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To be laser application expert and create value for customers

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CHIAN&ITALIY

# LEADER IN HIGH POWER LASER APPLICATION INDUSTRY OF CHINA



 **PENTA LASER**

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





Founded by Chutian Laser Group and Italian ELEN. 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 46 cities within China and more than 10 countries worldwide.

Adhering to its operation philosophy of "Being Laser Application Expert, Creating Value for Customer", 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 ELEN Group.



2008

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



2010

PLUS and HYPE-CUT high CO2 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 went 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

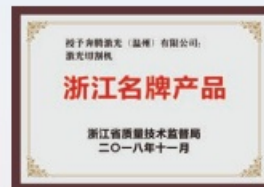
Successfully developed the  
Start the construction of Lin Yi manufacturing plant in Shandong



1 ENTERPRISE  
HONORS & AWARDS

Penta Laser always adheres to the business philosophy of "Being laser application experts and creating value for customers", addressed to increase the efficiency and lower the operational cost by the powerful technology strength. The China first 15000W & 20000W Super high power fiber laser cutting machines, top speed high efficiency fiber laser cutting machine Bolt, large format fiber laser cutting machine Bull, smart pipe laser cutting machine Whirl and 3D cutting?Gan, Penta provides a complete products portfolio for its customers. From laser cutting to laser welding, from flat cutting to three-dimensional five-axis robot laser processing, Penta Laser has taken the lead in opening a new mode of "intelligent manufacturing" to embrace the new wave of Industry 4.0, leading the laser efficient processing to a new era.

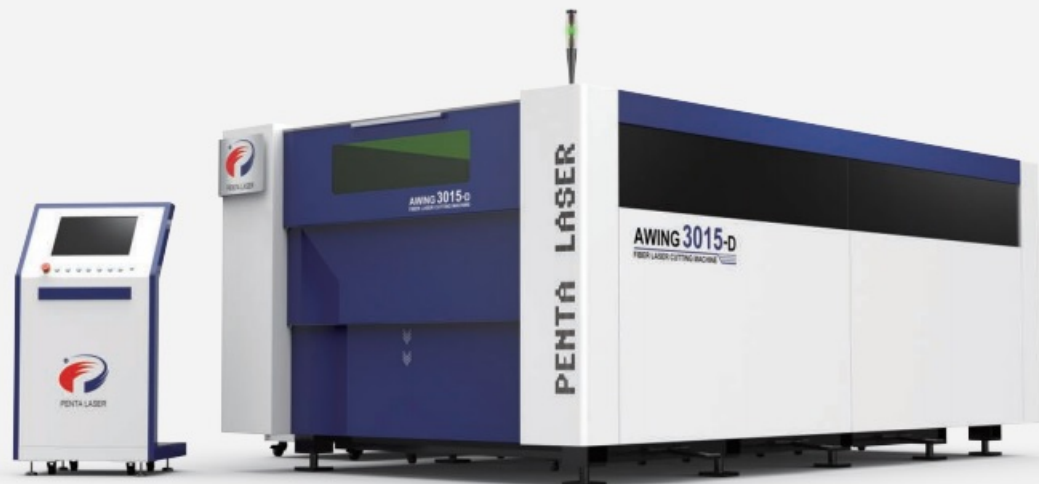
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## 2 PRODUCTS

AWING SERIES LARGE MEDIUM POWER  
FIBER LASER CUTTING MACHINE

### AWING



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#### FEATURES

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

#### APPLICATION

- Suitable for rapid cutting of medium and thin plates. Widely used in sheet metal processing, lighting, kitchen utensils, decorative materials, chassis cabinets and

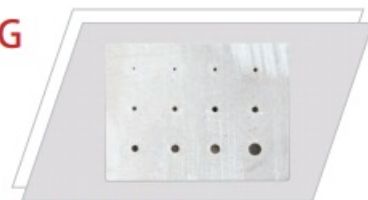
#### Technical specifications

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 / with pallet exchanger	single		with pallet



### 3 TECHNOLOGY TECHNOLOGY INNOVATION

## PRECISION CUTTING



快速穿孔和无渣穿孔  
FAST PIERCING AND BURR FREE PIERCING



精密切割  
PRECISION CUTTING



尖角切割  
SHARP ANGLE CUTTING



厚板亮面切割  
BRIGHT SURFACE CUTTING OF THICK PLATE

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

Burr free piercing, precision cutting, shining cutting, sharp angle cutting

Four functions + high laser power make laser cutting machine a precision parts manufacturing machine

Under the condition of accuracy, laser cutting machine gradually replaces the milling machine and the CNC machine tool, and the processing efficiency is improved more than 50%

### 3 TECHNOLOGY TECHNOLOGY INNOVATION

## INNOVATION



#### SUPER FAST CUTTING

1. Flying piercing and fast response technology, cutting efficiency increased by 20% - 50%
2. N2(Air) cutting, suitable for 4mm(6KW) and 10mm(15KW) thick plate
3. Long life time of protect lens.



