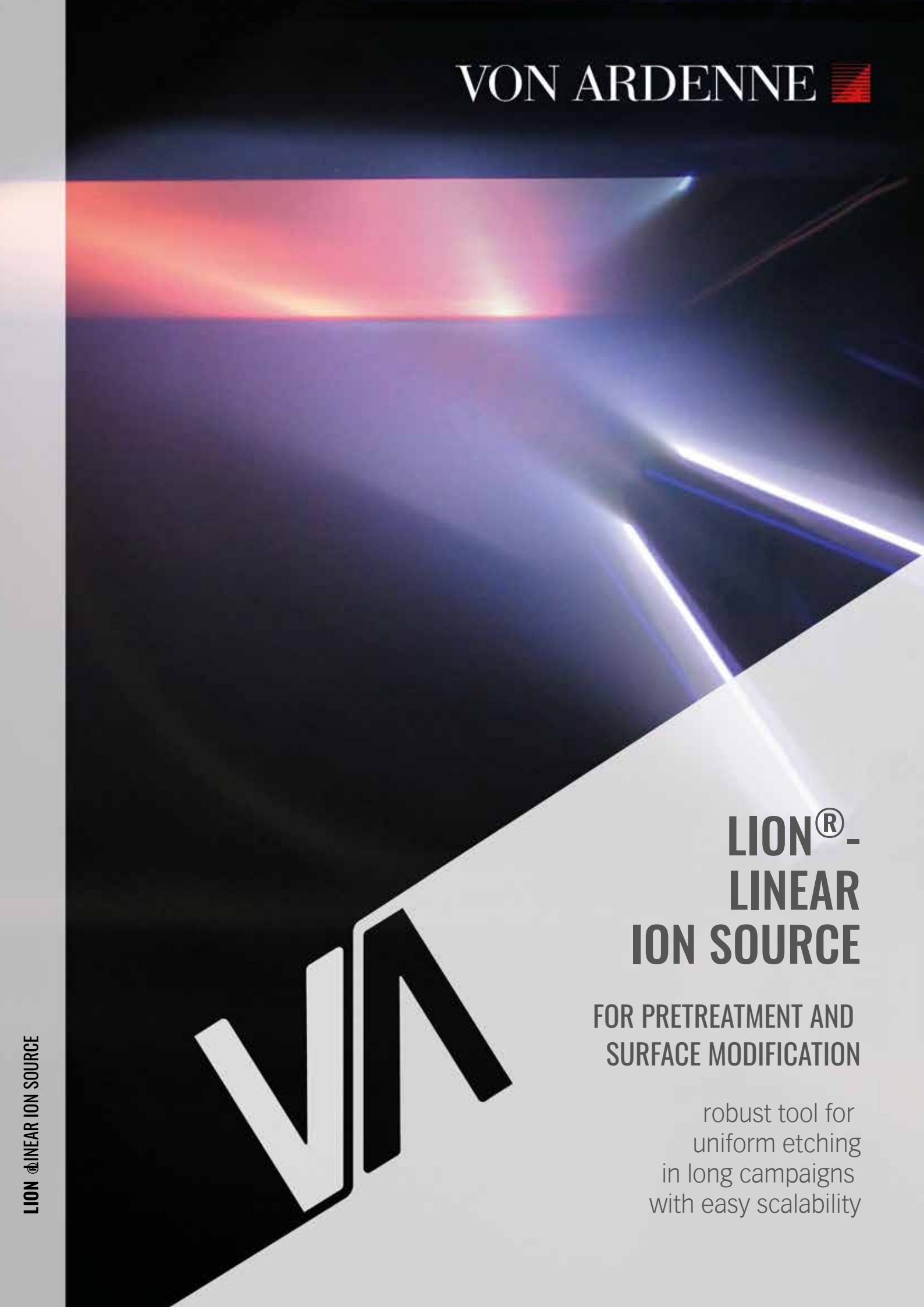
VON ARDENNE



LION®-LINEAR ION SOURCE

FOR PRETREATMENT AND SURFACE MODIFICATION

robust tool for
uniform etching
in long campaigns
with easy scalability

LION - LINEAR ION SOURCE

ROBUST TOOL FOR UNIFORM ETCHING

in long campaigns

The VON ARDENNE high-performance Linear Ion Source LION® is a component that is suitable for pretreatment and surface modification.

The ion beam of the LION® is **strongly focused** and **highly energetic.** Therefore, it is an ideal device for inline coating systems that require physical etching and surface activation using argon, oxygen, and nitrogen. Due to its **simple and robust design**, the ion source is **easily scalable**.

