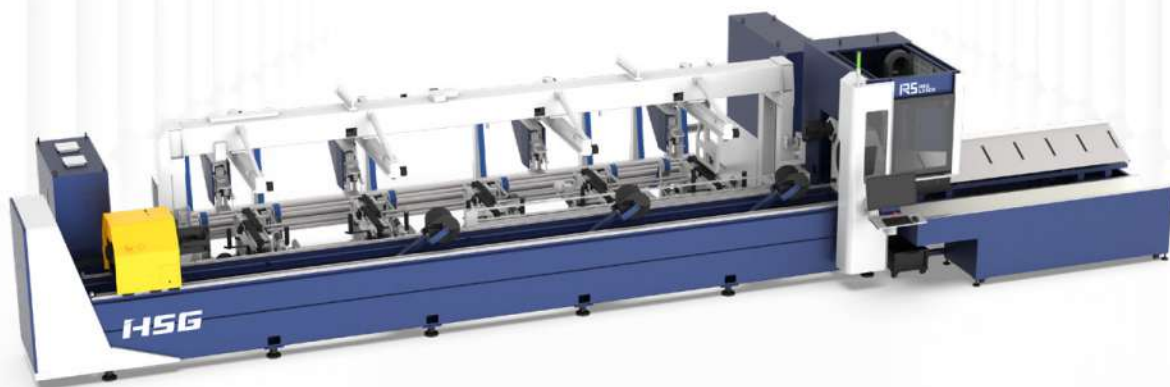


# A BEST-SELLING MODEL AMONG ECONOMICAL MACHINES



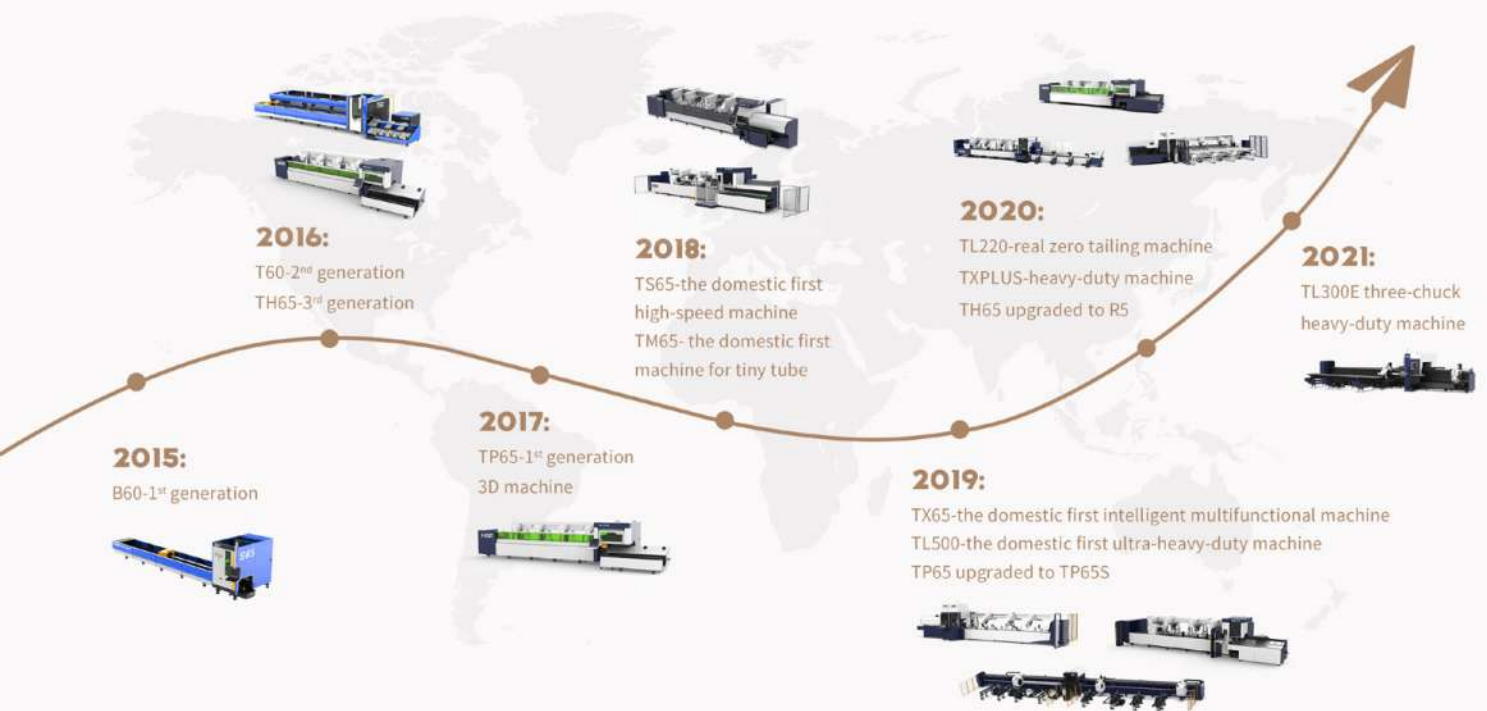
## R5

### Full-automatic Tube Laser Cutting Machine

Technical Parameter	R5
Power	1500-4000W
Max. No-load Speed	100m/min
Max. Chuck Speed	100r/min
X/Y-axis Positioning Accuracy	±0.03mm/m
X/Y-axis Repositioning Accuracy	±0.03mm
Max. Acceleration	1.0G
Processing Materials	Round tube dia. Φ20-254mm, square tube dim. 20*20-200*200mm, rectangular tube: side length ≤200mm
Max. Cutting Thickness of Tube	8-10mm CS, 5-8mm SS, 3-8mm AL, 3-6mm brass, 2-3mm red copper
Standard Cutting Length	6500mm
Max. Weight of Single Tube	200kg
Overall Dimensions (L*W*H), incl. Loading Rack	12400*5300*2500mm

Tips: SS=stainless steel, CS=carbon steel, AL=aluminum alloy

# DEVELOPMENT HISTORY



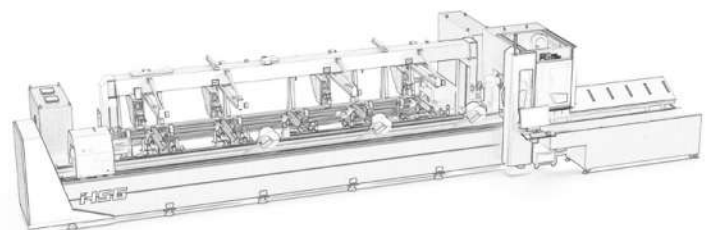
## FAMILY OF OUR TUBE LASER CUTTING MACHINES

📦 HSG Laser is the first to perceive the demands for tube cutting and devote itself to technical R&D. Until now, it has the most complete tube laser cutting machines and also lays more stress on machine details and batch cutting stability. We have applied for 100+ relevant technical patents. Our cutting range varies from 10mm to 426mm (round tube) or 10mm to 300mm (square tube). Profiles and various special-shaped tubes are also cut easily. The max. weight of single tube is 50kg-1500kg. The max. cutting length reaches up to 12000mm.



## WHAT IS R?

- 🏷️ **Reform** : In pursuit of cutting technology & efficiency, practical use & functional customization
- 🏷️ **Real** : Satisfy the real demands of users by functional upgrades
- 🏷️ **Relax** : Offer convenient service by its intellectualization
- 🏷️ **Running** : Take the lead in tube cutting industry by many ground-breaking functions
- 🏷️ **Return** : Bring higher efficiency & returns by forward-looking plans



# TOP 1



## WHY CHOOSE R5?

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- 🏆 R5 is the sales champion among economical machines in the industry. Since its first launch in 2016, 1000+ sets have been sold worldwide in total.
- 🏆 It balances professional performance and customized service well to save labor costs by 50% and improve efficiency by 20% for users. Due to its smart work for 7\*24h, workers will be freed from manual operation.
- 🏆 As a “full-developed” model, R5 has been known as the best choice to realize high-efficient and multiplied productivity, and has gained wide popularity at home and abroad.

# FAMILY OF OUR CONTROL SYSTEMS

For tube laser cutting machines, control system is the heart and soul because it decides the control stability, running smoothness and operating convenience directly. Based on many years of technical foundation and persistent improvement, HSG Laser has developed many tube laser cutting control systems that allow functional customization.



