THERMAL SYSTEMS

Protective coating for multifunctional applications

Highly selective conformal coating for maximum flexibility

多功能点胶涂覆应用系统
选择性点胶涂覆系统具有高度灵活性

Protecto series
Coating

Conformal Coating

Optimum coating processes
even for small batches

Protective lacquer coating
with a focus on what matters most

防护层喷涂 工艺制程的重中之重

The upper surface of a plant's leaves is its outermost defence, not only protecting it against pests and water loss, but also helping shake off dirt or increase resistance. This is a particularly well-known characteristic of the lotus flower: Water just drips right off its leaves. This was the biological inspiration behind innovative, self-cleaning surface coatings with what is known as the "lotus effect".

The protective lacquer coating on electronic units acts in a similar way. Our coating systems ProtectoXP and ProtectoXC protect sensitive components so that aggressive environmental influences such as moisture, corrosion, chemicals, dust or vibration simply drip off. High-selectivity conformal coating is the key to ensuring electronics work reliably and is indispensable in modern manufacturing. The use of protective lacquer coatings makes perfect sense for conserving the functionality of circuit boards over a long period. Fields of application range from offshore wind farms through shipbuilding, military hardware, telecommunications, medical technology, industrial control and automotive systems to electronics in private households.

植物叶片上表层为外部防御层，不仅保护其免受害虫滋扰及水分流失，还有助于除尘及增强抵抗力。莲花上滴落的水珠就是一个显著的例子，这就是创新的、具有"莲花效应"的自清洁表面涂层背后的生物学灵感。

电子元器件上的防护涂层也具有类似的作用。如今，在现代电子制造中，我们的ProtectoXP 和ProtectoXC系统能够有效保护敏感电子部件，防止其受到诸如潮湿、腐蚀、化学物质、灰层、振动等其他侵蚀性环境因素的影响。高效的选择性点胶涂覆系统则是保护电子元器件可靠性的关键。从海上风电场到造船业、军事装备、通信、医疗技术、工业控制和汽车系统，到私人住宅中电子设备的广泛应用。因此，不难理解使用选择性防护层喷涂对电路板进行长效可靠保护的重要意义。

The Protecto series at a glance
Strong in the process – the coating systems from Rehm

Protecto系列概览 强大的工艺–Rehm防护层涂覆系统

Would you like to combine optimal coating solutions and reliable drying methods in your manufacturing process? Are you looking for a high-performance facility that can be smoothly integrated into small production spaces, perfectly suited for coating small batches and requiring only manageable investment costs? The coating systems from Rehm impress with their process reliability - for large and small lot sizes. Our conformal coating concept consists of the Protecto coating unit and an RDS coating dryer, including handling based on customer specification.

您希望获得最佳涂覆和可靠干燥的解决方案吗？您是否正在寻找一款具备高性能的设备，不仅占地面积小，可以顺利地匹配有限的生产空间，完全适用于小批量生产的涂装需求，并且无需高昂的投资成本？Rehm选择性点胶涂覆系统的可靠的制程工艺给人留下了深刻的印象--适用于大批量和小批量生产。我们的Protecto选择性点胶涂覆系统和RDS干燥机可根据客户需求，进行个性化生产。
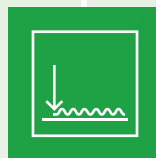

ProtectoXP
Full power for your turnkey solution
为您打造灵活的整线解决方案

› Greatest possible process reliability
  最高制程可靠性
› Flexible lacquering options thanks to a wide range of options
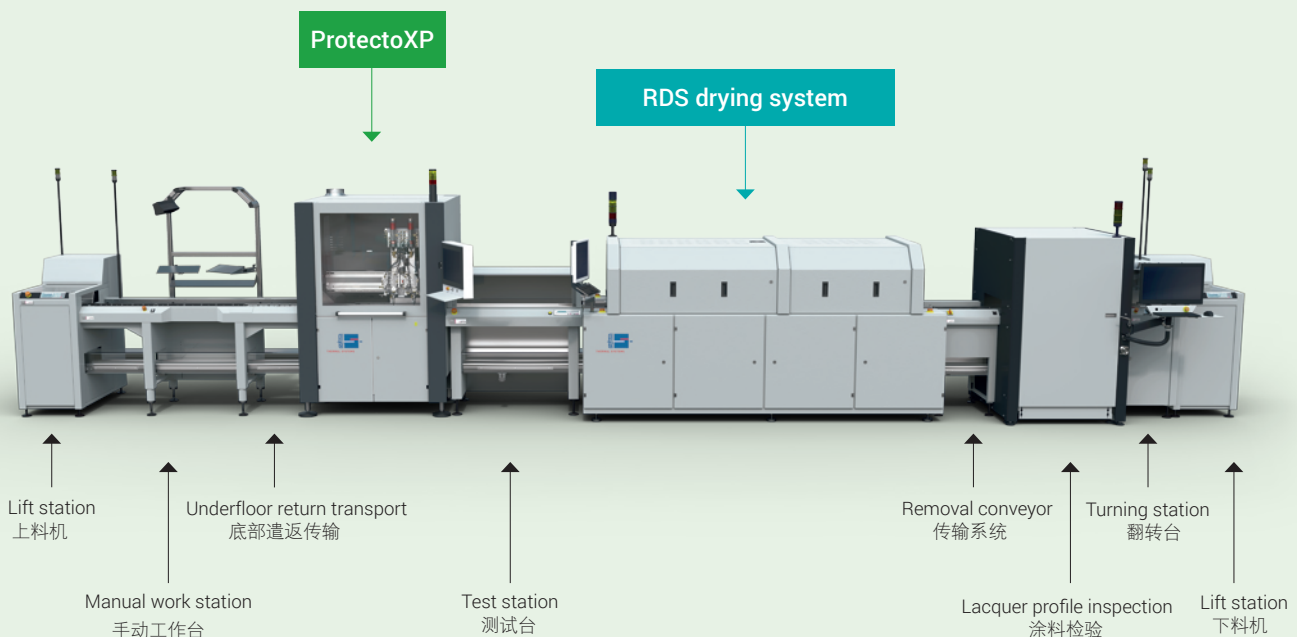 多功能涂覆系统提供灵活涂覆方案
› Highly selective coating
  高选择性涂覆

ProtectoXC
Perfect performance - even at small lot sizes
适用于小批量生产的最佳喷涂系统

› Reliable coating process
  可靠性喷涂制程
› Compact unit for easy integration
  紧凑型设计可轻松集成
› Optimum process documentation
  优化的流程文档

ProtectoXP

RDS drying system

| Lift station | Underfloor return transport | | Removal conveyor | Turning station |
| 上料机 | 底部遣返传输 | | 传输系统 | 翻转台 |

| Manual work station | Test station | Lacquer profile inspection | Lift station |
| 手动工作台 | 测试台 | 涂料检验 | 下料机 |

The ProtectoXC can also be integrated into an SMT line, but without underground return transport.
ProtectoXC可集成到SMT生产线中，无需底部遣返传输。

Safe and accurate to the result
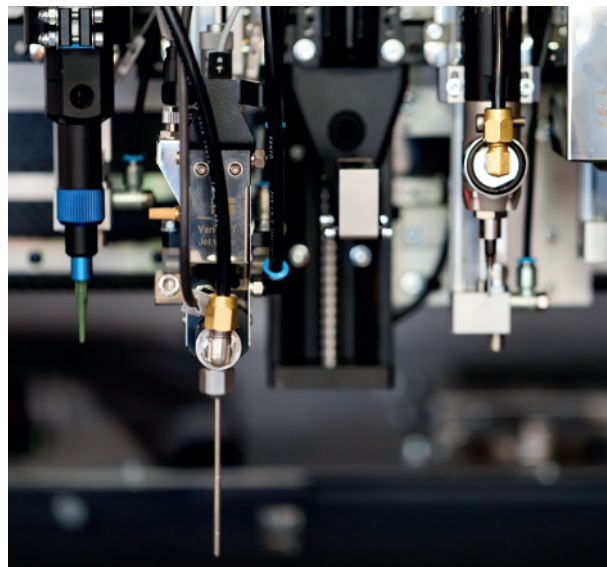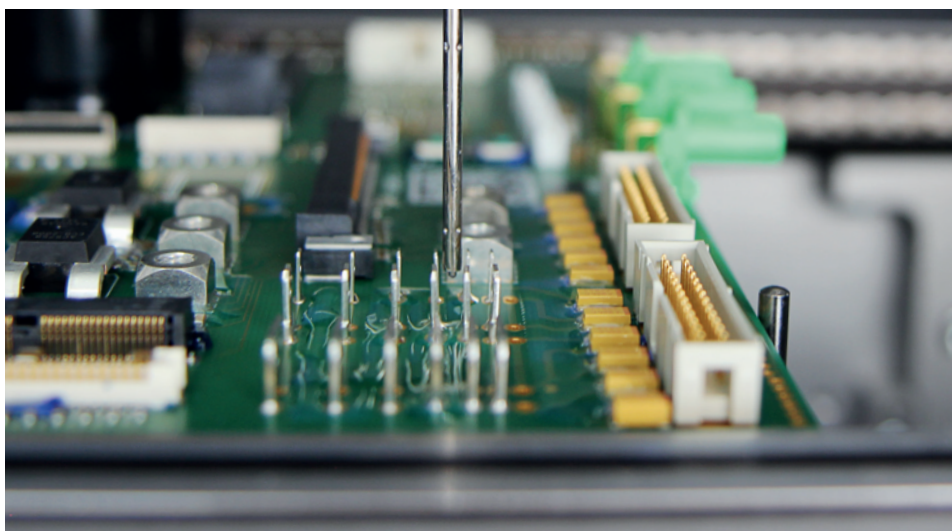## material application
结果稳定且精确 材料应用

Protecto meets your requirements for the highest quality, stability and productivity in automatic inline coating services. With up to 4 coating applicators, you can synchronise several modules simultaneously in master-slave mode to apply the coating or directly apply with up to 4 different materials without set-up time.

Protecto 专业化防护层涂覆系统可以根据您的具体产品特性进行个性化定制/设置，满足您对自动化联机涂覆应用的最高质量、稳定性和生产效率。该系统可提供多种工作模式，通过多达4个喷嘴，您可以在主从模式下同时对4个电子元器件进行涂覆，或直接喷涂4种材料，而无需重置时间。

At the heart of the Protecto is coating management working in tandem with nozzle technology. Up to two coating applicators can be used – with a wide range of possibilities. The same nozzle can be used to switch between dispensing, spraying and jetting procedures "on the fly". Parts which are high up or close together are easy to reach thanks to the slim nozzle design with only 2.4 mm and a length of up to 100 mm. If necessary, parts can be flushed from below due to the patented Vario Coat nozzle, ensuring that hidden ports.

Protecto的核心在于涂层管理与喷嘴技术协同工作。可同时使用两个涂层喷嘴执行涂装制程，具有更多的操作可能性。同一个喷嘴可以用于联机分配，在点胶和喷涂程序之间自由切换。对于超高(高达100mm)或高密度(间距2.4mm)，细长的喷嘴设计，完全不受影响，如有需要，可以使用获得专利的Vario Coat 喷嘴在下方执行操作，确保隐藏的端口也可以受到保护。

All-in-One lacquering | 多效合一喷涂系统

`XP` `XC`

The patented Stream-Coat® nozzles are compatible with all conventional coatings, from low-viscosity to high-viscosity. With Protecto coating systems you can carry out the various selective application procedures of dispensing, spraying, jetting and curtain coating (only XP) "on the fly". An implicit air nozzle precisely dispenses the coating and distributes it with little splatter or mist. The homogeneous film of coating can, with the aid of the adjustable airstream, even be applied under or behind adjacent component pins and in shadow zones without the need to tilt the applicator.
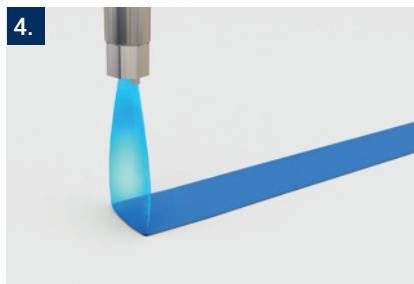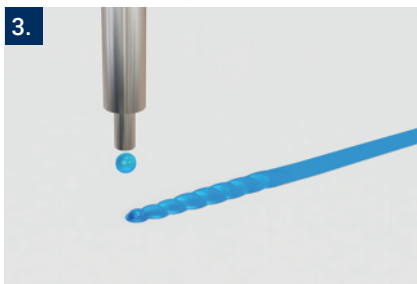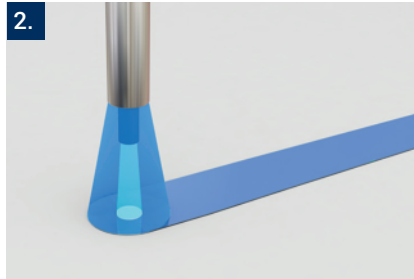
专利性Stream-Coat®喷嘴适用于从低粘性到高粘性的所有常规涂料相兼容。通过Protecto防护层喷涂系统，您还可以灵活开展点胶、喷涂、喷射和帘式涂淋（仅XP）等多种选择性涂覆作业，隐含的空气喷嘴则能够以非常精确的方式配给涂料，同时有效防止飞溅和雾化。最后，通过调节气流，您无需倾斜喷嘴即可在组件下方/后方及阴影区域内均匀喷涂。

Precise coating of electronic connections between tightly packed, tall components
即使在排列紧密的超高组件之间也可进行精确的涂装

Multifunctional system
for perfect application

多功能喷嘴 实现完美应用

1. Dispensing
Uniform and precise application of a highly thixotropic material
点胶
均匀、精确地涂覆触变性材料

2. Spraying
Coating of large areas with a low splatter and mist spraying procedure
喷涂
大面积喷涂，无飞溅和雾化

3. Jetting
Pinpoint lacquer application of up to 240 miniature dots per second through rapid opening and closing of the valve
喷射
喷射阀快速开关，实现最高240微型胶点/秒的精确涂覆

