

# EUROPEAN TOOL & MOULD MAKING

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# Grinding things down to a partnership in high precision

The well-known German mould-making house Otto Männer recently upgraded its profile grinding capabilities as a way to guarantee the high precision demanded from its broad range of international customers.

Consistent high precision is key for the manufacturing process at Otto Männer in Bahlingen, Germany, which is primarily known for its precise moulds and valve gate hot runner systems. To guarantee this precision, the mould-making experts decided to invest in a Techster 84 profile grinding machine from Amada Machine Tools Europe, said to be suitable for large parts but also for intricate machining tasks.

Männer products and services are used when it comes to the high-volume production of high-quality plastic parts. For this purpose, moulds with up to 128

cavities are developed, and they use the in-house valve gate hot runner system.

## On the surface, a demand for close tolerances

Consequently, for profile and surface grinding, top precision is the general requirement when manufacturing mould and functional parts that are used as original parts and ready-to-install spare parts. "In case of replacement parts, we produce parts with an accuracy of 1µm," Rudi Köchlin, the shop's production manager explained.

## Developing optimum mould concepts

To meet the high demands of medical and pharmaceutical products, Männer develops an optimum mould concept in terms of precision, stability, cooling and ease of maintenance. The company thus realises moulds with multiple cavities and optimised temperature control for short cycle times and minimum gate mark distances as well as with direct gating using Männer valve gate hot runner technology. For the mould experts, it is important to be able to change mould inserts without any additional adaptation requirement. Bearing this in mind, the company has developed its "Easy Change" technology. This technology calls for maximum precision and repeatability in the production of replacement parts.

## Cast structures provide high stability

Amada's Techster 84 surface and profile grinding machine is said to meet all of Männer's demands; it weighs as much as 8 tonnes – up to four times more than comparable machines – Amada said. "This, however, suggests that the grinding machine really provides the promised basic accuracy," Köchlin added. A solid-cast machine bed and a table and column designed as cast structures add to that weight, which reportedly guarantees maximum stability.

Hand-scraped and ground double V-guides directly mounted on the machine bed offer smooth axis travel without any stick-slip effects. Driven by a special ball screw, the table is precisely guided and positioned in the ground guides, Amada explained. It noted further that the sturdy grinding spindle can withstand even high forces and transfers them to the



Moulds made by toolmakers at the Otto Männer shop are used to produce plastic products around the world.

Source: Männer





Männer produced complicated tooling for a device that dispenses asthma medicine.



Source: Männer

Source: Männer

The shop not only manufactures moulds, it also makes and markets its own hot runner technology.

strong cross member, which is guided by the rugged column. Additionally, the axes of the surface and profile grinding machine are equipped with high-resolution measuring systems of nano precision (0.05µm), making it suitable for face grinding including wear compensation.

### CNC grinding and dressing technology

Männer reportedly appreciates the integrated functional CNC grinding and dressing technology TPA/VPA for profile dressing of the grinding wheel in par-

ticular. This technology enables dressing to be performed without set-up and is suitable both for vitrified bonded grinding wheels and dressable CBN grinding wheels. For this purpose, the swivelling unit has been mounted directly on the machine table. It has a thrust bearing that is said to grant high mechanical stability combined with compact design and light weight. By using a separate high-speed dressing unit for pre-profiling, Amada has extended the service life of the dressing wheel used for finish profiling. "We are impressed by the long life of the dressing tools," Köchlin said. "So

far, there has been no need to replace the dressers."

The easy-to-use CNC unit allows for a large range of machining processes, including the continuous path grinding technology integrated in two paths. "For us to be able to utilise continuous path grinding technology to its full capacity, we will need some more training sessions," Köchlin added. Amada said it is happy to provide any training required to ensure its customers can use the machines to their full potential.

### Reliable partnership for the long term

For Amada, it is important to partner with their customers in order to provide the demanded technological features or even to manufacture a customised machine. And Männer is happy with this partnership.

Heinz Pracht, head of overall production and a member of the Männer executive board, said: "We immediately felt that Amada intends to intensify its efforts to establish [itself] in grinding technology – that impressed us a lot."

Köchlin added, "While searching for investment options, we had been looking not only for a supplier, but also for a partner able to accompany our progresses on a very high level."

» **Amada Machine Tools Europe,**  
Haan, Germany.  
[amada.com](http://amada.com)



Source: Männer

Precision plays a central role at Männer, whether it be in the machining process or for the finished product.