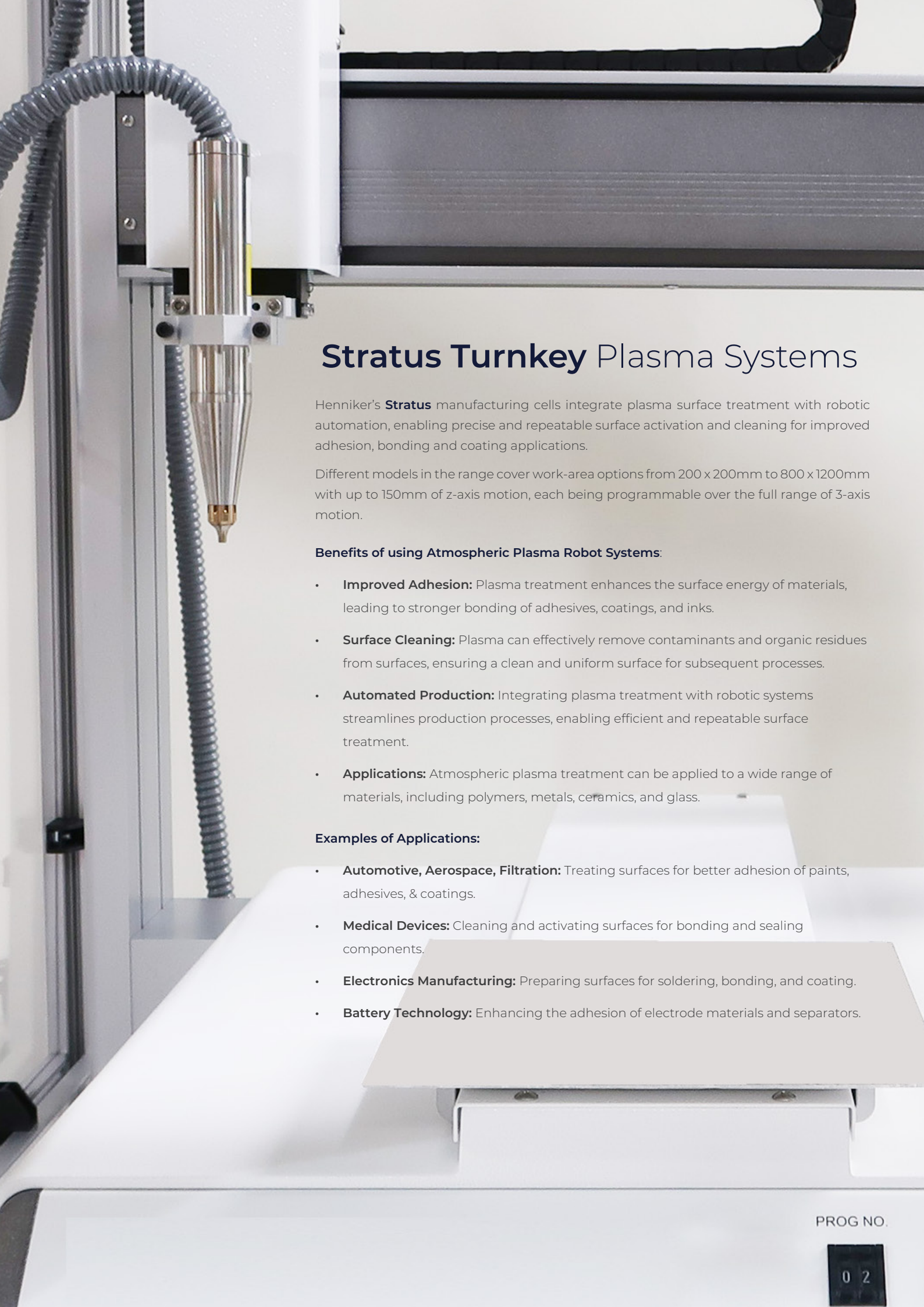
Plasma clean
Improved wettability and adhesion
Functional nano-coatings

Plasma Surface Treatment

Stratus Plasma Manufacturing Cells

www.plasmatreatment.co.uk



Stratus Turnkey Plasma Systems

Henniker's **Stratus** manufacturing cells integrate plasma surface treatment with robotic automation, enabling precise and repeatable surface activation and cleaning for improved adhesion, bonding and coating applications.

