

2019AUG-F 1000A  
PENTA LASER continuously develops and improves products to meet customer's requirements.  
The technical parameters and appearance of products may change without prior notice.

Being Laser Application Expert,  
Creating Value for Customers

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**PentaChutian Laser (Wuhan) Co.,Ltd**

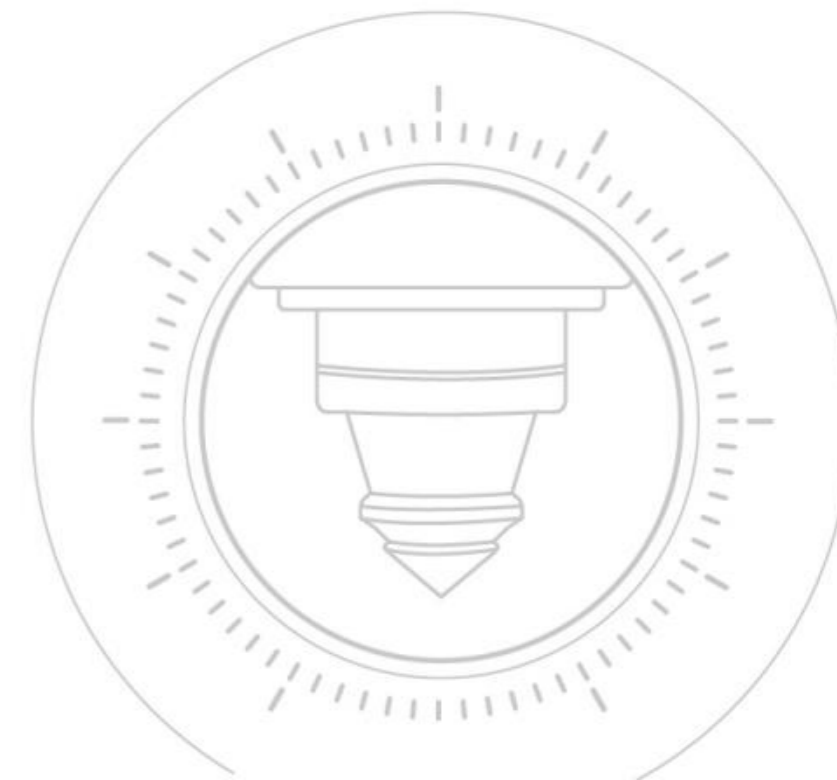
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CHINA & ITALY

**LEADER IN  
HIGH POWER LASER  
APPLICATION INDUSTRY OF CHINA**



The most innovative leading brand of laser cutting and welding equipment

Manufacturing with Inventive Mind  
High Quality as Development Basis

Leading the New Era of Intelligent Manufacturing



**1** ENTERPRISE  
COMPANY PROFILE

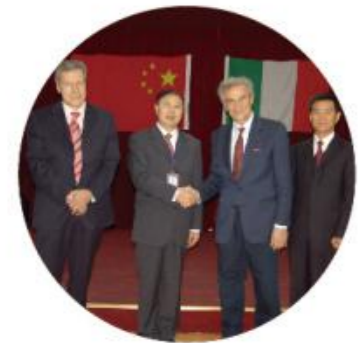


Founded by Chutian Laser Group and Italian EL.EN. Group, Penta Laser is a Sino-Italian joint-venture dedicated to R&D and manufacturing of high power laser cutting & welding equipment. It has set three main production bases in Wuhan, Wenzhou and Linyi. With world's leading laser processing technology from Italy and core components provided by world-renowned brands, Penta Laser fully executes European standards and delivers high-quality products with stable and reliable performance. To provide prompt and standardized after-sales service for our customers, we have established customer service centers in 50 cities within China and more than 10 countries worldwide.

Adhering to its operation philosophy of "Being Laser Application Expert, Creating Value for Customers", Penta Laser has five R&D centers in Italy, Shanghai, Beijing, Wuhan and Wenzhou. In decades of continuous research, Penta Laser has obtained around 100 laser patents and developed a series of laser equipment at international advanced level. Our BOLT, SWING, 3D GAN3020, pipe cutting WHIRL and other products have received favorable comments from customers. In 2019, Penta Laser succeeded in developing the first 20KW ultra high power intelligent laser cutting machine in China that fills domestic technical gap of such power level and greatly increases benefit for more customers. All these advanced laser equipment are award winners and have been widely applied in machinery manufacturing, locomotive fabrication, aerospace, and sheet-metal production. Overseas markets have welcomed Penta Laser with more and more positive feedback. The first 10KW laser cutting machines assembled in Australia, India, Brazil, Korea and Taiwan are all from us.

Through all these years, Penta Laser has insisted on its quality policy of "Stay Meticulous, Maintain Persistence, Put Quality First, Continue Innovation, Serve with High Quality, and Keep Every Word" all along. We are looking forward to leading technological reform in laser application together with you.

1 ENTERPRISE  
HISTORY



2007

Penta-Chutian Laser (Wuhan) Co., Ltd. was founded by Chutian Laser Group and Italian EL.EN. Group.



2008

Penta's first laser cutting machine was installed in China Academy of Launch Vehicle Technology (CALT).



2010

PLUS and HYPE-CUT CO<sub>2</sub> High speed laser cutting series were successfully developed.



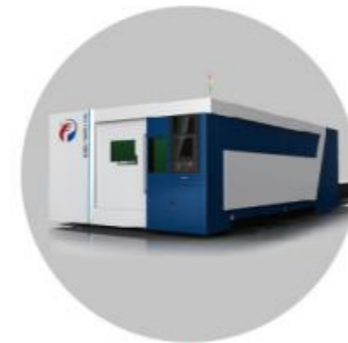
2012

Penta Laser cooperated with RTM Italy in developing China's first laser welding system for high-speed train MJ6000.



2013

Penta Laser (Wenzhou) Co., Ltd. was founded.



2015

BOLT high power laser cutting machine series were developed and put on the market.



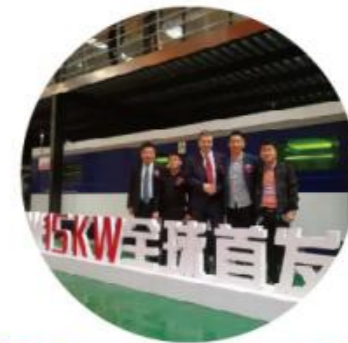
2016

Wenzhou production base put into operation.  
China's first laser enterprise processing zone—YiLi Penta Laser Processing Plaza opened up.



2017

The first 10KW laser cutting machine was developed and exported.  
Penta's joint R&D Center with Beijing University of Technology was founded.



2018

The first 15KW ultra high power laser cutting machine was released to global market and exported to Taiwan. Penta Laser's annual sales exceeded 1 billion RMB.  
Shanghai Laser Application Center was founded.



