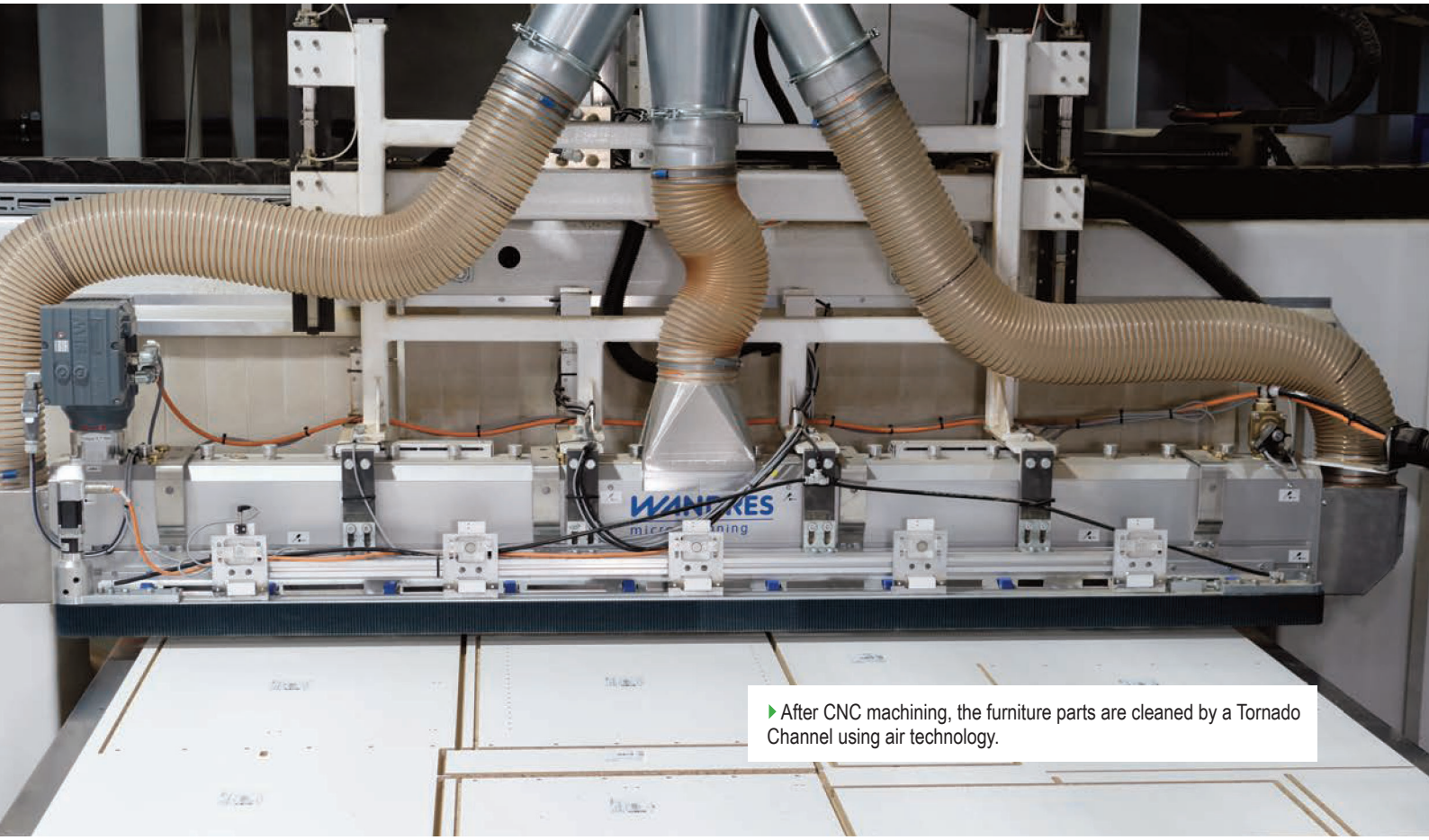

After CNC machining, the furniture parts are cleaned by a Tornado Channel using air technology.

