

Cutting Solutions

LASER CUTTING



India's First Registered Laser Machine Manufacturer



Standard Bed Sizes

SIL STAR - 3015

3000 x 1500 mm
120 x 60 inch

SIL STAR - 4020

4000 x 2000 mm
160 x 80 inch

SIL STAR - 6525

6500 x 2500 mm
260 x 100 inch

Introduction

SIL STAR is a high performance Laser Cutting System designed for precision and productivity. With laser power ranging from 10kW to 40kW and bed sizes of 3m x 1.5m, 4m x 2m, and 6.5m x 2.5m, the SIL STAR is a versatile solution for diverse manufacturing needs. Adhering to German standards, the machine upholds rigorous safety benchmarks, securing CE and ANSI B11.21 certifications, and is constructed in alignment with IP-64 standards. Developed as a new generation laser cutting system, the machine is the result of extensive experience gained from installing over 1000 high-power laser systems. It offers a remarkable 5X increase in part production compared to standard versions, smartly configured with ancillary parts adhering to Industry 4.0 standards.

The advanced CNC, equipped with powerful drives and motors, ensures high-speed communication and rapid acceleration. Notable features include enhanced sheet auto-loading and unloading speed, pallet movement speed, and QR code file transfer via cloud, contributing to significantly improved productivity. Advanced features of SIL-STAR provide comprehensive production visibility, machine health monitoring, periodic maintenance alerts, and error notifications, accessible through an optional cloud-based display platform. The SIL STAR excels in cutting quality at high accelerations with improved dynamics. Operation feasibility is simplified with a user-friendly interface, leveraging IoT for real-time monitoring. The machine seamlessly integrates with existing & future automations, options of material handling, and storage systems. It syncs with ERP solutions, stock management streamlining; procurement for multiple materials and thicknesses. Overall SIL-STAR elevates your manufacturing capabilities, where precision meets productivity.

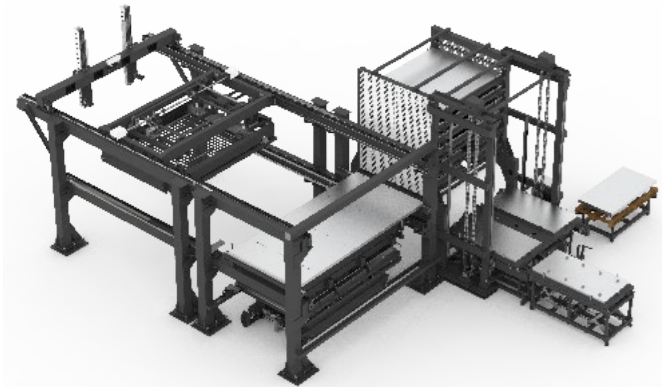
Features

- **IOT Based Communication:** Real-time multiple machine processing data is displayed via cloud based network.
- **Ethercat Communication Protocol:** All instruments used in the system are interfaced by Ethercat protocol enabling easy noise free one cable integration.
- **User Friendly HMI:** Very simple to operate with pre-set parameters with multiple functions.
- **Capacitive Touch Screen:** Highly sensitive HMI, operational will small magnitude of force and with multi-point touch access.
- **Wireless Pendant:** Wireless remote controller pendent with Wi-Fi connectivity for easy operations.
- **Same Level Pallet:** Provide less stroke movement for Z-Axis helps to reduce the cutting cycle time and provides better magnification stability.
- **High Suction Capacity Fume Extractor:** Four bags filters that enables microns scale particles collections and dust filtration.
- **Zone Wise Fume Extraction:** An automated fume extraction as per machine gantry as well as cutting head working position. Small automatic doors will open at the particular point of cutting area to extract harmful gasses and particle dust.
- **QR Code Scanning:** QR code scanning system helps controller to retract right parts and design to be loaded which avoids possible mistakes and errors from machine operator. Production process controlled as per the QR code of the sheet to be processed.
- **Sheet Clamping Mechanism:** It ensures the same position of the sheet while the pallets are exchanged, it helps to referene the position of the sheet in no time.
- **Visual Representation:** Vision Cameras help to monitor the cutting process, pallet exchange and operator console.
- **Lightning Piercing:** Achieves 6X rapid piercing speed. This cutting mode is useful for certain jobs that involve parts with many interior holes, in which the cutting movements are alternated with short empty movements. In these cases, the machining time is considerably reduced, with a subsequent increase in productivity.

