

Exploiting Strengths for further Growth

Operating from Sesslach, a town located in idyllic northern Bavaria, **GEISS AG** is widely considered to be the only specialist machine engineering company in the world to offer a complete portfolio of solutions for plastics processing. The line includes thermoforming machines, CNC trimming centres and tool manufacturing and prototyping solutions for vacuum forming. As owners of various innovative technologies and patents, **GEISS AG** has an impressive market share both in Germany and around the world.

Shortly after the Second World War, company founder Georg Geiss realised that plastic, a novel material at the time, were the future for a multitude of applications in all walks of life; therefore, in 1948, he decided to start his own business in the Franconian town of Sesslach, manufacturing patterns and furniture. A few years later, the first moulds for thermoforming processes were added to the product line, a new technique imported from the United States. Our interview partner for this article is Manfred Geiss Managing Director: *“Back then, thermoplastics were the latest innovation in the plastics industry and the associated production process, which used vacuum, was picked up by leading plastics processors around the world. This era also marked the beginning of recyclable materials. Focussing on thermoforming technologies brought us substantial growth until around 1970.”*

In 1970, the founder’s son and our interviewee



GEISS AG is headquartered in the southern German town of Sesslach

Manfred Geiss joined the company following the completion of his machine engineering degree. From that point onwards, the **GEISS** Company was driven by technological innovations, starting with the development of an automated feeding system for its plastics processing machines, which was duly patented by the father-and-son engineering team. Throughout the 1970s and into the 1980s, **GEISS** was run by Georg Geiss as Chairman, Manfred Geiss as Technical Director, and his wife Klara as Financial Manager. By the end of that period, **GEISS** had more

than one hundred employees.

By 1999, continuous growth had necessitated the construction of a new plant, completely designed and structured to cope with the sequence of **GEISS** operations; its state-of-the-art equipment and infrastructure would provide perfect conditions for optimal design and manufacturing processes for many years to come.

Georg Geiss acted as Chairman of the Board until he passed away in 2002. One year later, his son reorganised the enterprise into a

public company, registered as **GEISS AG**.

The foundations for the export business were laid in the early 1970s and substantially intensified in the mid-1990s. Currently, **GEISS AG** has a seventy-percent export rate, selling and marketing its technologies through independent representations in forty-one countries, with a focus on the markets of Scandinavia, the Czech Republic, Italy, France, the United States, and China. *“There are more than four thousand of our machines presently operating on customer sites around the world,”* explains Manfred Geiss. The company has become a global leader in its field, with a market share of 70% for cut sheet forming solutions in the German market alone. Most **GEISS** technologies are protected by European patents, twenty-seven in total and counting.

GEISS AG
one step ahead

Today, **GEISS** generates an annual turnover of thirty-one million Euros and employs one hundred and forty-five members of staff. The company is the biggest employer in the Sesslach region. *“Here in Sesslach, we have combined all activities under one roof - our products are genuinely designed and made in Germany,”* emphasises Manfred Geiss.

The GEISS portfolio comprises thermoforming machines, CNC-controlled trimming machines, CNC-controlled ultrasonic, cold-knife and laser cutting machines, trimming jigs, special-application solutions and horizontal band saws, as well as tools and moulds. All machine designs are based on the parametric principle and can therefore be adapted to demands. GEISS employs the parametric principle throughout its manufacturing facilities and Computer Integrated Manufacturing (CIM). Parametrically designed machines offer flexible and variable customisation options as

The company's "digital factory", featuring almost 100% vertical integration, has been implemented to such a degree that programming is no longer performed on the machines themselves - all CNC programs are automatically written off-line by specific software solutions.

Parametric design that extends to all production stages makes manufacturing organisation extremely flexible - thanks to the preliminary work at the design stage and sophisticated production flows, it becomes largely irrelevant which machine size or optional equipment has been or-



The state-of-the-art production facility

fit of cutting turnaround times - the lead time for a trimming machine, for example, is less than six weeks from order to delivery.

