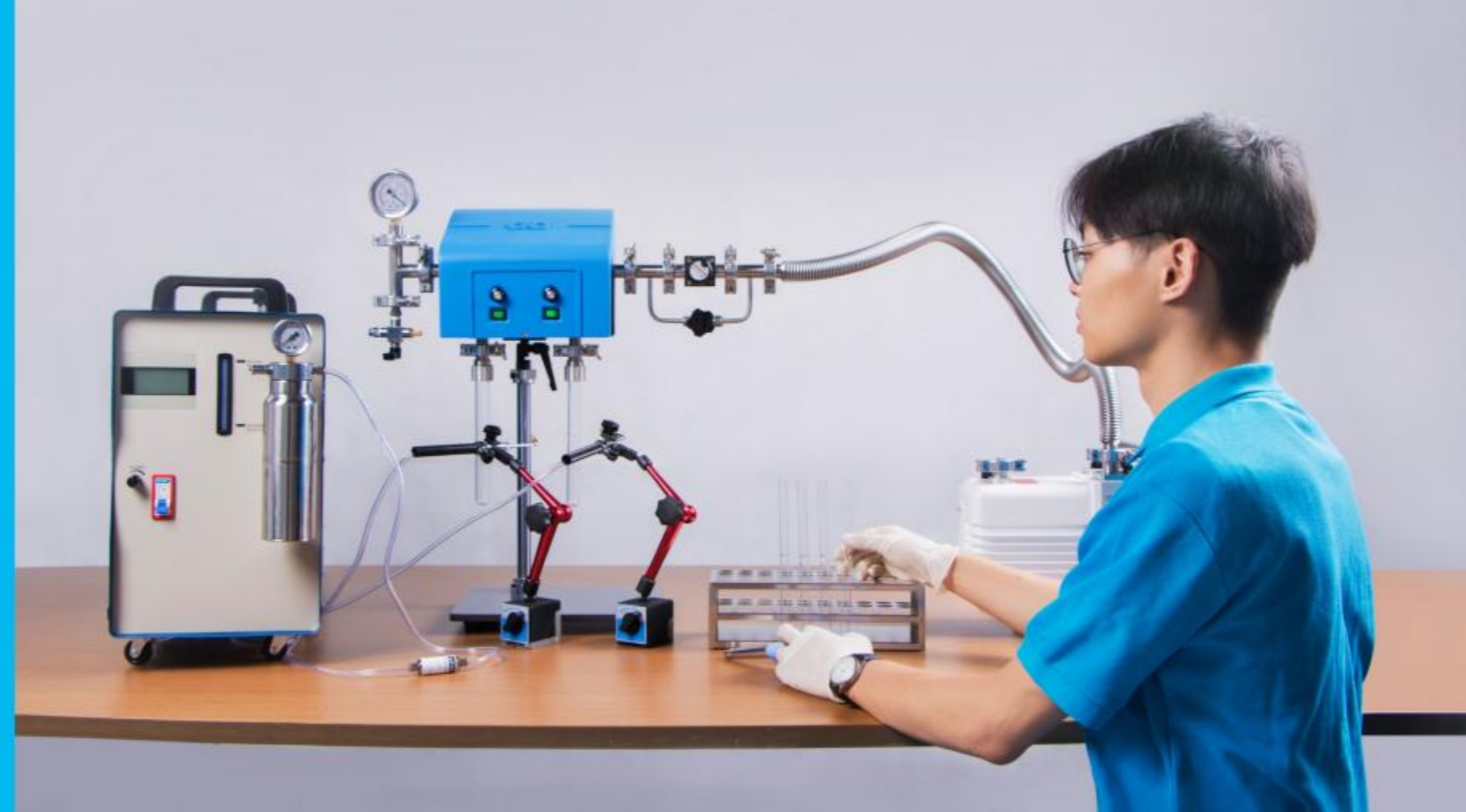


All over the world in electricity



MatMeas overseas office

Focus on the new materials industry Leading electrical performance testing

Address: Room 1507, Building 1, COFCO Yunjing Plaza, Heshuikou Community, Matian Street, Guangming District, Shenzhen China

Email : sales@goodlab.com; coco.matmeas@gmail.com;

Website : www.matmeas.com

VACUUM TUBE SEALING MACHINE SERIES

COMPANY PROFILE

MatMeas (BALAB)

Focus on the new materials industry Leading electrical performance testing

MatMeas (Balab) Technologies, founded in 2013, is located in Wuhan Donghu High tech Development Zone, Optics Valley, China. It is a high-tech enterprise specializing in the research and development equipment and services of functional materials. With the mission of uncovering materials and benefiting humanity, and the core values of focus, innovation, and win-win, we aspire to become the world's largest functional material research and development service platform, helping enterprises shorten the research and development cycle of functional materials and reduce research and manufacturing costs.

The production of materials such as vacuum sealing machines has made significant breakthroughs in solid-phase synthesis of materials, making great contributions to the research and development of thermoelectric materials, two-dimensional battery materials, and biological strain preservation, and creating sales of over 500 for three consecutive years. This series of products is also exported overseas. The detection equipment such as dielectric impedance temperature spectrometer fills the gap in the field of electrical testing of functional materials, providing accurate and reliable data results for the research and production of piezoelectric ceramics. It has been highly recognized by industry customers such as Huawei, BYD, Fenghua High tech, Zhenhua Group, Yuanliu Hongyuan, McQuay, CSIC 713, Mianyang Ninth Institute, and Kaitian Electronics.

After years of technological innovation and precipitation, we have obtained more than ten invention patents in the field of material preparation and testing, and have become a benchmark enterprise for functional material preparation and electrical testing in China. Our flagship products and core technologies have filled multiple domestic gaps, providing strong technical characterization and measurement methods for scientific research. With the cooperation of Hubei University and the Chinese Academy of Sciences Shanghai Silicate Research Institute, we have successively built the "Innovation Pilot Base for the Production, Learning and Research of Functional Ceramics" and the "Electrical Testing Standard Laboratory for Functional Materials", which have won the trust of many research institutes, "double first-class" universities, aerospace, military electronics, high-tech enterprises, inspection and testing institutions and other users.

MatMeas (Balab) , a partner in materials science research!



CATALOGUE TABLE

• Vacuum sealing machine profile.....	03
— Vacuum sealing machine+ 8 major produt lines	05
— Single-station vacuum sealing machine	07
— Double-stations vacuum sealing machine	09
— Exclusive customization	11
— Details create good quality	13
• Traditional technology vs Goodlab(Balab) technology	15
• Application Area	17
<hr/>	
• Customer witness	19
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• Success cases	21

VACUUM SEALING MACHINE PROFILE

MRVS series vacuum sealing machine and system

The MRVS series vacuum sealing machine and system are primarily used for achieving an oxygen-free and moisture-free vacuum seal for sample preservation or high-temperature solid-phase synthesis. The entire system consists of a vacuum sealing machine, a hydrogen-oxygen generator, a molecular pump unit, quartz tubes, tube joints, and other components. Standardized custom quartz tubes and columns ensure precise matching with specially designed tube joints, thereby further enhancing the sealing performance of the quartz tubes and achieving higher standards for vacuum sealing.

