to help meet production goals and maintain high standards throughout the process.

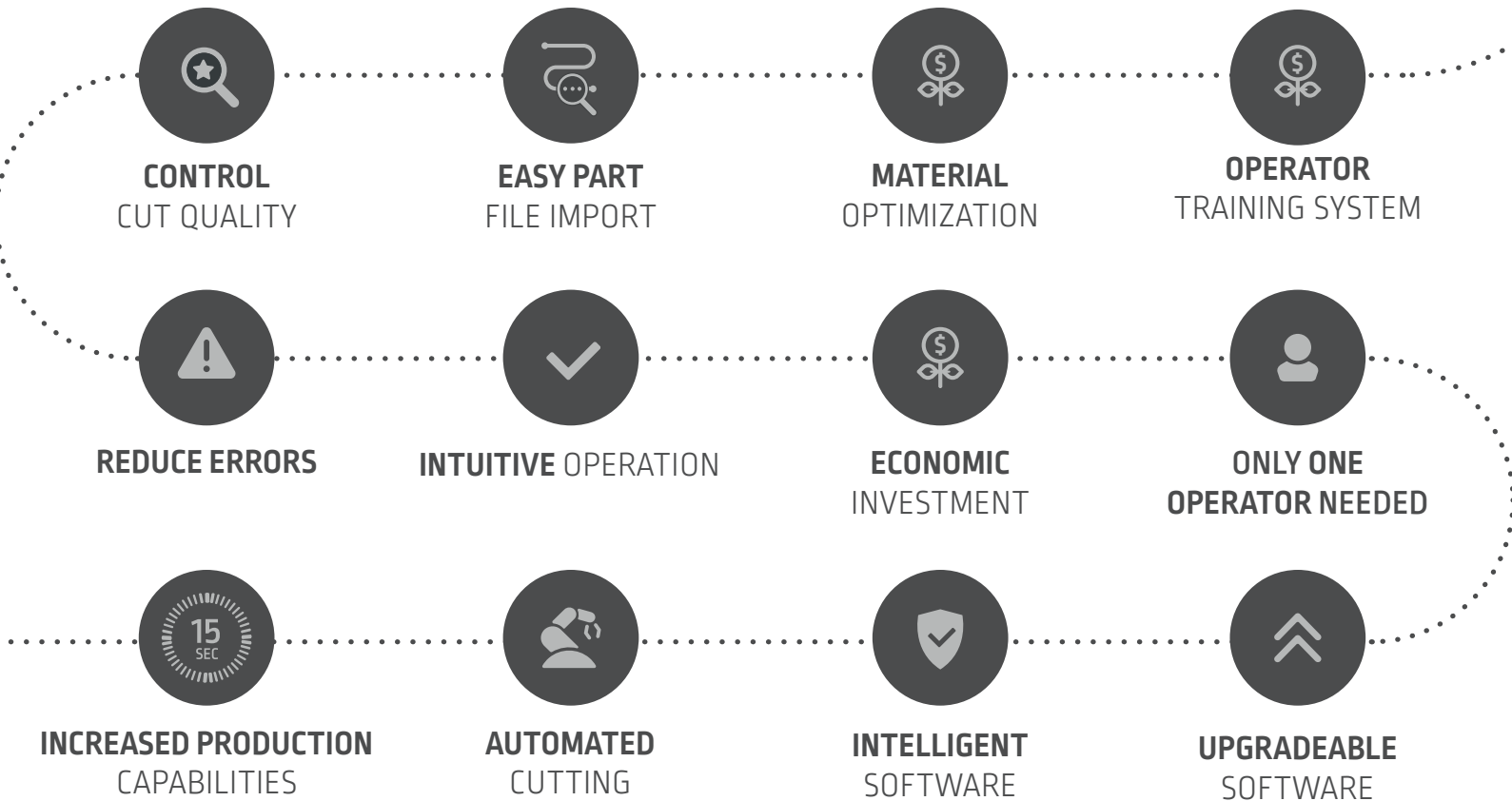
ROBOTIC STEEL FABRICATION

The PythonX STRUCTURAL system is engineered to support steel fabricators in enhancing speed, automation, and operational efficiency. It incorporates advanced technology to help optimize material usage and reduce waste. Designed with current industry challenges in mind such as labor shortages and production demands, the system enables precision cutting and streamlined throughput. With its ability to handle a wide range of fabrication tasks, the system offers a practical solution for improving workflow and expanding project capacity.

