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The best possible cleaning system for furniture panels

Particles, dust and shavings produced during panel processing and the machining of furniture boards create significant challenges at various stages in the downstream process. An investment in the right cleaning system will be recouped with a short payback period in industrial production.

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Sword Brushes remove even the finest specks of dust Photos: Wandres

Shavings and dust interfere with camera inspection by triggering false positives, compromise the surface quality of furniture panels during coating and pollute the air in the production environment. Any particles present during the manufacturing process need to be removed without trace. To achieve this, the Wandres Company GmbH micro-cleaning has developed a range of cleaning systems. These in-line cleaning machines can be easily embedded in existing production lines due to a small footprint and provide flexible solutions, perfectly tailored to the specific requirements of each individual application.

Sword Brushes deliver reliable cleaning results

Micro-moistening the Sword Brush filaments with 'Ingromat' anti-static cleaning agent ensures that even fine dust particles attach adhesively to the brush. Surfaces remain dry after cleaning and are ready for coating or printing immediately. In addition, the brushes remove coarse particles as well as fine dust. The system is ideally suited to 24/7 industrial production as it comes equipped with a self-cleaning feature that continuously refreshes the filaments and disposes of particles by vacuum extraction. The contact area of the Sword Brush is, as a rule, flexibly mounted on a pressure buffer to compensate for uneven surfaces and minor variations in material thickness. This ensures a consistent wiping pressure and guarantees the best possible cleaning results. Two Sword Brushes can be combined to clean the upper and lower surfaces of the panels in one go.

Air technology combined with brush technology

Combi Sword Brushes offer a modular solution where different types of cleaning machines are mounted on one central height adjustment unit. After processes that create high volumes of dust, Wandres recommends installing the 'Trans-Vac-Unit TKLO 46' at the infeed to the Sword Brush. This high performance extraction channel removes large amounts of particles from the panel surface. All the same, fine dust and microscopic particles cling tightly to surfaces and may not be shifted by means of air technology alone. Following a pre-cleaning process using air technology, any remaining microparticles are therefore removed by Sword Brushes that implement the extremely effective 'Ingromat' method.

Cleaning blind holes and through holes

The effective cleaning of drill holes is key to preventing particles being dislodged from holes during stacking and causing dents or scratches on surfaces during onward transport of the panels. When it comes to unpacking the panels, purchasers of a new piece of furniture prefer not to find sawdust spread across the living room carpet. To clean panels with transverse rows of drill holes, a 'Tornado Channel TKF' is installed upstream to the Sword Brush. The channel features integrated and especially powerful nozzles emitting high-impact jets of compressed air that strike the panel surface at a slight angle. Particles are effectively blasted out of drill holes and grooves and subsequently removed by vacuum extraction. Depending on requirements, the nozzles can be fitted with magnetic valves to optimise compressed air consumption. Following the air assisted pre-cleaning process, a Sword Brush wipes across the panel to remove any residual fine dust using brush cleaning technology.

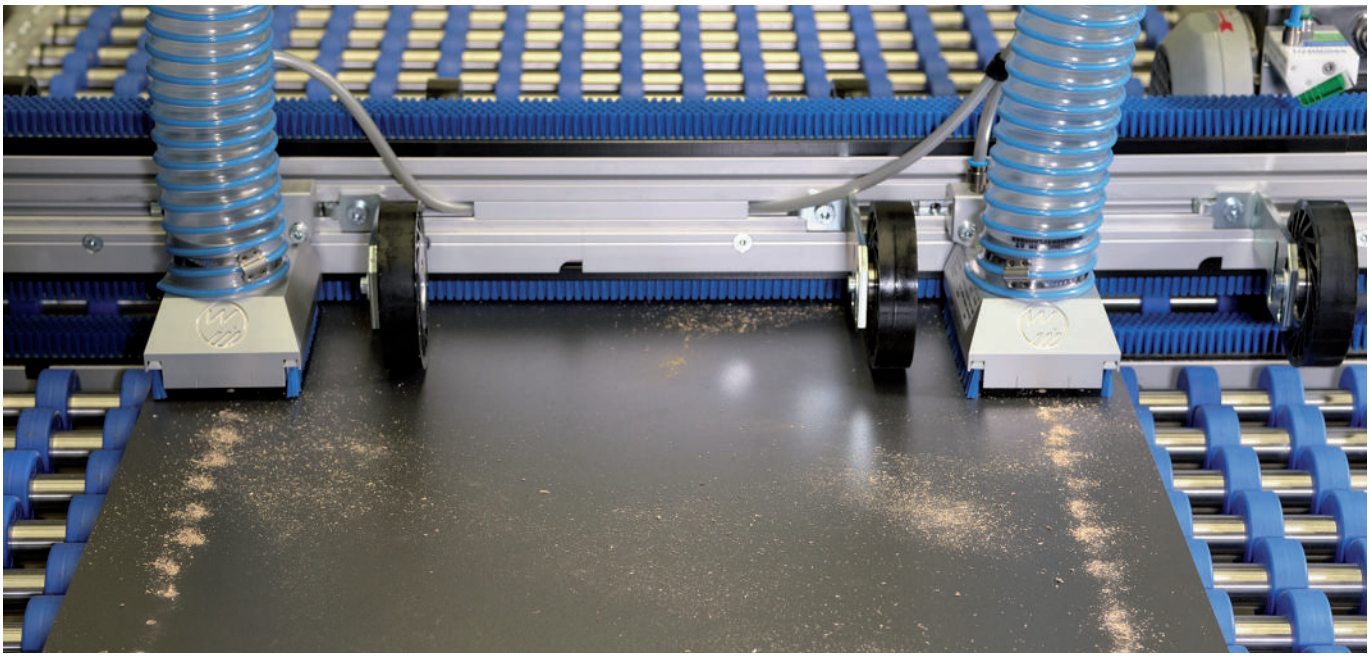
A high performance extraction channel eliminates large quantities of particles, allowing the Sword Brush to remove any residual fine dust in a subsequent process.

The ‘FN 51’ drill hole cleaner provides a simple solution for single rows of holes. This compact cleaning device can be attached to the profile of the Sword Brush or to the profile of the ‘Trans-Vac-Unit’ directly above the row of holes that require cleaning and adjusted in position as required. The drill hole cleaning device has a working width of 30 mm.
Thanks to the thorough cleaning process, a thinner layer of coating may often suffice during the application of a lacquer coating. This not only makes economic sense as it represents a material cost-saving but also achieves a mirror-like gloss finish without any particle inclusions. Profiled and sanded surfaces, for instance kitchen cabinet doors or drawer fronts, can be cleaned highly efficiently by the air assisted cleaning machine ‘Tornado Channel TKR’ in combination with Sword Brushes.

Cleaning of conveying systems and along the production chain

To prevent particles from being dragged along the line by the conveyer belt, Sword Brushes are deployed, not only to clean the panels but also to clean the conveyor systems. As a rule, Sword Brushes 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.

Thanks to the flexibility of the Wandres cleaning systems, they can be integrated without difficulty at multiple points in the manufacturing process, for instance after sawing and edge-banding, after drilling, milling, nesting and sanding or prior to coating and the turning cone and before camera inspection and stacking. In fact, there is hardly a single step in the production process that would not benefit from an effective cleaning process. When it comes to running an efficient production line, installing inline cleaning machines introduces an added layer of consistency and delivers long-term cost savings by keeping product quality high and reducing reject rates.



The compact drill hole cleaner is mounted directly above the row of holes that require cleaning and removes particles from drill holes efficiently.