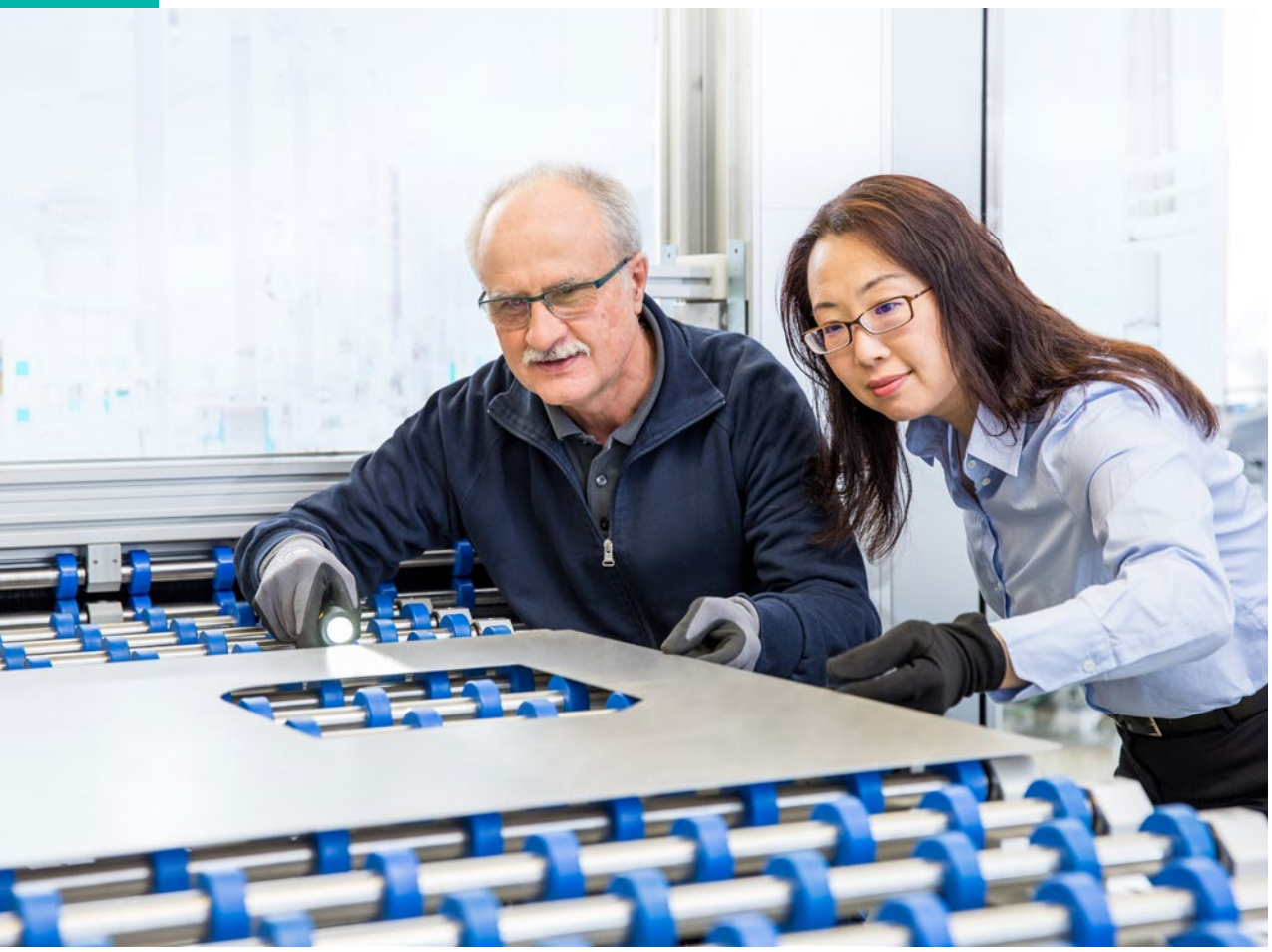
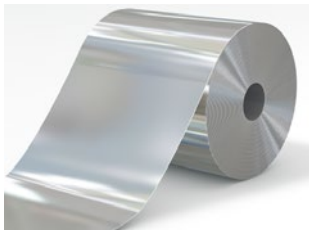
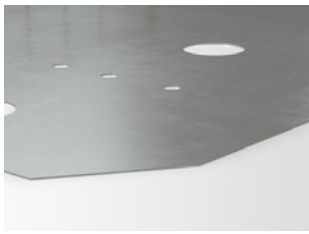
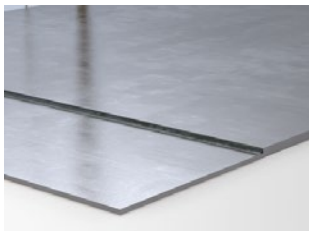
Effective surface cleaning for coils and blanks