2019

Successfully developed China's first 20KW laser cutting machine  
Start the construction of Lin Yi manufacturing plant in Shandong

**1 ENTERPRISE HONORS & AWARDS**

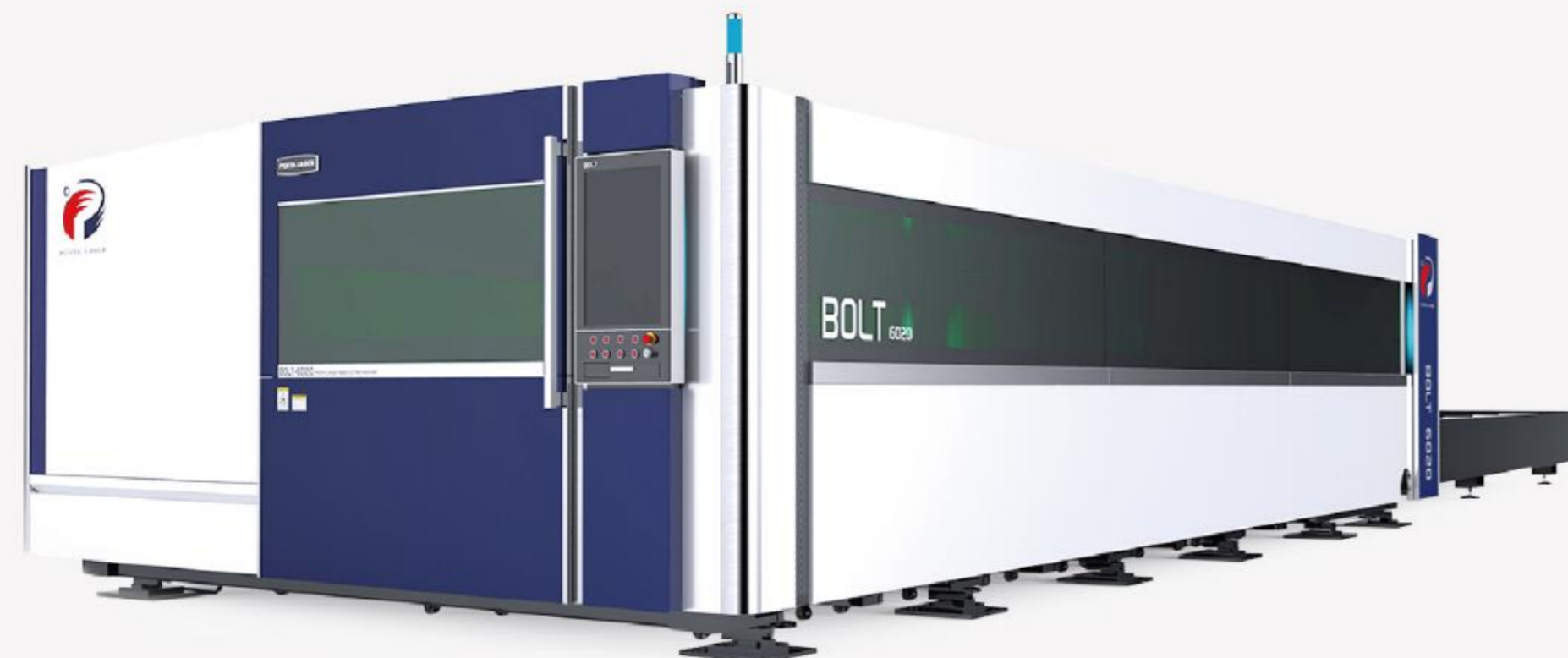
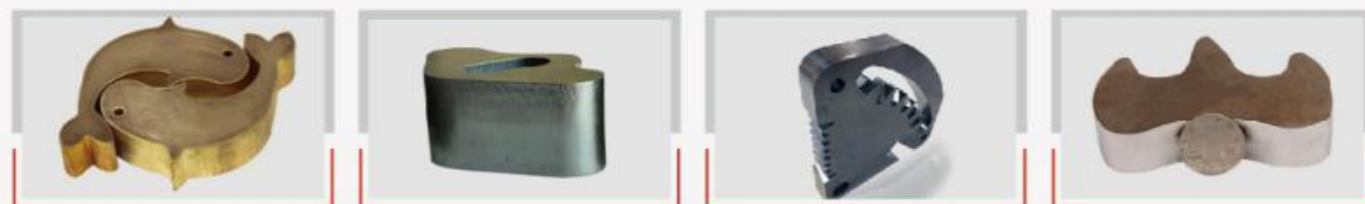
Penta Laser always adheres to the management philosophy of "Being Laser Application Expert, Creating Value for Customer", sticking to increase efficiency and lower operational cost by powerful technology strength.

With China's first 15000W & 20000W ultra-high-power intelligent fiber laser cutting machines, Penta Laser provides a complete product portfolio for customers: "BOLT" top-speed fiber laser cutting machines, "BULL" large-format fiber laser cutting machines, "WHIRL" tube laser cutting machines and "GAN" 3D 5-Axis fiber laser cutting machines. From laser cutting to laser welding, and from 2D processing to 3D 5-Axis processing, Penta Laser has taken the lead in developing new "Intelligent Manufacturing". We are embracing Industry 4.0 and leading high-efficiency laser processing to a new era.



## 2 PRODUCTS

### BOLT SERIES TOP SPEED FIBER LASER CUTTING MACHINE BOLT



### TECHNOLOGY INNOVATION

- 1 Superfast cutting, fly piercing and fast response technology, cutting efficiency increased by 20% – 50%
- 2 Burr-free piercing, sharp corner, thick plate shinning cutting, extreme thickness cutting, precision part cutting
- 3 Imported CNC chip system and the latest Smart Manager 5.0 software, low pressure, low cost, high cutting efficiency, higher precision, long-life machine design

### Technical specifications

Specifications	Model				
	Bolt 3015	Bolt 4020	Bolt 6020	Bolt 4025	Bolt 6025
Table Travel	3000*1500mm	4000*2000mm	6000*2000mm	4000*2500mm	6000*2500mm
(VDI 3441):( Accuracy)	±0.03mm/m				
Mechanical Repeatability	±0.01mm				
Rapid Speed	200m/min				
Maximum Acceleration	4.0G		2.8G		
Z Travel	100mm				
Laser Power Option	3000W~20000W				
Laser Source Option	IPG/RAYCUS				

## 2 PRODUCTS

### FIBER-PLUS SERIES FIBER LASER CUTTING MACHINE FIBER-PLUS

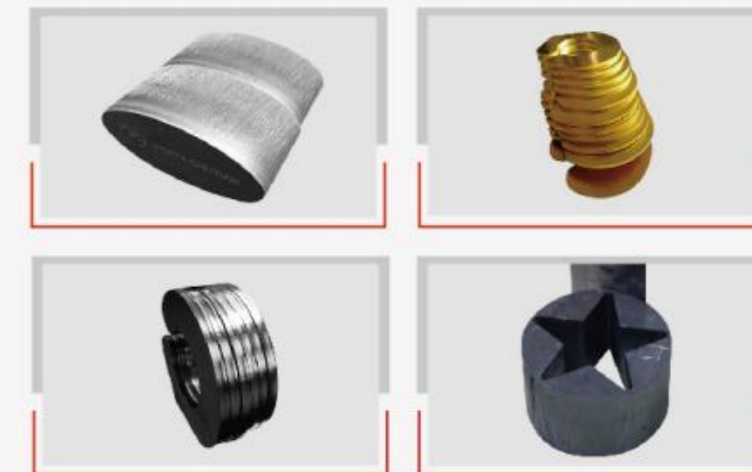


Optional: Bevel Cutting



### RANGE OF APPLICATION

Sheet-metal processing, parts & components manufacturing, machinery production, especially suitable for medium-and-thick plate(carbon steel, stainless steel, aluminum alloy) cutting processing. Also applicable to cutting processing of aluminum plate, copper plate and other high-reflective materials.

