



斯普萊—來自德國的塗裝專家 SUNLIGHT -- Painting expert from Germany

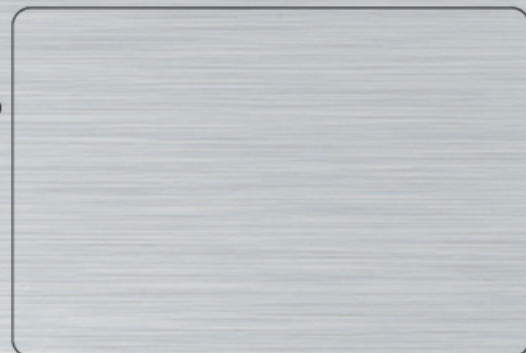


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斯普萊科技集團

SUNLIGHT TECHNOLOGY GROUP

揚州斯普萊機械制造有限公司

YANGZHOU SUNLIGHT SPRAY MACHINERY CO.,LTD.



創造文明，斯普萊人的不懈追求

Create civilization, is SUNLIGHT's unremitting pursuit.

我们不仅致力于涂装机械的制造，也始终致力于人类健康

我们不仅仅关注工业装备行业发展，更深深关注人们的生活品质

我们不仅在制造一种产品，也在努力创造一种文化

我们不仅仅要领导一个市场，而更应承担众多责任和义务

我们的产品和服务都来自对文化的深刻理解和振兴涂装行业的雄心

We are not only devoting into the fabrication of coating line, but also devoting into improving the health of human

We are not only concerning the development of industrial machinery field, but also concerning the quality of mankind

We are not only fabricating the products, but also trying to create a kind of culture

We are not only leading the market, but also undertaking more social responsibilities and obligations

Our products and services come from the deeply understanding of the culture and the great ambition to activate the coating industry



关于我们 ABOUT US



斯普莱科技集团——扬州斯普莱机械制造有限公司是一家致力于制造和发展各种用于表面涂装设备的中德合资企业。近500名称职的员工，为了我们客户的未来开发着新技术和新工艺。项目团队拥有训练有素的工程师，技术员和专家，这些经过多种训练的人员规划，设计和建造先进的设备直至整个工厂的涂装工程。他们指导安装和调试整体工艺设备，提供培训和满足用户特殊需求维护服务。

我们的技术力量和对技术诀窍的掌握是我们革新发展的原动力，我们还有幸参与了国家涂装设备标准的制定，公司内不同领域的技术部门协同其他部门同时为您服务。

Sunlight Technology Group-Yangzhou Spray Machinery Co.,Ltd. is a Chinese and German joint venture enterprise that take up with fabricating and developing all kind of superficial painting equipment,with 500 employable staffs,who are developing new technology and new craft for the future of our users.The project team has the well-trained engineers, technicians and experts.Those persons passed many kinds of trainings plan, design and fabricate the advanced equipment and the painting engineering of the whole .They instruct the installation and shakedown of the overall process unit,offer training and satisfy the users special demand and maintenance service.

Our technical force and teting hold of the technical knack is our driving force of innovation and development,It's our honor to make standard of country painting equipment,The technical departments of different domains in company cooperate with other ones service for you at the same time.



企业荣誉

Reputation

专注承诺 Focus on commitment

我们关注于公司业务的每一个细节，并能够为我们的客户、员工、战略合作伙伴履行自己的承诺。

We focus on every detail of the company's business, and fulfill our promise for our customers, employees and strategic partners.

追求卓越 Striving for excellence

我们力求所做的一切都要尽善尽美。我们致力于向客户提供最高质量的产品和服务。We strive to do everything to be perfect. We are committed to providing quality products and services to customers.

珍视诚信 Cherish integrity

我们希望根据客户的需求，通过设计出优秀的解决方案，提供兼容性强、性能出色和响应能力迅速的产品从而赢得客户的信赖和赞赏。

We hope to according the customer's request, design a good solution, providing compatibility, excellent performance and rapid ability to respond to the product, in order to win the customer's trust and appreciation.



公司主要荣誉 Company mainly honors





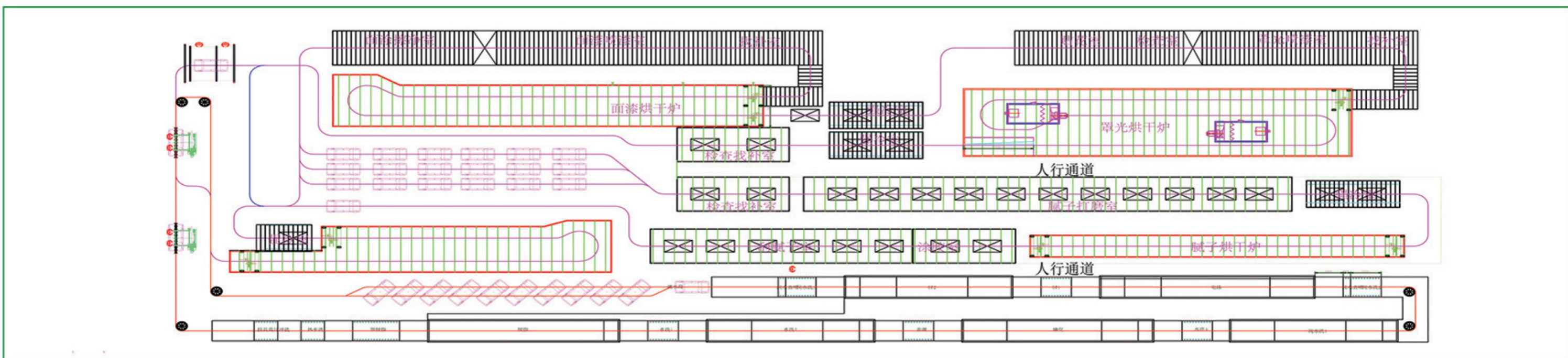
我们为您提供适合各种产品表面涂装综合处理设备。采用科学先进独特的方式，将各种模式的前处理装置和喷涂装置及加热固化、输送物流系统巧妙的组合于一体，形成高品质的自动化涂装生产线。

We provide you with the suitable for all kinds of product surface coating treatment equipment. We use the advanced unique way, combined all sorts of model of the pretreatment and spraying device and heating cure, transportation logistics system in a body, achieve to a high quality automatic coating production line.



公司设计的涂装生产线，采用自动化程序控制，完美的喷漆效果，涂装生产线内空气洁净，三废治理达到国家标准。

We design the painting line, use automated process control, perfect paint effect, clean air within the coating production line, waste management reached national standards.





自动箱浸式前处理生产线
Automatic tank leaching pretreatment production line



喷淋前处理
Spraying pretreatment



直通式烘干炉
Straight through type drying oven



桥式烘干炉
Bridge type drying oven

供粉中心
Powder supply center



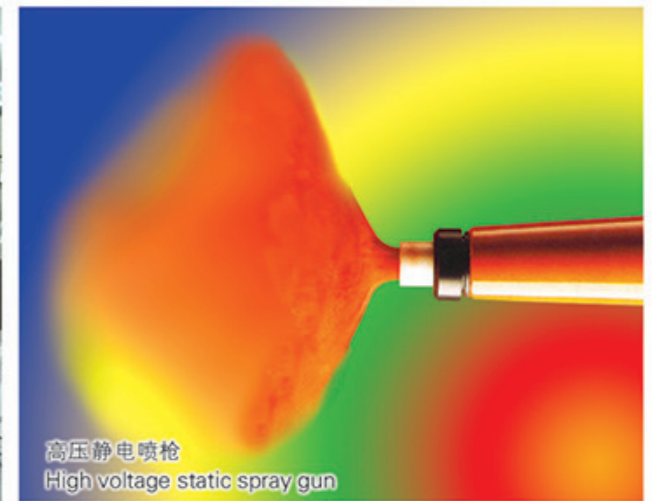
积放式输送系统
Power&Free convey system

我们根据产品涂层的性能要求，提供的喷粉设备，遵从不同国家和地区对环境的保护法规，满足产品涂装时的工艺需求，全面采用德国的先进技术，尽心尽职。

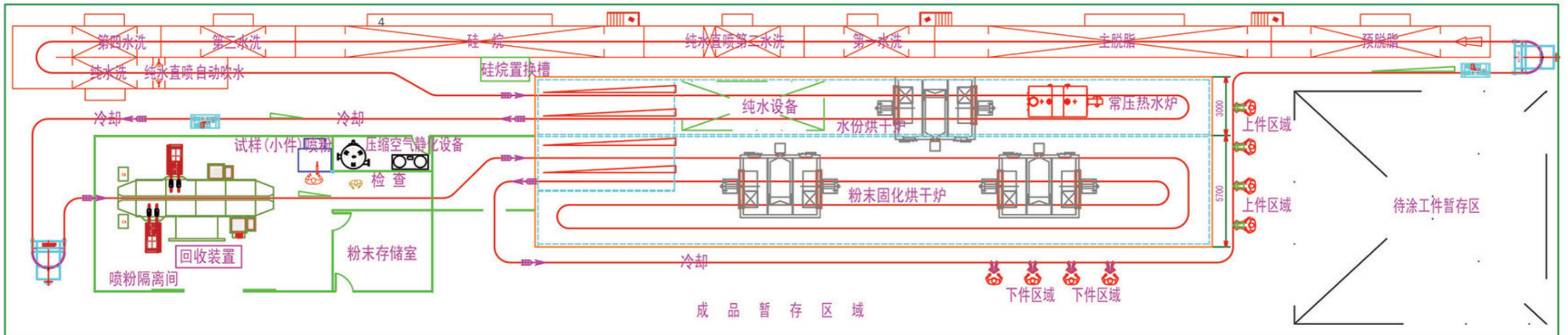
According to the performance requirement of coating layer, provide the powder spraying equipment, follow the protection laws of different countries and regions, meet the technology requirement when product is painting, use the advanced technology of Germany.