Wandres-Tornado-Channel in operation

First nesting, **then cleaning**

Dividing panels in nesting applications creates large amounts of dust and chips. In an automated manufacturing process, it is therefore essential to follow up with an efficient cleaning procedure to ensure downstream production processes run smoothly and accurately. Speedmaster have equipped their new CNC lines with Tornado Channels from Wandres and are now achieving stable and economical 24/7 operations.

Speedmaster produce custom-made furniture components and blanks within just 48 hours. At the company's two production plants in Germany and Austria even batch size 1 production operations are economically viable. Computer-controlled manufacturing processes and state-of-the-art machinery deliver precision and speed.

Customers enter the measurements and decorative finish of the desired furniture components in the online store. The orders are then processed by the IT system and the appropriate raw panels are selected from the digitalised warehouse. The individual parts are then cut out of large boards in a nesting operation and drilled on one side. Machining the boards, which are 2800x2070mm in dimension, takes an average of five minutes. Afterwards, edgings are applied on all four sides and the parts are drilled horizontally. Due to the fact that the sourcing of components for furniture manufacturing is a sector that is growing at an impressive rate, the plant in Steinsfeld was expanded by another production line last year..

CNC lines with cleaning technology

The term nesting refers to the process of cutting flat panels on a CNC machine using an end mill cutter. All those processes create huge amounts of shavings. An integrated suction device already removes large

Double page images: Wandres GmbH

volumes of coarse sawdust. Dust and chips still remain, however, stuck between the cuts, in the drill holes and on the surface.

In automated manufacturing processes, particularly during the handling of parts, any contamination can cause disruption and quality issues in the blink of an eye. The reason for this is that dust and shavings settle on the machinery and are spread into the production environment by way of the conveying system. Any contaminating particles left on the spoilboard can cause dents on the surface of the panels. Bernhard Holzer, Head of Maintenance at Speedmaster, summed up the situation, 'We wouldn't be able to keep the plant up and running without a cleaning process'. In order to guarantee productivity and production quality, the company's emphasis when planning the lines, was on a high-performance and an energy-efficient solution as the most important requirement.

Rotating compressed air nozzles

For this reason, cleaning systems engineered by Wandres and utilising air technology were installed in both the CNC machining centres. In the Tornado Channel TKRO, dust and chips are detached from recesses by rotating compressed air nozzles and immediately extracted in an optimised-flow channel. Thanks to the electrically driven nozzles, this technology has a relatively low energy consumption. The cleaning unit was developed to meet the demands of the wood and furniture industry and has been tried and tested in a wide range of applications during years of use in continuous operations.

'The trend towards nested-based manufacturing means that efficient cleaning systems are becoming even more vital', explains Toni Ehrhardt, Senior Manager, Technical Sales at Wandres. 'Our Tornado Channel offers a solution where compressed air consumption is at an acceptable level in relation to the cleaning performance. The unit can be directly integrated into either gantry-type or bridge-type CNC machining centres. Thanks to a narrow footprint, installation into existing conveying systems is trouble-free, as a rule.'

▸ The furniture components are cleaned on both sides by a Combi Sword Brush before packing.

At Speedmaster the cleaning machines were each mounted directly above the worktable. Following CNC machining, the Tornado Channel is automatically adjusted to the thickness of the product and the table with the machined parts passes once under the cleaning module. The entire nest is then removed and the spoilboard is cleaned in an additional pass.

Precision cleaning with Sword Brushes

When it comes to removing very fine dust from the surface, the furniture components should undergo a follow-up cleaning process using brush cleaning technology. The Wandres Sword Brushes are perfect for this purpose. They wipe across the surface crosswise to the direction of transport and remove even the finest dust particles with lightly moistened filaments. In the Speedmaster plants, Sword Brushes have been installed, amongst other locations, after edgebanding and before packing. After cleaning, each consignment of furniture parts is packed and shipped - spotlessly clean. ■

Wandres GmbH micro-cleaning
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