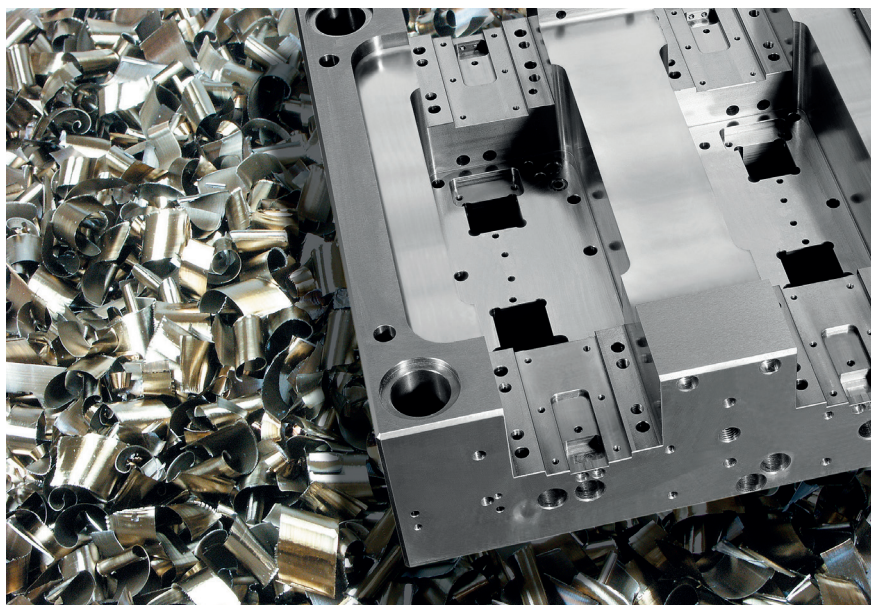


D+S relies on HASCO

Precise and reliable production of mould bases



1/ Quality steel 1.2099HASCO.M

Since the founding in 2001 of D+S Werkzeugbau GmbH & Co. KG in the German town of Villingen-Schwenningen, the company has focused on the production of mould bases for injection moulding tools – and has been very successful! Alongside the production of customised mould assemblies, the company has also become specialised in deep hole drilling and coordinate grinding. HASCO's standard mould units and especially 1.2099HASCO.M quality steel play an important role here.

Because of the mounting pressure of ever tighter deadlines, injection moulding tools are being increasingly prefabricated by specialised metalworking firms in the form of complete mould assemblies. In such cases, the injection moulder or his mould maker produces only the cavity insert as the heart of the production tool using his own expertise and his own know-how. Founded in 2001 in Villingen-Schwenningen by cutting machine specialist Jörg Daume and partner, the firm D+S has, from the very beginning, specialised in the production of demanding mould assemblies built according to the customer's specifica-

tions. From the start, Daume was able to call on seven high-tech machines, enabling him to optimally satisfy his customers' requirements in terms of standard mould units for injection moulding tools, punching frames and other services.

In addition to the high-precision machining, cutting and assembly of the components made predominantly from HASCO's standard mould units, D+S has become a specialist in deep hole drilling and jig/coordinate grinding, and also offers other CNC drilling and milling services. The company serves well-known customers from the fields of automotive, medical

technology, electrical engineering and machine manufacture throughout Europe.

Klaus Zimmermann, who has been serving as the company's managing director since 2016 alongside its founder Daume, is very well-known in the region as an expert in this field. Both attach enormous importance to ensuring that all mould assemblies are milled with maximum precision.

Jig grinding and deep hole drilling

The company's founder and managing shareholder, Jörg Daume, describes coordinate or jig grinding as one of two main niches served by the company. Klaus Zimmermann, who had begun to think that jig grinding was "going out of fashion", was forced to change his opinion: "There are many customers out there who attach particular importance to the high precision of jig grinding." In many cases, they make such high demands on the surface quality and precision of the bore dimensions of holes that hard milling or boring is no longer sufficient. "With coordinate grinding, we attain accuracies of up to 5 µm," says Zimmermann. With the recently purchased jig grinding machine, sheets can be machined in a size of 800 to 1200 mm with a travel of 800 x 1250 mm. With a combination of hard milling and coordinate grinding, the service life of long running injection moulding tools can be considerably increased. "If a conventional tool manages, for example, 1.5 million strokes,

it is entirely possible that up to 5 million strokes will be possible with hard milling and jig grinding," explains Zimmermann. The buzzword here is "absolute precision". Jan Rosenberg, technical sales engineer for the south-west region at HASCO, is always on hand to give specialist advice. When it comes to the requirements on maximum precision, he quotes the example of silicone injection moulding. Because of the extremely low viscosity, the narrowest of gaps are required to effectively avoid flash.

