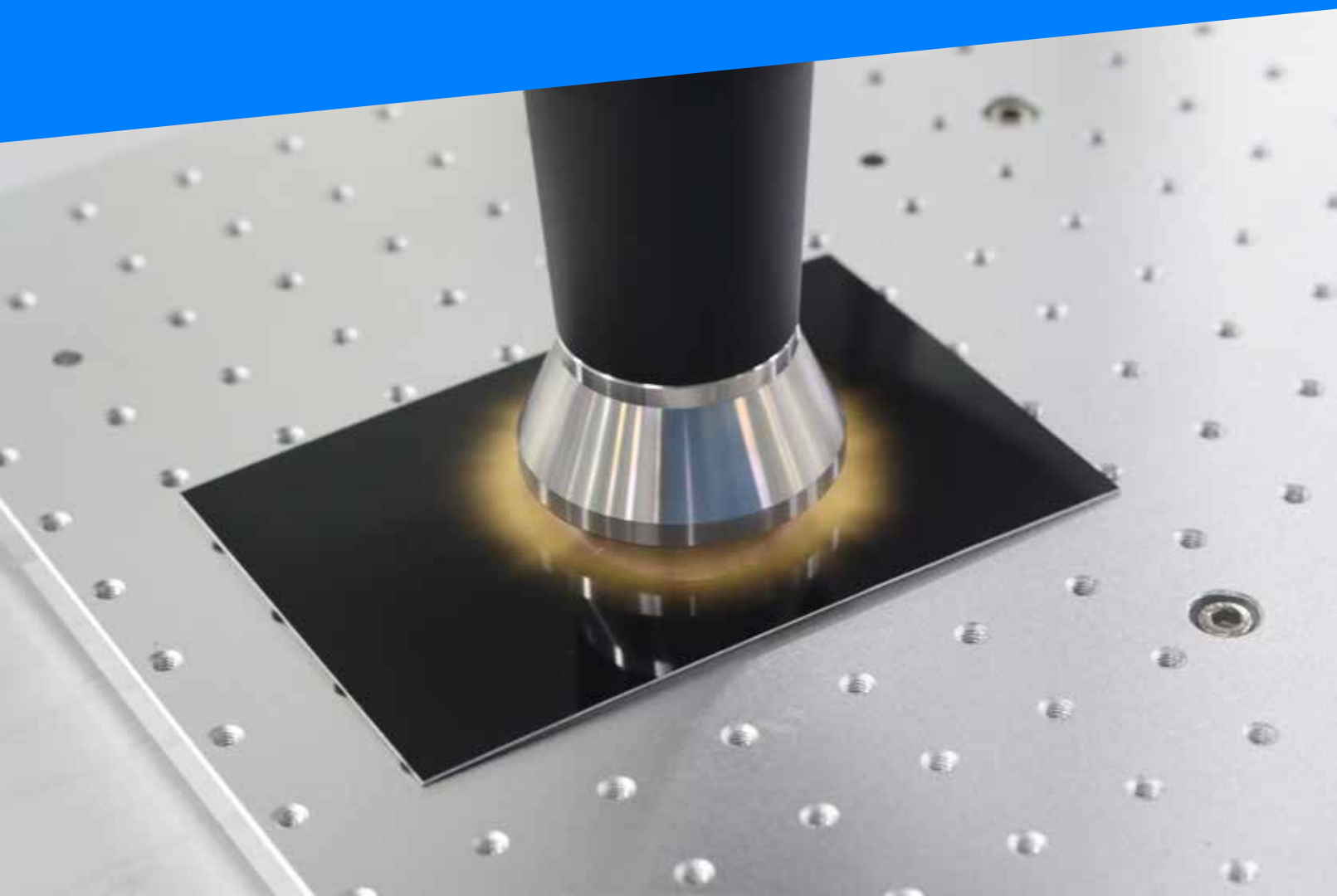


深圳子柒科技有限公司

PLASMA TREATMENT SYSTEM

等离子表面处理系统

表面清洗 / 表面活化 / 表面刻蚀 / 表面涂覆



COMPANY PROFILE

公司简介

致力于为全球用户提供专业的表面处理整体解决方案

深圳子柒科技有限公司是一家提供表面清洗设备及工艺流程解决方案的技术企业，集设备研发、制造、销售、服务、产品应用为一体的专业化公司，使用表面处理技术为客户解决产品表面处理问题。

公司地址位于深圳市宝安区西乡街道，现有厂房面积3000余平方米,员工70余人，其中高级研发工程师10余人,生产售后服务40余人。我们的生产设备有数控机床CNC、铣床、线割、车床、磨床，精度检测设备及其他辅助设备等等。本着“以人为本，同谋发展”的用人理念，吸引了大批年轻、专业、奋发的行业精英加入，形成激情、成熟、活力、创新的企业团队！

我们的经营理念: 以信誉促发展 以质量求生存
欢迎各界朋友莅临我司参观、指导和业务洽谈。

Committed to providing global users with professional overall surface treatment solutions

Shenzhen Ziqi Technology Co., Ltd. is a technical enterprise providing surface cleaning equipment and process flow solutions. It is a professional company that integrates equipment R & D, manufacturing, sales, service and product application. It uses surface treatment technology to solve product surface treatment problems for customers.

The company is located in Xixiang street, Bao'an District, Shenzhen. It has a plant area of more than 3000 square meters and more than 70 employees, including nearly 10 senior R & D engineers and more than 40 production and after-sales services.

Our production equipment includes CNC machine tools, CNC milling machines, wire cutting, lathes, grinders, precision testing equipment, other auxiliary equipment and so on. Based on the employment concept of "people-oriented and seek common development", it has attracted a large number of young, professional and enterprising industry elites to join, forming a passionate, mature, dynamic and innovative enterprise team.

Our business philosophy: promote development by reputation and survive by quality.
Welcome friends from all walks of life to visit, guide and business negotiation.

FACTORY LIVE SHOT

工厂实拍



公司办公楼



公司前台



办公一角



会议室



办公一角



组装车间



机加车间



CNC车间

ENTERPRISE QUALIFICATION

企业资质

深圳子柒科技有限公司拥有专业化的设计研发服务团队，长期为客户提供自动化一站式解决方案。公司陆续通过了ISO9001质量标准和流程认证，形成了系统化、成熟的方法论，累积获得15项软件著作权及25项专利。

Shenzhen Ziqi Technology Co., Ltd. has a professional design and development service team, providing customers with one-stop automation solutions for a long time. The company has successively passed ISO9001 quality standards and process certification, forming a systematic and mature methodology, and has accumulated 15 software copyrights and 25 patents.



SERVING CUSTOMERS

服务客户

他们都选择了子柒

深圳子柒科技有限公司面向各类制造企业提供自动化设备一站式解决方案。客户覆盖通讯、能源、制造、医疗、航空、化工、科研等领域，经过多年的技术积累，凭借雄厚的研发团队、创新的研发理念，通过规范化、标准化、专业化的服务流程，为我们赢得了众多客户的信任。包括中粮、比亚迪、丰田、蔚来、蓝思科技、晶台光电、TCL、影石等国内外优秀知名优秀企业，并建立了长期的合作关系。

They all chose Ziqiplasma

Shenzhen Ziqi Technology Co., Ltd. provides one-stop solutions for automation equipment for various manufacturing enterprises. Our customers cover the fields of communication, energy, manufacturing, medical treatment, aviation, chemical engineering, scientific research, and other fields. After years of technical accumulation, relying on a strong research and development team, innovative research and development concepts, and through standardized, standardized, and professional service processes, we have won the trust of many customers. Including COFCO, BYD, Toyota, Weilai, Lanshi Technology, Jingtai Optoelectronics, TCL, Yingshi and other outstanding well-known enterprises at home and abroad, and has established long-term cooperative relationships.



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ORIGIN OF PLASMA

等离子的由来

等离子体被称为物质的“第四态”或者“超气态”，也称“电浆体”，是一种由自由电子和带电离子为主要成分的物质形态，我们日常生活中所接触的物质大多是固态，液态，气态，等离子体是另一种的存在，被称为第四态。特别是在星际物质当中，在地球上，我们常见的闪电也是等离子体中的一种，是在具有不同电位的云层之间形成气体击穿而产生的火花放电。在地球两极上，因为太阳风暴在经过地球两极磁极时，高能粒子轰击空气中的氧气，氮气等气体，使其电离和激发，后沿地磁线运动，并产生多彩的极光，也属于等离子体。

等离子体是由克鲁克斯在1879年发现的，1928年美国科学家欧文·朗缪尔和汤克斯（Tonks）首次将Plasma一词引入物理学，用来描述气体放电管里的物质形态。严格来说，等离子体是具有高势动能的气体团，等离子体的总带电量仍是中性，借由电场或磁场的高动能将外层的电子击出，结果电子已不再被束缚于原子核，而成为高势能高动能的自由电子。