Material Handling Automation (Optional)



Autoloading & Unloading with Sorting System



Autoloading & Unloading System

Optimize your laser cutting operations with our advanced sheet management systems for the SIL STAR. These systems are engineered to elevate productivity by minimizing manual interventions in sheet loading and unloading processes. Experience enhanced efficiency as our solutions seamlessly handle material sorting in addition to loading and unloading, or focus solely on streamlined loading and unloading. The SIL STAR's sheet management systems are designed to empower your manufacturing process, providing a data-backed approach to boost productivity and operational fluidity.

Fume Extraction System (Optional)

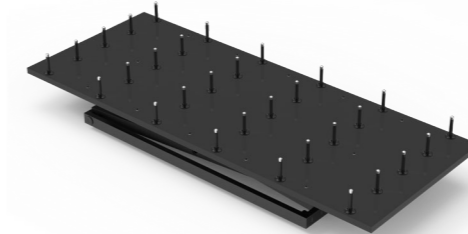


An advanced fume extraction system can be integrated for providing optimal working environment for efficient cutting operation. With a lower initial cost, higher efficiency, and lower pressure drop, it ensures a cleaner and safer working environment which increases machines longevity & high quality cuts for every part produced.

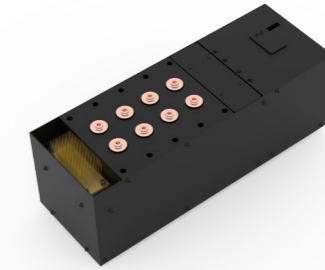
Attachments (Optional)



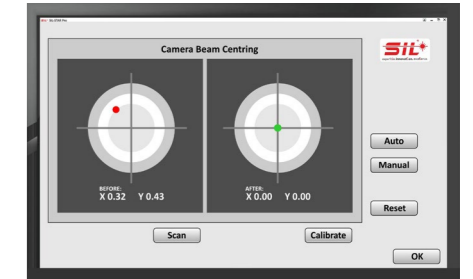
Slat Conveyor



Sheet Scissor Lift



Nozzle Changer and Cleaner



Beam Centering

Elevate your laser system's capabilities with our additional attachments, strategically designed to enhance productivity. The Slat Conveyor streamlines scrap and small cut part collection, featuring automatic speed control for extended conveyor life. The Sheet Scissor Lift facilitates scratch-free sheet loading and unloading, ensuring smooth transitions to the sheet's origin position. Our Nozzle Changer and Cleaner reduces downtime on high-speed Fiber Laser operations, automatically selecting the right nozzle for each job, eliminating manual intervention, and optimizing nozzle changes. Meanwhile, the Beam Centering attachment ensures automatic laser cutting head centering, preventing back reflections and extending the life of components.

This innovation not only guarantees precise centering for enhanced nozzle durability but also safeguards the entire head, reducing downtime and optimizing laser cutting processes. Choose efficiency and reliability with our optional attachments, tailored to elevate your laser system's performance and streamline your operations seamlessly.

Specifications:

Laser

Fiber Laser	IPG / OEM (10 - 40 kW)
Cutting Head	Precitec

Speed & Accuracy

Maximum Acceleration	2.5 - 3G
Maximum Rapid Speed	150 - 220 m / min
Maximum Cutting Speed	60 m / min
Repositioning Accuracy	≤ ± 0.03 mm
Ultra High Cutting Accuracy	≤ ± 0.02 mm

Controller

Controller	STAR 2.0
Nesting	Sigmanest / Lantek / Metallix

PRO Series



Powered by

BECKHOFF

EtherCAT
Technology Group

FANUC

HypCut

Standard Bed Sizes

SIL Pro - 3015	SIL Pro - 4020	SIL Pro - 4025	SIL Pro - 6020	SIL Pro - 6525	SIL Pro - 8030	SIL Pro - 12030
3000 x 1500 mm 120 x 60 inch	4000 x 2000 mm 160 x 80 inch	4000 x 2500 mm 160 x 100 inch	6000 x 2000 mm 240 x 80 inch	6500 x 2500 mm 260 x 100 inch	6500 x 2500 mm 320 x 120 inch	12000 x 3000 mm 480 x 120 inch

Introduction

The Pro Series, meticulously crafted for superior performance and adaptability, boasts an extensive laser power spectrum spanning from 1 kW to 40 kW. Sporting a standard bed size of 3m x 1.5m, expandable up to 12m x 3m, this machine caters comprehensively to diverse cutting requirements. Enhanced with state-of-the-art controllers, it guarantees meticulous and efficient cutting across a wide range of materials, including high-thickness applications.

