





# The Rotamat at Interseals: The Spring Board For Opening New Markets

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When it comes to placing an anti-friction coating on small parts, Interseals early on was betting on the Rotamat coater from Walther Trowal. The first machine, installed in 2009, became the foundation for a brand-new business division. In the meantime, the Italian company is operating seven Rotamat coaters at two locations and has become the Trowal customer with the largest number of Rotamat coaters used within a single group of companies. At its Capriolo plant in Lombardy (in the province of Brescia) Interseals produces O-rings, and special moulded parts (ref. Opening photo). In addition to coating its own work pieces the company also provides coating services to other manufacturers of similar products. About 65% of the Interseals production volume is sold to automobile manufacturers and their suppliers.

Interseals has established an excellent reputation for coating with multi-component lacquers and continues to be market leader in this field. Before switching to these multi-component coating materials, the company, founded in 1995, was mainly using lubricants like Molykote®, silicone oil, talcum and graphite. However, the customers were increasingly

demanding anti-friction coatings to facilitate the separation of the parts. Of course, reducing the coefficient of friction of the coatings along with demands for higher cleanliness in automatic assembly lines were also key factors for changing the coating material.



Figure 1: In its Capriolo plant, Interseals operates four Rotamat coaters; at Pol-Technology another three.

Since 2009 the trend towards the use of anti-friction coatings has dramatically accelerated. Interseals recognized this significant shift in customer requirements early on and reacted by planning to expand its “coating” operations and investing in new equipment. In its search for qualified suppliers the company also contacted Walther Trowal. The decision for the Walther Trowal equipment was not only based on purely

technical aspects but was also influenced by the “German business outlook” of the Italian-German management team: In all its capital investments Interseals has always been guided by its desire to buy from the renowned market leaders to take advantage of their decades old know-how and, in the

end, achieve optimum process stability with, at the same time, low “costs of ownership”.

Walther Trowal established its leading role as a reliable supplier in the field of mass finishing – deburring/ radiusing grinding and polishing of all kinds of work pieces. This reputation and the brand name associated with it, along with the excellent performance of the Rotamat, were decisive factors in the investment decision. No doubt, it also helped that the excellent name of Walther Trowal in the industry and with

auditors can be very helpful in marketing and with audits.

## Seven Rotamat coaters within the same group of companies

Positive processing trials with parts from the Capriolo plant in the test lab at Walther Trowal in Haan (Germany) convinced Interseals to purchase its first R 90 Rotamat coater in 2009.

Opening photo: Among other products, Interseals produces and coats O-rings made from different elastomers.





**Figure 2: The automatic spray gun evenly applies the coating material onto the gently tumbling mass-produced small parts.**

Today Interseals in Capriolo works with three R 90 Rotamat systems (usable volume up to 50 L) and one R 90 C (usable volume up to 75 L). The drum diameter in these machines amounts to 800 mm providing an average capacity of about 50 kg and 50 L. At the subsidiary plant Pol-Technology, near Katowice (Poland), established in 2016, initially two Rotamat coaters were installed with a third one going into operation in 2017 (**Fig. 1**). All machines are in line with the standard Walther Trowal technical specifications. No technical modifications were required which greatly facilitates spare parts supply and maintenance. Basis for the successful coating with multi-component lacquers is the perfectly timed coordination of the pre-treatment and coating operations: to achieve optimum coating results the parts must be coated within a few hours after the pre-treatment step (**Fig. 2**). For this reason, Interseals is operating two in-house plasma systems. On average each Rotamat coater processes nearly 40 million parts per year with water-based lacquers, of which 30% are destined for the company's own production in Italy and 70% as service for external customers.

New parts require extensive testing to determine the optimum process parameters like air volume & temperature as well as the rotary speed and inclination angle of the drum. After approval by the customer the process parameters are stored and locked in the integrated recipe administration. With any new purchase orders for the same articles the parameters are called up from the internal recipe administration. The process itself is automatically controlled and monitored by an industrial PC with touch panel, which is integrated into the control panel (**Fig. 3**). Even the spraying rate and spraying pattern are controlled by the program, ensuring a high process stability with absolutely repeatable coating results. With the integrated report administration module all coating processes run in the past can be easily recalled allowing review of the process parameters of every single batch ever run.

## Conclusion

The decision to expand the company's product and service portfolio with the Rotamat coater has proven to be a full success. While initially only intended for the in-house production, Interseals very quickly received enquiries from other companies. That is how the Rotamat coaters were forming the foundation for a new, continuously growing business field.

The machines produce excellent surface finishes, are very sturdy and require a surprisingly low degree of maintenance. The first machine, delivered nearly 10 years ago, still runs at full capacity. A big help was that the process parameters are stored in the PC in Italian and Polish language.

The fact that Interseals had no prior knowledge whatsoever about coating of mass-produced small parts was no doubt a challenge. The process was completely new to the employees, and no specialists were to be found in the Lombardy region.



**Figure 3: The entire coating process is controlled and monitored by an industrial PC with touch panel integrated into the control panel.**

That is why in the beginning the experts from Haan intensively supported Interseals. But for several years now the colleagues in Italy and Poland have been adapting the coating process to new customer work pieces. But, of course, the experts from Haan still help Interseals with special questions and customer demands. It no doubt helps that the Walther Trowal technicians and engineers have been working with Interseals for many years and know the company's requirements inside out.

**The future**

Recently a new trend has developed: The products of many Interseals customers are becoming more compact, but must provide the same high performance.

This means that the seals are also becoming smaller. For example, the volume of 50,000 O-rings with an internal diameter of 3 mm and a cord width of 1 mm only amounts to 0.5 L! However, since a certain, minimum batch size is always required, Rotamat coaters with smaller drums are needed. For this reason, Interseals



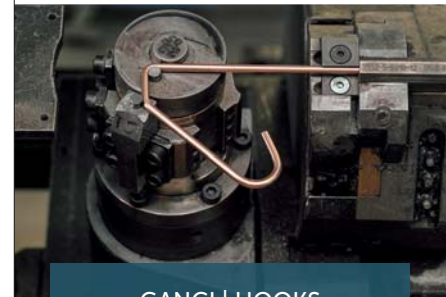
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**Figure 4: The new Rotamat R 60 coater is ideal for processing work piece batches with volumes of up to 15 L.**

plans to purchase a new R 60 Rotamat coater with a nominal usable volume of only 15 L (Fig. 4), but with the performance characteristics of its “bigger siblings”. This machine is intended for smaller batches as well as the sample processing of larger work pieces. ◻

The coating of mass-produced small parts in a Rotamat coater is a high temperature process, whereby the small parts are coated in a rotating, enclosed spray chamber. The process can be applied on parts made from different plastic materials like elastomers, ABS, PC, PS, etc., as well as parts made from metal and wood. The Rotamat systems allow processing of water based as well as solvent based coating materials. The parts do no longer have to be placed individually on special racks but are simply loaded in bulk into the rotary drum of the Rotamat system. One or – even better - two automatic spray guns are evenly applying the coating material, while the small parts are gently tumbling over each other.

To induce the required process temperature into the parts, warm air is injected into the coating drum with an absolute minimum of turbulence. The work piece temperature is directly measured with an IR sensor. Depending on the work piece temperature a PID controller regulates the temperature of the inlet air always taking into account the actual air volume. Due to its outstanding efficiency the Rotamat coaters require only a few kW's of installed electrical power. Once the coating process is completed, the work pieces are discharged by simply tilting the drum downwards with a gear motor. A post process drying step, for example, in an oven, is no longer required. The parts coming from the drum can be immediately used for the next production step.



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