静电喷粉系统
Static spray system



高压静电喷枪
High voltage static spray gun





自动槽浸式前处理生产线
Automatic tank-leaching pretreatment production line



喷淋前处理
Spray pretreatment



滚筒喷漆室
Scroll painting room



干式喷漆室
Dry type painting room



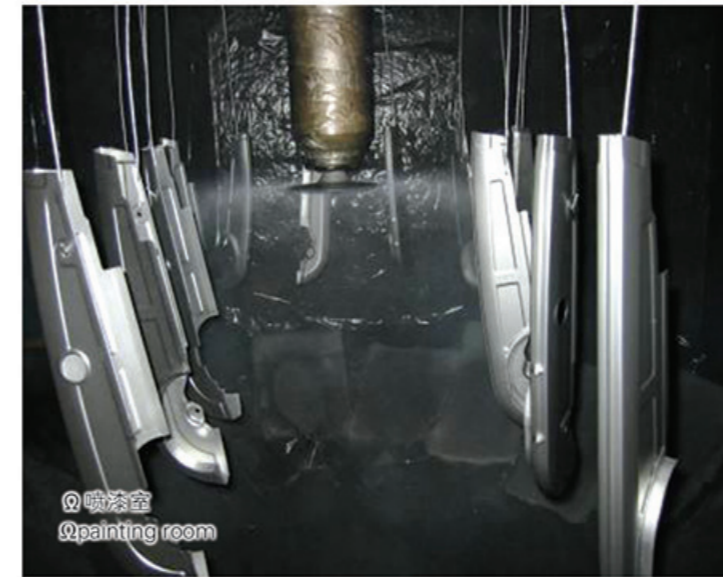
水旋喷漆室
Water circle painting room



热风循环烘干炉
Hot air circulating drying oven

我们根据产品涂层的性能要求，提供的喷漆设备。独创的废气处理方法在保护环境上完全满足不同国家和地区对环境的保护法规，满足产品涂装时的工艺需求，全面采用德国的先进技术，尽心尽职。

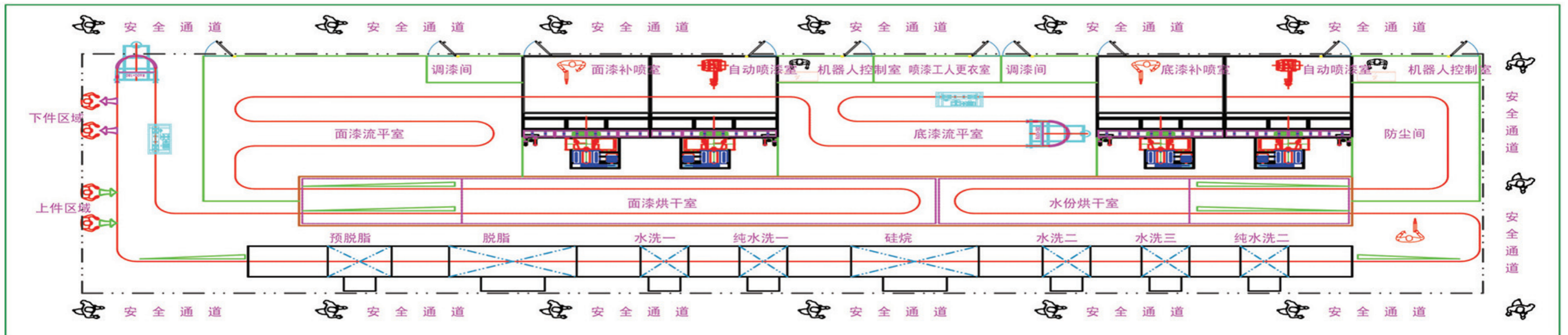
According to the performance requirement of coating layer, provide the powder spraying equipment, follow the protection laws of different countries and regions, meet the technology requirement when product is painting, use the advanced technology of Germany.



水帘喷漆室
Water curtain painting room



水帘喷漆室
Water curtain painting room





喷淋前处理
Spray pretreatment

电泳后处理
Electrophoresis after treatment

桥式烘干炉
Bridge type drying oven

电泳槽
Electrophoresis tank

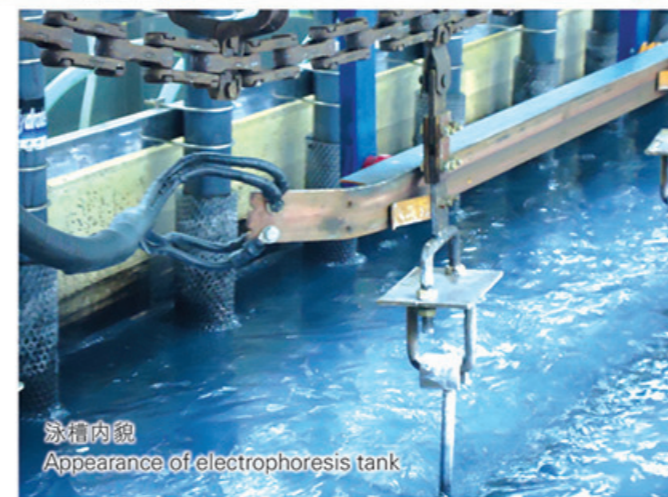
阳极系统
Anode system



通过式烘干炉
Through type drying oven

电泳涂装设备已经朝着多领域专业化方向发展，能在最大限度的满足特定工件的涂装，采用PMT逆向流循环方式，施工工艺有了很大提高，更便管理，降低成本。高环保性的阴极电泳，完全满足苛刻的环保要求，使其优点更加突出，更符合未来发展要求的涂装方法。

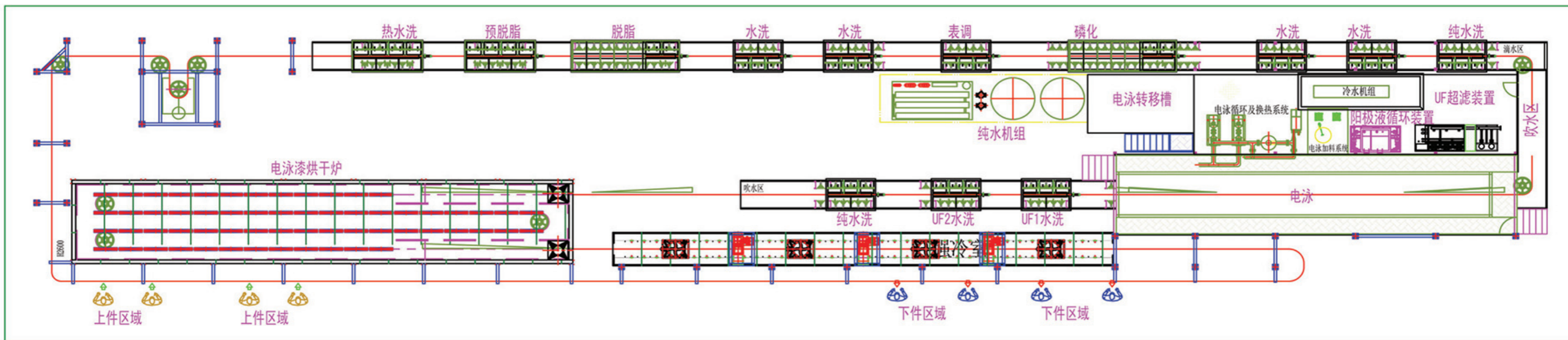
Electrophoresis painting equipment develop towards professional direction, can max satisfy the specific coating, use PMT reverse flow cycle way, construction technology have greatly improved, and more convenient to manage, reduce the cost. High environmental protection cathode electrophoresis, completely meet the strict environmental protection request, make its advantages more outstanding, accord with the requirements of the development of future coating method.



泳槽内貌
Appearance of electrophoresis tank



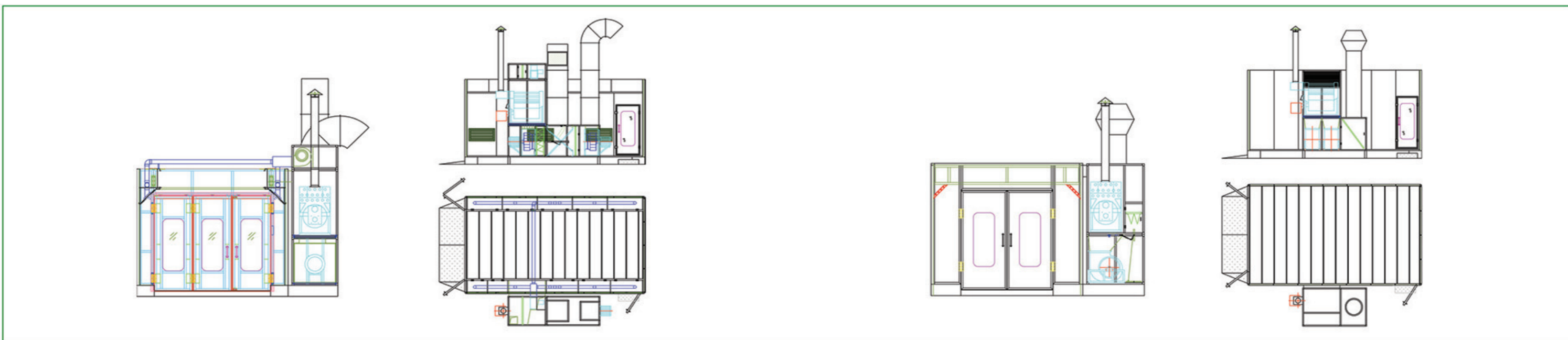
过滤系统
Filter system





我们用多年的经验和专业的技术，撰写了国家喷烤漆房标准。我们已经建造了满足很多复杂的产品要求的喷烤漆房设备。为客户特大型产品如：飞机、机车、大型汽车、机床加工中心、发电叶片等提供规划、表面涂装设备。

We use the years of experience and professional technology, write country paint spray standard. We have produced many complicated paint spray equipment. We supply the design and surface painting equipment for customer's large products, such as airplane, locomotive, large car, machine tool processing center, generate electricity and so on.





