



# DANKO丹科

Professional Vacuum equipment  
manufacturer

专业真空设备制造商

宁波市丹科真空科技有限公司

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# COMPANY

## PROFILE 公司简介



公司成立于2007年，由原广东省华宏真空科技有限公司更名为宁波市丹科真空科技有限公司！  
是一家专门从事各种真空应用设备制造，集研发、生产和销售于一体的民营高科技企业。

公司目前拥有在职员工100余人，其中高、中级以上专业技术职称人员50余人，公司还聘请了国内真空行业资深专家、教授和高级工程师，专门指导和负责公司新产品的研发与设计。设计概念先进，新技术应用领先，确保公司真空设备产品高水平。公司拥有生产经验丰富，包括机加工、钳工、钣金、焊接、电气、真空设备安装调试和真空镀膜工艺等专业齐全的技术团队，保证设备生产高品质、高效率。公司还拥有一支专业的售后服务队伍，解决设备在使用过程中遇到的各类疑难问题，免除客户的后顾之忧。

公司本着以人为本、精益求精、创新务实、顾客至上为经营理念，以科技领先、品质和服务创一流为管理方针。公司将继续发挥“忠诚、友善、创新、进取”的企业精神，发挥优势，加快发展，将公司做强做大，为真空应用设备创国际先进水平做出新的贡献。

The company was founded in 2007 by the original Guangdong Huahong Vacuum Technology Co., Ltd. Rename to Ningbo Danke Vacuum Technology Co., Ltd. is a high-tech enterprise specialized in the R&D, Production, and marketing of various kinds of vacuum industries.

The company currently has 100 employees, including more than 50 senior, mid-level professional and technical personnel. We also invite the experienced experts, professors and senior engineers who are responsible for the development and design of the new products, to ensure the high technology and quality of the vacuum equipments. Our company have a professional technician team with rich experience in the production including machining, bench work, sheet metal, welding, electricity, the vacuum coating technics and the installation and debugging for the vacuum equipment, which can ensure the high quality and high efficient equipment manufacturing. We also possess a professional after sales service team to solve various difficult problems may encountered when customers use the machines. solutions and coating equipment. A new generation of equipments have been stably operating, which is in international leading level.

Our company will continue to play a "loyal, friendly, innovative, progressive" spirit of enterprise, strong its advantages. speed up its development, and make new contributions to advancing the world standard of vacuum application equipment.





# ENTERPRISE CONCEPT

## 企业理念

公司以“成为客户首选的真空设备解决方案提供商”为愿景，竭诚为客户提供高品质的产品和超值的服务。成为国际一流真空应用设备制造商。树立工匠精神、精益求精、创新务实、顾客至上的企业经营理念。

Company take the "become customers' preferred vacuum equipment solution provider" as our vision,dedicate to providing our clients with high quality products and value-added services,become the leading international vacuum equipment manufacturer,and establish Craftsman's spirit,excellent,innovative and pragmatic,customer first business management idea.



## HIGH VACUUM EVAPORATION COATING EQUIPMENT

### 高真空蒸发镀膜设备

真空蒸发镀膜装置，是在真空室中利用电阻加热，将金属镀膜料熔融、汽化，让金属分子沉积在基片上，获得光滑的高反射率的金属膜层，达到装饰美化物品表面的目的。

该设备具有结构合理、抽速大、工作周期短、生产效率高、操作方便，能耗低、工作稳定，且膜层均匀、成膜质量好等优点。该设备主要广泛应用于汽车、音响、各类小家电、电脑、钟表、手机、反光杯、化妆品、玩具等行业。

可加工的材料包括：ABS、PS、PP、PC、PVC、TPU、尼龙、玻璃、陶瓷、金属等。

可镀基材表面状态：电镀亮面、哑光面（半哑、全哑）、工艺电镀皱纹、拉丝、雨滴等；镀制颜色有：金、银、红、蓝、绿、紫、七彩等。

本公司可根据用户要求设计各种规格型号的真空镀膜机。真空机组及电控系统也可根据用户要求进行设计配置。

Decorative vacuum coating machine adopts the resistance heating in the vacuum chamber. And then melt down and vaporization the coating metal materials. The vaporized metal molecule deposit on the substrates to gain the smooth as well as high reflectivity film. Thus the surface of the items can be beautiful.