Different models in the range cover work-area options from 200 x 200mm to 800 x 1200mm with up to 150mm of z-axis motion, each being programmable over the full range of 3-axis motion.

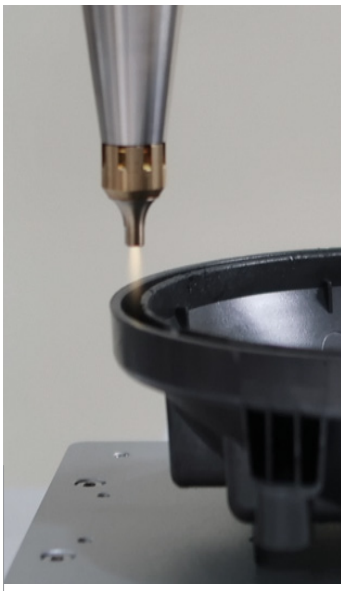
Benefits of using Atmospheric Plasma Robot Systems:

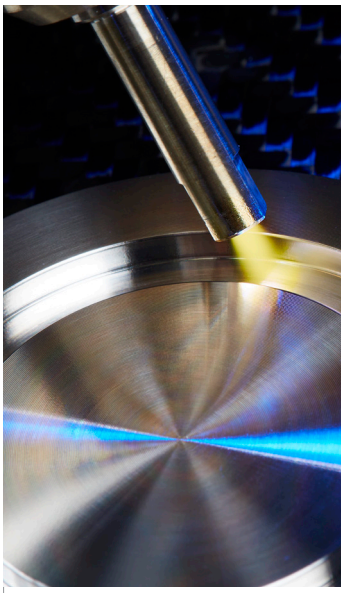
- **Improved Adhesion:** Plasma treatment enhances the surface energy of materials, leading to stronger bonding of adhesives, coatings, and inks.
- **Surface Cleaning:** Plasma can effectively remove contaminants and organic residues from surfaces, ensuring a clean and uniform surface for subsequent processes.
- **Automated Production:** Integrating plasma treatment with robotic systems streamlines production processes, enabling efficient and repeatable surface treatment.
- **Applications:** Atmospheric plasma treatment can be applied to a wide range of materials, including polymers, metals, ceramics, and glass.

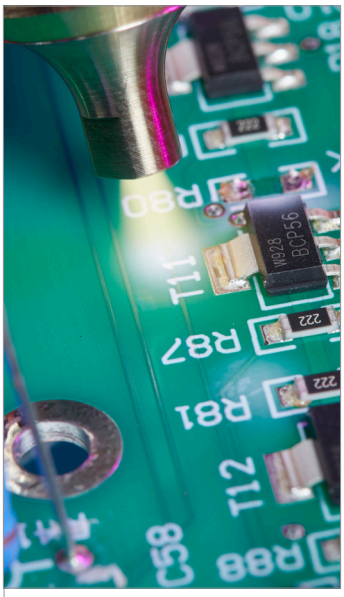
Examples of Applications:

- **Automotive, Aerospace, Filtration:** Treating surfaces for better adhesion of paints, adhesives, & coatings.
- **Medical Devices:** Cleaning and activating surfaces for bonding and sealing components.
- **Electronics Manufacturing:** Preparing surfaces for soldering, bonding, and coating.
- **Battery Technology:** Enhancing the adhesion of electrode materials and separators.

Plug and Play







Plasma Environment

Stratus Plasma Manufacturing Cells combine Henniker's leading atmospheric plasma treatment devices with a choice of 3-axis robot options in a stand-alone manufacturing cell. Each cell is CE certified and only requires connection to mains power and compressed air.