• Invention Patent

Patent Name: A rotary vacuum sealing system
Patent No.#: 201711249064.5

• Design Patent

Patent Name: Single station vacuum rotary sealing device
Patent No.#: 201730604883.1
Patent Name: Double station vacuum rotary sealing device
Patent No.#: 201730604908.8

• Utility Model Patent

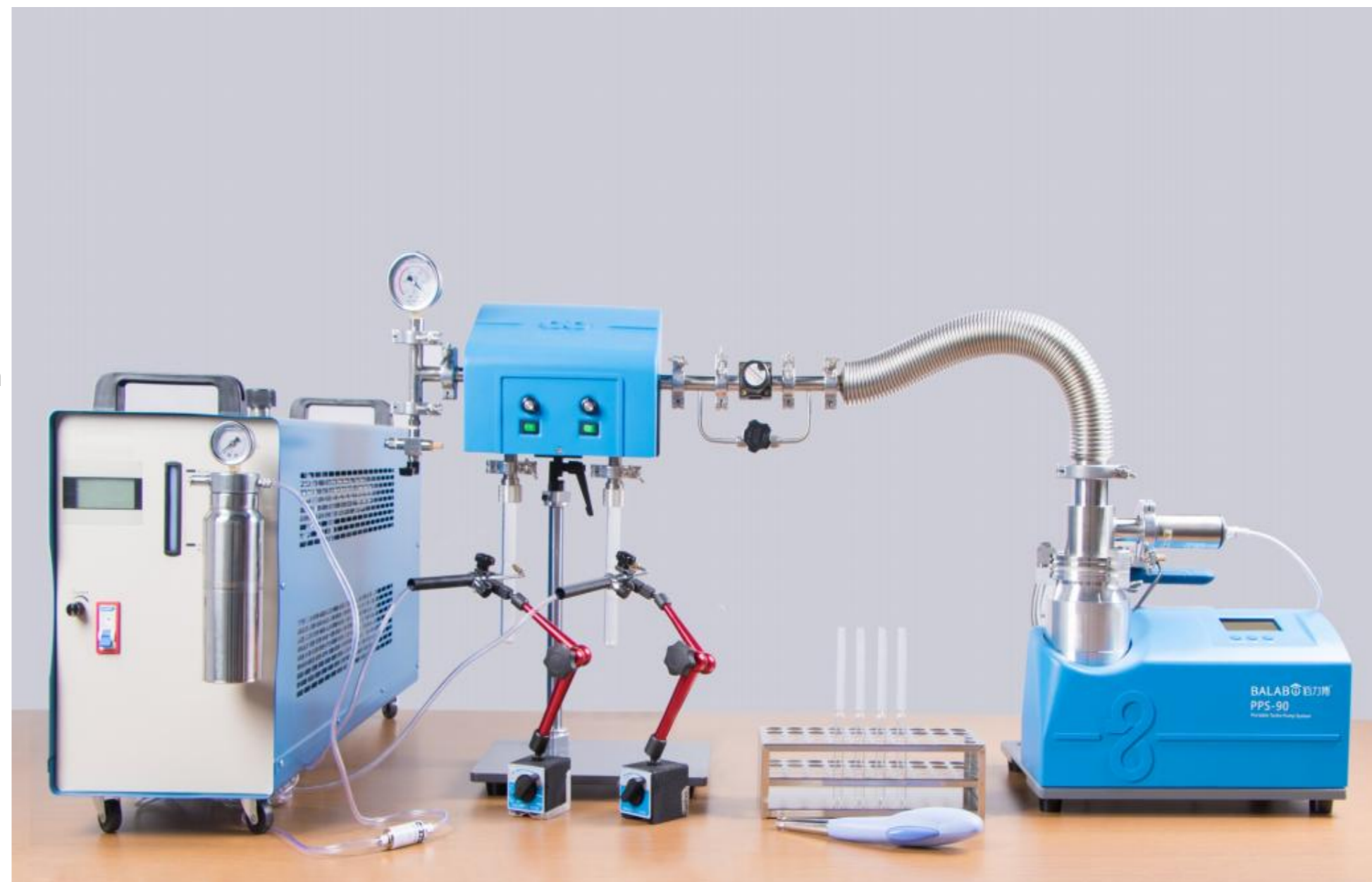
Patent Name: Vacuum sealing device
Patent No.#: 201720457198.5

Patent Name: A sealing mechanism for vacuum sealing systems
Patent No.#: 201721665251.7

Patent Name: A rotating mechanism for vacuum sealing systems
Patent No.#: 201721665252.1

Patent Name: A ring-shaped sealing device for vacuum sealing systems
Patent No.#: 201721674901.4

Patent Name: A rotary sealer for vacuum sealing systems
Patent No.#: 201721674894.8



● compose of 8 major product lines

MRVS series vacuum sealing machine

Provide you with a one-stop solution

01 Vacuum sealing machine

Mainly used for placing samples into quartz tubes for anaerobic and anhydrous sealed storage, utilizing dynamic sealing technology that allows the quartz tube to automatically rotate while performing vacuum extraction and gas atmosphere packaging. The operation is simple, and the sealing efficiency is high.

02 Inflation and exhaust pressure measurement kit

For protective gas, the relative pressure inside the tube is measured, and by venting through the inlet and outlet, protective gas is introduced into the sample, enabling the sealing of the tube under the protective gas.

03 Diverting vacuum extraction device

Mainly used for vacuuming powder samples, it addresses the challenge of powder samples being easily drawn out, preventing the powder from adhering to the quartz tube, which could affect the vacuum level. At the same time, it prevents the powder from being drawn into the vacuum pump, which could cause damage to the pump.

04 The molecular pump unit

The molecular pump unit is used to evacuate the quartz tube. This unit features an imported German molecular pump, with a dual-stage rotary vane oil pump in the fore stage, and a vacuum limit of 10×10^{-5} Pa.

05 Vacuum gauge tube

The molecular pump unit is equipped with an optional vacuum gauge tube measurement kit, allowing the vacuum level to be read directly on the molecular pump unit panel

06 Hydrogen- oxygen generator

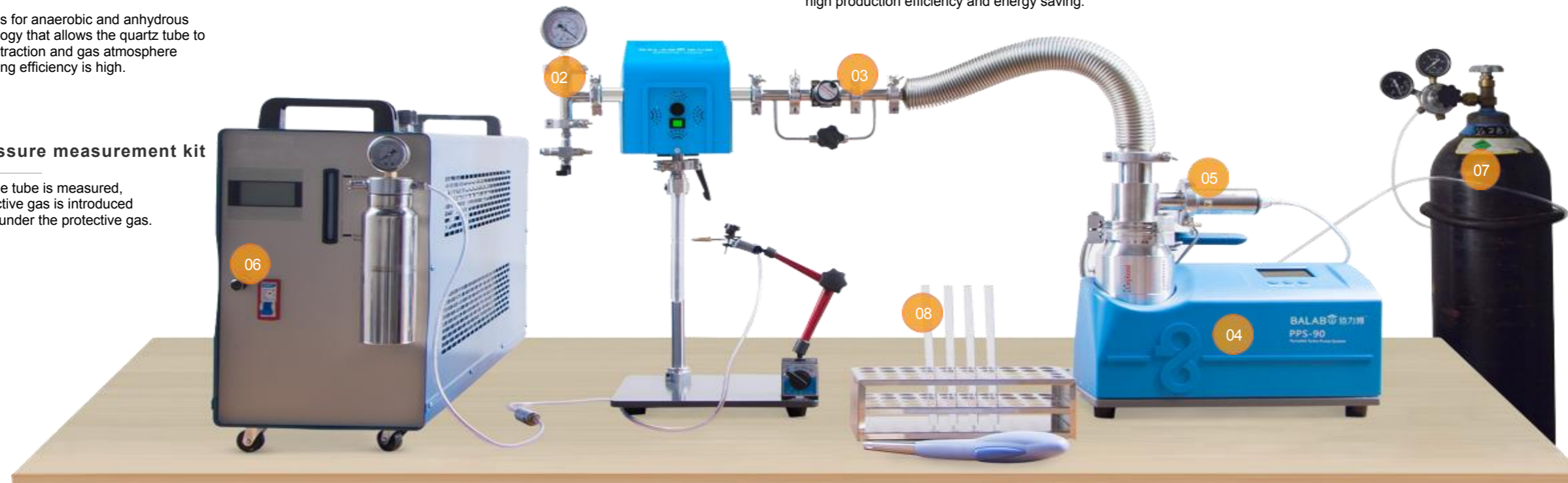
The hydrogen-oxygen generator uses water electrolysis technology to extract hydrogen and oxygen gases from water when electricity is applied. Hydrogen serves as fuel, while oxygen is used to support combustion. It can replace carbon-containing gases such as acetylene, coal gas, and liquefied gas. The generator offers advantages like high calorific value, concentrated flame, zero pollution, high production efficiency and energy saving.