## DEVELOPMENT HISTORY

**2015**

X8800 (I)-keep performance stable by complete functions

**2016**

X8900 (II)- allow functional customization

**2017**

X9000 (III)-upgrade from automation to intellectualization

**2018**

X9500 (IV)-break technical monopoly, serve subdivided areas

**2019**

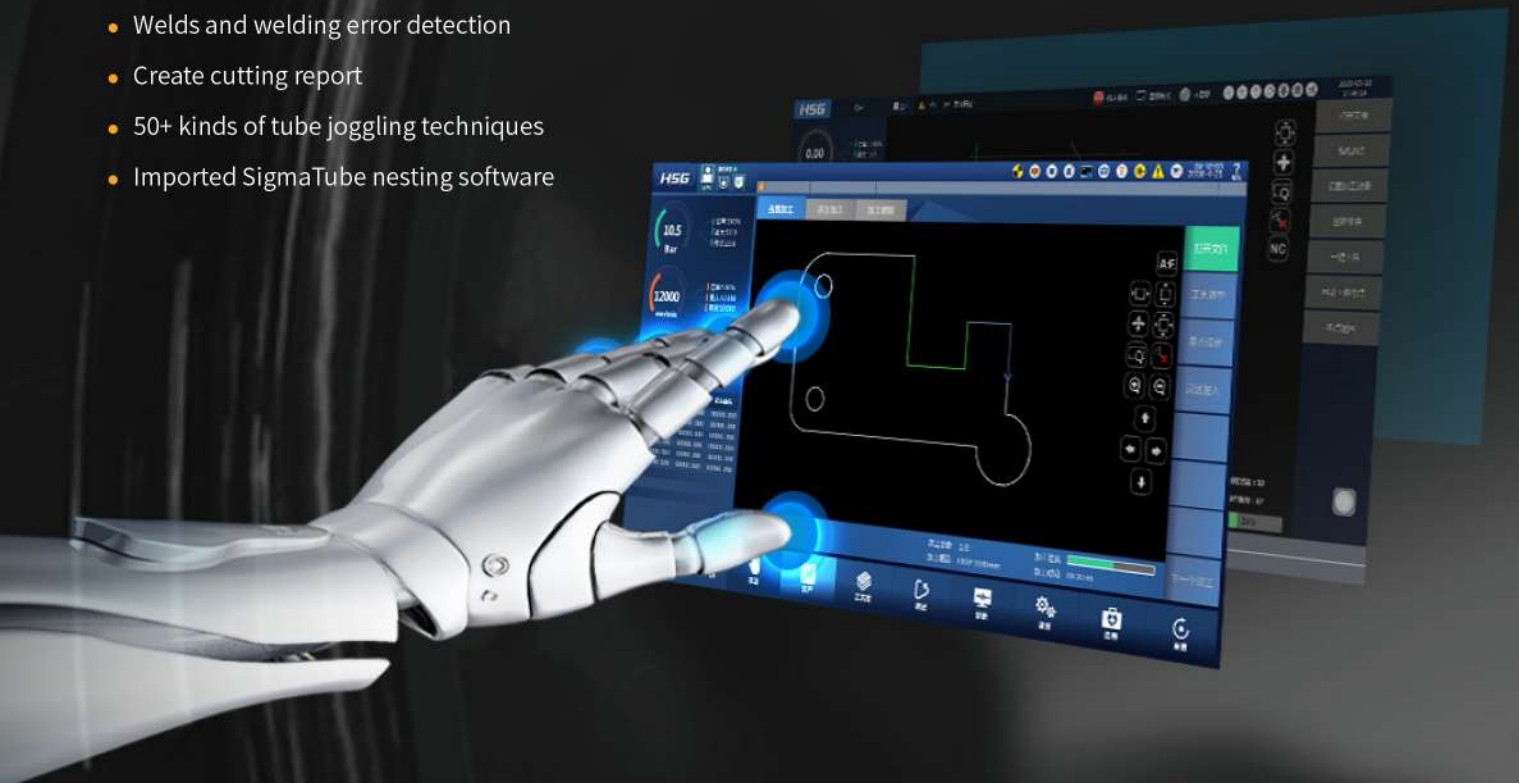
X9800 (V) -the domestic first control system aimed at four chucks and real zero tailing

**2020**

XMT (VI)-the domestic first multi-touch operating system

# HSG-X9000 INTELLIGENT CONTROL SYSTEM

- 21 inch touch-sensitive screen
- Show tube graphs, air pressure, power and speed in real time
- Integrated control of core components
- Welds and welding error detection
- Create cutting report
- 50+ kinds of tube joggling techniques
- Imported SigmaTube nesting software



- 1 Simple UI design
- 2 7\*24h butler smart service
- 3 Customization of personal functions
- 4 21 inch touch screen
- 5 SigmaTube nesting software
- 6 Flexible/batch processing mode
- 7 Power-off restart

📦 X9000 is designed in new HSG machine language and has simple UI & well-partitioned functions. It, upgraded from automation to intelligentization, can offer butler-style service and will redefine the operation difficulty and user-friendly features while cutting tubes.

- \* One-button start of our high-volume technical database, no need for manual programming.
- \* Real-time monitoring of core components, give early warning if abnormal.
- \* Closed-loop CNC system, self-adaptive clamping force.
- \* Remind to maintain machine bed after debugging & maintenance expiration.
- \* Power-off restart function, that is, start to work by clicking anywhere, minimizing tube scrapping.



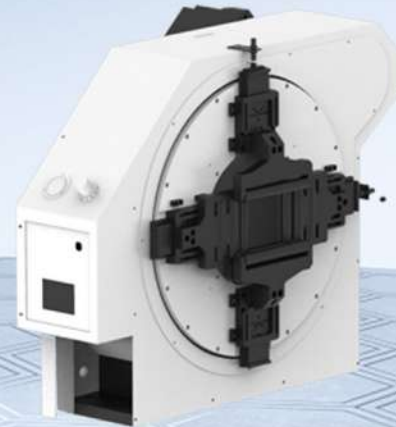
Channel steel roller  
and claws



Visible clamping  
pressure



Smoke-free cutting  
by blow-away function



- ⌘ No need for changing chucks halfway
- ⌘ High degree of clamping accuracy
- ⌘ Wide range of clamping
- ⌘ High efficiency and precision
- ⌘ Dust-proof chucks

## FULL-STROKE LARGE-CALIBER DOUBLE PNEUMATIC CHUCKS

- ⌘ Max. rotating speed of chucks 100r/min, max. no-load speed 100m/min, max. acceleration 1.0G.
- ⌘ Full-stroke chucks with no need for changing claws while clamping  $\Phi$ 20-254mm tubes, which helps to minimize non-productive duration, save labor costs by 50% and improve efficiency by 20%+.
- ⌘ 3 times faster than electric chucks by one-button clamping and automatic centering. Heavy tubes are clamped tightly by large and constant clamping force, securing the cutting precision.
- ⌘ Cut  $\Phi$ 20-254mm round tubes, 20\*20-200\*200mm square tubes, as well as profiles like rectangular tubes, angle, channel and H-shaped steel. Max. weight of single tube 200kg.



