STREICHER

Advanced Vacuum



S UV
Advanced Component Cleaning System

UV-based cleaning solution for UHV and semiconductor applications



CLEANLINESS IN HIGH VACUUM

WHY CLEANLINESS MATTERS

In high-vacuum environments, even minimal contamination affects performance and reliability. Hydrocarbons and residues increase outgassing, reduce vacuum quality and can damage the final product.

THE CHALLENGE

Conventional cleaning methods are often time-consuming, energy-intensive, or unsuitable for temperature sensitive components.

THE SOLUTION

UV cleaning provides a fast, efficient, and low-temperature alternative for removing contamination.

KEY BENEFITS OF UV CLEANING

- Up to 6x faster processing
- More than 10x lower energy consumption
- No need for high-temperature bake-out
- Superior removal of heavy hydrocarbons
- Consistent, predictable results
- Fewer process deviations and rework



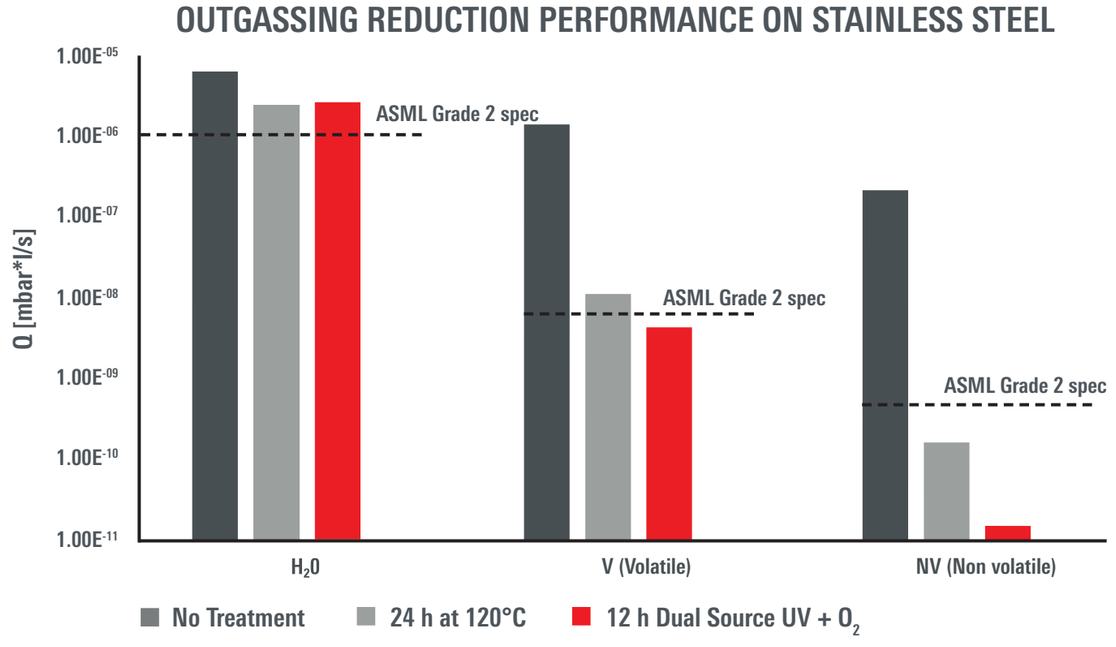
MAXIMUM CLEANING EFFICIENCY WITH MINIMUM RESOURCES

UV cleaning combines high cleaning performance with significantly lower energy consumption and shorter processing times, helping optimise both operating costs and throughput.

A tool that aims to reduce your power consumption and CO_2 footprint.

COMPARISON AND BENEFITS

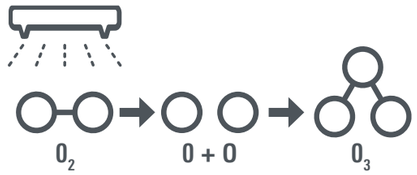
BAKE-OUT		UV CLEANING
High consumption - chamber and cleaned parts require heating (kW range)	**ENERGY CONSUMPTION**	More than **10x lower** (W range)
Long delays due to inefficient cleaning below 100°C and long cooling time	**CLEANING TIME**	Up to **6x faster** instant start with no waiting time
Limited through temperature increase only	**PERFORMANCE SCALABILITY**	**Adjustable** by energy input or number of UV sources



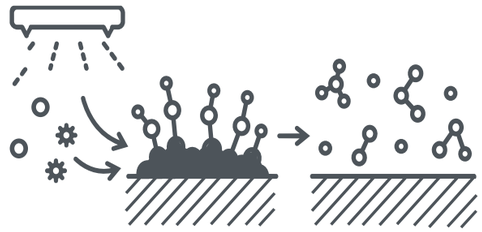
CLEANING PROCESS

HOW UV CLEANING WORKS

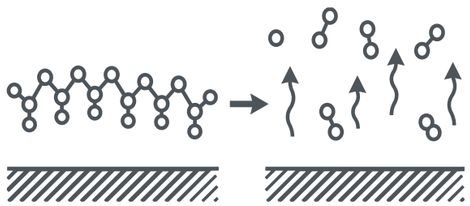
Step 1: UV light splits oxygen molecules and forms reactive ozone.



Step 2: UV light and oxygen radicals break down hydrocarbons on surfaces.

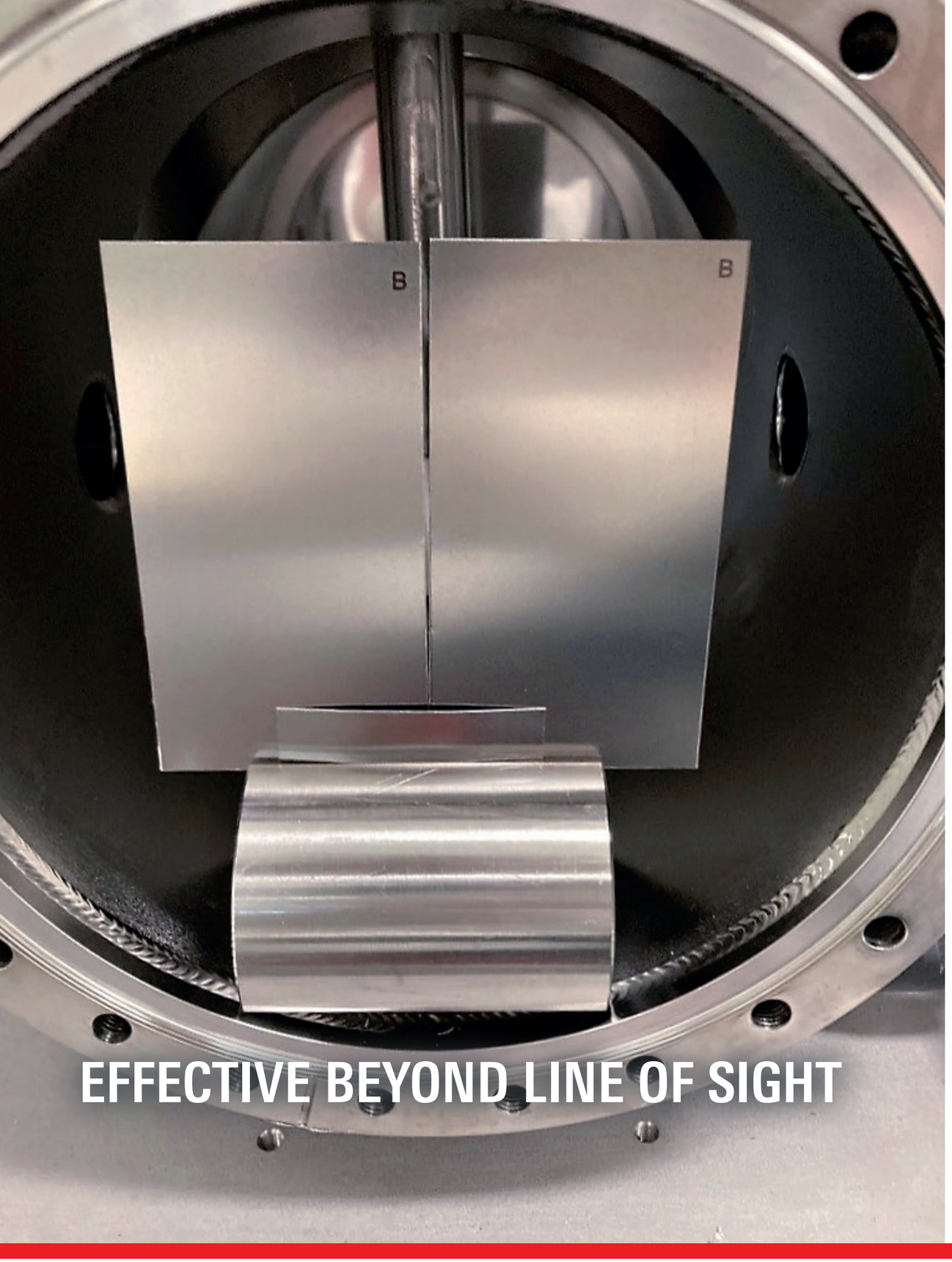


Step 3: Long-chain hydrocarbons are converted into smaller, volatile molecules - contamination becomes removable.



Result: Hydrocarbon and other contamination is eliminated. Volatile by-products such as H_2O and CO_2 are easily removed by the vacuum system.

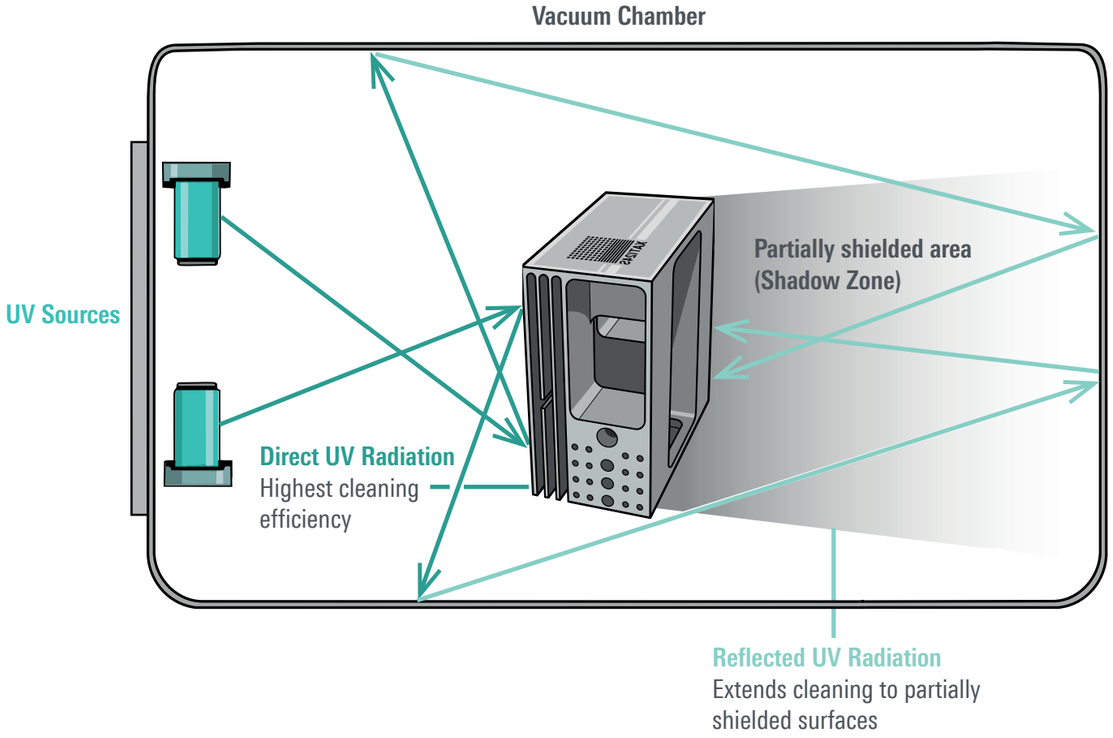
A proven technology since the 1970s, UV cleaning is widely used in lithography and laser systems, including continuous cleaning in EUV applications.



EFFECTIVE BEYOND LINE OF SIGHT

EVEN HIDDEN SURFACES CLEANED

Advanced UV cleaning reaches beyond direct exposure, enabling effective contamination removal across complex geometries.



KEY BENEFITS

- Effective cleaning even of partially shielded surfaces.
- Extended coverage through UV reflections within the chamber.
- Uniform contamination reduction across complex components.
- Effective cleaning of complex geometries and hard-to-reach surfaces.
- Reduced handling and shorter processing times.



CHOOSING THE RIGHT METHOD

IDEAL FOR UV CLEANING

UV cleaning primarily targets surface contamination and is therefore particularly effective on:

- Stainless steel
- Aluminum
- Copper
- Titanium
- Nickel and nickel alloys
- Ceramics
- Glass and quartz
- Semiconductor materials (e.g., silicon, GaAs)

IDEAL FOR BAKE-OUT

In addition to desorbing surface contaminants, a bake-out accelerates the diffusion of impurities trapped within the material. This makes the process particularly effective for porous materials and materials with high water absorption:

- Elastomer seals (Viton®, FKM, EPDM, etc.)
- Plastics and polymers
- Cable insulation
- Fiber-reinforced composites
- Porous ceramics

COMBINING BOTH TECHNOLOGIES

The combined use of UV cleaning and bake-out brings together the strengths of both cleaning methods. This allows for optimal adaptation to various materials and results in maximum cleaning effectiveness while maintaining high process and material flexibility.



OVERVIEW OF CLEANING & RGA OPTIONS

OPTIONS

S-UV CLEANING COMPACT SYSTEM

+ Small space required
+ Cost effective
+ Short evacuation times and fast operating cycles
+ System on wheels for easy positioning

- Solid or welded chamber - more difficult upgrades in the future
- Aluminum is not as easy for cleaning when heavily contaminated

S-UV CLEANING MODULAR SYSTEM

+ Compact cleanroom design
+ Modular design allowing easy future upgrades and changes
+ Operating vacuum better than 10^{-6} mbar
+ No heat generation as bake-out is not needed

- Aluminum panels are not as easy for cleaning when heavily contaminated

S-UV CLEANING AND RGA SYSTEM

+ Possible upscale to large dimensions
+ Possible integration into cleanroom wall
+ Integrated RGA evaluation
+ Easy manual cleaning of polished inner surfaces

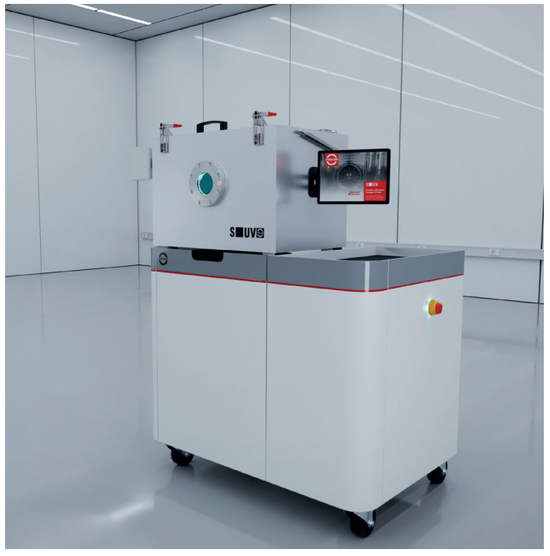
- Minimal future upgrades on walls
- Need for movable drawer in the chamber

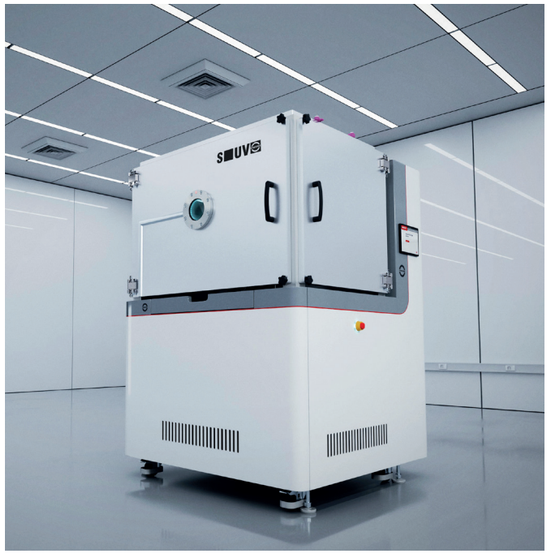
S-UV CLEANING WITH BAKE-OUT AND RGA SYSTEM

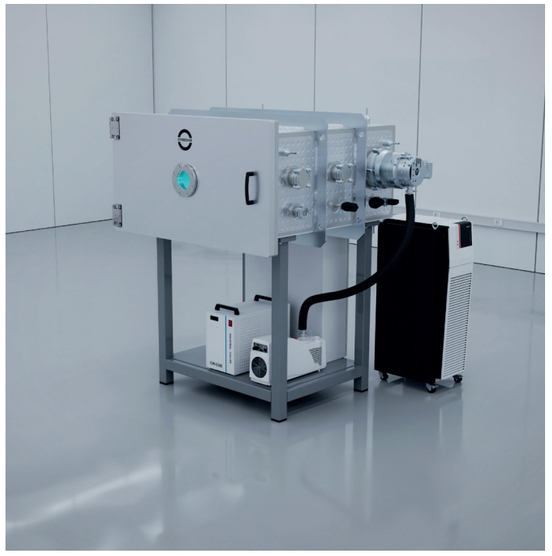
+ Possible integration into cleanroom wall
+ Integrated RGA evaluation
+ Easy manual cleaning of polished inner surfaces
+ Possibility to make bake-out up to 150°C
+ Material flexibility

- Higher energy costs due to bake-out
- Heat generation in cleanroom
- Minimal future upgrades on walls

EXAMPLES











RGA SYSTEM – 2 IN 1

RGA TECHNOLOGY

To support different cleanliness verification requirements, STREICHER Advanced Vacuum offers two levels of Residual Gas Analysis (RGA) integration. All calibrated RGA systems can be configured with predefined customer acceptance criteria, such as ASML Grade 2, based on outgassing rates related to the component surface area. Automated reporting ensures transparent and traceable cleanliness verification.

RGA SIMPLE	RGA ADVANCED
Indicative monitoring	Calibrated measurement
Basic RGA sensor	Dedicated RGA chamber
Manual interpretation	Automated evaluation & reporting
Standard applications	High-tech & semiconductor applications

RGA Simple: Fast cleanliness indication for everyday cleaning processes.

RGA Advanced: Calibrated cleanliness qualification with automated evaluation, reporting and compliance verification.



INTELLIGENT CONTROL & CONNECTIVITY

SIMPLE OPERATION. ADVANCED CONTROL. FULL TRACEABILITY.

The S-UV system features intuitive operation, real-time process monitoring and OPC UA connectivity for integration into factory automation environments. Role-based access, automated process sequences, data logging and remote diagnostics support efficient operation, predictive maintenance and maximum process transparency.

KEY FEATURES

- Role-based user interface
- OPC UA communication
- Real-time monitoring of system and pump parameters
- Automatic pump control based on pressure conditions
- Alarm and event logging with diagnostic information
- Data recording and analysis capabilities
- Remote access via web interface
- Export of operating data and service information
- Support for predictive maintenance and troubleshooting



YOUR COMPONENTS. OUR EXPERTISE.

TEST YOUR COMPONENTS WITH US

Evaluate the performance of S-UV cleaning on your own components.

Visit our facility or send us your parts.

Together with **Settels Savenije**, our development partner for S-UV Cleaning, we can test, analyse, and evaluate the cleaning performance and provide clear results to support your decision.

Testing Locations:

STREICHER Plzen
K Lomu 426
332 09 Stenovice
Czech Republic

Settels Savenije
Achtseweg Zuid 211
5651 GW Eindhoven
The Netherlands

ABOUT US

STREICHER Advanced Vacuum delivers complete vacuum solutions for research, science, aerospace, semiconductor, and industrial applications. Drawing on decades of expertise in vacuum engineering, manufacturing, automation, and cleanroom assembly, we provide **tailor-made systems covering every stage of a project**, from concept and design to manufacturing, testing, and commissioning.

Settels Savenije is a key partner understanding your technology in a STREICHER Advanced Vacuum solution. At Settels we design, manufacture, assemble, and test high-tech modules in vacuum applications. Providing complete solutions from **Research and Feasibility to Realisation** enabling your key technology. With an integrated approach ensuring collaboration and quality, we are a strong partner and an ideal combination for driving innovation and delivering precision modules in vacuum systems.

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Advanced Vacuum



If you have any questions or would like to discuss your requirements, please do not hesitate to contact us:

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www streicher-advancedvacuum.com

LET'S TACKLE YOUR CLEANING CHALLENGES TOGETHER.

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