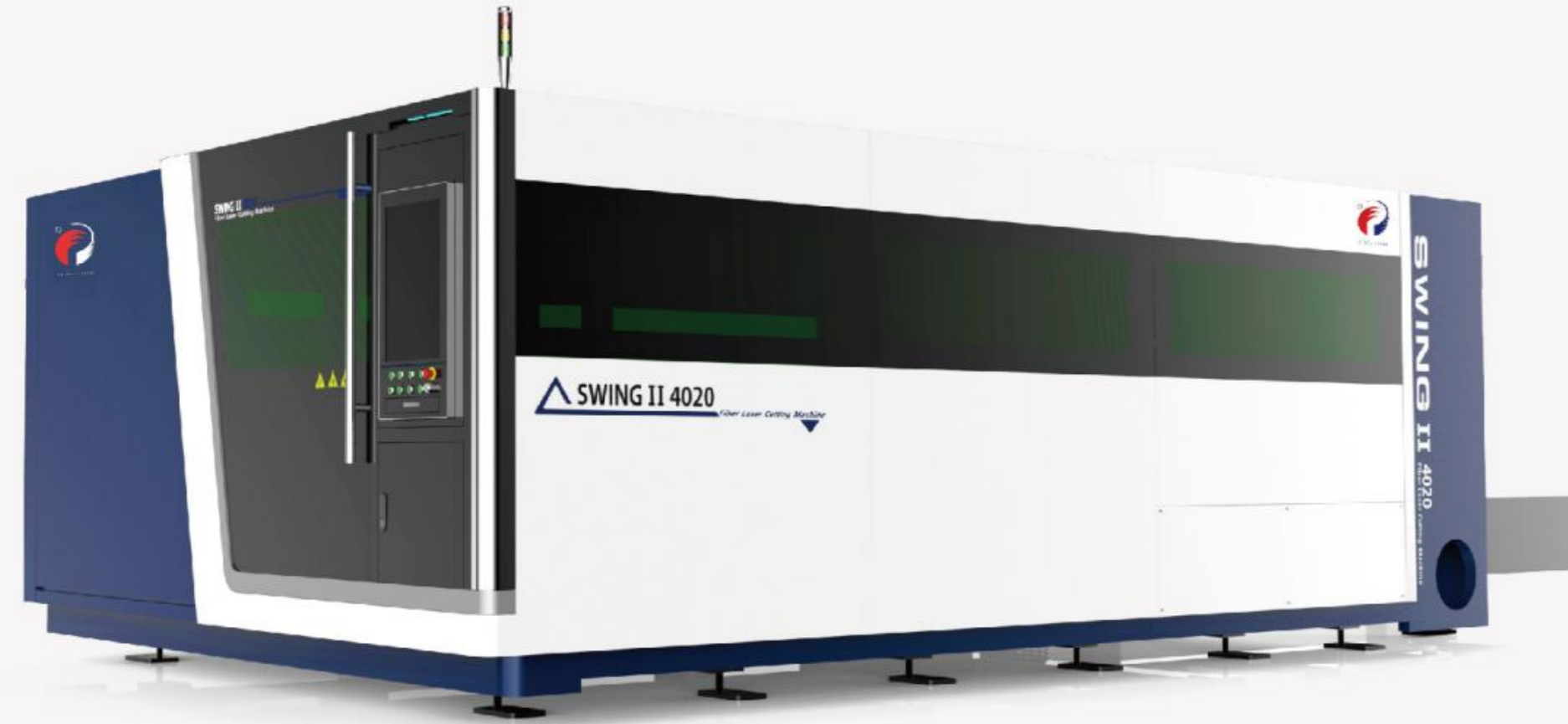


### Technical specifications

Specifications	Model						
	Fiber Plus 3015	Fiber Plus 4020	Fiber Plus 4025	Fiber Plus 6020	Fiber Plus 6025	Fiber Plus 8025	Fiber Plus 10025
Table Travel	3000*1500mm	4000*2000mm	4000*2500mm	6000*2000mm	6000*2500mm	8000*2500mm	10000*2500mm
(VDI 3441):( Accuracy)	±0.03mm/m						
Mechanical Repeatability	±0.01mm						
Rapid Speed	120m/min						
Maximum Acceleration	1.7G						
Z Travel	190mm						
Laser Power Option	2KW-20KW						
Laser Source Option	IPG/RAYCUS						
Bevel cutting	Optional						

## 2 PRODUCTS

### SWING SERIES FIBER LASER CUTTING MACHINE SWING



### RANGE OF APPLICATION

High speed cutting for medium-and-thin plate and widely used in sheet metal cutting, light-fixture, kitchen ware, stainless steel decorative materials, case and cabinet etc.

### EQUIPMENT CHARACTERISTICS

- 1 Superfast cutting function.
- 2 The latest SM5.0 software, multi-function expansion available
- 3 High power machine protection
- 4 Superfast pallet exchange, anti-laser radiation cover, partition dust removal, etc.
- 5 Superior configuration, powerful functions, high cost performance