Stratus systems can be programmed in minutes, even with no previous experience, and can store hundreds of programs for maximum flexibility.

Plasma Treatment

The plasma acts like a microscopically controlled "sandblaster," removing contaminants and creating a chemically activated surface that is ideal for bonding, coating, and other treatments.

Designed to deliver highly effective surface treatment on both conductive and non-conductive materials alike, the Stratus cell can handle a wide range of engineering polymers, metallic parts, ceramics, and glass.

Efficiency in Every Pass

At the heart of every Stratus is our proprietary, high-stability plasma power generator, which ensures consistent treatment quality and reliability. Plasma parameters are continuously monitored and adjusted to maintain stable plasma conditions, time after time.

Each system is optimised for continuous processing, enabling high speed repeatable processing without compromise to treatment quality or performance.

Maximise ROI

Program, store and execute multiple plasma surface treatment tasks for a wide range of parts and materials in just minutes, ensuring maximum returns from day one.

The high intensity plasma allows for extremely fast treatments in a single pass without sacrificing treatment quality, making it ideal for industries that demand consistent results across high volumes, such as aerospace, automotive, medical device, filtration and electronics manufacturing.

Key Features

Operation within minutes
Stratus systems are ready to operate in minutes after being sited, requiring only compressed air and mains power connections.

Easy-to-Use Teach Pendant
The supplied teach pendant is a user-friendly interface, making it simple to program and set up the system. Operators can easily adjust settings, control the plasma treatment, and integrate the system into their existing production workflow without any prior experience.

Flexible Process Control
Integration with wider control systems.

Safety and Reliability
Stratus systems are CE safety compliant and include built-in self-diagnosis safety light curtain.

Cost-Effective and Sustainable
Compressed Air Operation: Unlike systems that require additional gases, the Stratus cell runs on compressed air, eliminating the need for costly process gases and simplifying integration.

Eco-Friendly Plasma Treatment: Replace hazardous chemicals and emissions with safe, chemical-free plasma treatment, creating a cleaner and more sustainable production process.

Some of Our Clients

“Whether you’re processing small batches or continuous production lines, Henniker systems deliver precise, reliable, and efficient plasma treatment every time.” Representative from Robafoam.

WIPAC
YASA
PSC AUTOMATION
KONGSBERG AUTOMOTIVE
Alcon
airflo PVC FREE SINCE 1984
Robafoam
Valeo
LAND ROVER JAGUAR
John Guest
DēLonghi

Stratus Specifications

STRATUS PLASMA MANUFACTURING CELL

DIMENSIONS						
Stratus Model	Series I	Series II	Series III	Series IV	Series V	Series VI
Robot Dims. [W/D/H]	324 x 499 x 480mm	490 x 517 x 645mm	590 x 617 x 645mm	690 x 717 x 815mm	1200 x 965 x 503mm	1420 x 1560 x 503mm
Robot Motion [X/Y/Z]	200 x 200 x 50	300 x 300 x 100	400 x 400 x 100	500 x 500 x 150	600 x 600 x 150	800 x 1200 x 150mm
Enclosure - Benchtop	600 x 600 x 600mm	600 x 600 x 800mm	700 x 740 x 800mm	800 x 840 x 1000mm	x	x
Enclosure - Cart	600 x 600 x 1500mm	600 x 640 x 1650mm	700 x 740 x 1650mm	800 x 840 x 1800mm	1400 x 1400 x 1880mm	1400 x 1600 x 1880mm
Max. Data points	up to 50,000 [robot model dependent]					
Safety Interlock	Safety light curtain or interlocked enclosure door as appropriate					
Programmable storage	Up to 100 Programs, Programmable Teach Pendant					
Installation	Training & Installation is highly recommended for the Stratus I & II, and required for the Stratus III, IV, V, VI & X					
Stratus Series X	Let us design a custom solution for you.					

