

# Reducing Energy Costs by 50% With a Central Vacuum System from Busch Vacuum Solutions

*How a central vacuum system from Busch Vacuum Solutions optimizes the CNC process at Trappenfabriek Vermeulen BV.*

VERMEULEN, NETHERLANDS, April 8, 2026 /EINPresswire.com/ -- Cutting energy costs in half, reducing noise levels, and increasing production floor space: How a central vacuum system from Busch Vacuum Solutions optimizes the CNC process at Trappenfabriek Vermeulen BV.

The warm and earthy fragrance of freshly cut wood fills the air of the bright production floor at Trappenfabriek Vermeulen. Three [MINK dry claw vacuum pumps](#) from Busch Vacuum Solutions are quietly humming in unison. One is standing idle, ready to get to work at any moment. Very reliably, the central vacuum system supplies seven CNC (Computer Numerical Control) routers with vacuum for clamping and nesting. Vacuum ensures that each wooden panel is securely fastened as it is cut. Without leaving any pressure marks or causing damage. The CNC process is quick, efficient and minimizes the amount of wasted raw material while creating all the necessary parts to build a wooden staircase.

Woodworking excellence

Founded by Johannes Vermeulen and his six sons, Trappenfabriek Vermeulen has installed over 400,000 staircases since 1958. What sets the company apart is its wide portfolio of both wooden

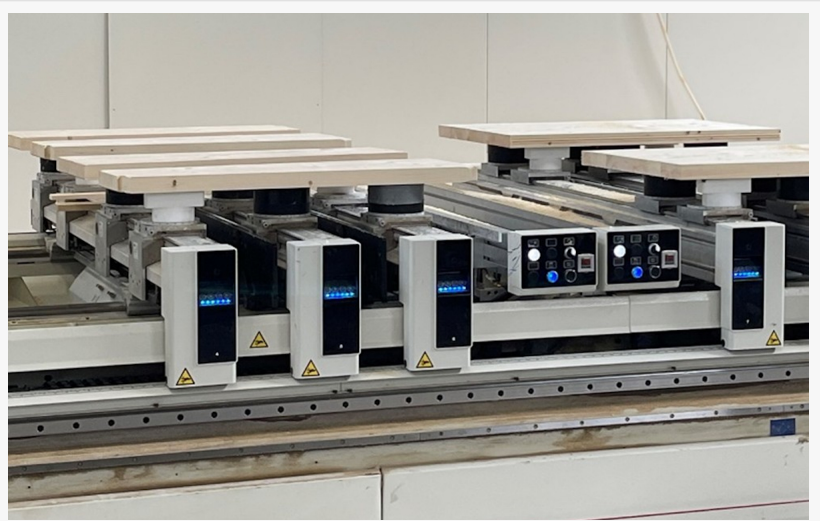


The production floor at Trappenfabriek Vermeulen. Photo: Busch Vacuum Solutions.



Four MINK vacuum pumps are connected to seven CNC routers. Photo: Busch Vacuum Solutions.

and steel stairs. The customer can choose from over 25 different types of wood, including European oak, cherry and bamboo. It is also possible to request unique handcrafted details on handrails, newel posts, and spindles, as well as to combine wood and steel in various designs. Every week from Monday to Friday, 120 employees create numerous staircases at the headquarters in North Brabant that are installed throughout the Netherlands. Over the years, customers have ranged from residential housing projects to unique specially designed staircases for luxury homes and villas.



Vacuum clamps firmly holding each piece of wood in place. Photo: Busch Vacuum Solutions.

### Honesty, reliability, and transparency

Before installing a central system from Busch, the Dutch staircase manufacturer relied on ten dry-running rotary vane vacuum pumps from various companies. The vacuum pumps were installed next to the CNC routers, taking up a significant amount of space on the production floor. The assortment also resulted in high energy costs and noise levels. In 2018, Trappenfabriek Vermeulen decided to upgrade its production process. Having bought five new CNC routers, the company wanted to optimize its vacuum supply as well. After approaching the vacuum pump manufacturer directly, Busch saw the possibility for a work-friendly and energy-efficient solution and proposed a central vacuum system.

