



## PRODUCT INTRODUCTION

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Scan the QR code for  
more information



SUZHOU USILAND OPTOELECTRONICS CO., LTD





**USiLAND<sup>®</sup>**

**PROFESSIONAL LASER CLEANING  
DEVICE MANUFACTURER**

SUZHOU USILAND OPTOELECTRONICS CO., LTD

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## COMPANY HONOR



High Quality

High Efficiency

Excellent service



## COMPANY PROFILE

Suzhou Usiland Optoelectronics Co., Ltd. was established on January 22, 2015, with a registered capital of 26666666 yuan. It is one of a limited number of national high-tech enterprises in China that starts with laser cleaning technology and then expands to mold cleaning, nuclear power plant waste reduction, rail transit, foreign body removal from power grid and other fields.

## COMPANY POSITIONING

Help customers reduce cleaning costs, improve cleaning efficiency and create value for customers

## COMPANY VISION

## COMPANY MILESTONES

- Oct., 2015 The company's first laser cleaning equipment Raptor20 was successfully developed and sold
- July 2016 Approved as Jiangsu Province Science and Technology SME
- May 2017 Passed ISO9001(2015 version) Quality System Certification and EU Safety Certification(CE certificate)
- June 2017 Approved as Jiangsu Province Private Science and Technology Enterprise
- Aug., 2017 Obtained the National High-tech Product Certificate with the laser cleaning products
- Dec., 2018. Awarded as Leading Growth Talent
- 2019年08月 Pass ISO9001 Certification and CE again.
- Nov., 2019 Awarded as Trustworthy Enterprise
- Nov., 2019 Awarded as AAA Enterprise
- May 2020 Obtained Environmental Management System ISO14001 and Occupational Health Management System ISO45001 Certification
- Aug., 2020 Won the third prize of 2020 Jiangsu Province SME Innovation and Entrepreneurship Competition
- Sep., 2020 Approved as Listed Nursery Enterprise by the Park
- Dec., 2020 Awarded as Suzhou Annual Innovation Person
- Oct., 2021 Won the honor of Gazelle Enterprise Cultivation
- Nov., 2021 Passed the National High-tech Enterprise review
- June 2022 Passed the Intellectual Property Management System Certification
- July 2022 Passed the Information Technology Service Management and Information Security Management System Certification
- Sep., 2022 Rated as the first set of major equipment in Suzhou Industrial Park
- Nov., 2022 Entitled as Suzhou Non-destructive Laser Cleaning Equipment Engineering Technology Research Center



## PRODUCTS AND SOLUTIONS

- Use the high energy of laser to blast the impurities on the surface of the workpiece to be cleaned so as to achieve the purpose of cleaning.
- Green, energy saving, zero emissions, no water or chemicals used.
- Manual, automatic, online cleaning

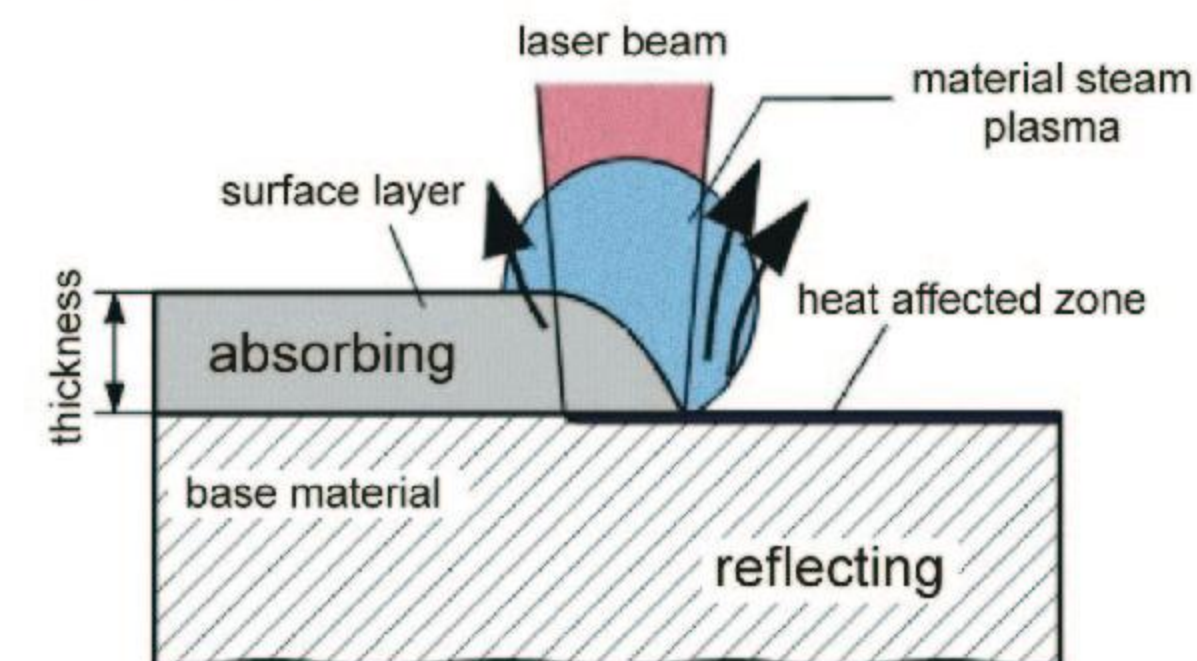


Main function : Removal of oxide film, sulfide, paint, grease, rust, solder splash, etc.

