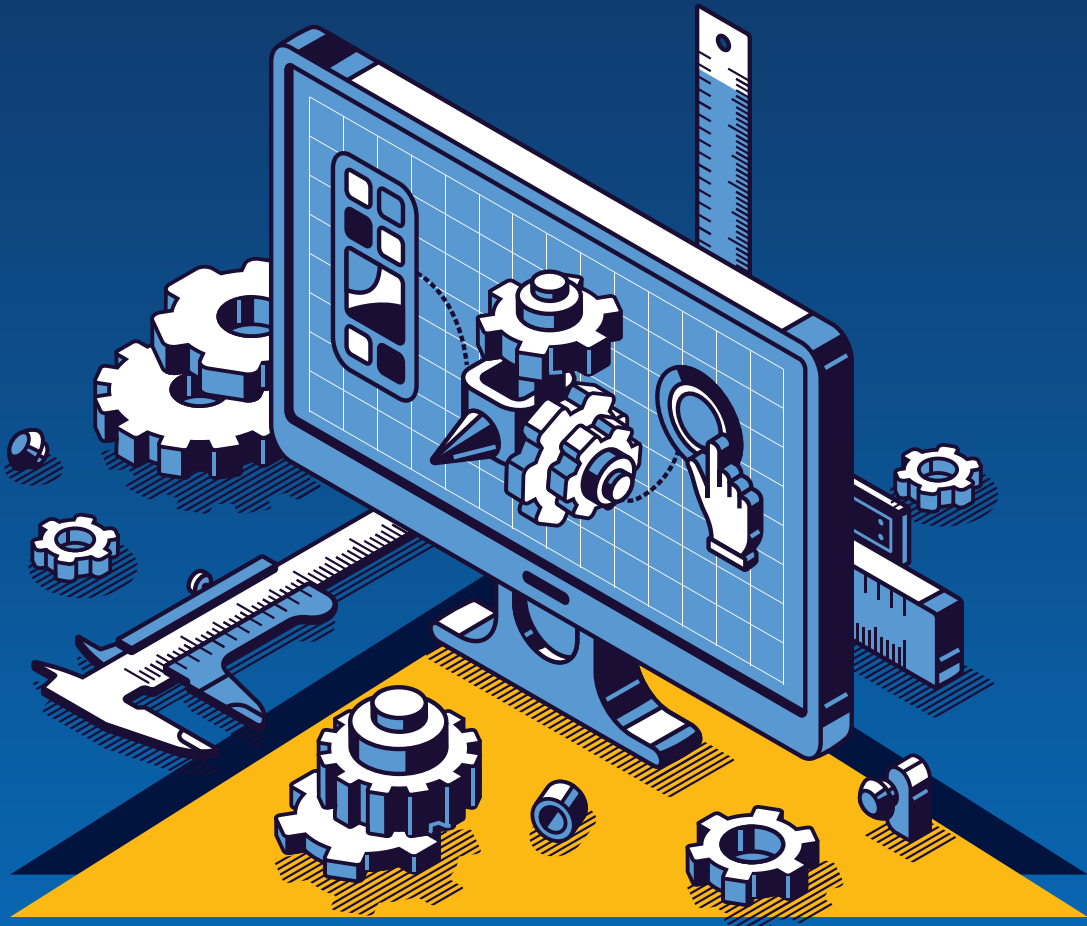


Getting the most from your CAM system



Parts manufacturers cannot afford to compromise when it comes to the performance of their CAM system

Jewa Metallverarbeitung GmbH, located in Kreuzwertheim, Germany, manufactures a wide variety of parts from every type of material and in a wide range of sizes. That means creating a lot of CAM programs. This is a place where the CAMWorks CAM system has to show what it can do.

Life is not easy for parts manufacturers. The competition is tough, not just domestically, but globally as well. That means they have to offer things that set them apart from their competitors. In the case of Jewa Metallverarbeitung GmbH, a parts manufacturer located in Kreuzwertheim in Germany's Franconia region, those things are high quality, a wide variety of machining options, an enormous range of potential materials, and reliability. "Impossible? There's no such thing!" is the motto here. And that's precisely the impression you get when you talk a stroll through the company.

The company's first building was Jessberger's parents' shed. They set up two milling machines and began manufacturing parts.

The most important milestones since then include the construction of their first shop floor at their current site in 1986. They obtained ISO 9001 certification in 2002. Around three years later, they doubled their production space to 3000 m². In the early 2000's, Hermann Walter left the company, leaving Jessberger as the sole proprietor.

One more milestone: The introduction of the use of CAD/CAM (2011). Ten years after that, the founder handed his duties over to the next generation. The firm is now being managed by Thomas Jessberger.



Jewa plant grounds in Kreuzwertheim



Jewa today

The steps taken so far and described only briefly here have allowed Jewa to continue growing. It now employs 100 people.