 LEFT-TO-RIGHT SYSTEM

CAN I HAVE A LOOK AT THE PYTHONX STRUCTURAL SYSTEM IN LIVE ACTION? **YES**

Schedule an on-site demo with our sales team or take a virtual tour at lered.info/Virtual.



 15+ YEARS OF EXPERIENCE & OVER 700+ MACHINES IN SERVICE WORLDWIDE

OPERATION PROCESS



FABRICATION SYSTEM

THE ULTIMATE SOLUTION FOR PRECISION AND EFFICIENCY

3

MEASURE MATERIAL

Effortlessly measure material with precision right from the operator station: Watch as our system accurately measures within 1/32 in. (0.8 mm) on a 40ft (12 m) piece of structural steel.

4

INFEEED CONVEYANCE

Move material into the cell for processing with the touch of a button.

2

LOAD MATERIAL

Line up your production by loading raw materials onto the heavy duty cross transfers.

1

IMPORT THE JOB

Quickly import part files into the VersaFab™ Studio software and view your parts in 3D.

5

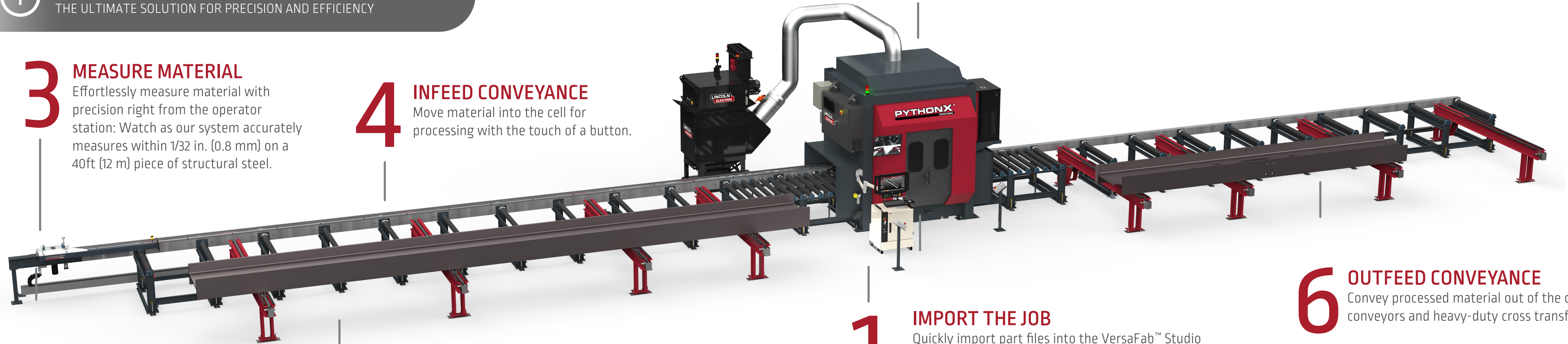
ROBOTIC PLASMA CUTTING

The system automatically processes the material using industry-leading robotic plasma cutting system.

6

OUTFEED CONVEYANCE

Convey processed material out of the cell using conveyors and heavy-duty cross transfers.



ADVANCED SOFTWARE



POWERFUL CONTROLS | ROBUST DESIGN

VersaFab Studio software gives your operator full control of material handling, job processing, reporting & machine maintenance.

Organize jobs and optimize resources using a detailed operation display.

3D PART VIEWING

- 3D & 2D PART VIEWING
- USER INTERACTIVE
- CUSTOMIZED MENUS



DIRECT IMPORT OF FILES

Use various file types, including .stp, .dxf, .dwg, .dstv, and .dstv+.

**Files require conversion for machine to read correctly.*

1

FEATURE-RICH ABILITIES

Precise and fast software equips your operator to add holes & hole patterns, cut copes, bevels, pop marks and weld preparation features.

