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Images: Bosch

Clean display glass for multi media

When it comes to the cleaning of display glass, the demands placed on the cleaning process are very considerable

Displays in the vehicle cockpit need to fulfill stringent quality requirements. Multi media displays must work perfectly in terms of optical performance and offer a user-friendly experience. To achieve this, it is vital that the display glass is thoroughly cleaned before the display is embedded into interior surfaces.

Bosch Car Multimédia Portugal supply multimedia display solutions for cars all over the world and have been positively impressed by the results achieved in the cleaning of display glass by the use of Sword Brush Technology. In 2014 the first cleaning system from Wandres GmbH micro-cleaning was installed in Braga, in Northern Portugal. The cleaning results and stable operation of the machines proved so impressive that in the years that followed further production lines were fitted, one after another, with this cleaning technology.

In the meantime a total of eight Combi Sword Brushes are deployed in the cleaning of display glass at the production site of Bosch Car Multimédia Portugal.

At the start of the cleaning process an employee removes the display glass from the box and places it manually in a clamping device. An automatic conveying system then transports the display glass in a pre-mounted unit through the Sword Brush where the glass is cleaned from above. The Sword Brush cleaning procedure and all the subsequent process steps are carried out in

The cleaning of display glass places high demands on cleaning efficiency and reliability

a cleanroom environment. For this reason, every Sword Brush is fitted with a specially designed protective hood. The first Sword Brush installed was fitted initially with an integrated transport cassette to convey the display glass safely through the cleaning installation on its own. This could be dispensed with in the following installations as the display glass came already mounted in a kit. The type of Sword Brush installed, Combi Sword Brush Type Una X 125, consists of two Sword Brushes, positioned one after another and mounted on a shared adjustment unit to enable the height to be adjusted in parallel. The brushes wipe in opposite directions across the surface of the glass. Brush cleaning technology together with the Ingromat Method and the two-fold wiping action of the brushes delivers an exceptional and high-efficiency cleaning operation.

Integration into the process line

The brush filaments are continually micro-moistened with a very thin film of Ingromat antistatic cleaning agent. Even ultra-fine particles can then be removed from the surface of the glass. Contaminating particles cling to the brush filaments and are swept along to the self-cleaning unit. Here the particles are detached from the brushes again and disposed of by means of vacuum extraction. The surface of the glass remains dry during this cleaning process. The circulating linear brushes are mounted on a pressure buffer thereby guaranteeing a uniform wiping force by ensuring the brushes exert a consistent pressure on the surface. Following the Sword Brush cleaning procedure, in some lines a robot automatically grasps the glass that has been cleaned. In other lines, an employee lifts the glass manually, holding the surface that has not yet been cleaned, and places it in the next machine. After the removal of particles and dust by the Wandres Sword Brushes, any possible finger marks and other organic contaminants are removed before the glass is fitted together to form the display.

Convincing cleaning results

Bosch Car Multimédia produces on average around 1,000 displays a day on seven lines

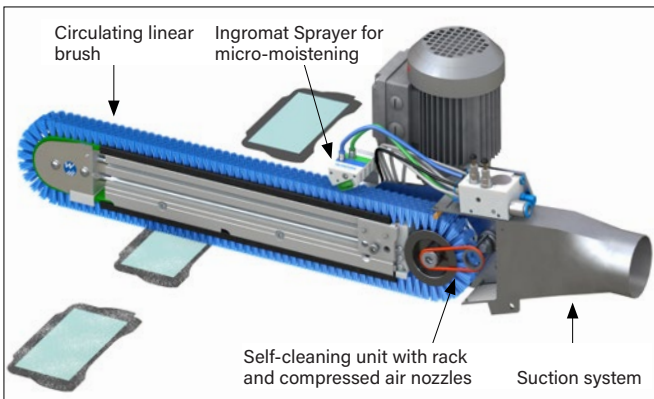


Images: Bosch

The glass is placed in the clamping device and conveyed under the Sword Brush. The cleaning procedure and subsequent downstream process steps take place in a cleanroom environment.

that run in parallel. Apart from short periods of machine downtime due to changes of shift and breaks, the cleaning installations basically run smoothly 24/7 non-stop. An analysis of particles provides compelling evidence that Combi Sword Brushes deliver an effective and consistently high-quality cleaning performance in continuous operations. After the Sword Brush cleaning procedure, a significant reduction in contamination can be observed.

Defects as a result of particles only become apparent when the display is finished. The value of the product is by then already very high and therefore every single part that is scrapped represents a substantial financial loss. Cleaning with Sword Brushes leads to a hefty reduction in the rejection rate thereby making significant cost savings. As a result, the investment in the cleaning systems will be recouped within a very short payback period.



Images: Wandres

Sword Brushes clean by implementing the Ingromat Method: micro-moistened filaments remove particles from the surface of the glass and are refreshed again in a self-cleaning unit.

In the past seven years the low-maintenance Combi Sword Brushes have had virtually zero downtime. Miguel Rosmaninho, head of department for Simultaneous Engineering Assembly at Bosch Car Multimédia Portugal, is suitably impressed: 'The Wandres Company have made an excellent impression on me, particularly the brilliant technical support provided by their service team. The cleaning system itself is robustly engineered and the cleaning results say it all.'

