

Perfectly clean surfaces in glass production



Surface Cleaning Technology



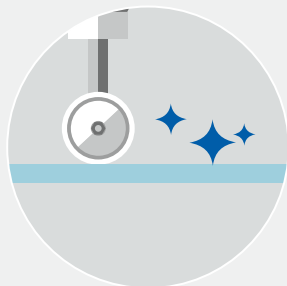
Efficient surface cleaning for smooth production processes

Clean product surfaces are an important quality requirement and a necessary condition for smooth manufacturing processes. Effective cleaning improves surface quality, reduces the rejection rate, and can prevent costly production downtime.

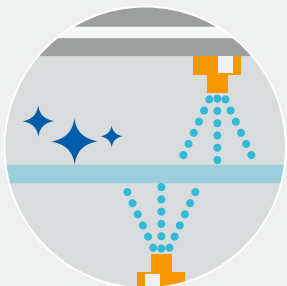
Wandres' compact cleaning systems can be integrated easily into new or existing production lines. The machines require little maintenance and are in 24/7 continuous use at many stages of the production process and deliver consistently outstanding results.



Typical cleaning applications



After cutting



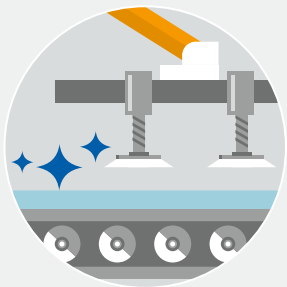
Before washing machine



Before printing



Before video inspection



Before stacking



Conveyor belt cleaning



/// In continuous industrial use, Wandres cleaning systems deliver consistently high cleaning performance with remarkably low operating and maintenance costs.

Effective removal of interleaving powder

When interleaving powder is removed using Wandres' cleaning technology, the filters in downstream washing machines need to be replaced less frequently – or the washing machines can be replaced completely. Before stacking, any build-up of interleaving powder on the underside of the glass is removed, as this could otherwise cause damage to the coating during stacking.

Remove interleaving powder using Wandres technology:

- Runs smoothly 24/7
- Stable operation of the washing machine
- Protects delicate surfaces
- Ensures a clean production environment
- Pays off in a short time

Reducing the load on the washing process significantly

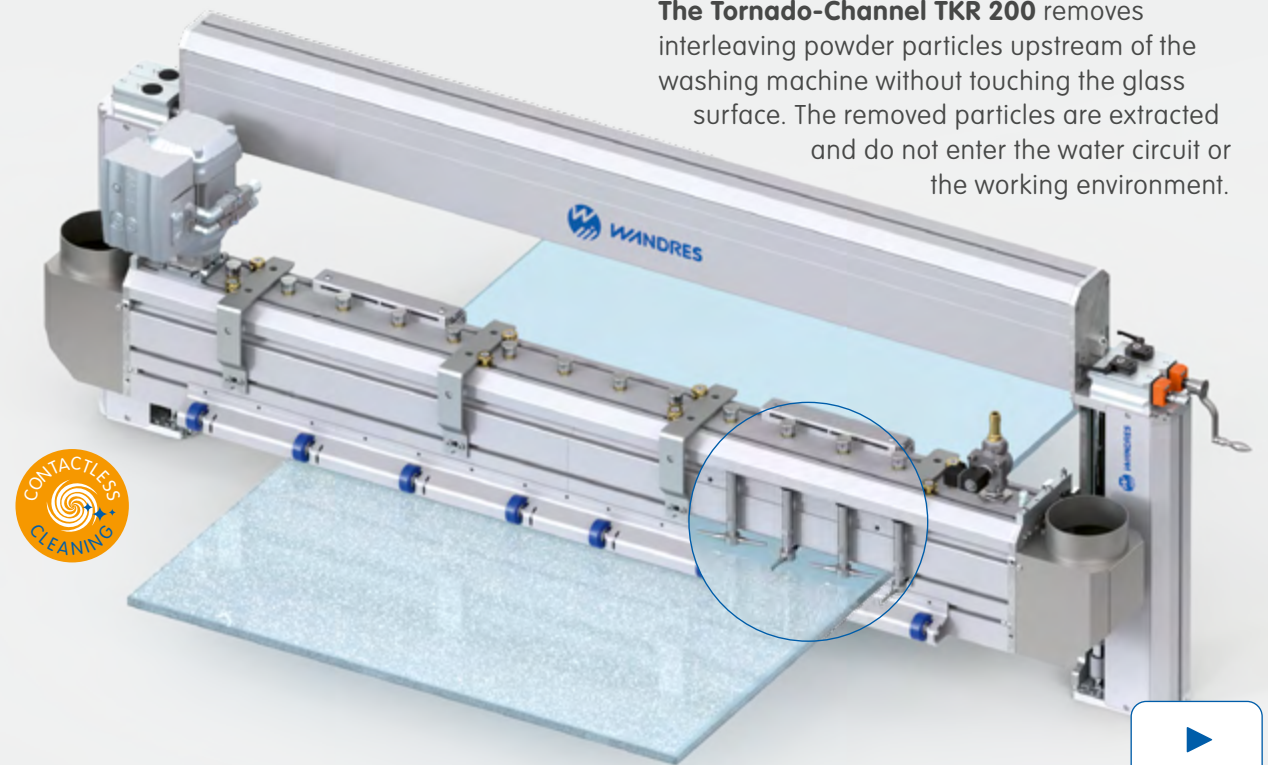
The **Combi Sword Brush** is configurable and can be integrated easily into new and existing production lines. Cleaning **automotive glass after destacking** ensures smooth processes with low operating costs.