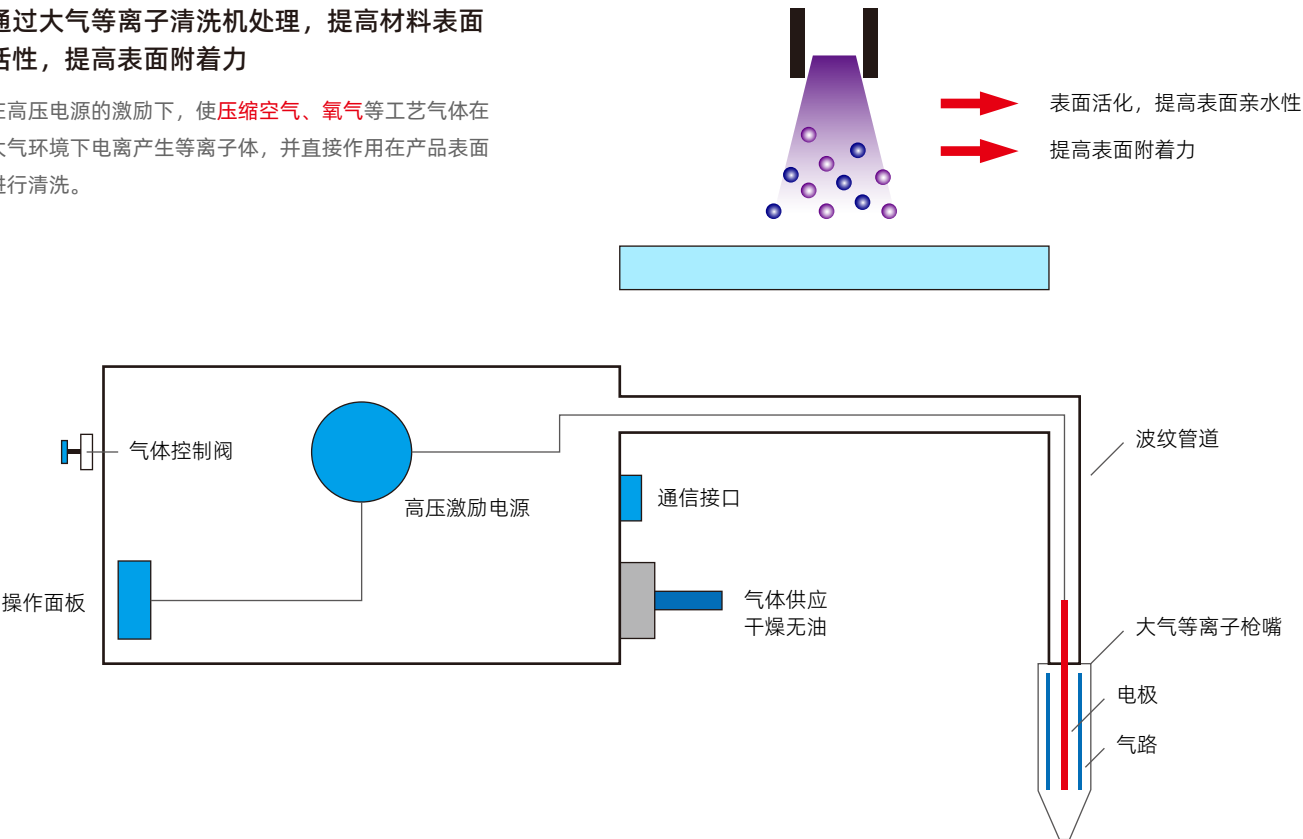
Plasma is called the "fourth state" or "super gaseous state" of matter, also known as "plasma". It is a material form with free electrons and charged ions as the main components. Most of the substances we contact in our daily life are solid, liquid and gaseous. Plasma is another existence, which is called the fourth state. Especially in interstellar matter, on earth, our common lightning is also a kind of plasma. It is a spark discharge generated by gas breakdown between clouds with different potentials. On the earth's poles, because when the solar storm passes through the magnetic poles of the earth's poles, high-energy particles bombard the oxygen, nitrogen and other gases in the air, ionize and excite them, then move along the geomagnetic line and produce colorful Aurora, which also belongs to plasma.

Plasma was discovered by crux in 1879, In 1928, American scientists Owen Langmuir and Tonks (Tonks) first introduced the term plasma into physics to describe the form of matter in a gas discharge tube. Strictly speaking, plasma is a gas mass with high potential energy and kinetic energy, and the total charge of plasma is still neutral. Electrons in the outer layer are knocked out by the high kinetic energy of electric or magnetic field. As a result, electrons are no longer bound to atomic nuclei, but become free electrons with high potential energy and kinetic energy Electronics.

大气等离子清洗机工作原理

通过大气等离子清洗机处理，提高材料表面活性，提高表面附着力

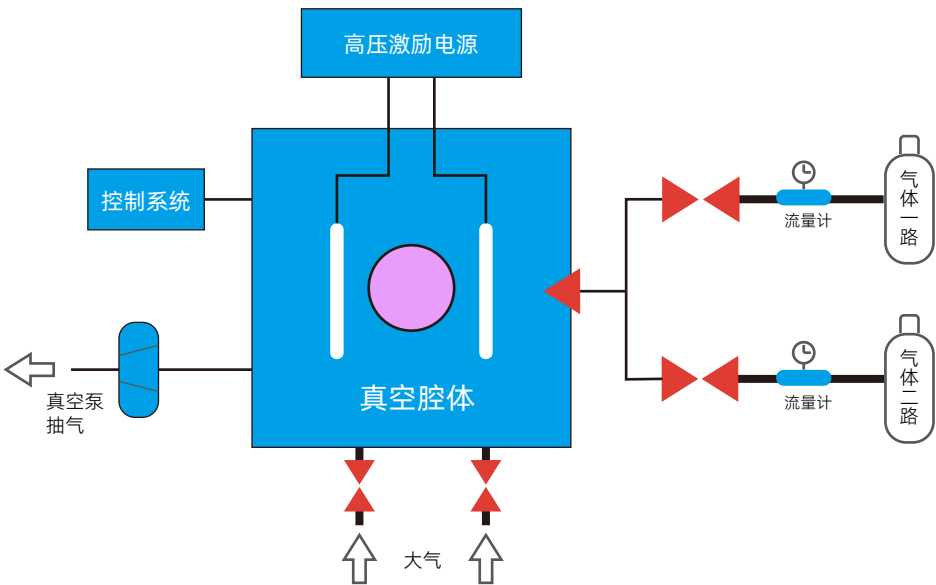
在高压电源的激励下，使压缩空气、氧气等工艺气体在大气环境下电离产生等离子体，并直接作用在产品表面进行清洗。



真空等离子清洗机工作原理

真空等离子清洗机适用于小批量生产及科学研究，广泛应用于芯片、摄像头模组、PCB FPC、晶圆等产品表面处理

真空等离子清洗机的结构主要分为五大组成部分：控制系统、激励电源系统、真空腔体、工艺气体系统以及真空泵系统。



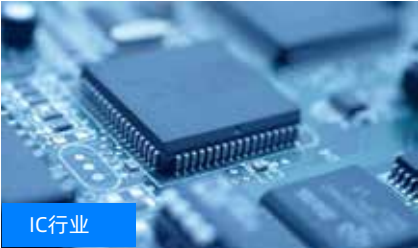
INDUSTRY APPLICATION

等离子行业应用



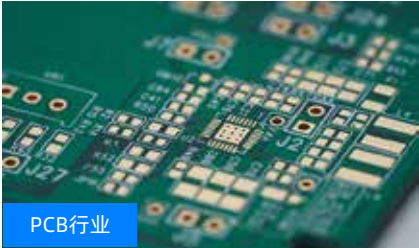
LED行业

点银胶及固晶前、引线键合前、封胶封装前处理，清洗及活化材料表面，提升良率和发光率。



IC行业

去除Wafer氧化膜和有机物，W/B前去除芯片及引线框架表面污染物和氧化物，塑封前对表面处理，提升结合面牢固性。



PCB行业

去除板内和微孔内的胶渣。去除孔内残留的碳化物，层压前对PI等基板的表面粗化，电镀前对金手指、焊盘进行清洗。



LCD行业

玻璃基材蒸镀或溅射ITO膜前、偏光片/防指纹膜贴合前、显示屏玻璃涂层前处理等，去除表面邮寄污染物，提升粘合力。



3C行业

手机、电脑、小家电等零部件制造环节的点胶、镀膜、喷涂、贴合等众多工艺段，提升材料表面附着力，提升良品率。



汽车制造

车灯/密封条粘接前、刹车片/油封/保险杠喷涂前、传感器封装等很多工艺段，提升粘接性、密封性、安全性。



航空航天

电连接器涂胶前、纤维树脂复合材料制备前仪表盘/蒙皮口盖涂覆前等，提升粘接力、牢固性，提升良品率 and 安全性。



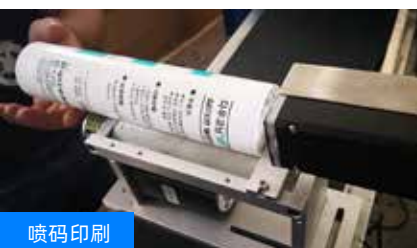
锂电池

去除Wafer氧化膜和有机物，W/B前去除芯片及引线框架表面污染物和氧化物，塑封前对表面处理，提升结合面牢固性。



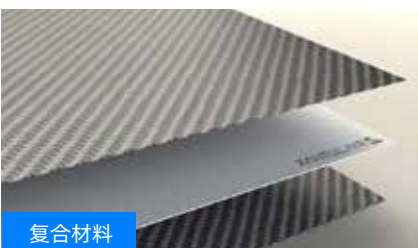
生物医学

培养皿表面处理（提高细胞贴壁能力）、心脏支架/导尿管处理、酶标板处理（提高酶固定性）等，增强表面能、浸润性、相容性。



喷码印刷

众多领域在喷码/印刷等工艺段之前，经过等离子处理材料表面，增强表面附着力，提升牢固度、粘接度。



复合材料

制备工艺中使用等离子处理，去除弱界面层增加表面粗糙度和活性，进而增强两表面间浸润与粘接性能，提高涂装性能。



科研所/高校

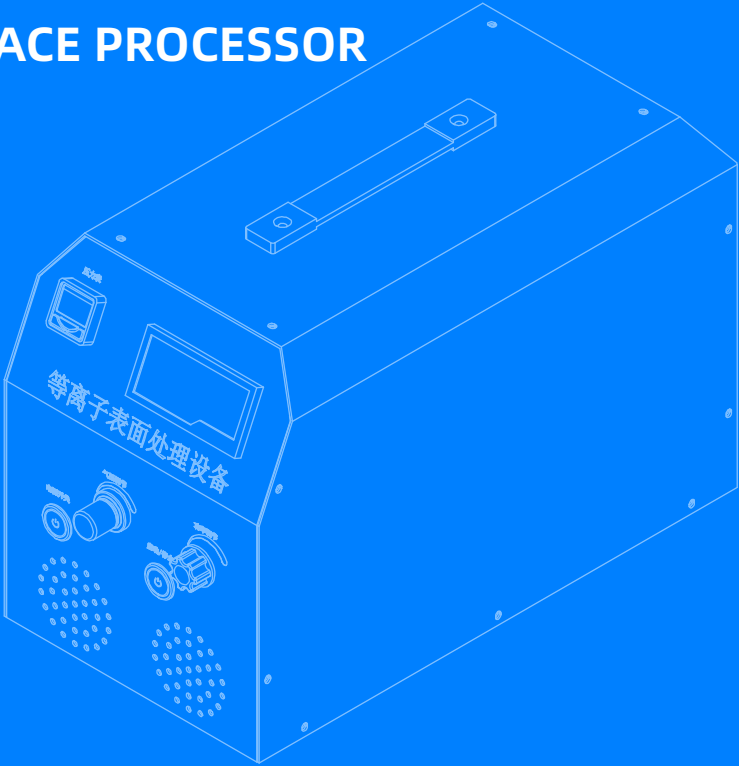
助力于各大院校对材料学、微电子学、生命科学、生物医学等领域的科研及应用。

VERTICAL PLASMA SURFACE PROCESSOR

立式等离子表面处理机



扫码查看相关视频



产品特点

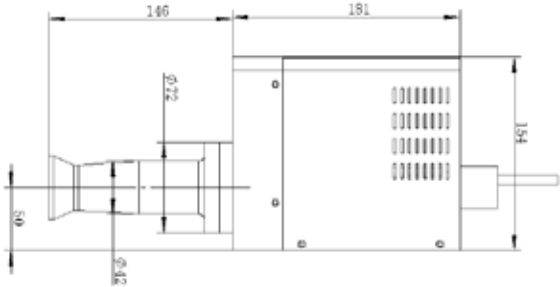
- ◎ 低温等离子处理，产生中性离子，不带静电，不伤产品；
- ◎ 气压可调节，速度可调节；
- ◎ 可搭配直喷或旋转枪头使用，满足客户多样化需求；
- ◎ 可搭载自动化平台使用，极大提高处理效率；
- ◎ 增加表面活性，增加表面张力，清除表面油污改变表面分子结构，提高附着力；

