



Parts Cleaning. Systems and Solutions.



Total ease of operation and maximum efficiency - MAFAC JAVA installed at Reiser AG is equipped with an interface for the in-house ERP system



User report

Total ease of operation and maximum efficiency

The cleaning system JAVA from MAFAC installed at Reiser AG is equipped with an interface for the in-house ERP system.

“Cleaning in the JAVA system is clearly an improvement in quality for us, in particular with regard to the measurements that we take randomly for each order”, says division manager Daniel Reiser. A convincing technology with comprehensible, plausible processes was the reason for the management of mechanical engineering company Reiser in Veringenstadt to put a MAFAC cleaning system in operation in February 2018. Since then, the cleaning system from the Alpirsbach-based expert for aqueous cleaning has been running four to five hours a day. It guarantees optimal cleaning results for a very wide range of parts with complex geometries. In addition, the MAFAC specialists equipped the JAVA installed at Reiser with an interface for the in-house ERP system, thus making it compatible for further automation of production.

Reiser AG

Reiser AG is a family-run mechanical engineering company. For 30 years, the Veringenstadt plant has been manufacturing precision metal parts in batches of five to 1,000 pieces, for very different industries such as suppliers of special drive-line technology, manufacturers of woodworking machines, medical technology and shipbuilding. Its portfolio also includes the assembly of complex groups of components, the sub-assembly of units and 3D printing in metal and plastics. With its “Manufacture 5.0” approach, the company is going its own way to complete the transformation process. The possibilities offered by

digitisation are used to combine additive manufacturing with CNC technology and assembly, to automate production, to link the individual steps of the manufacturing process and to incorporate the latest scientific findings in production development. In accordance with the owners’ principles, the focus is always on the approximately 30 employees who work for Reiser. In 2018, Reiser was honoured as one of Germany’s TOP 100 Innovators for its “Manufacture 5.0” concept.

Customer requirements on cleanliness

Cleaning plays an increasingly important role in Reiser’s machining processes. Nowadays, more and more customers are placing orders only if the cleanliness of the manufactured parts is guaranteed. This was a major reason for the Reiser management to decide in early 2018 to purchase a new cleaning system. Until then, cleaning was done in an immersion bath system. This method was outdated and the carry-over in the baths was so high that the cleanliness required by customers could no longer be guaranteed.

Highly effective process technology

Owing to the company’s standards of sustainable, resource- and environment-friendly production, one thing was clear for the selection of a cleaning system: The new system had to work on an aqueous basis. After test cleaning in MAFAC’s pilot plant, the decision-makers at Reiser were convinced of the highly



Currently, the JAVA cleaning system from MAFAC installed at Reiser is loaded by two employees. In future, this task is to be done by the employees working at the respective processing machine.

effective process technology: „How so much can be achieved with so little effort was what impressed us about the cleaning machines from MAFAC,“ says Daniel Reiser. In addition, the size of the company and the possibility of taking individual wishes into account spoke in MAFAC's favour. One of these wishes was the establishment of an interface for the in-house ERP system the JAVA installed at Reiser is equipped with.

Wide range of parts with complex geometries

A wide range of parts is cleaned in the JAVA system at Reiser, mainly after machining processes. This applies both to materials and geometries and not least to the size of the parts. Workpieces made of various types of aluminium and steel as well as, to a limited extent, non-ferrous metals pass through the cleaning system. And last but not least, plastic containers are cleaned in the JAVA, usually before the bath is changed. The size of the workpieces is just as varied as the materials. It ranges from 20 by 20 millimetres to 350 by 400 millimetres. The parts to be cleaned are contaminated with small micro-filings and cooling lubricants, which are partly dried up. In general, the residue after machining processes is rather oily than aqueous.

Proven MAFAC process technologies are used

The JAVA installed at Reiser is equipped with two holding tanks. These are used in a cleaning – rinsing sequence. The rinsing process results in a slight preservation of the steel workpieces. Because of the wide range of parts, twelve programs are stored which can be activated via the fully automated control depending on the material and the geometry. These include, for example, the rotating aluminium or steel program, the rocking aluminium or steel program or the aluminium or steel program with ultrasound. This means that a large number of the MAFAC JAVA's available spray-flood cleaning options are used in Veringenstadt.

The spray-flood cleaning method

During the wet phase, the cleaning chamber is partially flooded and the parts are spray-cleaned by the patented rotation of the cleaning and loading system. This means that the spray system counter-rotates to the loading system, which also rotates, if a program with rotation is used. For more complex geometries, the movement of the loading system is reduced to a rocking motion while the spray system rotates. The ultrasound cleaning unit, which is

optionally available for the MAFAC JAVA, is activated for workpieces with deep drill holes. “At the moment we only use the ultrasound cleaning unit in very few cases. We have purchased it with a view to the future as we expect the demand to increase in the next few years”, says Daniel Reiser.

Drying

The cleaning phase is followed by drying. Drying is achieved via hot air pulse blowing and hot air flow drying with an air heater. During drying, the drying system rotates around the loading system which counter-rotates or rocks depending on the cleaning program. “The parts have to be dry but may have a slight residual moisture”, says Daniel Reiser. In the long cleaning programs, drying thus only makes up only 30 per cent of the entire cleaning time. In the “short programs”, the drying time is more than 50 per cent.