20 years of experience at VON ARDENNE

with more than 60 LION® systems delivered worldwide

Scaling from Lab to Fab

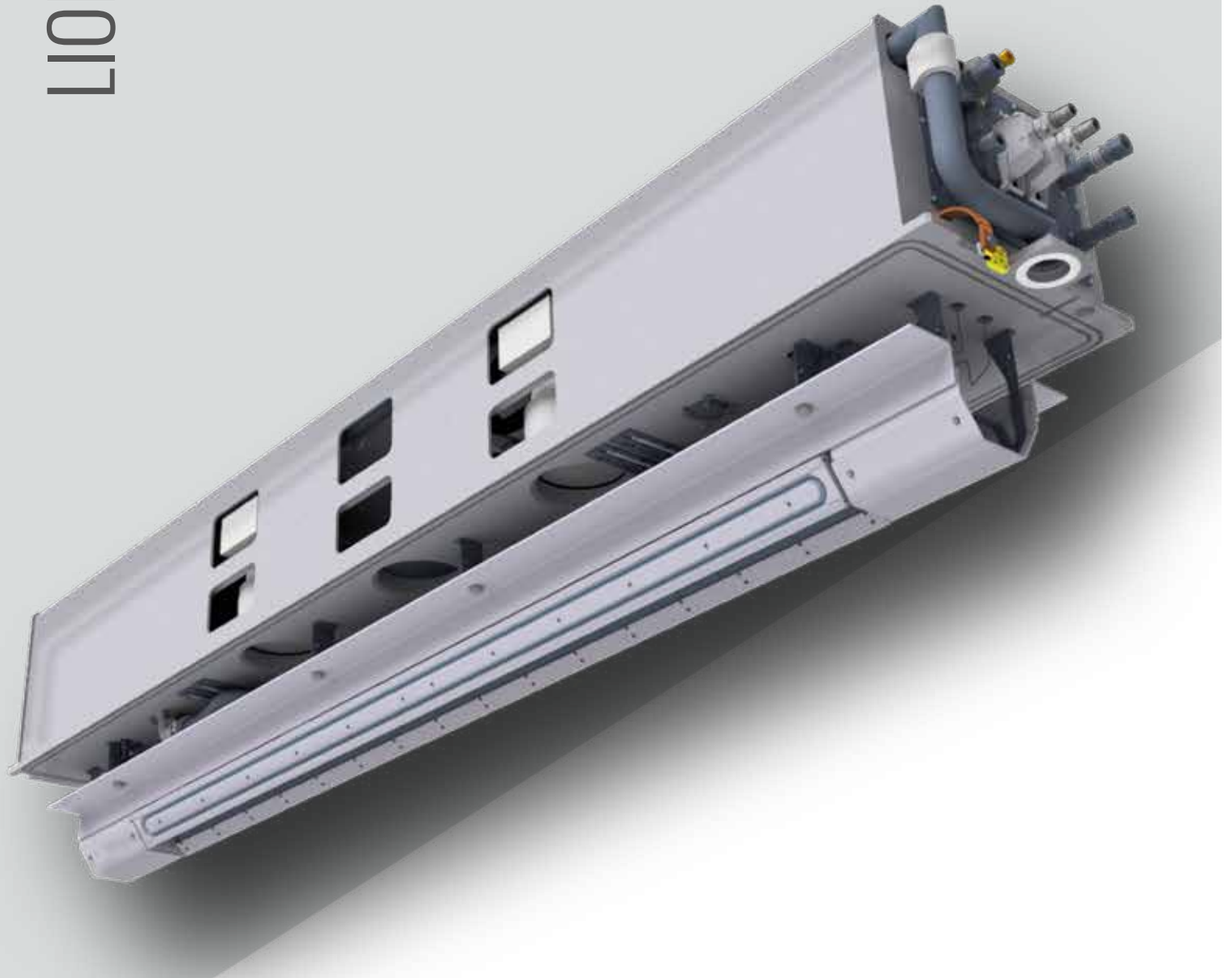
Up to 3.3 m nominal length

Wide range of applications

glass coating, photovoltaics, optics, display technology, fuel cells, sensor technology, R&D

Diverse process capabilities

pre-treatment, layer modification, assist



IN-HOUSE SAMPLING

In-house sampling capabilities on multiple inline coating platforms
Evaluation of dynamic etching rates, system lifetime, contamination behavior, and process integration