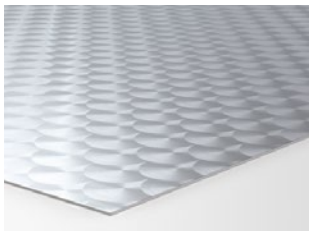
Cevomat, Evomat and Combi Sword Brushes









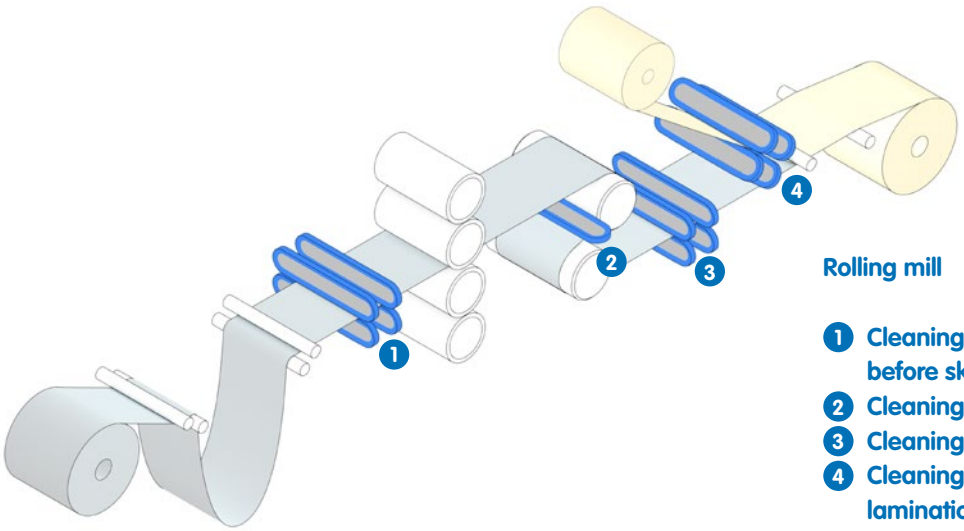


WANDRES
micro-cleaning

Convincing, effective solutions – Wandres provides for clean surfaces

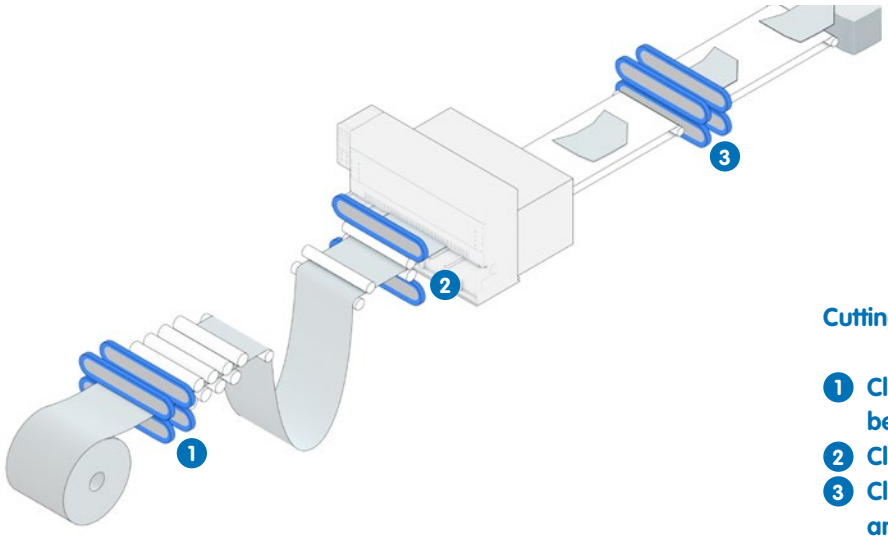
During the production of high-end products, surfaces need to be dust-free. During the transforming procedure, minute particles and dust deposits may cause a loss in quality, leading to rejections and requiring costly retouching work. Wandres cleaning systems are easily integrated into existing production lines due to their narrow footprint. In continuous operations in industrial production they deliver optimal and repeatable results thus ensuring production process stability.

Typical cleaning applications



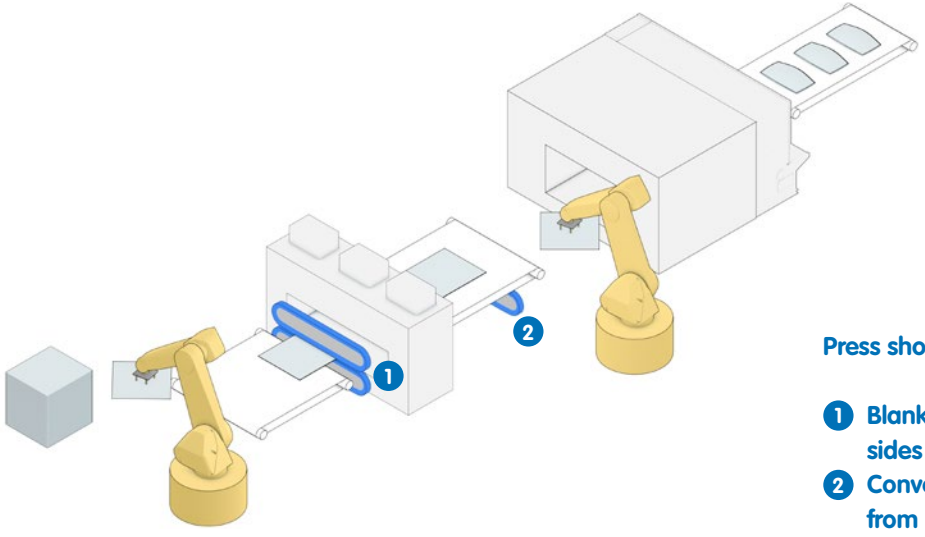
Rolling mill

1. Cleaning of strip before skin-passing
2. Cleaning of rollers
3. Cleaning of laminating film
4. Cleaning of strip before lamination



Cutting line

1. Cleaning of metal strip before levelling
2. Cleaning of feed rollers
3. Cleaning of blanks from above and below



Press shop

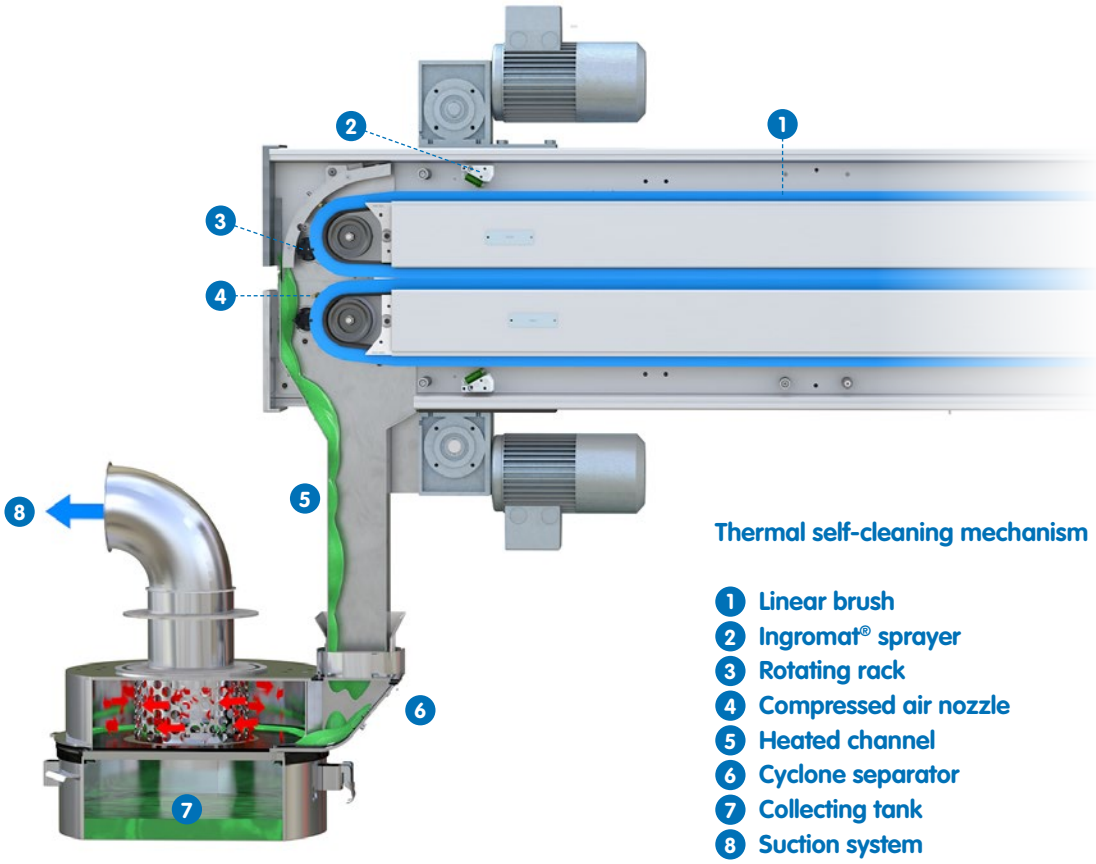
1. Blanks are cleaned on both sides before oil lubrication
2. Conveyor belts are cleaned from below

Effective brush cleaning technology for continuous operations in industrial production

Sword Brushes reliably remove particles and fine dust using the Ingromat® system. They have proved extremely effective in numerous continuous process lines in industrial production.