Cool down automatically for long-term cutting



Autofocus accuracy 0.01mm



Save cutting gas



Easy to realize mirror-like cutting



Cut more kinds of tubes



Dust-proof design

## KLINGE AUTOFOCUS LASER CUTTING HEAD

- ☞ Made of stainless steel, has water-cooling function, dual-path ultrasonic red copper cooling nozzle and ceramic ring.
- ☞ Japanese focusing & collimating lens, dual focusing protective lens.
- ☞ Gas flow is accurately controlled to realize mirror-like cutting easily.
- ☞ Water and gas hoses are protected by stainless steel tube to avoid spark splashing.
- ☞ Fast in piercing and cut tubes in most shapes and materials.
- ☞ Dust cover on Z axis prevents dust and ensures high precision.





Automatic loading & unloading



Improve efficiency by 20%



Save time, money and labor force by 50%



Lower the requirements of materials loaded



## INTELLIGENTIZED PRODUCTION LINE

### 🔗 Automatic loading & unloading

Semi-/full-automatic loading and intelligent unloading system can speed up the loading (19s required at the soonest) and sort out finished products & wastes, reducing the dependence on labor force and the labor intensity of workers.

### 🔗 Supporting rack

V- or Y-shaped supporting rack can prevent tubes moving or collision and make tube center point positioning more accurate.

### 🔗 Load more tubes of different quality

Distorted or out-of-straight tubes are also allowed to be loaded automatically.

### 🔗 More efficient in production and lower in costs

Machine debugging and test-run duration is greatly reduced to improve efficiency by 20% and save labor force by 50%.



Durable machine bed for 20+ years



IPG laser device



Solid beam with dust cover



Abundant optional accessories



Two-row rollers & claws



Sharp-pointed sensor



6mm (thickness) OD4 or OD6 laser-proof glass

## FURTHER UPGRADE IN MACHINE CONFIGURATION

### Dust-proof beam

Dust cover is installed on our beam to avoid dust accumulation.

### Durable machine bed

The integrated machine bed is non-deformable and durable and will work more stably for 20+ years after its welding stress is removed by high annealing and vibration aging.

### IPG laser device

The imported IPG laser device has high-quality laser beam, ultra-high output power, higher electro-optic conversion rate and lower maintenance costs. In other words, it is compact-sized, movable, durable, low-consumption and environmental-friendly.

### Intelligent sorting-out

During unloading, back gauge mechanism will sort out cutting products according to tube lengths. Finished tubes storage hopper is also installed for users.

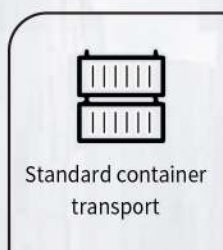
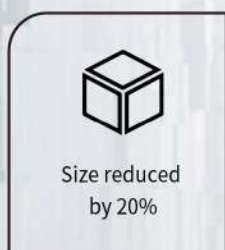
# SMALL SIZE, SAVE FREIGHTS

## Standard container transport

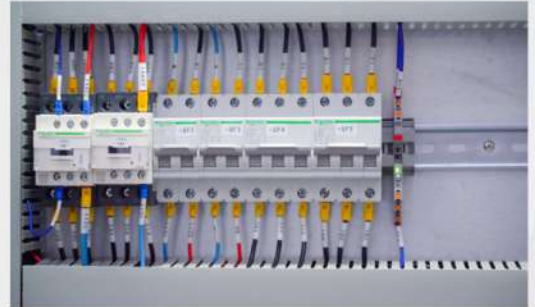
R5 is 20% smaller in size (L\*W 9940mm\*2600mm) than same-grade models and operated easily in a crowded workshop, as thus, users can spend less money on workshop rental and overseas transport because it is easily put in 40HQ+20GP or 40HQ+40HQ+20GP container.

## High-standard package

Our high-standard package, incl. aluminum foil, metal framework, fumigation wooden case, anti-rust oil+oilpaper, moisture-barrier bag, waterproof plastic film and filling foam, can satisfy ocean shipping criteria and will ensure that machines are transported to users safely.



# STANDARD WIRING

**CE**

CE-compliant  
electrical cabinet



No worry about  
wiring error



Much safer in  
operation

- 🔧 The electrical cabinet caters to EU CE standards and separates weak current from strong current area to prevent electromagnetic interference, dust entry and possible ignition.
- 🔧 External control elements are equipped with Phoenix pluggable fail-safe wiring terminal.
- 🔧 Every line matches with its own code. The optical fiber line, gas hose, water hose, strong current line and weak current line in wiring duct are arranged in different zones to prevent signal interference and frictional loss among lines.