Useful bath life of 45 days

Both holding tanks of the MAFAC system installed at Reiser AG are filled with water from a centrally installed desalination unit. A universal cleaning agent in a concentration of 2.5 per cent is added to holding tank one. The concentration in holding tank two is 0.2

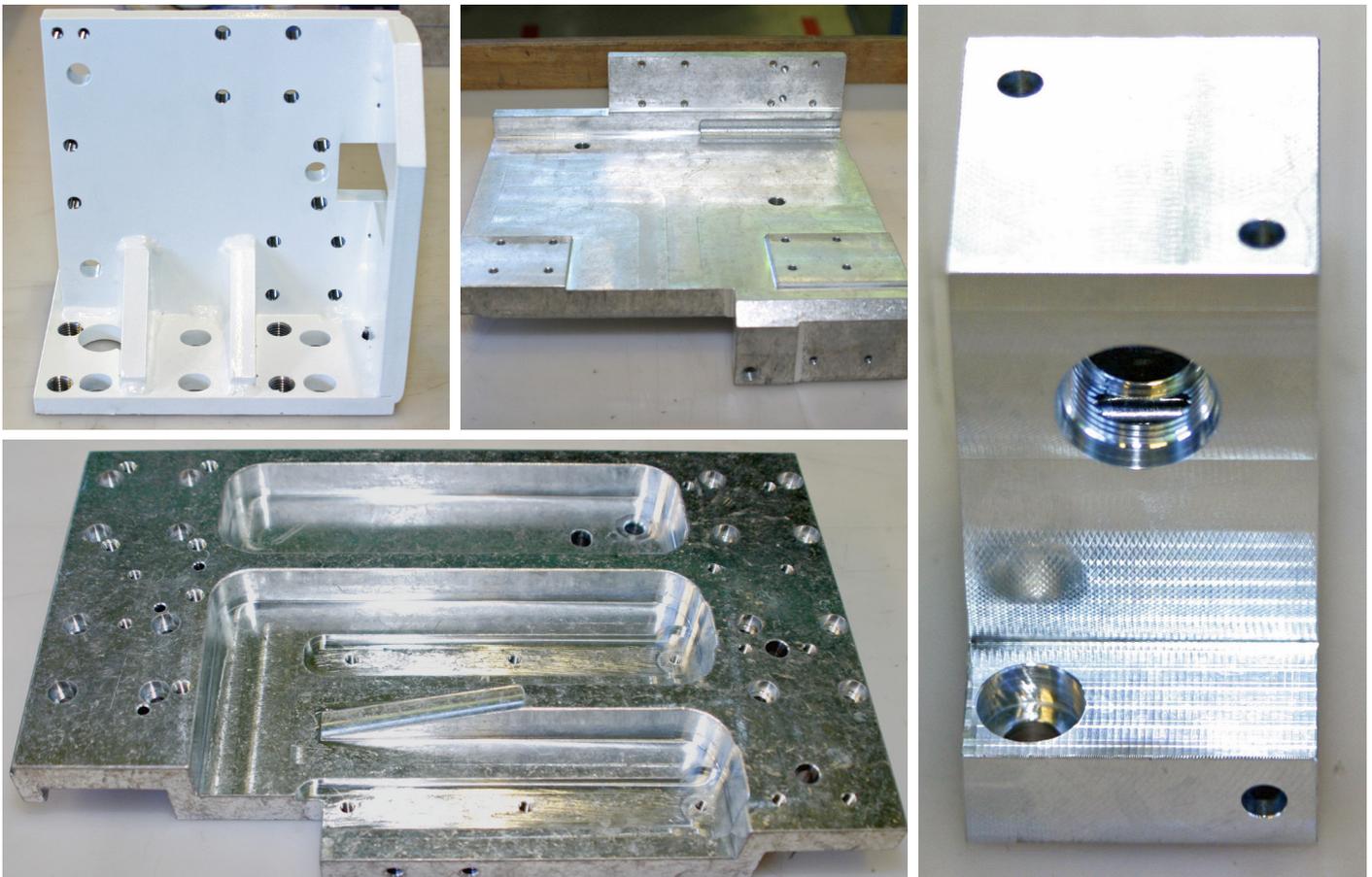
0.5 per cent. Once a week, the quality of the water is measured. The average useful bath life is around 45 days. Both holding tanks are equipped with an ultra-fine main flow filtration system. In addition, holding tank one is equipped with a coalescing oil separation system with integrated surface suction and high-level monitoring of the oil collection tank.

Interface for the in-house ERP system

Via the JAVA's interface, all technical data, the stored programs and their link-up to the respective workpieces as well as the water measurement results are stored in the in-house ERP system. Currently, the cleaning system is loaded by two employees who activate the program corresponding to the workpiece via the JAVA touch pad. In future, this process is meant to be automated further. “Our next goal is for the employees to put the workpieces into the loading system directly at the processing machine and then to take them to the cleaning system. In the long run, automatic loading is planned”, concludes Daniel Reiser.



A total of twelve programs is stored in the JAVA from MAFAC installed at Reiser. They are activated via the touch pad according to the parts to be cleaned.



After the machining processes, a wide range of parts is cleaned in the JAVA system from MAFAC at Reiser AG. The workpieces made of various types of aluminium, steel grades and non-ferrous metals have complex geometries and very different sizes.

Image credits: Ina Rau



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