Adhering to German standards, the FL 3015 Pro upholds rigorous safety benchmarks, securing CE and ANSI B11.21 certifications, and is constructed in alignment with IP-64 standards. The inclusion of high-capability nesting software ensures optimal material utilization, facilitating precise, burr-free, and taper-free cutting, even in applications up to 50 mm thickness. Automation is seamlessly integrated with one-touch functionality, streamlining tasks from sheet loading to parts collection, facilitated by an intuitive Human-Machine Interface (HMI).

Emphasizing longevity and customer support, the Pro Series guarantees an extended lifespan, supported by a hassle-free warranty claiming process and a dedicated service hub in India, ensuring prompt service and spares availability throughout the machine's operational lifecycle.

Features

- **6x Lightning Piercing:** Achieves a remarkable 6X rapid piercing speed, offering both speed and control for efficient operations.
- **Auto Calibrator:** The auto calibrator ensures pinpoint accuracy, it measures and adjusts for any positioning errors in its axes, guaranteeing precision in every cut.
- **Six Zone Fume Extractor:** Utilizing negative draught, it efficiently pulls fumes and dust particles into a contained filtration system, eliminating hazardous particles from the working environment.
- **Capacitive Touch HMI:** Highly sensitive HMI, operational with small magnitude of force and with multi-point touch access.
- **Swift Pallet Change:** This feature enhances productivity, enabling swift pallet changes in less than 14 seconds.
- **Nozzle Beam Centering:** Eliminates the risk of back reflection, ensuring precise laser alignment and avoiding errors associated with manual centering.
- **Pre-Alert for Maintenance:** Provides automatic notifications for scheduled maintenance, resulting in reduced machine downtime and contributes to the overall health and longevity.
- **Anti-Collision Technology:** Utilizing CNC controllers and high-speed Z-axis retraction, this feature detects and avoids collisions, ensuring smooth operations even in complex cutting scenarios.
- **IoT-Based Communication:** This enables seamless connectivity and real-time data exchange for enhanced monitoring and control.
- **Wireless Pendant:** Provides operators with flexible and ergonomic control over the machine's functions.
- **QR Code Scanning:** Allows quick and accurate data input, enhances traceability and streamlines process.
- **Visual Representation:** Provides clear and intuitive graphical feedback. Enhances operator understanding and decision-making with comprehensive visualizations of the cutting process.

Controller Features:

- **Fined Edge:** Simplifies sheet alignment, saving framing time.
- **Auto Recut:** Automatically rectifies cutting errors without manual intervention.
- **Smooth Micro Joint:** Ensures high efficiency with smooth cutting and easy unloading.
- **Slag-Free Cutting:** Achieves a smooth inner finish with gentle end processing.
- **Anti-Collision:** Safeguards equipment, preventing collisions for uninterrupted operation.
- **Auto Pierce Detection:** Optimizes efficiency with automatic pierce point detection.
- **Capacitive Edge Detect (Two-Stage):** Precision edge detection in two stages for enhanced accuracy.
- **Collision Prevention:** Advanced technology to prevent collisions during operation.
- **Gantry Damage Prevention:** Measures in place to safeguard the gantry from potential damage.
- **One-Click Head Calibration:** Streamlined calibration process with a simple one-click operation.
- **Gantry Twist Prevention:** Four types of prevention to eliminate gantry twist and diagonal issues.
- **Maintenance Area Predefined:** Designated areas where the gantry avoids motion, ensuring efficient maintenance.
- **Scan-In File Import:** Easily import files for cutting processes, preventing errors in file selection.
- **High-Speed File Loading:** 87% faster file loading for swift and efficient operations.
- **Multithread Processing:** Improved efficiency with the ability to process multiple tasks simultaneously.
- **Auto Calibration:** Smart calibration process for continuous precision.
- **Vision Cameras:** Integrated cameras for enhanced visibility and process monitoring.
- **Task Switching:** Easily switch between machine tasks while other operations are in progress.
- **Parallel Nesting and Job Preparation:** Simultaneous nesting and job preparation while the machine is running other processes.
- **Process Resumption:** Resumes the cutting process from the point of accidental shutdown.
- **Quick Diagnosis:** Swift diagnosis feature for efficient issue resolution.
- **Inline Monitoring of Parameters:** Real-time monitoring of motor drive and mechanical system parameters, automatically adjusting for torque, friction, and load.
- **Parameters Monitoring for Laser Head and Chiller:** Continuous monitoring of laser cutting head and chiller parameters through IoT.