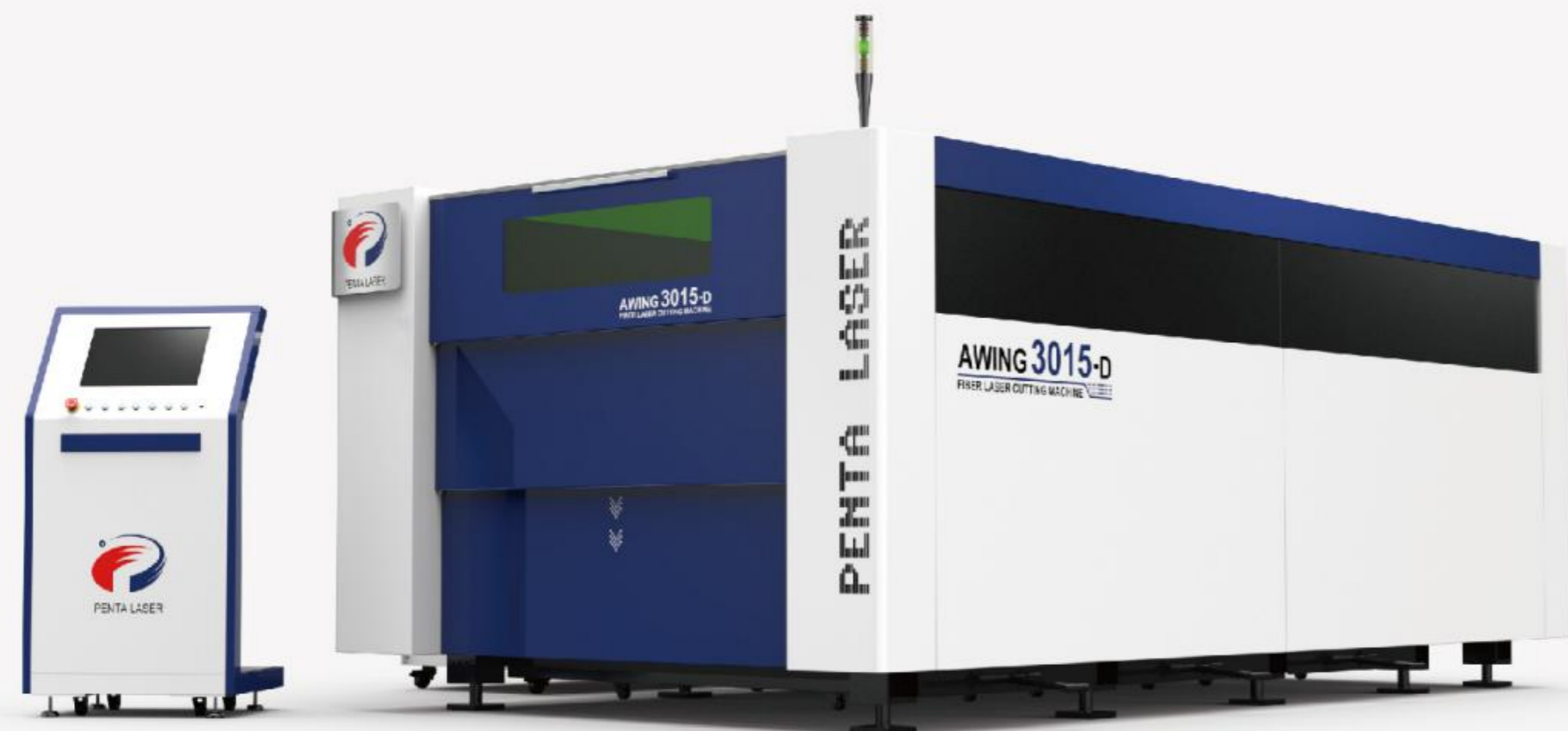
### Technical specifications

Specifications	Model					
	SwingII 3015	SwingII 4020	SwingII 4025	SwingII 6020	SwingII 6025	SwingII 8025
Table Travel	3000*1500mm	4000*2000mm	4000*2500mm	6000*2000mm	6000*2500mm	8000*2500mm
(VDI 3441):( Accuracy)	±0.03mm/m					
Mechanical Repeatability	±0.01mm					
Rapid Speed	110m/min		120m/min			
Maximum Acceleration	1.5G					
Laser Power Option	1000~12000W					
Laser Source Option	IPG/RAYCUS					



## 2 PRODUCTS

### AWING SERIES LARGE MEDIUM POWER FIBER LASER CUTTING MACHINE AWING



#### FEATURES

- 1 Low pressure, Cost effective, high efficiency
- 2 Gantry structure, compact design
- 3 Equipped with wireless controller, convenient operation
- 4 Full enclosure, single or dual work table optional

#### APPLICATION

- Suitable for rapid cutting of medium and thin plates. Widely used in sheet metal processing, lighting, kitchen ware, decorative materials, chassis cabinets and other industries
- Able to cut medium and thin carbon steel, stainless steel, galvanized plate, aluminum alloy, brass, etc.

#### Technical specifications

Specifications	Model			
	Awing 3015-01/02	Awing 4020-01/02	Awing 6020-01	Awing 6020-12
Table Travel	3000*1500mm	4000*2000mm	6000*2000mm	6000*2000mm
(VDI 3441):( Accuracy)	±0.05mm/m			
Mechanical Repeatability	±0.03mm			
Rapid Speed	80m/min			120m/min
Maximum Acceleration	0.8G			1.5G
Laser Power Option	1000W~3000W			4000W/6000W
Laser Source Option	RAYCUS			
Work Table Type	single / dual	single		dual

## 2 PRODUCTS

### FIBER LASER CUTTING MACHINE 10KW-20KW



#### MACHINE FEATURES

- 1 Gantry structure design, ensuring diagonal accuracy of large format
- 2 High power specialized cutting head, which can support durable and stable cutting.
- 3 Unique cutting database for fast piercing, high speed cutting and thick plate cutting, cutting capacity for stainless steel is up to 100mm, 70mm for carbon steel.
- 4 Equipped with new version of Smart Manager 5.0 CNC software which optimizes various piercing modes, adopts new generation of frog jump management, and moves fluently without any pauses.
- 5 Thin materials' productivity can be promoted more than 50%. Metal obstructions can be detected to avoid collision to the uttermost in fast running while cutting



## 2 PRODUCTS

### BULL LARGE-FORMAT FIBER LASER CUTTING MACHINE BULL

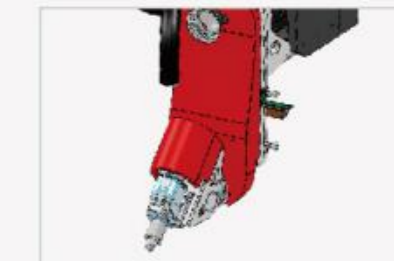


#### MACHINE FEATURES

- 1 Adopt the gantry structure design, ensure the diagonal accuracy of large format
- 2 High speed (80m/min) and high Acceleration (0.8G)
- 3 Laser protection and raster design

#### ADVANTAGES OVER PLASMA CUTTING

- 1 High precision, little kerf, good cutting quality. Fast speed and high efficiency
- 2 Low cutting taper; high material utilization
- 3 Clean and environmental friendly; energy saving



Bevel cutting optional

#### Technical specifications

Specifications	Model
	Bull8020/8035/10035/12035/16035/18035/20035...
Table Travel	4m-30m customizable
(VDI 3441):( Accuracy)	±0.1mm
Mechanical Repeatability	±0.08mm
Rapid Speed	80m/min
Maximum Acceleration	0.8G
Z Travel	200mm
Laser Power Option	2KW~20KW
Bevel cutting	Optional

## 2 PRODUCTS

### MACHINE FEATURES

- 1 Automatic clamping and centering, ensuring long-pipe feeding accuracy, high cutting precision and excellent efficiency
- 2 Available to process square tube, round tube, rectangular tube, Irregular tube etc
- 3 Nesting software has multi-layer function, able to process complex curve drawings
- 4 Automatic loading & unloading system is available for lower labor cost and higher cutting efficiency



### WHIRL SERIES PIPE LASER CUTTING MACHINE WHIRL



### Technical specifications

Specifications		Model			
Model	Unit	WHIRL PLUS 7510	WHIRL PLUS 8518	WHIRL PLUS 10018	WHIRL PLUS BV8518
Popwer	W	1KW-3KW			
X Travel	(mm)	7500	8500	10000	8500
Y Travel	(mm)	700		560	
Z Travel	(mm)	265		300	
A/P Rotation axis		N x360°			
Straight axis re-positioning accuracy	mm	±0.03			
Straight axis maximum speed	(m/min)	120			
Rotation axis maximum speed	(rpm)	120			
Rotation axis re-positioning accuracy		±8			
Chuck Control	--	Automatic clamping, automatic centering and full travel without changing clamping claws			
Diameter range	mm	20-220			
Pipe Weight	15kg/m	25kg/m			
Auto Loading	m	Optional 8 (L) X2.2 (W) X2.3(H)			
WHIRL PLUS BV 8518---bevel cutting, zero tailing,auto unloading					

