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User Report

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The experts at Atlanta were looking for a parts washer which cleans and dries their highly different components with above-average results. The PALMA by MAFAC proved to be fully up to this task.

At Atlanta's, high volumes is not what counts: The specialist for high-end drive systems manufactures batch sizes between one and 200 pieces. The company focuses on solutions tailored to the customers' requirements. This is evident not only in the layout of the production area but also in the requirements made in the cleaning system. Here, the decisive factor is not cycle times but an above-average cleaning result. "With our high-precision parts, we are talking about two- or three-thousandth of a millimetre – in this range, even the smallest particle is annoying," says Ludwig Blücher, Head of Technology and Methods. Since late last year, Atlanta has been using a dual-bath aqueous cleaning machine (type PALMA) by MAFAC for all cleaning tasks. Blücher states: "Since we have this machine, we always get excellent results – there's no more trouble at the parts cleaning front!"

Focus on development and construction

For almost 80 years, the company Atlanta in Bietigheim-Bissingen has been renowned as a specialist for tailored customer-specific solutions in drive engineering. Drive systems by Atlanta are found wherever automation systems need to be driven, or where equipment needs to be positioned with high accuracy. The focus of the company, which is family-owned to this day, is on development. The construction department not only continuously improves the standard product range but also launches a large number of customer-specific solutions for complex drive engineering problems. Atlanta's clientèle includes manufacturers from many different sectors: producers of machine tools and wood machining equipment over food and packaging industries to manufacturers of robots and stone and glass machining equipment. Furthermore, the company Atlanta with its workforce of 230 employees provides tailored solutions to customers looking for special machines.

High cleaning requirements

"Over the last 20 years, the requirements in the cleanliness of the components manufactured by us have changed greatly. Today, we are working at an accuracy of two to three µm," says Ludwig Blücher. At the end of the manufacturing process, the parts must be correspondingly immaculate. Atlanta cleans primarily steel parts in the new machine. They are heavily contaminated by chips, oil and emulsions. The purchase of a new parts washer was a major challenge for the Technical Director. Four cleaning systems by different manufacturers were shortlisted. After the end of the test runs, only the PALMA was left. "For us, the technology is most important, and the MAFAC technology convinced us," Blücher says. In addition to the cleaning result, drying plays a cen-

tral role. As Atlanta manufactures the parts in small lot sizes, further processing of the components does frequently not follow directly after cleaning. "Accordingly, the parts must be perfectly dry to exclude corrosion," the Technical Director explains.

The decision-makers at Atlanta had a third requirement in the new cleaning system: "For decades, we have been using conveyors with special baskets for moving the components to the individual machining stations. The cleaning system had to be able to accommodate these baskets," Blücher says. MAFAC solved this problem by means of an individual adjustment of the standard basket receptacle system.

Patented spray-flood cleaning

The new parts washer on the Atlanta shop floor cleans a wide range of different components. Following every manufacturing step, gear wheels with tooth widths of one to ten, components for pinions, pinion shafts, and gear rods pass through the cleaning system. Many parts have blind holes and complex bores and are very sensitive to impact. Another complication is the sometimes very high weight of the baskets (up to 250 kilograms), and a great packing density.

"Here, the spray-flood cleaning technology has proved beneficial," Blücher says. The important factor was the option to flood the entire cleaning chamber, and to co- or counter-rotate the receptacle system to the spray system. "Mere spraying would not get the parts sufficiently clean," he explains. 80 per cent of Atlanta's cleaning tasks are carried out via two of the four programs saved on the machine. The "long program" with a duration of 15 minutes is used for final cleaning the finished workpiece. The seven-minute "short program" cleans the parts between the individual machining steps.

Independently of the program, the spray system rotates around the stationary receptacle system during the wet phase and during spray cleaning. For the "long program", the cleaning chamber is furthermore flooded completely after spray cleaning. The cleaning fluid from tank 1, which has a capacity of 750 litres, is used for the actual cleaning process. Next, the parts are rinsed with the contents of tank 2, which has a capacity of 600 litres; this is the same for all programs. The wet phase is completed after about three quarters of the cleaning time. Then, the parts are dried by means of hot air pulse blowing. The workpieces are first blown off by a rotating blowing system with highly pure compressed air in a pulsed manner. Next, ultra-finely filtered hot air is applied to the parts in a rotating manner. To achieve an optimum drying result, the basket moves in a gentle rocking motion.

Efficient chip filtration

A cleaning agent with corrosion protection agent is added to both tanks. In tank 1, the concentration is 3.5 per cent, and 1.5 per cent in tank 2. Each holding tank is equipped with a highly efficient chips filtration. The integrated coalescence oil separator separates foreign particles carried into the fluid and collects them in a separate container. "Thanks to the chips filtration, there is almost no carry-over of contamination; holding tank 2 is free of chips," Blücher says. The bath service lives of the system installed at Atlanta's, which is run in two-shift operation, are around five weeks with an average cleaning volume of six to seven baskets per hour.

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