Hans Mattis GmbH was looking for a 3D tool to prepare customer CAD data for CAM programming faster and more easily. With SpaceClaim, this contract manufacturer now has a direct modeling tool that is optimally suited to handle the company’s extremely varied jobs – in a way that provides high flexibility for users and reduces overall costs.

As a versatile contract manufacturer, Hans Mattis GmbH, founded in Lohr am Main, Germany in 1968, makes and sells CNC turned and milled parts of all types. The company’s service portfolio ranges from fabrication (from customers’ design specifications); complete quality testing; prototype, pre-series, and individual-series fabrication; and series production of work pieces, samples, tools, and fixtures.

With all of this manufacturing work, it was critical that Hans Mattis could efficiently process its customers’ CAD data all the way to the machine. Labor costs – everything from receiving the order to completing the final customer part – must be kept to a minimum at all times. Additionally, the company was looking to increase the speed and efficiency of its order handling processes so it could improve profit margins and drive future growth – critical initiatives in a highly competitive market.

Wanted: a 3D system that ties up few resources

Previously, Hans Mattis used Mastercam and AutoCAD 2D in its CAD/CAM sector. But as its requirements changed, this system was no longer able to meet Hans Mattis’ demands, especially those related to processing complex geometry. It was clear it was time to find a replacement.

As Hans Mattis evaluating many different 3D modeling systems, it was looking for solutions that could handle extremely fast geometry manipulation, share data with customers, prepare fabrication, and create prototypes quickly. After extensive testing, Hans Mattis ultimately selected SpaceClaim.

Managing Director Arno Mattis explains why they chose SpaceClaim. “Besides the excellent price-performance relationship and overall value, what really sold me was that the system was able to solve all tasks put to it immediately. Employees can productively use the 3D CAD program very quickly. We are frequently working at the limits of our capacity here, and we need a system that fits such an environment.”

Case Study
Efficient – Effective – CAD Data Processing for Contract Manufacturers

About Hans Mattis
Hans Mattis GmbH, founded in Lohr am Main in 1968, offers custom solutions in the machinery and plant equipment sector as a contract manufacturer. The approximately 80 employees are engaged in the fabrication and sale of all types of CNC turned and milled parts, special machines for the glass industry, manufacture of special parts, hydraulic cylinders and control blocks.

The product portfolio includes precision parts in the areas of railroad and defense technology, parts fabrication for general machine tools (printing systems, construction machinery), rubber technology, fixtures, container and vessel manufacturing and construction-machinery parts as well as parts for the food industry.

In large-series manufacturing as well, Mattis, using state-of-the-art CNC turning/milling centers with up to nine axes and CNC processing centers, serves numerous corporations as a competent partner for complete fabrication.

www.mattis.de
Moving quickly from idea to finished part
At Hans Mattis, preparation of the 3D data for fabrication is an important step that must often be carried out in close collaboration with customers. Raimondo Berger, a designer at Mattis with 30 years’ experience in the manufacturing sector, explains why they needed a special tool for this step. “Most CAM programming systems don’t offer any satisfactory or user-friendly drawing or check functions. While they are excellent programming systems, you just have to have a practical 3D system for geometry processing.”

In addition to Berger, up to four more employees will use the SpaceClaim system, and as a result, will make the jump from AutoCAD 2D to 3D programming and thinking. Their task will now be to re-orient themselves and change their perception from “drawing” to “building.” It’s an important distinction. As one employee explains, “With SpaceClaim, you can make a cube and put everything you need on it, and then you can pull it, stretch it, bend it, and displace it. After a while, you get to that ‘Eureka moment’ where the drawing perfectly represents what you envisioned.”

Additionally, the SpaceClaim system can load, adapt, regenerate, and process all customer data, which Hans Mattis typically receives in STEP, IGES, ACIS, or DXF formats. A repair program can automatically fix any errors or inconsistencies found on the incoming data before users pass the geometry data to Mastercam to generate the CNC program.

Designing fixtures, preparing clamping plans
Preparing data for CAM is just one of the tasks SpaceClaim is used for at this sophisticated contract manufacturer. For example, when processing more complex customer models, employees can use the software to design fixtures, prepare clamping plans or image milling heads and machine tables – all of which is helpful in showing machine operators how and where a specific part should be clamped.

“I can use SpaceClaim for five-axis working, and I often also generate a small simulation of the inclined position of the milling head,” Berger explains. “A 3D image or simulation is so effective because we can immediately recognize where the zero point needs to set on the machine.” As a result, the SpaceClaim system has significantly accelerated and enhanced the quality of the company’s fabrication process.

Space planning of a shop floor in 3D
The system has helped in other ways, too. When Hans Mattis acquired new manufacturing machines, Berger used SpaceClaim to draw the entire shop floor, including slewing and rolling cranes and movable carts. A digital adjustment device for tools, clamping gear, desks, and cabinets was also positioned in the 3D model. Berger even downloaded human models to help management make better decisions about tool adjustment and the overall workplace.

“Besides the excellent price-performance relationship and overall value, what really sold me was that the system was able to solve all tasks put to it immediately.”
— Arno Mattis, Managing Director, Hans Mattis GmbH

“The system never says never. We repeatedly get things we’ve never had before, and we keep finding new ways to achieve our goals.”
— Raimondo Berger, Designer, Hans Mattis GmbH
About SpaceClaim

SpaceClaim, the leading provider of 3D Direct Modeling software, develops the best direct modeling solution for engineering and manufacturing. SpaceClaim’s acclaimed software is easy to learn and use and is completely CAD-neutral. It enables engineers and other manufacturing professionals to rapidly create new designs or manipulate and edit existing 2D and 3D geometry, without the complexity of traditional CAD. Customers include Toyota Motor Corporation, Nokia Siemens Networks, Bosch, TE Connectivity, BorgWarner, Medtronic, Lotus Cars, Sharp, Ford Motor Company, LG Electronics, Eaton, K2 Medical Systems, Emhart Glass, GE Aviation, Carl Zeiss, General Dynamics, and the U.S. Navy. SpaceClaim is privately held and backed by Borealis Ventures, Kodiak Venture Partners, North Bridge Venture Partners, and Needham Capital.

For more information on SpaceClaim, please visit www.spaceclaim.com.

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Illustrations: Hans Mattis GmbH

The SpaceClaim Advantage

When it comes to summarizing the benefits of SpaceClaim and the many advantages it has provided, Arno Mattis describes what it has meant from management’s perspective. “SpaceClaim is extremely useful as a data hub for our customers’ various CAD input formats, and the integrated data preparation for our CAM system is particularly helpful.”

Or as Berger puts it, “The system never says never. We repeatedly get things we’ve never had before, and we keep finding new ways to achieve our goals.”

“I’m building, not drawing.”

— Raimondo Berger, Designer, Hans Mattis Gmbh

This example shows that the SpaceClaim system can promote creativity, planning, and communication – all to improve existing processes and better position the company to achieve better results. Even better, Berger reports that the system is extremely intuitive and easy to use, as evidenced by the fact that he has received just one day of training. Beyond that, he only needs the online tutorials and traditional support.

“SpaceClaim is extremely useful to us as a data hub for our customers’ various CAD input formats. The integrated data preparation for our CAM system is particularly fundamental.”

— Arno Mattis, Managing Director, Hans Mattis Gmbh

Illustrations: Hans Mattis GmbH

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