高压喷淋前处理
High pressure spray pretreatment

供粉系统
Powder supply system

高压吹水系统
High voltage blow water system

自动吸盘
Automatic absorb disc



超波纳米加热炉
Super wave nanometer heating oven

在能源越来越紧缺的时代，节约能源，提高效率是一个全世界的课题。我们结合多年来的涂装产品制造经验，采用当今世界前沿科技，研发了超波平板快速涂装线，最大程度提高了涂装工序工作效率和节约能源。

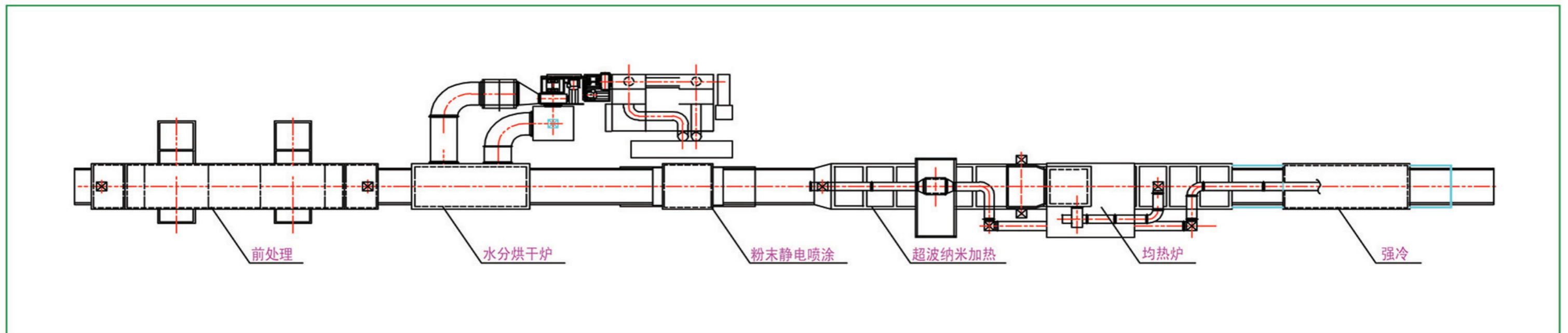
In the short of energy source time, save energy, increase efficiency is the theme of the world, we combine the experience of manufacturing painting products of many years, use the advanced technology, develop the super wave fast painting line, maximize the coating process work efficiency and saving energy.

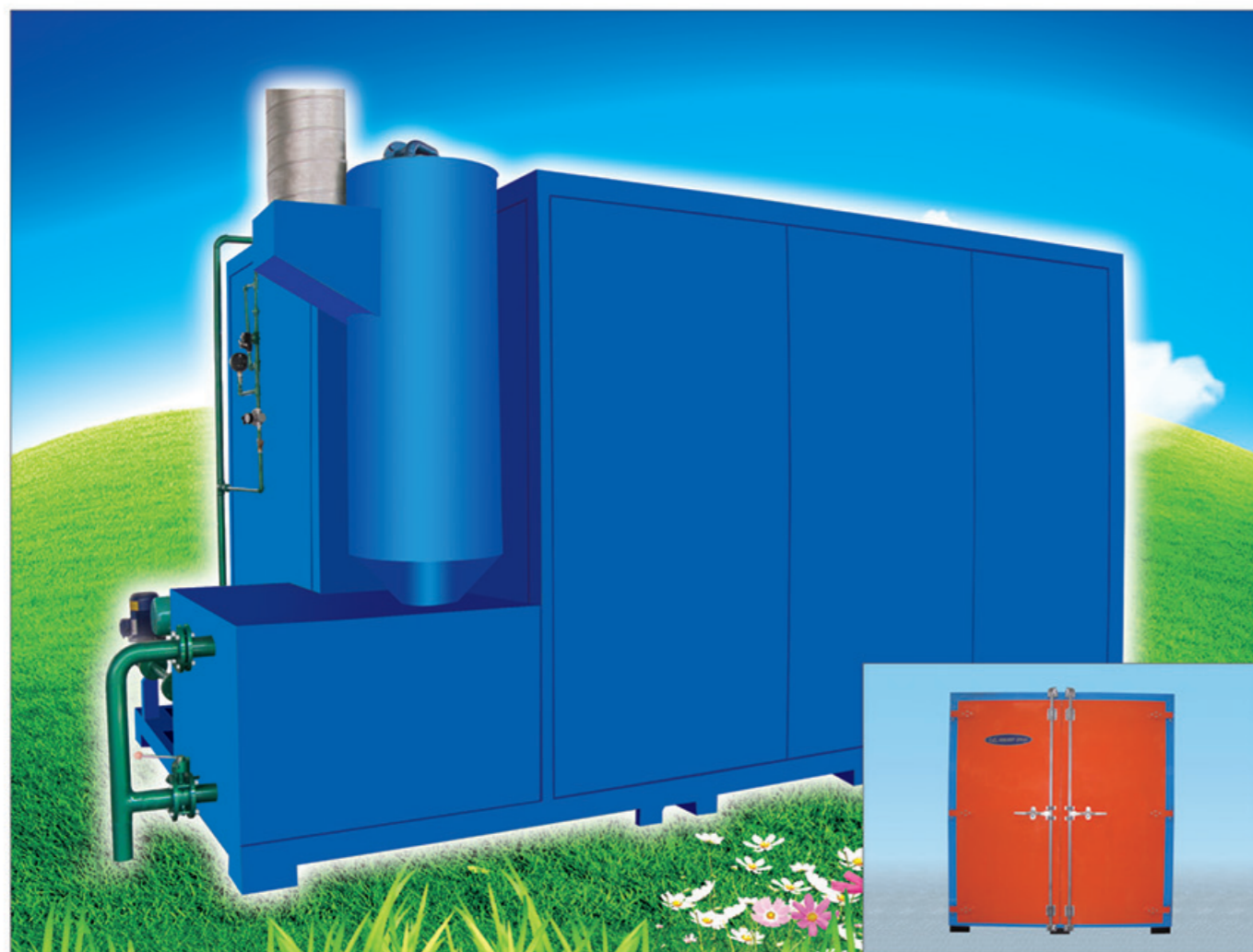


输送系统
Convey system



烘干炉
Drying oven





概述 General

热洁炉,又称为涂层剥离装置,是我公司拥有自主知识产权创新的高科技环保产品。主要用于处理喷涂行业挂具,油漆工装上已固化的漆膜,金属部件上的各种涂层等。由于采用了我公司独创的热能回收装置和空气洗涤装置及热能大循环装置,各性能指标在国内同行业产品中均处于领先地位,完全符合中国GB16297-1996《大气污染物综合排放标准》规定允许排放浓度要求。热洁炉超脱于传统上人们用的手工清理法、焚烧法、化学清理法、高压水清理法带来的成本高、有毒性、给操作者造成伤害、工件变形大、造成环境污染等问题。使用热洁炉不但成本低,劳动强度小,工件变形小,而且无毒性,无污染,由PLC控制的五重保护,保证了热洁炉运行的安全。

Hot clean furnace, also known as coating peeling device, is our own intellectual property rights of innovative high-tech environmentally friendly products. Mainly used in processing spraying industry hanging fixture, paint film has formed on tooling, metal parts on the various coating etc. Due to use our unique thermal energy recovery device, air washing device and heat energy circulation device, various performance indicators in the domestic and foreign products are in a leading position, accord with China GB16297-1996 < atmospheric pollutants comprehensive discharge standards> the permission of the concentration requirements. Hot furnace detach from traditional on the manual cleaning method, with burning method, chemical cleaning method, high pressure water cleaning method brings the high cost and the toxic, damage to the operator, the workpiece deformation, and environmental pollution. Use clean hot furnace not only cost is low, the labor intensity is small, the deformation small and, non-toxic, no pollution, controlled by PLC, those five heavy protections, ensure the safely operation of hot clean furnace.

工作原理 Working principle

待处理的工件,在炉腔内被高温加热到分解温度并保持足够长的时间,工件上涂层在高温分解下释放出的可燃有害气体,进入废气燃烧室,经过二次燃烧,在近千度的高温下被完全分解,产生的热能再经过热能交换器换至炉腔内二次使用,被高温分解完成的气体,经过高压水舱内高压水清洗后达标排放。从排气管排出的仅是二氧化碳和水蒸汽组成的无色、无毒、无味的混合气体。工件上的有机物经过处理后成粉状的无机物,掉入炉腔底部,少量残留灰尘可用刷子清除或清水冲洗干净。

The workpiece to be processed, is heated to a high temperature in the oven cavity to the decomposition temperature and keep long enough. Coating of the workpiece release flammable pyrolysis gases under the high temperature, go into the waste gas combustion chamber, through secondary combustion, is complete at decomposition at nearly one thousand degree high temperature, the produced heat energy is changed to oven cavity by heat exchanger for secondary use, the gas which is complete decomposed by high temperature, will be exhaust standardly after washed by high-pressure water in the high-pressure water tank. The gas which mistured with water vapor and carbon dioxide exhaust from exhaust gas duct, the gas is colorless, non-toxic and odorless. Organic matter on the workpiece become powdery inorganic substances after treated, fall into the bottom ash collection tray, small amount of residual dust and use brush or water washing, then it will be clean.