Product features

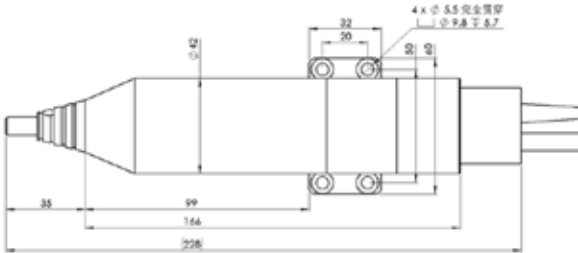
- ◎ Low temperature plasma treatment, generating neutral ions, without static electricity, and without damaging the product;
- ◎ Adjustable air pressure and speed;
- ◎ Can be used with direct injection or rotary gun heads to meet the diverse needs of customers;
- ◎ Can be used with an automated platform, greatly improving processing efficiency;
- ◎ Increase surface activity, increase surface tension, remove surface oil stains, change surface molecular structure, and improve adhesion;

等离子立式电源主机参数规格	
机箱尺寸	485×224×300mm（长×宽×高）
主机重量	11.9kg
额定电源电压	AC 220V ±10% 50~60Hz
电源频率	20~50KHz
等离子输出功率	可选400~1000W（不同型号、枪头配备相应功率范围）
故障警报	短路、断路、气压不足警报、气体压力过高警报、主板错误警报

ZQ-DLZ600X旋喷款等离子



ZQ-DLZ100Z直喷款等离子



规格参数		
型号	ZQ-DLZ600X	ZQ-DLZ100Z
主机尺寸（长×宽×高）	463×395×160mm	463×395×160mm
处理宽度（mm）	20~90mm	2~15mm
处理高度（mm）	5~15mm	5~15mm
枪头规格	可选普通/消音旋转 20mm/30mm/50mm/70mm	可选普通/直喷 2mm/3mm/5mm/10mm/12mm
等离子输出功率	600~1000W	600~1000W

ZQ-SLZ7560X 旋喷款等离子



卧式旋喷款等离子表面处理机

适用于电子行业的手机壳丝印、涂覆、点胶等前处理，手机屏幕盖板AF防指纹油前处理，连接器表面清洗，通用行业丝印、转印前处理等。

Horizontal rotary plasma surface treatment machine

Suitable for pre-treatment of phone cases such as screen printing, coating, and dispensing in the electronics industry, pre-treatment of phone screen covers with AF anti fingerprint oil, surface cleaning of connectors, and pre-treatment of general industry screen printing and transfer printing.

ZQ-SLZ7560X 参数规格

主机尺寸	472×320×212mm（长×宽×高）	等离子炬宽度	20/30/40/50/60/70/80（mm）
整机重量	11.9kg	主机输入电源	AC220V(±), 50Hz

ZQ-SLZ7510Z 直喷款等离子



卧式直喷款等离子表面处理机

适用于电子行业的手机壳丝印、涂覆、点胶等前处理，手机屏幕盖板AF防指纹油前处理，连接器表面清洗，通用行业丝印、转印前处理等。

Horizontal DI plasma surface treatment machine

Suitable for pre-treatment of phone cases such as screen printing, coating, and dispensing in the electronics industry, pre-treatment of phone screen covers with AF anti fingerprint oil, surface cleaning of connectors, and pre-treatment of general industry screen printing and transfer printing.

ZQ-SLZ7510Z 参数规格

主机尺寸	472×320×212mm（长×宽×高）	等离子炬宽度	2/3/5/10/12（mm）
整机重量	11.9kg	主机输入电源	AC220V(±), 50Hz

ZQ-DLZ8660XMS 智能款



旋转式等离子表面处理机

适用于电子行业的手机壳丝印、涂覆、点胶等前处理，手机屏幕盖板AF防指纹油前处理，连接器表面清洗，通用行业丝印、转印前处理等。

Rotary plasma surface treatment machine

Suitable for pre-treatment of phone cases such as screen printing, coating, and dispensing in the electronics industry, pre-treatment of phone screen covers with AF anti fingerprint oil, surface cleaning of connectors, and pre-treatment of general industry screen printing and transfer printing.

ZQ-DLZ8660XMS 参数规格

外形尺寸	463×495×120mm（长×宽×高）	电源	220V/AC, 50/60Hz
外部控制	RS485,模拟通讯口,启停I/O	工作气体	Compressed Air(0.4Mpa)/N ₂ (0.2Mpa)

ZQ-DLZ8610ZMS 智能款



直喷式等离子表面处理机

适用于电子行业的手机壳丝印、涂覆、点胶等前处理，手机屏幕盖板AF防指纹油前处理，连接器表面清洗，通用行业丝印、转印前处理等。

DI plasma surface treatment machine

Suitable for pre-treatment of phone cases such as screen printing, coating, and dispensing in the electronics industry, pre-treatment of phone screen covers with AF anti fingerprint oil, surface cleaning of connectors, and pre-treatment of general industry screen printing and transfer printing.

ZQ-DLZ8610ZMS 参数规格

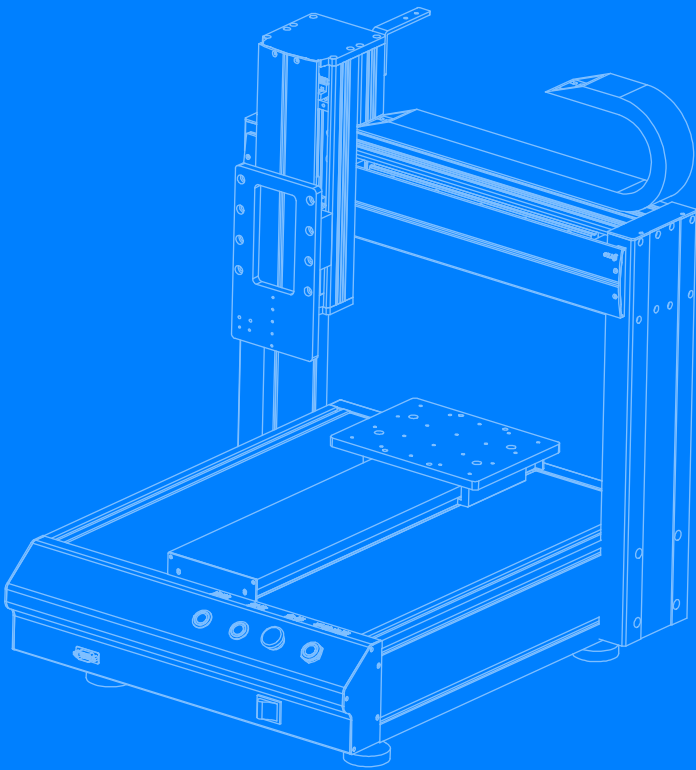
外形尺寸	463×495×120mm（长×宽×高）	电源	220V/AC, 50/60Hz
外部控制	RS485,模拟通讯口,启停I/O	工作气体	Compressed Air(0.4Mpa)/N ₂ (0.2Mpa)

THREE AXIS DRIVE WORKING PLATFORM

三轴传动工作平台



扫码查看相关视频



产品特点

- ◎ 独立开模、铝型材模铸结构、外形美观。
- ◎ 手持式示教编程器，编程快速简便。
- ◎ 可做空间点、线、圆弧等任意形状等离子表面处理。
- ◎ 可灵活更换载体，搭配各种应用。
- ◎ 可配置常规和非标流水线联机实现自动化，满足客户多样化需求。

Product features

- ◎ Independent mold opening, aluminum profile mold casting structure, beautiful appearance.
- ◎ Hand held teaching programmer, fast and simple programming.
- ◎ It can be used to dispense glue in any shape, such as space point, line, arc, etc.
- ◎ The carrier can be changed flexibly with various applications.
- ◎ Conventional and non-standard assembly line automation can be configured to meet the diversified needs of customers.

三轴传动工作平台主要参数配置			
行程（mm）	300/300/100（可定制）	马达系统	日本信浓电机
负载重量（kg）	10KG	传动方式	XYZ轴同步带为标准配置（可定制）
轴动速度X/Y/Z（mm/sec）	0~500mm/sec	运动补间功能	3Axis（立体空间任意路线皆可）
分解能力（mm/Axis）	0.02mm/Axis	导轨	台湾上银导轨
定位精度（mm）	0.02	皮带	意大利意拉泰同步带
程序记录模式	至少100组，5000points/组	输入电源	全电压AC110V~220V
显示方式	LCD教导盒	外形尺寸（mm）	530/589/632

ZQ-DLZ331ZL 参数配置



单工位三轴平台-直喷款

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。
可选择直喷或者旋转枪头。

Double station plasma surface processor

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.
Direct injection or rotary gun head can be selected.

