

# ETMM

EUROPEAN TOOL & MOULD MAKING

## THE MAGAZINE

3

Volume XXVI | August 2024  
www.etmm-online.com

EDM  
**Tools for  
Cosmetics**

The precision craft  
behind Schwan's  
iconic designs

COVER STORY

## Standardisation as a key to success

**meusburger**

### AMB preview

From September 10-14, 2024, AMB will showcase the latest technologies in metalworking.

### Digital transformation

Sandvik Coromant's facility uses cutting-edge software to automate machining processes.

### Energy efficiency

Sustainability in machining needs a holistic approach. What role do toolholders play?

## INJECTION MOULDING PROCESS

# Efficient and safe: Keeping cooling channels clean

The Dreyproper system from Wattec enhances the cleaning of injection moulding tools with its fully automatic, safe and fast approach. Gardena Manufacturing and other companies have found significant improvements in efficiency and ease of use with its latest model.

Injection moulding tools are supplied with a coolant to prevent overheating. Over time, the cooling channels can become clogged with limescale and corrosion, causing the injection moulding process to lose efficiency. Regular cleaning is therefore essential. As many systems only offer this semi-automatically, operators are confronted with a great deal of additional work and health risks due to the chemicals used.

The fully automatic and mobile Dreyproper system from Wattec, on the other hand, offers safer and faster cleaning. With the help of a frequency-controlled pump

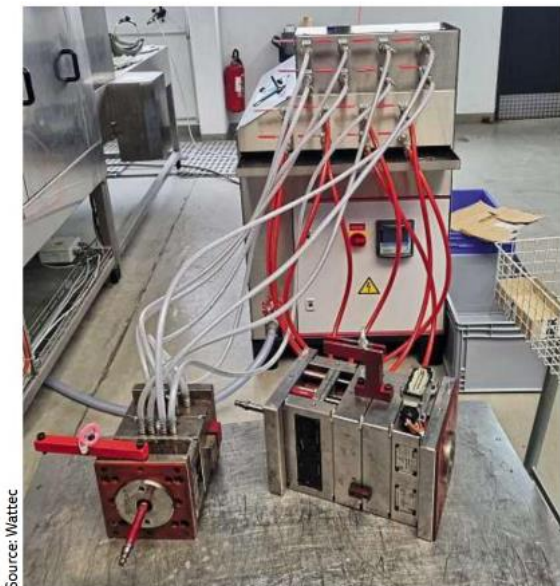
and a compressed air connection, it injects air bubbles into the volume flow of the cleaning agent so that even stubborn limescale and sludge deposits can be removed from up to eight circuits simultaneously. Gardena Manufacturing and KWM Kunststoff-Formteile have also had very good experiences with the latest 4.2 model of the Dreyproper.

“Cooling the moulds in the injection moulding process ensures that they do not overheat and that the plastic parts solidify quickly and evenly,” says Joachim Rohmann, Managing Director of Wattec. “This prevents



The Dreyproper injects air bubbles into the volume flow of the cleaning agent so that even stubborn limescale and sludge deposits can be removed.

Source: Gardena Manufacturing



Source: Wattec

Thanks to the improved cleaning economy, eight instead of the previous four cooling channels can be connected for flow-monitored rinsing.

deformation, stresses and shrinkage and shortens cycle times." Over time, however, they can corrode due to the continuous load and limescale, among other things, deposited. As a result, the cross-section of the cooling channels is reduced, which reduces the flow rate and heat transfer. This leads to uneven and insufficient cooling, which deteriorates the quality of the plastic parts and increases cycle times.

To make the cleaning process more efficient and environmentally friendly, more and more manufacturers are therefore using the Dreyproper from Wattec, which is currently available in generation 4.2. The appliance carries out the rinsing process fully automatically and the new model now has various additional monitoring functions. "The aim should always be to restore the original performance of the cooling channels," explains Rohmann. "The combination of efficient, automated flushing technology and a high degree of monitoring with regard to dosing ensures that this objective is met."

### Automatic cleaning instead of manual dosing

Until a few years ago, Gardena Manufacturing used a descaling system that could only be used to clean one cooling system, which meant that the entire process took considerably longer for larger tools. "We can easily connect the Dreyproper to the tool so that we don't have any direct contact with acids, which was necessary for manual cleaning processes," explains Steffen Hauser, Head of Tool Maintenance at Gardena. Once the device is connected to the tool, the drinking water flooding is activated first. The circulation pump then pumps fresh water through the channels to determine whether there is a leak in the tool. If no leaks are found, the device be-

***"Because the Dreyproper is so flexible, we can also use it to clean several smaller moulds in a single operation."***

Joachim Götz, Production Manager Injection Moulding, KWM Kunststoff-Formteile

gins to introduce the cleaning chemical and starts the actual cleaning process.

"Instead of having to dispense the medium by hand, the Dreyproper takes over this task itself," explains Hauser. "Thanks to the practical touch screen, we always have an overview." Various sensors monitor and document the flow rate and cleaning performance throughout the entire process. "This not only allows us to draw conclusions about the result, but also to save and store individual targets for the tools so that they don't have to be re-adjusted when cleaning again. The fact that we don't have to make a note of how much fluid is needed for each tool and how long cleaning will take makes tool maintenance much easier," explains Hauser.

### Parallel connection of multiple channels saves time

"Depending on the component, we use moulds of different sizes, all of whose cooling channels have to be cleaned from time to time," says Joachim Götz, Production Manager Injection Moulding at KWM Kunststoff-Formteile. "Because the Dreyproper is so flexible, we can also use it to clean several smaller moulds in a single operation." This improved cleaning economy is made possible by the optimised geometry, which allows eight instead of the previous four cooling channels to be connected for flow-controlled rinsing. At the same time, more cleaning fluid can be pumped through. This is fed into the channels by a multi-stage, frequency-controlled centrifugal pump. "The pump works at optimum speed. This means that it does not always run at full throttle, but only uses as much energy as is required for the cleaning cycle," adds Rohmann.

With the compressed air connection, air bubbles can be injected into the volume flow of the cleaning agent. The air bubbles are alternately enlarged and reduced via a fully automatic change in pressure. "The resulting flow whirls them around and causes them to repeatedly collide with the deposits. In this way, even stubborn incrustations are loosened and carried away." Once cleaning is complete, the cleaning fluid is neutralised and discharged via the channel. "If another pass is necessary, the tank can be easily changed and filled with a new cleaner, which also saves time," says Götz. In addition, the connected channels can be blown out again to ensure that no residue of the cleaning fluid remains.

### Next generation technology already in the making

The tried-and-tested system is regularly optimised and developed further, always incorporating feedback from users. "The technology simply works and you can tell that it was designed with practical application in mind. The fact that the practical Euro pallet size of 809 x 1025 x 1210 mm has not had to be changed despite further development is particularly pleasing and allows us to reach every tool without any problems," describes Götz.

In addition to some programme updates and simplified menu navigation, which have already been implemented, the manufacturer is already working on the next generation to automatically apply a permanent coating to the channels after cleaning so that they become more resistant to corrosion and deposits do not occur as quickly. (ast)