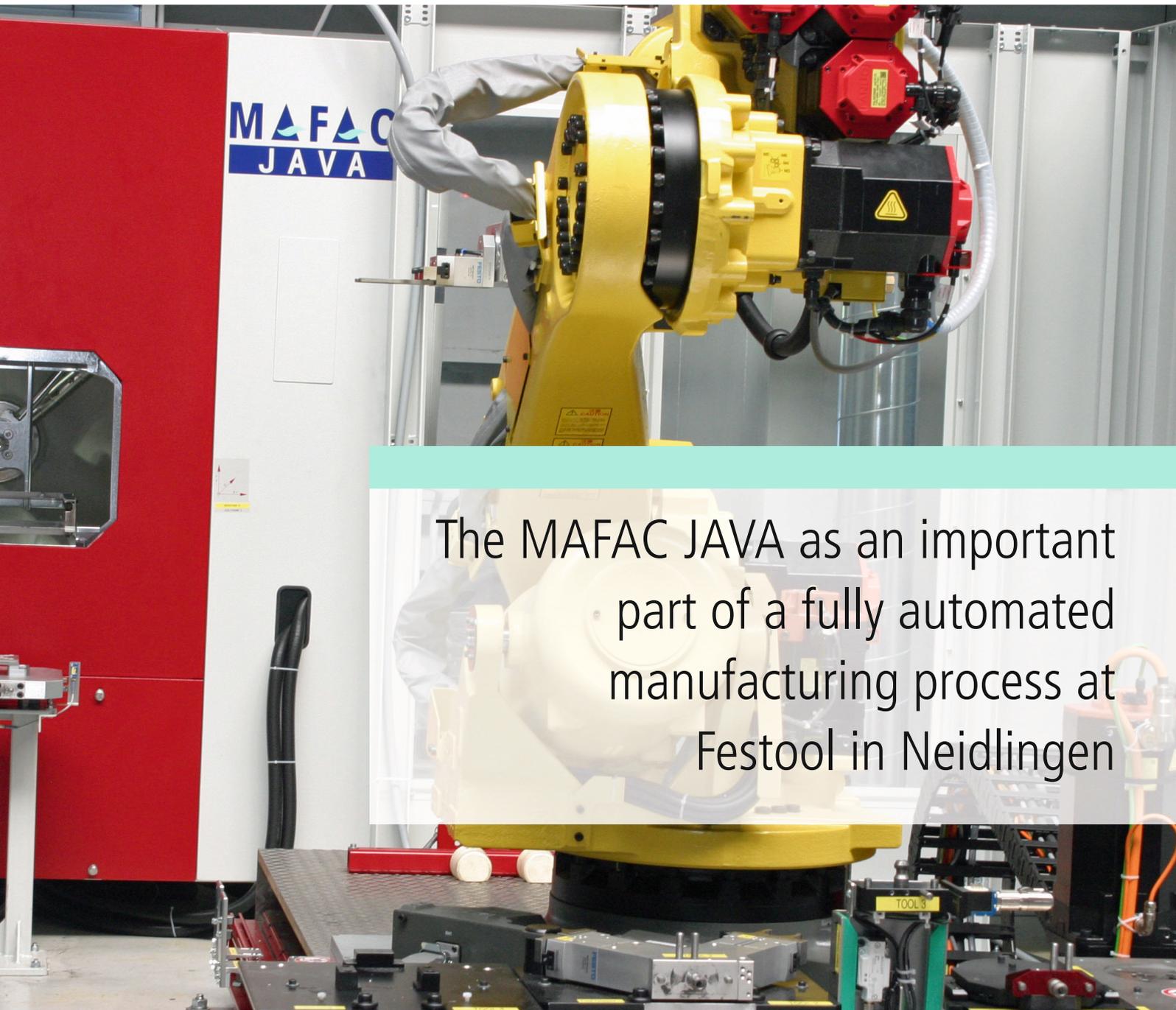


# MAFAC

Parts Cleaning. Systems and Solutions.