07 Inert gas cylinder (self-supplied)

The quartz tube can be filled with an inert protective gas, and the gas mixture can be adjusted according to the sealing requirements to achieve the goal of gas preservation for solid-phase synthesis under a controlled atmosphere.

08 The quartz tube

We provides customers with standard quartz tubes of various specifications, along with tube fittings, quartz tubes, and quartz columns that achieve high-precision matching, facilitating better vacuum sealing.



● Single-station vacuum sealing machine (economical model)



01 Pioneered in China, invented vacuum dynamic sealing technology, automatically rotates and seals quartz tubes, ensuring safety and reliability

02 Achieve high-temperature solid-state synthesis of materials in low vacuum or ultra-high vacuum environments

03 Using the latest electrolytic water technology to generate hydrogen oxygen flames, the highest temperature of the flame can reach 2800 °C

04 Compared to traditional sealed pipes, it is not only used for production but also does not store gas, with an anti backfire design that is more environmentally friendly and safe

05 The body can be flipped and tilted by 20 degrees, and can seal quartz tubes with a length exceeding 1 meter

06 Can replace different sizes of pipe joints to achieve vacuum sealing of quartz glass tubes with different outer diameters, thicknesses, and lengths

07 Design anti backflow device to prevent samples from being sucked in by vacuum and extend the life of the vacuum pump

● Technical specification (Single-station)

MRVS-1003 Single-station vacuum sealing machine

Sealing station: 1pc	Whole machine leakage rate: 2×10^{-12} Pa m ³ /s
Rotation speed: adjustable from 0-35rpm	Vacuum pipeline interface: KF16
Sealed quartz tube outer diameter: Φ 45, Φ 20, Φ 15, Φ 13mm or other	Equipment dimensions (Lx W x H): 350x250x660mm
Sealed quartz tube wall thickness: 1-3mm (depending on the size of the flame gun)	Supply voltage: 0.6KW, 220V, 50Hz
Sealed quartz tube length: standard includes 200, 300, 500mm, or other sizes	weight: 22kg
Inflatable interface size: standard 6mm (other sizes can be customized)	

Hydrogen oxygen machine

Flame temperature: up to 2800 °C	H700 device dimensions (Lx W x H) : 1050x335x545mm
Gas production: standard 700L/H	weight: 44.2kg
Work pressure: 0.13-0.15Mpa 工作压力:	Supply voltage: 1.98KW, 220V, 50Hz

Molecular pump unit

Pump set: Imported German pump

Extraction rate: \geq 80L/s

Vacuum limit: 10⁻⁶ Pa

Working vacuum: better than 5x10⁻⁵ Pa

Mechanical pump unit

Pump set: Domestic pump

Extraction rate: 2L/s

Vacuum limit: 0.1 Pa

Working vacuum: better than 5 Pa

Dimensions of mechanical pump units (L x W x H) 350 x 250 x 660mm, 23.2kg

Standard configuration: 1 single station vacuum sealing machine, 1 set of inflation and exhaust pressure measuring kit, 1 set of powder anti reflux kit, 1 vacuum pump (molecular pump unit or mechanical pump unit), HO700 hydrogen oxygen machine, 1 set of tool kit, 1 15mm pipe joint, 50 sets of 15mm quartz tubes, 5 sets of KF16 clamps, 2 power supply wires; 1 manual, 1 certificate of conformity, 1 packing list, and 1 operation video.

● Double-stations vacuum sealing machine (efficient type)



- 01 Invented dynamic sealing technology to meet high vacuum applications
- 02 Automatic rotating sealing tube, more uniform heating, higher sealing efficiency and vacuum degree
- 03 High fidelity air pipe joint seamlessly connected, with good air tightness
- 04 Adopts electrolytic water technology, which is ready to use, safe, environmentally friendly, pollution-free, and cost-effective
- 05 The flame can reach 2800 °C, and it can sinter a quartz tube with a diameter of 45 and a wall thickness of 2mm
- 06 The use of powder anti reflux device can effectively prevent powder samples from being pumped into the vacuum pump
- 07 The vacuum interface adopts standard vacuum flanges, which can be connected and used immediately without the need for further modification, ensuring airtightness

● Technical specification (Double-stations)

MRVS-2003S003 Double-stations vacuum sealing machine	
Sealing station: 2pcs	Whole machine leakage rate: 2×10^{-12} Pa.m ³ /s
Rotation speed: adjustable from 0-35rpm	Vacuum pipeline interface: KF16
Sealed quartz tube outer diameter: Φ 45, Φ 20, Φ 15, Φ 13mm or other	Equipment dimensions (Lx W x H) : 350x250x660mm
Sealed quartz tube wall thickness: 1-2mm (depending on the size of the flame gun flame)	Supply voltage: 0.7KW, 220V, 50Hz
Sealed quartz tube length: standard 200mm	Weight: 24.5kg
Inflatable interface size: standard 6mm (other sizes can be customized)	
Hydrogen oxygen machine	
Flame temperature: up to 2800 °C	H700device dimensions (Lx W x H) : 1040x320x540mm
Gas production: standard 700L/H	Weight: 44.2kg
Operating pressure: 0.13-0.15Mpa	Supply voltage: 1.98KW, 220V, 50Hz
Molecular pump unit	Mechanical pump unit
Pump set: Imported German pump	Pump set: Domestic pump
Extraction rate: ≥ 80 L/s	Extraction rate: 2L/s
Vacuum limit: 10^{-6} Pa	Vacuum limit: 0.1 Pa
Working vacuum: better than 5×10^{-5} Pa	Working vacuum: better than 5 Pa
Dimensions of molecular pump unit (L x W x H) : 380 x308 x375mm,24.2kg; Dimensions of mechanical pump units (L x W x H) 350 x250 x660mm 23.2kg	

Standard configuration: 1pc double station vacuum sealing machine, 1 set of inflation exhaust pressure measuring kit, 1 set of powder anti backflow kit, 1pc vacuum pump (molecular pump unit or mechanical pump unit), HO700 hydrogen oxygen machine, 1 set of tool kit, 2 pcs of 15mm pipe joints, 50 sets of 15mm quartz tubes, 5 sets of KF16 clamps, 2pcs power supply wires; 1pc manual, 1pc certificate of conformity, 1pc packing list, 1pc operation video.



