



Volkswagen & das-Nano

The world's first terahertz
car body paint inspection system



The Volkswagen Group is one of the world's leading car makers, headquartered in Wolfsburg, Germany. It operates globally, with 119 production facilities in 19 European countries and 10 countries in the Americas, Asia and Africa. With around 676,000 employees worldwide. The Group's vehicles are sold in over 150 countries.

With a portfolio of strong global brands, leading technologies at scale, innovative ideas to tap into future profit pools and an entrepreneurial leadership team, the Volkswagen Group is committed to shaping the future of mobility through investments in electric and autonomous driving vehicles, digitalization and sustainability.

Since its creation in 1904, Volkswagen has been characterized as an innovative brand, constantly seeking the latest technologies to improve its vehicles.



das-Nano is the world leader in coating thickness inspection for industry.

With a patented, state-of-the-art technology based on terahertz waves, das-Nano is offering leading manufacturers in the automotive, aerospace and semiconductor industries, among others, the ability to be more efficient and ensure the highest quality, making their inspection, characterization, painting or coating processes optimal.

In operation since 2012, das-Nano has extensive experience in the industry and has established itself as the global leader in the field of inspection with terahertz waves, being the ideal solution for contactless thickness measurement of coatings, detection of hidden corrosion or electrical characterization of graphene in a non-destructive way, among other cutting-edge solutions.

The Challenge

IMPROVE THE CONTROL OF THE CAR BODY PAINTING THICKNESS

The competitiveness in the automotive sector is very high and therefore it requires the most exigent in-line quality control processes. However, the current worldwide used quality control methods for the car body coating thickness measurement presents several flaws that had to be addressed with a new technology.

Car Body Painting Control frequent pain points:

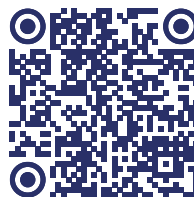
- Costly and partial manual processes of measurement.
- Thickness measurements of the entire coating, not of each layer.
- Contact systems that can damage the car body coating.
- Technologies that are only valid on metallic substrates, but not on plastic components.
- Systems only valid for flat surfaces.



Frank Uhlemann
Painting Process Planning
Manager at VW Navarra



“ Due to the obsolescence of our previous measurement systems, the Wolfsburg planning department and our technology partner das-Nano, decided to introduced an installation based on Terahertz technology. This system allows us the simultaneous measurement of all paint layers in a fully automated way eliminating manual processes”.



**Watch
Video!**

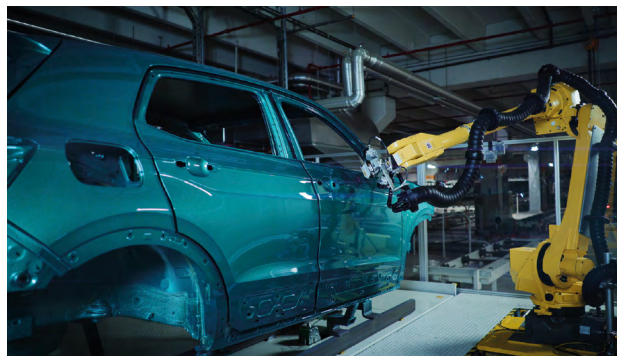
The Solution

A PATENTED COATING THICKNESS MEASUREMENT TECHNOLOGY BASED ON TERAHERTZ WAVES

das-Nano has solved the Volkswagen challenge thanks to the Irys system, a patented contactless technology that, using terahertz waves and proprietary algorithms, measures the thickness of each coating layer of a car body in a non-destructive way.

The main advantage of this system is the ability to provide the vehicle manufacturer with information, hitherto unavailable, of its painting process.

Compared to old school systems, a 15% saving is achieved in the cost of the process, thanks to the reduction of materials, energy and defective pieces, with the corresponding environmental impact reduction.



**VIEW das-Nano
Irys in action:**



das-Nano's terahertz technology has been chosen after an international tender by the world's leading car manufacturer, Volkswagen, for the world's first installation of the paint thickness inspection system at Volkswagen Navarra's facilities. Irys is successfully in full operation, 24/7, since July 2020.

One system, a thousand possibilities

- The system Irys allows fast and contactless inspection of materials.

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- Irys provides with real-time thickness data of each applied coating layer (wet, dry and cured) are obtained, providing the customer with a more reliable painting process and early detection of defective pieces.