The MAFAC JAVA as an important part of a fully automated manufacturing process at Festool in Neidlingen

# FESTOOL

## User report

### The JAVA as an important part of a fully automated manufacturing process

#### JAVA cleaning system at Festool in Neidlingen

The robot picks up the workpiece, places it on the workpiece holder and transports it to the JAVA cleaning system via the transfer system. At Festool in Neidlingen, the aqueous-based system from cleaning expert MAFAC is part of a fully-automated manufacturing process. During this process, mainly injection moulds are machined and then cleaned before they are measured and assembled. The fully automated manufacturing process, in which cleaning plays an important role, has been running since April. „Because the more precisely the parts are produced and cleaned, the less problematic the assembly. Optimal cleaning is an important basis for precise measurements”, describes Jürgen Kopsieker, Head of Mould Design and Construction at Festool.

#### The specialist for professional system solutions

Festool is considered the specialist for high-quality system solutions for professional craftspeople such as painters, (car) varnishers, carpenters, woodworkers and refurbishers. For more than 94 years, Festool has been producing tools for trades and crafts. Today, around 3000 employees work for Festool all over the world. The Festool premium brand is distributed exclusively via selected specialist dealers. For its innovative products, such as the CONTURO edge banding system and the DOMINO wood joining system, or the random orbital sanders with integrated extraction or the KAPEX mitre trim saw, the company has won more than 80 awards. Festool is still run as a family business today,

now in its third generation. Within the group, Neidlingen is one of four production sites, where mould design and construction, assembly, and motor production including a development department are located. Around 450 employees work there. The Neidlingen plant has been awarded “Factory of the year” several times.

#### Mould design and construction - internal and external service provider

Mould design and construction is organised as a factory within the factory at Festool in Neidlingen. It sees itself as a service provider, both internally and externally. The injection moulds produced are manufactured for the various locations in the automotive, white goods and, to a lesser extent, pharmaceutical industries. At the beginning of 2019, production was automated - including cleaning. „In the past, we cleaned the parts manually. However, the cleaning requirements of our customers have increased,” says Jürgen Kopsieker. It was also clear that cleaning was to be integrated into the fully automated machining process.

#### An excellent price-performance ratio

When selecting the cleaning system, the JAVA system from MAFAC was chosen. At Festool, the single-bath version has been installed. Additionally, it is equipped with an increased load capacity, an interface for robot loading and a transfer system according to Festool’s individual specifications. “Apart from MAFAC’s excellent reputation, the price-per-



In Neidlingen, Festool also manufactures its proven KAPEX mitre trim saw.



The JAVA cleaning system from MAFAC is loaded by a robot during the fully-automated manufacturing process at Festool in Neidlingen.

formance ratio was crucial for us”, says Jürgen Kopsieker.

### **Toughest cleaning requirements**

The cleaning results were also convincing although it is not a simple cleaning task the JAVA has to meet. The injection-moulded aluminium and steel workpieces measure up to 400 by 400 millimetres. They are contaminated with oil, very fine chips and dielectric fluid. This residue from the erosion process is paste-like, greasy and therefore difficult to clean. In addition, the workpieces to be cleaned, such as the housings for cordless drills, have complex geometries with sometimes small and deep boreholes.

### **MAFAC process engineering guarantees optimal cleaning results**

Despite the high requirements, the process technology of spray-flood cleaning developed and patented by

MAFAC guarantees optimal cleaning results. During the actual cleaning process, the spray system with its spray nozzles counter-rotates to the loading system, which also rotates. In this case, it is a workpiece holder placed in a special frame. Simultaneously, the cleaning chamber is flooded at a water temperature of 60 degree. The wet phase, which is just under four minutes long, is followed by a three-minute drying phase, using hot air impulse drying. In this process the workpieces are impacted with pulsed warm air. During the drying process, the drying system counter-rotates to the loading system, which also rotates.

### **Loading of the JAVA via robot is fully-automated**

The JAVA is part of an automated process. It is loaded fully automatically by a robot. After processing the classic moulded parts, the robot positions the workpiece on one of the two available workpiece carriers. These are zero-point clamping