4. Curtain Coating
Spraying and fog-free coating of large surfaces at very high process speed (only available for ProtectoXP)
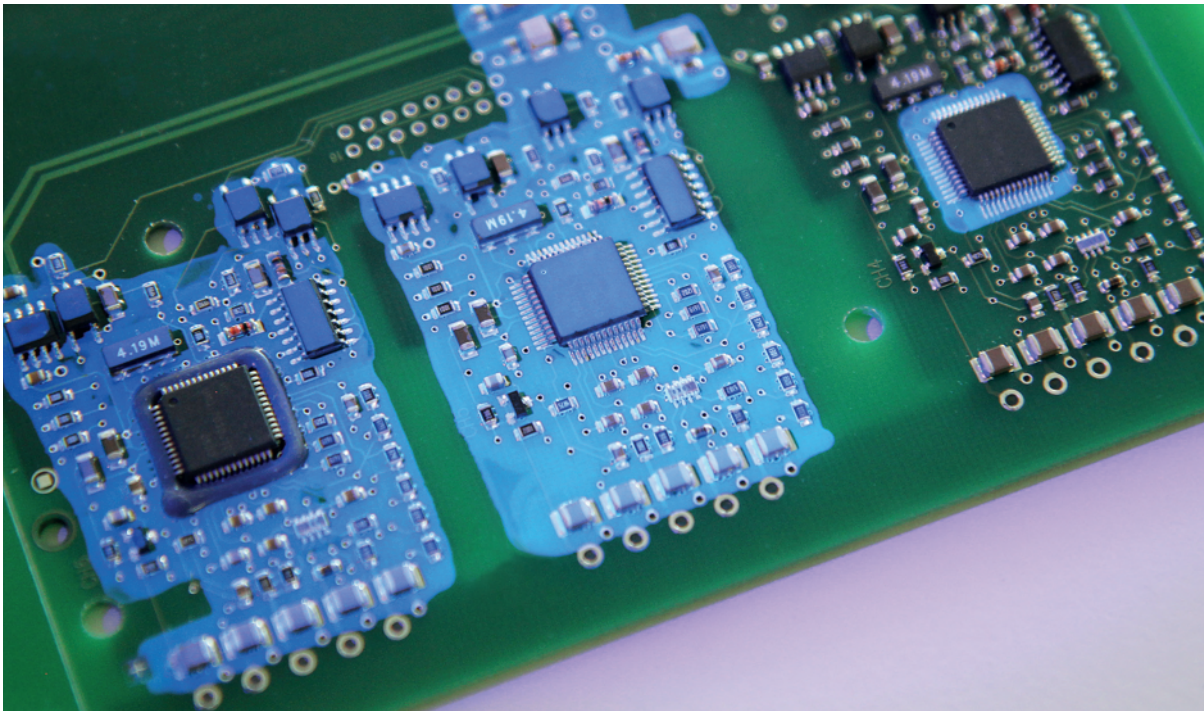**帘式涂淋**
更快速进行大面积涂覆，无飞溅和雾化（仅适用于ProtectoXP）

Optimum coating profile | 最佳涂覆曲线

XP XC

Protecto systems make precise and homogeneous coating very easy and intuitive to realize. The picture shows the following application procedures under UV light: laying a barrier by dispensing and then jetting with multi-line (left), jetting of large areas without distributor air (middle) and jetting without distributor air with frame tool for high edge accuracy (right).

Protecto系统非常容易和直观实现精确、均匀的喷涂。图片所示为UV光线下的工艺制程：通过点胶建立屏障，然后进行多线喷射（左）；无分配气流的大面积喷射（中）；无分配气流喷射，带框架工具，获得高边缘精度（右）。

The application determines the equipment
Variety of coating applicators

不同应用制程适用于多种点胶涂覆系统

We have the right equipment for every individual process. Our broad portfolio of paint applicators allows a variety of applications. Both proprietary developments come into play as well as applicators from suppliers who have already established themselves in the market. Various options such as

material needles, patented two-material nozzles and material warmers, are available for the respective applicator. Thus, the plant equipment can be selected using a wide range of different accessories that provides the best combination of cost-effectiveness and process performance.

我们拥有适用于不同应用制程的点胶涂覆系统。这两种专有技术的开发以及已在市场上立足的供应商的应用程序都在发挥作用。各种选件都有各种选择，例如材料阀，已获得专利的喷嘴和材料加热器。 各

种不同材料应用可适用于多种设备，这些材料应用是获得最佳成本效益和高性能制程的最佳组合。

	Rehm VarioJet System Rehm喷射阀 XP XC	Piston return valve 隔膜针阀 XP XC	Rehm VarioFlex Curtain Valve 水帘阀 XP	Auger doser 单组份螺旋阀 XP	2K System 2K系列双液螺杆阀 XP
Application process 应用制程	Jetting, Dispensing, Spraying 喷射、点胶、喷涂	Dispensing 点胶 Spraying 喷涂	Curtain Coating 帘式涂淋	Volumetric dosing 体积计量	Volumetric dosing 体积计量
Track width 轨道宽度	0,5 – 12 mm	2 –12 mm	3 – 20 mm	0,25 – 5 mm	1 – 8 mm
Max. component height 组件限高	100 mm	100 mm	60 mm	variable	variable
Application speed 应用速度	10 – 500 mm/s	10 – 500 mm/s	200 – 800 mm/s	10 – 70 mm/s	10 – 70 mm/s
Viscosity 黏度	1 – 10.000 mPas	1 – 150.000 mPas	≤ 100 mPas	1 – 500.000 mPas	1 – 500.000 mPas
Min. dosage 最小剂量	> 3 nl	0,002 ml	—	0,001 ml	0,01 ml
Repeatability 重复性	> 97 %	> 99 %	> 99 %	> 99 %	> 99 %
Ø Nozzle 喷嘴直径	2,4 mm	variable	12 mm	variable	variable

All technical data is dependent on the application material and does not claim universal applicability. Specific parameters shall only be regarded as binding on the basis of a material test. 所有技术数据均取决于应用材料，并不要求具有通用性。 特定参数仅在材料测试的基础上被视为具有约束力。

Greatest possible process reliability
with innovative options

创新选项 最大程度提升制程可靠性

When it comes to coating, one thing is essential: precision. Protecto systems are designed to ensure that the required volume of coating is always evenly applied, whether through a pressure valve, a cartridge or a pump from the original container. Automatic needle measurement checks the target position of the applicators in freely definable cycles and if necessary corrects the coating program automatically. The dispensing of the lacquer is controlled by the software, which loads the appropriate coating program with the suitable lacquer and nozzle type. An optional heated nozzle keeps the protective coating always at a constant temperature and thus a consistent viscosity regardless of environmental conditions. A specially developed lacquer lance with a level indicator prevents bubble formation when changing the lacquer.

精确性是影响涂覆效果的一个重要因素，而Protecto系统在任何时候都可以均匀控制材料剂量，无论是否使用压力罐、胶桶或是原装泵体。在自定义循环中，Ptotecto可以自动对喷嘴的目标区域进行探针测量，并在必要时自动修正喷涂程序；Ptotecto系统软件可装载包含最佳涂料和喷嘴类型的喷涂程序，控制涂料剂量；通过耐热喷嘴选项，可以保证涂料维持恒定温度和粘性，不受环境条件影响；具有液位指示器的涂料喷枪可防止更换涂料时产生起泡现象。

For absolute process reliability Protecto systems are optionally equipped with a fiducial camera. This means the coating program can be corrected and coated in the correct positionby registering the marks even if a board is laid into the flight bar inaccurately. A barcode checks whether the set coating program is right for the assembly in place. If there is a deviation the process is automatically blocked.

为了确保绝对的制程可靠性，Protecto系统可以选装基准摄像头，当电路板在刮板上的定位出现偏差时，用户可以修正喷涂程序；通过条码检查喷涂程序是否匹配当前的电子组件，如果出现偏差，则喷涂制程自动停止。
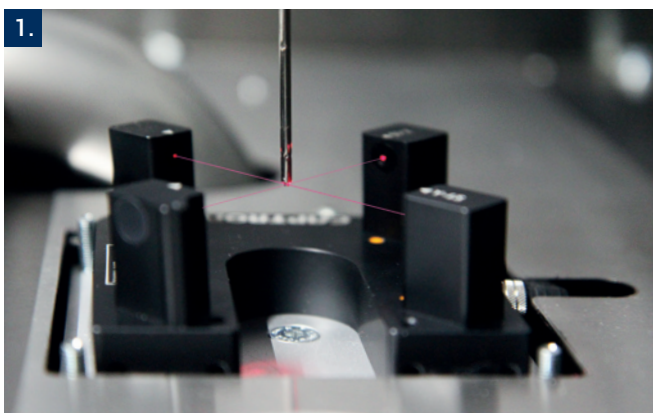

1. Needle measuring cross with auto-correction
   交叉针测量，自动校正

2. Jetter-heating
   喷射加热

A high-precision weighing cell is optionally available for the Protecto systems, which compares the weight of the paint applied by any given applicator with a previously defined setpoint value and provides the user with corresponding feedback in the setup mode as well as cyclically during series production. As a result, errors in the fluid circuit can be easily and efficiently detected, and eliminated without delay. The acquisition of weight data, as well as configuration and adjustment, are software controlled and can be individually adapted.