# INTERNATIONAL FIRST-CLASS PNEUMATIC AND ELECTRICAL COMPONENTS



**IPG**

Laser device

**Japanese SHIMPO**

Speed reducer (incl. gear wheels)



**SANYO DENKI, Panasonic, Inovance**

AC servo motor and drive

**SMC/Aventics**

Gas circuit control



**Schneider**

Electrical control

# CLASSY MACHINE APPEARANCE

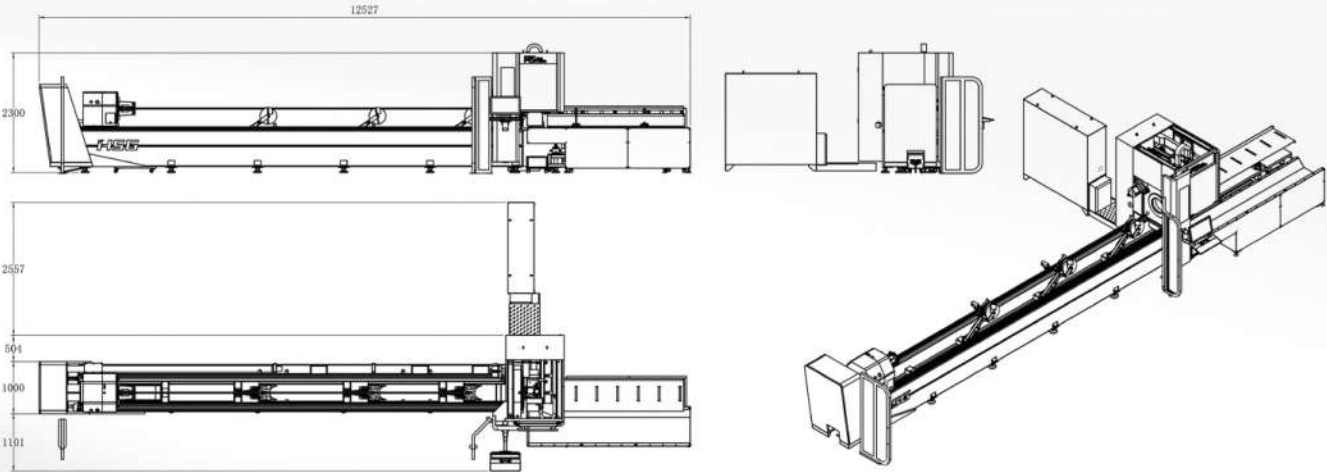


- 📦 In strict accordance with European design standards, HSG Laser adopts humanized console, suspension lamp and stainless steel edging for our machines.
- 📦 R5 is in blue and white, which will don't look dirty compared.
- 📦 Large operating screen and electric console. Our console will lift or fall only by pressing a button, which is friendly to all users of different heights and in different postures.

# CUTTING SAMPLES



# MACHINE FOUNDATION



# WHY HSG LASER IS THE BEST CHOICE FOR YOU?

## STRESS ON TECHNICAL R&D

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Persist in technology-driven, pay attention to independent R&D and adhere to unceasing upgrades. Until now, we have mastered many core technologies, incl. Alpha T bus control system, P series laser cutting heads, semi- or full-hollow machine bed, intelligent digital four chucks with real zero tailing, 3D five-axis 45° bevel cutting, HSG-X series cutting control systems, AD1835 independent capacitance height controller.



# STRESS ON MACHINES



## Complete

We have the most complete types of laser machines, incl. sheet metal laser cutting machines, sheet & tube laser cutting machines, tube metal laser cutting machines, welding machines, bending machine, automatic loading & unloading system.



## Wide

Range of machine power, 1.5-30kW, wide range of cutting dimensions,  $\Phi$ 10-426mm, 50kg-1500kg, 6000-12000mm sheets or tubes are easily processed.



## High

Our machine bed, beam, platforms, operating system, chucks, ventilation system and others are above industry criteria. Cutting is higher, faster, more stable and better in cutting effects. It is easy to get bright surface cutting with no need for subsequent polishing.



## Intelligent

HSG cloud intelligent system works with our Alpha T bus control system to enable remote repair, maintenance and working guidance. Users will get a full understanding of production and workers.



## Save

Our automatic loading & unloading system and intelligent operating system will free you from inefficient and time-consuming manual operation and help you to save labor forces and production costs.



# STRESS ON SAFETY, ENVIRONMENTAL PROTECTION AND DETAILS

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## SAFETY

Our machines are designed as full-protective and equipped with laser-proof glass in line with international standards. Safety grating will protect workers effectively and our cutting heads are anti-collision.



## ENVIRONMENTAL PROTECTION

Zoning hurricane-force ventilation system, under the control of butterfly valve, can realize almost smoke-free effects in combination with positive-pressure dust removal.



## MACHINE DETAILS

The front-placed electric cabinet will not be collided during loading or unloading. In this CE-compliant cabinet, weak current is separated from strong current area. The fail-safe wiring terminals and distributed wiring duct can prevent signal interference and frictional loss among lines.

