

# 探索本届参展商创新产品及解决方案 Discover Innovative Solutions and Products

编辑团队特意为您搜罗本届展览会部分参展商将展出的创新产品/技术。其他参展商简介已上传至大会网页，请浏览 [www.sfchina.net](http://www.sfchina.net)。  
Our Editorial Team has selected some innovative products/technologies to be presented by exhibitors in this year's exhibition. You can also view profiles of other exhibitors at [www.sfchina.net](http://www.sfchina.net).

## Zone 1 区 电镀及精饰技术 Electroplating & Finishing Technology

### 深圳市安格斯环保型涡旋冷水机 Shenzhen Anger Environmentally Friendly Scroll Chiller

展台号 Booth No.  
**E1.D34**

深圳安格斯环保型涡旋冷水机，采用丹麦「丹佛斯」全封闭涡旋式压缩机（或同等级别品牌），低噪音和振动，高效节能，制冷剂选用进口新型研发不破坏臭氧层的环保制冷剂 R407C/R410A，也可根据不同国家和地区法规要求，选择 R404A、R134a 等环保冷媒。



Angus's Environmentally Friendly Scroll Chiller, adapting Denmark's Danfoss fully enclosed scroll compressor (or equivalent brand), achieves low noise level and vibration, high efficiency and energy saving. The refrigerant is an imported R407C/R410A, which does not harm the ozone layer.

Environmentally friendly refrigerants such as R404A and R134a can be substituted instead according to regulations of other countries and regions.

### 高益美 21730 碱性镀锌铁合金工艺 Gaoyimei 21730 Alkaline Zinc-Iron Alloy Plating

展台号 Booth No.  
**E1.C67**

高益美 21730 碱性镀锌铁合金工艺的镀层中含 99.2-99.7% 锌和 0.3-0.8% 铁，镀液主要成份是氢氧化钠、锌离子、螯合剂、铁离子和专用添加剂。21730 电镀成本低，抗蚀性高，经彩色和黑色的铬酸盐钝化的锌铁合金镀层在盐雾试验中的抗蚀性可达 2,000 小时以上，仅需进行中和即可完成废水处理。采用 21730 工艺更可降低镀层厚度，从而提高生产效率。

Gaoyimei's 21730 Alkaline Zinc-Iron Alloy Plating's coating contains 99.2-99.7% zinc and 0.3-0.8% iron, while its plating solution comprises sodium hydroxide, zinc ions, chelating agents, iron ions and special additives. 21730 plating incurs low cost but produces high corrosion resistance. The corrosion resistance of zinc-iron alloy coating, after being passivated by color and black chromate in the salt spray test, can reach more than 2,000 hours. In addition, wastewater treatment can simply be done by neutralization. In addition, 21730 plating can reduce coating thickness, therefore improving production efficiency.



### 常州市川磷工业级磷酸 Changzhou Chuanlin Industrial Grade Phosphoric Acid

展台号 Booth No.  
**E1.D71**

川磷化工提供工业级磷酸，磷酸含量超过 75%，执行品质标准为 GB2091-2003，可因应客户要求提供 75%、80% 和 85% 工业级，以 35kg、20L 塑桶或 200L 塑桶包装亦可。本产品为金属表面处理剂、磷酸盐原料制品、有机反应催化剂、耐火材料添加剂、活性炭处理剂等主要材料。

Chuanlin Chemical's industrial grade phosphoric acid contains over 75% of phosphoric acid content. Its quality standard implementation is GB2091-2003. Packaging options, such as 75%, 80% and 85% industrial grades and 35kg in a 20L or 200L plastic bucket are available. The product is a major material of a variety of additives and products, such as metal surface treatment agents, phosphate products, organic catalysts, refractory additives, activated carbon treatment agents, etc.



### 广东致卓环保高速光亮化学镀镍 Guangdong Intensive Eco-Friendly High-Speed Bright Electroless Nickel Plating

展台号 Booth No.  
**E1.E37**

广东致卓环保高速光亮化学镀镍的总镍含量为 5.5-6.5 克/升，操作温度 88-92°C，pH 值范围为 4.8-5.6，镀层含磷量 < 7%。本产品特色包括：沉积层焊接性能好；沉积层全面光亮、延展性能好；金属离子容忍度高；镀液稳定，且不含铅、镉及汞，符合环保要求。

Guangdong Intensive Ecotech provides eco-friendly high-speed bright electroless nickel plating. Its total nickel content is 5.5-6.5 g/l, operating temperature 88-92°C, pH range 4.8-5.6, plating layer phosphorus content < 7%. This product features good welding at deposited layer, overall brightness of deposited layer, good ductility; high tolerance of metal ionization. In addition, the plating solution used is stable, and it does not contain lead, cadmium and mercury, which meets environmental protection requirements.