## ABOUT LASER CLEANING

### PRINCIPLE OF SURFACE LASER CLEANING

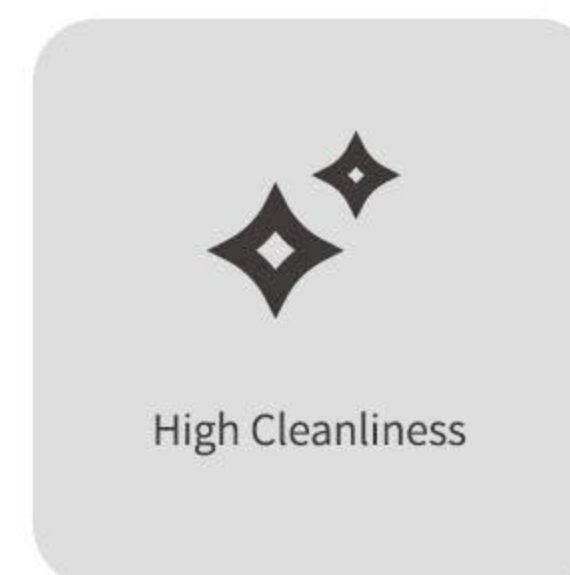
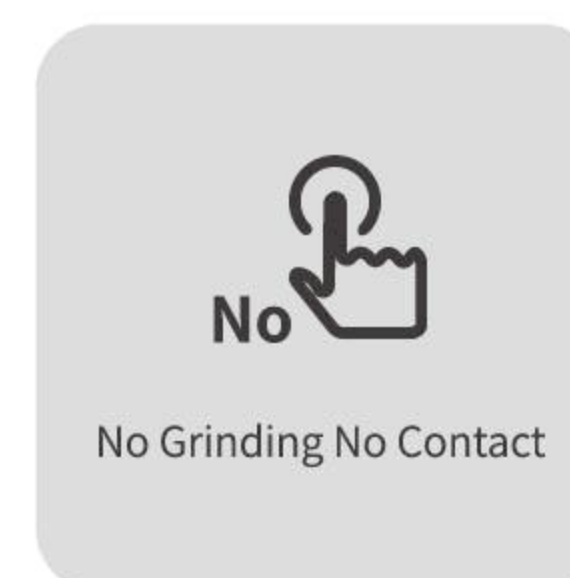
- The coating is removed by absorbing the focused laser energy;
- The high-energy but short-time laser pulse has little effect on the substrate surface;
- The blank base surface reflects the laser, and the stripping process is completed;
- The metal material will not be damaged or melted with correct laser parameters and the optimal wavelength.



### PRINCIPLE OF SURFACE LASER CLEANING

- The coating layer is vaporized (fall off due to sublimation)
- Removed by the pressure caused by high temperatures

### ADVANTAGES OF LASER CLEANING





# RHINOCEROS HERITAGE CLEANING MACHINE

## ● PRODUCT INTRODUCTION

- For laser cleaning precision components
- No damage on the material surface
- Lamp pumped laser
- Water cooling system
- Short working distance (approx. 20mm)
- Single pulse energy up to 800mJ



# RHINOCEROS HERITAGE CLEANING MACHINE



## ● APPLICATION EXAMPLES



## ● PRODUCT APPLICATION

- Rust and deoxidizing layer removal of old coins and bronzes
- Cleaning of small area coating layer of probe
- Surface pretreatment before bonding
- Solder splash removal
- Dried petal removal
- Stone cleaning
- Dental cleaning

ITEM	Parameter
Size (h×w×d )[mm]	Approx. 1000×310×860
Weight (approx.)[kg]	60
Cooling System	Water-Cooled
Single Pulse Energy [mJ]	800[1064]
Wavelength [nm]	1064/532
Power Requirements	220V AC
Max Power Consumption [W]	200
Min / Max Working Temperature [°C ]	5-40
Humidity [%]	10-95
Laser Grade	IV



# RAPTOR-20/30/50 REMOVABLE LASER CLEANING DEVICE

## ● PRODUCT INTRODUCTION

- For precise surface laser cleaning
- DPSSL
- Battery powered (optional)
- Silent air cooling system
- Long working distance (up to 250mm)
- Laser grade CLASS IV

## ● SYSTEM FEATURES

- Power supply mode optional (power source&battery )
- Mature high tolerance and beam smoothing technology
- Uniform surface cleaning
- Laser working distance up to 250mm
- Optical fiber length up to 2m 2m
- Rechargeable battery pack
- 2D scan unit



# RAPTOR-20/30/50 REMOVABLE LASER CLEANING DEVICE



## ● APPLICATION EXAMPLES



## ● PRODUCT APPLICATION

- Deoxidizing layer removal
- Surface pretreatment before welding
- Semiconductor surface pretreatment before packaging
- Stone relics cleaning
- Residues removal of small mold
- Precise paint removal of metal