# STRESS ON CUSTOMERS



4  
Subsidiaries

80000m<sup>2</sup> +  
Production Area

5000+  
Annual Productivity

3000+  
Global Sales in 2020

1600+  
Strivers

180+  
R&D Personnel

100+  
Countries & Regions  
Served

30+  
Global Service Outlets

## Save Costs



Hammer at cost reduction for users. Our laser machines, especially high-power machines can improve cutting efficiency and save labor forces & production costs for you. For all machines, air cutting is practicable to bring faster speed and lower costs. Such as, air cutting is 2-3 times faster than oxygen under 6kW and 40% costs will be saved. If 12kW, the former is 3-6 times faster than the latter. Low-pressure air cutting at lower costs is suitable for 6kW+ machines. They will perform well in cost reduction.

## Strong Production Capacity and Intimate After-sales Service



HSG has established wholly-owned subsidiaries in Germany and Japan. Our production area in China is over 80000m<sup>2</sup>, where 5000+ machines will be put on the market every year. 30+ operation service outlets have been founded worldwide to serve over 100 countries and regions. The warranty period of all machines will last for 1 year. We also provide technical training, installation and software upgrades for free.

## STRESS ON COOPERATION WITH STRONG ENTERPRISES

We import international first-class spare parts. HSG is the world's largest cooperative partner of IPG. The speed reducer, gear wheel and racks of many machines are completely imported from German Alpha. We also develop extensive cooperation with Japanese SMC, Panasonic, German Lanny and Aventics, French Schneider, etc.



# STRICT IN QUALITY CONTROL FLOW



## PROFESSIONAL AFTER-SALES SERVICE



After signing for receiving, you will enjoy one-year warranty period (except for vulnerable parts like conductive optical fiber and lens, consumables, force majeure incl. natural disaster and war, unprofessional operations, man-made destroy). We will help all users to enjoy after-sales service. Our specially trained after-sales engineers will offer global users technical supports and services via phone (+86 400 8229 288) or network, or provide some necessary field service. You will be responded within 2h if phone or network is used.



You may also dial above phone number to report machine failure and ask for consultation services concerning technology, spare parts, extension of warranty period or maintenance.



OUR  
HEADQUARTERS



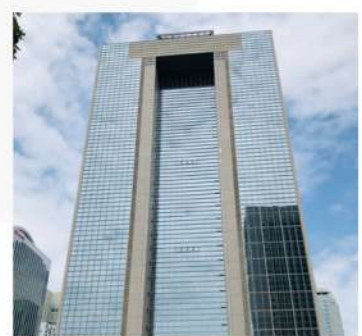
SUZHOU  
SUBSIDIARY



GERMAN  
SUBSIDIARY



JINAN  
SUBSIDIARY



JAPANESE  
SUBSIDIARY



## TABLE OF TUBE THICKNESS AND CUTTING SPEED

Material name	Thickness (mm)	IPG CUTTING SPEED (m/min)				Raycus CUTTING SPEED (m/min)		
		2000W	3000W	4000W	6000W	1500W	2200W	3300W
Carbon steel (O2)	1	7.0-12.0	7.0-12.0	7.0-12.0	7.0-12.0	6.0-11.0	7.0-12.0	7.0-12.0
	2	5.0-6.5	5.0-7.0	5.0-7.2	5.0-7.2	5.0-6.6	5.0-6.5	5.0-7.0
	3	3.0-4.6	3.5-5.0	3.5-5.3	3.5-5.3	3.0-3.6	3.0-4.6	3.5-5.0
	4	2.8-4.0	3.0-4.2	3.0-4.4	3.0-4.4	2.0-3.0	2.8-4.0	3.0-4.2
	5	2.2-3.2	2.5-3.6	2.5-3.8	2.5-3.8	1.8-2.4	2.2-3.2	2.5-3.6
	6	2.0-2.8	2.4-3.0	2.4-3.2	2.4-3.2	1.5-2.0	2.0-2.8	2.4-3.0
	8	1.3-2.0	1.8-2.4	1.8-2.6	1.8-2.6	1.0-1.3	1.4-2.0	1.8-2.4
Carbon steel (N2)	1	6.0-20.0	6.0-20.0	6.0-22.0	6.0-23.0	6.0-20.0	6.0-20.0	6.0-20.0
	2	4.0-13.0	5.0-14.0	5.0-15.0	5.0-16.0	3.5-9.0	4.5-12.0	5.0-14.0
	3		4.0-10.0	4.0-11.0	4.0-13.0			4.0-10.0
Stainless steel (N2)	1	6.0-20.0	6.0-20.0	6.0-22.0	6.0-28.0	6.0-20.0	6.0-20.0	6.0-20.0
	2	5.0-15.0	5.5-17.0	5.5-27.0	5.5-28.0	5.0-9.6	5.0-13.0	5.5-17.0
	3	3.0-7.0	5.0-11.0	5.0-15.0	5.0-17.0	2.0-4.0	3.0-6.5	5.0-11.0
	4	1.5-4.5	3.0-6.0	3.0-7.5	3.0-8.5	1.0-3.0	2.0-4.5	3.0-6.0
	5	1.0-2.5	2.0-4.0	2.0-5.0	2.0-6.0	0.5-1.5	1.2-2.5	2.0-4.0
	6	0.4-0.8	1.0-3.2	1.0-4.0	1.0-5.0		1.0-1.8	1.0-3.2
	8		0.6-1.8	0.6-2.6	0.6-3.2			0.6-1.8
Aluminum alloy (N2)	1	6.0-20.0	6.0-20.0	6.0-22.0	6.0-24.0	6.0-20.0	6.0-20.0	6.0-20.0
	2	4.0-15.0	4.5-16.0	4.5-21.0	4.5-23.0	3.0-9.0	3.0-10.0	4.5-16.0
	3	2.0-6.0	3.0-6.0	3.0-9.0	3.0-10.0	1.0-3.0	2.0-6.0	3.0-6.0
	4	1.0-3.6	1.0-3.6	1.0-4.5	1.0-5.5		1.0-3.0	1.0-3.6
	5	1.0-2.4	1.0-2.4	1.0-3.0	1.0-4.0			1.0-2.4
	6	0.5-1.5	0.5-1.5	0.5-2.5	0.5-3.5			0.5-1.5
	8		0.3-0.7	0.3-0.7	0.3-1.2			
Brass (N2)	1	6.0-20.0	6.0-20.0	6.0-22.0	6.0-24.0	6.0-20.0	6.0-20.0	6.0-20.0
	2	2.5-9.0	2.0-11.0	2.0-13.0	2.0-15.0	2.0-6.0	2.0-8.0	2.0-11.0
	3	1.5-4.0	1.0-6.0	1.0-6.5	1.0-6.8	1.0-1.8	1.5-4.0	1.0-6.0
	4	1.0-2.2	1.0-4.5	1.0-5.2	1.0-5.7		1.0-2.2	1.0-4.5
	5		0.7-2.0	0.7-3.0	0.7-3.5			0.7-2.0
	6		0.5-1.6	0.5-2.0	0.5-2.5			
Red copper (O2)	1	6.0-18.0	6.0-20.0	6.0-22.0	6.0-23.0	6.0-12.0	6.0-13.0	6.0-20.0
	2	2.5-6.5	3.0-9.0	3.0-10.0	3.0-13.0	1.8-3.6	2.0-6.0	3.0-9.0
	3	1.0-1.8	1.0-3.0	1.0-3.5	1.0-4.5			1.0-3.0