Ed van Halteren, Head of Technical Services, states, "Busch clearly had our best interests in mind. Together, we found the best solution for our process." The old vacuum pumps were removed, and the new system was installed. The central vacuum system from Busch consists of four MINK dry claw vacuum pumps (three in standard operation and one reserve), each consuming 8 kW. The new vacuum pumps are not only far more energy efficient than their predecessors: Each pump has also been equipped with an [ECOTORQUE](#) variable speed drive (VSD) from Busch. It regulates the rotational speed of the vacuum pump's motor, adapting the pumping speed according to the fluctuations in demand throughout the production process. As a result, vacuum is only supplied at the exact moment in which a wooden panel needs to be securely fastened by the vacuum clamps in order to be cut. Thus, the company's energy bill has been cut in half.

The central vacuum system is installed on a raised balcony above the production floor, overlooking the CNC routers. Since 2018, an additional two CNC routers have been added to the production line and connected to the vacuum system. The MINK vacuum pumps have a regular working day along with the employees, operating eight hours per day, Monday through Friday. Spending the workday next to a noisy vacuum pump is also a thing of the past, as the noise level

has been reduced. Now, the employees can enjoy a quieter working environment and more space on the production floor. "Our central vacuum system from Busch is a game-changer! The quieter working environment and extra space on the production floor have significantly improved the satisfaction of our employees. And we're thrilled that our energy costs have been cut in half," says the Head of Technical Services.

#### Securely fastened with vacuum

Trappenfabriek Vermeulen uses CNC routers to cut wood panels into the various components that create a wooden staircase. From balusters to handrails and newels. The blueprints for each staircase design are made using CAD (Computer Aided Design) software. Depending on the specifications, both 2D and 3D drawings are made. The design is fed into CAM (Computer Aided Manufacturing) software, which converts it into a code that the CNC router can understand. A technician prepares the CNC router with the right tools according to the requirements of the design specifications. Once ready, the wooden panel is placed onto the CNC cutting table. Then the clamping and nesting can begin. This is an automated cutting process that requires careful programming and cutting tools. Vacuum clamps securely fasten the wooden panel once it is placed on the CNC cutting table. This prevents movement during the cutting process and ensures precise cuts. A strong and reliable vacuum supply is essential to achieve the desired results when creating high-quality wooden staircases.

Wastage of raw material is minimized through nesting, a process in which the CNC router uses a laser to map out the cutting area. The vacuum clamps are also outlined so that the cutting tool does not cut through them, as this would displace the wood panel. In a matter of a few seconds, up to 16 different cuts can be made. The staircase starts to take shape, as its balusters, handrails, and newels emerge from the wooden panel. The CNC router can also be used to make finer cuts. For example, rounding off the edges of a set of steps.

#### A trustworthy digital assistant

An IoT solution from Busch monitors the central system and reports the status of each vacuum pump 24/7. The remote condition monitoring tool uses predictive maintenance to foresee any faults or potential breakdowns, and creates a maintenance schedule to avoid them before they occur. It helps to ensure that a reliable vacuum supply is readily available. This is essential, as without it, the vacuum clamps would not be able to fasten the wooden panels securely, and the CNC routers could not cut them into all the parts that create a wooden staircase. Ed van Halteren recalls: "One time, I received a phone call from Busch telling me that an alert regarding one of our pumps had popped up on their screen. I was surprised because our production lines were running fine, but they were right! We were able to prevent unplanned downtime and get on with our work." Powered by vacuum, Trappenfabriek Vermeulen continues to create high-quality staircases that are installed throughout all of the Netherlands.

Sabrina Heinecke  
Busch Vacuum Solutions  
+49762268111066 ext.

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