Benefits:

- Available in a variety of sizes ranging from 3 x 1.5 meters to 12 x 3 meters with Laser power of 1 kW to 40 kW.
- High quality cutting with less heat dispersion and minimal burr, even for ferrous metals.
- Innovative technology for gas-regulated systems to reduce waste and consumption.
- Even in high-power Laser systems, the operating cost of energy consumption is very low.
- Excellent AMC plans for various industry working modules.
- To improve machine performance, multiple automations and optional attachments such as an auto nozzle cleaner, an auto nozzle changer, an auto nozzle beam centering mechanism, a sheet clamping mechanism, and others can be included.
- We provide tailor-made automation systems as per our customer's existing setup.

Specifications:

Laser & Cutting Head

Fiber Laser	IPG / OEM (1 - 40 kW)
Cutting Head	Precitec / Raytools

Speed & Accuracy

Maximum Acceleration	1.5 - 3G
Maximum Rapid Speed	120 - 220 m / min
Maximum Cutting Speed	60 m / min
Repositioning Accuracy	≤ ± 0.03 mm
Ultra High Cutting Accuracy	≤ ± 0.02 mm

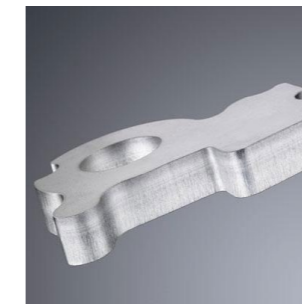
Controller & Nesting

Controller	Beckhoff / Fanuc / ECAT - 2.0
Nesting	Sigmanest / Lantek / Metallix

Optional Attachments:

- Autoloading & Unloading Systems
- Slat Conveyor
- Nozzle Changer and Cleaner
- Sheet Scissor Lift
- Beam Centering

Samples:





Powered by



Standard Bed Sizes

SIL Pro - 3015
3000 x 1500 mm
120 x 60 inch

Introduction

SIL EVO redefines laser cutting with power options from 1 kW to 3 kW and the ECat CNC Controller, ensuring unmatched precision and efficiency. Its 3m x 1.5m bed size and robust construction guarantee durability and low maintenance in challenging conditions. This economical solution caters to customers who seek high-quality at a competitive cost. Specializing in non-ferrous material cutting, SIL EVO combines high dynamics with perfect cutting quality for heightened productivity. The machine's reliability, coupled with rapid turnaround and energy efficiency with gases like nitrogen, oxygen, and air, sets it apart. Achieve precision on intricate shapes while minimizing sheet waste through integrated nesting software. SIL EVO's welded base frame solidifies its durability, making it the go-to solution for superior laser cutting performance, setting your operations on a path to excellence.

Features:

- The EVO series features a durable rack and pinion motion system.
- A lightweight gantry with synchronized dual servo motors is incorporated into the machine for high dynamics.
- The machine includes a cutting head with autofocus technology.
- The machine is equipped with fireproof bellows for additional safety.
- For gas flow, the machine has a dust-proof gas line fitted to German standards.
- The back panel of the machine has climate control and AC electronics.
- The machine is provided with an isolated HV protected control panel that is designed to operate in adverse electrical conditions.
- The accuracy of the cut part is +/- 50 microns.
- A single pallet table is installed, however a dual pallet can also be added to the machine.
- A low-backlash gearbox from SIL is installed.

Specifications:

Laser & Cutting Head

Fiber Laser	IPG / OEM (1 - 3 kW)
Cutting Head	Raytools / OEM

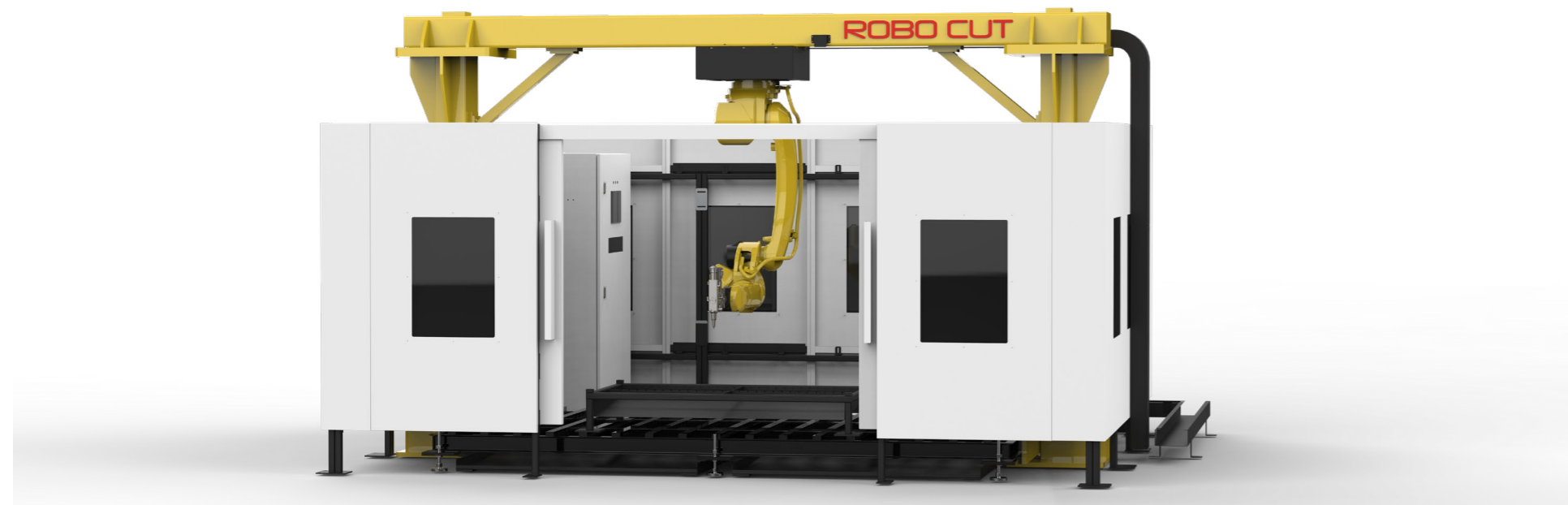
Speed & Accuracy

Maximum Acceleration	0.8 G
Maximum Rapid Speed	80 m/ min
Maximum Cutting Speed	20 m / min
Repositioning Accuracy	≤ ± 0.05 mm
High Cutting Accuracy	≤ ± 0.05 mm

Controller & Nesting

Controller	ECAT - 2.0
Nesting	Sigmanest / SIL Nest 2.0

ROBOCUT Series



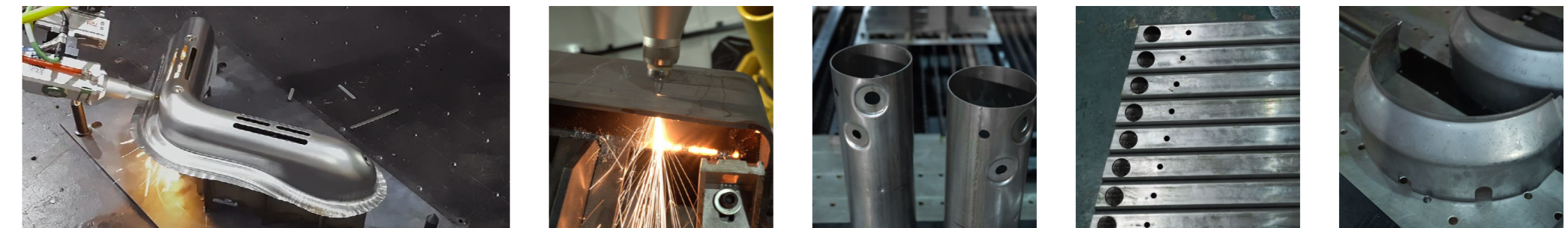
Introduction

SIL's Robotic Laser Cutting Machine – SIL RoboCUT series encompasses a range of robotic cutting solutions that redefine precision in metalworking, these solutions integrate lasers with robotic arms, providing dynamic control for cutting intricate designs and complex shapes with exceptional accuracy. Advanced laser technology cuts through a wide range of metals, showcasing unparalleled precision. Robotic integration enhances adaptability to diverse production needs, automating metalworking processes and increasing overall efficiency. Vision systems ensure real-time quality control, guaranteeing each part meets specified standards. With flexibility for quick task adaptation, SIL - RoboCUT is ideal for both small-batch and high-volume manufacturing.