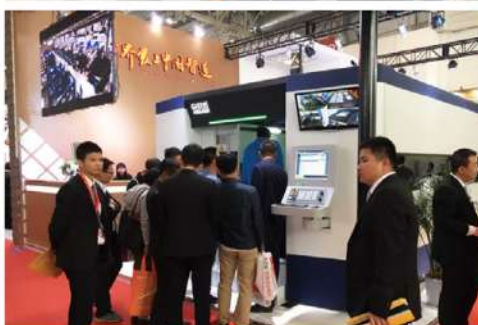
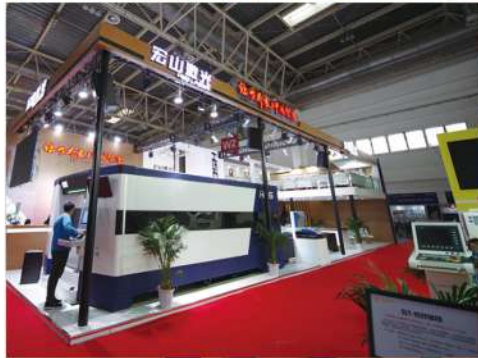
## COMPARISON OF CUTTING GAS AND COSTS BETWEEN LOW AND HIGH POWER

		2000-3000W				8000-15000W			
Material Name	Thickness (mm)	Cutting pressure (Mpa)	Gas consumption (M <sup>3</sup> /H)	Weight of liquefied gas (kg/H)	In total (RMB)	Cutting pressure (Mpa)	Gas consumption (M <sup>3</sup> /H)	Weight of liquefied gas (kg/H)	In total (RMB)
<b>Stainless Steel (N2)</b>	0.5-1	1.2	14.625	13.16	13.16	1.2	14.625	13.1625	15.795
	1.1-2.0	1.3	15.75	14.17	14.17	1.3	15.75	14.175	17.01
	1.5-2.0	1.4	16.875	15.18	15.18	1.4	16.875	15.1875	18.225
	2.1-3.0	1.5	34	30.6	30.6	1.5	34	30.6	36.72
	3.1-4.0	1.6	53.125	47.81	47.81	1.6	53.125	47.8125	43.03125
	4.1-5.0	1.7	72	64.8	64.8	1.7	72	64.8	77.76
	5.1-6.0	1.9	90	81	81	1.9	90	81	97.2
	6.0-8.0	2.2	140.875	126.78	126.78	2.2	140.875	126.7875	152.145
	9.0-10.0	2.3	192	172.8	172.8	2.3	192	172.8	207.36
	10.1-12.0					2.4	200	180	216
	14.0-16.0					2.5	208	187.2	224.64
	18.0-22.0					2.5	208	187.2	224.64
	24.0-26.0					2.5	208	187.2	224.64
	30.0-50.0					2.5	208	187.2	224.64
<b>Carbon Steel (O2)</b>	0.5-1	0.5	6.75	6.07	7.29	0.5	6.75	6.075	7.29
	1.1-2.0	0.45	6.1875	5.56	6.68	0.45	6.1875	5.56875	6.6825
	2.1-3.0	0.4	5.625	5.06	6.07	0.4	5.625	5.0625	6.075
	3.1-6.0	0.2	3.375	3.03	3.64	0.2	3.375	3.0375	3.645
	6.1-8	0.15	5	4.5	5.4	0.15	5	4.5	5.4
	10.0-12.0	0.15	5	4.5	5.4	0.15	5	4.5	5.4
	12.1-14.0	0.15	7.815	7.03	8.44	0.15	7.815	7.0335	8.4402
	14.1-16.0	0.15	11.25	10.12	12.15	0.15	11.25	10.125	12.15
	16.1-20.0	0.15	20	1.8	21.6				
	16.1-50.0					0.15	20	1.8	21.6