产品用途 Product function

- 1、去除喷涂挂具、夹具上不断加厚的涂层,而不改变挂具的机械性能。
 - 2、钢件和铝制零部件表面不合格油漆或粉末涂层的完全彻底的剥离,而工件无损伤。
 - 3、清除水帘喷漆柜的过滤网、风机叶轮粘附涂层。
 - 4、清理去除电线、电缆、变压器、电机、印刷滚轮上的绕线及粘附有机物。
 - 5、清理去除发动机、曲轴、箱体、活塞环等零部件上油脂、油污等有机物。
- 1、Remove the coating layer of hanging tool and plating rack, and not change the mechanical performance of hanging tool.
 - 2、Remove the unqualified paint and powder coating layer on steel, sheet metal part, aluminum parts, and the workpiece without distortion and harm.
 - 3、Remove the adhesive layer on filter of water curtain spray paint, ground row grid, air conduct, impeller of fan.
 - 4、Remove the adhesive organics on wire, cable, transformer, motor, resin on printing roller.
 - 5、Remove the oil, grease on motor, bent axle, piston ring and other spare parts.



性能特点与安全 Character and safety

- 1、无污染，处理彻底，排放物符合国家三废排放标准。
 - 2、操作简单，只需要按下启动按钮即可完成全部过程。
 - 3、采用密封设计，保证了密封性、安全性。
 - 4、采用陶瓷纤维隔热材料，耐温超过1200℃，保证了良好的隔热性能和使用寿命。
 - 5、燃烧机、水泵等主要零件全部为进口产品，性能稳定。
 - 6、装有可编程控制器（PLC）和固态继电器。可与贵公司的中央控制中心联网。
 - 7、采用了二次喷水、温度极限开关、防爆门、低水压保护、燃烧机自锁等五级安全保护措施。
- 1、No pollution, thorough treatment, waste emissions meet the national emission standards.
 - 2、Operation is simple, just press the start button to complete the whole process.
 - 3、Sealed design to ensure tightness and security.
 - 4、Use ceramic fiber insulation materials, temperature – proof exceeding 1200 °C, to ensure a good thermal insulation performance and service life.
 - 5、Burner, pumps and other main parts are all imported products, performance stability.
 - 6、Equipped with programmable logic controller (PLC) and solid-state relays. It can be networked with the central control center of your company.
 - 7、Using a secondary water temperature limit switch, explosion-proof doors, low pressure protection, burner and other five self-locking security measures.

工件处理前后对比 Comparison about pre and after treatment

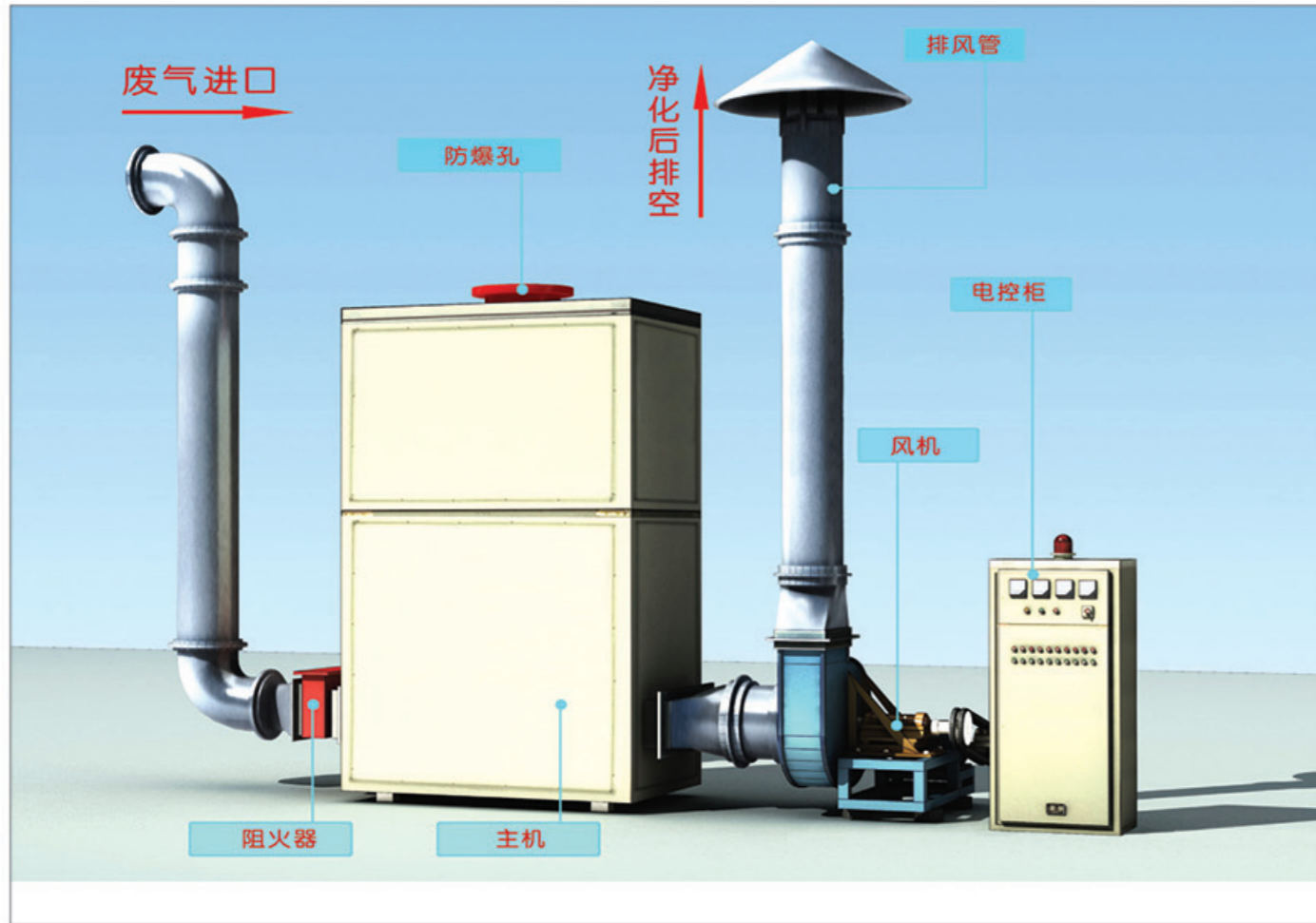


参数及标准 Working principle

型号 MODEL	SPL-R-10	SPL-R-12	SPL-R-14	SPL-R-16	SPL-R-18
外形尺寸 Outerdimension (MM) (L x W x H)	4550 x 2300 x 2500	4950 x 2300 x 2500	5500 x 2300 x 2500	5950 x 2300 x 2500	6400 x 2300 x 2500
房内尺寸 Internaldimension (MM) (L x W x H)	2300 x 2000 x 2170	2750 x 2000 x 2170	3250 x 2000 x 2170	3700 x 2000 x 2170	4150 x 2000 x 2500
房门尺寸 Door dimension (MM) (W x H)	2000 x 2170	2000 x 2170	2000 x 2170	2000 x 2170	2000 x 2170
工作温度 Working temperature (°C)	450~500				
升温速度 Speed of temperature rising (MIN) 20°C~450°C	90	90	90	90	90
耗气量 Gas consumption (NM³/炉)	11.8	11.8	11.8	11.8	11.8
运行噪声 Running noise (DB)	<70				
总耗电量 Total power consumption (KW/H)	9				
随机风管 Radom air pipe (M)	2 x 2				

注：外形尺寸未包括燃烧机，本数据仅供参考，由于产品的不断改进，数据会有所变化，恕不另行通知。

Remark: the above data is for reference only, and it is subject to any change according to the improvement of the products, without prior notice.



概述 General

BCO型系列有机气体催化装置是斯普莱公司二十多年研究、实践、完善的成果。目前，第五代产品已被国内外用户广泛地使用，取得了显著的环境效益、经济效益和社会效益。该产品在同行业中产销量最大、获荣誉最多、出口创汇最高、使用效果最显著。该产品采用了IEC—439国际电工组织标准生产，荣获中国国家质量银质奖，中国国家科委科学技术进步奖，中国国家火炬计划，中国国家环保局最佳实用技术推广应用项目。该产品以优良的性能、可靠的质量，获得了众多的殊荣，深受社会好评。

The organic gas catalytic system with BCO type is the result of SUNLIGHT by researching, practice and improvement over 20 years. Now the fifth generation of products have been used widely by customers all over the world and got the significant environmental, economic and social benefits. It got the most honor and foreign with the largest production and sale. It is manufactured according to the standard of IEC—439 and got many medals, including National Quality Silver medal, the Science and Technology Progress Award by China Science and Technology Commission, National Torch Plan, The best practical application project by China Environmental Protection Bureau. It got many awards and social praise by its excellent performance and reliable quality.