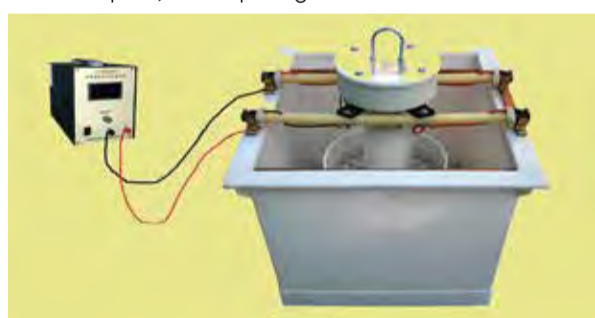


### 邯郸市大舜振镀机 Handan Dawei Vibration Plating Machine

展台号 Booth No.  
**E1.C31**

大舜 CZD 型振镀机尤其适用品质要求较高但加工批量不大的小零件（如电子产品）的电镀，或是用于不宜或不能采用常规滚镀的异形小零件（如针状、细小、薄壁、易擦伤、易变形等零件）的电镀。

Dawei's CZD type vibration plating machine is suitable for electroplating of small parts (such as electronic products) with high quality requirements but small processing batches, or for special-shaped small parts that are not suitable or unable to use conventional barrel plating (such as needle-shaped, small, thin-walled, easily scratched, easily deformed and other parts) electroplating.

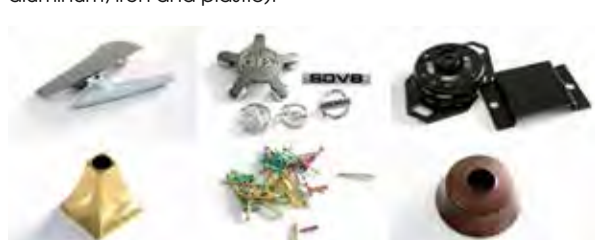


### 安徽金格兰表面处理添加剂 Jingelan Surface Finishing Additives

展台号 Booth No.  
**E1.B27**

安徽金格兰新材料科技专业生产电镀光亮剂、添加剂、脱脂剂及其它表面处理添加剂，主要产品为铜、锌合金、铝合金、铝、铁、塑料底材，电镀铜、镍、铬、锡、金、银和锌添加剂、光亮剂及脱脂剂。

Jingelan specializes in manufacturing electroplating brighteners, additives, degreasing agents and other surface finishing additives. Our main products include additives, brighteners and degreasing agents for copper, nickel, chromium, tin, gold, silver and zinc electroplating on various types of substrates (copper, zinc alloy, aluminum alloy, aluminum, iron and plastic).



### 朴维科技在线分析仪 Topway Online Analysis Systems

展台号 Booth No.  
**E1.C27**

朴维科技 Topway 系列在线分析仪根据药水特性，选择合适的取样预处理措施，如过滤、消泡、控温等；分析精密度 (RSD) < 3%；分析准确性 (RE) < 3%；单次取样分析 < 15 分钟。Topway 系列在线分析仪配备标样自检功能，确保分析仪准确可靠；同时具自动清洗、补水、排废、自动维保提醒及故障报警等功能，减轻分析仪维护工作量。同一台在线分析仪可选配多参数、多通道、多工艺取样分析功能，降低用户成本。

Topway's online analysis systems are equipments with appropriate sampling pretreatment measures based on characteristics of syrup, such as filtration, defoaming, temperature control, etc. They are characterized by: analysis precision (RSD) < 3%, analysis accuracy (RE) < 3%, and single time sampling analysis < 15 minutes. The online analysis systems are also equipped with self-checking function to ensure accuracy and reliability of the analyzer. Meanwhile, they are also equipped with functions such as automatic cleaning, water replenishment, waste discharge, automatic maintenance reminder and fault alarm to reduce maintenance workload of the analyzer. The online analyzers can be equipped with multi-parameter, multi-channel, multi-process sampling and analysis functions to reduce user costs.



### 武汉材料保护研究所涂层测厚仪 Coating Thickness Measurement from Wuhan Research Institute of Materials Protection

展台号 Booth No.  
**E1.K08**

武汉材料保护研究所专业生产 DJH、CTM 系列库仑测厚仪、涡流感应测厚仪、电磁感应测厚仪。这些仪器不仅能满足金属及非金属基材上单层及多层涂层厚度测量，还能满足多层镍厚度电位差 STEP 测量，并提供赫尔槽试验仪、硬度计、电火花检测仪、超声探伤仪等表面覆盖层测试仪器。库仑测厚仪可用于测量几乎所有基体上的电镀层厚度，测量时不会损坏基体，库仑法确保测量结果准确、可靠，仪器使用简便。

Wuhan Research Institute specializes in manufacturing DJH and CTM series Coulometric thickness gauges, eddy current induction thickness gauges and electromagnetic induction thickness gauges. These gauges can be used to measure thickness of single and multi-layer coating on metal and non-metal substrates. They can also be applied to the potential difference STEP measurement for multi-layer nickel. The company offers Hull cell tester, hardness tester, electric spark leak detector, ultrasonic flaw detector and other coating test instruments. Coulometric thickness gauge can measure coating thickness on almost all substrates. It costs no substrate damage while conducting measurement. The Coulometric method ensures that the measurement results are accurate and reliable, and the instrument is easy to use.