2

CONTINUOUS EVOLUTION

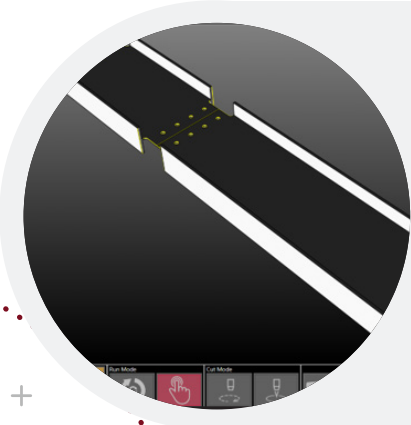
Stay up-to-date with software upgrades that give you access to the latest technology and innovation.

3

OPERATOR TRAINING

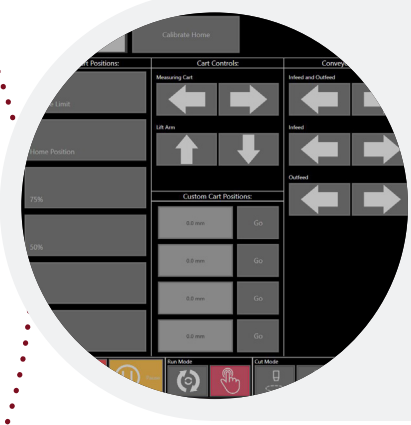
Get 24/7 access to our online training platform. It hosts 30+ hours of training content to help make your team experts in the field.

VERSAFAB STUDIO



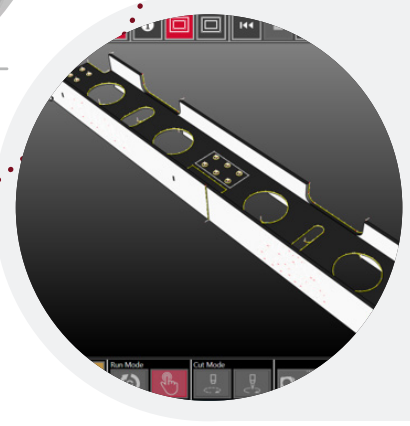
3D-INTUITIVE INTERFACE

New and improved touch screen includes a widescreen display 3D viewing and standardized UI across all Lincoln Electric platforms.



MACHINE CONTROL

Organize jobs and optimize resources using a detailed operation display. Control conveyors, measure & cut.



PART OPTIMIZATION

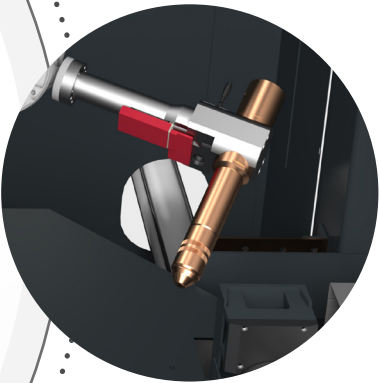
Material optimization through nesting means less scrap material, saving your business time & money.

PLASMA CUTTING PRECISION AND POWER



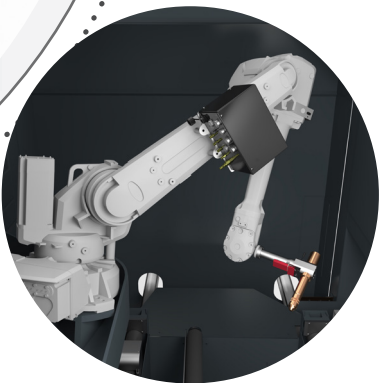
FINELINE™ 300HD PLASMA POWER SOURCE

Engineered for exceptional cut quality and consistency, the system delivers outstanding reliability and productivity. With a piercing capability of 1.75 inches [44.5 mm] on mild steel, an advanced inverter design, and Lincoln Electric's proprietary FlexTec™ technology, it's built to perform. Manufactured in North America and backed by an industry-leading warranty, this system ensures precision and durability for demanding cutting applications.