Protecto防护层喷涂系统可选配一个高精度称重传感器，该称重传感器可任意在喷涂器上加涂料的重量，并和原先定义的设定值进行比较，在设置模式下以及在批量生产期间可为用户提供相应的反馈。因此，可有效地检测到流体回路中的错误，并及时地将其消除。称重数据的采集以及配置调整配置均由软件控制。
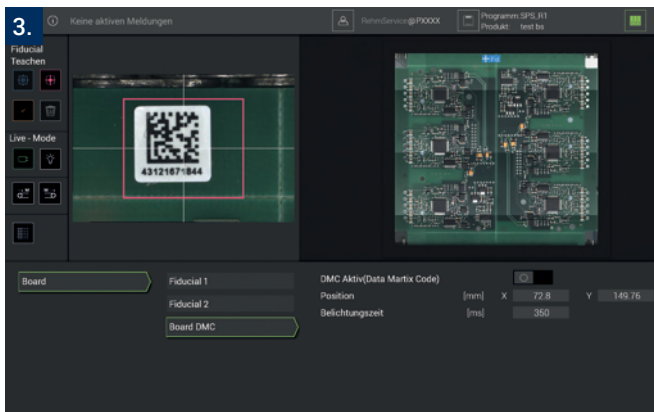
3. Fiducial camera (Screen overview)
   基准摄像头（屏幕概览）
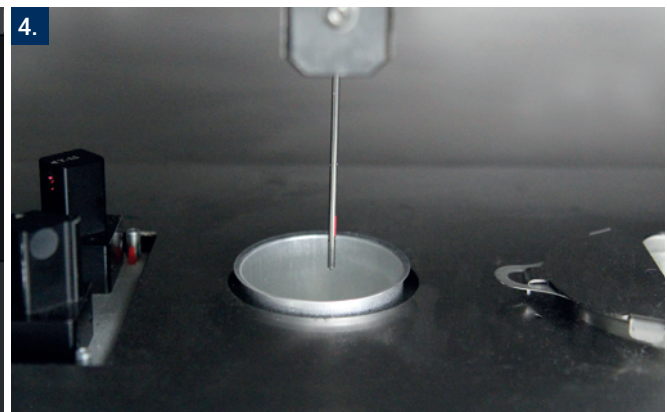
4. Weighing cell
   称重传感器

More than "just" coating
Application possibilities with ProtectoXP/XC

不止于"喷涂"
ProtectoXP和ProtectoXC选择性点胶涂覆系统

With the Protecto systems, completely new application fields are emerging – even outside of the conformal coating sector. Thanks to the highly flexible system construction, you can use ProtectoXC to combine for two and ProtectoXP for four processes within one machine. In addition to sealing the entire circuit board, partial areas or individual components can also be coated

on the support. From the "Globe Top" to "Dam & Fill" to the "Flip Chip Underfill"; diverse applications arised. With innovative nozzle technology, the user can apply a wide variety of materials to the module – so each product will be optimally protected later according to the requirements.

借助Protecto系统，除了在防护层涂敷材料领域之外，也发现了新的应用领域。正因ProtectoXC及ProtectoXP高度灵活的系统结构使客户能够在一台机器中分别同时运行两种和四种制程，实现了 "一机多用"。除了PCB的整体封装之外，也可以仅对部分区域或单个组件进行封装。此外还可实现多种不同的封装工艺，从 "球形封装工艺" 到 "封筑&填充工艺" 再到 "倒装芯片底部填充工艺"。凭借创新的喷嘴技术，用户可以将非常广泛的材料应用到组件中，也意味着每种产品在最后阶段都能达到精确防护的要求。

Dam & Fill / 3D-Application | 封筑&填充工艺 / 3D应用   `XP` `XC`

Dam & Fill allows individual areas to be selectively coated on the circuit board, thereby efficiently protecting them. Two materials with different viscosities are used for this purpose. First, a dam is placed around the component to be protected with a highly viscous material. If a UV-curing material is used, this can be cured directly using a suitable UV spot (only XP). Subsequently, the component can be cast in the same operation with a low-viscosity material.
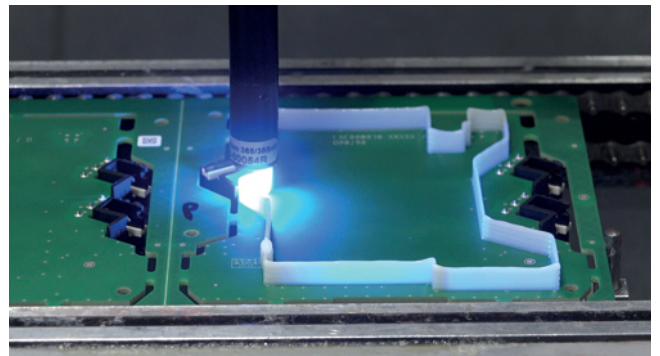
在"封筑&填充"工艺中，使用了两种不同粘度的材料。在电路板上有选择性涂敷每个区域，从而有效地对其进行保护。首先，使用高粘度材料在需要保护的部件周围设置围护。如果此固化过程中使用紫外线光固化材料，可直接使用适当的紫外光斑进行固化（仅适用于ProtectoXP），然后可在相同的工作过程中使用低粘度材料对组件进行封装。

Sealing | 密度

In this process, a 1K or 2K (only XP) material is applied to a component such that a continuous and uniform sealing loop is produced. Volumetric applicators (only XP) are particularly suitable for this purpose.

在此过程中，将1K或2K材料（2K仅适用于ProtectoXP）添加到设备中，则可以获得连续均匀的密封圈。定量给料式涂覆器（仅适用于ProtectoXP）尤其适用于这一过程。
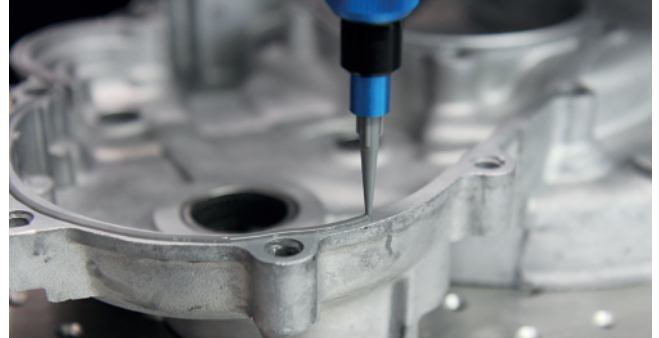
Globe Top | 球形封装工艺

A Globe Top is used to protect a selective area on the circuit board. For this purpose, a material is used which, on the one hand, is fluid enough to securely encapsulate all the components involved, but on the other hand, is not so low in viscosity that it flows onto adjacent components.

球形封装工艺旨在保护电路板上的选择性区域。此工艺过程中使用的材料具备充分流动性，可安全封装所有相关组件，但由于具有一定的粘性，会导致流到邻近组件上。
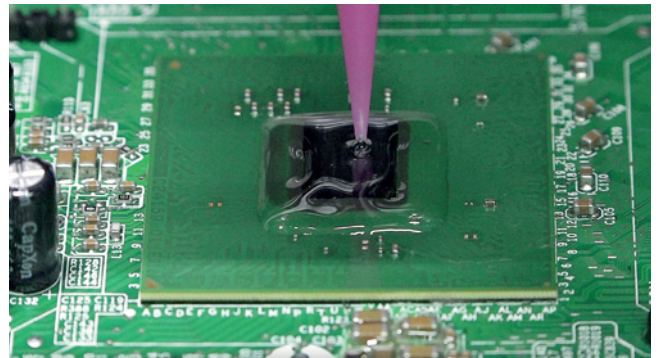
Flip Chip Underfill | 倒装芯片底部填充工艺

Underfills increase the mechanical stability between the chip and the circuit board and distribute locally occurring voltages over a larger area, which significantly increases the service life. For this purpose, a low-viscosity material is applied along the edge region of the chip, which then independently fills the gap between the chip and the circuit board using the capillary effect.