2 PRODUCTS

LASER WELDING SYSTEM



Plate Heat-Exchanger Laser Welding Machine

Professionally designed for plate heat-exchanger, suitable for various types & sizes

- Full-automatic laser welding
- High strength, high efficiency
- Reliable & repeatable welding
- Very good outlooking welding seam



CJ Series Compact Precision Laser Welding System

Suitable for automotive powertrain components, e.g. gears; and other precision components, e.g. valves

- Multi axis CNC control, compact & high accuracy
- Multi-workstation leads to high efficiency



Robot Laser Welding System

Suitable for car body, interiors, and other sheet metal components

- Customized laser welding solution with robot system
- Various laser welding technologies are available: laser welding, remote welding, filler wire welding, hybrid welding, deposition welding



MJ Series 3D Laser Welding System

Suitable for laser welding of various dimension of complex 3D components, especially in railway, aerospace & aviation industries.

- Five-axis Gantry 3D laser welding system
- High accuracy
- Customized working range, X axis up to 70m
- Available with hybrid welding, clamping wheel

## 2 PRODUCTS

### 3D LASER SYSTEM



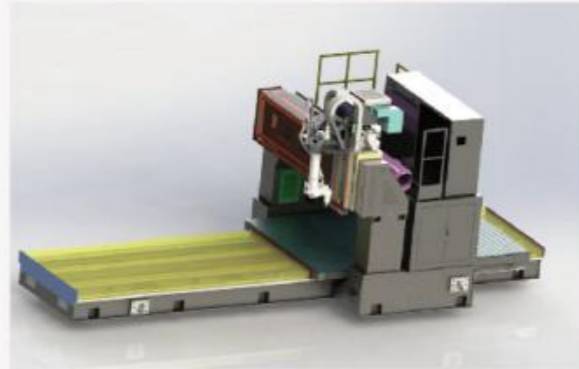
#### HIGH PRECISION

The 5-axis 3D machine brings you to the 3D world, no longer limited to 2D manufacturing. Regardless of whether it's Sheet metal, tube, profile or complex 3D part, mild steel, stainless steel, or aluminum, copper, the 3D machine will never disappoint you. We can support you in developing your business in a wider range.



#### FLEXIBLE

High strength welded machine body, high precision guide rail, High accuracy pinion & gear, Italian 3D cutting head and advanced CNC system, all these ensure high precision manufacturing, finally helping you improve product quality and upgrade your business to a higher level.



#### HIGH EFFICIENCY

High speed linear axis, flexible rotation and swivel axis, sharp laser beam forms a high efficient & dynamic tool. With this sharp & flexible tool, you can improve productivity and lower down cost easily, helping you becoming more competitive on the market.

### GAN SEIRIES GANTRY 3D 5-AXIS LASER CUTTING & WELDING MACHINE GAN-H

GAN series 5-axis laser machine is a Cartesian axis machine, with perfect laser cutting & welding capability for 3D components

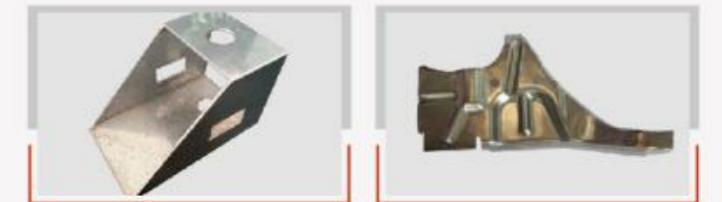


#### RANGE OF APPLICATION

Laser cutting & welding of 3D components for automotive, railway, aviation & aerospace industries

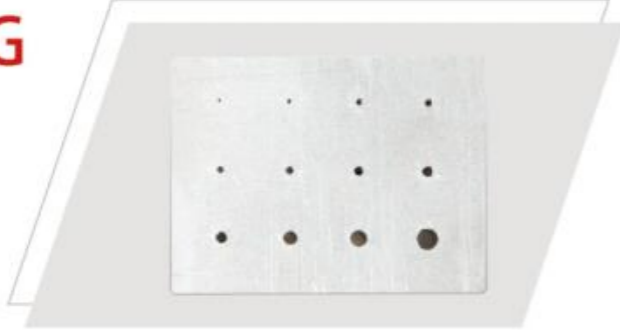
#### Technical specifications

MODEL	GAN-H 3020	GAN-H 4020
Power	1-4KW	1-4KW
X Travel	3050mm	4050mm
Y Travel	2050mm	2050mm
Z Travel	800mm	800mm
A Travel	nx360°	nx360°
B Travel	±182°	±182°
Straight axis re-positioning accuracy	±0.03mm	±0.03mm
Straight axis maximum speed	100m/min	100m/min
Straight axis maximum Acceleration	1G	1G
Rotation axis maximum speed	60rpm	60rpm
Rotation axis re-positionin	0.03°	0.03°