Characteristic: Reasonable structure, quick pumping speed, short work efficiency and easy operation, low energy consumption and performance advantages of stability.

Applied industry: Widely used in automotive, audio and various small appliances, computers, clocks and watches, toys cell phones, reflective cup, cosmetics ABS, PS, PC, PVC, TPU, nylon, metal, glass, ceramics etc.

Electroplating effects: general electroplating-face, dumb-(semi-mute, all dumb), the electroplating process wrinkles, wiredrawing, raindrop ect.

Coating color: gold, silver, red, blue, green, purple, rainbow color ect.

Our company can designed the machine according to customers' requirements, and types of vacuum pumping system, electric control system can be designed up to customers' requirements as well.







## CAR LIGHTS SPECIAL COATING MACHINE

### 车灯专用镀膜设备

我公司生产的全自动车灯真空镀膜设备按真空室型式分为卧式和立式两种。设备的主要功能包括:高压离子轰击,在真空室内一次完成镀铝和加镀超硬保护膜(SiO<sub>2</sub>)。超硬保护膜提高了铝层的抗氮化能力和保持铝层长久的高反射率。所镀汽车灯具反射膜、达到了汽车灯具国家标准,通过了耐酸、耐碱、耐盐等实验。设备采用计算机控制和监控设备运行状态和镀膜工艺过程。提高了工作效率,保证了产品品质的稳定性和一致性,减少了人为因素影响。

Car lights special coating machine is including horizontal and vertical structure according to chamber type. The main functions of this machine are high-voltage ion bombardment and finishing aluminum coating and protection coating (SiO<sub>2</sub>) in the chamber at one time. Super-hard coating enhances resistance of aluminum coating and maintains the aluminum film's long-term high reflectivity. The reflective coating for headlights has reached the national test standard. The coating has passed by acid test, salt test and alkali-resisting test ect. The machine is using computer control, monitor operation and process monitoring, which have improved production efficiency, ensured the stability and consistency of product quality, reduced the impact of human factors.



## DECORATIVE METAL ION COATING MACHINE

### 五金装饰膜离子镀膜机

电弧离子镀膜设备是一种高效、无污染的离子镀膜设备,具有沉积速度快、离子化率高、离子能量大、设备操作简单、成本低、生产量大的优点。

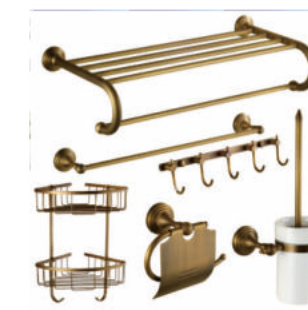
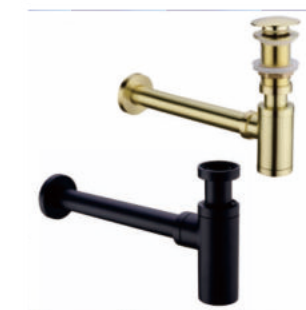
真空电弧离子镀膜的原理是基于冷阴极自持弧光放电等离子体蒸发、电离镀膜,结合脉冲偏压技术,提高沉积粒子能量和活性,增强膜层的各项性能。它不仅能在金属制品表面进行镀膜而且能在非金属制品表面上进行镀膜;可以镀金属膜,氮化钛、碳化钛、氮化锆、氮化铬及镍、铬、铜等化合物膜、多层超硬膜、多元化合物膜,还可以镀氮化钛掺金膜等。电弧离子镀膜广泛应用于工具、模具的超硬涂层,汽车轮毂、高尔夫球具、钟表、酒店用品、卫浴洁具、灯具、眼镜镜架、五金制品、陶瓷和玻璃等的装饰涂层等领域。

我公司着力改进圆形电弧蒸发源,同时着力开发高性能矩形平面电弧蒸发源,均已装配新机。

Arc ion coating machine is a high efficiency, harmless and pollution-free equipment. It has features of fast deposition rate, great ionization rate, large ion energy, easy operation, low cost and large productive capacity etc.

The principle of vacuum electric arc ion coating is based on cold cathode, self-sustained arc discharge plasma evaporation, ionization material, combine pulsed bias technical to improve the energy and activity of deposited particles, and enhance the properties of coating. It can deposit coatings on the surface of metal as well as non-metal. It can be used for metal film, TiN, TiC, ZrN, CrN, Nickel, Cr and Cu ect. Other compounds film, multi-layer super-hard film, multi-compounds film and titanium nitride with gold film as well. This machine is extensively used for super-hard coating on tools and mould, decorative coatings on car wheel, golf, watches, hard wares, lamp, glasses frame, ceramic and glass.

Our company is improving arc evaporation source of arc ion coating machine, at the same time, we are developing rectangular flat arc evaporation source, and it has been installed into new machines.







## MF MAGNETRON SPUTTERING COATING EQUIPMENT

### 中频磁控溅射镀膜设备

中频磁控溅射技术已渐成为溅射镀膜的主流技术，它优于直流磁控溅射镀膜的特点是

- 1.克服了阳极消失现象。
- 2.减弱或消除靶的异常弧光放电。因此，提高了溅射过程的工艺稳定性，同时，提高了介质膜的沉积速率数倍。

我公司研发了平面靶，圆柱靶，孪生靶，对靶等多种形式的中频溅射靶结构和布局。该类设备广泛应用于表壳、表带、手机壳、高尔夫球具、五金、餐具等镀TiN、TiC、TiCN、TiAlN、CrN等各种装饰镀层。

MF sputtering technique has become the mainstream technology of sputtering, what characteristics superior to the DC sputtering are:

1. Overcome the phenomenon of anode disappearance.
2. Reduce or eliminate the abnormal arc discharge of target, therefore, improving the stability of sputtering process technology, while increasing the deposition rate of dielectric coating.

Our company R&D plane target, cylindrical target, twin target, opposite target and various structures of MF sputtering targets. It is widely used in watchband, watchcases, mobile shell, hard wares, tableware etc. It can deposit TiN, TiC, TiCN, TiAlN, CrN etc decorative coatings.

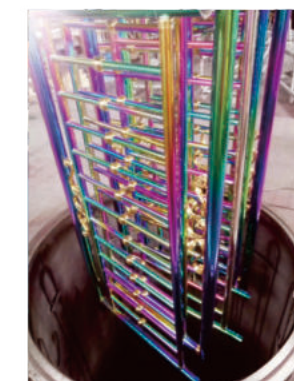
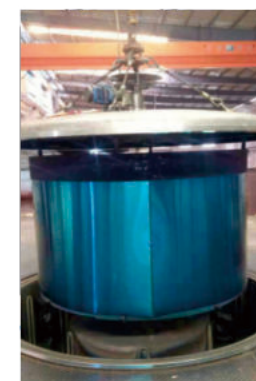


## STAINLESS STEEL SHEET ION PLATING MACHINE

### 不锈钢饰板离子镀膜机

该系列设备专为不锈钢饰板离子镀膜层设计，离子镀膜层有真实的金属质感，这是化学镀不锈钢彩板不能比拟的。该系列设备镀室直径1800~2300mm高3600~4400mm，可一次镀1220x4000mm板3张；配三套大抽力真空机组，抽速快，工作周期短；采用圆形电弧靶34~56个，靶位合理布局，配脉冲偏压系统，膜结合力好，彩色均匀，触摸屏+PLC，可以实现电脑全自动控制，自动/手动随时切换，运行性能可靠稳定。可镀金色、银色、枪色、黑色、玫瑰金色、咖啡色、七彩、蓝色等装饰膜。该设备主要广泛应用于建筑五金装饰，家具、灯具、宾馆用具、汽车、航空等产品，设备性能各项指标均达到国际先进水平，设备出口到欧美发达国际市场。

The series of equipment is designed for stainless steel sheet to get a decorative coating by ion plating technique, the ion plating layer has a real metal texture, which is much different from chemical coating. The chamber diameter of this series is 1800-2300mm, and height is 3600-4400mm, it can coat three sheets that size is 1220x4000mm; With three sets of large power vacuum pumping systems, high pumping speed, short cycle time; With 34-56 pieces of round arc targets, they are installed reasonable, at the same time, equipment is equipped with pulsed bias system, which make the adhesion of coating strong, color of coating uniform. Touch screen + PLC control achieved full automatic of equipment, manual and auto can be switched any time, which make machine reliable and easy operation. The colors of this equipment can do are gold, silver, brown, black, rose gold, coffee, rainbow and blue ect decorative coatings. And it's widely used in metals, furniture, lights, hardware, car parts and aircraft industry ect, all performances of equipment have reached international advanced level and have exported to European and American countries.







## TOOL & DIE SUPER SUBDURAL ION PLATING MACHINE

### 工模具超硬膜离子镀膜机

该设备为在工具、刀具、模具上镀硬质或超硬保护膜而设计。真空镀室的真空密封和室内运动部件的设计和用材，充分考虑可承受高温，配置多只高效圆形电弧蒸发源，或配多个矩形平面电弧蒸发源，也可配多只空心阴极枪，同时配置耐冲击的、具有优异灭弧性能的偏压电源，保证足够等离子体密度和反应活性，提高膜层致密性和结合力。工件可三维运动，提高膜层均匀性。全自动控制提高工艺稳定性。可镀制TiN、TiC、TiCN、TiAlN、TiAlCN、TiCrN、TiCrCN、TiAlCrN、多层超硬膜等，应用于精密模具业（冲压模具、剪切模具、标准件模具、成型模具等）、工具行业（钻头、硬质合金、铣刀、拉刀、丝锥和齿轮刀具等），汽车工业（活塞、活塞环、合金轮毂等）。

This model is designed for hard and super hard protective coatings on tools, cutter and mould. The vacuum sealing of chamber and the interior design and material of moving parts are under consideration of high-temperature bear, assembling high efficiency roundness arc evaporation source or rectangular flat arc evaporation source. We can also install hollow cathode gun and impact resistance bias power supply, to ensure the density and reactivity of plasma, increase the compactness and adhesion of coatings. Substrates can be three-dimensional motion, to enhance the uniform of coating. The full automatic control processing is steady and perfect. It can deposit TiN, TiC, TiCN, TiAlCN, TiCrN, TiCrCN, TiAlCrN, multilayer super hard coatings, which is used in precision mould industry (dies, shear mould, standard mould and moulding mould etc), tool industry (drill, hard alloy, milling cutter, broaches, screw tap and gear cutter ect.) and automobile industry (piston, piston rings and alloy wheels etc.).



## CONTINUOUS MAGNETRON SPUTTERING MACHINE

### 连续式磁控溅射镀膜设备

该系列生产线主要用于在平板玻璃、亚克力、PC、PET等表面镀制高质量、高性能金属膜、电磁屏蔽膜、反应膜、复合膜、透明导电膜、抗反射（AR）、增反射膜、LOW-E等膜层。本公司可按用户要求提供设计，提供全套设备，负责工艺，按交“钥匙”工程服务。

设备特点：

1. 设备采用真空磁控溅射技术，孪生阴极，中频溅射技术，并配以先进的控制系统。
2. 生产过程全部自动，连续进行。被镀工件加热温度最高可达350℃，温度分区控制可调。
3. 真空室材料采用SUS304，真空室内壁进行抛光处理，外壁采用抛光后喷漆处理。
4. 真空室之间采用独立门阀隔开，我们设计的是插板阀，可以有效隔断，稳定工艺气体。传动采用磁导向，保障传动的稳定性。整条生产线的各段速度采用变频调速电机驱动，运行速度可调节。
5. 电气控制系统：触摸屏与PLC自动控制，人机对话方式来实现系统的数据显示、操作与控制。

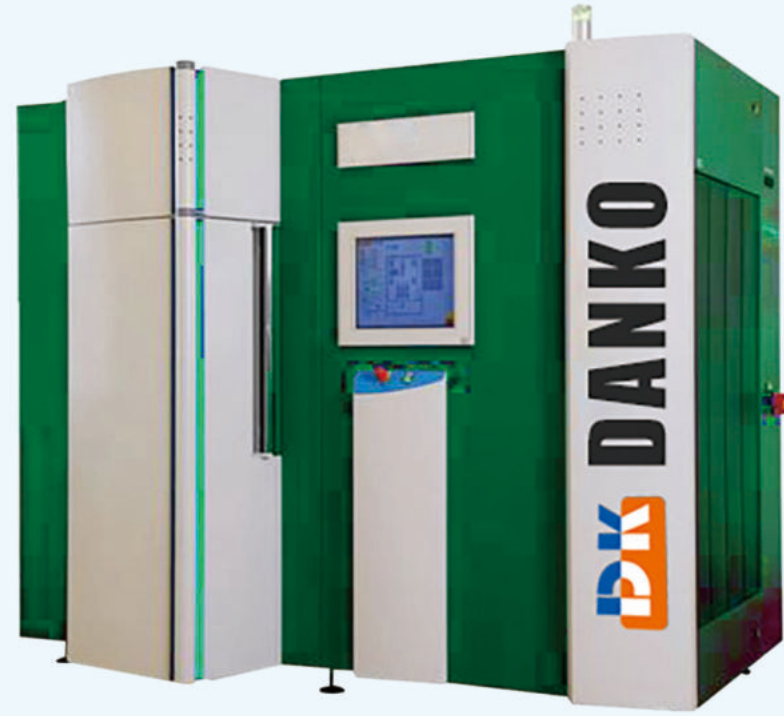
This series of coating line is mainly used in flat glass, acrylic, PC, PE materials to get a high quality, multi-function metal film, electromagnetic shielding film, reaction film, transparent conductive film, antireflection (AR) & enhanced reflectance film and LOW-E film ect. Our company can design the equipments as customers' requirements, Provide complete equipment and process technique, full set of "key" service for customers.

Characteristics:

1. This coating line uses vacuum magnetron sputtering technique, twin cathode technique and MF sputtering technique, with advanced control systems.
2. The production process is full automatic and continuous, the highest temperature of coated substrates can be up to 350℃, and it's adjustable according to requirements.
3. Chambers are made of SUS304, polished inner wall, painted the outside wall of chambers after polishing.
4. Chambers are separated by an independent gate valve, which is designed as slider damper, it can be cut off easily, thus make process stabilize. Convey is driven by magnetron motor, which ensure the stability of convey. The speed of whole line is controlled by variable frequency adjustable speed motor, running speed is adjustable.
5. Electrical control systems: Touch screen and PLC automatic control, man-machine dialogue to achieve the data display, operation and control.







## Magnetron sputtering & vacuum evaporation coater

### 磁控、蒸发复合型镀膜设备

该设备将磁控溅射技术和真空蒸发技术结合在同一镀膜设备里，既利用磁控溅射阴极辉光放电将靶材原子溅出并部分离子化沉积在基材上成膜，同时又可利用在真空中以电阻加热将金属镀膜料熔融并让其汽化再沉积在基材上成膜。

该设备配置了等离子体处理装置，高效磁控溅射阴极和电阻蒸发装置等，设备沉积速率快，镀层附着力好，镀层细腻致密，表面光洁度高，且均匀性一致性良好；该机实现镀膜工艺全自动化控制，装载量大，工作可靠，合格率高，生产成本低，绿色环保。该设备主要广泛应用于电脑壳、手机壳、家用电器等行业，可镀制金属膜、合金膜、复合膜层、透明（半透明）膜、不导电膜、电磁屏蔽膜等。

This Coater combine magnetron sputtering and vacuum evaporation technique. Which means we can get film by two methods. One is use magnetron sputtering cathode glow discharge to separate target material atoms to get the deposited ionization on substrate. Another way is using ohmic heating in a vacuum to melt metal coating material to get the deposited vaporized material on substrate.

The Coater Configured plasma treatment device, highly efficient magnetron sputtering cathode and thermal evaporation device ect. It brings high deposition rate, good adhesion, fine coating, smooth surface and consistency. Our coating equipment is fully automatic, it with larger load, higher reliable working and pass rate, lower cost and green environment. It widely use in laptop shell, the phone shell, electronics. And mainly for metal film, alloy films, composite coating, transparent (semi-transparent) film, non-conductive film, Battery shielded film ect.



## DANKO VACUUM TECHNOLOGY

专业 诚信 协作 创新  
PROFESSIONAL INTEGRITY  
COLLABORATION INNOVATION