### 玉环震浪 TC 台式单频超声波发生器 Yuhuan Clangsonic TU Desktop Single Frequency Ultrasonic Generator

展台号 Booth No.  
**E1.D47**

玉环震浪 TC 台式单频超声波发生器采用震浪技术开发，且同时有全桥移相、恒功率输出、自动追频及自动阻抗变化等超声波功能，针对不同工况的适应性及稳定性高。设备发生器频率为 20-130KHz，功率可达 2,000W，可单独连接清洗水槽或配套于大型清洗系统，无论哪种方式均可提供快速、均匀和高品质的清洗效果。

Clangsonic Ultrasonic's TU Desktop Single Frequency Ultrasonic Generator contains a variety of features, such as a full-bridge phase shift, constant power output, automatic frequency chasing and automatic impedance changes, that help improve the adaptability and stability of the generator at different working conditions. The generator frequency ranges from 20-130KHz and its maximum power is 2,000W. It can connect to a single cleaning tank or a large-scale cleaning system. Either way it can provide a fast, uniform and high-quality cleaning result.





## Zone 2 区

### 环境保护、安全及个人保护设备 Environmental, Safety & Protection

#### 镀一电镀设备 Hendor 立式泵浦 Hendor Vertical Immersion Pumps from Plating Electronic

展台号 Booth No.  
**E1.G78**

镀一电镀设备的 Hendor 立式泵浦 D13-PP 系列将最大的液压效率与坚固和紧凑的结构相结合, 实现最长正常执行时间和较长的使用寿命。本系统特点包括: 符合环保要求的槽内安装、自由转动轴 - 无密封或轴承、自吸式 - 可脱水运行、标准长度且全长不锈钢的电机轴、出口轴承有 PP 和 CPVC 材质。流量为每小时 2,000-12,000 升, 应用于电镀、冲洗、过滤等。

Plating Electronic's Hendor Vertical Immersion Pumps Series D13-PP combine maximum hydraulic efficiency with a robust, compact and reliable construction, resulting in maximum installation uptime and a long service life. Its key features include easy, leak free, in-tank installation, easy connection above cover, no outlet pipe required, complete +GF+ union end, free turning shaft, no seal or bearing, can run dry, self priming when flooded. Union socket in PVC or CPVC. Its flow rate is 2,000 to 1,2000 L/h. and it is applied to industries like electroplating, washing and filtration.



#### 山东松川烯丙基磺酸钠 (SAS) Shandong Songchuan Sodium Allyl Sulfonate

展台号 Booth No.  
**E1.G77**

松川新材料专业生产烯丙基磺酸钠 (SAS)、甲基烯丙基磺酸钠 (SMAS)、2-丙烯酰胺基-2-甲基丙磺酸 (AMPS) 等磺酸盐系列产品。烯丙基磺酸钠具多用途, 例如: 在电镀前处理药剂中作为镍光亮剂; 用于聚羧酸高性能减水剂, 使产品添加量低, 减水率高, 缓凝性好, 不沁水; 用作涂料助剂以生产热固性丙烯酸树脂和涂料分散剂, 增加水溶性。

Songchuan New Materials specializes in manufacturing Sodium Allyl Sulfonate (SAS), Sodium Methallyl Sulfonate (SMAS), 2-Acrylamido-2-Methyl Propane Sulfonic Acid (AMPS). SAS can be applied in various applications. For example, it can act as a nickel-plated brightener in plating pre-treatment agents. It can be used in polycarboxylic acid to lower water content and improve retardation. It can also be a paint additive to produce thermosetting acrylic resin and coating dispersant to increase their water solubility.