- Exclusive customization for you

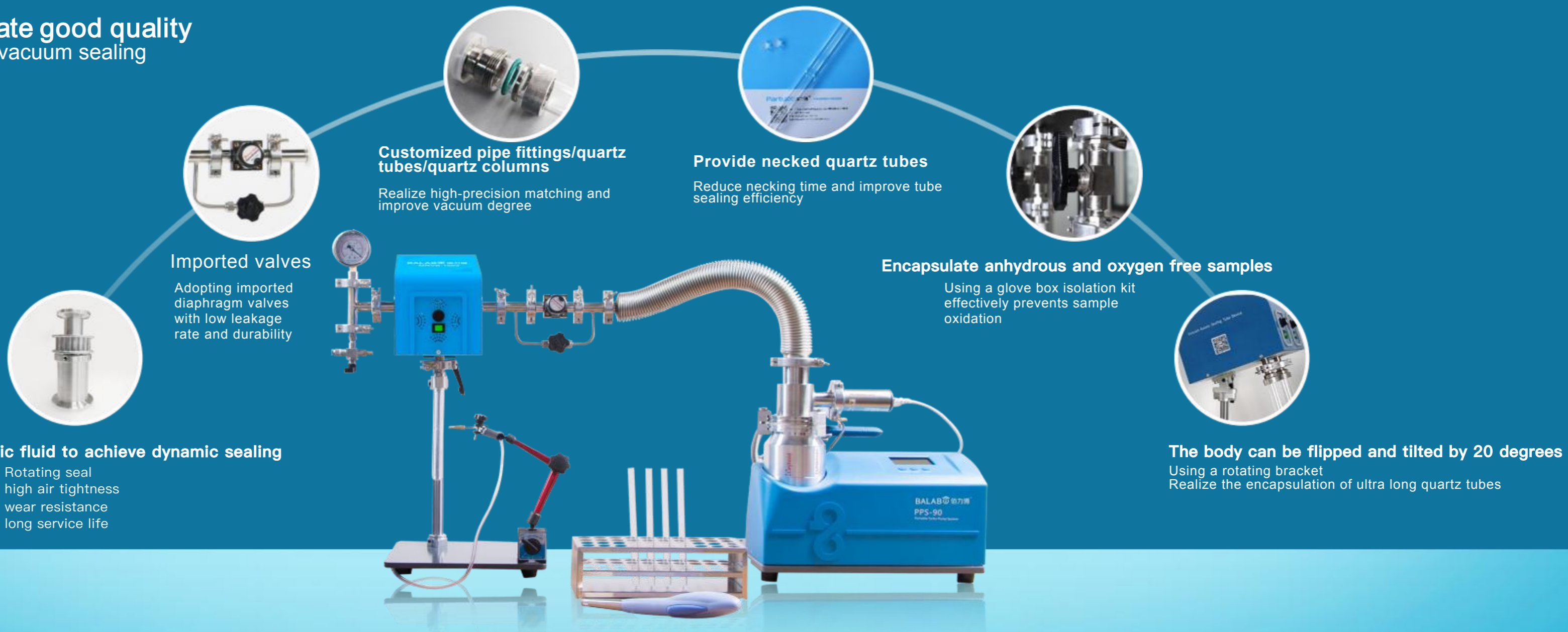
We provide customers with various specifications of standard quartz tubes, tube fittings, quartz tubes, and quartz columns to achieve high-precision matching and achieve optimal vacuum sealing.

Quartz Tube Technical Specifications

external diameter	Wall thickness	Length	Bottom	Neck morphology
10mm	1mm / 1.5mm	170mm / 200mm	Round bottom/flat bottom	Necking/not necking
13mm	1mm / 1.5mm	170mm / 200mm	Round bottom/flat bottom	Necking/not necking
15mm	1mm / 1.5mm	170mm / 200mm	Round bottom/flat bottom	Necking/not necking
20mm	1.5mm / 2mm	170mm / 200mm	Round bottom/flat bottom	Necking/not necking
25mm	2mm	170mm / 200mm	Round bottom	Necking
35mm	2mm	170mm / 200mm	Round bottom	Necking
45mm	2mm	170mm / 200mm	Round bottom	Necking
Others	Customized	Customized	Customized	Customized

Direct isolation valve (when used in conjunction with glove box, optional direct isolation valve, i.e. KF16mini valve)

- **Details create good quality**
MRVS series vacuum sealing machine



Using magnetic fluid to achieve dynamic sealing

Rotating seal
high air tightness
wear resistance
long service life

Imported valves

Adopting imported diaphragm valves with low leakage rate and durability

Customized pipe fittings/quartz tubes/quartz columns

Realize high-precision matching and improve vacuum degree

Provide necked quartz tubes

Reduce necking time and improve tube sealing efficiency

Encapsulate anhydrous and oxygen free samples

Using a glove box isolation kit effectively prevents sample oxidation

The body can be flipped and tilted by 20 degrees

Using a rotating bracket
Realize the encapsulation of ultra long quartz tubes


Traditional Technology vs MatMeas (Balab) Technology

Excellent performance comes from innovation and proprietary technology, making vacuum sealing tubes safer and more efficient


Goodlab(Balab), Disrupting the industry landscape in the field of laboratory quartz tube sealed storage or high-temperature solid-phase synthesis, we have launched an extraordinary innovative product for quartz tube rotating vacuum sealing. MRVS-1003/MRVS-2003 is an upgraded version based on the old version, further expanding our unshakable leading position in the field of quartz tube vacuum sealing products.

Traditional vacuum seal machine	PK	MatMeas (Balab)MRVS series
Quartz tube is stretched, shrunk and sealed at high temperature	Sealing principle	Quartz tube wall and built-in quartz column high-temperature fusion sealing tube
Manual rotation, uneven heating, and high temperature on the pipe wall can easily cause burns	Sealing method	Adopting dynamic sealing technology, automatic rotation, and more uniform heating
Install a diversion device to prevent powder from being easily extracted	Vacuum pumping	Install a diversion device to prevent powder from being easily extracted
Insert rubber tube connection, poor sealing, low vacuum degree	vacuum degree	High vacuum tube joint connection, good sealing and high vacuum degree
Directly built, without exterior design or simple design	Equipment appearance	Compact structure, precise design, small size, exquisite appearance
Acetylene gas, bottled storage gas, flammable and explosive, carbon containing and toxic	Safety	Using hydrogen oxygen electrolysis for water production, ready to use, safe and environmentally friendly
The more experienced, the faster and safer the operation	Experience requirements	No experience required, learn and use immediately, safe and reliable


Traditional
VS
MatMeas (Balab)




Traditional manual handheld operation with high flame temperature poses safety hazards




Traditional methods require professionals to handle wire drawing. When the quartz tube is heated and melted, stretch, shrink, and seal it at both ends




The traditional rubber tube connection has poor sealing performance and is suitable for low vacuum applications




Using traditional acetylene cylinders requires strict laboratory conditions, consumes quickly, is complex to replace, and has high costs




Safety
Goodlab (Balab) semi-automatic operation, fixed flame gun, greatly improves safety



Easy to operate
Quartz tube fusion sealing, easy to operate. Sintering and melting the inner walls of the quartz column and quartz tube together to form a seal



