**User Report**

**June 2025**

**AI power for sheet metal production**

The challenge: Staff shortages. The goal: Increasing productivity. The solution: Solution Kit ivOS Sheet Metal. This loading and unloading system from Schmalz uses artificial intelligence, 3D vision sensors and a flexible matrix area gripper to recognise and move different workpieces. Machine manufacturer LISSMAC has thus significantly increased its efficiency.

‘We are specialists when it comes to optimising work processes,’ says Daniel Wechsel. He is Head of Sheet Metal Production at LISSMAC Maschinenbau GmbH. This is why the company is constantly looking for solutions to increase its own productivity and improve its systems. In sheet metal production, employees loaded and unloaded the deburring machines - one person was required for each machine. "The shortage of skilled labour repeatedly led to bottlenecks. Our aim was therefore to load the machines automatically in order to relieve our employees," says Daniel Wechsel, summarising the task.

Founded in 1978, LISSMAC specialises in construction machinery such as floor saws and stone cutting saws, grinding and deburring machines and handling systems. With around 380 employees worldwide, the group, based in Bad Wurzach in Upper Swabia, generated around 68 million euros in 2023. Exports account for over 40 per cent of its business, and this figure is rising - the company is active in Europe, America, the Middle East, Australia and New Zealand, with assembly and service locations in the USA and Dubai.

**Partnership at eye level**

With its deburring machines, LISSMAC processes workpieces made of aluminium, steel and stainless steel from a size of 150 × 50 millimetres and up to a diagonal of 950 millimetres, with thicknesses varying between 0.8 and 20 millimetres. The components differ in their internal contours and the surfaces can be dry or moist. ‘For automation, the system must be able to recognise the parts reliably,’ explains Daniel Wechsel. "We have been working with our partner Schmalz on vacuum and gripping solutions for a long time. When we heard about the Solution Kit for sheet metal processing, we were immediately interested."

As a technology expert for the interaction between robots and grippers, Schmalz not only contributed the Solution Kit ivOS, but also the matrix area gripper FMG. Schmalz linked seven modules for this, each suction cup can be controlled individually. The matrix area gripper FMG is characterised by a low vacuum requirement, it holds suctioned workpieces even if the actuator voltage is lost. The highlight, however, is the artificial intelligence (AI) in the Solution Kit ivOS Sheet Metal. It reacts flexibly to changing requirements and workpieces without a teach-in process. ‘The AI-supported part recognition works extremely reliably - and saves a lot of time, as the tedious manual placement of workpieces is now a thing of the past,’ confirms the Head of Sheet Metal Production.

**From manual to automated process**

The employees feed the workpieces into the robot cell in single-variety stacks on a pallet. Only one sheet thickness is permitted in each container. 3D vision sensors mounted on the ceiling of the cell detect different sheet geometries and provide the necessary data for robot control. The gripper can thus be positioned precisely and places the sheets accurately on the conveyor belt of the deburring machine. Schmalz and LISSMAC defined rules for this and connected the robot cell and deburring system via an interface.

The system inserts 700 to 1,000 workpieces per shift fully automatically into the LISSMAC sanding machine. The system still has large reserves - if required, it can handle up to 500 parts per hour. After deburring, a conveyor belt transports the processed parts, from which they are currently still removed manually. ‘The Solution Kit has become an important tool in our sheet metal production,’ emphasises Daniel Wechsel. The worker now loads and unloads two deburring machines at the same time. ‘This allows us to utilise our personnel much more efficiently,’ he says happily. There is only one restriction: the sheet metal parts require a minimum web width of 30 millimetres so that the grippers can grip them.

The system has been in regular operation since August 2024. The workforce has accepted the robot solution well, as it has now relieved them of repetitive tasks. ‘Operation is intuitive and the system works reliably,’ says the head of sheet metal production, summarising the experience. "We can now deploy our skilled workers on several machines at the same time. This significantly increases productivity."

**The next step**

As a machine manufacturer, LISSMAC naturally thinks ahead with the automation solution. "We have a great product with a lot of potential. That's why we don't just want to use the Solution Kit for our own production, but also make it available to our customers," says Daniel Wechsel. LISSMAC and Schmalz are therefore developing a modular system for different payloads and part geometries. "Full automation naturally also includes a solution for removal directly after machining. We are currently working on this. The system will then be able to meet any challenge."

**Service for the editorial team**

**Meta-Title:** LISSMAC optimises sheet metal production with AI-based Solution Kit ivOS Sheet Metal from Schmalz

**Meta-Description:** Metalworking specialist LISSMAC uses the Solution Kit ivOS Sheet Metal for sheet metal deburring, thereby increasing production efficiency.

**Social Media:** The metalworking industry is under pressure: a shortage of skilled labour and demands for increased productivity are forcing companies to find new solutions. LISSMAC from Bad Wurzach has taken this step and is relying on the Solution Kit ivOS Sheet Metal from Schmalz. This enables the company to automate the loading of its deburring machines and utilise its personnel more efficiently.

**Images:**

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|  |  | **Image 1:**  The Solution Kit ivOS Sheet Metal from Schmalz consists of a software package, an intelligent matrix area gripper and 3D vision sensors. |
|  |  | **Image 2:**  The matrix area gripper FMG automates the loading of deburring machines in sheet metal processing, for example. |
|  |  | **Image 3:**  The system recognises different workpieces without a teach-in process and controls the gripper precisely. |
|  |  | **Image 4:**  The robot cell loads the LISSMAC deburring machine fully automatically. |

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 cups 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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