- 1 **Sword Brush BIX 51** (top and bottom) cost-effective dry cleaning with microfilaments. Also available with the Ingromat® system as an option.
- 2 **Option: Trans-Vac-Unit TKLO 46**, high-capacity suction channel for pre-cleaning using air technology
- 3 **Adjustment unit** for manual, electrical or pneumatic height adjustment



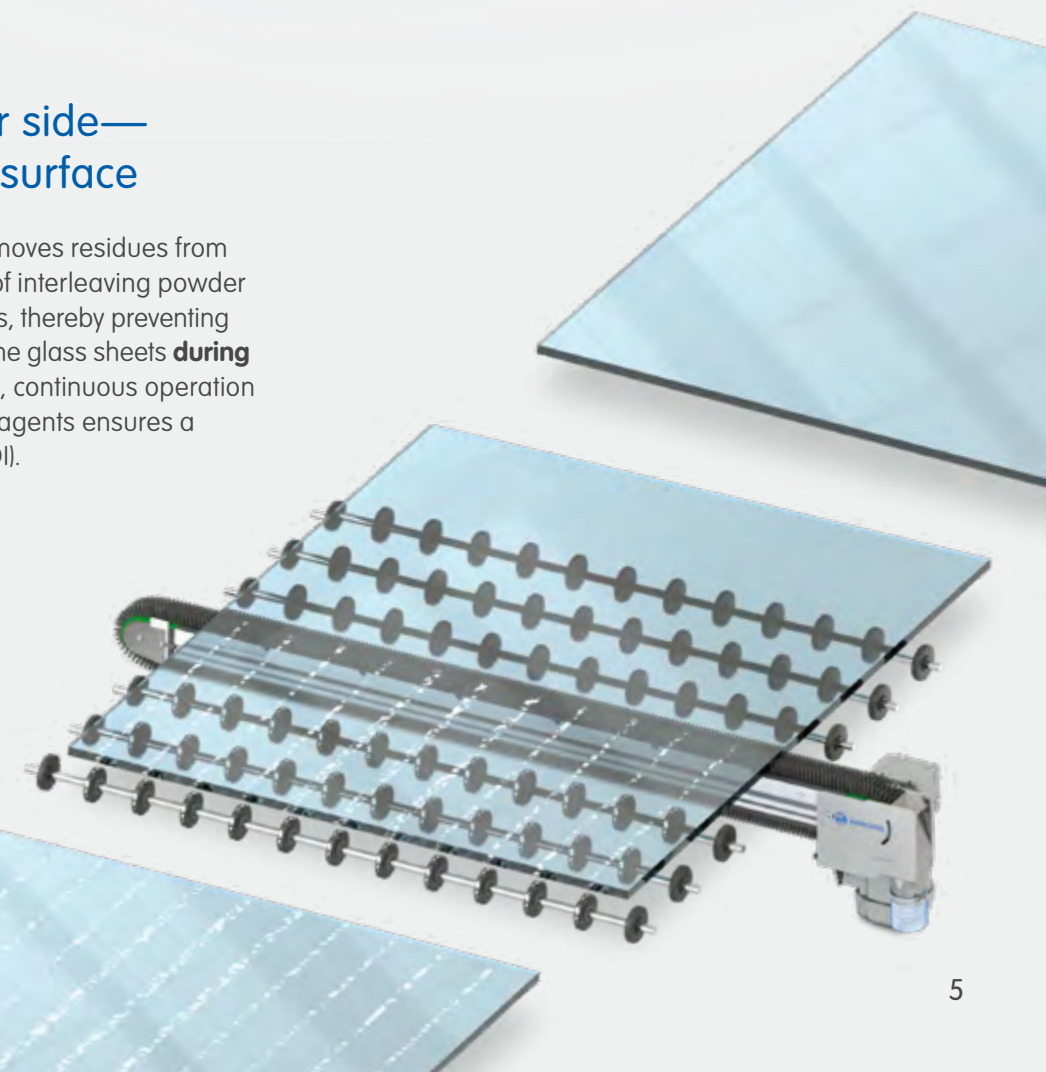
Contact-free cleaning—Flawless coating

The **Tornado-Channel TKR 200** removes interleaving powder particles upstream of the washing machine without touching the glass surface. The removed particles are extracted and do not enter the water circuit or the working environment.



Cleaning the lower side—Protecting the top surface

The **Sword Brush® BRX 12** removes residues from the conveyor belt or build-up of interleaving powder from the lower side of the glass, thereby preventing damage to the top surface of the glass sheets **during stacking**. Its low-maintenance, continuous operation without the need for cleaning agents ensures a rapid return on investment (ROI).



Sword Brush technology for the entire production chain

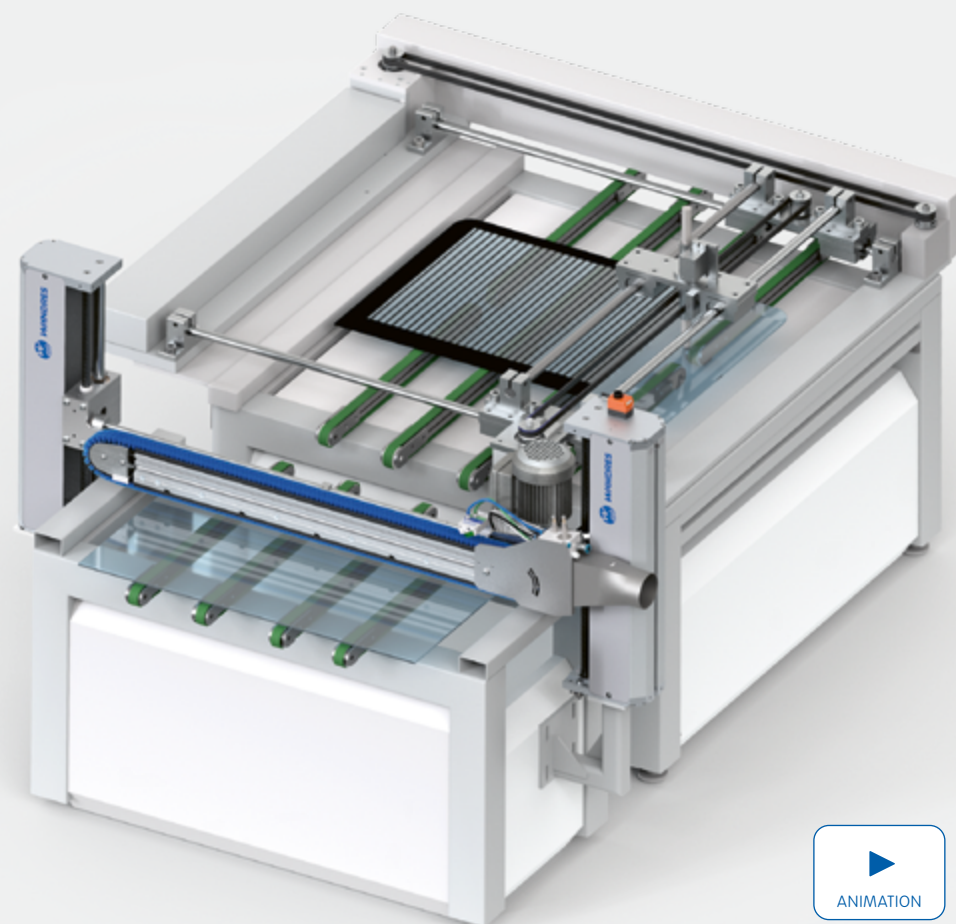
Efficient cleaning is essential in many production lines, for example in the manufacture of solar glass, multimedia displays or laminated safety glass (LSG), both before and after coating. Only a small selection of the various cleaning applications is shown here.

Sword Brush® technology offers a wide range of benefits, for example:

- Flawless print quality
- No transfer of contaminants
- Reduction of costly waste
- Preventing false alarms

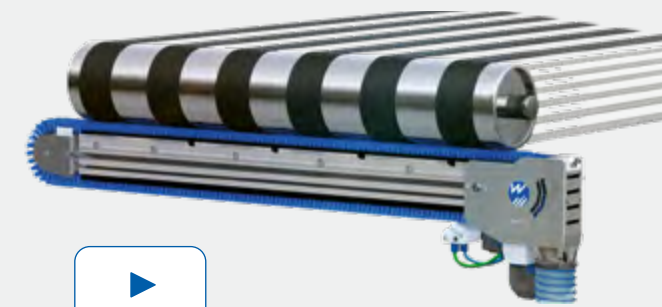
Flawless results in screen and digital printing

The Sword Brush® BIX 51 uses micro-moistened filaments to remove particles that would otherwise cause defects in the print image. The glass surface remains dry and is ready for printing immediately after the cleaning process.



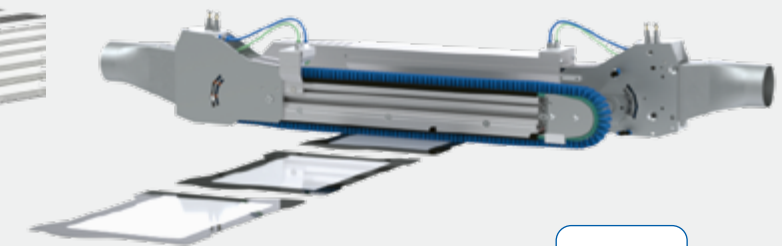
Zero particle transfer— Clean transport systems

The Sword Brush® BIXV 51 may be integrated in narrow spaces and can remove residues from the lower side of **conveyor belts**. This prevents particles from being transferred to the glass surface. The Sword Brush can also clean **vacuum grippers**.



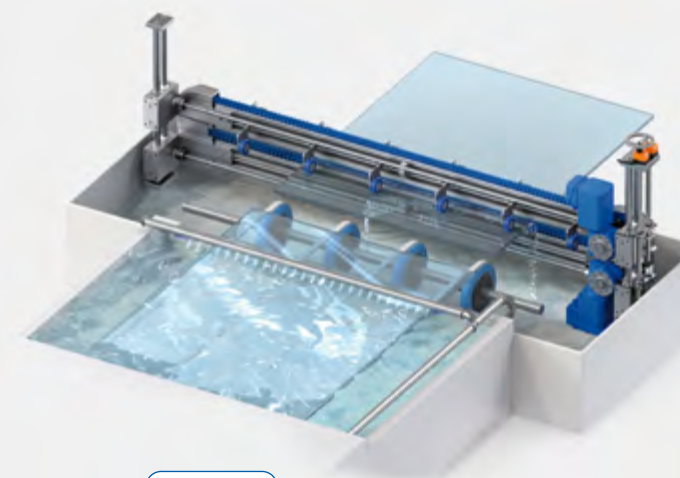
No expensive waste— Highly usable displays

Even a tiny grain of dust can interfere with the operation of multimedia displays. Scrap at the end of the process is costly. Cleaning display glass **before the assembly** is essential and is often carried out under **cleanroom conditions**.