ITEM	Parameter
Size (h×w×d )[mm]	Approx. 390×210×450
Weight (approx.)[kg]	18
Cooling System	Internal Air Cooling System
Laser Power [W]	20/30/50
Wavelength [nm]	1064
Power Requirements (incl. quick charger)	220V AC
Max Power Consumption [W]	250-460
Min / Max Working Temperature [°C ]	5-40
Humidity [%]	10-95
Laser Grade	IV



# RAPTOR-100/200 REMOVABLE LASER CLEANING DEVICE

## ● PRODUCT INTRODUCTION

- For precise surface laser cleaning
- No damage to material surface
- DPSSL
- Battery powered
- Optional operation mode
- Silent air cooling system
- Long working distance (up to 250mm)

## ● SYSTEM FEATURES

- Smart touch operation panel
- Power supply mode optional (power source&battery )
- Draggable
- Laser working distance up to 250mm
- Optical fiber length up to 2m
- Anti-jitter design, uniform cleaning
- Handheld, automatic
- Local spot cleaning



\*The appearance and color of the device are for reference only

# RAPTOR-100/200 REMOVABLE LASER CLEANING DEVICE

## ● APPLICATION EXAMPLES



## ● PRODUCT APPLICATION

- Pre-welding treatment of solar collector tube
- Ancient building decoration cleaning
- High-end cutting tool cleaning and remanufacturing
- Mobile phone screen coating cleaning
- High-end mold degreasing and resin residue removal
- Stripping of photoresist of mobile phone fingerprint module before packaging
- Nuclear power plant reactor pipeline cleaning

ITEM	Parameter
Size (h×w×d ) [mm]	Approx. 756×336×774
Weight (approx.) [kg]	45
Cooling System	Internal Air Cooling System
Laser Power [W]	100/200
Wavelength [nm]	1064
Power Requirements (incl. quick charger)	220V AC
Max Power Consumption [W]	460-1000
Min / Max Working Temperature [°C ]	5-40
Scan Width [mm]	10-300, continuously adjustable, double-shaft, 7 scan modes supported
Humidity [%]	10-95
Laser Grade	IV



# Raptor-500 Removable Laser Cleaning Device

## PRODUCT INTRODUCTION

- Non-destructive cleaning with high accuracy and high efficiency
- Automatic online cleaning
- Silent air cooling system
- Long working distance (up to 250mm)
- Average power up to 500W
- Laser grade CLASS IV

## SYSTEM FEATURES

- Pulsed fiber laser
- Touch screen intelligent human-computer interface
- Suitable for robot
- Modular design, flexible component
- Laser head output power
- Detect plasma release
- The plasma produced during cleaning was analyzed by spectral analysis=Cleaning effect information
- High plasma strength = High laser intensity
- High plasma strength = Heavy stain/oxide

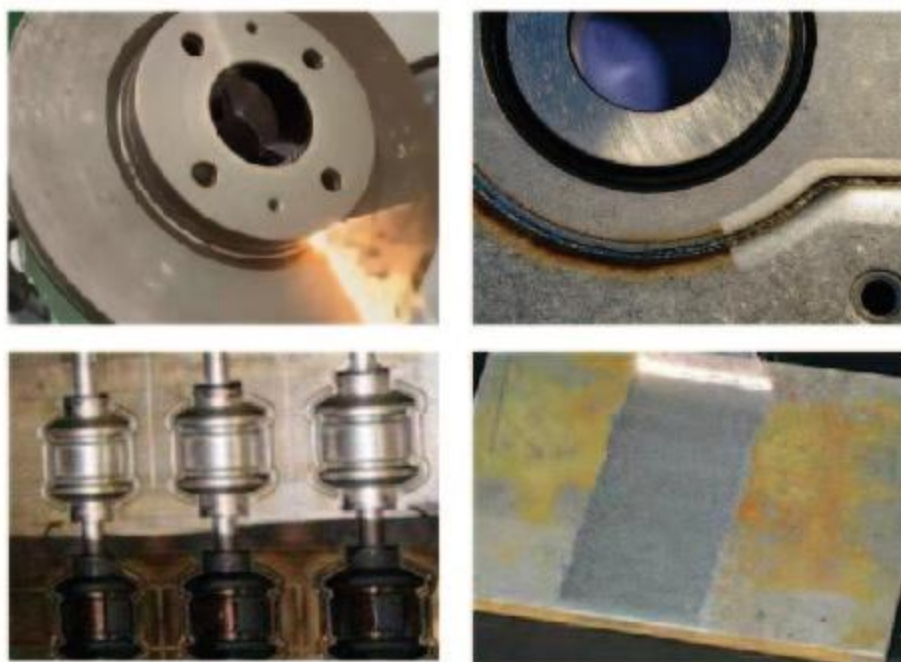


\*The appearance and color of the device are for reference only

# RAPTOR-500 REMOVABLE LASER CLEANING DEVICE



## APPLICATION EXAMPLES



## PRODUCT APPLICATION

- Wheel mould desulfide
- Rubber mold cleaning
- Aircraft engine components degreasing and derusting
- Power battery PACK pre-welding treatment
- Automobile engine mold cleaning
- Aircraft cowling cleaning
- Aircraft Kruger flaps cleaning
- Automobile pre-welding treatment
- Maintenance stripper treatment