Micro-moistening of the linear brush with the Ingromat® cleaning liquid creates capillary adhesive forces between the brush filaments and the particles. Particles are thus bound to the brush filaments. A self-cleaning mechanism, consisting of a rotating rack and compressed air nozzles, will then detach particles from the filaments. Particles are removed from the production environment and disposed of via vacuum extraction. When cleaning oily surfaces, Ingromat® is sprayed onto the filaments to regenerate the linear brushes only at set cleaning intervals.

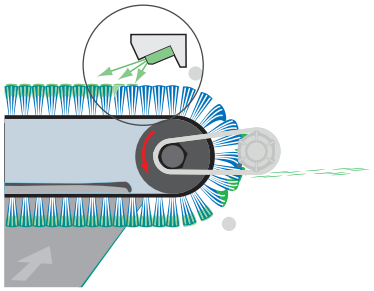
Cleaning surfaces with dry lube requires a small amount of Ingromat® to be sprayed continuously onto the brush. This minimises the amount of dry lube that remains clinging to the brush filaments. A thermal self-cleaning function heats the walls of the suction connections. The mixture of lubricants and particles flows into a cyclone separator to be separated from the extraction airflow and collected in a collecting tank. Consequently, the service life of the filters in the suction system are extended significantly.



Thermal self-cleaning mechanism

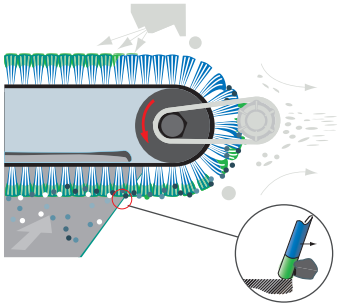
1. Linear brush
2. Ingromat® sprayer
3. Rotating rack
4. Compressed air nozzle
5. Heated channel
6. Cyclone separator
7. Collecting tank
8. Suction system

The Ingromat® system



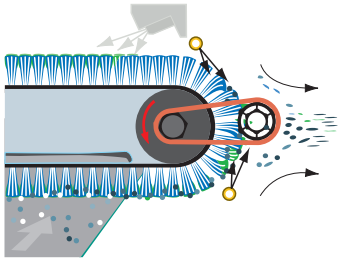
Micro-moistening of linear brush with Ingromat®

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



Cleaning of product surface

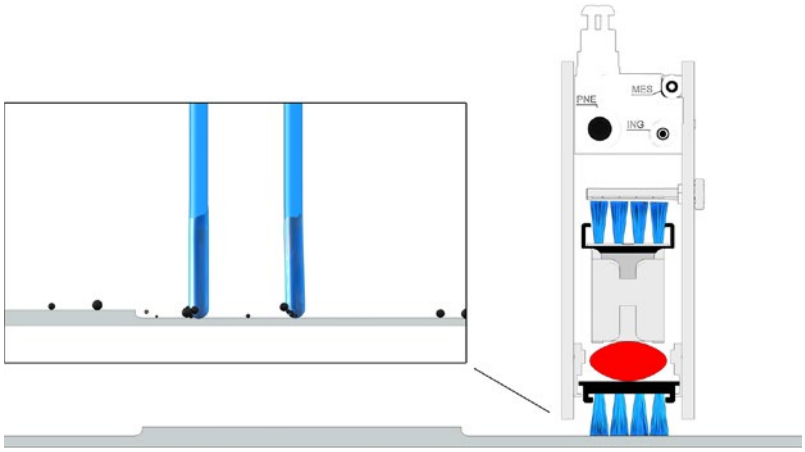
The linear brush wipes transversally across the surface. It binds particles to its micro-moistened filaments, transporting them safely towards the suction system.



Self-cleaning mechanism of linear brush

A rotating rack and compressed air nozzles combine to provide a constant cleaning mechanism for the filaments so that they continue to absorb new particles.

Flexible bedding on pressure buffer

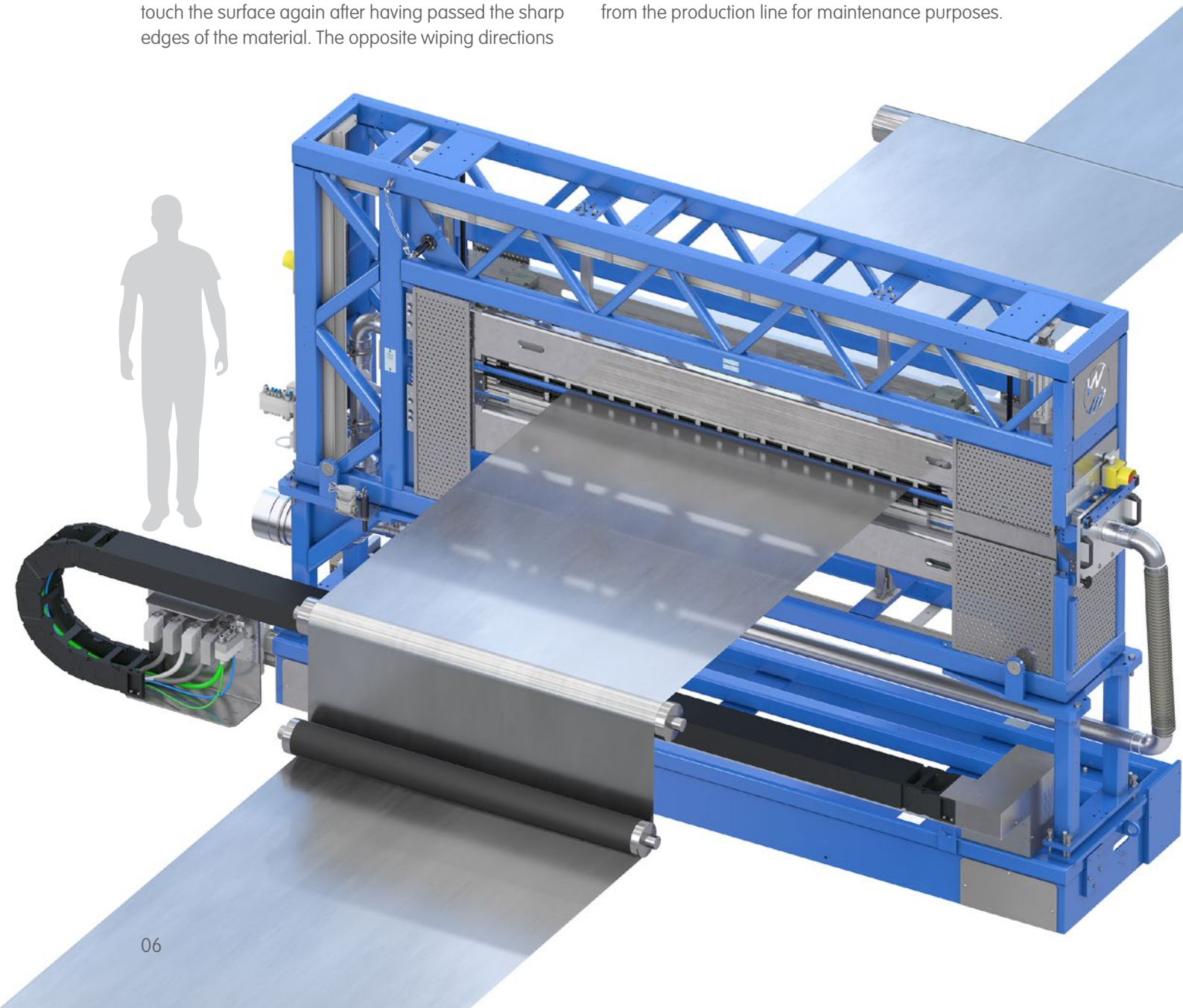


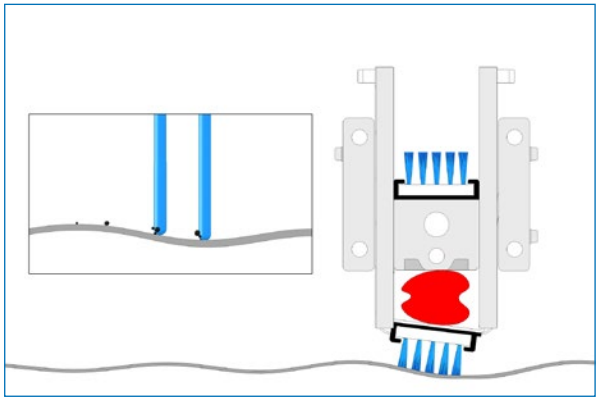
The contact area of the linear brush is flexibly bedded on a pressure buffer. This ensures that a constant force is exerted by the brush onto the surface of sheet metal of varying thickness. The wiping pressure of the brush filaments remains constant along the entire surface that is to be cleaned. Even minimal pressure achieves optimal cleaning results for the whole surface when cleaning blanks and tailored blanks that differ in thickness.

Cleaning metal strip and coils

The Cevomat® cleans metal strip with dry or oil-based lube from both sides, for instance before skin-passing and levelling or prior to applying a protective film lamination. This compact machine also cleans wavy and sharp-edged metal strip at high process speeds.

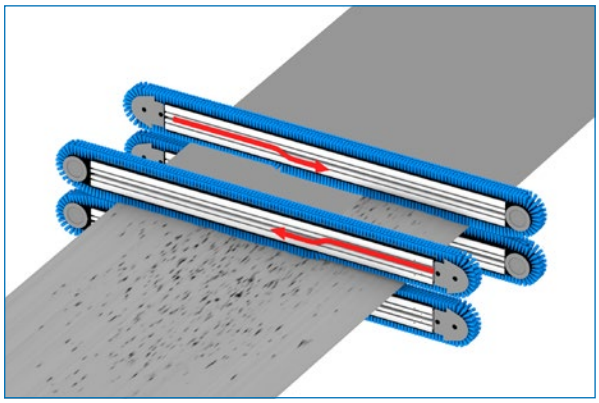
The Cevomat® cleans metal coil made of steel, aluminium and other materials from both sides using four Sword Brushes. The Sword Brushes are mounted on flexible pressure buffers, allowing them to adapt perfectly to wavy surfaces. At the edge of the metal strip, the linear brushes are lifted slightly and will only touch the surface again after having passed the sharp edges of the material. The opposite wiping directions of the brushes, which are arranged consecutively in pairs, ensure that the entire width of the strip is cleaned effectively. The four Sword Brushes are surrounded by a strong protective frame.
If the Cevomat® is equipped with the optional trolley, the cleaning machine can be completely removed from the production line for maintenance purposes.





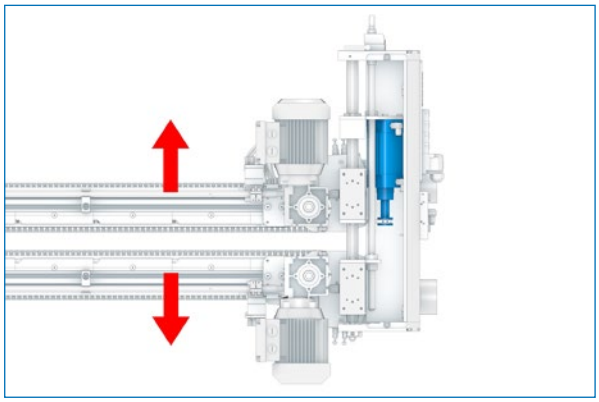
Adapting to variations in material thickness

Flexible pressure buffers compensate for variations in material thickness and provide for a consistent wiping pressure on wavy metal strip. The linear brushes are equipped with parallel guides. The brush filaments always meet the surface at the best possible angle and can therefore deliver exceptional cleaning results.



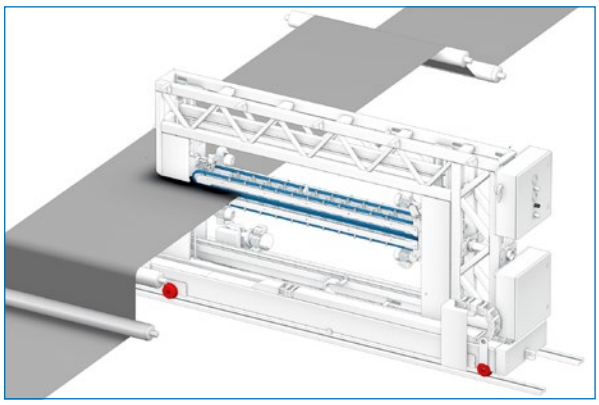
Cleaning sharp edges

Each side of the strip is cleaned by two Sword Brushes. The linear brushes are lifted slightly at the edge of the strip and touch the surface only after having just passed the material's edge. This protects the filaments and prolongs the industrial life of the linear brushes. The front and rear brushes wipe in opposite directions, thus guaranteeing that the entire product surface is cleaned seamlessly.



