

## TECHNOLOGY

# High efficiency cleaning of car bodies at fast cycle times

The newly developed Robot Sword Brush combines brush cleaning technology with air technology



Freshly applied PVC seam sealing remains untouched by the brushes and is cleaned instead by Tornado Nozzles using air technology.

Photo/Graphics Wandres

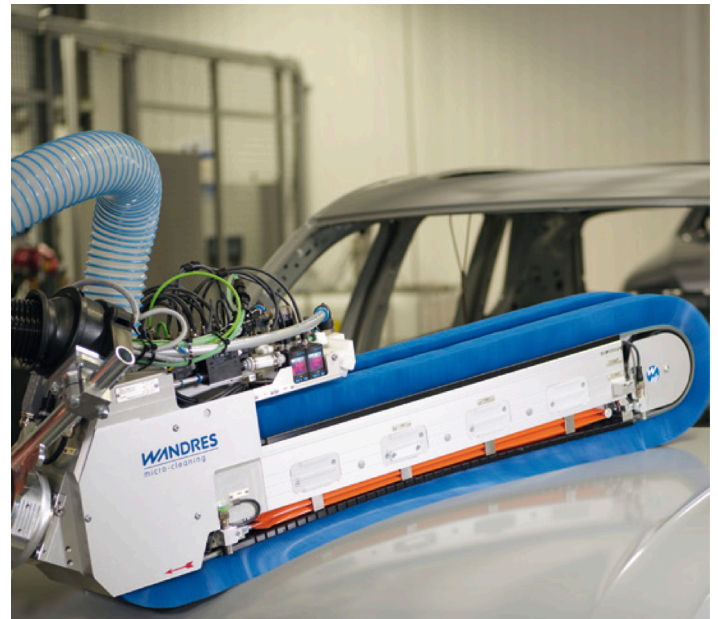
**R**obot Sword Brushes are frequently deployed on paint lines to clean vehicle body shells before application of the final top coat and clear coat layers. The newly developed 'Laura 160' combines proven brush cleaning technology with sophisticated air technology and delivers a highly effective cleaning performance at fast cycle times.

### Removes ultrafine particles

The Robot Sword Brush

'Laura 160' features two linear brush belts with filaments made of polyamide that circulate in parallel around a sword-shaped profile. The twin linear brushes are each mounted on a pneumatically regulated flexible buffer. The brushes can correct for a discrepancy of between -30 mm and +10 mm at the centre of the flexible area of contact and therefore adjust to both convex and concave curved surfaces perfectly.

The brush filaments are



Cleaning a car body in the Technology Centre. Accurate robot guidance ensures the lines of the body shell are followed with precision.

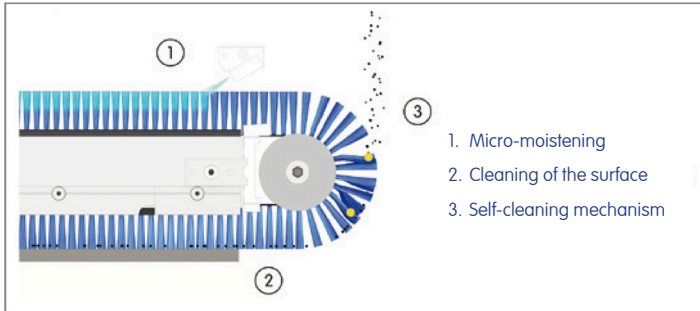
lightly moistened with 'Ingromat', an anti-static cleaning agent. Micro-moistening ensures that even ultrafine particles are absorbed by the brush filaments.

This procedure leaves surfaces dry so they can be coated immediately. Particles are dislodged from the filaments again by an adjustable rack system in a self-cleaning unit.

The detached particles are then disposed of by means of a suction system.

### Combined with flexible air technology

Rotating nozzles are fitted in a line between the dual linear brushes. These Tornado Nozzles, Type 'Janus 50 D', expel compressed air at several times the speed of sound.



During the 'Ingramat' procedure, ultrafine particles are bound to the circulating brush filaments by adhesive forces and removed continuously in a self-cleaning unit.

The compressed air dynamically removes particles and dust from grooves such as roof seams or recesses for handles. The diameter of the nozzle aperture is adjustable and the angle of the nozzle can be altered to suit the individual application. This creates the maximum effect with a minimum usage of compressed air. Thanks to the Tornado Nozzles, recessed areas, for instance roof seams and recesses for grips, can be

specifically targeted during cleaning. To achieve the best possible cleaning results, particles are removed from recessed areas of the body shell using air technology in an initial step. Subsequently, the vehicle body shell undergoes a brush cleaning process. Freshly applied PVC sealant remains untouched by the brushes.

Accurate robot guidance ensures the lines of the vehicle body shell are

## CLEANING TRIALS UNDER REALISTIC CONDITIONS

At the Wandres Technology Centre, the availability of a modern 6-axis robot with a positioning track as a seventh axis means cleaning trials can be conducted on vehicle body shells or other test objects simulating real-world conditions. When a new cleaning system is to be installed at a painting facility, the user can send a sample body shell here in advance. The technicians then conduct cleaning trials on site at various speeds to identify the appropriate parameters for optimal cleaning results.

followed with precision. The Robot Sword Brush covers the length of freshly applied and tacky PVC seam sealing exactly and without the brushes ever coming into contact with the PVC seam. At the same time, the entire area of the PVC seam is subjected to a contactless cleaning process performed by Tornado Nozzles using compressed air. ■

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