ZQ-DLZ331ZL 枪头参数配置			
枪头尺寸	228×60×55mm（长×宽×高）	处理宽度	2~10mm（喷头可选配）
等离子火焰温度	40~80℃（移动测试温度）	等离子输出功率	600/1000W（可选配）

ZQ-DLZ331XL 参数配置



单工位三轴平台-旋喷款

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。
可选择直喷或者旋转枪头。

Double station plasma surface processor

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.
Direct injection or rotary gun head can be selected.

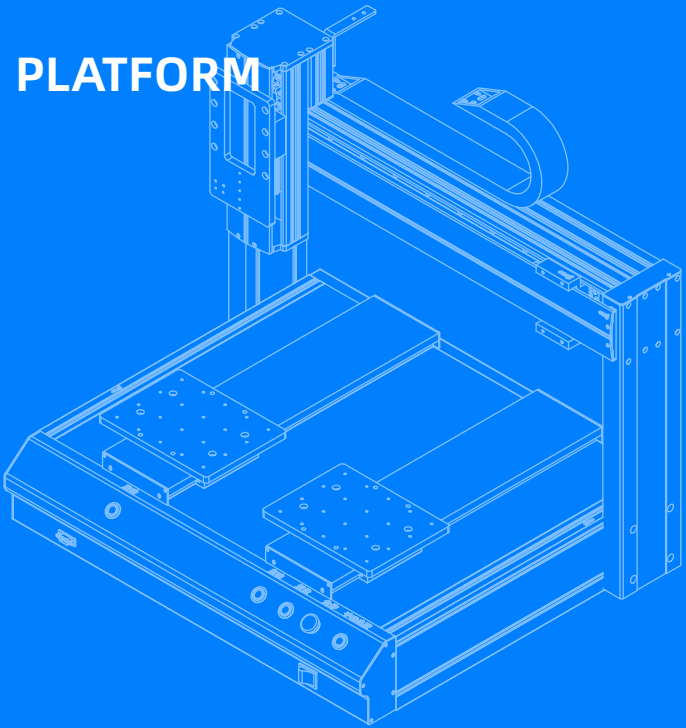
ZQ-DLZ331XL 枪头参数配置			
枪头尺寸	327×154×83mm（长×宽×高）	处理宽度	20~80mm（喷头可选配）
等离子火焰温度	40~80℃（移动测试温度）	等离子输出功率	600/1000W（可选配）

DOUBLE STATION TRANSMISSION WORKING PLATFORM

双工位传动工作平台



扫码查看相关视频



产品特点

- ◎ 独立开模，铝型材模铸结构，外形美观；
- ◎ 手持式示教编程器，编程简便快速；
- ◎ 可做空间点、线、圆弧等任意形状点胶；
- ◎ 可灵活更换载体，搭配各种应用；
- ◎ 可配置常规和非标流水线联机自动化，满足客户多元化需求；

Product features

- ◎ Independent mold opening, aluminum profile mold casting structure, beautiful appearance.
- ◎ Hand held teaching programmer, fast and simple programming.
- ◎ It can be used to dispense glue in any shape, such as space point, line, arc, etc.
- ◎ The carrier can be changed flexibly with various applications.
- ◎ Conventional and non-standard assembly line automation can be configured to meet the diversified needs of customers.

双工位传动工作平台主要参数配置			
行程（mm）	500/300/300/100（可定制）	马达系统	日本信浓电机
负载重量（kg）	10KG	传动方式	XYZ轴同步带为标准配置（可定制）
轴动速度X/Y/Z（mm/sec）	0~500mm/sec	运动补间功能	3Axis（立体空间任意路线皆可）
分解能力（mm/Axis）	0.02mm/Axis	导轨	台湾上银导轨
定位精度（mm）	0.02	皮带	意大利意拉泰同步带
程序记录模式	至少100组，5000points/组	输入电源	全电压AC110V~220V
显示方式	LCD教导盒	外形尺寸（mm）	730/580/650

ZQ-DLZ5331XL 枪头参数配置



双工位三轴平台-旋喷款

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。

可选择直喷或者旋转枪头。

Double station plasma surface processor

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.

Direct injection or rotary gun head can be selected.

ZQ-DLZ5331XL 枪头参数配置			
枪头尺寸	327×154×83mm（长×宽×高）	处理宽度	20~80mm（喷头可选配）
等离子火焰温度	40~80℃（移动测试温度）	等离子输出功率	600/1000W（可选配）

ZQ-DLZ5331ZL 枪头参数配置



双工位三轴平台-直喷款

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。

可选择直喷或者旋转枪头。

Double station plasma surface processor

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.

Direct injection or rotary gun head can be selected.

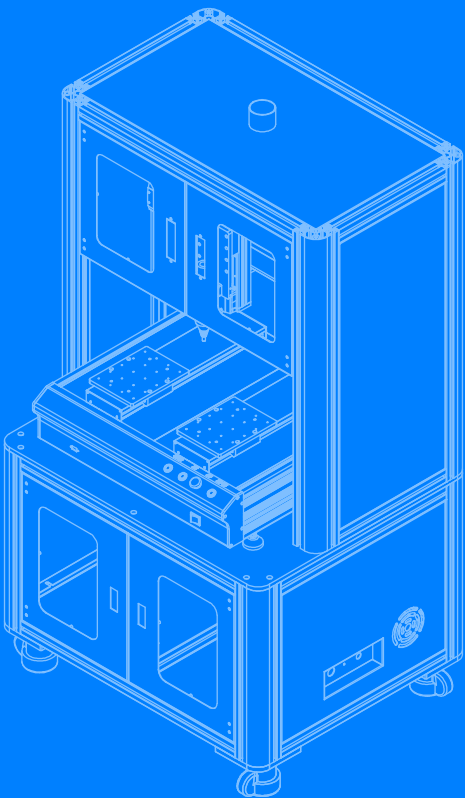
ZQ-DLZ5331ZL 枪头参数配置			
枪头尺寸	228×60×55mm（长×宽×高）	处理宽度	2~10mm（喷头可选配）
等离子火焰温度	40~80℃（移动测试温度）	等离子输出功率	600/1000W（可选配）

FLOOR MOUNTED DOUBLE STATION PLASMA SURFACE PROCESSOR

落地式双工位等离子表面处理机



扫码查看相关视频



产品特点

- ◎ 常压等离子系统具有多样化、设计操作方便，拓展性强等优势；
- ◎ 可实现多类型多类别的等离子处理方式；
- ◎ 自动等离子处理系统-等离子设备架设在流水线上，实现在线式作业；
- ◎ 可根据客户需求安装不同数量的常压等离子系统，实现多功能大面积的等离子处理。
- ◎ 自动X/Y轴等离子处理系统-等离子设备架设在XYZ空间运动系统上，实现特殊或异形产品的等离子处理。

Product features

- ◎ Atmospheric pressure plasma system has the advantages of diversification, convenient design and operation and strong expansibility.
- ◎ It can realize multi type and multi category plasma treatment.
- ◎ Automatic plasma processing system - plasma equipment is erected on the assembly line to realize on-line operation.
- ◎ Different quantities of atmospheric pressure plasma systems can be installed according to customer needs to realize multi-functional and large-area plasma treatment.
- ◎ Automatic X / Y axis plasma processing system - plasma equipment is erected on XYZ space motion system to realize plasma processing of special or special-shaped products.

落地式双工位三轴移动平台参数规格	
外形尺寸	900×730×1600mm（长×宽×高）
最大负载	Y轴10kg
额定电源电压	220V AC±10% 50~60Hz
移动速度（mm/sec）	0~500
编程方式	运动控制卡+手持盒

ZQ-DLZ5331LOZ-A 落地式A款



双工位三轴移动平台A款

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。
可选择直喷或者旋转枪头。

Double station plasma surface machine - A

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.
Direct injection or rotary gun head can be selected.

ZQ-DLZ5331LOZ-A参数规格	
外形尺寸	463×395×160mm（长×宽×高）
整机重量	100kg

ZQ-DLZ5331LOZ-B 落地式B款



双工位三轴移动平台B款

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。
可选择直喷或者旋转枪头。

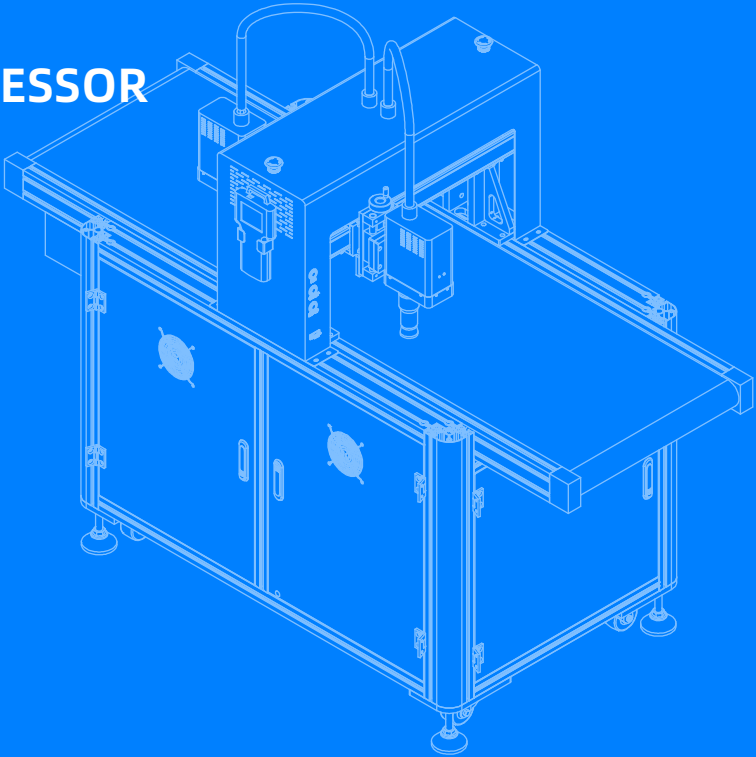
Double station plasma surface machine - B

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.
Direct injection or rotary gun head can be selected.