ITEM	Parameter
Size (h×w×d)[mm]	Approx. 1050×620×1030
Weight (approx.)[kg]	140
Single Pulse Energy [mJ]	50-100
Cooling System	Water-Cooled
Laser Power [W]	500 (can be customized to 200W or 300W as per customer needs)
Wavelength [nm]	1064
Power Requirements (incl. quick charger)	220V AC
Max Power Consumption [W]	2000
Min / Max Working Temperature [°C ]	5-40
Scan Width [mm]	10-300, continuously adjustable, double-shaft, 7 scan modes supported
Humidity [%]	10-95
Laser Grade	IV



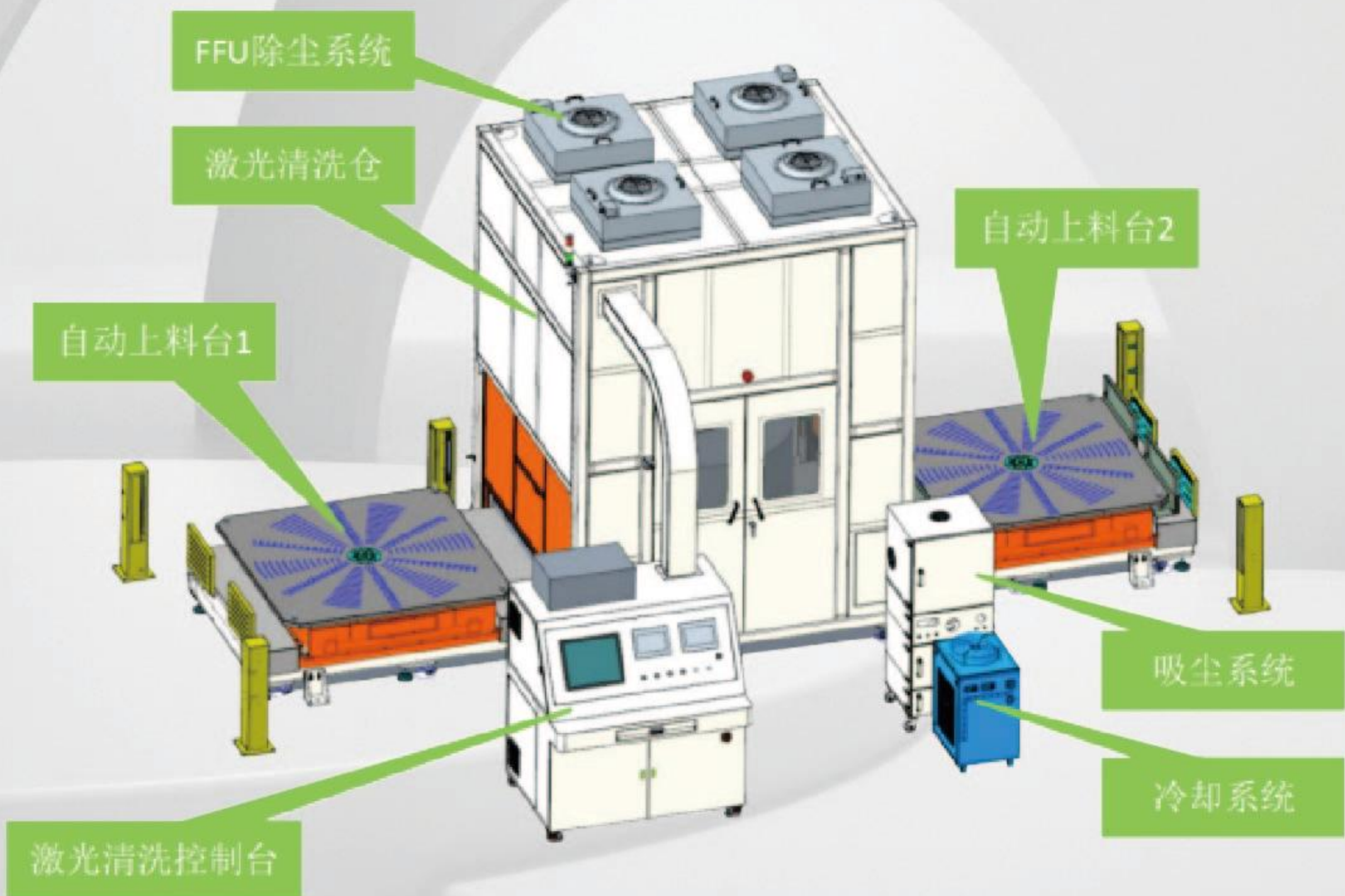
# S-TMCS-500 AUTOMATIC TIRE MOLD CLEANING DEVICE

## ● PRODUCT INTRODUCTION

- High-quality laser cleaning
- Low emission in the whole cleaning process
- Low operating cost
- Thoroughly cleaning the side wall and tread of the tire without damage during the entire cleaning process
- No consumable materials (Neither water, dry ice, sand blasting nor blasting medium)
- Washable hot and cold molds—including press mold and off-line mold
- No damage, residue or color difference on the mold surface after laser cleaning