### 3 TECHNOLOGY TECHNOLOGY INNOVATION

## PRECISION CUTTING



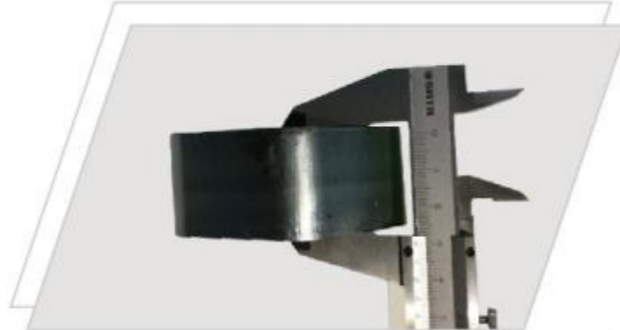
Fast piercing and burr-free piercing



Precision cutting



Sharp corner cutting

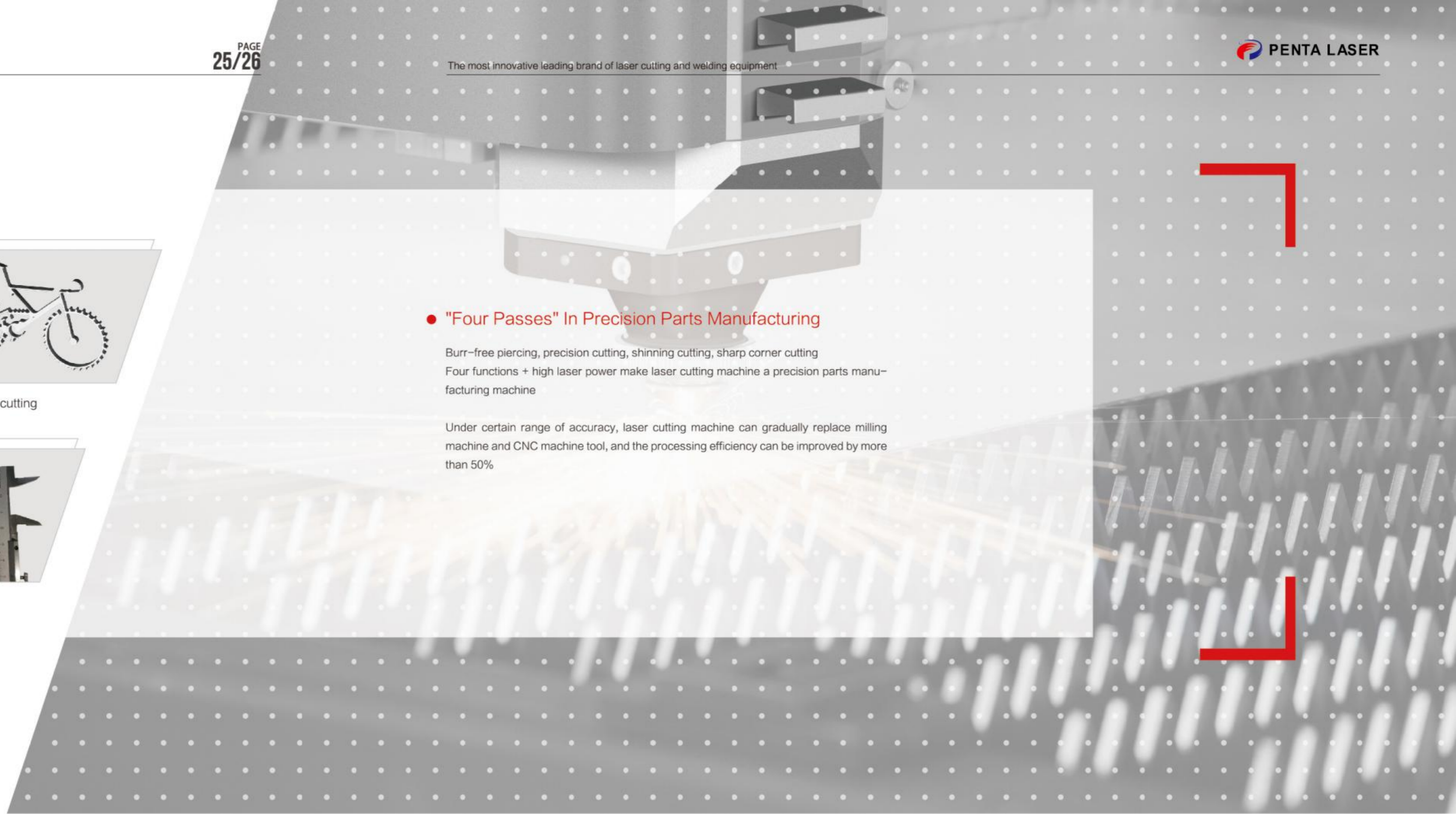


Thick plate shinning cutting

### ● "Four Passes" In Precision Parts Manufacturing

Burr-free piercing, precision cutting, shinning cutting, sharp corner cutting  
Four functions + high laser power make laser cutting machine a precision parts manufacturing machine

Under certain range of accuracy, laser cutting machine can gradually replace milling machine and CNC machine tool, and the processing efficiency can be improved by more than 50%



### 3 TECHNOLOGY TECHNOLOGY INNOVATION

## INNOVATION



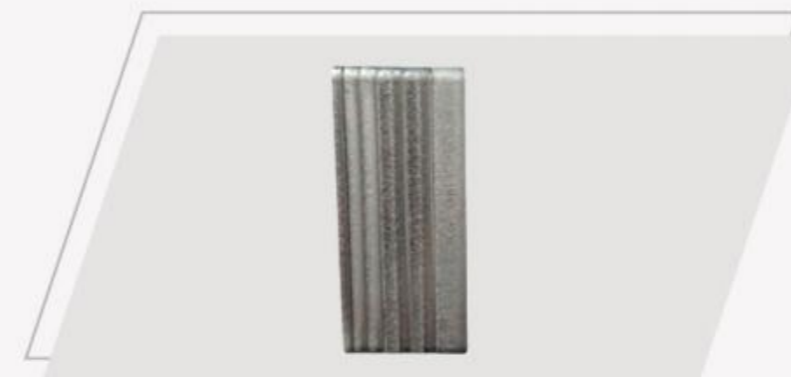
SUPER FAST CUTTING //

- ◆ Fly piercing and fast response technology, cutting efficiency increased by 20% – 50%
- ◆ N<sub>2</sub>(Air) cutting, suitable for thick plate within 4mm(6KW) and 10mm(15KW)
- ◆ Lifespan of protection lens is greatly improved



BEVEL CUTTING //

- ◆ 45 degree bevel cutting on sheet materials with 2D rotation of cutting head
- ◆ Bevel cutting thickness range:3–20mm
- ◆ Bevel cutting for lines, circles and complex patterns
- ◆ Available in Fiber Plus and Bull Series



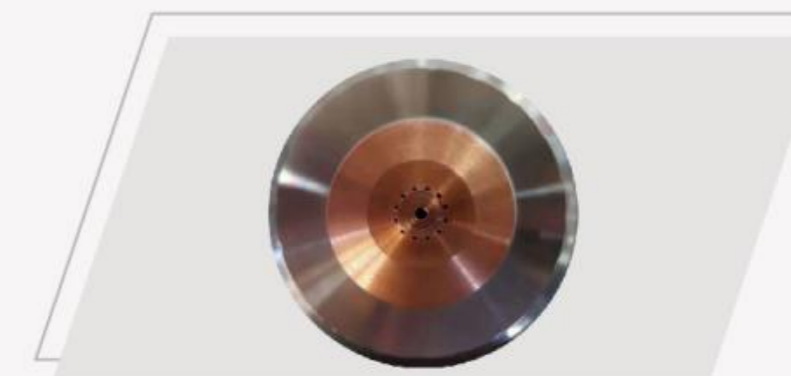
IQ CUTTING //

- ◆ Compared with normal cutting, thin plate cutting speed can be increased by 50%
- ◆ Aluminum alloy cutting without burr or little burr
- ◆ Shinning cutting can be done with lower power on thicker materials
- ◆ Cut smaller holes



RASTER //

- ◆ Storage and recording of processing parts information
- ◆ Labeling of parts series numbers and QR codes



WATER-COOLING CUTTING //

- ◆ Spray a small amount of water to cool material and cutting head down
- ◆ Suitable for multihole cutting and complex patterns cutting on thick plate



## 4 TECHNOLOGY ADVANCED HARDWARE SYSTEM



### INTELLIGENT CUTTING HEAD

- 1** Originally imported high performance laser cutting head dedicated to laser cutting
- 2** Non-contact capacitive sensor, automatically align the sheet
- 3** Auto focus, no focus re-adjustment needed while changing sheet.
- 4** Smart piercing, 2-3 times faster on thick material;
- 5** Temperature and pressure detection, monitor cutting status in real-time
- 6** Focus compensation, control focus deviation and ensures stability of long time running

### HIGH SYNCHRONOUS SERVO MOTORS

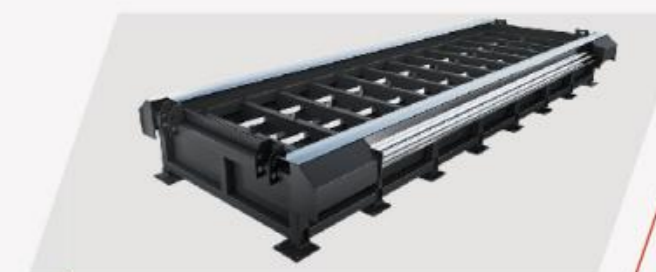
Mechtro-Link is the world's leading dual-drive synchronization technology of which the control response time reaches nano-second level and synchronicity is 1000 times higher than conventional machine tools. Compared with conventional interface control methods, Mechtro-Link control mode responds faster and has stronger anti-jamming capability, which guarantees the synchronicity of machine tool and the stability of running at high speed, greatly improving the working life of machine tool and servo motors.