#### 合肥恒力沸石转轮废气处理设备 Hengli Eletek Zeolite Concentrator Concentrating System

展台号 Booth No.  
**E1.F75**

合肥恒力的沸石转轮废气处理设备特点包括: 吸附、脱附效率高; 沸石转轮吸附 VOCs 产生的压降极低, 可减少电力能耗, 使原本高风量、低浓度的 VOCs 废气, 转换成低风量、高浓度的 VOCs 废气, 浓缩倍数达到 5-20 倍, 缩小后处理设备的规格, 运行成本更低; 整体系统采用模块化设计, 具备了最小空间需求, 且提供了持续性及自动化的操控模式。设备可应用在喷漆、印刷、电子烧结、半导体制造及锂电等领域。

Key features of Hengli Eletek's Zeolite Concentrator Concentrating System include high adsorption and desorption efficiencies; low pressure drop due to VOCs adsorbed by zeolite wheel reducing power consumption; converting high air volume, low VOCs concentration into low air volume, high VOCs concentration up to 5-20 times, reducing post treatment requirement, consequently lowering operating costs; adopting modular design requiring smaller space and providing a continuous and automatic control mode. This equipment can be applied to sectors such as spray painting, printing, electronic sintering, semiconductor manufacturing and lithium power etc.



## Zone 3 区

### 涂装及涂料产品 Coating Applications & Coating Products

#### 金马 OptiSpray AP01 粉泵 Gema OptiSpray AP01 Application Pump

展台号 Booth No.  
**E1.F01**

金马 OptiSpray AP01 粉泵设计适合所有粉末类型 (包括特殊效果和金属粉末), 稳定且可重复的粉末输送, 产生均匀及高质量涂层效果; 线性粉末产量高达 300 克 / 分钟, 并更好地穿透凹槽和提高传输效率; 其气量平衡控制可产生最佳的粉云雾调整范围; 智能直排技术 (SIT) 最高可降低 15% 粉耗及自动换色功能使运作更省时。OptiSpray AP01 无需太多维护, 且其单腔设计可将磨损零件减少 50%。

The application pump OptiSpray AP01 is designed for all powder types including special effects and metallic powders. Its stable and repeatable powder delivery can produce a uniform and high-quality coating. Its linear powder output reaches up to 300 g/min with improved penetration in recesses and transfer efficiency. The air balance and control can produce optimum powder cloud characteristics. Smart Inline Technology (SIT) can save up to 15% in powder consumption and achieve automatic color change to save time. It requires minimal maintenance with a unique single chamber design attaining up to 50% less wear parts.



#### 天市长豪诺恒流型静电喷涂设备 Tianchang Haonuo Constant Current Electrostatic Spraying Equipment

展台号 Booth No.  
**E1.H25**

豪诺 HF-3C 静电喷涂设备为恒流型静电喷涂设备 (双数显), 采用进口元器件及先进工艺制造, 涂装效果可与国外同类产品相媲美。本设备出粉流畅、均匀、高压静电自动跟踪、上粉率高、电压、电流可适应不同环境随意调节。适合疑难、复杂凹槽工件及平面喷涂, 放电电流的可调性, 具较灵敏的回馈功能, 并根据不同工件作出不同反映。

Haonuo's HF-3C Electrostatic Spraying Machine is a type of constant current electrostatic spraying equipment (dual digital display). It is manufactured with imported components and advanced technology, and its coating performance is as good as similar types of imported machines. The powder spray of HF-3C is smooth and uniform. It equips with high voltage electrostatic automatic tracking, high powder loading rate, voltage, adjustable current to adapt to different conditions. The machine is suitable for difficult and complex grooved workpieces and plane spraying. Adjustable discharge current results in more sensitive feedback, therefore managing different workpieces with most proper actions.



#### 江阴市天马高频同步整流电源 Jiangyin Tianma High-Frequency Synchronous Rectified Power Supply

展台号 Booth No.  
**E1.G56**

天马高频同步整流电源设计采用 N+1 模式, 如设备出现故障, 电源不会停止, 系统自动将故障单元退出, 不影响生产; 由于所有模块单元通用化, 只需备份少许模块单元即可自由更换故障模块, 故障模块维修亦相对简单; 各模块单元均以微处理器为控制核心, 利用软件程序实现自动均流等控制方案, 控制灵活精度高动态响应快。

TMPOWER's High-Frequency Synchronous Rectified Power Supply adopts N+1 modular design. If a module fails, the power supply does not stop. Instead, the system abandons

the failed module and keeps production running. Because all modules are universally designed, users only need to keep a few spare modules in case any particular module fails. In addition, repairing a failed module is relatively simple. A module's microprocessor operates controls while its software programs control schemes. The control is flexible, accurate and responsive.