## ● FEATURES AND OPTIONS

- High-quality laser cleaning
- Low emission in the whole cleaning process
- Low operating cost
- Thoroughly cleaning the side wall and tread of the tire without damage during the entire cleaning process
- No consumable materials (Neither water, dry ice, sand blasting nor blasting medium)
- Washable hot and cold molds—including press mold and off-line mold
- No damage, residue or color difference on the mold surface after laser cleaning



# S-TMCS-500 AUTOMATIC TIRE MOLD CLEANING DEVICE

## ● PRODUCT APPLICATION

- Tire mold online cleaning
- Thorough cleaning of gum, rust, residues
- The outer surface of the mold is bright after cleaning, and there is no such damage as wire drawing, burn spot and color difference

## ● APPLICATION EXAMPLES



ITEM	Parameter
Working Mode	Automatic Offline Cleaning
Single Pulse Energy [mJ]	50-100
Cooling System	Water-Cooled
Laser Power [W]	500
Wavelength[nm]	1064
Min / Max Working Temperature [°C ]	5-40
Humidity[%]	10 – 95 (non-condensing)
Laser Grade	IV
Power Requirements	220V AC
Cleaning Method	fully automatic cleaning of side panels+pattern block (need to remove mold cover, insulation cover or mold cover, or remove mold cover and place it in blocks for automatic cleaning, 2 kinds of automatic process cleaning) +two-piece mold
Laser Cleaning Head	<1.5KG, with the function of galvanometer feedback, effective protection of cleaning tools
Intelligent Operation	One-click, with the function of ERP, MES, production history and video inquiry
New Product Introduction Time [Min]	Time<2
Machines Switch Time [s]	Time<30
Cleaning Size [in.]	11-75
Cleaning Efficiency [Min]	



# WHEELSET CLEANING MACHINE

## ● PRODUCT INTRODUCTION

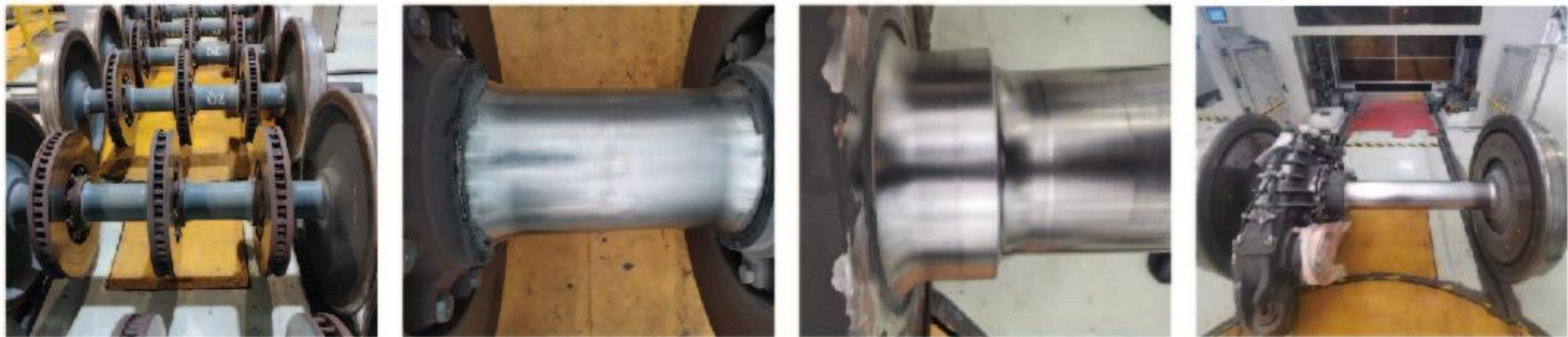
- Built-in vacuum cleaning system
- No damage to wheelset surface
- Automatic cleaning operation improves working efficiency and emancipate liberate workers' productivity
- Cabinet sealed and isolated from the production area

# WHEELSET CLEANING MACHINE

## ● PRODUCT APPLICATION

- Operate without thermal effect, remove paint rust and other attachments on the surface of the product
- Sealed and non-contact operation, dust removal and environmental protection
- Safely clean the precision workpiece or its fine parts to ensure accuracy
- Transmitted by optical fiber and coordinate with manipulator/robot, easy to achieve remote operation and clear away the areas could not be covered by traditional cleaning method so as to ensure construction safety