"底部填充"可提高芯片和电路板之间的机械稳定性，并将局部产生的电压分布在更大的区域上，可以显著延长使用寿命。为实现这一点，沿芯片边缘涂覆一种低粘度材料，因毛细效应这种材料会填充芯片和电路板之间的缝隙。
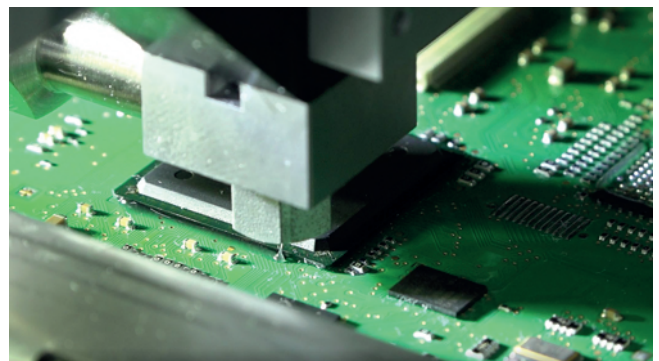
2K Encapsulation | 2K封装工艺

Encapsulation is always used when a particularly high level of protection is needed. Thanks to the volumetric applicators, it is ensured that exactly the same amount of material is always supplied in the correct mixing ratio, independent of temperature and pressure fluctuations.

当保护级别要求极高时，通常进行封装工艺。借助Protec-toXP，涂覆器的体积剂量工作原理可确保系统每次都能以正确的混合比例输送正确数量的物料，而且不会受到温度或压力波动的影响。
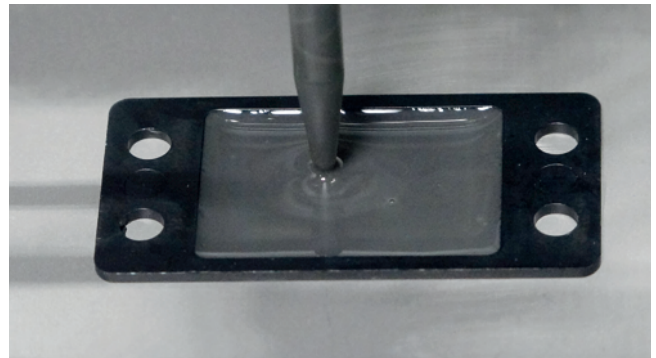
Heat dissipation | 散热性

Due to the constant miniaturisation in electronics, less and less surface is available for heat dissipation. This makes it all the more important to have an optimal passage between the heat sink and the component. Liquid heat-transfer media can be adapted to the individual contours better than fixed pads or foils and ensure a safe heat dissipation, which significantly increases the service life of the components.

随着越来越多电子产品小型化的出现，从而对组件的散热性要求越来越高。因此，在组件与散热性之间寻求最佳通道显得至关重要。 液态传热介质比固定垫或箔更好地适应各个轮廓，并确保安全散热，从而显著提高了组件的使用寿命。
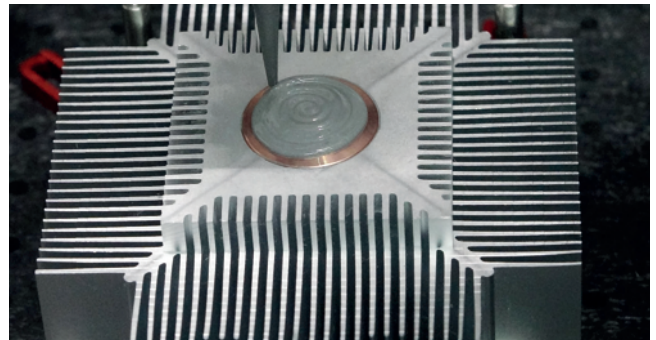
Individual requirements | 特殊定制

Are you looking for a partner who can offer you a complete solution for your coating and dispensing process? Then you've come to the right place! Thanks to versatile applicators and conveyor units, we are standing ready to meet many requirements with our standard applications. We are also prepared to tackle new challenges and to implement them for you in a series-production process.

您是否正在寻找一款具备涂覆和点胶制程的完整解决方案合作伙伴？ 我们可以满足您的所有需求，为您提供多种个性化定制解决方案！ 得益于多功能的喷嘴和输送单元系统，我们随时可以通过标准应用程序满足您的需求。 我们还准备应对新挑战，并在批量生产过程中为您实施这些挑战。
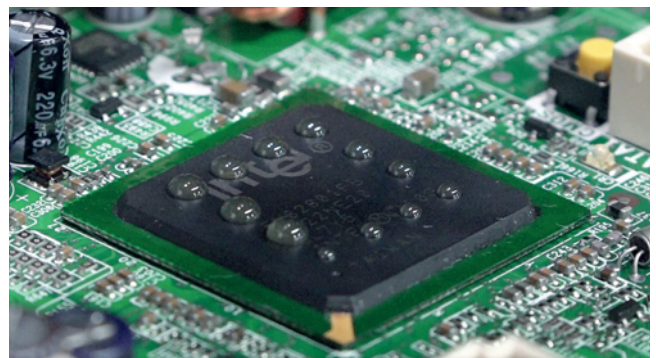
Smart software for
efficient processes

高效智能软件

With ViCON, Rehm offers the optimal software solution for its systems – ECAD data import possible with ProtectoXP and ProtectoXC

A variety of analysis tools, more productivity, efficiency, flexible working and the highest quality: With ViCON, Rehm Thermal Systems has designed and created software that meets all the requirements of modern, networked, and above all, future-orientated electronics manufacturing. Alongside the use of touch operating elements and gestures, the new organisation of menu options and control panels, the core feature of ViCON software's development lies in the option of accessing the software from a variety of devices. The ProtectoXP and ProtectoXC dispensing systems are equipped with the ViCON Protecto system software and have numerous features for easy program creation for reproducible coating results.

锐德ViCON智能软件通过ProtectoXP和ProtectoXC可以直接导入ECAD数据，为您提供了最佳的软件解决方案！

各种软件分析工具可为您提供更灵活的工作方式、更高的生产效率以及更高的产品质量。锐德为Protecto系列设计了ViCON智能软件，该软件可以满足现代化、网络化，尤其是满足面向未来的电子生产制造所有需求。该软件除了具有直观的触屏操作界面和触摸手势、菜单选项和控制面板等新结构之外，ViCON智能软件的核心功能在于可轻松访问各种设备。 ProtectoXP和ProtectoXC喷涂系统配备了ViCON Protecto系统软件，集具众多功能，可轻松创建程序以重现涂层效果。

