**User Report**

**March 2024**

**From door to door**

Lifting 80 kilograms 80 times in 8 hours - a Herculean task. Vacuum expert Schmalz has therefore developed a solution for the highly automated industrial company Josko that solves the task in no time at all with the help of a suction spider.

Windows and doors not only separate interior spaces from the outside world, but also contribute significantly to the character of a façade or room. Whether cosy or extravagant - customer wishes are individual. At door and window expert Josko, function and design therefore go hand in hand. The company, which started out as a one-man joinery in 1960, generated a turnover of 215 million euros in 2022 with more than 1,000 employees. At its headquarters, idyllically located in Kopfing im Innkreis in Upper Austria, Josko produces timber, PVC/aluminium and aluminium windows, house doors and interior doors on 39,000 square metres.

Always with sustainability in mind. Josko favours short transport routes and sources its wood primarily from local forests. Production waste is recycled or used to fuel the company's own biomass power plant. This enables the premium manufacturer to cover part of its electricity requirements from renewable resources. When it comes to employees, the focus is also on environmental protection. Josko trains skilled workers and thus keeps labour distances short in the rather structurally weak region.

Ergonomics are also important to the company so as not to impair the health of its employees. Numerous systems from Schmalz support the skilled workers in handling the often heavy and bulky workpieces. On average, an interior door weighs around 70 to 80 kilograms. However, 100 kilograms is also possible. The size is variable with a maximum width of 1.3 metres and a maximum length of three metres. In short: one person alone cannot move the panels without a lifting aid and the job would be strenuous and stressful for two employees. Josko therefore uses different handling solutions at the individual stations.

**Without manual intervention**

Josko was looking for an alternative because there were no longer any spare parts for the old, so-called turner on the sanding machine. "The new system is intended to relieve our skilled workers and increase the degree of automation," emphasises Rainer Plöckinger, Interior Doors Plant Manager at the Kopfing site. As Schmalz is already represented in production with numerous products, Josko once again turned to the vacuum experts.

Together with the industrial company, Schmalz Austria set about developing a suitable system. Another of Josko's requirements was that the new system should no longer require manual programming. "The WEBER KSF sanding machine, two Kuka robots and our handling solution therefore work together fully automatically," says Christian Prießner, Managing Director of Schmalz Austria.

Protected behind bars, the first robot picks a blank from the stack and places it on a conveyor belt in front of the machine. The door leaf travels through the machine, which calibrates and grinds the surface. On the other side, the second robot picks up the blank and places it from above on a rack located between the two machines. The first robot picks it up again from below, turns the door leaf and places it - with the reverse side facing upwards - in front of the sanding machine again. On the second pass through the machine, the other half now also receives its finish. As soon as the processing of the front and back has been completed, the second robot places the door on the "finished" stack.

**A powerful grip**

A suction spider from Schmalz ensures a secure grip. With significantly larger dimensions than the crawling animal and designed by the vacuum experts to meet Josko's exact requirements, one of these grippers is fitted to each robot arm. The low weight of the basic components made of aluminium profiles enables fast cycles, and the FMP-S gripper system with sealing foam is perfect for handling heavy and rough workpieces such as door leaves. Vacuum is generated via a connection to the compressed air network and is controlled by valves. Thanks to the integrated system monitoring and sensor technology, the suction spiders operate with absolute process reliability.

The interaction between the robot and gripper moves around 70 to 80 door leaves per day, which pass through the workstation in an eight-hour shift. Since it was commissioned in 2020, the system has processed around 50,000 blanks - fully automatically and ergonomically, without burdening employees with strenuous tasks such as moving the heavy elements. "We are more than satisfied with the solution," emphasises Plöckinger. "Only if the power fails, the machine comes to a standstill," he says with a wink. But fortunately, this has not yet happened. The highlight for the staff: individual dimensions are stored in the system for different blanks, which the specialists simply select via the display. Manual programming is finally a thing of the past. "We have also eliminated a potential source of errors," adds Plöckinger happily.

#### *(5,040 characters incl. spaces)*

**Service for the editorial team**

**Meta-Title:** Vacuum suction spider from Schmalz grips door leaves

**Meta-Description:** Lifting 80 kilograms 80 times in 8 hours: Vacuum expert Schmalz has developed a solution for the highly automated industrial company Josko that solves the task in the blink of an eye with the help of a suction spider.

**Image:**

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|  |  | **Image 1:**  The first robot picks up a blank with the suction spider and places it in front of the grinding machine. |
|  |  | **Image 2:**  The suction spider holds door leaves with a maximum length of three metres and a weight of up to 100 kilograms. |
|  |  | **Image 3:**  The handling solution works fully automatically in conjunction with the Kuka robot. |
|  |  | **Image 4:**  The sanding machine smoothes between 70 and 80 door leaves per day on the front and back. |
|  |  | **Image 5:**  While the first robot (front) is loading the sanding machine, the second robot is already placing the next blank on the rack. |
|  |  | **Image 6:**  Thanks to the modular principle, the suction spider can be customised to individual requirements. |

Images: J. Schmalz GmbH

**About the company**

Schmalz is one of the market leaders in vacuum automation and ergonomic handling systems. The internationally positioned company's products are used in logistics applications as well as in the automotive industry, the electronics sector and furniture production. The broad spectrum in the vacuum automation business field includes individual components such as suction pads or vacuum generators, complete gripping systems and clamping solutions for holding workpieces, for example on CNC machining centres. In the Handling division, Schmalz offers innovative handling solutions for industry and trade with vacuum lifters and crane systems. With the Energy Storage business area, the company is establishing a further mainstay in the field of stationary energy storage systems.

The combination of comprehensive advice, a strong focus on innovation and first-class quality ensures sustainable added value for customers. Intelligent solutions from Schmalz make production and logistics processes more flexible and efficient - and at the same time fit for advancing digitalisation.

Schmalz is represented in all major markets with its own locations and trading partners in around 70 countries. The family-owned company, headquartered in Glatten in the Black Forest, employs around 1,800 people at 31 locations worldwide.

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