## ● APPLICATION EXAMPLES



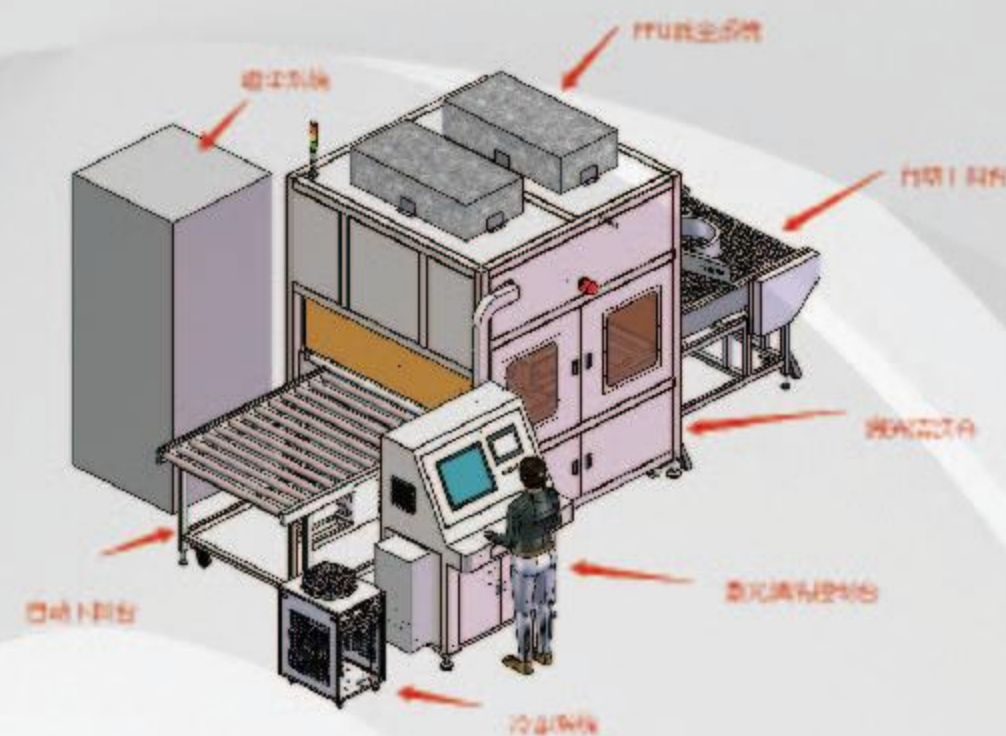
ITEM	Parameter
Size (h×w×d)[mm]	Approx. 230×225×160
Weight (approx.)(kg)	6 (Excluding components such as lines and water pipes)
Cooling System	Water-Cooled
Wavelength[nm]	1064
Power Requirements	380V AC
Max Power Consumption [W]	6000
Min / Max Working Temperature [°C ]	5-40
Humidity [%]	≤80
Laser Grade	IV
Scan Width [mm]	10--170
Working Mode	Onboard
Focal length [mm]	440
Cable Length [m]	15
Cleaning Method	Fully Automatic Wheelset Cleaning
Cleaning Efficiency [Min]	2



# TCS-500 AUTOMATIC TIRE INNER WALL CLEANER

## PRODUCT INTRODUCTION

- 100% Automatic cleaning process flow
- High power infrared laser source
- The combination of tire snatch unit and optical system ensures cleaning effect
- High power dust removal system
- Fast loading and unloading system with double tables
- Individual station cycle: 60s/P. Reference tire 205/55/R16
- Clean the oil on the inside surface of the tire, and the main component of oil pollution is methylhydrosiloxane (5~15%) and water. The standard of cleaning is to increase the friction coefficient of the inner surface to above 35mN/m.
- Cleaning range 90cm^2/sec



