



Source: OPS Ingersoll

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## In the fast lane with high-quality EDM and HSC technology

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Finke Formenbau manufactures moulds and injection-moulded parts for premium cars. The company's order books are already full for the next six months. This is a result of the efficiency and quality the company achieves, among other things, high-quality EDM and HSC technology.

**T**eam Finke is printed in big letters on the shirts of over 110 employees in Altenbeken near Paderborn, Eastern Westphalia, Germany. And the print says it all: Finke Formenbau really is a team that manufactures high quality moulds and injection-moulded parts for premium and luxury cars. Among other things it is the high-quality EDM and HSC milling technology from OPS-Ingersoll which makes the company remain competitive.

Although the time of the “gas guzzlers” is inevitably drawing to a close, there will always be a market for high-performance, fascinating sports cars, as proven by the new generation of the Audi R8 or the AMG version of the Mercedes-S Class convertibles. Markus Finke, managing director of Finke Formenbau has focused his company on these “top dogs” of the automotive industry. Around 50% of the products for which Finke Formenbau

designs tools – which they usually also manufacture in their own pilot plant, Finke Anwendungstechnik – are painted and chrome parts, mostly for Mercedes AMG, Porsche or Audi R and RS models.

### Tools for series production and for special-edition models

“Our plastic moulding division focuses on areas that are not profitable for our clients,” explains Finke. “Mercedes manufactures approximately 120,000 E-Class cars per year, and we produce many moulds and parts for the AMG versions. We construct tools both for series production and for special-edition models for our own production. That is our business.”

When the master tool and mould maker took over the company in Paderborn with 14 employees

in 1998, he never would have suspected its amazing future development. But quickly the company evolved from purely producing glass moulds into a versatile mould maker. In 2007, Finke Formenbau already had 48 employees and relocated to Altenbeken, where their new shop floor is now already in its fourth expansion stage and where 110 employees now generate about €16 million in annual turnover. In 2013, the mould making company expanded and founded its own injection moulding division, which today has 35 employees and a turnover of €6 million.

Finke specialises in automotive fronts and manufactures complex, high-precision moulds for parts like radiator grilles or bumper add-on parts. The company's injection moulding and die casting divisions today produce moulds up to a weight of 20 tonnes and a size of 2500 × 1500 mm.

This production of course requires appropriate machines, which must be suitable for the sheer size of the moulds and also meet the company's high quality requirements. To this purpose, Finke Formenbau has recently invested in a new EDM machine from OPS-Ingersoll: The Gantry Eagle 1400 with its work-tank of 1510 × 2590 × 790 mm offers the mould maker plenty of space and room for flexibility. Apart from the high precision of its design, the Gantry machine concept with its almost table-covering travel ways in combination with a

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Jürgen Lütkemeyer, head of Finke's EDM department, Finke GM Markus Finke, and Matthias Schmidt, OPS-Ingersoll head of sales (l-r).

48 electrode changer also offers ideal conditions for long, unmanned operating times.

### The HSC/EDM ratio has been stable in the past few years

Finke Formenbau has not felt the impact of the trend toward substitution in tool and mould making, i.e. the proportional reduction of erosion processes in favour of HSC machining. "EDM is still important," says Jürgen Lütkemeyer, head of the EDM department at Finke. "For us, the HSC/EDM ratio has been stable in the past few years."

## CASE STUDY

For Jürgen Lütkemeyer, the new Gantry Eagle 1400 scores with greater flexibility and reduced tool wear, even though it does not offer a massive increase in removal rate. “The new machine has made us more flexible in the production of large parts,” says Lütkemeyer. “It is also more reliable and steady in terms of wear behaviour.”

And less wear and tear as well as short lead times are essential for economic EDM. A high surface quality and contour accuracy of the electrodes is a pre-requisite, consequently the manufacturing costs of the electrode often make up more than 50% of total costs. Thus, operating an EDM machine with a very efficient generator suitable for graphite can not only improve the service life of the electrodes, but through gentle coupling of impulses into the workpiece also the lifetime of the eroded mould.

For many years, OPS-Ingersoll has focused on tool wear in the development of its machinery. The Gantry Eagle series works with a so-called adaptive power form. “This kind of current flow allows for a discharge pulse in the spark-gap, resulting in significantly reduced wear of the electrodes,” explains Matthias Schmidt, sales manager at OPS-Ingersoll. “This can double the service life of graphite electrodes. We are talking about a 30 to 50% productivity increase.”

Of course, the Gantry Eagle 1400 would also offer a high degree of efficiency as well as an ideal ratio of erosion to lifting time. “The percentage of erosion time in total machining time is increased and higher interval speeds of up to 18 m/min are possible. We have also designed a lighter head, so that you can achieve a high lifting speed in the Z-axis also with large pieces and can design rib machining more efficiently.”

Jürgen Lütkemeyer agrees. The moulds for radiator grilles and similar components require many electrodes with rib structure and the new machine is more dynamic and faster than the “older” Gantry 1500, says the EDM specialist. The machines stand side by side on Finke Formenbau’s shop floor, where



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one can find other EDM and HSC machines from OPS-Ingersoll as well. Since 2002, the business has put its trust in OPS-Ingersoll technology and also uses their long-time partner’s HSC technology in electrode production.

### Seamless cooperation with suppliers allows for continuous improvement

With a share of about 90% of total turnover, the automotive sector is the major sales driver for Finke Formenbau and because this market is highly competitive, many of the company’s processes have been automated. In EDM, Finke Formenbau relies on automation systems from OPS-Ingersoll equipped with the so-called chip ID system. “The customer is always looking for increased operating time and less operating effort,” says Schmidt. “With our chip ID system, the operator can load the tool changer “chaotically” via RFID chips, and does not need to worry about the tool station. The database connected with the chip ID then ensures a reliable matching of, for example, measurement data with the relevant parts. The correct data is automatically loaded into the machine with every change of parts.”

Although Finke Formenbau does not yet fully exploit all the benefits of this system, the seamless cooperation with OPS-Ingersoll allows both companies to continuously improve processes like these in teamwork. Of course they also share a common goal: To make processes more efficient and further increase their quality.

Finke is already working to capacity in the first half of 2016 – a company record, thanks in part to all the car enthusiasts who can’t wait to get their hands on next year’s many new sports car models, but mainly a result of the business acumen of Markus Finke, who works in true partnership with his customers and suppliers, and who is quick to recognize and seize opportunities in the market. Finke Formenbau’s success proves that the owner and his “Team Finke” are on the right track, and with the planned expansion of the injection moulding division, the company’s bright future is ensured well beyond 2016.

[ops-ingersoll.de](http://ops-ingersoll.de), [finke-formenbau.de](http://finke-formenbau.de)



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**Finke Formenbau designs and builds moulds for series production as well as special-edition models.**