#### BEVEL CUTTING

1. 45 degree bevel cutting
2. Bevel cutting thickness range: 3-20mm
3. Bevel cutting for complicated figures, lines and circles
4. Suitable for Fiber Plus and Bull Series



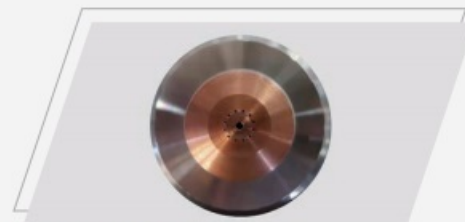
#### IQ CUTTING

- compared to normal cutting, thin plate cutting speed increased 50%
- Aluminum alloy cutting without burr or less burr
- Lower power shining cutting can cut thicker material
- cut smaller hole



#### RASTER

- Information storage and recording
- Serial No. and QR marking



#### WATER-COOLED CUTTING

- Spray little water to cool down the material and cutting head
- Suitable for thick plate for more hole cutting and complex graphic cutting



## 4 TECHNOLOGY ADVANCED HARDWARE SYSTEM



### INTELLIGENT CUTTING HEAD

- 1 Originally imported high performance laser cutting head;
- 2 Capacitive sensor, automatically align the sheet;
- 3 Auto focus, no focus readjustment 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, ensure the stability for long time running

### HIGH SYNCHRONOUS SERVO MOTORS

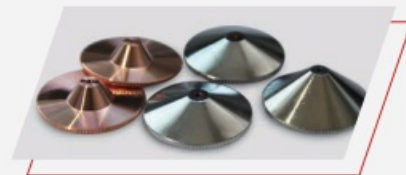
MechatroLink is the world's leading dual-drive synchronization technology, whose control response time reaches nano-second level and synchronicity is 1000 times higher than conventional machine tools. Compared with conventional interface control methods, MechatroLink control mode responses faster and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



### DESIGN AND MANUFACTURE OF HIGH PRECISION MACHINE TOOLS

Heat treatment & thermal protection and 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 separate suction design.

Super large screen, excellent operation experience and visual effect.



## 4 TECHNOLOGY ADVANCED SOFTWARE SYSTEM

### OPERATING SYSTEM

The newly updated Smart Manager 5.0 is an imported CNC software which originated in European and based on the Windows platform. That software can realize comprehensive interface with Italy imported CNC system. Thus, it's more convenient and faster for machine and laser source's real-time control and CNC software's upgrading. Friendly interface, easy to learn and quick operation. The NC program can be edit and read easily. Provide cutting database and adjust the parameters during cutting process, aims at reaching best cutting quality. Optimize various of piercing mode, such as continuous piercing, pulse piercing, blasting piercing and so on. Adopt new generation of grog jump management, which enable the fluent movement without any pauses. Thin materials' productivity promoted more than 25%. Acquire gas auto shut-off function during fast moving. Even faster with the function of automatic edge detection.



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#### CNC CONTROL

- New Z32 real time CNC system, with dynamic and geometric JERK control
- The data exchange between CNC system and machine drive system is adopted with fiber
- Remote assistance
- Monitoring the machine state real time by feedback of every sensor
- Power modulation for the ultimate cutting quality in the corners
- Z axis following
- Automatically choosing gas type and pressure (N<sub>2</sub>, O<sub>2</sub>, Air)
- Auto restart procedure
- High speed dual technology with international outstanding "can" bus technology,  $\mu$ S level responding time and better synchronicity.
- Monitor nesting and piece recut function, more smart, more convenient.
- Anti collision function, keep movement & cutting smooth.

## 5 TECHNOLOGY

## CUSTOMER SERVICE



售后服务热线: 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 Taiwan.



Europe R&D Center



Beijing R&D manufacture plant



Shanghai R&D manufacture plant



Wenzhou R&D manufacture plant



Wuhan R&D manufacture plant



Linyi R&D manufacture plant