# TCS-500 AUTOMATIC TIRE INNER WALL CLEANER

## Application examples

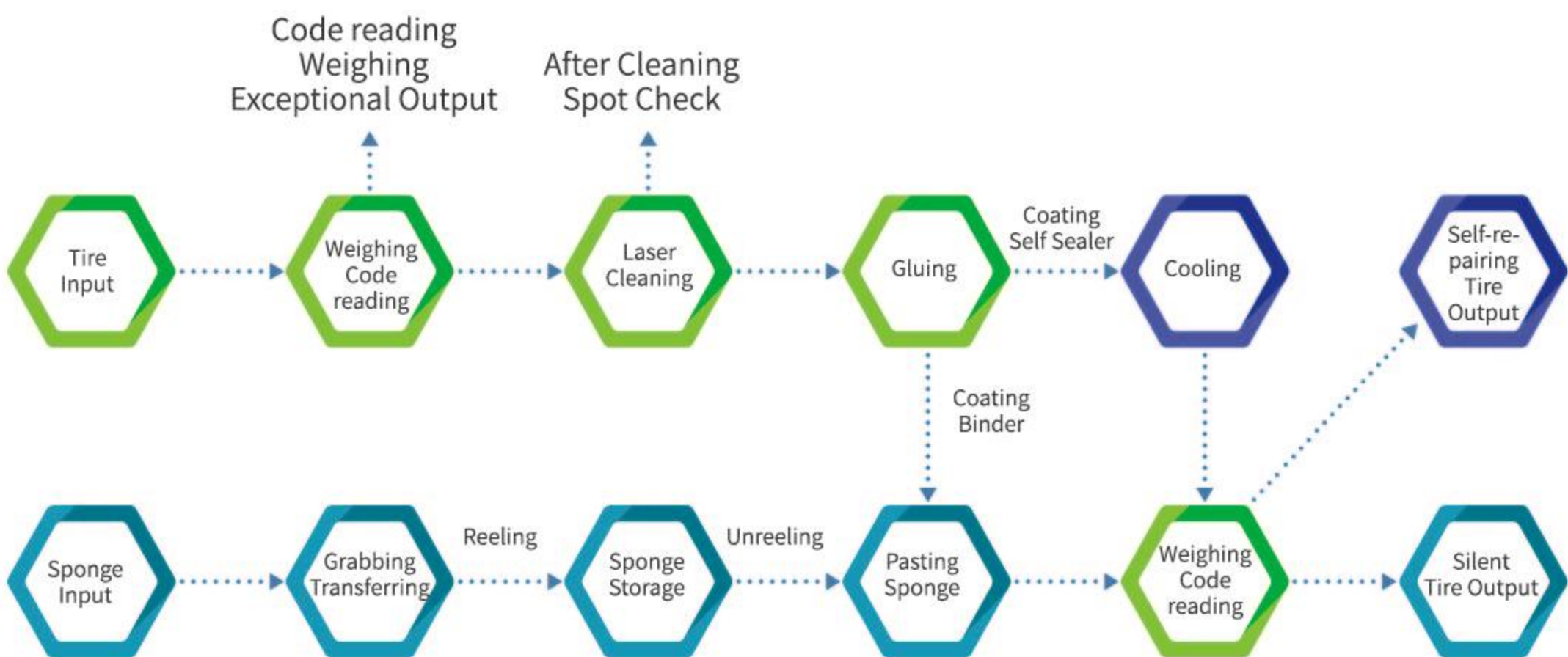
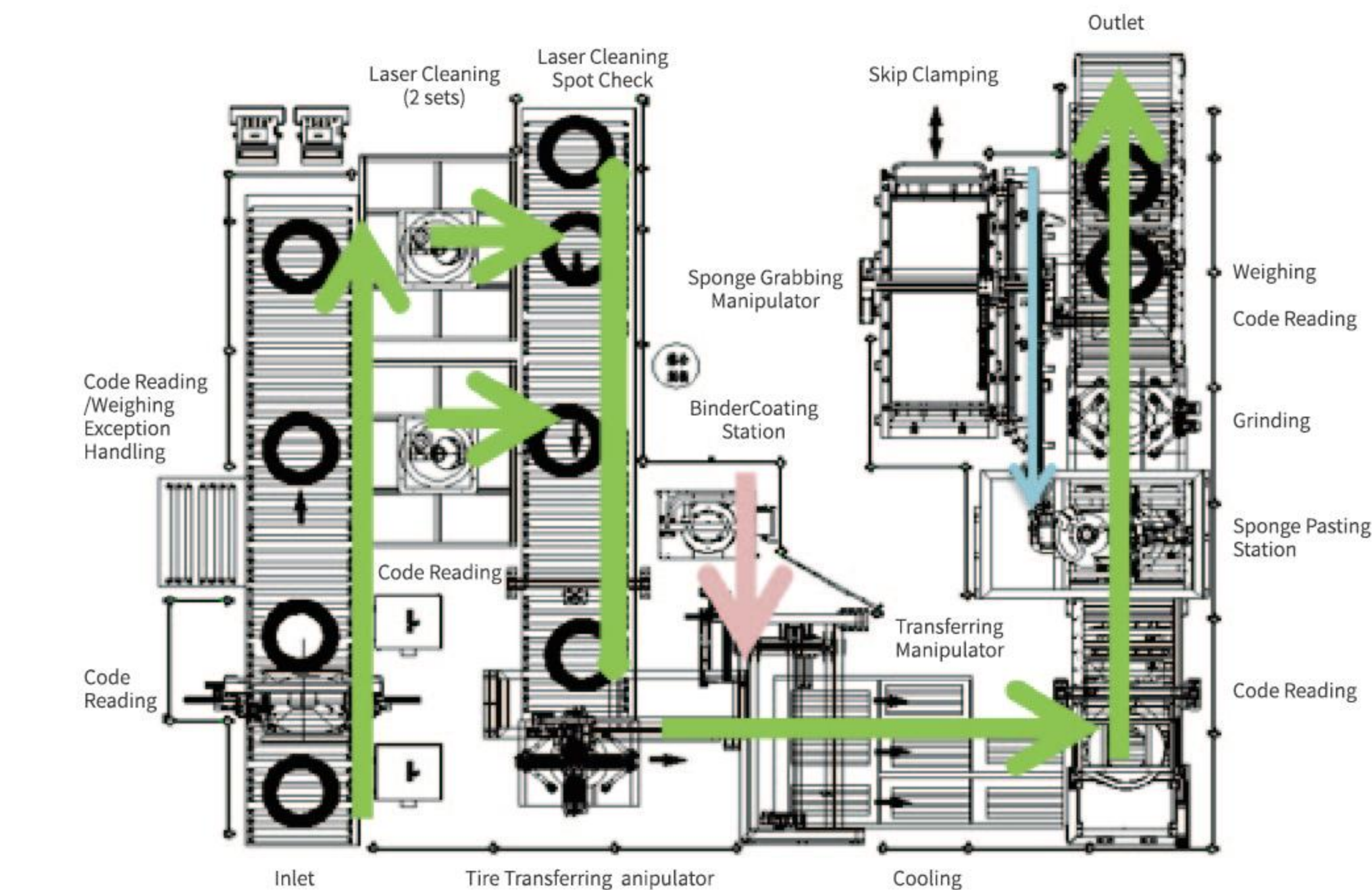