### DESIGN AND MANUFACTURING OF HIGH PRECISION MACHINE TOOLS

Heat treatment & thermal protection with automatic lubricating device reduce the heat absorption of machine tools, guarantee the precision of the machine in long running and prolong the service life. 8-20 partition suction system.

Super large screen, excellent operation experience and visual effect.



**4 TECHNOLOGY**  
ADVANCED SOFTWARE SYSTEM

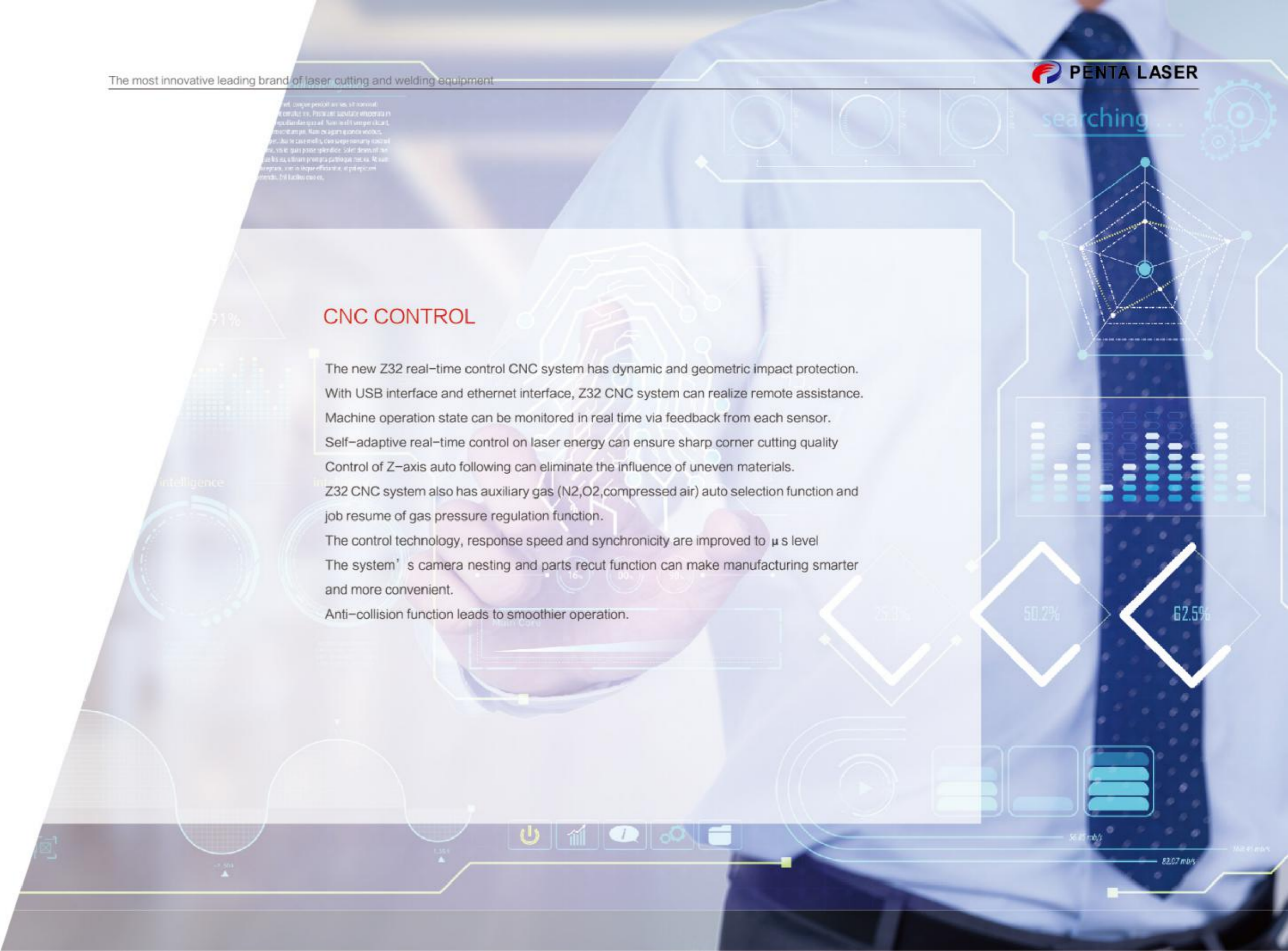
**| OPERATING SYSTEM**

SM5.0 is equipped with our cutting parameter database. The cutting parameters can be real-time adjusted during cutting, so as to achieve optimal quality. The software has various piercing parameters which can be set up to 25 layers. SM5.0 has also optimized multiple piercing modes, e.g. continuous piercing, pulse piercing, blast piercing, etc. The frog jump management is upgraded with smoother motion and zero pause. With SM5.0, thin plate production efficiency can be improved by over 25%. The system can provide auto gas shut-off during fast moving and more convenient auto edge detection.



**CNC CONTROL**

The new Z32 real-time control CNC system has dynamic and geometric impact protection. With USB interface and ethernet interface, Z32 CNC system can realize remote assistance. Machine operation state can be monitored in real time via feedback from each sensor. Self-adaptive real-time control on laser energy can ensure sharp corner cutting quality. Control of Z-axis auto following can eliminate the influence of uneven materials. Z32 CNC system also has auxiliary gas (N<sub>2</sub>, O<sub>2</sub>, compressed air) auto selection function and job resume of gas pressure regulation function. The control technology, response speed and synchronicity are improved to  $\mu$ s level. The system's camera nesting and parts recut function can make manufacturing smarter and more convenient. Anti-collision function leads to smoother operation.