Features:

- **Versatile Material Compatibility:** Capable of cutting a wide range of materials including metals, alloys, and composite materials.
- **Dynamic 3D Cutting:** Utilizes the full range of motion for three-dimensional cutting, enhancing flexibility and design possibilities.
- **High-Speed Operation:** Boosts productivity with rapid cutting speeds, ensuring efficient and timely production processes.
- **Automated Tool Change System:** Facilitates seamless transition between different cutting tools, optimizing workflow efficiency.
- **Intelligent Path Planning:** Implements smart path planning algorithms for optimal cutting paths, reducing material waste.
- **Integrated Laser Power Control:** Precise control over laser power settings, enables customization based on material and thickness.
- **Real-Time Monitoring and Feedback:** Incorporated sensors for real-time monitoring, provides feedback on cutting quality and process status.
- **User-Friendly Interface:** Intuitive control panel for easy operation, reduces the learning curve for operators.
- **Collaborative Robot Capability:** Safely collaborates with human workers in a shared workspace, enhancing overall operational efficiency.
- **Adaptive Cutting Strategies:** Dynamic adjustment of cutting parameters based on material variations, ensures consistent results.
- **Energy-Efficient Laser Source:** Employs advanced laser technology for energy efficiency without compromising cutting performance.
- **Customizable Programming:** Programmable control system allows customization of cutting sequences for diverse applications.
- **Remote Monitoring and Control:** Enabled remote monitoring and control capabilities for enhanced operational flexibility.
- **Compliance with Industry Standards:** Ensures adherence to industry safety and quality standards, providing confidence to end-users.
- **Low Maintenance Requirements:** Design features that minimize downtime and maintenance, maximizing machine availability.
- **Scalability and Modularity:** Designed with scalability in mind, allowing for future upgrades and additional functionalities.

Samples:



PIPE & PROFILES



TCM 2C



TCM 3C

Introduction:

Laser Tube Cutting Machines are available in Laser Power ranging from 3 kW to 12 kW and Chuck Diameter range of 120 ϕ to 715 ϕ , with options for 2 and 3 Chuck models. Both models feature auto-loading, efficiently cutting square, rectangle, round shapes, and open channels like C, H, L, I shapes, along with special sections. The $\pm 45^\circ$ Bevel Cutting capability adds versatility. The QR code scanning system ensures precise part retrieval and design loading, minimizing operator errors.

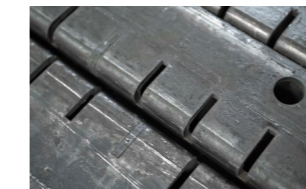
The machine seamlessly operates with a pipe bundle loader, addressing profile management concerns. Auto-loading, facilitated by the belt traction system, enhances efficiency. Pneumatic rollers support various tube shapes, and the TubePro controller handles 3D and 2D profiles. Optional robotic arm integration allows continuous tube loading. Predefined parameters, real zero tailing, and 6X speed piercing contribute to efficient production.

Auto lubrication minimizes wear and tear, and the safety-enclosed body, coupled with a high-capacity fume extractor, ensures a secure working environment. Our IOT 4.0 enabled system guarantees high productivity, real-time data monitoring, and seamless integration into Industry 4.0 frameworks for enhanced automation and efficiency.

Features:

- **Laser Power:** Available in a range from 3 kW to 12 kW
- **Chuck Diameter:** Maximum chuck diameters ranging from 120 ϕ to 715 ϕ , with 2 and 3 Chuck models available.
- **Cutting Capabilities:** Efficiently cuts square, rectangle, round shapes, and open channels like C, H, L, I shapes, along with special sections.
- **QR Code Scanning:** Ensures precise part retrieval and design loading, minimizing operator errors.
- **Auto-Loading:** Features auto-loading capability, facilitated by the belt traction system.
- **Profile Management:** Seamlessly operates with a pipe bundle loader, addressing profile management concerns.
- **Efficient Production:** Predefined parameters, real zero tailing, and 6X speed piercing contribute to efficient production.
- **Lubrication System:** Auto lubrication minimizes wear and tear.
- **Bevel Cutting:** $\pm 45^\circ$ Bevel Cutting capability for enhanced versatility.
- **Fume Extraction:** High-capacity fume extractor for a cleaner workspace.
- **Industry 4.0 Integration:** IOT 4.0 enabled system guarantees high productivity, real-time data monitoring, and seamless integration into Industry 4.0 frameworks for enhanced automation and efficiency.
- **Robotic Arm Integration:** Optional integration allows continuous tube loading and unloading process.

Samples:





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Machine designs, specifications, and features are subject to change without prior notice,
reflecting our commitment to continuous improvement and innovation.