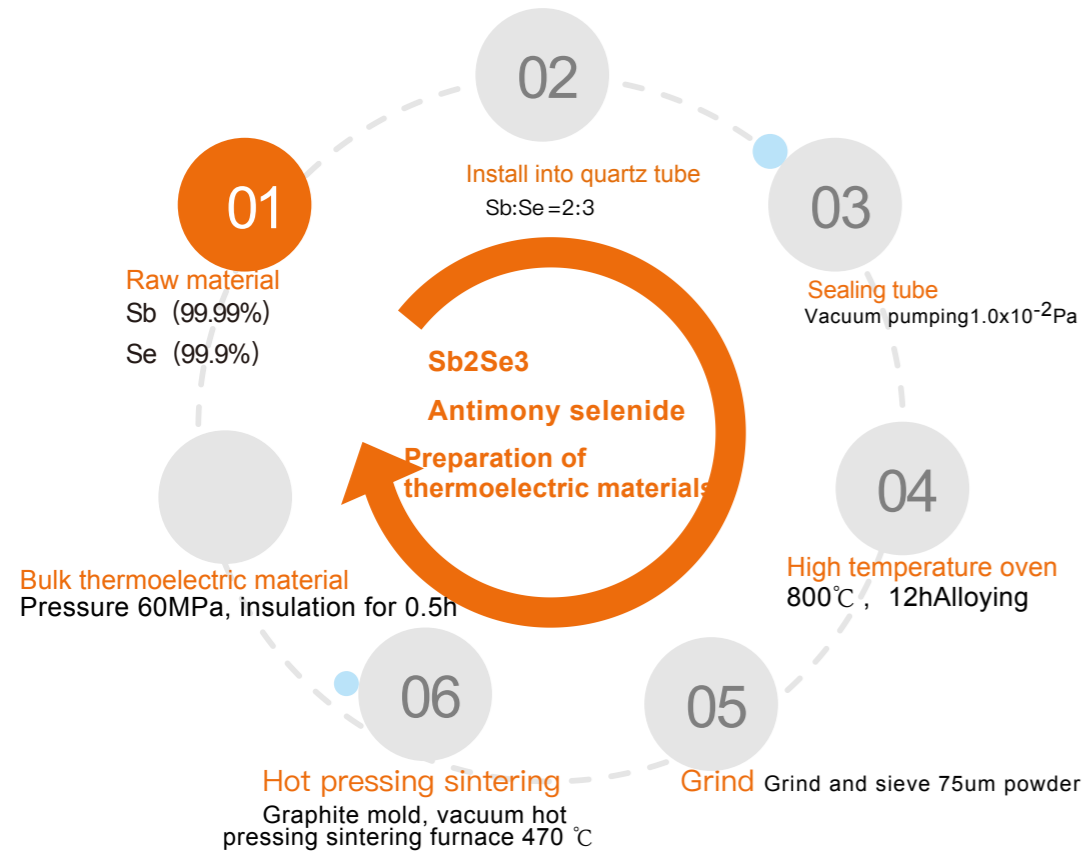
Stability
Adopting a dynamic sealing device, the magnetic fluid seal has good airtightness and meets high vacuum applications



Low cost
Goodlab (Balab) uses electrolytic water production gas, which produces and uses combustion products as water vapor without pollution. Cost 50% lower than bottled acetylene welding

APPLICATION AREA

● Thermoelectric materials and devices



Adopting the vacuum sealing method (vacuum melting method)








Traditional non vacuum sealed tube melting method

- 1 Effectively prevent elements from being oxidized
- 2 Reduce the volatilization of low melting point substances
- 3 Obtain high-performance thermoelectric materials



- 1 Component segregation occurs during the transition from liquid phase to solid phase
- 2 Low melting point elements such as Sb and Se are prone to volatilization and oxidation
- 3 The utilization rate of materials decreases, and the thermoelectric optimal value of temperature difference decreases

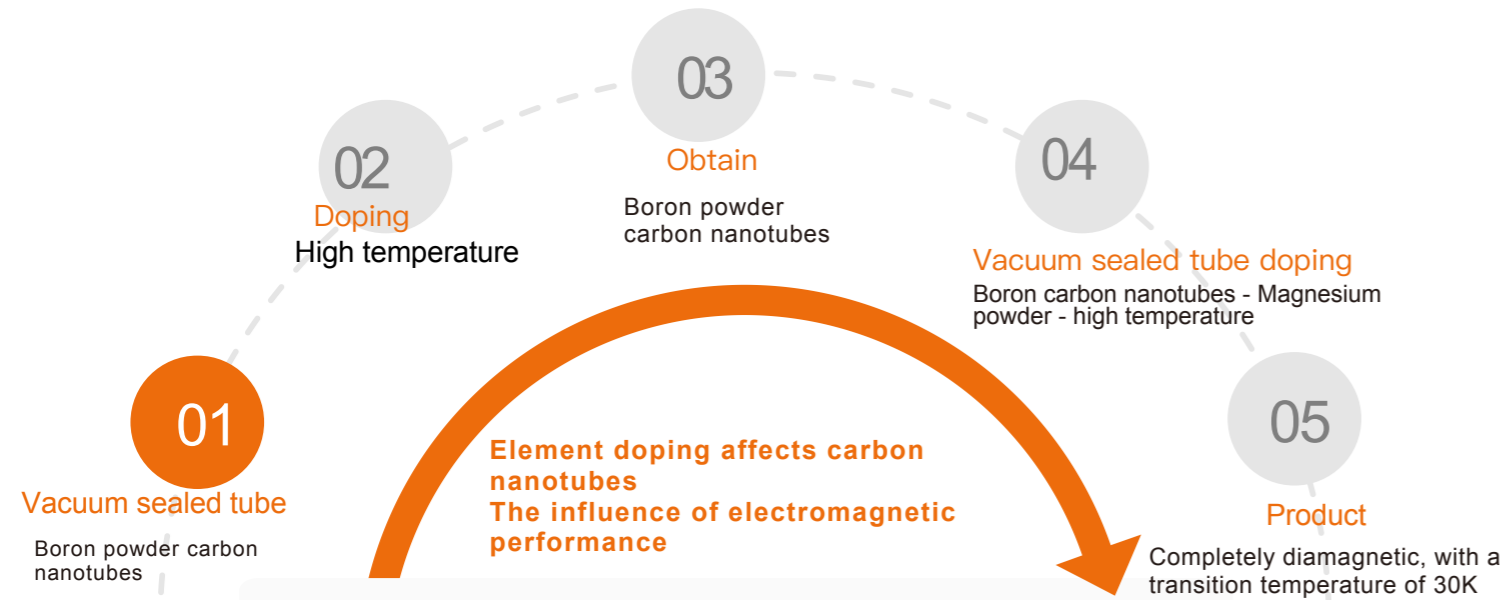
bb Research institutes

 Institute of Silicon, Chinese Academy of Sciences	 Singapore Science and Technology Board	 Chinese Academy of Electric Power Sciences	 China Academy of Engineering Physics	 Fujian Institute of Geophysics, Chinese Academy of Sciences	 Dalian Institute of Physics and Chemistry, Chinese Academy of Sciences	 Institute of Physics and Chemistry, Chinese Academy of Sciences
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bb University users