用途 Function

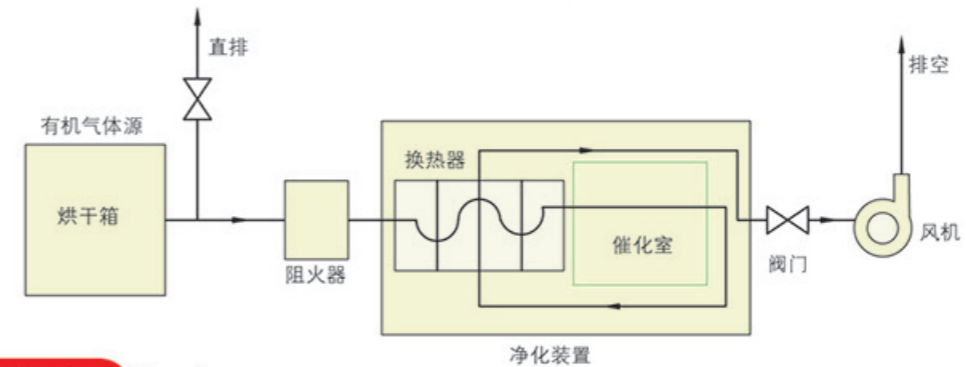
油漆烘干、印刷、涂覆废气处理

1. 适用于有机溶剂的净化处理（苯、醇、酮、配、醛、酯、酚、醚、烷等混合高浓度、有温度的有机废气）。
2. 适用于电线、电缆、漆包线、机械、电机、化工、仪表、汽车、自行车、摩托车、发动机、磁带、塑料、家用电器等行业的有机废气净化。
3. 适用于各种烘道、印铁制罐、表面喷涂、印刷油墨、电机绝缘、皮鞋粘胶等烘干流水线，净化各工序产生的有机废气。

To deal with the exhaust gas from paint drying, print and coating

1. Purification and treatment for the organic solvent (organic waste gas with high concentration, such as benzene, alcohol, ketone, aldehyde, ester, phenol, ether and alkyl etc.)
2. Purifying for the organic waste gas from those fields, such as electric cable, varnished wire, mechanical, motor, chemistry, meter, auto, bike, motorcycle, engine, tape, plastic and household electric appliances etc.
3. To purify organic waste gas of each process for all kinds of drying production line, such as tin print and manufacturing, surface painting, printing ink, motor insulation and leather shoes etc.

工艺流程示意图 Technical process diagram



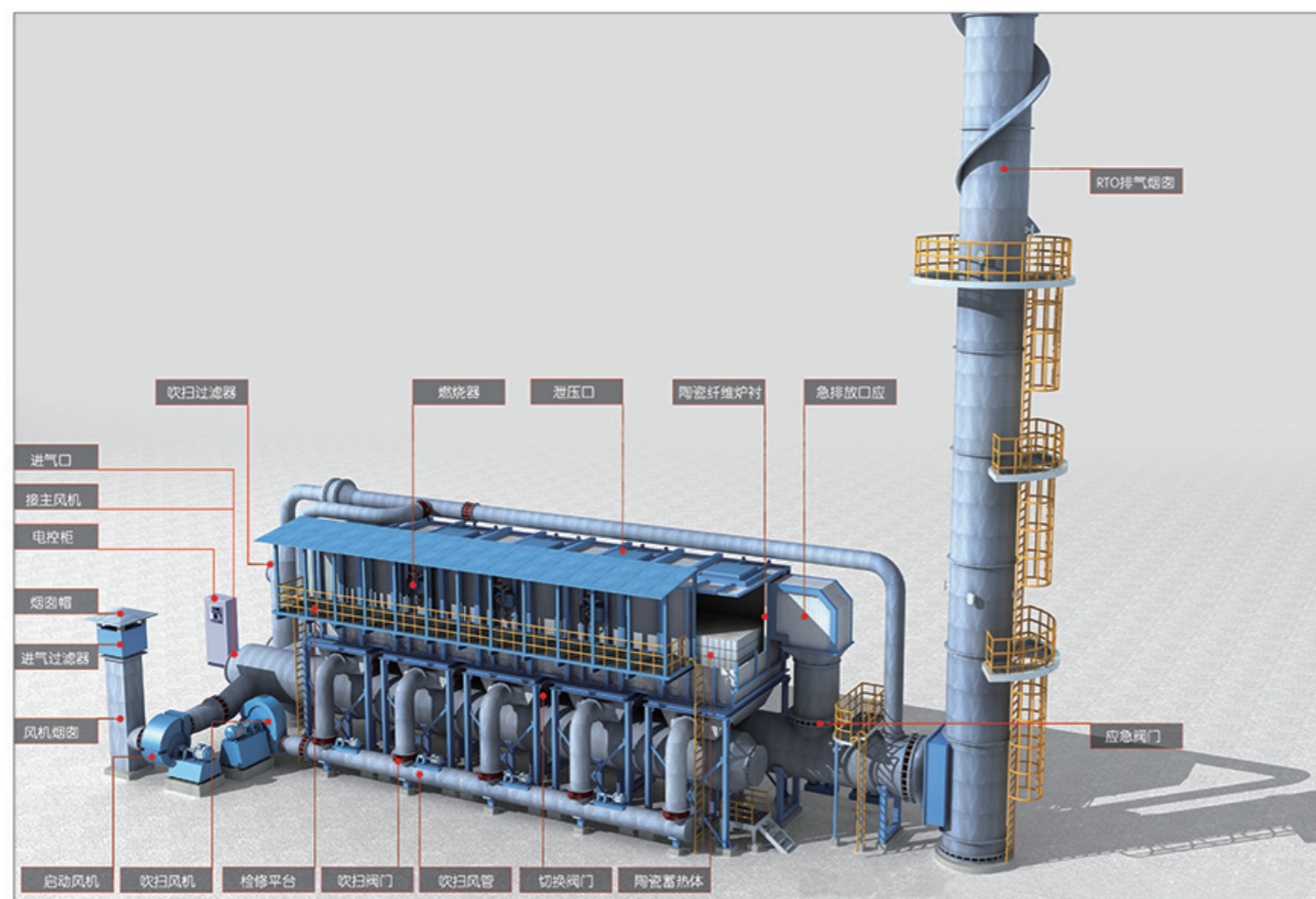
性能特点 Performance

1. 操作方便：设备工作时，实现自动控制。
2. 能耗低：设备启动，仅需15~30分钟升温至起燃温度，加热完成后只有风机工作时耗电。
3. 安全可靠：设备配有阻火除尘系统、防爆泄压系统、超温报警系统，自动检测系统。
4. 阻力小，净化率高：采用世界上最先进的贵金属钯、铂浸渍的蜂窝状陶瓷载体催化剂（也可用颗粒状）。
5. 余热可回收利用：余热可返回烘道，降低原烘道消耗热能；也可以作其它方面的热源。
6. 占地面积小：设备基础无特殊要求。
7. 使用寿命长：催化剂一般更换周期为4年，载体可再生。

1. Operated easily: it could be controlled automatically while it's running.
2. Low power consumption: it will take only 15~30 minutes to reach the ignition temperature after started. After heating only the power is only consumed by fan.
3. Safety and reliability: it is equipped with flame arrester and dust removing system, anti-explosion and pressure relief system, alarming system for over temperature and auto testing system.
4. Small resistance, high purification rate: cellular structure ceramic catalyst dipped by the most advanced precious metals such as the palladium and platinum, as well as in the shape of granular.
5. The waste heat could be recovered: the waste could be returned to drying tunnel to decrease its consumption, as well as the heat source for others.
6. Small area: no special requirement for the foundation.
7. Long service life: generally the catalyst would be replaced by 4 years, its carrier could be regenerated.

参数及标准 Parameter and standards

产品型号 Type	5—100	5—200	5—300	5—500	5—800	3F—1000	3F—1200	3F—1500	3F—2000
处理废气 (m³/h) treated exhaust gas (m³/h)	1000	2000t	3000	5000	8000	10000	12000	15000	20000
废气浓度范围 Density scope of the exhaust gas	200~10000mg/m³ (混合废气1/4爆炸下限mixed waste gas, 1/4 low explosive limit)								
处理废气类型 type of the exhaust gas	苯、酮、醇、醛、酯、醚、酚、烷等有机混合气体 The mixed organic waste gas of benzene, ketone, alcohol, ester, ether, phenol, and alkyl etc								
预热温度 pre-heat temperature	200~300°C								
净化效率 purifying efficiency	≥97%								
启动总功率KV total starting power KV	40	66	72	84	159	198	240	279	336
风机 fan	型号 type	Yx9—355c	Yx9—356.3c	Yx9—356.3c	Yx9—356.3c	Yx9—358c	另选	另选	另选
	风量(m³/h) air quantity	3585	5737	6984	7857	10646	14000	18000	20000
	全压(mmH₂O) total pressure	176	182	188	238	242	190	190	200
	功率(KW) power	4	5.5	5.5	11.5	15	22	30	37
设备尺寸及重量 equipment size and weight	长×宽×高 A×B×C (mm)	1200	1200	1450	1450	1980	3150	3120	3000
	长×宽×高 A×B×C (mm)	900	1280	1290	1580	1980	1500	2310	1900
	长×宽×高 A×B×C (mm)	2140	2210	2320	2310	2730	2730	2800	2800
	长×宽×高 A×B×C (mm)	340	460	460	460	460	460	800	460
管道 pipe	直径尺寸(=) diameter	210	300	360	400	450	Φ500或600×400	Φ620或470×600	Φ670或580×600
	进口高度F= inlet height	250	125	350	400	425	2500	2380	2670
安装尺寸 installation dimensions	出口高度F= exit height	250	325	350	400	425	400	900	520
	重量(T) weight	1.6	2.3	3.0	3.02	4.84	5.36	8.13	9.2



概述 General

我公司是从事有机废气处理设备生产的专业制造厂家，多年来一直致力于涂装废气处理的研究与制造。研制开发的RTO型系列蓄热式热力焚烧炉，是我公司积累多年有机废气治理之经验，参照国外先进技术，研制成功的高效节能、无二次污染的新型系列产品。在国内相关行业有较多成功使用的案例。产品的安全性、稳定性、可靠性也得到了提升，基本达到了国外同类产品的先进水平，可以替代进口设备的使用。

We are the specialized maker in manufacturing the incinerator to deal with the organic waste gas, working on the researching and manufacturing of the waste gas arise from coating. The heat accumulating thermal incinerator with the type of RTO is the series products researched successfully by us by the accumulation of many years to deal with the organic waste gas refer to the foreign advanced technology, without secondary pollution. There are many successful cases in many fields in China. The safety, steady and reliability of our products have been improved, basically to reach the advanced level of similar foreign products. It can replace the imported products.