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- Irys is fully automated and with its self-calibration feature, no calibration stops are required.

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- das-Nano Irys is valid for any type of substrate: metallic, plastic, composite, etc. and also on flat and curved surfaces, with an excellent accuracy of 1 micron.



Claudio Sole

Paint Expert at
Volkswagen Headquarters in Wolfsburg



“ With previous methods, it was still necessary to make scratch bodies, mask them off and manually measure the layer thickness. So now we have significant time and material savings with this novel system. You get much more information compared to previous systems”.

The Results

THE GATEWAY TO SAVING TIME, MATERIALS & ENERGY

Thanks to das-Nano's Irys, the automotive industry can now automate a task previously performed manually. We are allowing unprecedented inspection and quality control in the paint shop.

As a result of, installing Irys has a direct impact on cost saving in materials and time, resulting in more efficient and sustainable factories.

5% Less Material

Thanks to thickness optimization

15% Overall Savings

in the cost of the process thanks to the reduction of materials, energy and defective pieces

3% Reduction of reworks

Taking advantage of real-time information

ROI <1.5 years

Return on investment before one and a half years

Unprecedented Execution Times

Thanks to fully automated system and no need for time extensive calibrations

What other car manufacturers say:



Jessie Richardson
Toyota Kentucky Senior
Engineer Paint Planning

“Through extensive testing in a production equivalent area, das-Nano has demonstrated a high degree of accuracy for measuring the coating layers of our vehicles. This is a great example of Toyota's quest for continuous improvement”.

SUSTAINABILITY

Minimizing environmental impact

The automotive industry will continue to rely on this new inspection technology for the painting processes, not only for the direct benefits of it's application but also for the significant environmental impact reduction.

>>>> Thanks to one single lrys system, **50 kWh/car can be reduced in the painting process**, which implies more than **16 GWh/year in a main car manufacturing** plant such as Volkswagen Navarra: **a reduction in CO₂ emissions higher than 7,000 CO2 ton/year.**

“ Our Technology offers high spatial resolution below the millimeter, down to the micron unit, can pass through most materials that have low electrical conductivity, and are low-energy waves, harmless to humans”.



Israel Arnedo
Director



Why das-Nano Irys?

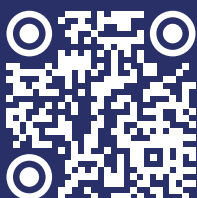
COATING THICKNESS MEASUREMENT TECHNOLOGY THAT ALLOWS TO:

- Save costs: time, materials & energy
- Reduce reworks & wastes
- Improve quality control
- Learn fast from real-time data and Analytics
- Minimize environmental impact

KEY FEATURES

- Cabling connections longer than 30 meters	- Compatible with any conventional robot
- Dual head system available	- Easily automatable: <ul style="list-style-type: none">- Couplant free- Compressed air free
- Contactless	- IP54 for harsh environment
- Non-destructive (NDT)	- Car body temperature: from 10°C to 150°
- Multilayer thickness map	- Metallic, plastic and composite substrates
- Thickness accuracy: 1 µm	- Flat and curved surfaces
- Patented vibration compensation system	- Dry, wet and cured paints
	- Harmless for humans (non-ionizing)

Several top OEMs and Tier 1 plastic components suppliers already trust us



**Ask for
IRYS
datasheet**

THE IRYS SYSTEM IS COMPLEMENTED WITH DAS-NANO ANALYTICS PLATFORM THAT ACHIEVES:

- Exploitation of real-time and historical coating data
- Control and monitoring of the painting process
- Early detection of quality errors and correction
- Complete knowledge for a more robust process



“ Terahertz technology brings a new light for the industry, and in the automotive sector, in particular, is setting the global standard on quality control for body coatings”.

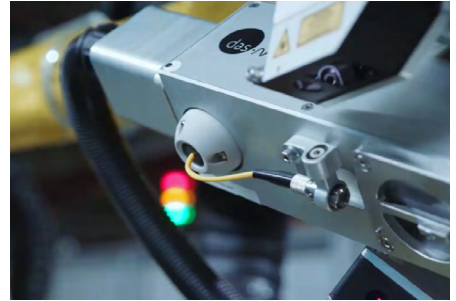


Eduardo Azanza
CEO and Cofounder



Gallery







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TRUSTED BY INDUSTRY LEADERS WORLDWIDE SINCE
2012

The new light for the industry



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