BASE PLASMA UNIT - CIRRUS

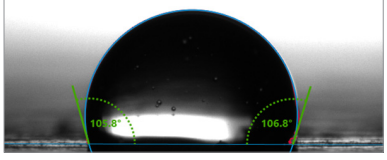
PLASMA NOZZLE	
Treatment width	~10-12mm with standard applicator “mode” nozzle
	~8-10mm treatment area, for narrow channels with “finite” nozzle
PLASMA POWER SUPPLY	
Power	300W, nominal
Frequency	40 kHz
PROCESS CONTROL	
Interface	- External switch box - Teach pendant - Remote via D-Sub Connector
	- Outputs: - I/O System ready - HV on/off **- Inputs:** - Remote Interlock - Plasma on / Plasma off
Gas Connection	Dry and oil free compressed air; 5 - 8 bar, approx. Flow rate 2000 l/h
DIMENSIONS	
Power Supply	W 490mm x H 180mm x D 500mm | W ~10kg (including plasma head)
Plasma Head	ø 32mm x L 210mm | W ~0.5kg
Gas/HV Supply Tube	PVC-protection conduit, Diameter: 19mm, Length: 3m, Bend radius: min. 100mm
SERVICE CONNECTIONS	
Electrical	AC 210-250V/50Hz/1000VA **or** AC 110-120V/60Hz/1000VA
Gas (x1)	Compressed air - dry, oil free, 5-8bar, 6mm push fit
Power cord	Suited to region
Compliance	CE – UKCA - ROHS - WEEE

Henniker strive for continuous improvement and specifications are subject to change without notice

Typical Results

The majority of common engineering polymers, such as polyethylene terephthalate (PET), have inherently low surface energy, which leads to poor adhesion. Plasma treatment increases both surface energy and wettability. The result is significantly enhanced adhesion performance.

PET Before plasma treatment



Contact Angle 83.76 ± 0.73°
Surface Energy 43.22 ± 1.19mN/m

PET After plasma treatment

Contact Angle 20.61 ± 1.2°
Surface Energy 74.53 ± 2.16mN/m

About Henniker

Henniker Plasma are an international leader in the design, development and manufacture of plasma surface treatment systems & advanced plasma processes.

Our products are installed worldwide and trusted to deliver consistent, reliable results in both leading research institutes and in critical manufacturing steps.

We are experts in plasma technology and surface science. We are trusted partners, valued for our courtesy, professionalism and dedication to delivering the correct solution for our clients.

Services

Contract plasma treatment

Our technical staff will be happy to discuss contract treatments, from small one-off batches to regular, large throughput requirements.

Proof of concept treatment

Let's discuss your application and then we will provide a quick, no-nonsense feasibility study.

Surface testing laboratory

With a comprehensive suite of surface analysis equipment, we are able to conduct a wide range of surface property tests, both before and after plasma treatment, in order to provide you with the whole picture.

After sales support

We are proud of our reputation for being approachable, thorough and easy to work with.

"Henniker's after sales support is first class. They have always been extremely responsive if we have ever had need to call on them."

Steve Rackham, Teledyne

Rental plasma systems

We carry a wide range of our standard equipment in stock and available for short or long term hire. This is particularly useful for in-house proof of concept trials or to satisfy short term contract work.

"The low risk option of hiring a plasma unit for evaluation was a key reason that we chose to work with Henniker and one that enabled us to proceed with confidence."

Dr. Chris Nicklin, Reinnervate

Method development

We have invested significantly in laboratory facilities to assess, test and investigate all aspects of plasma surface modification on a wide range of materials. Coupled with extensive in-house and real-world knowledge, we can usually deliver a tailored treatment quickly and efficiently to suit your individual product or production needs.

"The technical team at Henniker are very knowledgeable and supportive and always approachable. I have found it a pleasure to work with them."

Simon Baxter, BAE Systems, AI

Henniker Plasma

3 Berkeley Court
Manor Park
Runcorn WA7 1TQ
United Kingdom
Tel: +44 (0)1925 830 771
Web: www.plasmatreatment.co.uk

ISO 9001 ISOQAR
UKAS MANAGEMENT SYSTEMS 0026
Certificate Number: 15234

Represented by: