

Surface cleaning

Zero chance for dust

Due to rapid advances in automation in industrial production along with faster and faster cycle times, cleaning systems that use Sword Brush Technology have become an indispensable part of stable and economical 24/7 operations for many companies. "We provide the best cleaning technology wherever particles and dust on surfaces cause flaws and rejects during production." is the core promise at Wandres GmbH micro-cleaning. In 2021 the medium-sized enterprise is celebrating the company anniversary, looking back on 40 years of surface cleaning. The following article gives an overview of cleaning applications for this technology in the industrial production of panels and furniture.

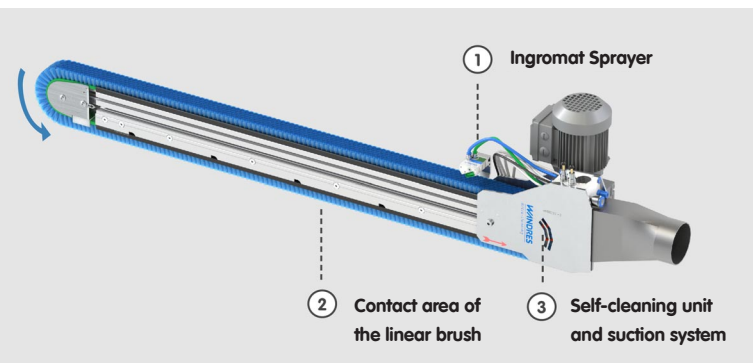
High level of insourcing

More than 140 employees are involved in the development and production of Wandres cleaning machines at the company headquarters in the Southern Black Forest. A unique feature of Wandres GmbH micro-cleaning is the unusually high level of insourcing at the company. An in-house production rate of over 80% means the company remains in control and flexible. At the same time, clients are guaranteed short lead times and high quality standards. Key elements of the systems are constantly undergoing

further development. Wandres has built a global presence, setting up two subsidiaries, one in the USA and one in China. In addition, the company has established an international network of sales and service partners to assist and advise with the planning and integration of new installations. They offer on-site support with commissioning, servicing and maintenance. At present, more than 55% of the installations sold are direct exports.

► Predominantly in-house production creates a large number of interesting jobs and training opportunities.





► The three steps of the Ingromat Method:

1. Micro-moistening of the filaments
2. Cleaning of the product surface by a circulating linear brush
3. Self-cleaning of the brush filaments and disposal of the particles by vacuum extraction

Orders from the furniture sector

Almost 30 years ago, there was a trend for large, black loudspeaker boxes in the home. Cleaning the surface of these boxes during production proved tricky as they were coated with a PVC film. As a result, Wandres received several approaches from the furniture sector. In the end, the invention of the patented Ingromat Method using micro-moistened brush filaments led to a breakthrough. The brush filaments of the Sword Brush are micro-moistened with a very thin film of Ingromat cleaning and anti-static agent and are then able to pick up even ultrafine dust particles and sweep them along to the suction system.

Market leader in the industrial production of panels and furniture

In the meantime, Wandres GmbH micro-cleaning has already been market leader in the panel and furniture industry for some years and offers a sophisticated and flexible system for numerous applications in the form of Combi Sword Brushes. The inline cleaning machines produced by Wandres are easily integrated into existing production lines by virtue of a narrow installation depth. Thanks to a cleverly designed modular concept and the resulting versatility, Combi Sword Brushes can be integrated at multiple points in the production process. The following examples illustrate three of these applications.

Cleaning before coating

Raised or recessed panel surfaces for doors or kitchen cabinets, can be cleaned extremely effectively by the Tornado-Channel TKR, a cleaning machine that utilises air technology, in combination with Sword Brushes. Thanks to this thorough and effective cleaning procedure, a thinner layer of coating material may suffice during the subsequent coating application. This makes absolute economic sense as material savings mean cost savings. At the same time the process achieves a mirror-like finish or glossy sheen without any particle inclusions.

Cleaning of conveying systems

To prevent particles from being dragged along the line by the conveyor belt, it is advisable to deploy Sword Brushes not only to clean the panels but also to clean the conveying systems. In most cases, Sword Brushes are deployed to clean the slack side of the conveyor belt beneath the transport level. This simple but effective method permanently removes the build-up of particles and avoids recontamination of the panels.

Milestones in the history of the company

In 1981 the company founder, Claus G. Wandres, was working as a self-employed programmer. He remembers well how: ' 40 years ago the very first personal computers arrived on the market from America. The floppy disks that were widely in use at the time were plagued by errors when storing data. I resolved to look into the matter and discovered that coating defects and particle-related faults were occurring on video tapes and similar filmic material. This discovery marks the kick off to the development of our cleaning machines.' One of the leading manufacturers of magnetic tapes at the time required cleaning devices and hence the very first contract was secured. The development of cleaning technology took off from there in the basement of the terraced house where the Wandres family lived. In the beginning, video tapes were cleaned with the aid of air technology. The market evolved at unprecedented speed, though, and who on earth needs video tapes today? In a fast-changing world, the task at hand is to develop the best solution possible to meet the specific requirements of each application - over and over again.



The optimal cleaning of panels prior to camera inspection prevents particle-related false positives thereby achieving a considerable reduction in the reject rate.



After intermediate lacquer sanding, air technology and brush cleaning technology are used in combination. The Tornado Channel followed by a Power Sword Brush create ideal conditions for the coating process and for achieving the highest-possible quality of surface finish.

Preventing false positives at camera inspection

Edge-trimming of melamine-faced chipboard generates huge amounts of particles, chips, edge fragments and strips from the melamine cover layer, some of which are hurled onto the surface of the panel. During subsequent quality control by means of a camera based inspection of the panels, this contamination causes disruption. It can trigger false positives thereby leading to increased rejection rates. A Combi Sword Brush, developed specifically for this application, reliably removes all kinds of contamination before optical inspection. Melamine-faced chipboard is cleaned very effectively on both sides with a combination of flexible brush cleaning technology followed by contactless cleaning using a Tornado Channel. The cleaning procedure carried out by the Combi Sword Brush Una H-XFT in numerous short cycle press lines ensures camera inspection runs without a hitch and guarantees a sizeable reduction in the scrap rate.

The examples outlined here only represent a small part of a wide range of applications for which inline cleaning is well-suited. A large number of manufacturers successfully deploy purpose-built Combi Sword Brushes after sawing, after edge banding, after drilling, and milling, after nesting, before the turning cone or before stacking. At the end of the day, there are hardly any process steps in the industrial production of furniture that would not benefit from an effective cleaning procedure. In all of these applications, deploying the appropriate cleaning machine will save costs after a very short space of time by ensuring product quality remains consistently high and reducing the reject rate. As an added plus, the cleaning systems contribute to a clean workplace environment. ■



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