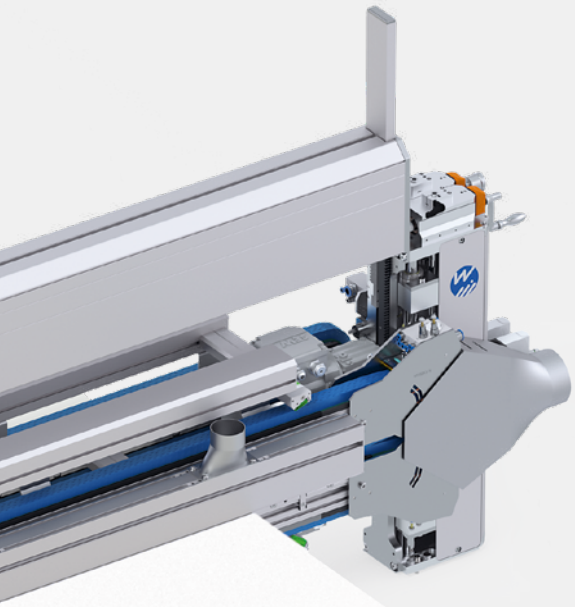
Perfectly clean surfaces in the converting industry



Surface Cleaning Technology

WANDRES
micro-cleaning

Efficient web cleaning for smooth production processes

Clean product surfaces are the key to high-quality manufacturing and smooth production processes. An effective cleaning procedure improves surface quality, reduces the rejection rate and prevents expensive machine downtime. The compact and energy efficient cleaning systems engineered by Wandres are easily integrated into existing production lines. They keep continuous manufacturing operations up and running in multiple areas of the converting industry.

Sword Brushes deliver a low-maintenance method of cleaning paper, cartonboard, plastic film and foil webs effectively. They improve product quality and achieve lasting increases in productivity, as well as dramatic savings in materials, energy and production costs. Web Sword Brushes remove particles and dust from fast moving web-fed materials before printing, for instance, thus preventing flaws in the print image. Deploying a Sword Brush continuously to remove particles clinging to rollers prevents debris being dragged onto the web.

Watch video
converting.wandres.media/en

After edge trimming

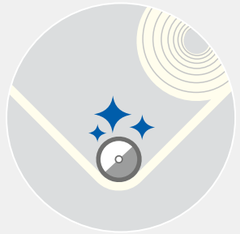
Effective removal of cutting debris and paper dust.

Before cross cutting

Eliminates paper dust before the web is cross-cut into sheets.

Before printing

Ultrafine particles are removed to prevent flaws in the print image.



Cleaning of rollers

Avoids adhesive particles cross-contaminating the web.

Our cleaning machines deliver an impressive performance in 24/7 industrial production with outstanding cleaning results despite remarkably low maintenance and operating costs.

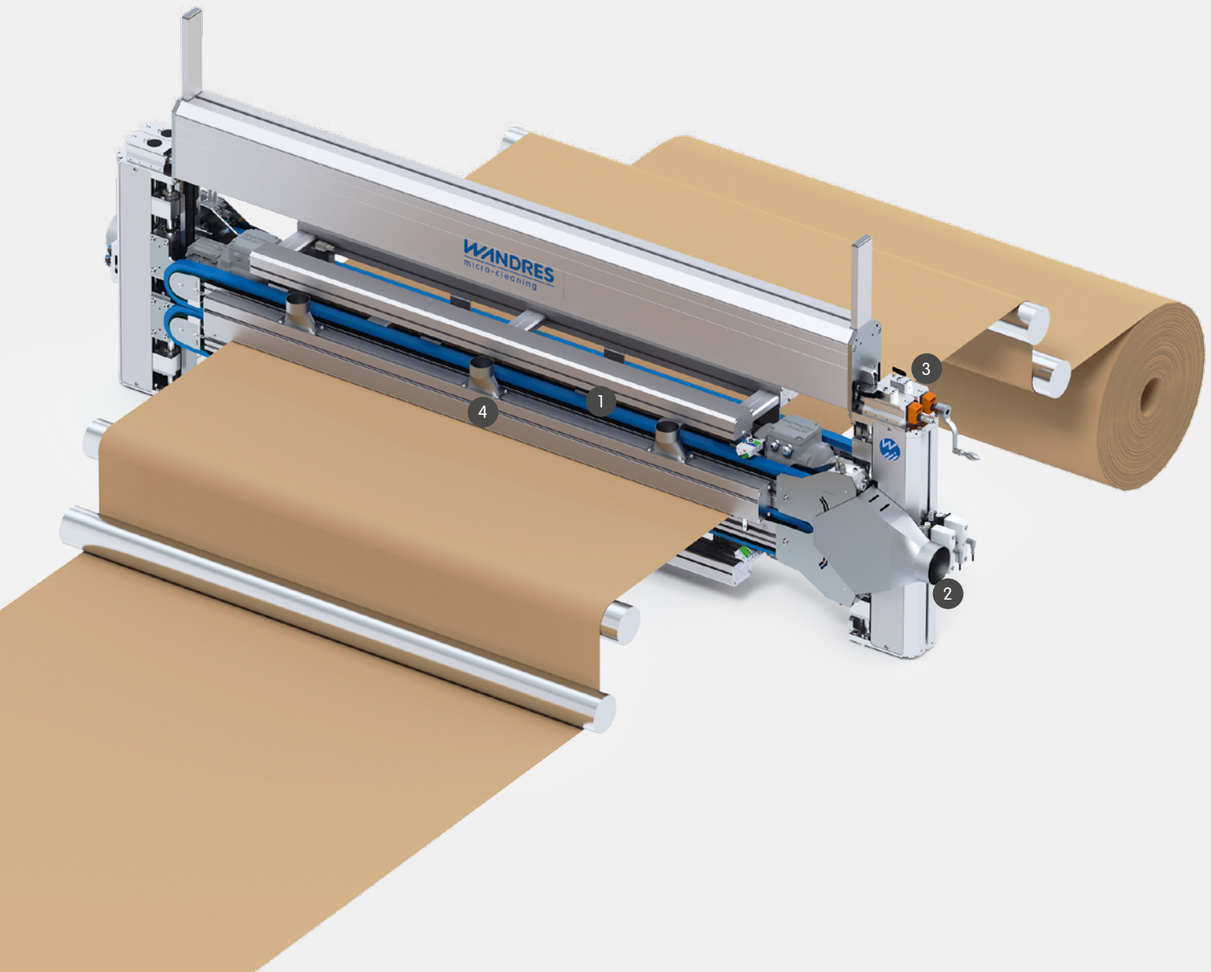
Effective cleaning for high-speed web processing

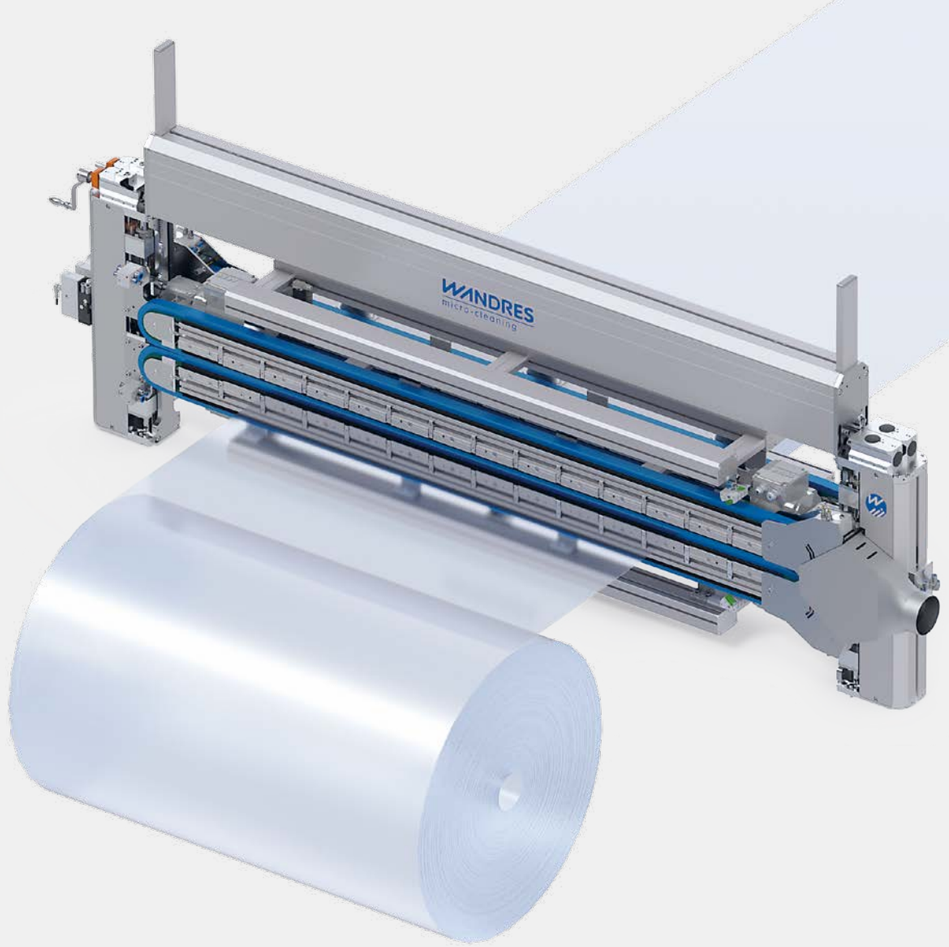
Fast moving web-fed materials running at web feed speeds of up to 600 m/min are cleaned perfectly on both sides. The Web Sword Brush cleans web-based materials such as papers, foils, delicate plastic films and cartonboard gently but effectively at high speeds. Cleaning before printing prevents particle-related flaws in the print image. The reject rate is reduced significantly as a result.

An effective web cleaning system prior to coating stops particles becoming trapped in the coating layer. The removal of trim waste and paper dust after edge trimming enhances product quality and increases process reliability. Web cleaning before the cross cutter ensures paper sheets are dust-free and ready for safe stacking downstream.

Before printing / coating

After cutting / edge trimming





Gentle brush cleaning and 24/7 process stability

Web Sword Brush Una H-WB 146

The four linear brushes of the Web Sword Brush wipe crosswise across the web. The linear brushes are raised slightly towards the periphery of the web and touch the product surface again only shortly after having passed the edge. Consequently, any folding or damage to the edges is avoided and instead the web is smoothed and flattened towards the edge. Front and rear brushes wipe in opposite directions thus ensuring the entire width of the web is cleaned seamlessly despite the lifting of the brushes. The linear brushes are mounted flexibly on a pressure buffer to achieve a consistent wiping pressure and high performance cleaning results.

The filaments are micro-moistened with Ingromat® anti-static cleaning liquid to optimise the removal of fine dust and reduce any electrostatic charge. In case of a sudden shutdown of the line or when the brushes pass over splices between two webs, the pneumatic quick-adjustment feature HVP instantly removes the brushes from the surface of the web. As an option, the Trans Vac Unit TKL 46 can be installed at the infeed to the Web Sword Brush to extract large amounts of particles and help lighten the load for the brushes wherever the web is heavily contaminated with dust.

1. **4 x Sword Brushes BIW 52** with parallel guides for the linear brushes, pressure buffer and Ingromat® System for micro-moistening of the filaments
2. **2 x Horizontal collective suction** including two suction connections ø 100 mm
3. **1 x Adjustment unit VEG 130** including pneumatic fast adjustment feature to rapidly lift brushes from the product surface (± 25 mm)
4. **Trans-Vac-Unit TKL** suction channel for pre-cleaning using air technology (option)

Cleaning technology for the entire production chain

When it comes to the manufacturing of high-end products, the optimal cleaning of paper, foil, film and cartonboard webs, for instance folding boxboard, SUS or SBS, is a crucial requirement at numerous points along the production line.

Even ultrafine particles can cause considerable quality issues and a high reject rate. Inline cleaning using Sword Brushes and Tornado Channels improves quality and boosts productivity in manufacturing while preventing the cost-intensive machine downtime involved in manual cleaning.

Cleaning of rollers

Non-stop cleaning

Sword Brush BIX 51

1 The low-maintenance Sword Brush BIX 51 cleans deflector rollers extremely effectively in continuous production. This prevents any particles left clinging to the rollers from being dragged onto the product surface and avoids repeated damage, for instance to the surface of thin filmic substrates.

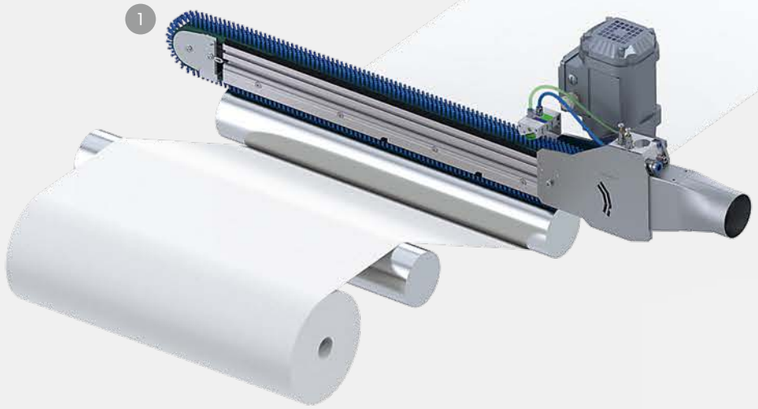
Before printing / coating

Compact design

Combi Sword Brush Una XE

2 The compact Combi Sword Brush Una XE is mounted on a single pillar and cleans narrow webs with a width of up to 490 mm either on one or on both sides. Thanks to a small footprint, the machine is easily integrated into limited space in the production line. Particles that would otherwise cause defects and quality issues are reliably removed.

1



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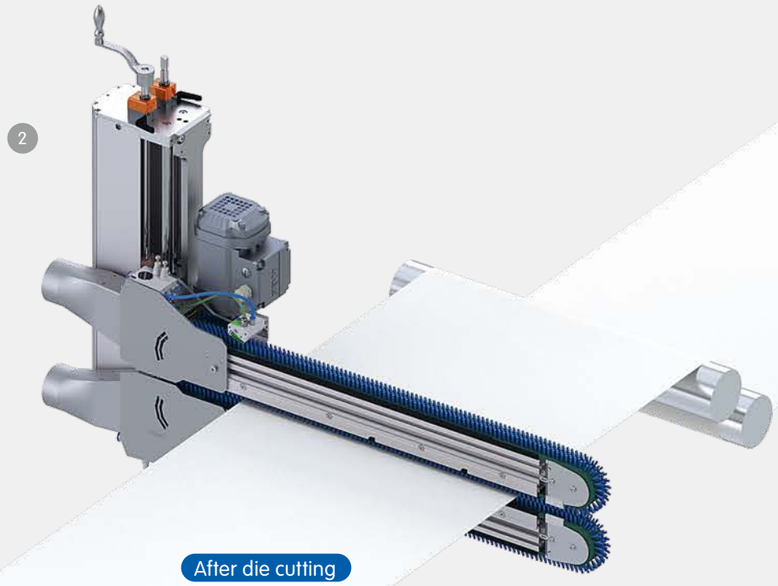


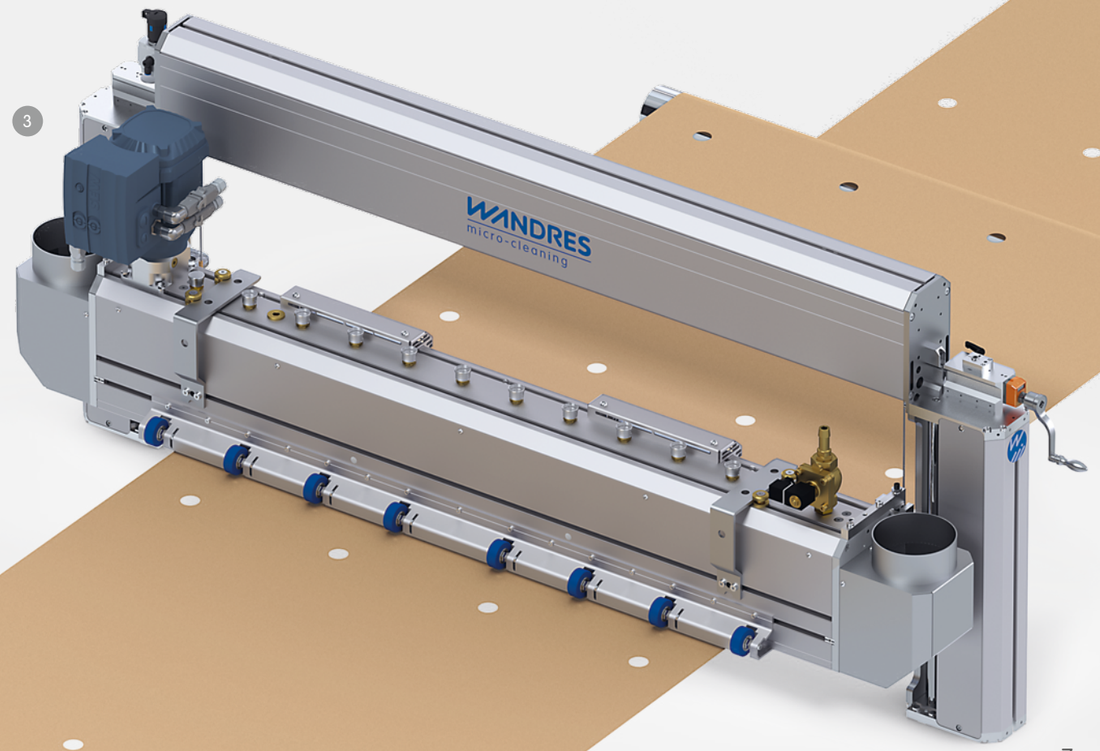
After die cutting

Contactless cleaning

Tornado Channel TKR 200

3 The Tornado Channel TKR 200 cleans cartonboard after die cutting in a contactless process. Tornado Nozzles rotate at high speed powerfully removing loose die-cutting debris and particles. The Tornado Channel even cleans scratch sensitive surfaces such as coated filmic substrates gently and effectively.

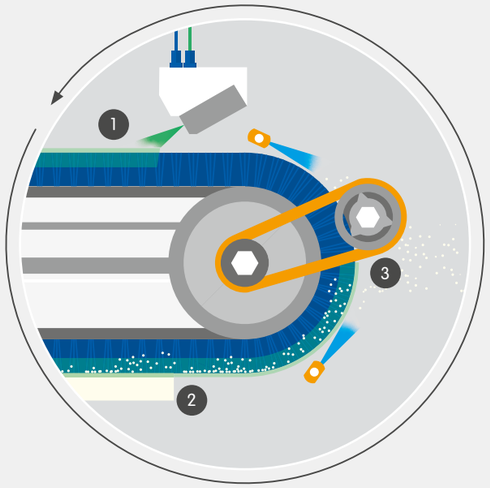
3



Innovative cleaning technology for continuous operations in production

Sword Brushes always wipe crosswise to the transport direction of the material being cleaned. The filament tips of the circulating linear brush are micro-moistened using the Ingromat® Method. An increase in adhesive forces causes particles to cling to the filaments. The particles are detached from the brush in a self-cleaning unit and disposed of by vacuum extraction. The linear brushes are flexibly mounted on a pressure buffer regulated by compressed air. The pressure buffer ensures a constant wiping force and the best possible cleaning results. The linear brushes are manufactured to the highest quality standards by our sister company Wandres Brush-Hitec in the Black Forest and have an ultralong service life. The filaments can be engineered in a highly specialised process with rounded tips to clean particularly scratch sensitive materials if required. Linear brushes featuring the Soft Touch option treat surfaces particularly gently. To protect the edges of delicate webs, the linear brushes of the Web Sword Brush are raised slightly on approaching the periphery and touch the surface again only after having just passed the edge of the web. Due to the opposite wiping directions, the entire surface is still cleaned seamlessly. Thanks to a modular design, the cleaning systems offer flexible combinations for custom solutions. To tackle excessive amounts of debris, for instance, a Trans Vac Unit can be installed at the infeed to the Web Sword Brush to perform a pre-cleaning process using air technology. The suction channel removes large quantities of dust and lightens the workload for the brushes that follow.

Ingromat® Method



1. Micro-moistening

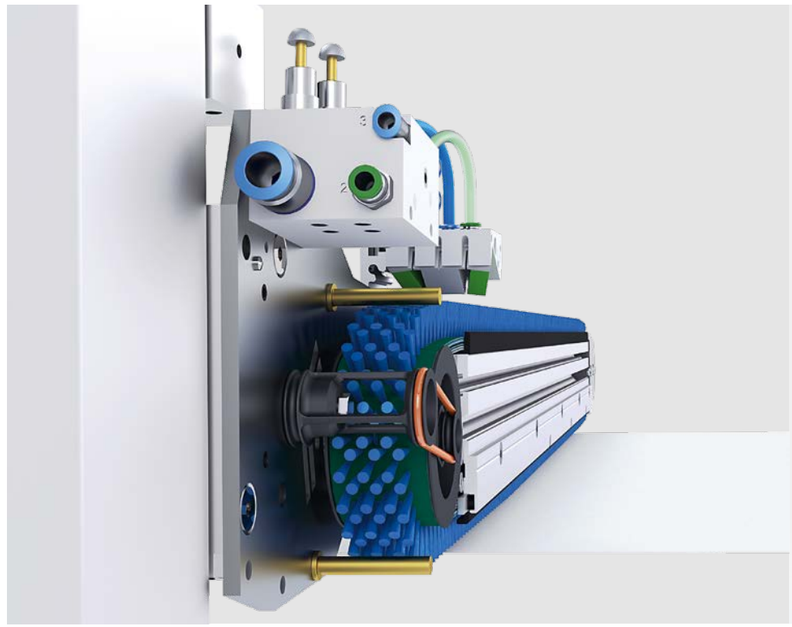
The sprayer applies a thin film of Ingromat® antistatic cleaning liquid onto the filament tips.

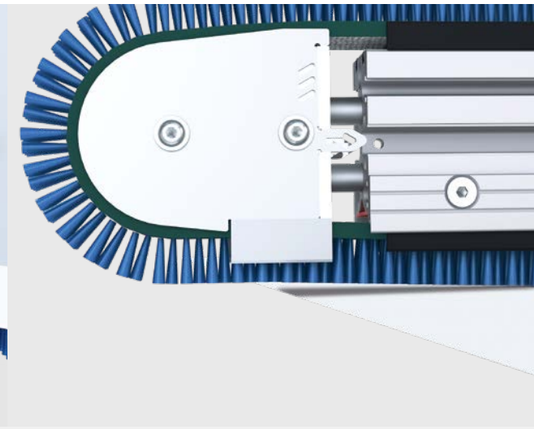
2. Cleaning of the surface

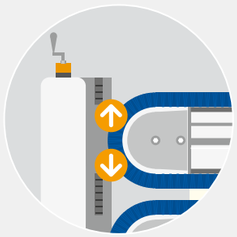
Particles are bound to the micro-moistened filaments of the circulating linear brush and propelled towards a suction system.

3. Self-cleaning

A rotating rack and compressed air nozzles detach particles from the filaments. They are removed by vacuum extraction and disposed of safely.







Height adjustment unit

The cleaning modules can be instantly removed from the surface if, for instance, a web break occurs.

Pressure buffer

A pneumatically regulated pressure buffer ensures the brushes exert exactly the right pressure and deliver a consistent wiping force.

Raised brushes at periphery

The linear brushes touch the surface only after having just passed the edge thus smoothing and flattening the web.

A perfect surface reflects our image

We specialise in the development and manufacturing of cleaning systems for continuous operations in industrial production. Our client base is large and diverse as we operate across multiple sectors worldwide ranging from the converting, paper and printing industries to the furniture and glass industry and the automotive, sheet metal and electronics sector. We collaborate with an international network of sales and service partners and have subsidiary companies in the USA and China. A team of over 140 employees develop, produce and market our innovative cleaning machines at our production site located close to the city of Freiburg im Breisgau at the foot of the Black Forest. More than 80 % of the components for our machines are produced in-house here using cutting-edge machinery and technology. In-house production safeguards the long-term availability of replacement parts and guarantees flexibility. Insourcing also ensures the stringent quality standards of our cleaning systems are maintained. We deliver the best cleaning technology wherever particles and dust on surfaces cause flaws and rejects during production.

1981

Wandres GmbH micro-cleaning was originally founded by Claus G. Wandres as an engineering business.

140 +

Employees in the Southern Black Forest develop, produce and market the Wandres cleaning systems.

> 80 %

In-house manufacturing of parts offers flexibility and control. Insourcing secures short lead times and safeguards high quality standards.

approx. 1000

Sword Brushes in different versions are produced and supplied every year.

> 55 %

Rate of direct exports proves that Sword Brushes are in action globally.

43

Countries worldwide are home to our sales and service partners.

We have been developing and manufacturing cleaning systems for industrial production for over 40 years. At Wandres, the continuous improvement of our products is a priority.

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