#### 诺信粉末喷枪控制系统 Nordson Powder Coating Controller

展台号 Booth No.  
**E1.A09**

诺信 Encore<sup>®</sup> Engage 粉末喷枪控制系统是诺信新一代 PLC 控制系统, 可适配所有诺信 Encore 粉末喷枪和文丘里粉泵。焕新升级的控制系统以客户回馈为基础并以用户体验为优先进行设计, 以 15 英寸触摸屏作为控制界面显示一切所需资讯, 为客户提供更轻松直观的控制体验, 确保涂装操作的每个环节都清楚了, 助力客户应对日益复杂的生产制造, 提升喷涂效率并最大化生产力。

Encore<sup>®</sup> Engage is Nordson's new powder coating controller, which can be equipped with all Nordson Encore spray guns and Venturi pumps. The control upgrade is a collection of customer feedbacks so that our design comes with user experience first. The 15-inch touchscreen, a control interface, displays all essential data. Therefore, an operator can get overall information directly and so he or she can be clear of every coating step. It can help customers cope with increasingly complex manufacturing, improve spraying efficiency and productivity as a result.



#### 埃夫特喷涂机器人 Painting Robots from Efort

展台号 Booth No.  
**E1.G31**

埃夫特 CMA 喷涂机器人具有以下功能: 国际 ATEX 认证 - 1 区和 2 区 (气体) 21 和 22 区 (粉尘)、IECEx 气体证书。手腕承重范围为 2-16 公斤, 工作区域范围 2-3.7 米, 并提供优化解决方案所需的各种设备。

EFFORT's CMA ROBOTICS offers a range of robots highly specialized in painting with high level features such as: International ATEX certifications - zone 1 and 2 (gas) zone 21 and 22 (dust), IECEx Gas certificates. Wrist capacities from 2 to 16 kg, working areas from 2 to 3.7m and integration of various devices necessary for optimal operation of the solution.



#### 轶川 E-COAT MASTER 大师型系列 E-COAT Master Series from Electron

展台号 Booth No.  
**E1.G41**

轶川涂装 E-COAT MASTER 大师型系列设备适用于手动和自动应用, 由于「密相」送粉泵, 可在难于处理的涂层表面进行快速喷粉, 粉末的密相传输让用户精确控制在工件上的上粉速度。不采用文丘里泵, 涂层厚度可重复性方式控制轻松实现。用户通过最终控制 Electron Master E-FEED 泵, 达至最佳涂装效果。

Electron Coating's E-COAT Master Series range of equipment is suitable for both manual and automatic applications. The Series rapidly applies powder on difficult coating surfaces, due to the dense phase powder feed pump. The dense phase transportation of powder allows user's precise control of the velocity of the powder onto the part. Coating thickness is easily achieved with repeatability and control due to the elimination of Venturi Style pump. The Electron Master E-FEED pump allows user to achieve best possible finish with ultimate control.



#### 巨良 JL600-Q1 系列气动法兰球阀 Juliang JL600-Q1 Series Pneumatic Flanged Ball Valves

展台号 Booth No.  
**E1.H41**

巨良 JL600-Q1 系列气动法兰球阀口径为 DN15-200 毫米, 全通径设计, 响应迅速、密封性好、启闭力矩小。球阀高平台结构、ISO5211 连接标准、安装便捷: 双向密封、双向承压、自动补偿、自洁功能; 防火防静电结构, 符合 API607、GB/T6899 等标准规范, 适用纤维和微小颗粒的悬浊液及粘性介质。

Juliang's JL600-Q1 Series Pneumatic Flanged Ball Valves, DN15-200mm in nominal diameter, a full bore design, displays quick response and good sealing performance. Low open and close torques. Attaining ball-valve high-platform structure and ISO5211 connection standard make installation convenient. Other functions include bidirectional sealing, bidirectional pressures, automatic compensation and self-cleaning. In addition, the valve is fire and electrostatic proof, complying with API607, GB/T6899 standard. It fits for media like fiber and small particles of suspension as well as viscous liquids.





# 助力客户实现环保、省流、安全等应用 Help Customers to Achieve Environmental Protection, Energy Savings and Safety Applications



Mr. Stefan Kazuo Angres 先生

瓦格纳喷涂设备(上海)有限公司总裁(中国)  
President China, Wagner Spraytech  
(Shanghai) Co., Ltd.

展台号 Booth No.: E1.H07

瓦格纳是工业表面处理全球供应商，对广泛领域拥有丰富经验。公司在油漆、溶剂和水性涂料手动和自动应用提供组件和解决方案，还为粉末涂装提供定制化解决方案。

在今年「中国国际表面处理展 SFCHINA」，瓦格纳将展出新一代创新涂装解决方案。在粉末设备业务方面，我们将专注支持新产品以进一步提升我们 Coatify 解决方案；在油漆设备方面，我们则继续推广水性油漆应用方案，包括从进料、混料到最终应用；在涂胶设备方面（RT 品牌隶属于瓦格纳集团），我们会展示在汽车和电池行业中最新解决方案。

## 环保与节能

瓦格纳所有产品，不论用于木器、中密度板、汽车、防腐涂层或家电等领域，都是既可靠且达最先进涂装质量要求。此外，在研发及设计新产品过程中，我们还考虑多方面，例如：能否助客户实现环保、省源节流、车间安全及易于使用等。