The thermoforming machine range is made up of the U and T series, both essentially closed machine casings equipped with adjustable clamping frames, individually controlled heating elements for top and bottom heaters, PC control panel, counter die and cooling fan with water spray cooling. Other common features include CE certification, elimination of platform or pits thanks to ideal working heights, guaranteed processing of any thermoplastics at any thickness regardless of machine configuration and an unparalleled variety of options allowing for enormous specialisation and automation. Any adaptation is possible, be it to increase the degree of automation or flexibility, or the reduction of retooling times.

The T series range of thermoforming machines - where T stands for "tief" (German for "deep") - is

characterised by its enormous draw depth and is considered an industry standard for the associated applications. The underlying design approach and the available space inside this heavy-duty universal forming machine accommodate upgrading with all GEISS thermoforming options.

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The U series is specifically designed for smaller machine footprints. The machine table of this compact unit is lifted pneumatically, thus permitting a draw depth of three hundred millimetres. Just like in the T range, setup in a pit or on a platform is not necessary due to the machines have the optimum operating height.

The finishing machines in the portfolio, which includes CNC trimming units with three, four and five axes, are considered to be superior solutions in respect



**Our interview partner for this article,
 GEISS AG Managing Director Manfred Geiss**

regards size and degree of automation. As a variable is changed, the design worksheets enable automatic adaptation of all other components and dimensions. The necessary scaling is provided by proprietary software that mirrors the entire manufacturing process.

dered. To be able to provide fully variable machine sizes, GEISS does not use standardised steel sections for the machine frames, but produces specific sections of steel and aluminium sheet for each individual machine ordered. This approach has the added bene-



The last word in thermoforming machinery - GEISS T-series

more, our machines are now capable of processing twin-sheet thermoplastics, a little-known application with enormous future potential due to the ever-growing demand for plastic transport pallets. With this approach, we seek to exploit our main strengths to their fullest potential, i.e. heating, forming and automation."

to technology, quality and performance. They can be supplied at any nominal size and in a variety of configurations. The smallest available machine size provides the same productivity and durability as the biggest. In addition to the universal all-purpose FZ 2000 line, GEISS offers the competitively priced FZ-ECO as well as the FZ Direct Drive trimming machine for mould-making applications. GEISS CNC-controlled trimming machines can be used in a wide variety of applications, including thermoplastics, glass- and fibre-reinforced duroplastics, compression-moulded parts of GMT and SMC, moulded foam, leather and sandwich-construction substrates, wooden panelling, shaped plywood parts, honeycomb lightweight materials, blow-moulded parts and sample-making foams for tool-making and prototyping.

both. Moreover, taking into account our mould-making machines, we are capable of supplying complete turnkey solutions. There are perhaps ten serious competitors for us in the world market, but each merely covers a part of the GEISS spectrum."

Hoesch, Duscholux or Galatea), refrigerator production (e.g. Liebherr and Siemens Hausgeräte), transport systems such as pallets and special packaging, and production of commercial vehicles, buses, trams or aircraft.



GEISS' highly innovative TT-in-one combines thermoforming and CNC trimming in a single unit

Indeed, GEISS AG's future seems to lie in the segment of large-volume composite components, for example for wind turbine or aircraft. Manfred Geiss explains: "Thermoforming is the ideal process for medium-quantity production, i.e. fifty to fifty thousand parts per year." Geographically speaking, the company management expects further growth from the emerging markets of China, Russia, India and Latin America. "On the grand scale, we will see general growth through increasing global trade and improvement of living standards, growing use of plastics and rising quality requirements, which is bound to give rise to the use of thermoforming processes - and our intelligent systems guarantee zero-tolerance production."

Around half of the portfolio is bound for the automotive industry. Here, they are employed in the manufacturing of products such as dashboards, for example by Johnson Controls, Magna, Faurecia, Aksys or Decoma. Other typical applications include motor home and caravan production, bathroom equipment (e.g.

The strategy for future development is firmly focussed on the expansion of the existing product groups, as Manfred Geiss tells our magazine: "For instance, we have already started incorporating composite processing capabilities into our machines, which is opening up new areas of application for our products. Further-

Manfred Geiss reports: "We are very unique in that we offer both thermoforming and finishing solutions. In fact, we are the only company in the world to provide

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