ZQ-DLZ5331LOZ-B参数规格	
外形尺寸	900×730×1600mm（长×宽×高）
整机重量	100kg

ASSEMBLY LINE PLASMA SURFACE PROCESSOR

流水线式等离子表面处理机



扫码查看相关视频

产品特点

- ◎ 常压等离子系统具有多样化、设计操作方便，拓展性强等优势；
- ◎ 可实现多类型多类别的等离子处理方式；
- ◎ 自动等离子处理系统-等离子设备架设在流水线上，实现在线式作业；
- ◎ 可根据客户需求安装不同数量的常压等离子系统，实现多功能大面积的等离子处理。
- ◎ 自动X/Y轴等离子处理系统-等离子设备架设在XYZ空间运动系统上，实现特殊或异形产品的等离子处理。

Product features

- ◎ Atmospheric pressure plasma system has the advantages of diversification, convenient design and operation and strong expansibility.
- ◎ It can realize multi type and multi category plasma treatment.
- ◎ Automatic plasma processing system - plasma equipment is erected on the assembly line to realize on-line operation.
- ◎ Different quantities of atmospheric pressure plasma systems can be installed according to customer needs to realize multi-functional and large-area plasma treatment.
- ◎ Automatic X / Y axis plasma processing system - plasma equipment is erected on XYZ space motion system to realize plasma processing of special or special-shaped products.

流水线式等离子表面处理机参数规格	
外形尺寸	1700×582×1400mm（长×宽×高）
整机重量	85KG
额定电源电压	AC 220V ±10% 50~60Hz
电源频率	20~40KHz
等离子输出功率	可选1000W（不同型号、枪头配备相应功率范围）

ZQ-DLZ1010LIX 流水线式等离子



流水线等离子表面处理机

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。
可选择直喷或者旋转枪头。

Assembly line plasma surface treatment machine

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.
Direct injection or rotary gun head can be selected.

ZQ-DLZ1010LIX 参数规格			
外形尺寸	1700×582×1400mm（长×宽×高）	皮带宽度	300mm
整机重量	85kg	皮带速度	14米/分钟（可调）

ZQ-DLZ10200L 流水线式等离子



小型流水线等离子表面处理机

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。
可选择直喷或者旋转枪头。

Small assembly line plasma surface treatment machine

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.
Direct injection or rotary gun head can be selected.

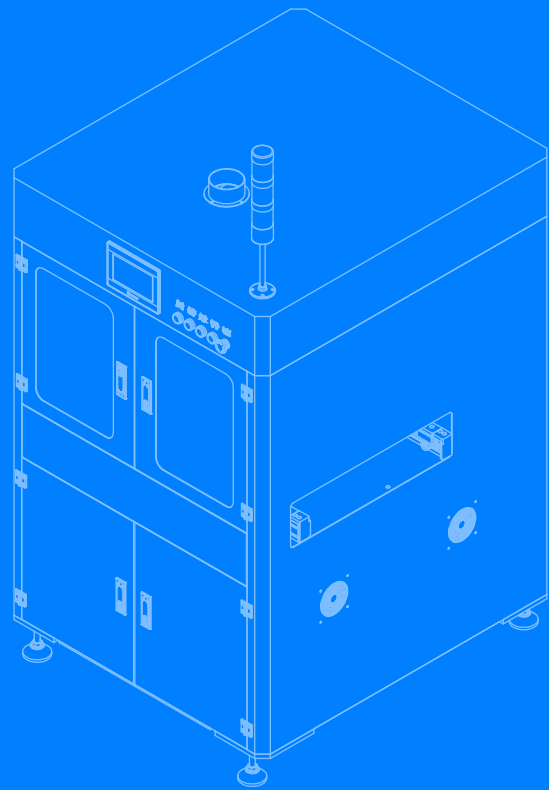
ZQ-DLZ10200L 参数规格			
外形尺寸	800×463×1200mm（长×宽×高）	皮带宽度	108mm
整机重量	60kg	皮带速度	0~14米/分钟（可调）

ON-LINE PLASMA SURFACE PROCESSOR

在线式等离子表面处理机



扫码查看相关视频



产品特点

- ◎ 常压等离子系统具有多样化、设计操作方便，拓展性强等优势；
- ◎ 可实现多类型多类别的等离子处理方式；
- ◎ 自动等离子处理系统-等离子设备架设在流水线上，实现在线式作业；
- ◎ 可根据客户需求安装不同数量的常压等离子系统，实现多功能大面积的等离子处理；
- ◎ 自动X/Y轴式等离子处理系统-等离子设备架设在XYZ空间运动系统上，实现特殊或异形产品的等离子处理；

Product features

- ◎ Atmospheric pressure plasma system has the advantages of diversification, convenient design and operation and strong expansibility.
- ◎ It can realize multi type and multi category plasma treatment.
- ◎ Automatic plasma processing system - plasma equipment is erected on the assembly line to realize on-line operation.
- ◎ Different quantities of atmospheric pressure plasma systems can be installed according to customer needs to realize multi-functional and large-area plasma treatment.
- ◎ Automatic X / Y axis plasma processing system - plasma equipment is erected on XYZ space motion system to realize plasma processing of special or special-shaped products.

在线式等离子表面处理机主要参数配置	
机箱尺寸	1040×1140×1700mm（长×宽×高）
额定电源电压	AC 220V ±10% 50~60Hz
电源频率	20~40KHz
等离子输出功率	可选1000W（不同型号、枪头配备相应功率范围）
故障警报	短路、断路、气压不足警报、气体压力过高警报、主板错误警报



在线式等离子表面处理机

适用于处理面积较小的产品，无需架接在生产流水线，产品放置上去后可直接进行处理，可达到一定产能。

可选择直喷或者旋转枪头。

On line plasma surface processor

It is suitable for processing products with a small area, without the need for racks to be connected to the production line. After placing the products, they can be directly processed, achieving a certain capacity.

Direct injection or rotary gun head can be selected.

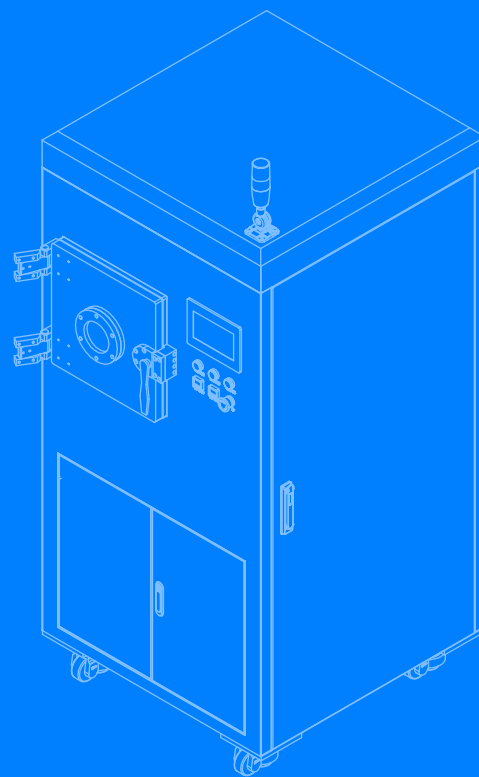
ZQ-DLZ2020ZX 参数规格	
整机尺寸	1040×1140×1610mm（长×宽×高）
流水线宽度	100-500mm（可调）
流水线移动速度	0~800mm/s
控制方式	本地控制/远程控制
整机功率	3.5KW
等离子功率	1000W*2
等离子频率	中频，15-40KHz
远程接口	485
枪头输出压力	0.25-0.3MPa
电源	220V/AC, 50/60Hz
设备环境要求(相对湿度)	<93%不结雾
使用温度范围	-10℃~+50℃
等离子处理高度	离材料上表面5-20mm
处理宽幅	40mm（可选配）
工作气体	Compressed Air（0.2~0.4Mpa）CDA,N2
枪头可选	旋转:40mm、50mm、60mm、70mm
显示方式	触摸屏
喷头数量	2（Option）

VACUUM PLASMA SURFACE PROCESSOR

真空式等离子表面处理机



扫码查看相关视频



产品特点

- ◎ 超大处理空间，提升处理产能，采用PCL+触摸屏控制系统，精准的控制设备运行；
- ◎ 可按照客户要求定制设备腔体容量和层数，满足客户的需求；
- ◎ 保养维护成本低，便于客户成本控制；
- ◎ 高精度，快响应，良好的操控性和兼容性，完善的功能和专业的技术支持；

Product features

- ◎ Large processing space, improved processing capacity, using PCL+touch screen control system, precise control of equipment operation.
- ◎ The capacity and number of layers of the equipment cavity can be customized according to customer requirements to meet customer needs.
- ◎ Low maintenance cost, convenient for customer cost control.
- ◎ High precision, fast response, good controllability and compatibility, complete functions and professional technical support.

清洗原理

在密闭容器中设置电磁场和一定的真空度，通入工艺气体(根据客户需求选用)，施加足够的能量在电磁场起辉，产生高能量无序的等离子体作用于产品表面，通过轰击剥离、氧化、还原、裂解、聚合等一系列物理和化学反应清除污染物，从而达到清洁、活化、刻蚀改性等目的。

Product principle

Set an electromagnetic field and a certain degree of vacuum in a closed container, inject process gas (selected according to customer needs), apply sufficient energy to glow in the electromagnetic field, generate a high-energy disordered plasma that acts on the product surface, and remove pollutants through a series of physical and chemical reactions such as bombardment stripping, oxidation, reduction, cracking, and polymerization, thereby achieving the goals of cleaning, activation, etching, and modification.



10L真空等离子清洗机

适用于小批量生产及科学研究，广泛应用于芯片、摄像头模组、PCB、FPC、晶圆、LED等产品表面处理。

10L vacuum plasma cleaning machine

Suitable for small-scale production and scientific research, widely used for surface treatment of products such as chips, camera modules, PCBs, FPCs, wafers, LEDs, etc.