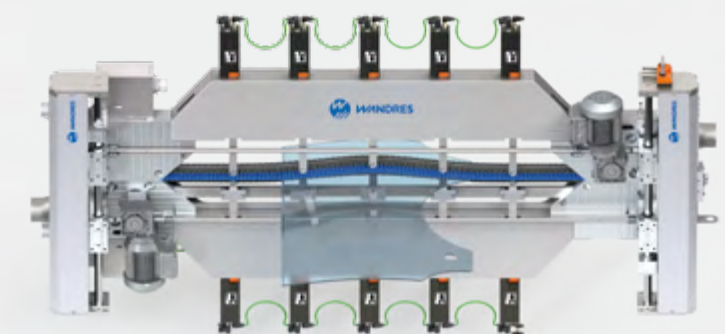
Wet cleaning— Gently removing splinters

The corrosion-resistant **Sword Brush® Aqua**, which is made of stainless steel with an enclosed motor, is a robust machine that requires little maintenance. It cleans wet glass surfaces, e.g. **after cutting or edge grinding**. During the process, glass splinters, particles and water are gently removed and the glass surface is pre-dried.



Avoiding false alarms— Reducing the rejection rate

The Combi Sword Brush Una GV adapts perfectly to the curvature of automotive windows, ensuring consistent in-line cleaning performance **before video inspection**. This prevents false alarms caused by particles and reduces the rejection rate significantly.



Application of cleaning technology in continuous industrial operation

The **Combi Sword Brush** can be integrated easily into existing or new systems and can be configured for single or double-sided surface cleaning processes. Wiping technology can be combined with contactless air-assisted cleaning units such as the **TKLO 46 extraction channel**. Coated surfaces are often cleaned without contact using the **Tornado Channel**.

The high-quality, durable **linear brushes** are manufactured by Wandres in the Black Forest. With the **Soft Touch** option, the filament tips are rounded off using a special process to ensure particularly gentle cleaning of sensitive surfaces.

Wandres technology pays off:

- Excellent cleaning performance
- Improved product quality
- Reduced rejection rate
- Increased productivity
- Less dust in the production environment
- Low-maintenance, stable continuous operation
- Reliable service
- Low operating costs
- Quick Return on Investment (ROI)



Cleanliness that pays off quickly

The purchase of a cleaning machine pays for itself quickly due to low running costs, minimal rejection rate, excellent quality and consistent downstream processes.



In round-the-clock continuous operation

The self-cleaning mechanism ensures continuous regeneration of the linear brushes and a consistently high cleaning performance. Production downtime is reduced.



Minimal maintenance, excellent service

All machine components manufactured by Wandres have an exceptionally long service life. The service team is on hand to assist you with maintenance and service calls worldwide.



Clean production, less dust load

A clean production environment reduces employees' exposure to dust. The consistent removal of interleaving powder can prevent accidents on slippery floors.

/// I am thrilled to see the cleaning results rendered by the Tornado Channel. It removes virtually 100 % of the interleaving powder. The investment has paid for itself in less than a year. It was worthwhile right from the beginning, as we had less maintenance to do at the washing machine.

Line Manager VSG, Saint-Gobain

Surface Cleaning Technology Made in the Black Forest

Wandres specialises in the development and manufacture of cleaning systems for industrial production. Its international customer base ranges from the panel and furniture industries to the automotive and sheet metal industries, as well as to the glass, paper and converting industries.

Approximately 150 employees work at the production site near Freiburg im Breisgau. Wandres has been recognised as a great employer with the 'Great Place To Work' label. Its quality and environmental management system has been certified in accordance to ISO 9001 and ISO 14001.





A family business with a long tradition

Founded in 1981 by Claus G. Wandres, a graduate engineer, the company is now run by his daughters, Stephanie Wandres, a graduate engineer, and Sylvia Wandres, a business graduate, using modern methods.



Cleaning technology for industry

Wandres supplies efficient cleaning systems for industrial production that guarantee process reliability, ensure high product quality and significantly reduce waste.



Factory and assembly in the Black Forest

More than 80% of the machine components are manufactured in-house using advanced machinery. This ensures parts availability, a wide range of flexibility, and maintains high quality standards.



Sales and Service Worldwide

Wandres has a subsidiary in the USA and works internationally with professional sales and service partners who provide on-site support to customers worldwide.



/// Wandres is a modern family-owned company that develops and manufactures innovative cleaning systems for industrial production, combining experience with an inventive spirit.

Our Certifications:



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www.wandres.com

