



Parts Cleaning. Systems and Solutions.

The background of the slide is a close-up photograph of several industrial components, likely seal ring lids, which are circular and feature a complex internal lattice structure. They are arranged in a way that creates a sense of depth and repetition.

RICH-Präzision - Cleaning seal ring
lids in the flexible MAFAC KEA



User Report

RICH Präzision

RICH-Präzision – Cleaning seal ring lids in the flexible MAFAC KEA

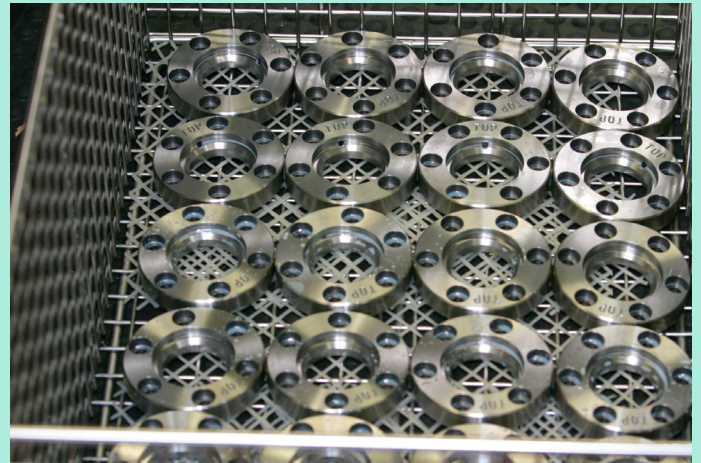
A flexible system warrants optimum cleaning results

“The system is extremely flexible. No other manufacturer offers comparable variety,” says Wolfgang Rich, Managing Director of RICH-Präzision. For optimising the production processes, the Riederich-based manufacturer early in 2013 commissioned a single-bath machine KEA by MAFAC, the cleaning specialist from Alpirsbach. Since then, the machine is primarily used to wash seal ring lids for cooling units. But this is only a start: “For us, the KEA is the entry to the world of aqueous cleaning. Mid- and long-term, we plan to switch completely to aqueous cleaning, provided our cleanliness requirements are met – and of that we have no doubt,” says Wolfgang Rich. The company RICH-Präzision is a long-established, owner-managed supplier headquartered in Riederich. Founded in 1949, the company is today led in the third generation by Wolfgang and Gottfried Rich. The RICH portfolio includes precision parts made of stainless steel, high- and low-alloy steel, cast steel, aluminium, brass, plastic and special materials. They are manufactured on state-of-the-art turning, milling and grinding machines for various industries, from mechanical engineering over electrical and refrigeration engineering to the automotive sector. Furthermore, RICH has an innovative development department which creates individual solutions. The product range is complemented by the mounting of assemblies and by all types of treatments such as

curing, galvanising, anodising and gold-plating. Starting this year, high-end stainless steel products are manufactured in Riederich under the brand name of STILmetall.

