

ionR2R

plasma technology

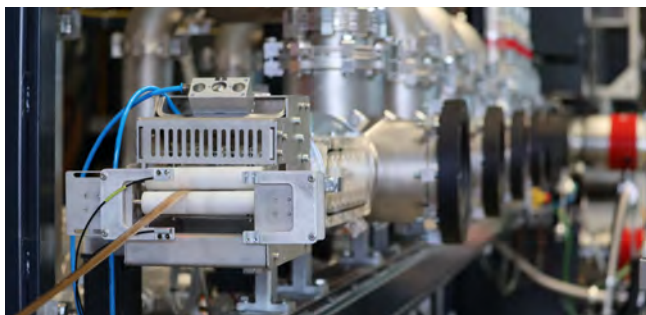
ionR2R

IONICS has designed a low-pressure reel to reel, air to air industrial system adapted to the treatment of connectors strips, various narrow coils, cables, and wires. The ionR2R is dedicated to ion implantation processes and is equipped with several ionGUN's allowing a homogenous treatment. Thanks to an innovative airlock system, a continuous, efficient, and cost-effective production is achieved.

Applications

▲ **Electricity and electronics:** increases wear and corrosion resistance of electroplated connectors, allowing important savings on precious materials such as gold. The implanted product achieves a 4-fold reduction in the thickness of its gold-plated layer, while maintaining an equivalent or even better performance.

In implanted gold-plated connectors the corrosion currents measured during electrochemical analysis is reduced by 2 to 3 in sulfuric electrolytes. Surface hardness reaches the level of stainless-steel.



▲ **Wires and cables:** in the field of the thin and ultra-thin wires, the ion implantation technology brings competitive advantages: enhanced adhesion and durability among others. Initially dedicated to ion beam implantation technology, the ionR2R™ can be equipped with different PVD and PECVD sources to form a complete and efficient one-step coating process.

▲ **Others:** polymers and elastomers can also benefit from the ion beam process in the R2R system for rendering them with lower friction coefficient, increased hardness, preserved bulk properties. We can also implant metal cables for corrosion protection or enhanced mechanical performances.



ionGUN

Since 2017, IONICS has developed a range of low-pressure micro-accelerators (ionGUN) allowing an efficient and cost-effective use of the ion beam implantation process. An ECR (Electron Cyclotron Resonance) with a highly ionized plasma source produces a multi charged ion beam of up to 10 mA accelerated by an electric field at 35 keV towards the material surface to be treated. Various gases, pure or mixed, are used to enhance surface performances of metal, glasses, ceramics, and polymers. Ion beam implantation process enhances surface performances and brings new properties to your material without any added coatings. Efficiency, reliability, simplicity, and flexibility were the goals during the development of the ion source. The technology can be combined with other low-pressure technologies like PVD and PECVD processes to obtain even more complex properties and performances.

Process Advantages

- ▲ **Low temperature and localized surface treatment:** bulk materials initial properties are preserved.
- ▲ **No coatings:** neither delamination issues nor egg-shell effects
- ▲ **Parts geometry respected:** no need to resume machining after implantation
- ▲ **Precise and localized surface treatment:** fine-tuned process, time and final technical performances
- ▲ **Electrical conductivity is not necessary:** any insulating materials can be treated
- ▲ **Environmentally friendly dry process:** process in line with sustainability goals to reduce raw material consumption and omission of the chemical solvents

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