# EXHIBITIONS

ALL OVER THE WORLD



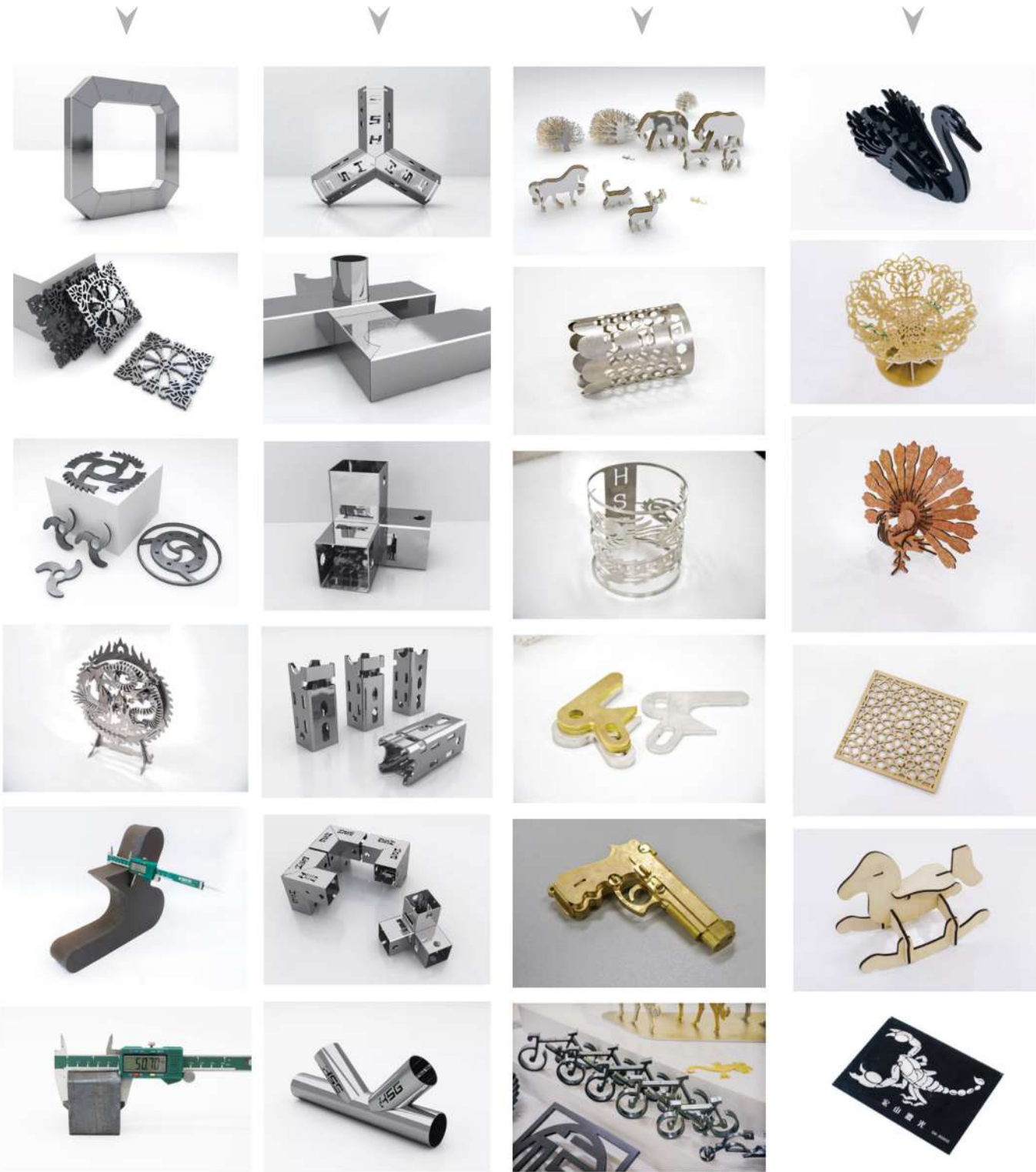
# CUTTING SAMPLES

Sheet cutting

Tube cutting

High-precision cutting

Artistic decorations



Edition No.: 2021.06

All technical parameters shall be subject to the latest edition.