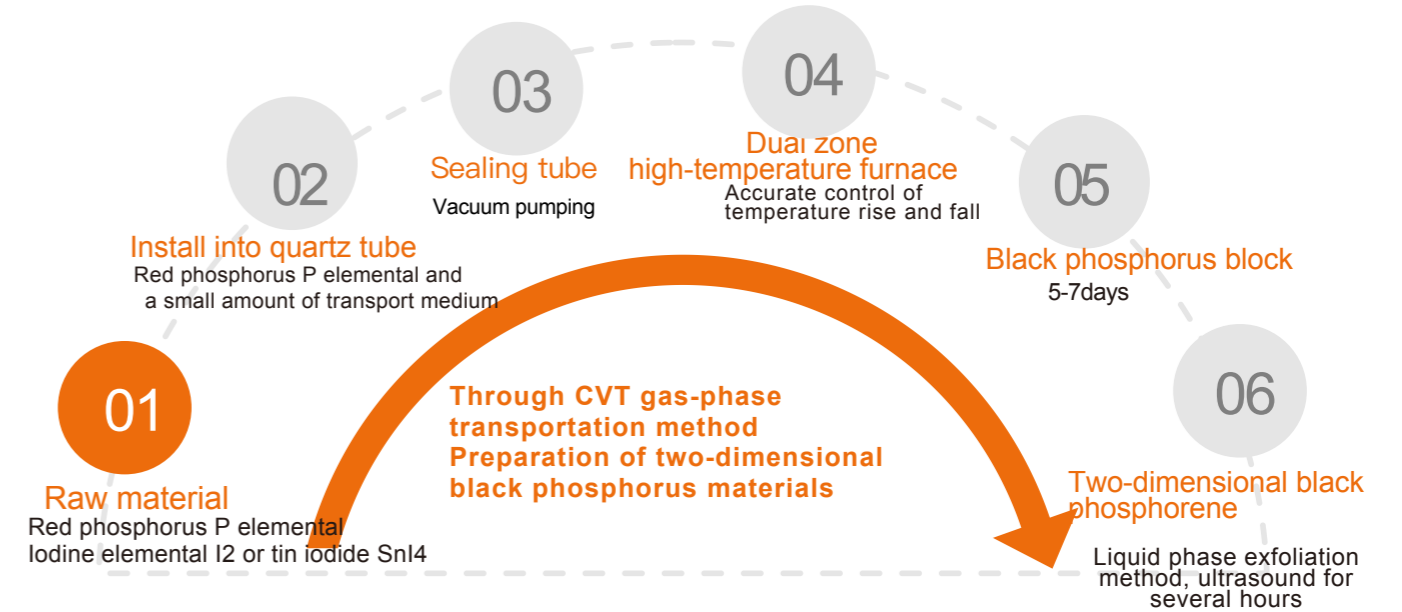
 Tsinghua University	 Hebei University	 Shaanxi University of Science and Technology	 Beijing University of Science and Technology	 Wuhan University of Technology	 Nanyang Technological University	 Huazhong University of Science and Technology
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● One-dimensional material



- By using vacuum sealing technology and doping other elements (such as boron) into carbon nanotubes, the crystal structure and electronic structure of carbon nanotubes can be changed, thereby altering their physical properties.
- Using vacuum sealing technology, boron carbon nanotubes (B-CNTs) were doped with magnesium powder at high temperatures. The experimental results showed that the product doped with magnesium exhibited complete diamagnetism, with a transition temperature of 30 K.

● Two-dimensional material



- It is worth noting that red phosphorus has a high saturation vapor pressure, which makes it prone to quartz tube rupture during the high-temperature synthesis of black phosphorus in C. To improve the success rate of black phosphorus block preparation, the loading amount of red phosphorus and transport medium in the quartz tube can be reduced or controlled, and a quartz tube with a larger wall thickness can be used for high vacuum sealing.

● More materials

Nanomaterials/ Quantum Materials	Growth of iron-based superconducting materials	Semiconductor materials and devices	Geology, Petrochemicals	Crystal growth is suitable for growing various single crystals and polycrystals Growth of Crystal Functional Materials	Battery electrode materials (positive electrode materials/negative electrode materials/catalytic materials) Preparation using high- temperature solid-phase synthesis method	Metal alloy Vacuum (protective atmosphere) heat treatment Used for modifying metal alloy materials	Hybrid Materials MOFs Metal Organic skeletal compounds Covalent organic framework materials COFs
Optoelectronic functional materials\OLED optoelectronic functional materials	Energy storage materials New energy materials	Magnetic material	Biogenetic Engineering				

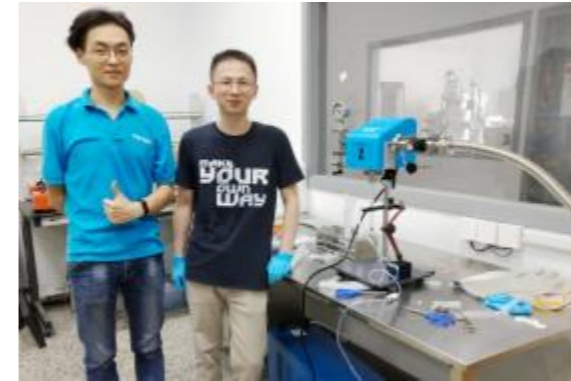
CUSTOMER WITNESS



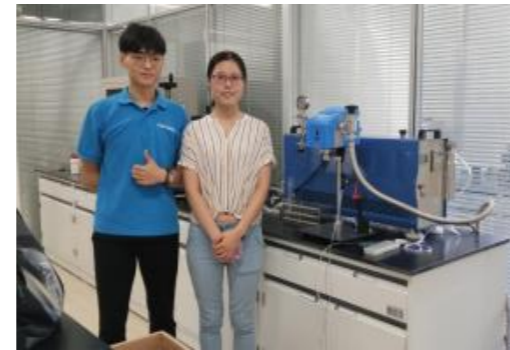
**Institute of Electrical Engineering,
Chinese Academy of Sciences**
Double station vacuum sealing machine



Ningbo Materials Institute
Single station vacuum sealing machine



Shanghai Jiao Tong University
Single station vacuum sealing machine



**Changchun Yinghua Institute,
Chinese Academy of Sciences**
Single station vacuum sealing machine

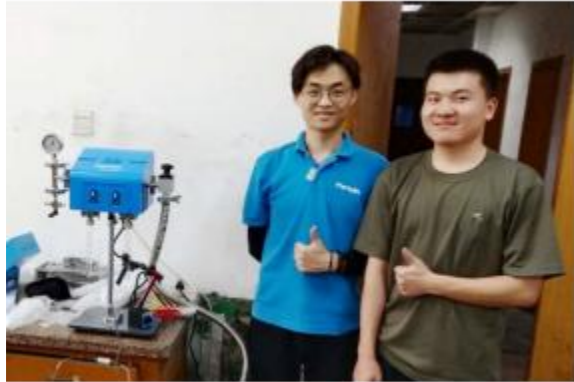


**Institute of Physics,
Chinese Academy of Sciences**
Single station vacuum sealing machine

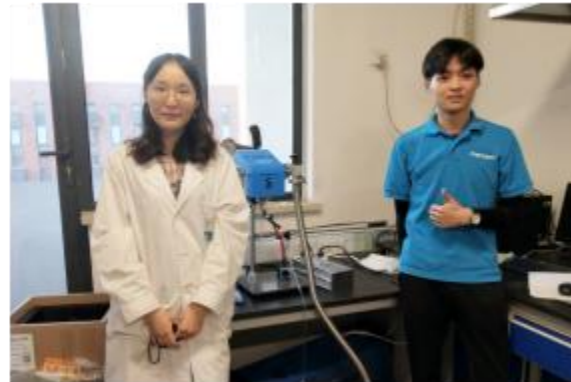


**Huazhong University of Science and
Technology**
Double station vacuum sealing machine

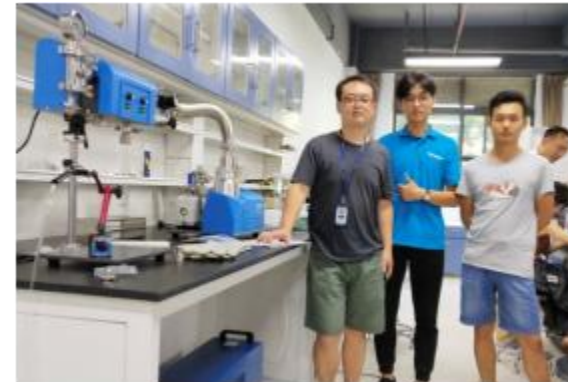
**Institute of Electrical Engineering,
Chinese Academy of Sciences**
Double station vacuum sealing machine