ITEM	Parameter
Type of Laser	Fiber Laser
Laser Power [W]	≥1000/500
Power Adjustment Range [%]	10-100 (Adjustable)
Wavelength [nm]	1064
Conductive Fiber Length [m]	10-15
Single Pulse Energy [mJ]	≥100/≥50
Single-turn Cleaning Width [mm]	≥160
Laser Safety Class	Class 4
Cooling Method	Water-Cooled
Laser Cleaning Time [s]	≤30 seconds: applicable to 15 inch tire, including loader and unloader time (no more than 15 seconds) ≤60 seconds: applicable to all tires
Service Life [h]	≥80000
Size (h×w×d) [mm]	5300*4000*2800
Electrical Requirements	AC220; 50Hz
Weight [kg]	4000
Parametric Description	Value
Applicable Tire Size [inch]	14-24
Applicable Tire Outer Diameter [mm]	500-930
Applicable Tire Inner Diameter [mm]	480-910
Applicable Tire Section Width [mm]	150-420
Applicable Tire Side Height [mm]	35-190
Applicable Tire Inner Bead Spacing [mm]	≥80
Maximum Tire Weight [kg]	



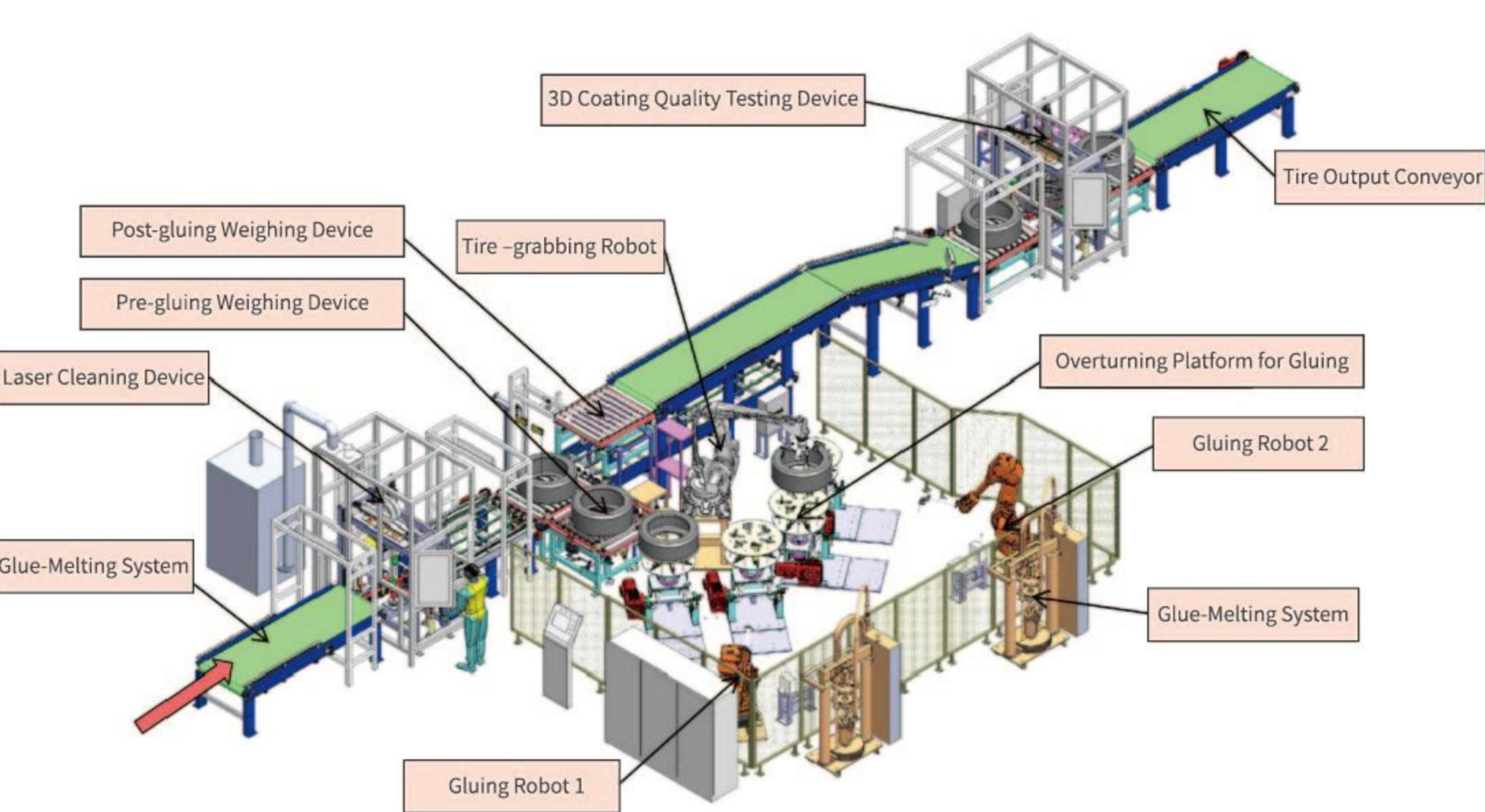
# SEMI-STEEL SILENT TIRE PRODUCTION LINE

## ● PRODUCT INTRODUCTION



# SELF-SEALING TIRE GLUING MACHINE

## ● PRODUCT INTRODUCTION



## ● PRODUCT USE PRINCIPLE