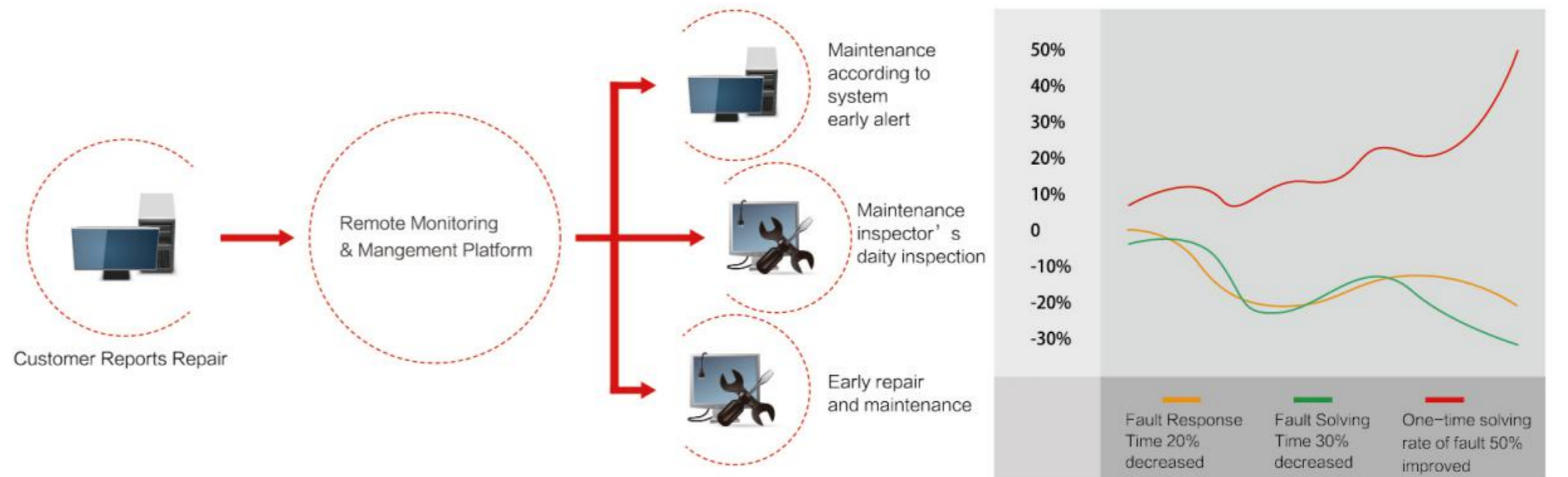
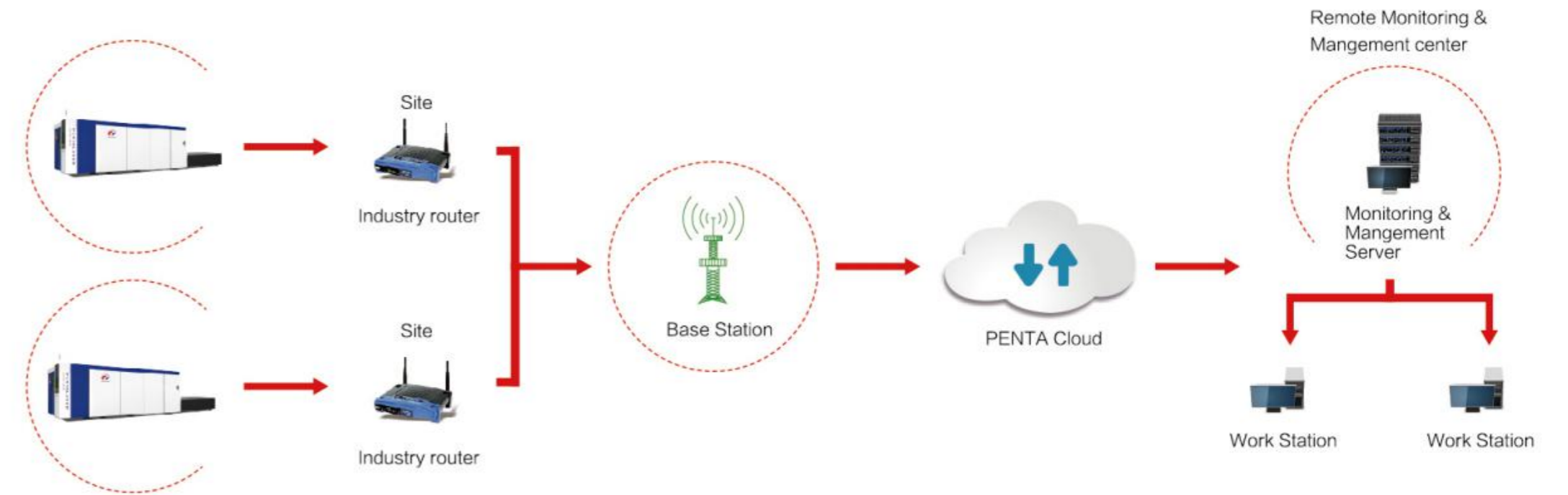


# 4 TECHNOLOGY

## REMOTE OPERATING AND MAINTENANCE SYSTEM

Penta laser remote operation and maintenance system is based on Internet of Things technology and cloud computing. It sets up a system to monitor and manage remote device based on cloud platform; provides accurate products service and business support by acquisition of remote data and analyzing process data, builds up "UI" interactive platform between enterprise – product – end user for management, control and interaction; controls the situation of product by real-time monitoring; finds the product failure in time to improve after-sales service efficiency and quality; combines actual production, operation and maintenance requirements of customers by analyzing production, operation and maintenance process data to set up failure prediction and diagnosis model; completes fault database, operation and maintenance knowledge database; and feeds the relevant empirical information back to the front end of the product life cycle -- the product design stage.

The most innovative leading brand of laser cutting and welding equipment



## 5 APPLICATION

### | APPLICATION FIELD



Widely used in sheet metal processing, textile machinery, machinery manufacturing, elevator equipment manufacturing, automobile, machine tool, shipbuilding, decoration, advertisement, oil drilling equipment, kitchenware, household appliances and laser job shop

5 TECHNOLOGY

CUSTOMER SERVICE

THK  
FOXCONN 富士康科技集团  
COI 国家核电 SNPTC  
SIEMENS  
Schneider Electric 印度施耐德电气  
AVIC 中航黎明发动机  
CASAC 中国航天  
中船重工  
台湾贤德钢铁  
Xudong 旭东  
中国中车 CRRC  
Welcome to join us  
DELI XI ELECTRIC 德力西电气  
中国一汽  
KING LING  
中国重汽 SINOTRUK  
Schneider Electric  
AVIC  
中国石化  
AF 澳大利亚 AHF公司  
silva Schneider  
DunAn 盾安集团  
美的 Midea  
IMS 马来西亚 IMS公司  
中航工业

After-Sales Hotline: 400-6678-232

# GLOBALIZED PENTA LASER

Penta Laser's domestic production headquarter stands in Wenzhou (Zhejiang Province). In addition, there are two production bases in Wuhan and Linyi, and service centers in more than 50 cities including Beijing and Shanghai. The international R&D headquarter locates in Florence (Italy); and there are offices and corporate agents distributed in Australia, Brazil, India, South Korea, Japan, Vietnam, and Russia, etc.



Europe R&D Center



Beijing R&D Center



Shanghai R&D Center



Wenzhou R&D Manufacturing base



Wuhan R&D Manufacturing base



Linyi R&D Manufacturing base

6 ENTERPRISE VISION

THE GLOBAL LEADING  
SUPPLIER OF INTELLIGENT  
LASER SOLUTIONS