**College of Chemical Engineering,
Tianjin University**
Single station vacuum sealing machine



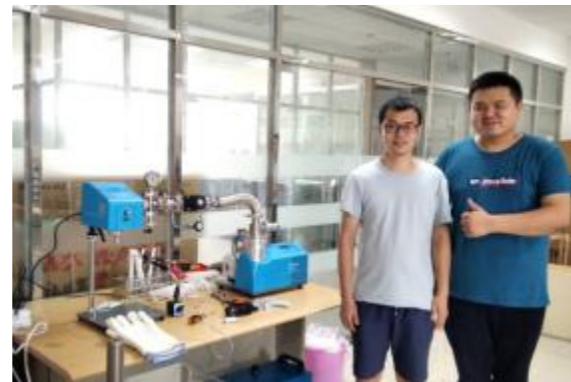
**Southern University of Science and
Technology**
Double station vacuum sealing machine



Anhui University of Technology
Single station vacuum sealing machine



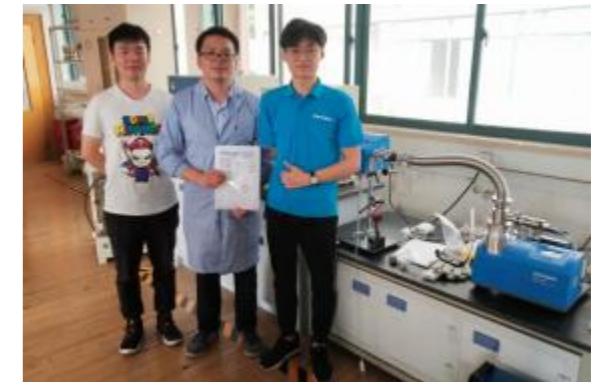
Fujian Normal University
Single station vacuum sealing machine



Hubei Normal University
Single station vacuum sealing machine

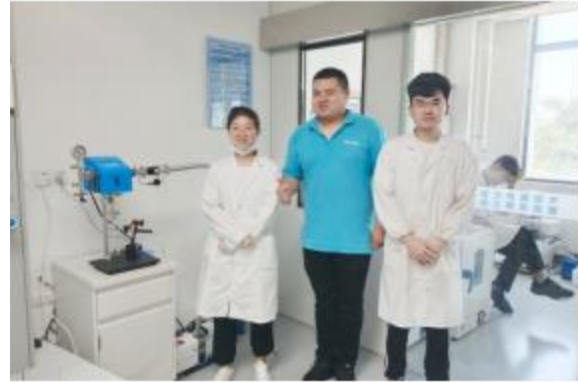


**Yunnan Tin Industry Group
(Holdings) Co., Ltd**
Double station vacuum sealing machine

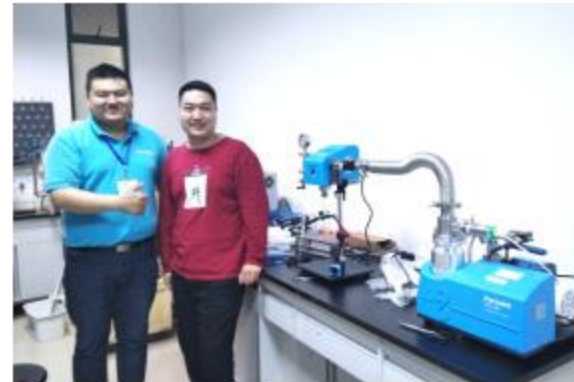


Shanghai Electric Power University
Single station vacuum sealing machine

Xiamen University
Single station vacuum sealing machine



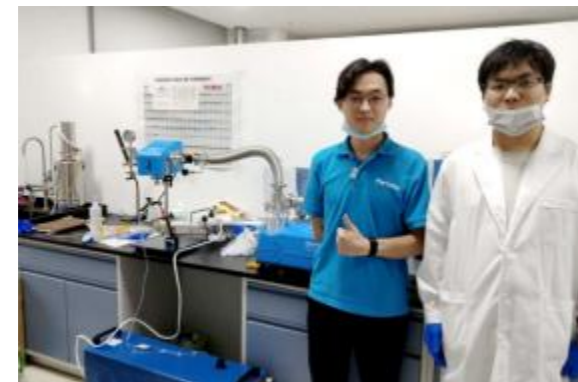
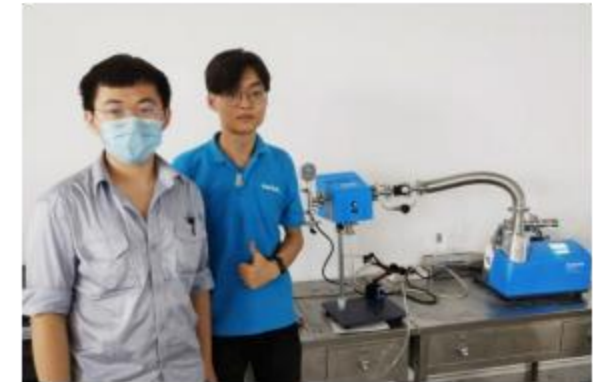
Xi'an University of Electronic Science and Technology
Single station vacuum sealing machine



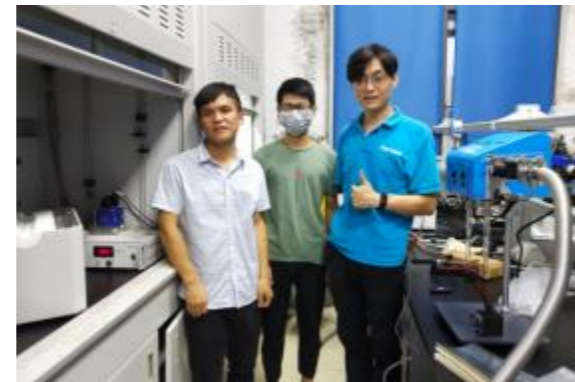
Central South University
Single station vacuum sealing machine



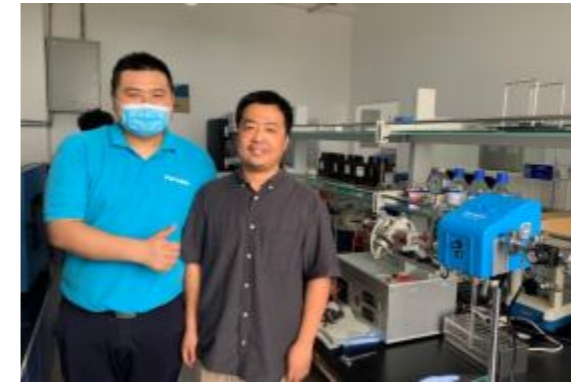
AVIC Aerospace Materials Institute
Double station vacuum sealing machine



