



# Walther Trowal: PFAS-free Coating of Elastomers

Frank Siegel

Walther Trowal GmbH & Co. KG - Haan, Germany ✉ f.siegel@walther-trowal.de

The new anti-friction lacquers that were specially adapted to the Rotamat coating systems, contain no chemicals that do not decay over time.

At the DKT 2024 exhibition, which took place from July 1 to 4, 2024 in Nürnberg (Germany), Walther Trowal and the Italian C.S.I. Centro Servizi Industriali Srl presented an eco-friendly solution for the coating of mass-produced small parts made from elastomers. The new coating material, for the first time PFAS-free, has been specifically adapted to the Rotamat systems. PFAS (Per- and polyfluoroalkyl substances), which until today are part of many coating materials, decay very slowly in the environment or do not decay at all. They are also suspected of causing cancer. It is highly likely that the EU will completely prohibit the use of PFAS in the near future. For this reason, at the DKT exhibition the two companies presented the new PFAS-free anti-friction lacquers CSIP13 and CSIPN18 for sealing components made from elastomers or plastic - for example, O-rings or flat seals. Even though the new lacquers contain no PFAS, they have the same low friction coefficient as PTFE-based coating materials and offer the same life expectancy. C.S.I. developed the new lacquer specifically for the Rotamat coaters, exhibited at the DKT by Walther Trowal. Especially the Rotamat R 100 with its high-volume drum capacity is increasingly used by customers, who coat large components, for example, pleated protective covers.

Daniilo Olivino, technical manager C.S.I., explains what challenges his team had to overcome: "We had to replace all substances containing

fluoride with an alternative anti-friction material. This demanded numerous trials regarding the general composition of the lacquer but also regarding the actual coating process. With its possibilities to run coating processes consistently within a wide range of different parameters, the Rotamat offers the ideal technology to precisely control the spraying operation in the drum. Especially the coating of parts for the automotive industry demands high process stability and consistency of results - the Rotamat systems offer these characteristics".

Olivino continues: "The comprehensive sensor technology in the Rotamat precisely measures the data for controlling the flow rate per minute down to one tenth of a gram. This guarantees that the right amount of coating material is applied onto the work pieces and that the specified coating thickness is precisely maintained in a consistent manner".

Walther Trowal already has a few customers who are successfully coating mass-produced small parts with PFAS-free anti-friction lacquers. For example, the Dutch Brüning Flexible Coating B.V., is coating, among others, O-rings and X-rings in several Rotamat systems.

## Background

The Rotamat system represents an economical solution for coating mass-produced small parts, such as O-rings, handles, springs and



screws. It allows the treatment of a broad spectrum of parts made from metal, wood and all kinds of plastic materials. This includes parts for the automobile and cosmetic industry, components for stationary supplies, toys, parts for the textile industry as well as seals and attenuators (dampening elements). The coating materials can be water- as well as solvent-based.

Rotamat systems are used for decorative coatings with numerous water- and solvent-based ornamental and functional lacquers. But they are also employed for coating with anti-friction lacquers, bonding agents, corrosion protection materials or isolation lacquers. In Rotamat systems batches of small parts are coated in a rotating, closed spraying chamber (drum). Automatic spray guns are evenly applying the coating material onto the work pieces, which are continuously tumbling over each other. This results in precisely coated surfaces with an even coating thickness and an excellent life expectancy of the applied coating material.

Even geometrically complex or very delicate parts are discharged from the machine with an even coating, in single flow and completely dry. After leaving the Rotamat the work pieces can be immediately processed in downstream manufacturing or assembly operations. The coating process runs fully automatically. The operator must only load new batches of raw parts and unload the batches with finished parts. The costly and time-consuming placement of the parts on special racks – required with conventional coating systems – is completely eliminated. ○

**From the left: thanks to the new PFAS-free lacquers from C.S.I. the coating in Rotamat systems is particularly eco-friendly; in its plant in Bolgare at Lago d'Iseo/Italy, C.S.I. operates a total of five Rotamat coaters; the Dutch Brüning Flexible Finishes B.V. also coats O-and X-rings with PFAS-free lacquers.**