Rapid coil change

The pneumatic height adjustment allows for a rapid coil change. If necessary, pneumatic cylinders can raise the Sword Brushes instantly from the strip. This prevents polishing effects and connecting areas or faulty sections can pass through the Cevomat® without any damage occurring.



Easy maintenance

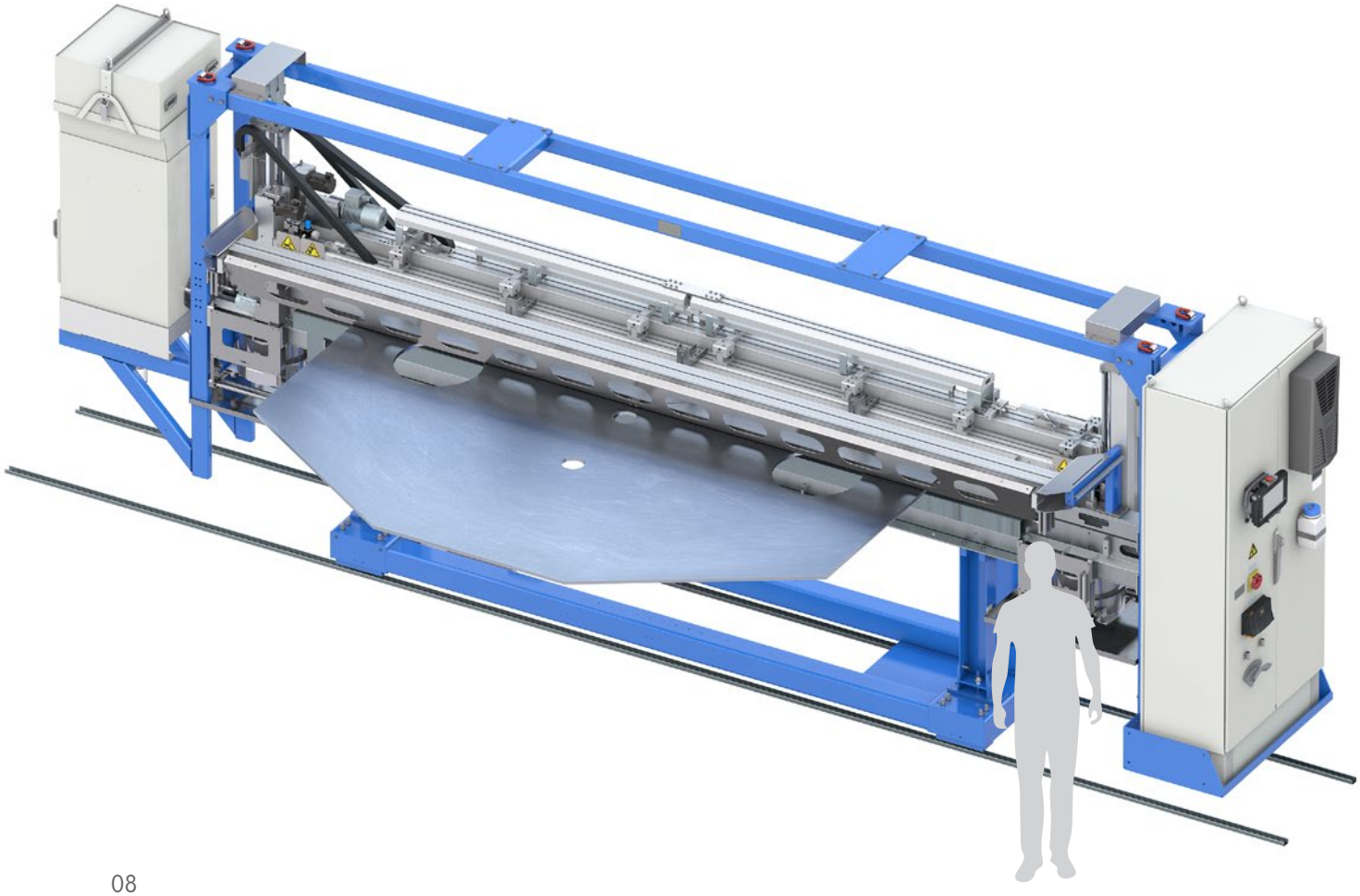
In the version with a C-shaped protective frame and a trolley, the Cevomat® can be removed from the production line with ease, even when an in-process coil is threaded through the line. Maintenance operations during continuous process applications are therefore simplified.

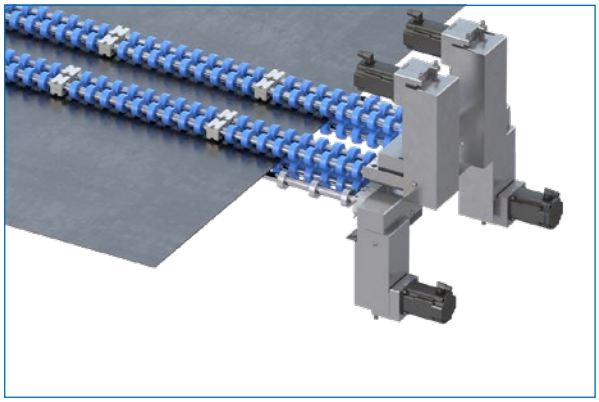
Cleaning blanks and outer body components

The Evomat® cleans both aluminium blanks with dry lube as well as oily steel blanks from above and from below. This cleaning machine reliably removes any particles adhering to the surface before the blank enters the press. Particle-related damage to the press tools or indentations on the surface of the blank are thus avoided.

Due to a space-saving design, the Evomat® may easily be integrated into press lines. In numerous press shops the Evomat® has replaced the blank washer. The Evomat® convinces by providing repeatable cleaning results of premium quality, despite low operating and maintenance costs. Optionally, the sturdy steel frame of the Evomat® can be equipped with a trolley so that the entire cleaning unit can easily be removed from the line for maintenance.