瓦格纳标准化粉末喷涂线设计上呈现「环保」和「节能」两大目的。打个比方，我们的喷涂线要求最大化粉末回收率（环保），同时我们 EEP 管道却在回收过程中最小化能源消耗（节能）。另一个增值特色是，安装新的 Coatify 系统能达到最短换色时间。客户亦可及时远程监测整个涂装系统（用户便捷）。我们亦提供不同安全设备，例如防爆及防火装置等，满足客户不同安全需求。

## 在疫情期间解决客户需求

对于瓦格纳而言，维持即时提供客户服务最为重要。在关键时刻，我们总能确保客户通过电联或微信，第一时间找到我们技术专家，即时为他们提供远程支持。倘若需要出差拜访，我们会确保服务团队严格遵守当地政府和客户的安全和防疫规则，也会确保服务团队配备足够个人防护（如口罩、手套、消毒液等）。我们另外一个挑战，就是为客户维持产品供应。因此，我们的库存和消耗有详细数据及分析，确保供应运作如常。瓦格纳的产品和解决方案旨在优化整个涂装和粘合流程。我们提供完整技术来支持各种不同材料，包括在油漆、粉末、粘胶剂等应用上。在未来，瓦格纳继续加强产品供应，同时我们提供更多产品和服务的线上活动，为客户提供创新解决方案。

Wagner is a global supplier of industrial surface finishing systems with extensive experience in a wide range of sectors. The company provides components and solutions for the manual and automatic application of liquid, solvent and water-based coatings. Wagner also supplies a wide range of custom-built solutions for powder coating applications.

At SFCHINA2021, Wagner will present our next innovative coating solutions. For Powder business, we will focus on our new products supporting to further advance our Coatify solution and for our Liquid business, we will continue to promote our water-based applications, starting from feeding and mixing to the final application. We will also show the newest solutions from our Adhesive business (Reinhardt-Technik – a member of the Wagner Group) which is widely used in the automotive and battery industry.

## Environmental Protection & Energy Saving

All our Wagner products can provide reliable and top level coating quality whether for applications in the industrial sectors such as wood and MDF, automotive, protective coating or domestic appliances. What's more,



during the development process of all our new Wagner products, it is of highest importance for us to offer design and features that help to solve important topics like environmental protection, energy savings, safety and user-friendly handling. For example, the design of our standard Wagner powder coating line allows to maximize powder recycling rate (environmental protection) and our EEP ducts minimize energy consumption during recycling process (energy saving). Furthermore, we have also minimized color change time and with the support of our new Coatify system that can be installed as an additional feature, our customers can closely monitor the complete coating process remotely (user-friendly handling). In regards to the safety aspects, we can offer various safety equipment such as anti-explosion or fire protection devices to fulfill the safety requirements of the coating line.

## Addressing Customers' Needs during the Pandemic

For Wagner it is very important to continue to provide our customers immediate service support. Therefore, we made

sure to be always available for our customers via phone or WeChat during critical time and to provide remote advices by our experts. In cases where it was necessary to travel onsite, we made sure that all our service team members have been following exactly the safety rules provided by the government, the local government and our customers. We also made sure that our service teams were always equipped with all necessary safety equipment such as masks, gloves or disinfection materials. Another challenge was to make sure that we could maintain supplies of products to our customers. Therefore, we made sure to keep our supply chain operational by analyzing in detail the needs and by increasing our safety stocks.

Wagner provides perfectly aligned products and solutions to optimize the entire coating and bonding processes. We offer a complete technology range to support different materials – liquid and powder coatings or adhesive applications. In the upcoming years, Wagner will continue on further strengthening our product offering and increase our digitalization activities for products as well as services so that we can provide new innovative solutions to our customers.

## 朴维科技在线分析智能管控系统



### Topway 系列在线分析仪特点

- ✓ 根据药水特性，选择合适的取样预处理措施，如过滤、消泡、控温等；
- ✓ 分析精密度(RSD)<3%；
- ✓ 分析准确性(RE)<3%；
- ✓ 单次取样分析<15min；
- ✓ 配备标样自检功能，确保分析仪准确可靠；
- ✓ 配备自动清洗、补水、排废，自动维保提醒及故障报警等功能，减轻分析仪维护工作量；
- ✓ 同一台在线分析仪可选配多参数、多通道、多工艺取样分析功能，降低用户成本；
- ✓ 支持多种通信方式及通信协议，实现数据的上传及手机或电脑远程查看、管理。



重复性  
RSD<3%



准确性  
RE<3%

自动校准  
自动诊断  
自动清洗



防呆措施  
自动报警



维护保养  
自动提醒





## 坚持高端电镀设备自主研发与创新 Demonstrating Successful Innovations on High-End Electroplating Equipment



危勇军 先生  
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**昆** 山东威专业于高端精密电镀设备及其配套设备制造，包括 PCB 电镀设备、动力电池材料电镀设备、五金表面处理设备等。我们的技术以自主创新为先，自设电镀设备工程技术研究中心，年收入的 7% 为研发支出。

### 加强核心技术攻关是企业发展的根本要求

制造业要迈向中高端，需依靠制造商核心技术创新突破，长期努力不懈。我们积累技术和丰富经验，并持之以恒地开展研发攻关，生产中高端设备，助力制造业转型升级。在我们的自主创新中，包括有滚桶式连续电镀线 (BCP 线) 和应用于 PCB 领域的垂直连续电镀设备。

滚桶式连续电镀线是全新设计的电镀生产设备，使滚镀能以高速度连续镀的方式进行生产。这种连续方式又区别于现有的垂直升降环形线、爬坡线、摆动升降钟形环形线，其结构更加简单紧凑，可轻松实现每分钟 0.1-5.0 米线速度的生产。从镀种来看，镀锌、锌基合金和镀镍等都可生产，配合化学品和工艺改进，有望把更多五金产品的电镀推向高速、高品质连续电镀生产。滚桶式连续电镀线相较于龙门线能耗大幅降低，是工厂设备更新换代的优选方案。

应用于 PCB 领域的垂直连续电镀设备，其中柔性板片对片垂直连续电镀在板厚 36~300 微米时，电镀均匀性能够达到 10±1 微米，柔性板卷对卷垂直连续电镀在板厚

24~100 微米时，电镀均匀性能够达到 10±0.7 微米。设备在电镀均匀性、贯孔率等关键指标上均表现良好。

### 为全球客户提供有效的电镀解决方案

中国已成为全球唯一拥有联合国产业分类当中全部工业门类的国家，在世界 500 多种主要工业产品当中，有 220 多种工业产品中国的产量占居全球第一。庞大的市场总量和不断更新的市场变化，除了推动电镀和表面处理需求量增加外，亦对电镀和表面处理技术要求不断提升。

我们将继续为客户提供高效、环保、智能高端精密电镀设备及其配套设备，坚持「以客户需求为导向，以技术创新为动力」的经营理念。

**K** unshan Dongwei specializes in manufacturing high-end electroplating and auxiliary equipment, including PCB electroplating equipment, power battery material electroplating equipment and general industrial surface finishing equipment. Our technology is rooted from our own independent innovation. We have set up our own technology research center, where our R&D expenditure accounts for 7% of our annual income.

### Core Technology as a Fundamental Criterion for Company Growth

Innovative breakthrough in core technologies of manufacturers is a major driving force to push manufacturing from low to mid-to-high levels. Having accumulated years of know-hows, skillsets and experiences, together with R&D persistence allow us to produce mid-to-high level equipment. Among our innovations, we present our Barrel-type Continuous Plating Line (BCP Line) and Vertical Continuous Electroplating Equipment in the field of PCB.

BCP Line is a newly designed electroplating production equipment, which enables barrel plating running at a high-speed continuous plating. The high-speed continuous plating is different from the plating of

existing vertical lifting loop lines, climbing lines and swing lifting bell-loops lines. Its structure is simpler and more compact. It can easily achieve production at a line speed of 0.1-5.0 m/min. In terms of plating types, BCP Line can run zinc plating, zinc-based alloys and nickel plating. With the improvement of chemicals and technologies, it is expected that BCP Line can plate much more different sorts of hardware products at high speed and with high quality. By all means, BCP Line consumes less energy than Gantry Line. BCP Line is a preferred solution for factory equipment upgrade.

Vertical Continuous Electroplating Equipment is specially designed for PCB plating. Conducting vertical continuous electroplating on a flexible plate-to-sheet with thickness of 36~300µm, plating uniformity can reach 10±1µm. While conducting vertical continuous electroplating on a flexible plate-to-roll with thickness of 24~100µm, plating uniformity can reach 10±0.7µm. This equipment performs well at key indicators, such as plating uniformity and through-hole rate.

### Offering Effective Electroplating Solutions for Global Customers

China has become the sole country in the world covering all industrial categories from the United Nations Industrial Classification. Among over 500 major industrial products in the world, more than 220 industrial products from China rank first globally in terms of productivity. Huge market volume and constant market change have driven demand for additional products and services, as well as new solutions and technologies of electroplating and surface finishing.

We will continue to commit to providing customers with high performance, environmentally friendly and smart high-end precision electroplating equipment and auxiliary products. We adhere to our business motto, that is "customer demand oriented, technological innovation as the driving force".

## 低铁含量锌铁合金镀更广泛应用 Zinc-Iron Alloy Plating with Low Iron Content Gaining in Popularity



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**高** 益美专业于金属表面处理添加剂。我们在传统和新型金属电镀工艺累积丰富技术和经验，将继续为电镀企业提供改进及具有成本效益的产品和解决方案，同时亦借「中国国际表面处理展 SFCHINA」与用户交流，更多了解他们在生产过程的其它需求。一如既往，我们展出的高品质电镀具美观、功能和成本效益等优势。

### 锌铁合金镀优势

作为阳极涂层，锌涂层可为铁基体提供良好保护。然而，通常镀锌层抗蚀性还不够令人满意，特别是在溶解盐情况下，其抗蚀性更差。因此，越来越多电镀企业和钢铁制造商选用锌铁合金镀，除了比镀锌层更强抗蚀性外，它还具多方面优势，例如良好焊接加工性、装饰性、易磷化等，而且可利用现有镀锌设备，镀液成分简单，成本低廉。倘若打算把工件进一步精饰加工，采用锌铁合金镀是绝佳选择，锌铁合金镀还能确保工件几乎可以接受任何颜色，也能制造比镀锌技术更黑的效果。

### 低铁含量锌铁合金镀更广泛应用

锌铁合金镀层中铁含量可在很大范围内变化，按其铁含量可分为高铁 (>12%) 与低铁 (<1%) 两种镀层。锌铁合金镀层中铁品质分数 10%-20% 时，镀层抗斑点腐蚀和

抗孔隙腐蚀性最好。含铁量为 0.2%-0.8% 锌铁合金镀层从外观上看与镀锌层类似，最适合应用于防护装饰领域。

低铁锌铁合金镀层经黑色钝化处理，可获得外观纯正黑色、光亮性好、耐腐蚀和硬度高的优良钝化膜。它克服了镀锌黑色钝化层放久后会带绿色、硬度不高和需用封闭剂封闭的弊病。

### 疫情推动供应链更具弹性、协作性和网络化

疫情持续，全球供应链面对重大挑战，多国和地区封锁，减缓甚至停止对外运输，物流大受影响，冲击整个制造业。然而，从另一角度看，疫情也放大了供应链存在已久的问题。我们更容易看到公司运作中风险所在。我们针对性解决，例如将供应商分类为低、中或高风险。我们与长期合作的供应商需要更多互信，合作上需要更具弹性和协作性，更多运作亦通过网络进行，共同努力把当前挑战转为新商机。

**G** aoyimei specializes in manufacturing metal finishing additives. For years, we have built up know-how, and experience, in both conventional and current metal finishing. We will continue to provide electroplaters with improved and cost-effective products and solutions. We will make use of face-to-face meetings at SFCHINA2021 to learn more about customers' needs particular in production. As always, our exhibits feature aesthetics, high performance and cost-effectiveness.

### Advantages of Zinc-Iron Alloy Plating

As an anodic coating, zinc coating can provide good protection to iron substrate. However, its corrosion resistance is still not good enough. Particularly in the presence of dissolved salts, corrosion resistance becomes poorer. Thus, more electroplaters and steel makers prefer adopting zinc-iron alloy plating because of its advantages, including good welding processability, decoration, easy phosphating and high corrosion resistance etc. It requires no additional electroplating

equipment, and plating solution composition is simple, while cost is relatively low.

### Zinc-Iron Alloy Plating with Low Iron Content is More Widely Used

Iron content in the zinc-iron alloy coating can vary within a wide range. It can be divided into high-iron (>12%) and low-iron (<1%) coating. When the mass percentage of iron in the zinc-iron alloy coating is around 10% to 20%, the coating can best attain both spot and pore corrosion resistance. When the mass percentage is around 0.2% to 0.8%, its external appearance looks similar to a zinc-plated layer, and most suitable for protective decoration.

After black passivating of low-iron zinc-iron alloy coating, we can obtain a very good passivating film with pure black appearance, with good brightness, corrosion resistance and high hardness. In addition, the coating will not turn greenish and lose hardness after a certain period of time, and no sealing agent is required.

### Pandemic Drives Enterprises to Make Supply Chains More Resilient, Collaborative & Networked

Pandemic continues and poses significant challenges for the global supply chain. Lockdowns and traffic restrictions in many countries and regions slow down or even temporarily stop logistics, impacting the entire manufacturing industry as a result. However, from the other perspective, the pandemic magnifies issues that have already existed in the supply chain. We can more easily locate some operational risks that we are seldom aware of, which we can now address and resolve one by one. On one hand, we classify suppliers as low, medium or high risks, identify business risks if a supply source is lost. On the other hand, we build mutual trust with long-term suppliers. Our cooperative strategies become flexible and collaborative. More operations are done through online. We and the suppliers are working together to find ways to turn challenges into new business opportunities.