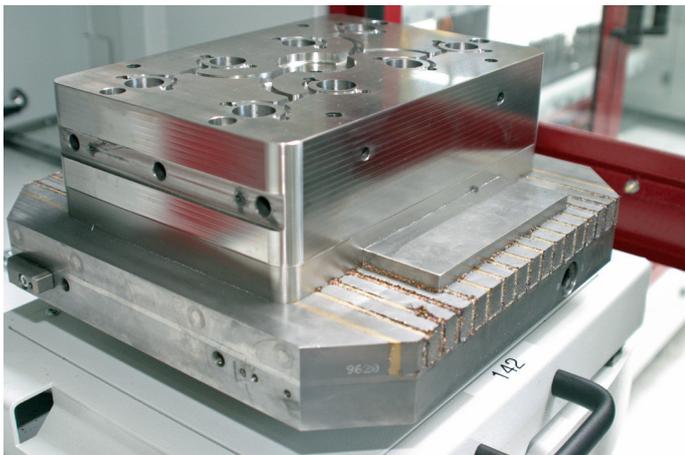
pallets equipped with four fasteners measuring five by five centimetres. Via the transfer system, the robot transports the injection moulded part thus fixed for cleaning to the JAVA, where it is placed on the pre-pallet. At the end of the cleaning process, the robot picks up the cleaned workpiece from the cleaning system and puts it down for measurement and subsequent assembly.

### **A maximum of 20 cleaning processes per day**

Every day, a minimum of two and a maximum of 20 cleaning processes are run on the JAVA. For cleaning, one of the two stored programmes is activated. Like the entire process, activation is of course fully automatic. So far, the water of the cleaning bath, to which a cleaning medium in 2.5 percent concentration is added, has not had to be changed. The holding tank is equipped with a main-stream micro-filtration unit and a coalescing oil separation system with integrated surface suction

and high-level monitoring of the oil collection tank.

You can find more information on high-quality system solutions from Festool on [www.festool.de](http://www.festool.de) and on the cleaning systems on [www.mafac.de](http://www.mafac.de).



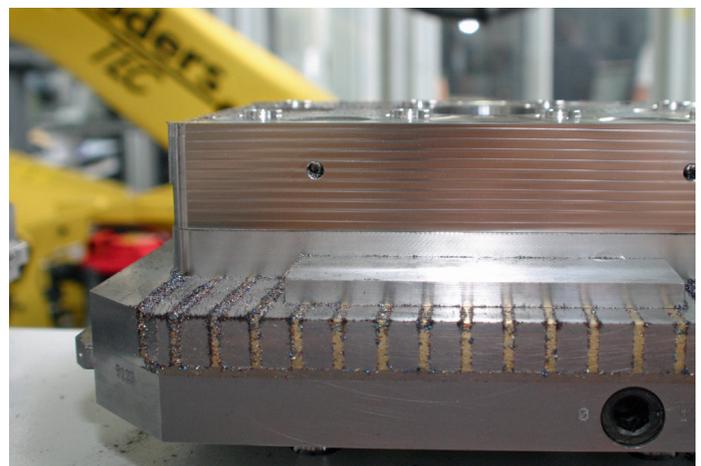
The injection moulds undergoing the fully-automated manufacturing process at Festool are fixed on zero-point clamping pallets.

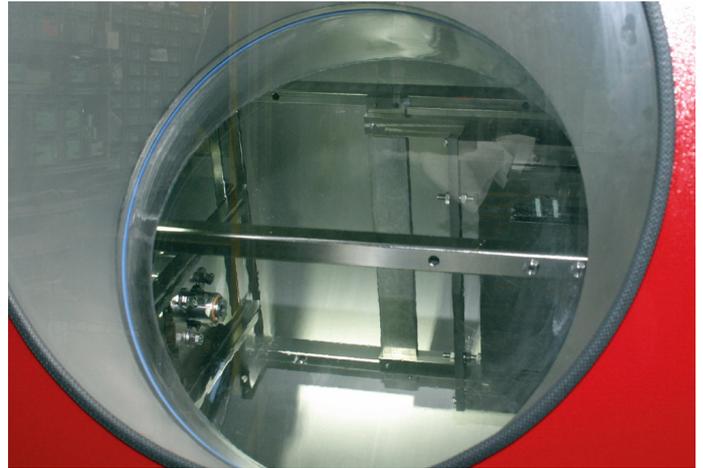


The workpiece holders, on which the injection moulds are fixed for cleaning, are equipped with four fasteners measuring five by five centimetres.



The cast steel moulds to be cleaned by the JAVA at Festool are contaminated with oil, very fine chips and dielectric fluid, a paste-like, greasy residue from the erosion process.





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