ZQ-10-QXJ 参数规格	
整机尺寸	580×610×625mm（宽×高×深）
整机功率	≤1.2kw
整机重量	约95kg（包含25kg外置分体泵）
电源系统	AC 220V，50/60Hz，单相三线制
腔体尺寸	210×220×220mm（宽×高×深）
腔体材质	高纯度不锈钢（高密闭性）
电极结构	水平电极（铝制锁固型）
放料层数	1~2层可调节（标配2层电极板）
放料空间	2层时：每层可用：≤160×150×50mmm（宽×高×深）
放料载具	可选配玻璃托盘或网格抽拉载物板（铝制悬浮极）
高度空间	2层时：每层电极板上方空间78mm/网格载物板上方空间65mm
清洗效率	单次清洗时间一般≤3min（最终以材料属性和客户清洗要求为准）
腔门视窗	防辐射/抗紫外线设计
等离子电源（二选一）	射频:13.56MHz（0~300W）/中频：40KHz（0~1000W）
真空泵	油旋片双极单泵：10m³/h（制程压力10~80Pa）
气体流量	高精度浮子流量计（20~200）SCCM
工艺气路	标路2路（可接O2/H2/Ar/ArH2/N2/CF4/CDA等气体，不锈钢气路）
控制方式	PLC+4.3寸HMI触摸屏（储存50组配方），手动/自动可切换



30L真空等离子清洗机

适用于小批量生产及科学研究，广泛应用于芯片、摄像头模组、PCB、FPC、晶圆、LED等产品表面处理。

30L vacuum plasma cleaning machine

Suitable for small-scale production and scientific research, widely used for surface treatment of products such as chips, camera modules, PCBs, FPCs, wafers, LEDs, etc.

ZQ-30-QXJ-B 参数规格	
整机尺寸	760×1435×757mm（宽×高×深）
反应仓尺寸	310×320×330mm（宽×高×深）
有效处理面积	250×260mm（宽×深）
有效处理层数	1~5层（标配3层）
主系统电源	380×2（1±10%）V（AC）50Hz~60Hz
等离子电源	射频13.56MHz（300W）（300/600/1000W可选）
真空泵系统	直连式旋片双极油泵
控制方式	PLC+HMI触摸屏（储存50组配方）自动和手动模式控制（可切换）
流量控制系统	高精度质量流量计（0~300）ml/min
气路系统	标配1路（氧气、氮气、氩气、四氟化碳等）
气体接口压力	氧、氩、氩氢、四氟化碳等：0.3MPa~0.4MPa 净化冷却气体（氮气）：0.3MPa~0.4MPa 压缩空气（启动气动角阀）：≥0.4MPa
清洗节拍	单次清洗时间<5min（抽真空+清洗+破真空）具体以清洗产品材料及要求而定
工作真空度	10~150Pa
设备功率	≤2kw
触摸屏	TPC7062TI（国产）
真空角阀	KF40（进口）

ZQ-30-QXJ-A 参数配置



30L真空等离子清洗机

适用于小批量生产及科学研究，广泛应用于芯片、摄像头模组、PCB、FPC、晶圆、LED等产品表面处理。

30L vacuum plasma cleaning machine

Suitable for small-scale production and scientific research, widely used for surface treatment of products such as chips, camera modules, PCBs, FPCs, wafers, LEDs, etc.

ZQ-30-QXJ-A 参数规格	
整机尺寸	760×1435×757mm（宽×高×深）
反应仓尺寸	310×320×330mm（宽×高×深）
有效处理面积	250×260mm（宽×深）
有效处理层数	1~5层（标配3层）
主系统电源	380×2（1±10%）V（AC）50Hz~60Hz
等离子电源	射频13.56MHz（300W）（300/600/1000W可选）
真空泵系统	直连式旋片双极油泵
控制方式	PLC+HMI触摸屏（储存50组配方）自动和手动模式控制（可切换）
流量控制系统	高精度质量流量计（0~300）ml/min
气路系统	标配1路（氧气、氮气、氩气、四氟化碳等）
气体接口压力	氧、氩、氩氢、四氟化碳等：0.3MPa~0.4MPa 净化冷却气体（氮气）：0.3MPa~0.4MPa 压缩空气（启动气动角阀）：≥0.4MPa
清洗节拍	单次清洗时间<5min（抽真空+清洗+破真空）具体以清洗产品材料及要求而定
工作真空度	10~150Pa
设备功率	≤2kw
触摸屏	TPC7062TI（国产）
真空角阀	KF40（进口）



60L真空等离子清洗机

适用于小批量生产及科学研究，广泛应用于芯片、摄像头模组、PCB、FPC、晶圆、LED等产品表面处理。

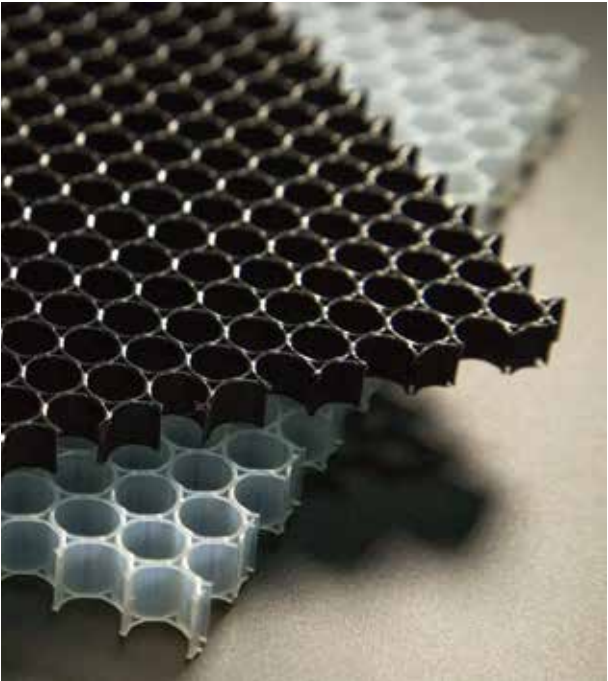
60L vacuum plasma cleaning machine

Suitable for small-scale production and scientific research, widely used for surface treatment of products such as chips, camera modules, PCBs, FPCs, wafers, LEDs, etc.

ZQ-60-QXJ 参数规格	
整机尺寸	1160×1850×1200mm（宽×高×深）
反应仓尺寸	450×600×470mm（宽×高×深）
有效处理面积	3300×380mm（宽×深）
有效处理层数	1~5层（标配3层）
主系统电源	380×（1±10%）V（AC）50Hz~60Hz
等离子电源	射频13.56MHz（600W）（300/600/1000W可选）
真空泵系统	水冷泵组（直连式旋片双极油泵+罗茨泵）
控制方式	PLC+HMI触摸屏（储存50组配方）自动和手动模式控制（可切换）
流量控制系统	高精度质量流量计（0~300）ml/min
气路系统	标配1路（氧气、氮气、氩气、四氟化碳等）
气体接口压力	氧、氩、氩氢、四氟化碳等：0.3MPa~0.4MPa 净化冷却气体（氮气）：0.3MPa~0.4MPa 压缩空气（启动气动角阀）：≥0.4MPa
清洗节拍	单次清洗时间<8min（抽真空+清洗+破真空）具体以清洗产品材料及要求而定
工作真空度	10~150Pa
设备功率	≤3kw
触摸屏	TPC7062TI（国产）
真空角阀	KF40（进口）

INDUSTRY APPLICATION

等离子行业应用



新型复合材料行业

大多数鞋材，尤其是鞋底材料，都是高分子聚合材料，如EVA，TPR等，这些材料都是没有极性的，因此在粘合前要进行处理。常态下鞋材表面化学键的能量都低于10eV，等离子体中电子和离子的能量可达10eV以上，等离子体有足够的能量破坏高分子材料表面的化学键，改变其表面能，经过等离子体处理后的材料表面获得活性基团，增加表面极性，从而增强鞋材粘合力。

New composite material industry

Most shoe materials, especially sole materials, are polymer materials, such as EVA and TPR, these materials have no polarity, so they should be treated before bonding.

The energy of electrons and ions in the plasma can reach more than 10eV. When the plasma contacts the surface of shoe materials, such as EVA and TPR, and the energy of chemical bonds is less than 10eV, the plasma has enough energy to destroy the chemical bonds on the surface of polymer materials and change their surface energy. After plasmon treatment, the material surface produces active groups and increases the surface polarity, So as to enhance the adhesion of shoe materials.

日用品及家具行业

涂层前表面处理，涂层更牢固印字前表面处理，印字不脱落粘接前表面处理，粘接稳定高品质家具表面等离子处理后，可不用打磨，直接刷漆，不掉漆。

Commodity and furniture industry

Surface treatment before coating, firmer coating, surface treatment before printing, no peeling off of printing, surface treatment before bonding, stable bonding, high-quality furniture surface plasma treatment, you can directly brush paint without polishing, without peeling off.



镀膜工艺（PVD）

镀膜目的是防止指纹及油污不易粘附且轻易擦除。表面顺滑，手感舒适，不易刮花。增加玻璃表面耐磨性。

Coating process (PVD)

The purpose of coating is to prevent fingerprints and oil stains from adhering and easily erasing. Smooth surface, comfortable feel, not easy to scratch. Increase the abrasion resistance of the glass surface.



INDUSTRY APPLICATION

等离子行业应用

FPC&PCB行业

等离子体去钻污和凹蚀具有以下优点：

- 1、易于控制，不必考虑调整溶液和温度；
- 2、印制板孔中不会残留化学残余物；
- 3、可以处理高板厚孔径比的印制板；
- 4、适合于各种基材类型。

FPC&PCB Industry

Plasma decontamination and pitting have the following advantages:

- 1、Easy to control, no need to consider adjusting solution and temperature.
- 2、There will be no chemical residue in the printed board hole.
- 3、It can handle printed boards with high thickness aperture ratio.
- 4、Suitable for various substrate types.



汽车制造业

连接各种不同的材料，例如：顶部成型粘接后门附件GFRP(玻璃纤维增强材料)，CFRP(C纤维复合材料)。

Automobile manufacturing

Connect various materials, such as GFRP (glass fiber reinforced polymer) and CFRP (C fiber composite) for top molding and bonding rear door accessories.

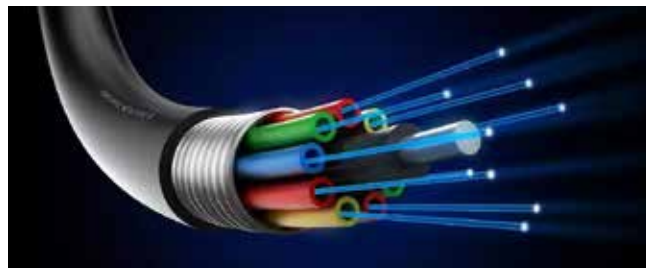


光纤电缆行业

电缆喷码前的处理，光缆在封装前除表面黄色物体

Fiber optic cable industry

Treatment before cable code spraying, remove yellow objects on the surface of optical cable before packaging.