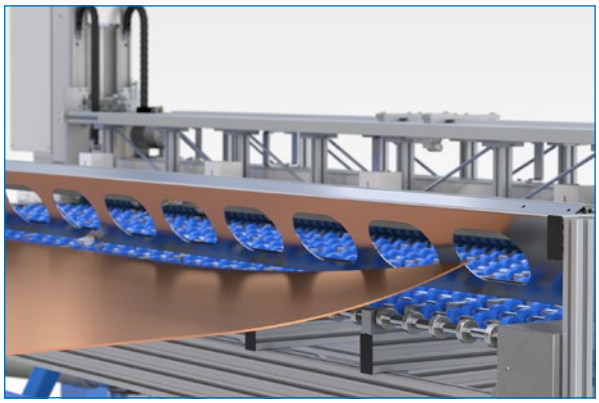
The blanks are transported through the Evomat® accurately positioned and at adjustable speed by pneumatically regulated transport and pressure rollers. Robots can then collect the clean blanks from precise alignment and load the press. Switching back and forth between aluminium and steel blanks is straightforward thanks to the self-cleaning mechanism and Ingromat® cleaning liquid.





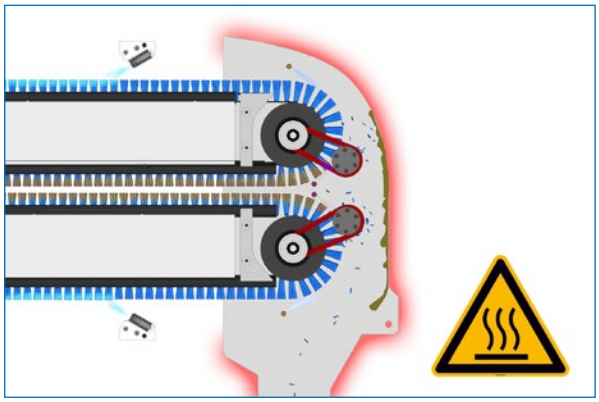
Precise conveying technology

Transport and pressure rollers that are driven on both sides convey the blanks in accurate position through the Evomat®. The pressure applied by the rollers is precisely regulated by means of pneumatic cylinders. The speed of transport of the blanks is continuously adjustable from 0 to 180 m/min. Multiple blanks can be safely transported and cleaned side by side on the conveyor rollers simultaneously and without any displacements.



Height adjustment and crash protection

Servo motors automatically position the cleaning unit at the correct height. In case of a crash situation, caused for instance by a damaged blank, the mechanical crash seesaw will be triggered. Servo motors promptly propel the upper cleaning unit into a safe position.



Separating hot melt lubricants

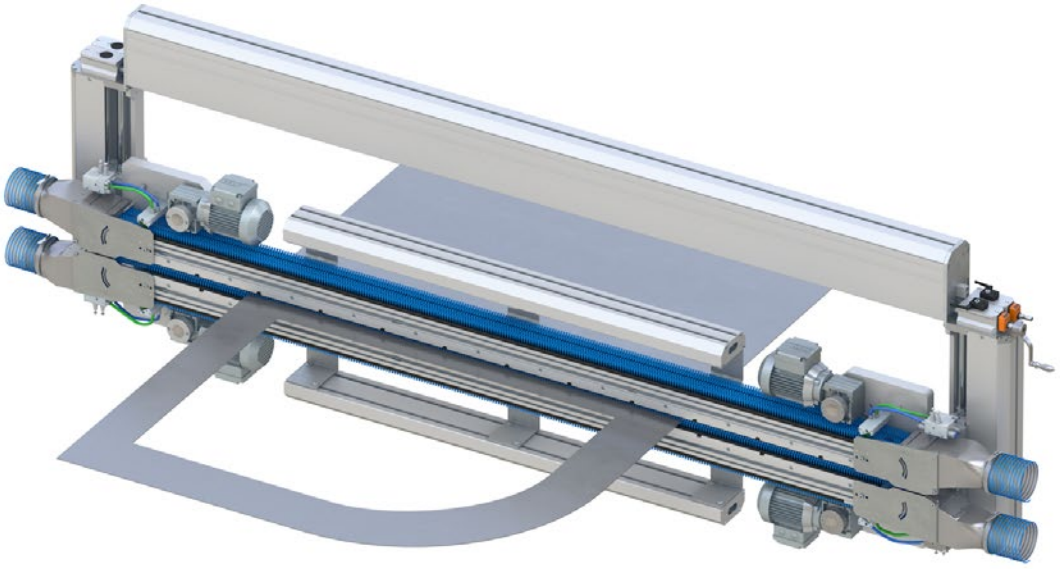
Lubricant and particles are separated from the brush filaments mechanically and pneumatically by the self-cleaning unit. A thermal function is available as an option whereby the walls of the unit and the suction connections are heated to liquefy the dry lube. The mixture of particles and lubricants flows into a cyclone separator where it is separated from the extraction air and deposited in a collecting tank.

Mobile control with touch panel

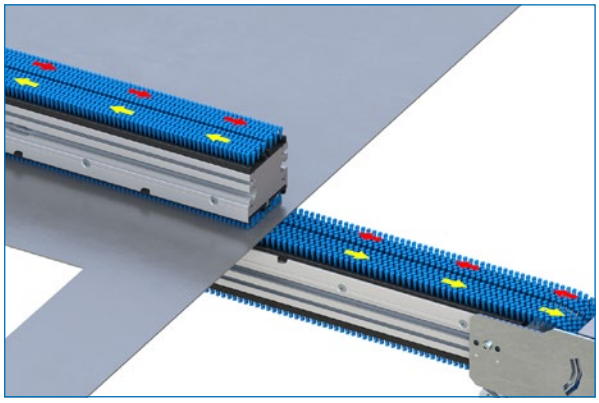
The Evomat® EVO 500 can be operated by means of a mobile device fitted with a touch control panel or via the integrated control cabinet. The user-friendly mobile panel is particularly handy during maintenance work.

Cleaning after laser blanking

Laser cutting produces very fine particles at the cutting edges that will cause disruption during subsequent processes. The Combi Sword Brush Una H-RL cleans the upper and lower surfaces of laser cut blanks with linear brushes that wipe in opposite directions and remove even extremely adhesive particles effectively.



Combi Sword Brush Una H-RL 126 with linear brushes wiping in opposite directions
The Combi Sword Brush Una H-RL 126 consists of two Sword Brushes of Type BIZ 202 with two linear brushes that wipe in opposite directions.