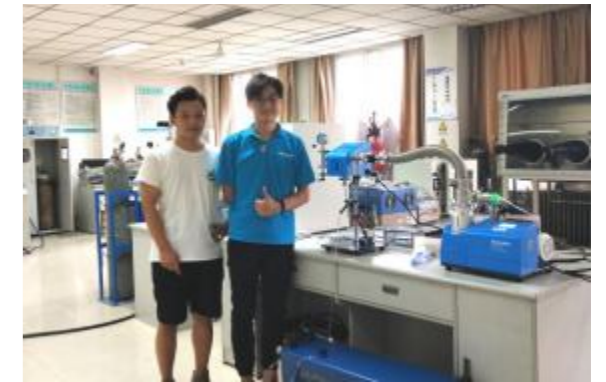
Xi'an Jiaotong University
Single station vacuum sealing machine



Fuzhou University
Double station vacuum sealing machine



Northwest University
Single station vacuum sealing machine



Henan University
Single station vacuum sealing machine

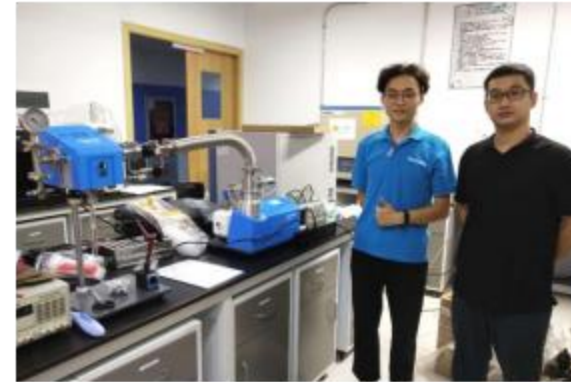
Zhengzhou University
Single station vacuum sealing machine



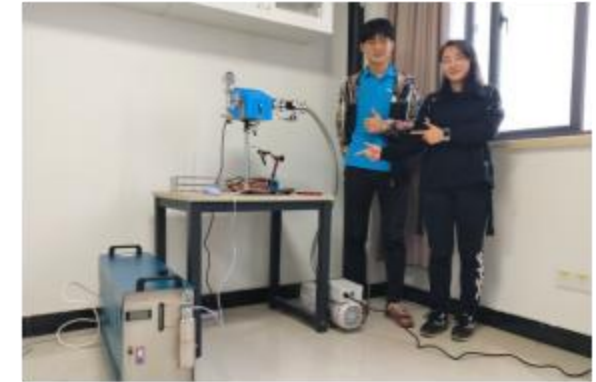
Xiangtan University
Single station vacuum sealing machine



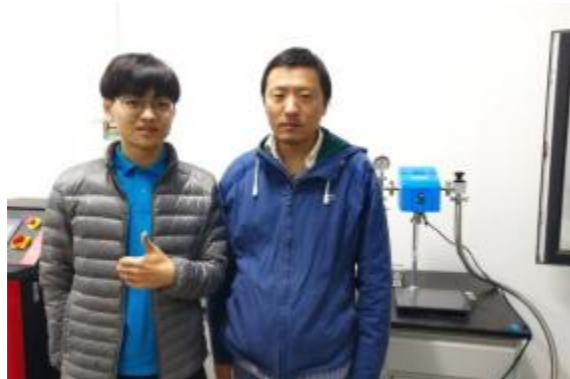
Nanjing University of Science and Technology
Single station vacuum sealing machine



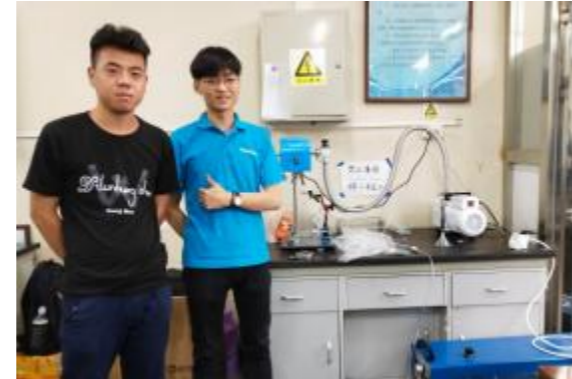
Hefei Academy of Property Sciences
Single station vacuum sealing machine



Shandong University
Single station vacuum sealing machine



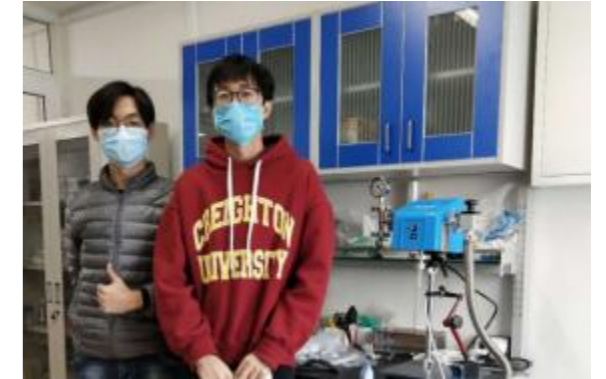
Xi'an Technological University
Single station vacuum sealing machine



Renmin University of China
Double station vacuum sealing machine



Beijing University of Science and Technology
Single station vacuum sealing machine



SUCCESSFUL CASES

● Research institute users (only displayed for some users - ranking is not specified, thank you for your trust and support!)

						
BCSRC	Singapore Science and Technology Board	Chinese Academy of Electric Power Sciences	China Academy of Engineering Physics	Ningbo Institute of Materials Science, Chinese Academy of Sciences	Shanxi Institute of Coal Chemistry, Chinese Academy of Sciences	Dalian Institute of Physics and Chemistry, Chinese Academy of Sciences
						
Institute of Geology and Geophysics, Chinese Academy of Sciences	Fujian Institute of Geophysics, Chinese Academy of Sciences	Institute of Physics, Chinese Academy of Sciences	Qingdao Institute of Bioenergy, Chinese Academy of Sciences	Institute of Silicon, Chinese Academy of Sciences	Shanghai Institute of Microsystems, Chinese Academy of Sciences	Shanghai Institute of Applied Physics, Chinese Academy of Sciences

● Enterprise users (only partially displayed - ranking is not specified, thank you for your trust and support!)

						
Guangdong Leizike	Xiamen Pengnan Electronics	Shaanxi Laitemeisi	Hebei Xinao Technolog	Zhongse (Ningxia) Oriental Group	Yunnan Tin Group	Nanjing Gaoguang Semiconductor

● University users (only partially displayed - ranking is not specified, thank you for your trust and support!)

						
Northwestern Polytechnical University	Anhui University of Technology	Australian National University	University of Macau	Peking University SZ Graduate School	Beijing Institute of Technology	Beijing University of Aeronautics and Astronautics
						
Beijing University of Chemical Technology	Beijing University of Science and Technology	Beijing Institute of Technology	Dalian University of Technology	University of Electronic Science and technology	Northeast Normal University	Fudan University
						
Guangdong University of Technology	Guangxi University	Guilin University of Electronic Science and Technology	North China Electric Power University	Huazhong University of Science and Technology	Nankai University	Nanyang Technological University
						
Inner Mongolia University of Technology	The Hong Kong Polytechnic University	Tsinghua Berkeley Shenzhen Institute	Tsinghua University	Xi'an Jiaotong University	China University of Petroleum, Beijing	Shandong Normal University
						
Shaanxi Normal University	Shanghai University	Shanghai Jiao Tong University	Shenzhen University	Suzhou University	Taiyuan University of Technology	Tianjin University
						
Tianjin University of Technology	Tianjin Normal University	Zhejiang University	WuHan University	Wuhan University of Science and Technology	Wuhan University of Technology	Beijing Institute of Petrochemical Technology