MAGNUM® PRO LC300M TORCH

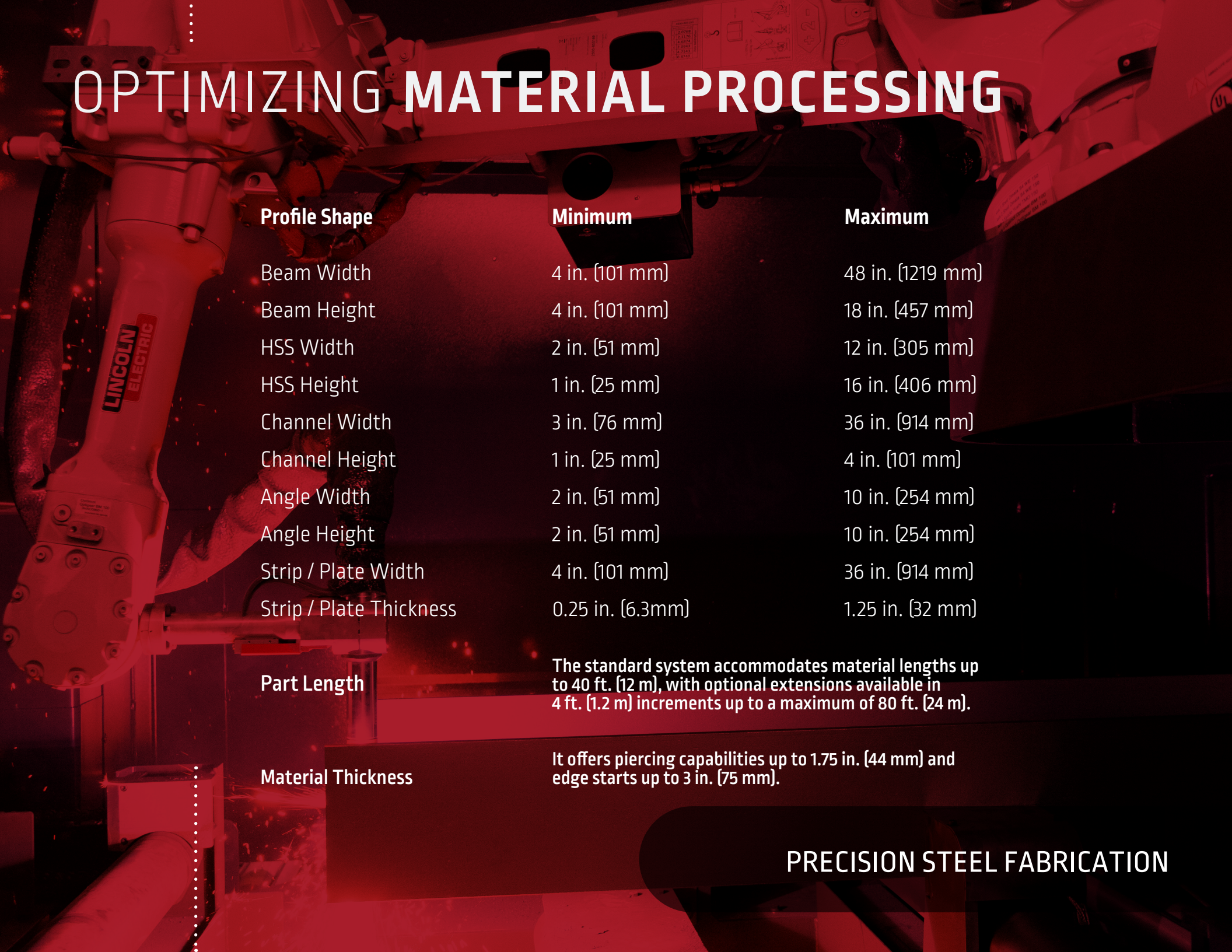
This high-definition plasma torch focuses and stabilizes the arc for cleaner, more precise cuts. It features automatic gas and kerf control, patented taper compensation, and bevel tuning, all in the industry's smallest 300-amp torch at just 1.5 in. [38 mm].



MULTI-AXIS ROBOTIC ARM

The ABB® robotic arm delivers precision with multi-axis control and dual calibration for top-tier accuracy and minimal cut-path error. Its high payload capacity reduces vibration and sway, ensuring stable, high-performance fabrication.

OPTIMIZING MATERIAL PROCESSING



Profile Shape

Minimum

Maximum

Beam Width

4 in. [101 mm]

48 in. [1219 mm]

Beam Height

4 in. [101 mm]

18 in. [457 mm]

HSS Width

2 in. [51 mm]

12 in. [305 mm]

HSS Height

1 in. [25 mm]

16 in. [406 mm]

Channel Width

3 in. [76 mm]

36 in. [914 mm]

Channel Height

1 in. [25 mm]

4 in. [101 mm]

Angle Width

2 in. [51 mm]

10 in. [254 mm]

Angle Height

2 in. [51 mm]

10 in. [254 mm]

Strip / Plate Width

4 in. [101 mm]

36 in. [914 mm]

Strip / Plate Thickness

0.25 in. [6.3mm]

1.25 in. [32 mm]

Part Length

The standard system accommodates material lengths up to 40 ft. [12 m], with optional extensions available in 4 ft. [1.2 m] increments up to a maximum of 80 ft. [24 m].