工作原理 Working principle

其原理是把有机废气加热到760℃以上，使废气中的VOC在氧化分解成二氧化碳和水。氧化产生的高温气体流经特制的陶瓷蓄热体，使陶瓷体升温而“蓄热”，此“蓄热”用于预热后续进入的有机废气。从而节省废气升温的燃料消耗。陶瓷蓄热体应分为两个（含两个）以上的区或室，每个蓄热室依次经历蓄热-放热-清扫等程序，周而复始，连续工作。

To heat the organic waste gas over 760℃ so that the VOC in the waste gas would be oxidized and decomposed into co2 and water. The high temperature gas from the process of oxidation will follow through the heat accumulator made from ceramic specially. The ceramic body would be heated to store heat. This store heat should preheat the following entered organic waste gas so that the fuel consumption would be saved for heating the waste gas. The ceramic heat accumulator should consist two areas or bodies, or over. Each regenerative chamber will work through the following process in turn, such as store heat, heat and sweep etc, go round and begin again, work continuously.

用途 Function

大风量、低浓度涂装废气；化工尾气等各种有害、有机废气处理。

- 1.石油及化工(如塑料、橡胶、合成纤维、有机化工)。
- 2.油漆生产及喷漆。
- 3.印刷(包括印铁、印纸、印塑料)。
- 4.电子元件及电线。
- 5.农药及染料。
- 6.医药:显像管、胶片、磁带等。
- 7.低浓度、大风量的有机废气。
- 8.废气含有对催化剂有毒性的物质RTO可以处理(例水银、铅、锡、锌等的金属蒸气和磷、磷化物、砷、卤素等)。

To deal with the waste gas with large air quantity and low density arise from coating, all kinds of noxious and organic waste gas, such as chemical exhaust gas etc.

- 1.Petroleum and chemical industry (such as plastic, rubber, synthetic fibre, organic chemical industry)
- 2.Paint product and painting
- 3.Print (including tin print, paper print and plastic print)
- 4.Electronic components and radio
- 5.Pesticide and dyestuff
- 6.Medicine: kinescope, film and tape etc.
- 7.large air quantity and low density organic waste gas
- 8.Waste gas contains the substance, RTO, which is noxious to the activator could be treated (for instance, the vapor of mercury, lead and tin, and phosphor, phosphide, arsenic and haloid etc.

性能特点 Performance

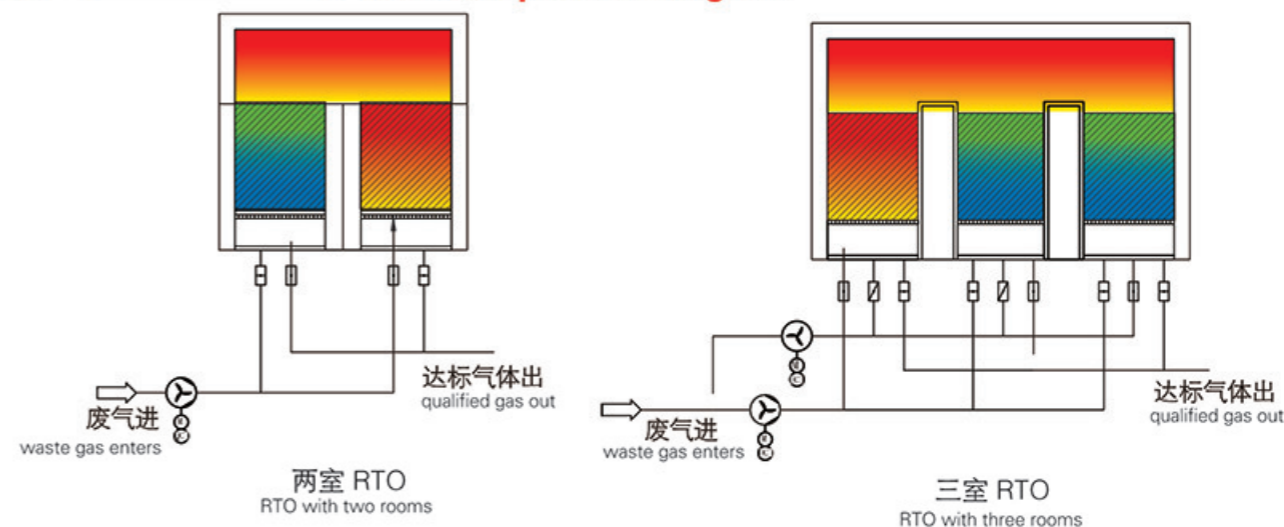
RTO主体结构由燃烧室、陶瓷填料床和切换阀等组成。该装置中的蓄热式陶瓷填充床换热器可使热能得到最大限度的回收，热回收率大于95%。与传统的催化燃烧、直燃式热氧化炉(TO)相比，具有热效率高(≥95%)、运行成本低、能处理大风量低浓度废气等特点，浓度稍高时，还可进行二次余热回收，大大降低生产运营成本。

- 1.净化率高，两床式 RTO 净化率在 95% 以上，三床式 RTO 净化率在 98% 以上。
- 2.采用先进的PLC技术，系统自动化程度高。
- 3.系统设备紧凑，占地面积小。
- 4.操作维修简单，运行费用低。
- 5.适应性强，操作稳定，安全性高。
- 6.燃料消耗量小，甚至不需燃料。
- 7.高效先进换热系统，热损失小。
- 8.不产生 NOX 等二次污染。
- 9.使用寿命长，维护保养易。

The main structure of RTO consists of combustion chamber, ceramic filling bed and changeover valve etc. The heat accumulating ceramic filling bed heat exchanger could recover the heat energy as much as possible, the efficiency of heat recover is over 95%. Compared with the conventional calcar with catalysis and direct burning calcar (TO), it has the characteristic of high heating efficiency (≥95%), lower running cost and the large air quantity and lower density organic waste gas could be treated. If the density is higher, the secondary waste heat could be recovered so that the running cost is decreased greatly.

- 1.High purifying rate, the RTO with two beds is over 95%, and the three beds is over 98%.
- 2.The advanced PLC is used to improve the automaticity.
- 3.The system is compact to spend small area.
- 4.Easy operation and maintenance, lower running cost.
- 5.Well-adapted, steady operation with high safety.
- 6.Lower fuel consumption, even the fuel is not consumed.
- 7.Advanced heat exchanging system with high efficiency and lower thermal loss.
- 8.No secondary pollution, such as the NOX.
- 9.Long lifetime, maintain easily.

工艺流程示意图 Technical process diagram





概述 General

四元体把燃烧器、换热器、过滤器、风机四位一体组合成热风源（称为四元体；不带废气处理的称三元体），使热风品质更高。四元体采用进口燃烧器、不锈钢换热器使车间气体排放更洁净、热损失小、结构紧凑、外形美观。具有高效，节能，安全等特点。（该产品的成功开发使我国涂装生产线水平和国际接轨向前又迈进了一步。根据加热源的不同又分为燃油、燃气两种、用户可选用烘道上置和底置两种结构。

Four bodies combined with burner, heat exchanger, filter and fan (it's called four bodies, and called three bodies without waste gas treatment) to improve the heat air quality. The imported burner and stainless heat exchanger are used to make the exhausted gas more clean with low heat loss, compact structure and beautiful appearance, high efficiency, energy saving and safety. The gap of the painting line between Chinese and international become smaller due to develop this product successfully. It is divided into two types according to the heating source: fuel oil and gas. Two different structures could be selected by customers, up and down drying channel.

用途 Function

适用于烘干炉、烘干道的整体式供热装置
integral heat supplying device for the drying furnace and channel

工作原理 Working principle

冷空气经加热装置加热升温后由风机经高温过滤送入烘干设备内循环使用；烟气经多行程换热装置换热后，温度低于250℃排放；如需废气处理，将收集来的废气由废气通道直接送到加热装置的燃烧室高温燃烧后达标排放。

The cold air would be heated by the heater to improve its temperature, then it is filtered to be recycling used for the drying equipment. The exhaust gas would be discharged lower than 250℃ after heat exchanging by multistage heat exchanger. If the treatment for the exhaust gas is required, then it would be sent to the combustion chamber through the exhaust gas channel for high temperature combustion, and then discharged to meet the emission standard.

性能特点 Performance

1. 结构紧凑、外形美观。室体采用双层钢结构形式，外贴镀锌波纹板或彩钢板，内衬镀锌板或不锈钢板；设有快速检修门，嵌入式风机方便安装。
2. 节能高效，洁净排放。全自动燃烧器，实行空气比自动调节，燃烧换热装置结构设计独特，换热面布置合理；循环风进出口温差大，升温快，效率高；间接式换热结构，加热循环风和燃烧烟气不接触；烟气和要处理的有机气体充分燃烧达标后排放。
3. 操作方便，安全可靠。装置可实行远程程序控制，在设定温度范围内，燃烧器可实行自动大小火焰的调节；装置设有燃烧机故障自锁、循环风机和燃烧器互锁、超温极限保护和泄爆装置。
4. 进口燃烧器，高温插入式防爆型风机（进口轴承），厢式折叠高温过滤器，高效能不锈钢换热器，进口指针式压差计等主要配件，经过长期实践使用，达到最佳配套组合，性能稳定，安全可靠。
5. 工程管换热器，水滴式燃烧筒，一体化结构，具有泄压、废气预热、降噪等优化设计，换热效率高达85%。

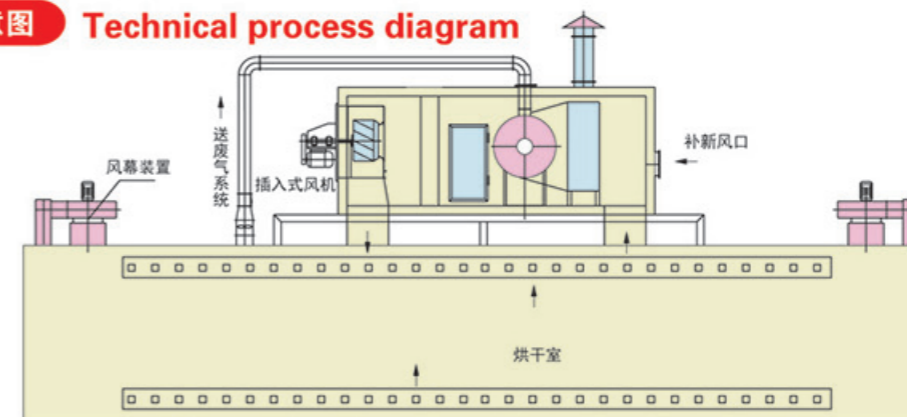
1. Compact structure and beautiful appearance. The chamber is composed of double-layer steel structure, outside covered with corrugated galvanized sheet or color steel plate, lined with galvanized sheet or stainless steel plate. The quick access door was equipped. Embedded fan is easy for installation.
2. Energy saving, high efficiency and clean discharge. Automatic burner to adjust the air proportion automatically. Special structure design and reasonable arrangement of the heat exchanging surface for the heat exchanger. Big temperature difference between the inlet and outlet of the fan, the temperature is improved quickly with high efficiency. Indirect heat exchanger structure that the recycling heating air would not touch the smoke. The smoke and the exhaust gas would be discharged after burned fully to meet the requirement of emission standard.
3. Operated conveniently, safe and reliable. It is remote controlled, the burner could be adjusted automatically within the set temperature range. The fan and burner are interlocked, it is equipped with the over temperature protection and explosion vent. The burner is self-locked in case of fault.
4. Imported burner, high temperature insert type explosion-proof fan (imported shaft), folding high temperature filter with box type, stainless heat exchanger with high efficiency, imported pointer type pressure meter. After a long practice, they are combined in the best way with steady performance, safety and reliability.
5. Engineering pipe heat exchanger, water drop type combustion tube, integrated structure, designed with pressure relief, exhaust gas pre-heat and noise decrease etc. The heat exchange efficiency reaches 85%.

参数及标准 Parameter and standards

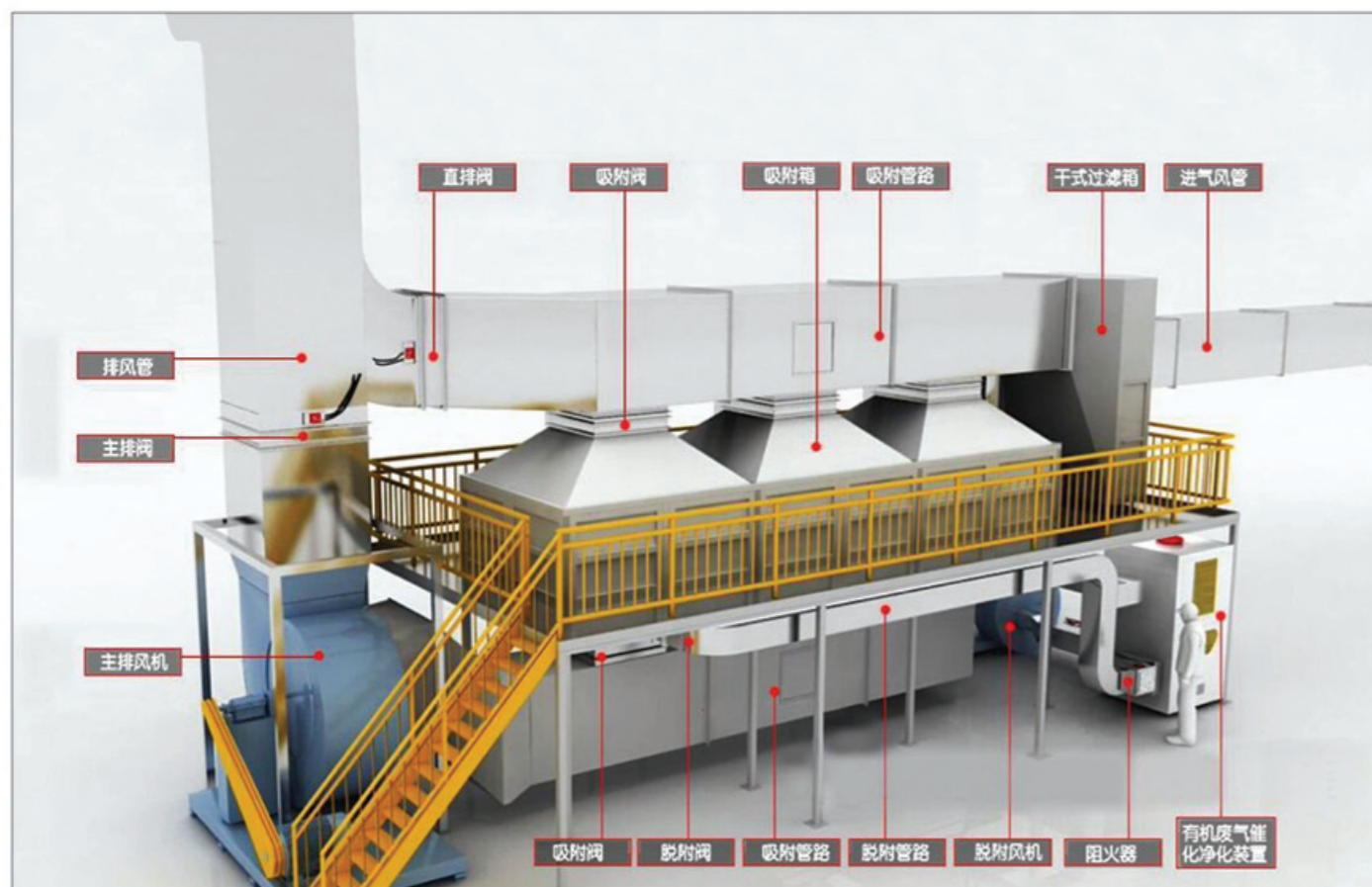
型号规格 type and spec	SPL-20	SPL-30	SPL-40	SPL-50	SPL-60
热输入量 (kcal/h) heat input	20 × 10 ⁴	30 × 10 ⁴	40 × 10 ⁴	50 × 10 ⁴	60 × 10 ⁴
循环风量 (m ³ /h) circulating air	16800 ~ 20000	2800 ~ 330000	32800 ~ 35000	40800 ~ 42000	44800 ~ 50000
高温 (250.℃) 过滤精度 filtering precision by high temperature (250℃)	~ 5 μm	~ 5 μm	~ 5 μm	~ 5 μm	~ 5 μm
换热效率 efficiency of heat exchange	~ 85%	~ 85%	~ 85%	~ 85%	~ 85%
温度控制精度 temperature controlling precision	± 3℃	± 3℃	± 3℃	± 3℃	± 3℃
进、出风口尺寸 (mm) inlet, outlet size	1600 × 400	1600 × 500	1800 × 500	1800 × 600	2000 × 600
设备外形尺寸 (mm) outline dimension	4480 × 2100	4600 × 2300	5430 × 2660	5740 × 2660	6000 × 2660
设备功率 (kw) rated power	~ 15.34	~ 18.55	~ 23.1	~ 23.1	~ 31.5

注：1.装置进风有上进风、下进风两种形式。2.较大规格、特殊形式，可另行设计。
Note: 1, two types for air inlet, up and down. 2. It can be designed for larger dimension and special type.

工艺流程示意图 Technical process diagram



整体式供热装置在烘干室上的应用
the application of the integral heating system for the drying chamber



概述 General

吸附-催化燃烧法：此法综合了吸附法及催化燃烧法的优点，采用新型吸附材料(蜂窝状活性炭)吸附，在接近饱和后引入热空气进行脱附、解析，脱附后废气引入催化燃烧床无焰燃烧，将其彻底净化，热气体在系统中循环使用，大大降低能耗。具有运行稳定可靠、投资省、运行成本低、维修方便等特点，适用于大风量、低浓度的废气治理，是目前国内有机废气处理方法中较为成熟、实用的方法。

Adsorption-catalytic combustion: combined the advantage of adsorption and catalysis, use the the new type of adsorption material (active carbon) for desorption and precipitation by the hot air when it is nearly saturated. After desorption, the waste gas should be led into the catalytic combustion bed for flameless combustion to clean it thoroughly. The hot air could be recycled to decrease the energy consumption. It has the characteristic of steady operation, low investment and operation cost, easy maintenance etc. It is the more mature and practical way in domestic industry to deal with the waste gas with large air quantity and low density.

用途 Function

大风量、低浓度、经济型喷漆废气处理

可处理苯类、酮类、醇类、醚类、烷类及其混合类有机废气，主要用于化工、机械、电子、电器、涂装、制鞋、橡胶、塑料、印刷及各种化工车间里挥发或泄漏出的有害有机废气的净化及臭味的消除，不宜采用直接燃烧法、催化燃烧法或吸附回收法处理有机废气。

To deal with the waste gas with large air quantity and low density economically arise from the painting

It could be used to treat those organic waste gas such as benzene, ketone, alcohol, ether, alkyl etc, and its mixed gas. It is mainly used to purify the organic waste gas and remove the stink evaporated or leaked from all kinds of workshops, such as chemical, mechanical, electronic, painting, shoes-manufacturing, rubber, plastic and print etc. It's better not to deal with the organic waste gas by direct combustion, catalytic combustion or adsorption.