新能源行业

旋转等离子枪用于热水器PP内胆发泡前处理以增加保温层

New energy industry

Rotary plasma gun used for pre foaming treatment of PP tank of water heater to increase insulation layer.

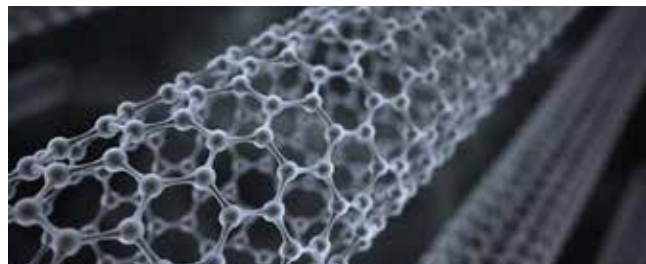


生物医用材料

聚苯乙烯制造的细胞培养皿,经等离子体处理后大大提高了贴壁培养细胞的能力。

Biomedical materials

Cell culture dish made of polystyrene, after plasma treatment, The ability of adherent culture cells was greatly improved.



INDUSTRY APPLICATION

等离子行业应用

微电子及手机行业

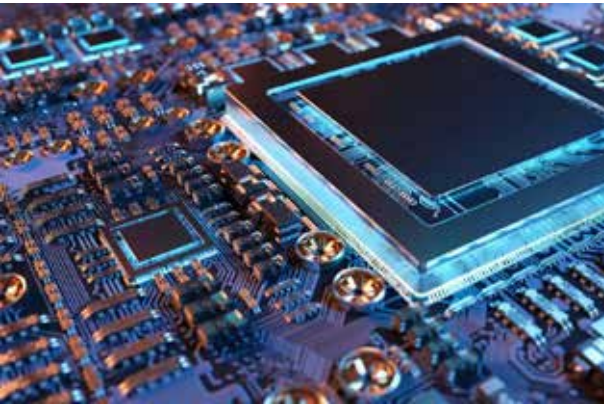
屏幕的制造是从玻璃工艺开始的，特别在白玻璃丝印油墨的时候以前玻璃印刷的时候，很容易出现印刷不上，掉油墨，颗粒等问题。使用等离子处理后，可有效的提升玻璃的粘接能力。

手机屏幕的占比率越来越高，导致用于粘接的屏幕两边的边框越来越窄，粘接效果越来越差。使用等离子处理后，可有效的提升窄边的粘接能力，保证在超窄的边框上粘接牢固成为可能。

Microelectronics and mobile phone industry

The manufacture of screens began with glass technology, especially when white glass screenprinting ink was used, Before glass printing, it was easy to have problems such as printing failure, ink loss. particles and so on. After plasma treatment, the bonding ability of glass can be effectively improved.

The proportion of mobile phone screen is higher and higher, resulting in narrower and narrower borders on both sides of the screen used for bonding, and worse bonding effect. After plasma treatment, it can effectively improve the bonding ability of the narrow edge and ensure that it is possible to bond firmly on the ultra narrow frame.



陶瓷&塑料&金属表面处理

管材表面处理，增加印字的附着力，有利于粘结印刷，提高表面附着力以及抗腐蚀能力，增强金属的硬度和磨损特性。

Ceramic/ plastic / metal surface treatment

Pipe surface treatment can increase the adhesion of printing, which is conducive to bonding printing and improve the surface quality. Adhesion and corrosion resistance, enhance the hardness and wear characteristics of metals.



贴合工艺

贴合工艺是将已经装饰好的防爆膜与玻璃盖板贴合。

Bonding process

This process is to fit the decorated explosion-proof membrane with the glass cover plate.



INDUSTRY APPLICATION

等离子行业应用

太阳能行业

旋转等离子枪用于热水器PP内胆发泡前处理以增加保温层。

Solar energy industry

Rotary plasma gun is used for foaming pretreatment of PP inner tank of waterheater to increase the insulation layer.



印刷行业

在产品进行印刷，特别是高分子复合材料的印刷，通常会出现印刷不良，脱漆，易掉等等问题。使用等离子处理后印刷质量明显提高，提升良率。

Printing industry

Printing of products, especially polymer composites, There are usually problems such as poor printing, paint peeling, easyfalling and so on. After plasma treatment, the printing quality is significantly improvedand the yield is improved.



丝印&喷涂&曝光显影

将产品LOGO字符制网版、调油墨，辅以定位治具，将字符印在产品凹面。烤干、上治具、调漆、钛晶黑、陶瓷白，往复喷涂。与丝印对等的工艺是曝光显影，目前是比较新的工艺。

Screen printing / spraying / exposure development

Make the product logo character into screen, adjust the ink, supplemented by positioning fixture, and print the character on the con-cave surface ofthe product. Dry, apply fixture, paint mixing, titaniumcrystal black / ceramic white, reciprocating spraying. dry.The process equivalent to silk screen printing is exposure development, which is a relatively new process at present.



TEST METHOD FOR PLASMA

等离子的测试方法

水滴测量方式（亲水性）

水滴角测试的作用主要是用来测试物体表面的接触角角度，通过角度值来分析判定物体表面的附着力、粘接性、疏水性、洁净度等重要指标。

测量方法：

斜面拟合、水平拟合、自动拟合

测试水为蒸馏水

判断方式：

如右下图所示，未处理的区域或者处理不合格区域，水滴会成水珠状水滴角度较大，处理效果OK的区域，达因液会成平铺状，水滴角度较小。



Contact angle measurement method (hydrophilicity)

The water drop angle test is mainly used to test the contact angle of the object surface. The angle value is used to analyze and judge the important indexes such as adhesion, adhesion, hydrophobicity and cleanliness of the object surface.

The test water is distilled water, and the measurement methods used in the test include inclined fitting, horizontal fitting and automatic fitting.

Judgment method:

As shown in the following figure on the right, water droplets will form water droplets in untreated areas or unqualified areas. In the area where the water drop angle is large and the treatment effect is OK, the dyne solution will be laid flat and the water drop angle is small.

达因测量方式（表面张力）

通常在用等离子清洗机处理后，想测试表面处理结果，常用达因值来测试，而达因值是表征表面张力或者表面能大小的一个参数。达因值来源于达因，达因 (dyn) 是力的单位，1达因=10⁻⁵牛，达因值指的是达因/厘米 1dyn/cm = 1mN/m。

测量方法：

测试使用德国arcotest达因笔

判断方式：

如右图所示，未处理的区域或者处理不合格区域，达因液会呈现水珠状，处理效果OK的区域，达因液会成平铺状，达因数值越高，表面清洗效果越好。



Dyne measurement method (surface tension)

Usually, after treatment with plasma cleaning machine, the surface treatment results are usually tested by dyne value, which is a parameter characterizing the surface tension or surface energy. Dyne value comes from dyne, dyne is the unit of force, 1 dyne = 10⁻⁵ n, dyne value refers to dyn/cm, 1dyn/cm=1mN/m.

Dyne pen used in the test: arcotest dyne pen in Germany.

Judgment method:

As shown in the right figure, in the untreated area or the unqualified area, the dyne solution will form water droplets, and in the area with OK treatment effect, the dyne solution will form a flat paving. The higher the dyne value, the better the surface cleaning effect.

TEST METHOD FOR PLASMA

等离子的测试方法

■ 触角仪测量方式

用仪器直接检测出等离子处理之后材料表面接触角具体是多少度

工作原理：

接触角是液体与固体相交界面所形成的角度，若液体被强力地吸附于固体表面，其液滴将会在固体表面完全展开，其接触角近似 0° 。因此，接触角越小，表面活性越好，亲水力越强。

Measuring method of feeler

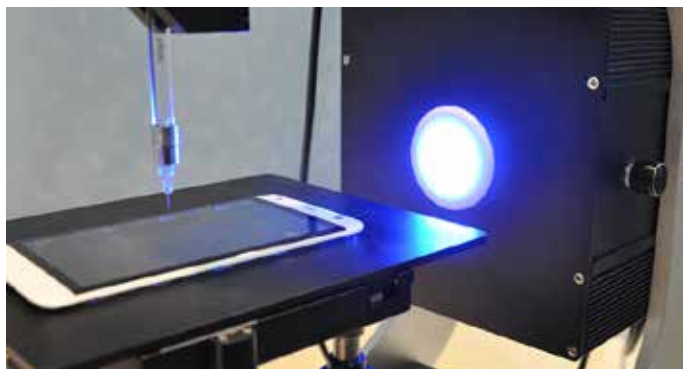
The specific contact angle of the material surface after plasma treatment is directly detected by the instrument.

working principle:

The contact angle is the angle formed by the interface between liquid and solid. If the liquid is strongly adsorbed on the solid surface, its droplets will fully expand on the solid surface, and its contact angle is approximately 0° . Therefore, the smaller the contact angle, the better the surface activity and the stronger the hydrophilic force.

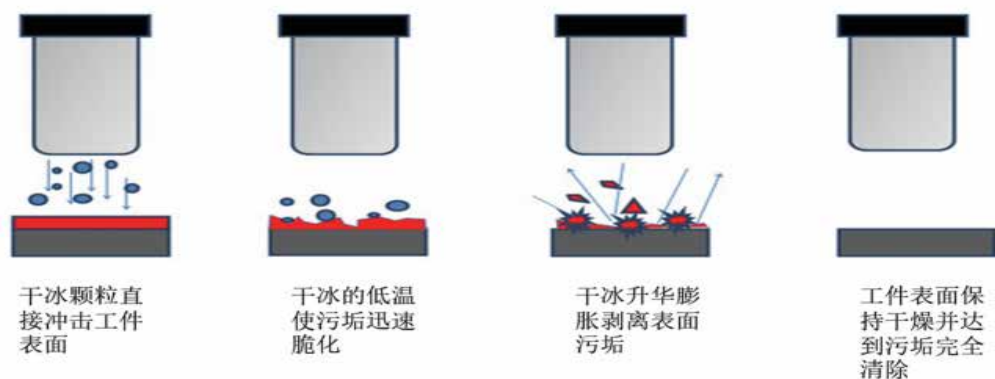


■ 水滴角测试仪



PRINCIPLE OF DRY ICE CLEANING

干冰清洗机原理



清洗系统通过高压空气将干冰清洗机的干冰颗粒喷射到需要清洗的工件表面，经过冲击及利用温差的物理反应使不同的物质在不同的收缩速度下产生脱离。当-78摄氏度的干冰粒接触到污垢表面后会产生脆化爆炸现象，从而使污垢收缩及松脱，随之干冰粒会瞬间气化并且膨胀800倍，产品强大的剥离力，将污垢快速、彻底的从物体表面脱落，从而达到快速、高效、安全、节能的清洗效果。

The cleaning system sprays the dry ice particles of the dry ice cleaning machine to the surface of the workpiece to be cleaned through high-pressure air. After impact and using the physical reaction of temperature difference, different substances are separated at different shrinkage speeds. When the dry ice particles at -78 C contact the dirt surface, it will produce embrittlement and explosion, so as to shrink and loosen the dirt, and then the dry ice particles will instantly gasify and expand 800 times. The strong stripping force of the product will quickly and completely fall off the dirt from the object surface, so as to achieve a fast, efficient, safe and energy-saving cleaning effect.

