



Low-pressure system equipped with ion implantation and plasma PVD technologies for wires, powders, or flat and 3D parts treatment

The ionLAB400™ equipment allows ion implantation and/or PVD-PECVD coating on flat surfaces of maximum 400X400mm, wires of few μm to mm in diameter, or (nano)powders and grains up to 300 ml. This versatility makes it an ideal equipment for academic purposes or for industrial R&D projects, as it can accommodate a wide range of sample sizes and types, catering to diverse research needs and applications. The system is equipped with one or two ionGUN2000™ for ion implantation of samples when higher corrosion resistance, hardness or reduced friction is required without the necessity to apply any coating on the surface. ionLAB400™ could also be adapted to accommodate PVD and PECVD systems instead of ionGUN2000™, or in combination with it to benefit from the pre- or post-implantation for activation of surface prior to coating deposition or enhancement of adhesion between various sputtered layers.

TECHNICAL DATA	
Power supply	General power: 400 V / 63 A
ionGUN power supply	Frequency: 10 GHz / 50 W Power: up to 600 W Ion energy: up to 40 kV Ion current: up to 15 mA
PVD and PECVD power supply	DC, Pulsed DC, or RF
Vacuum pressure	10 ⁻⁷ mbar in MAP / 10 ⁻⁶ mbar in Chamber
Number of ionGUNS and/or cathodes	3 spaces: for 1 or 2 ionGUNS and/or 1 or 2 cathodes
Flat or 3D parts substrate size	L400 x W400 x H75 mm
Powder mixer	Either barrel or vibrating chamber – up to 300 ml
Processing capacity	Batch processes
Dimensions of the machine	L3500 x W1500 x H2300 mm
Weight	2800 kg
Water cooling system	Yes – demineralized water

Features

- ▲ Low-pressure surface treatment adapted to a wide range of materials.
- ▲ Surface treatment technology: ion implantation, PVD, PECVD as stand-alone or in combination.
- ▲ XY table available (moving: 200 mm/s max.).
- ▲ Faraday's cup for each ionGUN2000™ integrated in the process chamber.
- ▲ Fully automatized with intuitive HMI.
- ▲ Any gas can be used: Ar, He, N₂, O₂, SiH₄ as well as gas mixtures.

Options

- ▲ Circular (max 4-inch / 101,6 mm) or rectangular PVD cathode (flange 150 mm).
- ▲ Winding system for (ultra-thin) wires or cables.
- ▲ Advanced powder mixing equipment.



Applications

▲ Mechanical

- ▲ Enhanced hardness
- ▲ Corrosion resistance
- ▲ Friction coefficient

▲ Decoration

- ▲ Scratch resistance
- ▲ Anti-reflective
- ▲ Colored finish

▲ Biomedical

- ▲ Biocompatibility
- ▲ Antibacterial
- ▲ Blocking metal diffusion

Treated materials are metals, ceramics, polymers and elastomers, glass, sapphire, cermets, textiles, carbon fibers,...