工作原理 Working principle

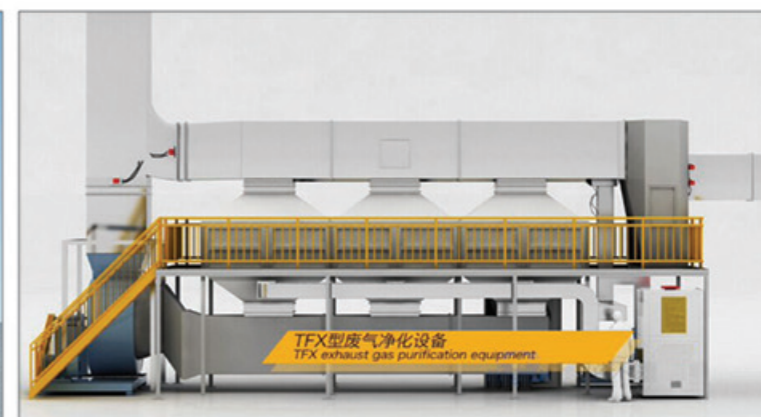
本净化装置是根据吸附（效率高）和催化燃烧（节能）两个基本原理设计的，即吸附浓缩-催化燃烧法。该设备采用双气路连续工作，设两个或多个吸附床可交替使用。一个催化燃烧室，先将有机废气用活性炭吸附，当快达到饱和时停止吸附操作，然后用热气流将有机物从活性炭上脱附下来使活性炭再生；脱附下来的有机物已被浓缩（浓度较原来提高几十倍）并送入催化燃烧室催化转化成CO₂和H₂O排出，当有机废气浓度达到2000mg/m³以上时，有机废气在催化床可维持自燃，不用外加热，燃烧后的尾气一部份排入大气，大部份送往吸附床，用于活性炭的脱附再生。这样能满足燃烧和脱附所需的热能，达到节能的目的，再生后的活性炭可用于下次吸附；在脱附时，净化操作可用另一个吸附床进行，既适合于连续操作，也适合于间断操作。

This purifying system is designed according to two basic principles, adsorption (high efficiency) and catalysis (energy-saving), that is, adsorption--catalytic combustion. The system can be run continuously by double gas lines. There are two absorption beds which could be used both interchangeably, and one combustion chamber for catalysis. The organic gas would be absorbed firstly by the active carbon, while it is almost saturated, then stop absorbing. The organism would be absorbed from the active carbon by the hot gas and the active carbon could be regenerated. After absorbed, the organism is already concentrated (the thickness is improved to several dozens of times than the original) and sent to the combustion chamber to be catalyzed into CO₂ and H₂O which would be discharged. If the thickness of organic waste gas is over 2000mg/m³, self-combustion could be kept on the catalysis bed without heating. After combusted, some part of the exhaust gas would be discharged into the atmosphere, most of them would be sent to the absorption beds for the desorption and regeneration for active carbon. In this way the energy could be got for combustion and desorption so that the energy is saved. The active carbon after regenerated could be used again. During desorption, the purifying could be operated with another absorption bed. It is suitable for both continuous and intermittent operation.

性能特点 Performance

1. 采用吸附浓缩+催化燃烧组合工艺。整个系统实现了净化、脱附过程封闭循环，与回收类有机废气净化装置相比，无须配备压缩空气等附加能源，运行过程不产生二次污染，设备投资及运行费用低。
2. 该设备设计原理先进、用材独特、性能稳定、操作简便、安全可靠、节能省力，无二次污染。
3. 设备占地面积小、采用新型的活性炭吸附材料—蜂窝状活性炭。与粒状相比具有优越的动力学性能，极适合于大风量下使用。
4. 催化燃烧室采用陶瓷蜂窝体的贵金属催化剂，阻力小，活性高。当有机蒸汽浓度达到2000PPm以上时，可维持自燃。
5. 耗电量小。由于床层阻力小，用低压风机就可以，不但耗电少而且噪音小。有机物催化燃烧前，需启动电加热，当有机物在催化床开始催化燃烧时，其燃烧热足以维持其反应所需的温度，此时电加热自行停止，启动电加热时间大约1小时左右。
6. 吸附有机废气的活性炭床，可用催化燃烧后的废气进行脱附再生，脱附后的气体再送催化燃烧室进行净化，不需外加能量，运转费用低，节能效果显著。
7. 采用微机集中控制系统，设备运行、操作过程实现全自动化，运行过程安全、稳定、可靠。

1. By the combined technology with adsorption--catalytic combustion, purifying and adsorption are recycled in the total system. Compared with the purifying system by recovering the organic waste gas, the additional power is not required to be equipped, such as the compressed air. There is no secondary pollution during the process. Lower investment and running cost.
2. Advanced designing principle, special materials, steady performance, operated easily, safety and reliability, energy saving without the secondary pollution.
3. Occupying small area, using the new type of active carbon adsorption material--compared with the grainy carbon, the cellular structure active carbon has more better dynamic performance, it is very suitable for the situations with large gas capacity.
4. Noble metal catalyst with the cellular structure is used for the catalytic combustion chamber with smaller resistance and higher activity. If the thickness of organic gas is over 2000PPm, self-combustion could be kept.
5. Due to the small resistance of catalysis bed, just equipped with the fans with lower pressure so that the power consumption is small and the noise is lower. The electric heating should be started for catalytic combustion. When the organic substance is burned in the catalytic bed, the temperature could be kept by the calorie from its combustion for the reaction. At this moment the electric heating would be stopped automatically. The electric heating will last about one hour.
6. The active carbon bed could be desorbed and regenerated with the exhaust gas after catalytic combustion. The gas after desorbed would be sent to the catalytic combustion chamber for purifying without additional heating, the cost for running is lower with the significant effect of energy-saving.
7. It is controlled by computer, operated automatically, safety, steadily and reliability.





概述 General

本设备以物化与生化的结合的工艺为主体，以化学反应（包括芬顿氧化等）为辅助工艺，处理涂装废水。本设备为专业定制设备，无固定型号尺寸，针对不同类型的涂装废水需要针对性设计、制作。

This equipment main process is a combination of physico-chemical and biochemical, chemical reactions (including Fenton oxidation, etc.) as a secondary process, solving painting waste water. This equipment is customized, no fixed dimensions, different painting waste water, need different design and produce.

工作原理 Working principle

废水收集至综合废水调节池，均化水质、水量后由泵提，调节pH后进行混凝沉淀，上清液再经过混凝气浮，去除大部分污染物后的废水进入生化池进行厌氧、好氧反应。生化池出水经沉淀过滤后达标排放。

Waste water is collected to the comprehensive waste water regulation pool, will lift by pump after homogenized water quality and capacity, coagulating sedimentation after adjusting pH, the supernatant through flotation, waste water remove most contaminants entering the biochemical pool, then do anaerobic and aerobic reactor. Biochemical tank discharge water standardly after filtered.

用途 Function

适用于处理涂装废水，涂装废水主要来自于预脱脂、脱脂、表调、磷化、钝化等车前处理工序；阴极电泳工序和中涂、喷面漆工序，涂装废水中含有树脂、表面活性剂、重金属离子、颜料等污染物，特别是其中的电泳废水、喷漆废水成份复杂，浓度高，可生化性差。

Use for treating the painting waste water, painting waste water mainly from the pre-degreasing, degreasing, table transfer, phosphate, passivation treatment step and other car body pretreatment process; Cathodic electrodeposition processes, middle painting, surface painting process and paint waste water containing coating resins, surfactants, heavy metals, pigments and other pollutants, especially for electrophoretic waste water, painting waste water with complex composition, high concentrations and poor biodegradability.

特点 Working principle

- 1、先进性：技术可靠，选用目前先进成熟技术或已有成功经验的治理技术。针对废水水质特点，采用适当的处理措施达到预期的处理效果。
- 2、实用性：因地制宜、设计合理。选用适当、合理的高程控制，尽量减少废水的提升，降低工程造价和运行成本。
- 3、可靠性：尽量精简、优化设备，选用国内外知名品牌。装置运行稳定可靠，采用时间自动控制，各工艺运转得到有效监控，处理出水稳定达标，便于维护管理。
- 4、高性价比：精心设计，做到投资省，运行费用低，工程性能优良。
- 5、高安全性：强化风险事故防范措施，做到布局合理、环境协调、功能完善。

- 1、Advanced: technology is reliable, advanced and mature technology, or the current selection of the successful experience of the existing control technology. For waste water features, use appropriate action to achieve the desired treatment effect.
- 2、Practicality: local conditions, reasonable design. Selection of appropriate and reasonable elevation control, to minimize the upgrade of waste water, reduce project cost and operating costs.
- 3、Reliability: as concise as possible, optimizing the equipment, selected domestic and international famous brands. Device is stable and reliable, the use of the automatic time control, monitor each process running efficiently, treated water compliance and stability, easy maintenance and management.
- 4、Cost-effective: well-designed, so save investment, low operating costs, excellent engineering performance.
- 5、High security: Strengthen risk accident prevention measures to achieve a reasonable layout, environmental and functional.

参数及标准 Parameters and standards

出水执行《污水综合排放标准》(GB8978-1996) Emission Standards "Integrated Wastewater Discharge Standard" (GB8978-1996)								
污染物 Pollutants	PH	色度 (稀释倍数) chroma(dilution)	悬浮物SS suspended solids SS	化学需氧量 (COD) chemical oxygen	石油类 petroleum	氨氮 ammonia nitrogen	磷酸盐 (以P计) phosphate(P)	元素磷 elemental phosphorus
一级标准 Primary standard	6-9	50	70	100	5	15	0.5	0.1
二级标准 Secondary standard	6-9	80	150	150	10	25	1	0.1
三级标准 Level 3 standard	6-9	—	400	500	20	—	—	0.3



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