APPLICATION SCENARIO

干冰清洗机应用场景

MicroJet

- OLED/LCD: Panel, Pad, Active area(cell), Lamination
- 印章, 涂层, 表面处理前处理清洗: 塑料, 玻璃
- Laser marking/Cutting/treatment 后清洗: Film, 薄膜产品
- 电子/电/Display: Mobile, TV 等

Snow

- De-burring
- 粘贴型异物去除
- Flux 去除
- PCB / FPCB

Super Snow

- 半导体 / Display设备 / 部分清洗
- 中/大型模具清洗, 设备维护
- 文物铜像及电车复原

Pellet

- 中/小型模具清洗: 注塑, press, 穿孔等, 高光泽/腐蚀模具清洗
- Pattern Roll, 导光板清洗

HAND HELD DRY ICE MACHINE

手持式干冰清洗机

ZQ-GB1050 手持式干冰清洗机



可选干冰机喷嘴

产品特点

- ◎ 干冰清洗原理类似于干冰的蒸发，清洗时不会产生二次污染。
- ◎ 干冰不含水，在清洗过程中不会对表面、设备、机器等造成腐蚀。
- ◎ 干冰清洗后无需反复清洗，因为干冰蒸发后没有残留物。
- ◎ 干冰清洗机清洗效果好，可以清除灰尘、油渍、污垢等困难问题。
- ◎ 干冰清洗机可以应用于电子、机械、航空、制药等各个行业。

Product features

- ◎ The principle of dry ice cleaning is similar to the evaporation of dry ice, and there is no secondary pollution during cleaning.
- ◎ Dry ice does not contain water and does not cause corrosion to surfaces, equipment, machines, etc. during cleaning.
- ◎ There is no need to wash dry ice repeatedly after cleaning because there is no residue after the dry ice has evaporated.
- ◎ The dry ice cleaner has a good cleaning effect and can remove dust, oil, dirt and other difficult problems.
- ◎ Dry ice cleaners can be used in various industries such as electronics, machinery, aviation, and pharmaceuticals.

干冰机规格参数			
主机尺寸	650×450×750mm（长×宽×高）	设备外部材质	SUS304
设计温度	-78℃（MAX）	设备内部材质	SUS304
干冰用量	0~0.6kg/min（可调）	出冰方式	单管式
供气压力范围	0~10bar	使用干冰尺寸（MAX）	150×150×300mm
压缩空气流量范围	2~4立方/min	设备设计电源	AC 220V/50Hz



ZQ-GB33150单工位三轴平台



ZQ-GB331R双工位三轴平台

产品特点

- ◎ 独立开模，铝型材模铸结构，外形美观、机器结实、质量有保障。
- ◎ 比人工精准、快速、环保，只需放入产品即可自动去毛刺。
- ◎ 大大削减人工成本，缩短加工周期，提升产品良率。
- ◎ 减少物流给产品带来“三害”，杜绝对产品造成任何外观与结构瑕疵，效率相当与人工的5倍。

Product features

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规格参数			
行程范围X/Y/Z (mm)	300/300/100/360°	编程方式	示教编程或图形导入
可运动图形轨迹	点/直线/曲线/多段线/螺旋线	马达系统	日本信浓电机
移动速度 (mm/sec)	0~500	重复精度	±0.02mm
最大负载	10kg	控制方式	运动控制卡+手持盒
驱动器	雷赛	导轨	台湾上银
光电开关	日本欧姆龙	传动方式	意大利意拉泰皮带
输入电源	全电压 AC110V~220V	外接控制接口	RS232

APPLICATION OF DRY ICE CLEANING

干冰清洗机应用



工业模具
Industrial mould

在线清洗无需降温 and 拆卸模具，避免了化学清洗法对模具的腐蚀、机械清洗法对模具的机械损伤，以及反复装卸导致模具精度下降等缺点。关键是可以免除拆卸模具及等待模具降温这两项最耗时间的步骤，这样可以减少停工时间约80%-95%。

Online cleaning eliminates the need to cool down and disassemble the mold, avoiding shortcomings such as corrosion of the mold by chemical cleaning, mechanical damage to the mold by mechanical cleaning, and decreased mold accuracy due to repeated loading and unloading. The key is to avoid the two most time-consuming steps of disassembling the mold and waiting for the mold to cool down, which can reduce downtime by about 80%-95%.



印刷工业
Printing industry

清除油墨很困难，齿轮和导轨上的积墨会导致低劣的印刷质量。干冰清洗可去除各种油基、水基墨水和清漆，清理齿轮、导轨及喷嘴上的油污积墨和染料，避免危险废物和溶液的排放，以及危险溶剂造成的人员伤害。

It is difficult to remove ink. Ink accumulation on gears and guide rails will lead to poor printing quality. Dry ice cleaning can remove all kinds of oil-based and water-based ink and varnishes. Clean oil, ink and dyes on gears, guide rails and nozzles and avoid the discharge of hazardous wastes and solutions and personal injury caused by hazardous solvents.



电子工业
Electronics industry

清洁机器人、自动化设备内部油脂、污垢：集成电路板、焊后焊药、污染涂层、树脂、溶剂性涂覆、保护层以及印刷电路板上光敏抗腐蚀剂电器元件注塑，CNC毛刺清除。

Cleaning the internal grease and dirt of robots and automation equipment: integrated circuit boards, post weld fluxes, contaminated coatings, resins, solvent based coatings, protective layers, and injection molding of photosensitive corrosion resistant electrical components on printed circuit boards, CNC burr removal.



石油化工
Petrochemical industry

清洗主风机、气压机、烟机、汽轮机、鼓风机等设备。清除各式加热炉、反应器的结焦结炭。清洗换热器上的聚氯乙烯树脂，清除压缩机、储罐、锅炉等压力容器上的油污、锈污、烃类及其表面污垢。清理反应釜、冷凝器、复杂机体除污、炉管清灰等。

Clean the main fan, air compressor, flue gas turbine, steam turbine, blower, and other equipment. Remove coking and coking from various heating furnaces and reactors. Clean the PVC resin on the heat exchanger, and remove oil, rust, hydrocarbons, and surface dirt from pressure vessels such as compressors, storage tanks, and boilers. Clean the reactor, condenser, complex body decontamination, furnace pipe ash removal, etc.

APPLICATION OF DRY ICE CLEANING

干冰清洗机应用



汽车工业
Automotive industry

干冰清洗机清洗门皮、蓬顶、车厢、车底油污等无水渍，不会引致水污染；汽车化油器清洗及汽车表面除漆等；清除引擎积碳。如处理积碳，用化学药剂处理时间长，最少要用48小时以上，且药剂对人体有害。干冰清洗可以在10分钟以内彻底解决积碳问题，即节省了时间又降低了成本，除垢率达到100%。

Dry ice cleaners clean the door skin, canopy roof, carriage, bottom oil stain and other water-free stains, which will not cause water pollution; Automobile carburetor cleaning and automobile surface painting, etc.; Remove carbon deposits from the engine. If carbon deposits are treated, the treatment time with chemical agents is long, at least 48 hours or more, and the agents are harmful to the human body. Dry ice cleaning can completely solve the problem of carbon deposits in less than 10 minutes, which saves time and reduces costs, and the descaling rate reaches 100%.



核工业
Nuclear industry

核工业设备的清洗若采用水、喷砂或化学净化剂等传统清洗方法，水、喷砂或化学净化剂等介质同时也被放射性元素污染，处理被二次污染的这些介质需要时间和资金。而使用干冰清洗工艺，干冰颗粒直接喷射到被清洗物体，瞬间升华，不存在二次污染的问题，需要处理的仅仅是被清洗掉的有核污染的积垢等废料。

If traditional cleaning methods such as water, sandblasting or chemical purification agents are used for cleaning nuclear industry equipment, and media such as water, sandblasting or chemical purification agents are also contaminated with radioactive elements, it takes time and money to deal with these media that are secondary pollution. Using the dry ice cleaning process, the dry ice particles are directly sprayed to the cleaned object, instantly sublimated, there is no problem of secondary pollution, and only the waste materials with nuclear contamination that need to be cleaned are removed.



食品制药业
Food and pharmaceutical industry

干冰清洗机可以成功去除烤箱中烘烤的残渣、胶状物质和油污及未烘烤前的生鲜制品混合物。有效清洁烤箱、混合搅拌设备、输送带、模制品、包装设备、炉架、炉盘、容器、辊轴、冷冻机内壁、饼干炉条等。干冰清洗机可排除有害化学药剂的使用，避免生产设备接触有害化学物而产生第二次垃圾；拟制或除掉沙门氏菌、利斯特菌等细菌，更彻底的消毒、洁净；排除水刀清洗对电子设备的损伤；

Dry ice cleaners can successfully remove baking residues, gelatinous substances and oils from the oven as well as mixtures of fresh products before baking. Effectively clean ovens, mixing and mixing equipment, conveyor belts, molded products, packaging equipment, stove frames, stoves, containers, rollers, freezer inner walls, biscuit grates, etc. The dry ice cleaner eliminates the use of harmful chemicals, avoiding production equipment from being exposed to harmful chemicals and generating secondary waste; Prepare or remove bacteria such as salmonella and listeria, and disinfect and clean more thoroughly, Exclude damage to electronic equipment caused by waterjet cleaning.



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设备在改进同时，资料可能有所改动，恕不另行通知。



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