Material Thickness

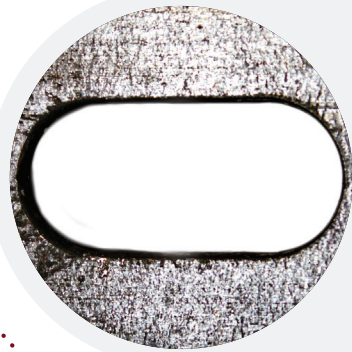
It offers piercing capabilities up to 1.75 in. [44 mm] and edge starts up to 3 in. [75 mm].

PRECISION STEEL FABRICATION

CUT QUALITY FOR SUPERIOR RESULTS

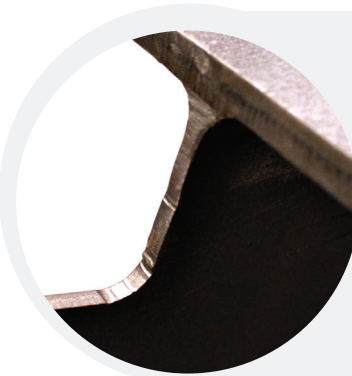
BOLT HOLES

Designed to support bolt hole quality and reduce operator intervention. Plasma-cut holes are suitable for a wide range of load applications, including static, cyclic, and seismic conditions.



SLOTS

The PythonX Structural system cuts slots and other shapes to the exact specified dimensions allowing for accurate fit-up.



COPES

Copes are produced with a smooth corner radius, minimizing the need for touch-up and supporting clean, consistent fabrication.



NOTCHES

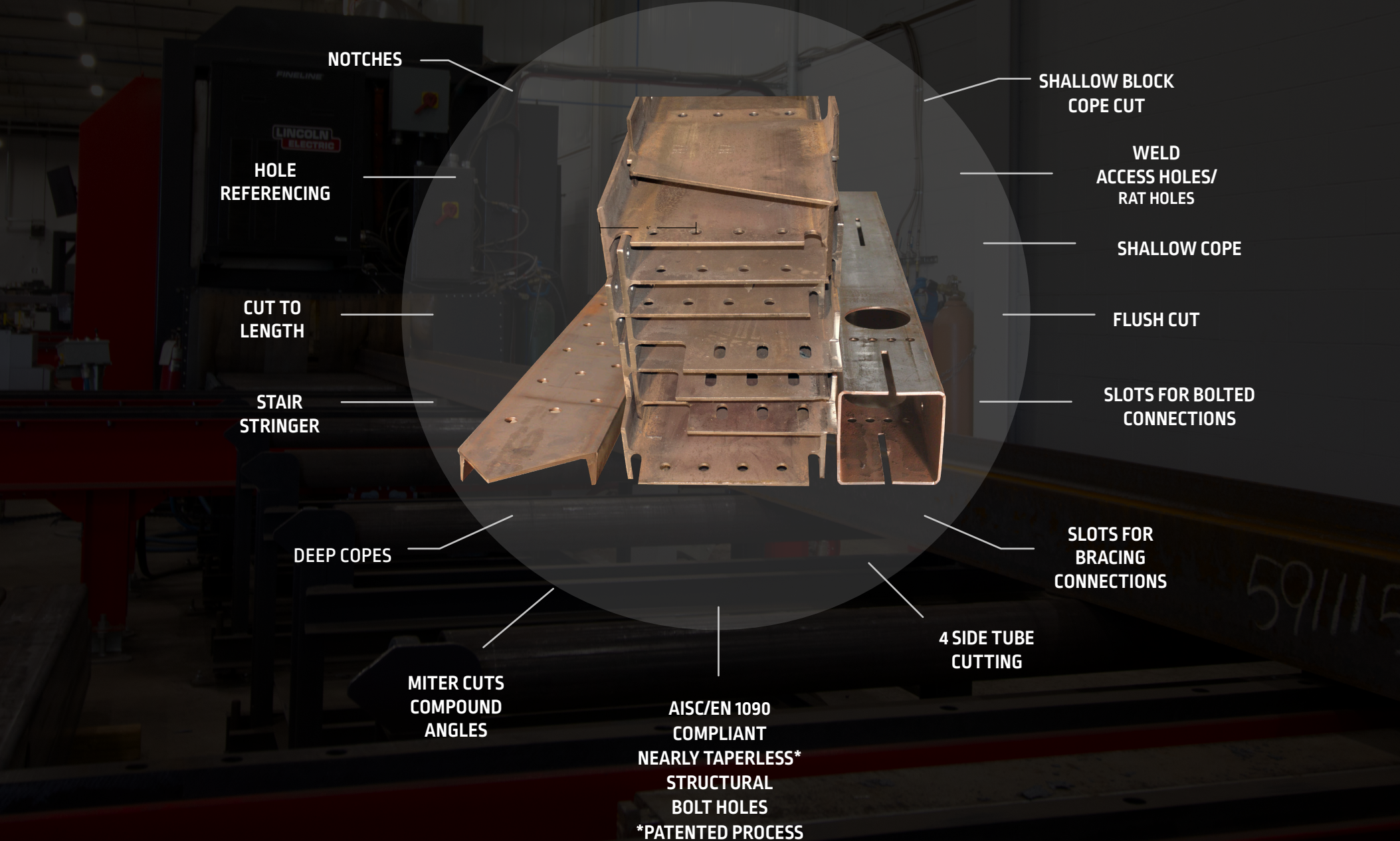
Notches, cutouts, and flush cuts are smooth and do not require additional grinding or shaping. A perfect fit-up also results in less welding.



For more tips on cut quality, refer to the Lincoln Electric plasma cutting guide.



CUTTING CAPABILITIES

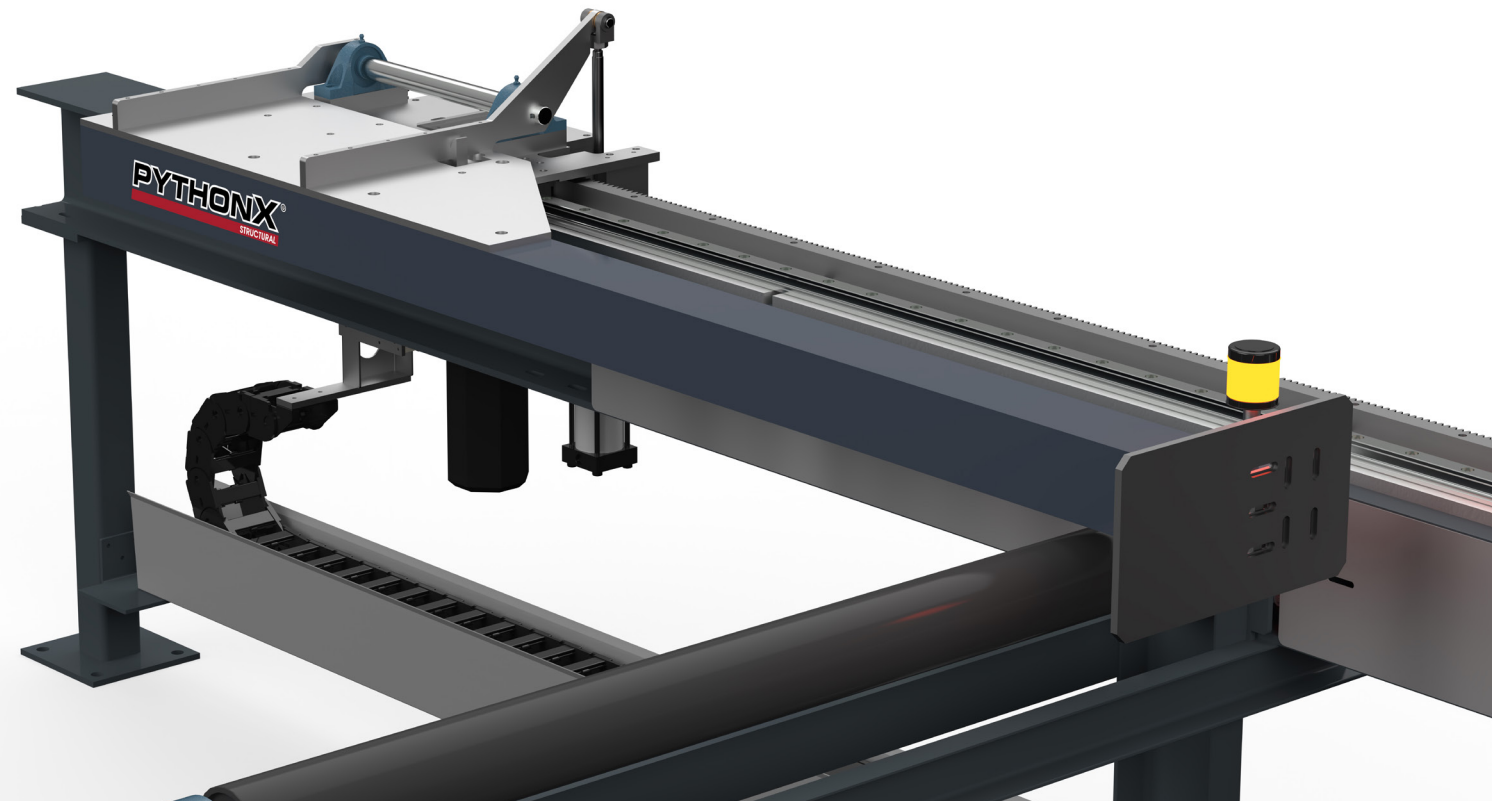


MATERIAL CONVEYANCE STREAMLINE YOUR WORKFLOW

MEASURING CART

Measure with precision with a standard measuring cart and remove any human error. Capable of measuring to 1/32 in. over a 40 ft. (12.2 m) span of material.

Measuring can be achieved at a press of a button through the HMI and will provide an exact length of the material.



CONVEYORS

Constructed from structural steel and powered by a 7.5 HP motor, the frame supports reliable conveyance of a wide range of materials.

- Weight Capacity: 300 lb. per ft.
- Rollers: 4 in. (101.6 mm) diameter
- Width Capacity: 48 in. (1.2 m)
- Pass Height: 35 in. (889 mm) standard
- Infeed: 40 ft. (12 m) standard
- Outfeed: 40 ft. (12 m) standard
- Customizable lengths in 4 ft. (12 m) increments



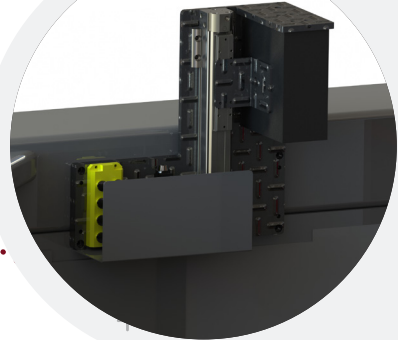
CROSS TRANSFER

Manage material flow with a heavy-duty transfer system, available in drag or lift-and-carry configurations. Includes operator stations at both the infeed and outfeed ends for streamlined control.

- Weight Capacity: 19,500 lb. per strand
- Conveyance Capacity: 5,200 lb. per strand
- Standard Length: 13 ft. 3 in. (4 m)
- Optional Lengths: 20 ft., 25 ft., 30 ft. (6.1 m, 7.7 m, 9.1 m)
- Upgrade to double cross transfer for short part conveyance



KEY FEATURES



AUTOCAL

The system calibrates the tool center point to help maintain cutting accuracy and quality. Operators can easily perform the calibration using the HMI (Human-Machine Interface).



DUST COLLECTOR

The Prism® Compact dust extraction system is designed to help reduce noise and lower operating costs. It also supports improved workplace safety and contributes to cleaner, more efficient operations.



CAMERAS

A multi-camera setup allows operators to view and monitor both the cutting process and material conveyance directly from the operator station.

PRISM COMPACT AIR FILTRATION SYSTEM

The Prism Compact fume system from Lincoln Electric features advanced fan control technology that helps optimize fume extraction, reduce energy consumption, and extend equipment life.

QUIET OPERATION

Silencers and sound-dampening materials significantly reduce airflow noise. A variable speed drive adjusts extraction airflow to match the application, supporting quieter and more efficient performance.

ADDED SAFETY

Includes an integrated spark arrestor and an optional Prism Thermal Suppression System to support enhanced safety during operation.

COMPACT SIZE

Reduced-height option allows placement in areas with space constraints. The system can be positioned directly beside a cutting table or robotic cell for convenient integration.

SIMPLE MAINTENANCE

An automatic cleaning cycle is triggered once a pre-set pressure differential is reached. Collected particulate is deposited into a 25-gallon dust bin for easy disposal.

EASY INSTALLATION

Crane-less assembly, Lincoln Electric Smart Connect™ technology for quick and seamless wire connectivity to the robot. Connect power, compressed air, and duct sensor for fan speed control.

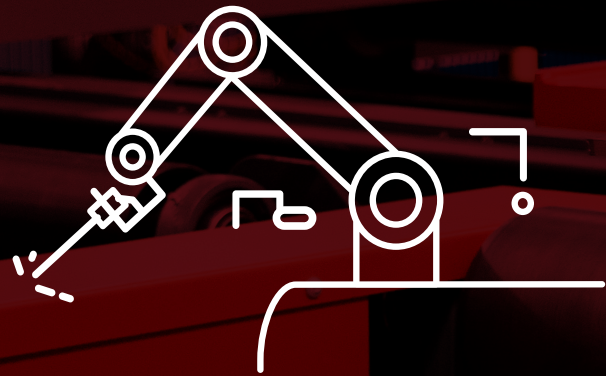
PYTHONX ACADEMY ONLINE TRAINING SYSTEM

Save your business time and money with PythonX Academy,
an in-depth training series for operator mastery.



SERVICE & SUPPORT

Our team is available to provide support throughout the process.
This includes assistance with on-site installation, training for your operators,
and access to technical support. These services are intended to help facilitate
the integration of the PythonX STRUCTURAL system into your operations.



ONLINE TRAINING SYSTEM EXPERT OPERATORS

- ✓ 24/7 access to over 50+ training videos
- ✓ Enhance operator confidence and skill
- ✓ In-depth system training guided by our team of experts
- ✓ Easily assign and track course completion

ALWAYS **HERE FOR YOU.** 24/7 TECH SUPPORT TO KEEP YOUR SYSTEM RUNNING SMOOTHLY.



- ✓ 24/7 remote support
- ✓ Fully-trained field service engineers
- ✓ Fast spare parts fulfillment
- ✓ On-site visits



Warranty

Our standard 3-year warranty
protects your investment with
comprehensive coverage



Shipping & Delivery

Get your system sooner: Sign your
layout and pay your deposit to start
the 4-week countdown to delivery!



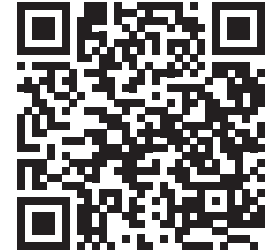
Installation Team

Effortless Installation: Our expert team
arranges and supervises the process,
typically completed in just five days.

TRUSTED AROUND THE GLOBE 700+ PYTHONX SYSTEMS IN OPERATION



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About Lincoln Electric

Lincoln Electric is the world leader in the engineering, design, and manufacturing of advanced arc welding solutions, automated joining, assembly and cutting systems, plasma and oxy-fuel cutting equipment, and has a leading global position in brazing and soldering alloys. Lincoln is recognized as the Welding Expert™ for its leading materials science, software development, automation engineering, and application expertise, which advance customers' fabrication capabilities to help them build a better world. Headquartered in Cleveland, Ohio, Lincoln operates 71 manufacturing and automation system integration locations across 21 countries and maintains a worldwide network of distributors and sales offices serving customers in over 160 countries. For more information about Lincoln Electric and its products and services, visit the Company's website at <https://www.lincolnelectric.com>.

Customer Assistance Policy

The business of Lincoln Electric is manufacturing and selling high quality welding equipment, automated welding systems, consumables, and cutting equipment. Our challenge is to meet the needs of our customers, who are experts in their fields, and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or technical information about their use of our products. Our employees respond to inquiries to the best of their ability based on information and specifications 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, or to provide engineering advice in relation to a specific situation or application. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or communications. Moreover, the provision of such information or technical information does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or technical information, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose or any other equivalent or similar warranty is specifically disclaimed.

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