Flexible hardware configurations
Power supply units (PSU), cathode and anode materials, extraction slit geometry, and compartment design

Advanced software functionalities
Ramping profiles, gas purging sequences, and precise PID-based power control

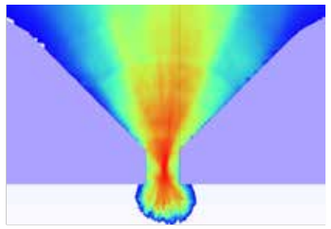
IN-HOUSE DEVELOPMENT

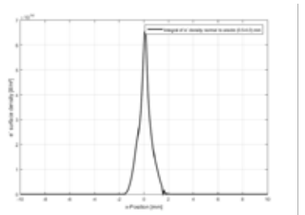
Simulation-driven system design
Gas flow dynamics, electric and magnetic fields (E, B), ion extraction, as well as plasma and cathode erosion behavior

Dedicated test bench infrastructure for validation and optimization

Extensive intellectual property portfolio

- DE 10 2012 210 003 B4 (compartment)
- DE 10 2014 106 942 B4 (anode)
- DE 10 2016 105 462 B4 (anode)
- DE 10 2016 109 124 B4 (body)
- DE 10 2016 114 480 B4 (anode)
- DE 10 2020 114 162 B3 (process)





EQUIPMENT

HISS

FOSA MX

GIGANOVA

GC330H, GC280H & GC254H

TECHNICAL DATA

Subject to change without notice due to technical improvement.

LARGE-AREA GLASS PRETREATMENT

Tool integration

Lid-mounted single or dual configuration

Upgradeable design
From single to dual

Adjustable ion beam incidence angle

Onboard PLC
Seamless integration with coater PLC and HMI

Fully equipped system
TMP, gas supply, MFCs, pressure gauge

Fast cathode exchange
Without opening vacuum or water seals

Process compartment optimization
Adaptation of rollers, shields

Technological integration

High-voltage, high-power design
Water-cooled anode and body, up to 5 kV / 5 kW/m DC

High dynamic etch rate design
der > 15 nm*m/min (float glass)

Stable and reproducible
Integrated ion beam neutralizer

Magnetron-compatible operation
Pressure range 0.5–10 × 10^{-3} mbar (0.4 mTorr to 7 mTorr)

Uniformity tuning by gas flow adjustment
Non-uniformity (der) < ±15% to ±5%

OUR STRENGTHS

In-House Technology & Application Center

- Sample coatings of customer applications
- Development of customized layer stacks
- Product & process verification and optimization
- Testing of new technologies and components

Professional Simulation Support

We offer professional simulation technology to ensure best process quality with regards to plasma, heat and cooling. Furthermore, our simulation tools help demonstrate, develop and improve layer properties and define or optimize processes, details and the performance of our systems.

Close Partnership

VON ARDENNE has a network of partners for even more profound R&D work and to identify future technologies. It consists of:

- Fraunhofer Institutes
- Institutes of the Helmholtz Association
- Universities
- Companies

Global Project Experience

VON ARDENNE equipment is used in over 50 countries. We have established an installed base of hundreds of coating systems worldwide, ranging from small tools to equipment for large-area coating applications for several markets.

Comprehensive Service Portfolio

- VON ARDENNE service hubs around the world
- On-site service
- Remote access by our technology department
- Regular technical and technological trainings
- Spare & wear part warehouse close to customers
- Lifecycle extension of wear parts

Upgrades & Retrofits

As soon as your business is growing, your VON ARDENNE equipment will grow accordingly - thanks to its modular design and the upgrades we provide. We will also supply you with the necessary technology upgrades if you decide to change your applications.
Furthermore, when your equipment is ageing, we will retrofit your systems with new components, no matter if they are VON ARDENNE or third-party machines.

WHO WE ARE & WHAT WE DO

VON ARDENNE develops and manufactures industrial equipment for vacuum coatings on materials such as glass, wafers, metal strip and polymer films. These coatings give the surfaces new functional properties and can be between one nanometer and a few micrometers thin, depending on the application. Our customers use these materials to make high-quality products such as architectural glass, displays for smartphones and touchscreens, solar modules and heat protection window film for automotive glass.

We supply our customers with technologically sophisticated vacuum coating systems, extensive expertise and global service. The key components are developed and manufactured by VON ARDENNE itself. Systems and components made by VON ARDENNE make a valuable contribution to protecting the environment. They are vital for manufacturing products which help to use less energy or to generate energy from renewable resources.

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Company | Career | Applications | Products | Service

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