Intuitive and easy-to-use controls make the VICON Protecto the ideal software solution.
ViCON Protecto 智能软件直观易操作，适合您的理想软件解决方案。
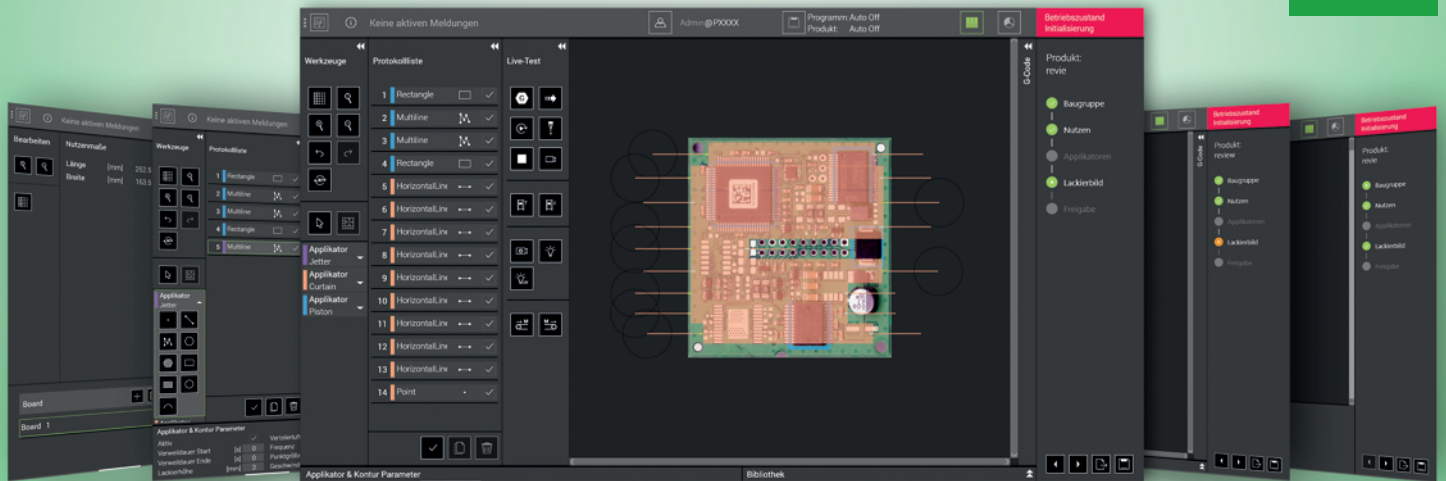
The ViCON Protecto enables guided coating program creation by using a wizard.
ViCON Protecto软件可通过使用向导来创建有指导的涂层程序。

Following the successful introduction of ViCON for Rehm's reflow convection soldering systems, the software has now been specially adapted to the requirements of the ProtectoXP and ProtectoXC dispensing systems. The main feature of ViCON Protecto is the option of importing ECAD data and image files directly and optimising ECAD data for the coating process by cutting. The integrated camera also enables stitching: A complete image of the printed circuit board can be created and further processed from several individual images. While the program is being created, the user is supported by a wizard that shows the user all current progress by means of colour-coded pointers, and thus easily facilitates usability.

ViCON 智能软件已在锐德Vision系列回流焊系统中取得成功之后，现已应用于ProtectoXP和ProtectoXC防护层喷涂系统。ViCON Protecto的主要功能是可以选择直接导入ECAD数据和图像文件，并通过切割为涂层过程优化ECAD数据。 集成的摄像头还可以实现缝合：通过选装的摄像头，用户还可以利用几个单独的图像创建印刷电路板。 在创建程序时，借助系统操作向导完成整个程序的创建，彩色提示信息能够显示当前系统状态，从而使操作更加简单。

After selecting an applicator, users can access a coating database via ViCON Protecto that has been filled by the application specialists of Rehm Thermal Systems and contains all the important coatings with their parameters. ViCON Protecto enables programs to be created offline, which can be used simultaneously with the current production process. With the camera integrated into the Protecto coating systems, ViCON software can be used to read both fiducials as well as (data matrix) codes (DMC).

选定防护层涂覆系统后，用户可以通过ViCON Protecto软件访问涂层数据库，该数据库由锐德应用专家所编写，涵盖所有重要涂层及其参数。 ViCON Protecto软件允许离线创建程序，这些程序可以与当前生产过程同时使用。 通过将相机集成到Protecto涂层系统中，ViCON软件可以用于读取基准点以及（数据矩阵）代码（DMC）。

The objective of ViCON Protecto is to configure the system's current operating status clearly. The operator can react quickly and intuitively to status and alarm messages. At the same time, access rights, views and favourites are tailored to each user. The specifications of ViCON Protecto are based on the basic elements of ViCON, which have already performed impressively in the convection soldering systems of the Vision series. Thanks to colour coding, the operator can also easily identify

and assign the status of the display from a greater distance. ViCON software is also consistently designed to accommodate multiple languages. The simplicity with which you can switch "on the fly" to the preferred language simplifies worldwide remote access to other Rehm systems and operating in an international environment. Alarm messages can be clearly viewed, interpreted, edited and processed at the

top of the screen – the relevance of the alarms is displayed in different colours. To control the system individually, the operator can individually create a favourites bar, that includes relevant and necessary parameters and control elements. These then appear on the main screen and at a definite point on each page.

ViCON Protecto软件旨在了解当前配置系统的运行情况。系统操作员可以简单迅速、直观地对状态和警报消息做出反应。此外，访问权限，视图和收藏夹都是针对每个用户量身定制的。 ViCON Protecto的技术规格源于已在锐德Vision系列回流焊系统中取得成功的ViCON软件的基础要素。用户可以通过触屏操作界面进行多种手势操作。借助颜色编码，操作员还可以轻松地从更远的距离识别

并分配显示状态。 ViCON软件集成了多种语言包。可以通过简单地"快速写入"切换到首选语言，简化了世界范围内对其他锐德系统的远程维护访问以及操作。警报消息将会用不同的颜色在屏幕顶部清晰地查看、解释、编辑和处理。为了单独控制系统，操作员可以单独创建一个收藏夹栏，该收藏夹栏包括相关和必要的参数以及控制元素。然后，它们将出现在主屏幕上以及每页的相应位置上。

Process locking, traceability & co.
for a detailed process documentation

制程锁定、可追溯性&集成
可信赖的制程文档系统

Depending on the production environment, the Protecto systems can be optionally connected to an MES in various ways. Any combination of the various configuration stages of production data acquisition (PDA), traceability, process locking and material locking ensures flexible production. The Protecto systems can be optionally connected to a line master computer or an MES. Depending on the configuration, various data is communicated between MES and ProtectoXP/XC. An interface specially designed by Rehm (ROI – Rehm Open Interface) is used. On the one hand, this

means a high degree of standardisation; on the other hand, customer-specific adaptation can be carried out without problems. To identify the module, an ID-reader (bar code, DMC, RFID) is installed on the conveyor belt in front of the system and connected to the Protecto control. Optionally, the identification can also be carried out via the MES. This ensures absolute process reliability through process locking and can guarantee seamless documentation by means of unique data records for each module.

根据生产环境的不同，Protecto系统可以选择以不同的方式连接到MES。各种扩展等级、生产数据收集（PDA）、可追溯性以及制程锁定等组合确保了制造的高度灵活性。Protecto系统可以选择连接到生产线主计算机或MES。根据不同扩展等级，可以在MES和ProtectoXP/XC之间可以进行数据通信，为此锐德专门开发了ROI-REHM开放接口。这一方面不仅确保了高标准化。另一方面，可满足客户对特地数据调整的情况。

为了识别模块，将ID读取器（条形码，DMC，RFID）安装在系统前面的传送带上，并连接至Protecto软件可进行识别。或可通过MES进行识别。当ID读取器不符时，系统将自动阻止电子组件进入制程以防止发生连环错误，从而确保了最高的制程可靠性。并可以通过每个模块的唯一数据记录来保证无缝记录。

PDA

Documentation of the system state according to SEMI E10

根据SEMI E10记录系统状态

- Productive   卓有成效
- Stand-By   待机
- Error   错误
- etc.   等等

Trace Data
数据追踪

Recording process data for each use

记录每次使用的过程数据

- Temperature   温度
- Pressure   压力
- Serial number   序列号
- Time stamp   时间标记
- etc.   等等

Process locking
制程锁定

Verification with every use, whether the program fits the product. Automatic changeover, if another program is required.
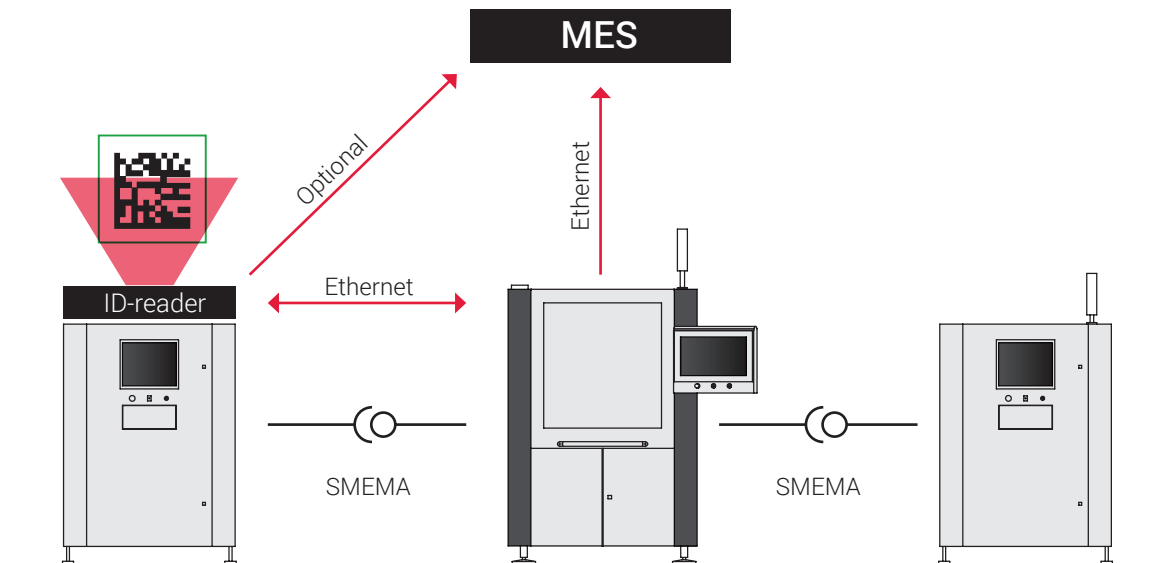
每次需验证通过，以确定程序是否适合产品。 如果需要启动其他程序则自动转换。

Material locking
物料锁定

Verification with every program or change of package, whether the program fits the product. Otherwise, it is not released and the process is locked.

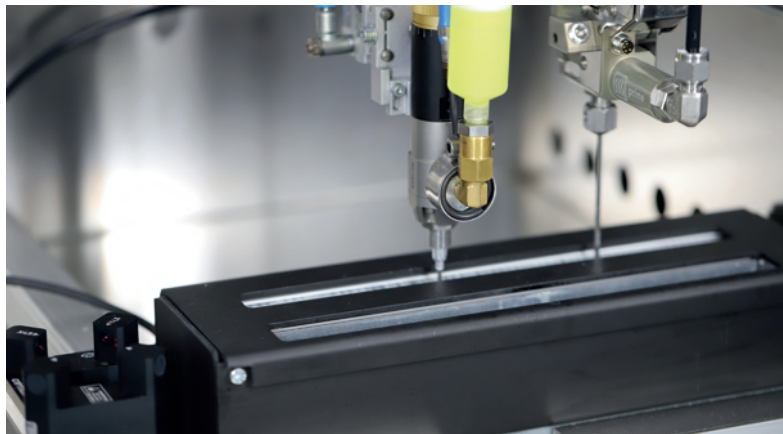检验产品是否适合该程序或是否可更改程序包，如不适合，指令将不会执行且进程将被锁定。

MES

Optional

Ethernet

Ethernet

ID-reader

SMEMA

SMEMA

Reliable process control and documentation
可靠的控制流程和文档处理

Reliable process
for cleaning and maintenance

可靠制程 易于清洁与保养

Brush and blowout station ProtectoXP
ProtectoXP吹洗站及浸泡站

Brush and blowout station ProtectoXC
ProtectoXC吹洗站及浸泡站

Rehm has developed a ground-breaking cleaning system for Protecto systems which is particularly maintenance-friendly. A brush station with a solvent bath allows optimum cleaning of the lacquer nozzles. Even if the system has been off for up several days – depending on the used material – it is operational at the touch of a button without additional cleaning work. The cleaning tank protects nozzles, cables, connections and ports from drying out and automatically cleans the system during downtime, without wasting resources. This allows long processes to run without requiring maintenance. Depending on the materials even long downtimes without cleaning and flushing the valves or system are possible. All control elements and lacquer stocks are easy to access for the performance of maintenance tasks.

锐德Protecto系统研发出突破性的清洁系统，由此大幅简化了系统维护。 配备吹洗站可实现对喷嘴的最佳清洁。 即使该系统关闭了几天（取决于所用的材料），仅需按一下按钮即可正常运转。而无需进行其他清洁工作。 清洁箱在停机期间自动清洗系统，保持喷嘴、电缆、连接处和端口干燥，以保证系统可以长时间运行，避免停机维护。 根据材料类型，该系统也可长期停机，而无需清洗阀门，所有的控制元件和材料设置都便于检修任务的执行。

Optimum assembly protection
without contamination of the work environment

优化组件保护 避免工作环境影响

To prevent contamination from vaporised solvents of lacquers and compounds in the immediate vicinity of the Protecto systems, the lacquer supply is integrated in the system at the back of the plant (XP) or at the front of the machine (XC). This means there is no odour pollution from random releases of solvent vapours into the environment. The plant also has an extractor system which conducts and removes solvent-containing evaporations to the in-house exhaust system during the coating process.

为了防止电子组件受到涂料溶剂蒸汽和附件化合物的污染，Protecto系统的涂料供应装置位于系统后端，这意味即使溶剂蒸汽释放到环境中也不会产生气味污染。此外，Protecto系统还配备了用于引导喷涂过程中含溶剂蒸汽并排放到内部排气系统的抽气系统。

Easily accessible lacquer supply at the back of the plant (XP)
易于操作的后端涂料供应装置(XP)

Lacquer supply at the front of the plant (XC)
前端涂料供应装置(XC)

Strengthen your team
Additional products for a consistent concept

增强型产线 实现出色制程的优化选项

We want to offer our customers the greatest flexibility in the coating of sensitive electronics. That's why you can add to your Protecto systems with innovative optional equipment to make it a complete conformal coating line. The compact structure and ingenious equipment of our systems mean they can be integrated in any production line – regardless of whether you want to produce series with a high output or small batch series with frequent changes of materials. Take advantage of our long years of experience in mechanical engineering! With our coating and hardening plants you'll be at the cutting edge of technology and ideally equipped for all requirements.

我们致力于为敏感型电子组件涂装应用提供最高灵活性，为此提供了多样化的创新型设备，帮助客户打造完整防护层涂装生产线。我们的设备结构紧凑，设计精密而灵活，可以轻松集成到任何生产线中。无论是大规模批量化生产还是需要频繁换线的小批量应用。以多年来积累的丰富机械工程经验为基础，锐德防护层涂覆系统和涂层固化设备将以最尖端的技术，满足您的所有需求。

RDS UV | 干燥系统

Rehm has developed an innovative UV dryer for hardening all UV lacquers. According to material requirement, the system is available with UV curing lamps with mercury medium pressure lamps or UV LED lamps for gluing applications. Its small, compact structure allows the system to be adapted flexibly to any production landscape.

锐德开发了一款适用于所有类型UV涂层的创新型UV干燥系统，可根据具体材料特性和需求，选择UV固化灯——中压汞灯或UVLED灯。凭借出色的紧凑型设计，RDSUV干燥炉可灵活应用于几乎所有生产环境。

RDS with infrared and/or convection | 红外线和或对流干燥系统

Rehm offers the RDS range for optimum drying and hardening processes. With powerful IR radiators or convection in a heating chamber, the plant dries all common lacquers fast and reliably. A glass cover over the IR radiators minimises maintenance costs.

锐德提供了广泛类型的RDS干燥系统，以帮助客户实现最佳干燥和固化制程。通过强劲的红外辐射或对流加热，RDS可以快速、可靠地干燥所有常见涂层。此外，红外辐射器上方的玻璃护罩也可最大限度降低设备的维护频率和成本。
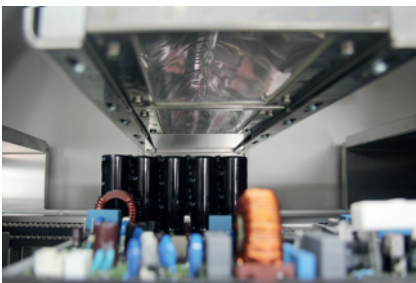
High-performance lamps in the RDS 1200 UV for drying all UV-hardened coatings
RDS 1200 UV干燥系统的高性能固化灯，适用于所有UV涂层

Trouble-free processing of boards with very tall components with the RDS range
RDS系列干燥系统可无障碍处理搭载大型元件的电路板

Glass covering in the RDS plant for easy cleaning
玻璃护罩，可轻松清洁

On-site service
We are there for you worldwide.
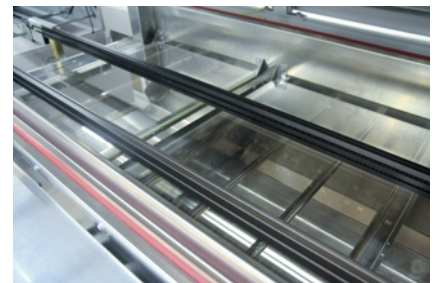
本地服务
锐德全球服务中心随时随地为您提供专业支持

The quality levels of our systems are of the highest order. We aim to maintain this high level in our service activities as well. From Blaubeuren via Georgia and Príbor to Szendehely or from Dongguan to Guadalajara – we are there to help for all questions related to sales and service. Anywhere in the world!

Need special advice on our systems, something fitted or a spare part? Our responsibility does not end with the sale! We remain in close contact with our clients and suppliers after they have invested in a Rehm system and make every effort to keep our response times short. We make sure we keep to delivery deadlines, installations and service inspections. And we are also available at any time for questions about applications – ensuring that your production runs smoothly.

锐德追求卓越的产品质量，也致力于提供优质的客户服务。从布劳博伊伦到乔治亚到普日博尔再到森代海伊，或者从东莞到瓜达拉哈拉——我们立志完善销售和服务网络。竭诚为您提供覆盖全球的专业支持！

对于锐德系统、装配或配件，您有什么需要特别咨询的吗？我们的责任不仅仅止步于销售，在购买锐德的产品后，我们还将与您保持最紧密的联系，快速及时地响应您的所有需求。我们将以最大努力确保按时交付，执行最高标准的安装和维护服务。此外，我们的专家全天候24小时为您服务，可以随时为您的应用提供支持，确保生产顺利进行。

24 hours a day available

Service from A to Z

in **26** countries **on site**

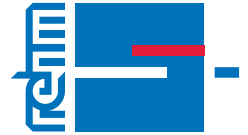## Your service contact person
服务中心联络方式

Service-Center.
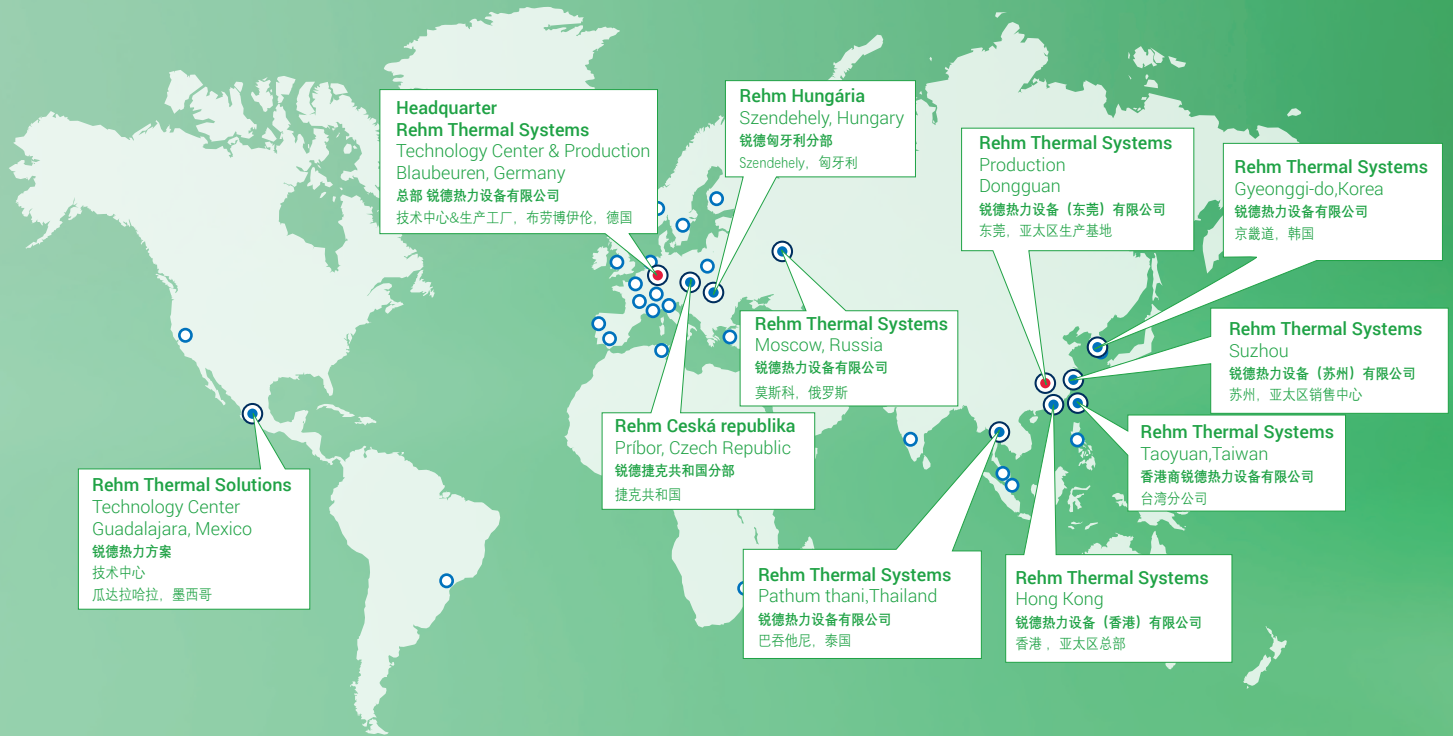服务中心：
Mon - Thurs   07:00 – 16:30
Fri   07:00 – 12:15
service@rehm-group.com

24h-Service-Hotline:
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Rehm Thermal Systems
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锐德热力设备（香港）有限公司
香港，亚太总部

Rehm Worldwide 锐德全球

As a leading manufacturer of innovative thermal system solutions, we have customers on every continent. With our own locations in Europe, America and Asia, as well as 26 agencies in 24 countries, we are able to serve the international markets quickly.

作为世界领先的创新型热力系统解决方案制造商，我们的客户遍布全球每一块大陆。锐德在欧洲、美洲、亚洲均设立了技术中心和生产工厂，同时还在24个国家和地区拥有26家代理商，能够快速响应国际市场的各种需求，为客户提供最出色的现场服务。

● 分公司
● 生产基地
● 服务支持

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