ROYAL TECHNOLOGY

Air-To-Air
空对空

Continuous Sputtering Deposition Line
磁控溅射连续线

Turnkey coating solutions, knows-how to transfer technology.
交钥匙涂层解决方案

Technology Background

After decades of research and development, vacuum coating has been quite a mature film deposition treatment, which has a positive prospect applications in various industries. It requires comprehensive technologies to apply the vacuum coating technique to continuous wires and strips, which can modify the surface characteristics and functions, its significant lightweight performance makes an advantage for artificial intelligence devices.

(1) Separated type

(2) Air-to Air, full continuous coating type

The Air-to Air full continuous coating line is a completed continuous coating process, which includes cleaning pre-treatment in the atmosphere environment, and then the substrates (strips or wires) enter the vacuum chamber, where metal films are deposited. In then end it goes back to the atmosphere again through buffering chambers.

Coating line key structural modules:

A: Substrates (strips or wires) cleaning pre-treatment module
B: Cooling down module
C: Annealing module
D: Film deposition chamber
E: Loop devices and vacuum buffering chamber.

The whole coating line's structure, operation and control system is more complex, extremely high investment but the advantages of high output and sharping down production costs significantly, make it very attractive for manufacturers.

(3)Universal Type

(4) Multiple-layers coating type

The production line combines several different PVD coating methods: Electron beam evaporation coating, magnetron sputtering deposition and plasma enhanced CVD deposition.

Royal technology's team has built the pilot system for industrial production line in 2019.
we are excited to announce that outsourcing your coating services to us is available now.

Furthermore coating systems and turn-key coating solutions can be provided.

技术背景

经过几十年的研究开发,真空镀膜现在已经相当成熟，具有明确的工业化应用前景。如何将真空镀膜技术运用在线带材的表面处理上是一项综合性技术，利用真空镀膜技术来改性线带材的表面特性和功能是一个未来人工智能器件轻量化的方向

现有带材真空镀膜生产线有以下几种:

1. 分离型。

2. “空到空”全连续型。

所谓“空到空”(Air-to-Air),指的是带材首先在大气中经过清洁处理,然后进入真空室,进行镀膜,再经增压室回到大气的连续式生产过程。

该生产线包括了带材清洁前处理和缓冷、退火后处理等机组,并有活套装置以及压差室。设备结构和控制系统较复杂,投资较大,但生产效率高,容易达到规模产量,真正实现了从原料带卷到镀膜带材成品带卷的真空连续生产。

3. 万能型

4. 多层镀膜型

该生产线采用电子束加热真空镀膜、真空溅射镀膜以及等离子辅助气相镀膜等多种现代电物理镀膜方法。

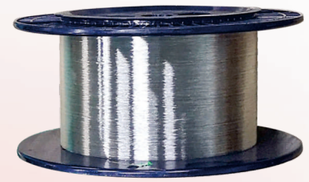
永容科技团队已于2019年成功制造第一台工业生产型系统， 并向市场提供线带材的镀膜加工服务。此外，如果您对生产设备 感兴趣请联系我们，永容科技可以提供整体涂层解决方案。

Applications 应用领域

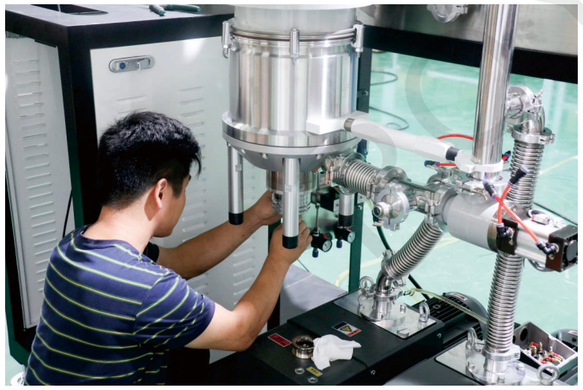
Conductive metal wires
Metal coil and metal strip with thickness is less than 1mm
Optical fiber
Twisted fiber and wires such as basalt fiber (BFRP) and carbon fiber, glass yarns, carbon yarns

导电金属线金属线圈和厚度小于1mm的金属带
光纤
加捻纤维和线材，例如玄武岩纤维 (BFRP) 和碳纤维、玻璃纱、碳纱

Coating Samples
镀膜样品



Technical Communication
技术讨论



Modular Design and Manufacturing
模块化设计与制造