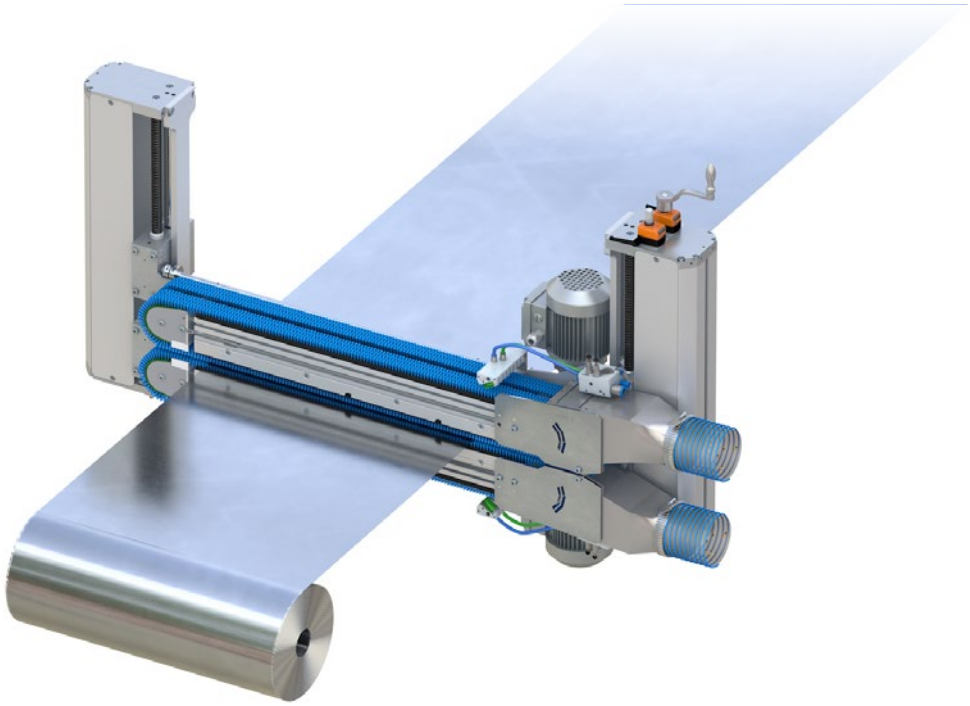
High cleaning efficiency

The parallel linear brushes wipe in opposite directions thus achieving outstanding cleaning efficiency.

To prolong the service life of the linear brushes, they are lifted slightly at the material's edges and will only touch the surface of the blank after having passed the sharp edges. The opposite wiping directions ensure that the entire surface is cleaned nonetheless.

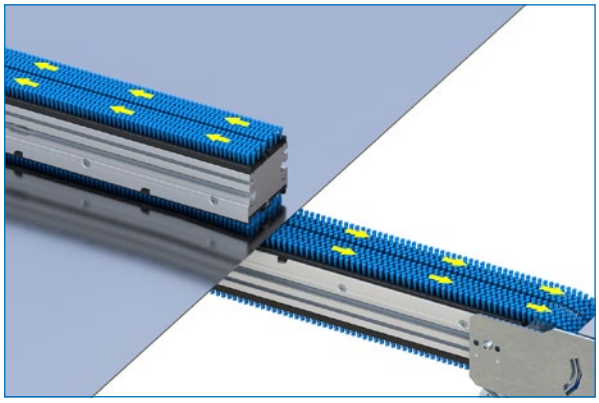
Cleaning narrow steel strip

Electrical steel strip needs to be entirely clean before levelling or stamping processes to avoid particle indentations and to improve surface quality. The slender design of the Combi Sword Brush Una XL means it is easily integrated into existing production lines.



Combi Sword Brush Una XL 121 with Power Sword Brushes

The Combi Sword Brush Una XL 121 features two Power Sword Brushes of Type BIX 102, each with two linear brushes wiping in parallel.

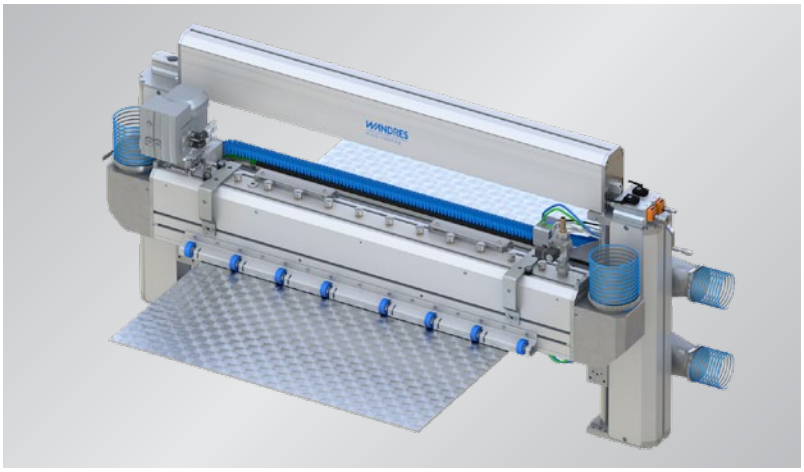


Double wiping force

Power Sword Brushes, each with two linear brushes that wipe in parallel, constitute a high performance cleaning machine with a very compact footprint.

Further applications

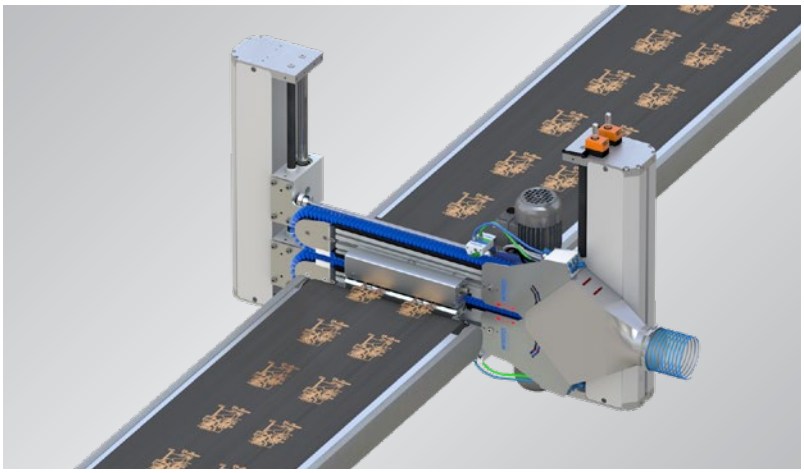
View applications:



Combi Sword Brush Una H-X 321

Cleaning textured sheet metal

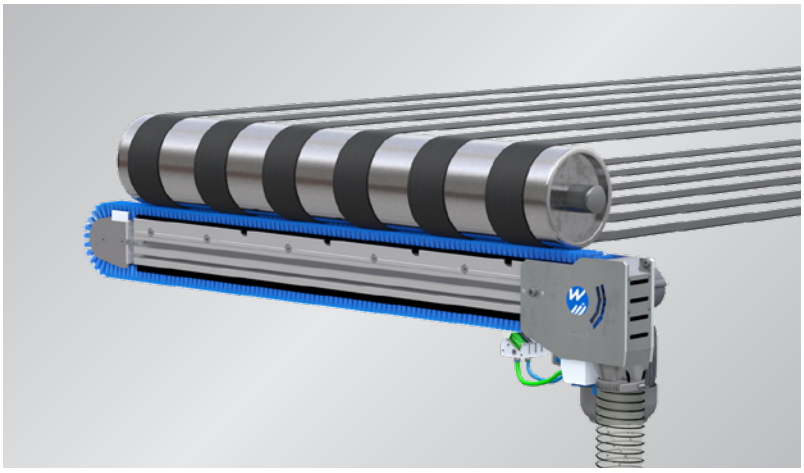
– removes large quantities of fine sanding dust as well as coarse particles
– a highly efficient combination of air technology with brush cleaning technology