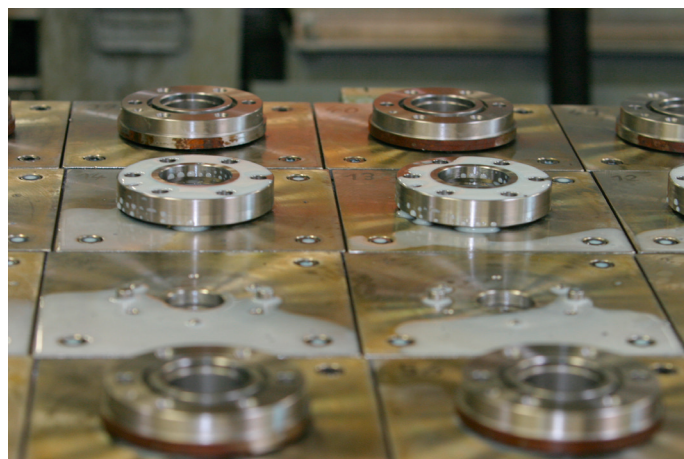
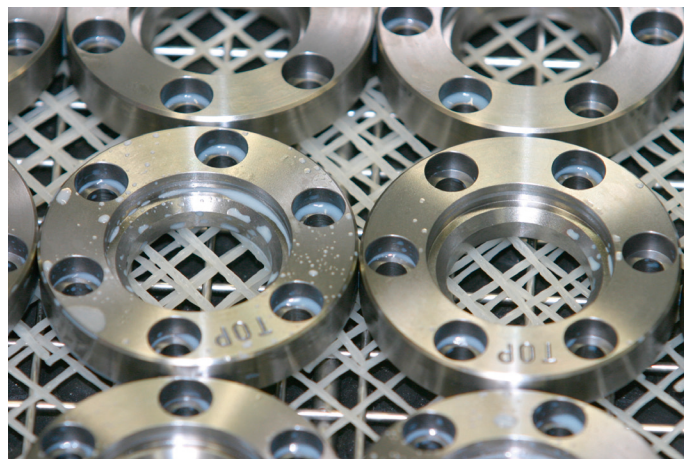
Early this year, MAFAC installed the KEA in the RICH factory. RICH purchased the aqueous cleaning system for the refrigeration engineering sector, and particularly for the cooling units for coaches. These seal ring lids – “the parts which seal off the crankshaft housing and thus are the heart of the cooling unit” – used to be cleaned at the customer’s. But now, the customer wished to reduce their process times and to outsource cleaning. Thus, the RICH specialists were faced with an extended requirements profile. “When it comes to aqueous cleaning, MAFAC has become a household name in the industry,” says Wolfgang Rich. The Managing Director had no doubt that he would buy a system from the “market leader in terms of aqueous cleaning”. He found not only the good cleaning results of the MAFAC machines convincing but also their compact design and flexibility. “We were looking for a machine which can be used de-centrally and for almost all departments. We found it in the KEA,” he says.

Simultaneously with commissioning the KEA, cleaning was integrated in the manufacturing process at RICH. Since then, cleaning is a permanent element in the production. Directly at the cleaning machine, the cleaned parts are wrapped in special VCJ film. Now, they go directly to the customer’s machining line for lapping and other treatment processes. In this respect, Wolfgang Rich says, the process at RICH’s was only pre-cleaning; but it



needed to be done with high precision as otherwise the parts would corrode already on their way to the customer's plant. Currently, the KEA installed on the RICH shop floor primarily cleans grey cast seal ring lids following machining. They are contaminated with emulsion, i.e. an oil-and-water mix. A total of four programs is stored in the KEA with runtimes between 2.5 and 8 minutes, depending on the material of the parts to be cleaned. Cleaning seal ring lid with a standard diameter of 90 millimetres, for example, takes eight minutes. This time falls in equal halves to a wet and a drying phase. The cleaning program for plastic containers, on the other hand, takes only two-and-a-half minutes, and the wet phase is much longer than the drying phase. "For aluminium and plastic parts, drying is much shorter than the wet phase," says Wolfgang Rich. During cleaning, all process technologies provided in the MAFAC machine are used, primarily the patented spray cleaning process developed by MAFAC; here, the cleaning system moves in co- or counter-rotation to the likewise rotating loading system. "This differentiates MAFAC clearly from all its competitors. This innovative process gives you much better cleaning results," Wolfgang Rich says.

But RICH uses more than just spray cleaning. When cleaning the seal ring lids, which are fixed for the cleaning process due to their sensitive geometry, the movement of the loading system is reduced to a rocking motion, with simultaneous rotation of the cleaning system equipped with full-jet nozzles. In seal ring lid cleaning, the wet phase is followed by a drip-off phase which lasts for about one third of the entire process time. After that, the actual drying process via pulse blowing system begins. During this process, the components are blown off with compressed air through a blow pipe in a pulsed manner. A cleaning agent mixed with corrosion protection agent in a concentration of three to five per cent is added to the water in the holding tank, which is 60 °C warm during cleaning. Depending on the degree of contamination of the parts, the bath service lives of the KEA, which runs in two-shift operation, can be up to two weeks. The 320 litres holding tank is equipped with a coalescence separator with floating suction device. The oils and grease separated in this way are collected in a separate container.



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