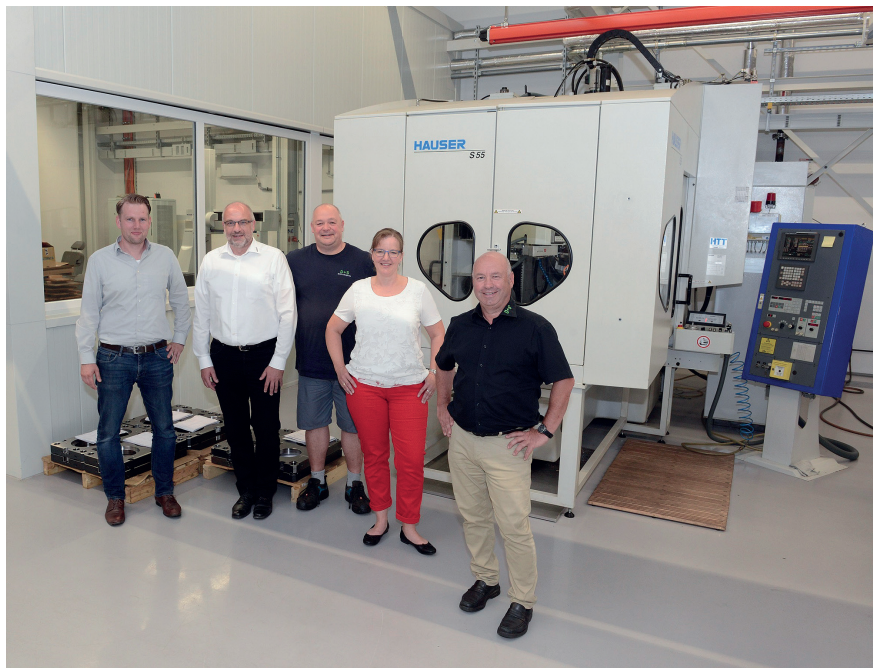
The second main niche in the D+S service portfolio is deep hole drilling with lateral machining including engraving. While most mould makers can carry out milling, drilling and flat grinding, only a very few also have command of deep hole drilling. The combination of coordinate grinding and deep hole drilling under one roof is almost unique – "at least here in the region," says Zimmermann. Apart from top quality, highly flex-

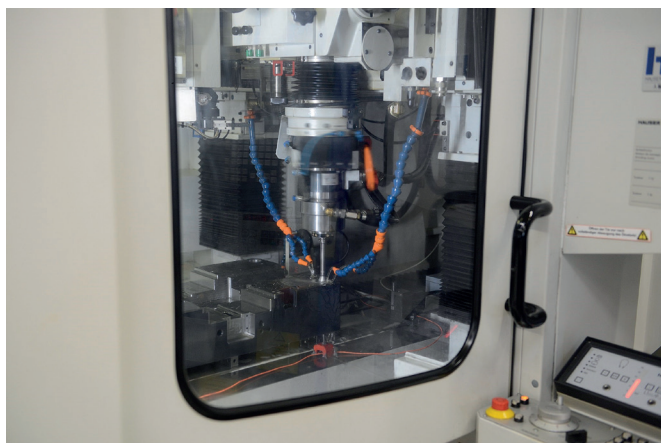
ible production and on-time delivery, there are many other "minor details" to which D+S attaches importance and, at the end of it all, help to keep the customer satisfied. For example, the company always machine chamfers on all plates (except, of course, on cavity inserts). Consequently, not only do the plates look better, but the risk of injury when handling them is also considerably reduced.

Good steel is worth its weight in gold

"We live for machining," says Klaus Zimmermann moving on to the subject of steel. "And if I want to make optimum use of my core skills, I need good machines, good milling tools and the right steel." And that is one of the many reasons why D+S purchases its semi-finished products only from HASCO. Whereas 1.2085 steel was once the first choice for such applications, D+S now opts predominantly for the 1.2099HASCO.M steel. This corrosion-resistant, pre-hardened mould steel allows even better machinability and is noted for its outstanding dimensional stability and toughness. Zimmermann:

*P2/
Klaus Zimmermann, Heike Daume, Jörg Daume / Managing Directors D+S,
Jochen Müller, Jan Rosenberg / Technical Sales HASCO, from right to left*





3/
Modern coordinate grinding machine

Extended service spectrum

In the last few years, D+S has been able to expand its range of services and capacities. The doubling of the production area to 1,700 m² now offers enough space for the new, larger Hauser S55 jig grinding machine and the state-of-the-art Auerbach deep hole drilling machine. They provide optimum conditions for further expanding the product range, for making the manufacturing processes even more efficient and for consolidating the foundation for core competencies. Today, 18 people plus two managing directors work at the company and thus comprise an extremely efficient team for their customers. Says Daume: "With the new investment, our reorganisation and our motivated and efficient workforce, we are well positioned for the future. We at D+S see ourselves as a team, because only together are we successful".

"Because this steel has greater dimensional stability, the mould quite simply has a longer service life. If a mould is able to last, for example, three million shots instead of two million shots, merely because of the higher dimensional stability of the steel, then the relatively small extra cost of the superior steel is quickly recouped." The 1.2099HASCO.M steel quality is also so well suited because the steel shows virtually no warpage or distortion even with high machining rates. Apart from the good machinability, it offers high tensile strength and stiffness, which brings advantages to customers during the injection moulding process. Over and above that, this special alloy can also be welded. When D+S offers its customers a mould unit, it will on principle

only manufacture it with HASCO's proven semi-finished products. "Otherwise we cannot maintain our quality standards". HASCO's steel plates make it possible to perform all the work steps normally carried out at D+S exceptionally well. After coarse machining, D+S sends the pre-hardened HASCO sheets, already annealed at low stress, for an extra annealing step. After annealing, in which any released stresses through the coarse machining are eliminated, comes the final machining stage. "Only at this stage is low-stress annealing really worthwhile," says Zimmermann. Subsequently, the plates are hardened, once again ground plane-parallel, hard-milled and finally subjected to coordinate grinding.

Competence partner HASCO

As a leading provider and manufacturer of modular standard mould units and accessories, HASCO supplies the entire range of ready-to-assemble system components for mould-making plus competent, customised support. As part of its international service network, more than 700 employees can find the easiest way to build moulds – with innovative strength, agility, simplicity and efficiency. All products, innovations and services are available worldwide and 24/7 in the HASCO portal. www.hasco.com www.ds-werkzeugbau.de Author: Dr. Michael Thielen, freelance editor



4/
View into the new D + S production hall (Pictures: HASCO, Lüdenscheid, Germany/ D+S Werkzeugbau, Villingen-Schwenningen, Germany)