PCL-Cleaner

Cleaning stamped grid plates or printed circuit boards

– accurate positioning during transport and cleaning in continuous operations
– reduces the reject rate and prevents short circuiting of electrical steel strip



Sword Brush BIXV 51

Cleaning conveyor belts and rollers

– effective cleaning of vacuum belt conveyors, magnetic conveyors, deviation rollers and conveyor rollers
– prevents adhesive particles from being dragged along the line

Wandres convinces with practical solutions

The Cevomat® cleans from above and below at high line speeds

Metal strip before or after galvanising and before skin-passing, levelling and before applying a protective film lamination.

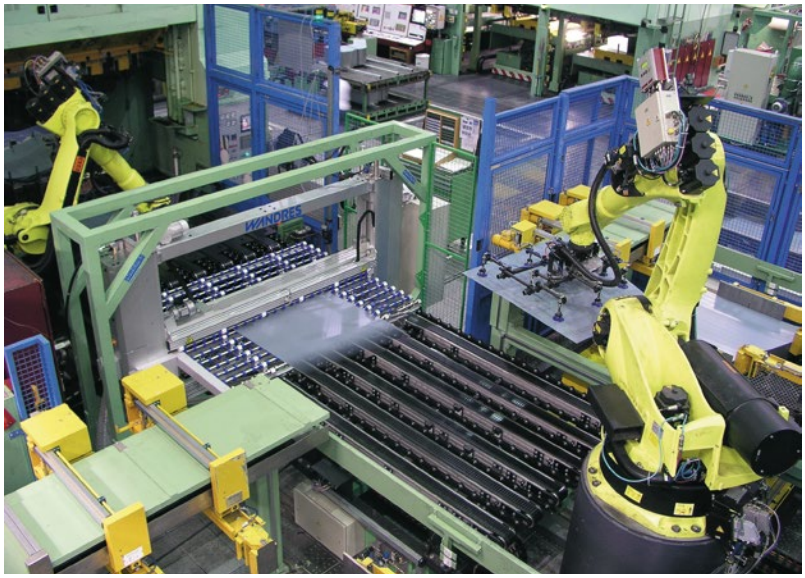
Cleaning of metal coils

– delivers outstanding quality cleaning, even for fast-moving metal strip

– aluminium, steel or stainless steel strip, also suitable for wavy strip

– energy efficient, low operating costs

– narrow design, space-saving installation depth



The Evomat® cleans vehicle body blanks prior to forming

Cleaning with the Evomat® prevents particle-related damage to press tools and blanks.

Cleaning of blanks

– superior quality cleaning and repeatable results

– suitable for both steel and aluminium, switching back and forth as required

– suitable for tailored blanks

– low operating and maintenance costs

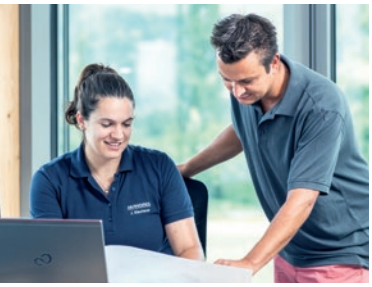
– adjusts perfectly to varying thickness of the metal strip

– straightforward integration into existing lines

– requires very little space

Please refer to our website for client references: **www.wandres.com**

Skilled and experienced
Wandres produces high quality



Product development

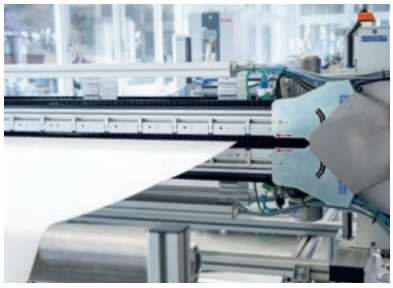
Production with modern CNC machines

Pre-assembly in cleanroom environment

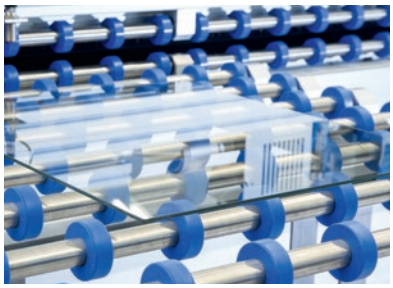
Final assembly, construction of control unit

Wandres GmbH micro-cleaning develops and produces reliable and low-maintenance cleaning systems for continuous processes in industrial production. Innovative technology and quality excellence have earned the respect of key global players in the furniture, automotive and packaging industries. Wandres delivers the best cleaning technology worldwide wherever particles and dust cause flaws and rejects during industrial production.

Robot assisted cleaning of three-dimensional surfaces e.g. vehicle bodies



Cleaning of endless materials
e.g. coils, strip, film and foil webs



Cleaning of flat materials
e.g. flat glass, blanks, plastic boards

Quality and efficiency

Wandres GmbH micro-cleaning convinces with high-end products for continuous processes in industrial production. Wandres cleaning systems are efficient and effective and have a long service life even in very harsh production environments.

An unusually high degree of vertical integration creates a large number of interesting jobs and training opportunities. Over 140 highly motivated employees provide for high quality products using state-of-the-art mechatronic engineering and sophisticated control mechanisms. Wandres products are the result of ongoing research and development. A modern test centre is available for in-house testing and trialling of new cleaning procedures.

A global network of sales and service partners can offer expert advice on planning and integrating new installations and provide on-site support during commissioning, maintenance and servicing of the cleaning systems.

Wandres worldwide

- Wandres GmbH micro-cleaning
  founded in 1981 in Buchenbach-Wagensteig, Black Forest, Germany. In 2017 the company headquarters were relocated to Stegen near Freiburg.
- Wandres Corporation
  established in 1998 in Ann Arbor, Michigan, USA. The subsidiary is responsible for the assembly, sales and marketing of the cleaning systems in North America.
- Wandres Brush-Hitec GmbH
  set up in 2004 to secure the development and production of linear brushes and Ingromat and certified according to DIN ISO 9001.
- Wandres Cleaning Machinery (Shanghai) Co., Ltd
  founded in 2015 as a subsidiary company in China.
- Sales and service partners in Europe, North and South America, Asia, Africa and Australia.

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