"Today we have the most modern equipment available," says Thomas Jessberger. "That applies both to simple tools as well as to our automated multi-axis machine tools." The firm has consistently purchased the best machine tools in their respective sizes that are available on the market, most of which are made in Germany. "We deliver lot sizes ranging from 1 to 10,000 pieces made from every conceivable material, from plaster to alloy stock," stresses Michael Baumann, Head of Production.

As for quality, these Franconian manufacturers claim throughout that they can machine to micrometer-level precision – a claim that is backed up by high-precision machines, high-precision tools, and a large measuring room equipped with the latest measurement machines.

They deliver primarily within Germany, but also ship abroad to countries in Europe. It's almost impossible to say which industries they cater to; the range of customers they serve is simply too broad.

CAMWorks since 2011

The company brought in CAMWorks, a complete CAD and CAM system, in 2011. Why did they opt for this system at that time?

Michael Baumann: “Back then it was more the fact that we trusted the person, Mr. Espertshuber. We had known Espertshuber, who had previously worked at Geovision, for a long time as our ERP system supplier. So we looked at a few of our competitors and, in the end, reconnected with our old contact.” (Editor’s note: In the meantime, Rudolf Espertshuber has founded his own company, Prosydon Manufacturing Software in Olching, distributor for CAMWorks.)

CAMWorks is based on SOLIDWORKS and is fully integrated on a core system and with a user interface. Here’s a little more information about the system:

Wide range of potential uses



CAMWorks is the first CAM software that integrates completely with SOLIDWORKS, but can also be combined with Solid Edge.

A Technology Database is the “brain” behind the automated machining performed by CAMWorks. The database links tools, operation strategies, and machining parameters with the features. When generating operations, CAMWorks automatically links these settings. The operation parameters can be changed before and after the toolpath is created. CAMWorks allows the creation of rectilinear, highly targeted programs, making the user’s job that much easier.

CAMWorks is of course also equipped with sophisticated simulation options, from simple machine tool simulation (workpiece, fixtures,

tools), to complete virtual machines and NC simulation. The Eureka NC simulation, which is also offered in this system environment, displays all the machine events after the post-processor run, particularly any collisions.

The system includes the following modules:

- 2.5 Axis
- 3 Axis
- 4/5-Sided Machining with activated axes (supported in all modules)
- 5-Axis Simultaneous Milling
- Turning
- Wire EDM
- Mill-Turning

It also comes with VoluMill as a special rough milling strategy and the use of virtual machines during simulations.

Tolerance-based machining is also a feature of great interest. This makes manual preprocessing of parts with tight or asymmetric tolerances to create toolpaths a thing of the past.

The 2021 version now includes support for programming turn & mill machines in assembly mode: user-defined fixtures and other machine components are automatically checked for collisions, simultaneous turning and milling operations can be synchronized with multiple turrets and spindles, and parts can be simultaneously machined from both sides or different parts can be machined in the main and sub-spindles.

Support has been added for continuous B Axis turning on mill-turn machine tools that can be equipped with an active B Axis head: the most complex parts can now be programmed, allowing the entire range of available machine functions to be used to their fullest extent.

Measurement cycle programming: CAMWorks 2021 allows users to define measuring styluses with a range of parameters for shaft and stylus, and it is possible to automatically select standard measurement cycles based on surface and feature selection that can be output via the post-processor as machine measurement cycles.

So much for the brief description of the system itself. There's more information available about it on the CAMWorks web site.

Now let's look at what Jewa does with its CAD/CAM software.

Spotlight on milling

Here, as elsewhere, the process of manufacturing parts begins with taking on model data from very different sources from different customers. "That works well with CAMWorks; we have no trouble with the conversion," says CNC programmer Bernd Kotitschke. Many parts still have to undergo design revisions so that what comes out at the end is what the customer wants. An integrated system has an advantage here, since the CAD part is right there. This use of CAD is even more important with customers who show up with drawings. Jessberger: "This happens more often when we are dealing with start-up companies. They come in with hand-drafted drawings looking for help. The first thing we have to do is set up the CAD model. Only then can we get started on the machine programming. In that respect, our CAM programmers are designers a large part of the time!"

The system is very useful as well in advance of the actual machining when it is a matter of determining the precise machining times (Beware: if you are too expensive, you don't get the job, if you are too cheap, you lose money).



High quality comes first at Jewa.

"We then create the parts in the system, start a simulation run, and when it ends we know exactly what's what." (Jessberger)

Jewa has three full CAMWorks licenses in use for all these tasks that are used by four CNC programmers. After all, every part has to be programmed - from the simpler parts up to 5 Axis parts.

"We currently program primarily milled parts, but in the future we also want to add turning to the mix, which also means rotary milling or mill & turn production," notes Andreas Beuschlein, Management Assignment Preparation Officer for Sales.

The broad range of machines and multiple controllers also require a large number of post-processors. They are all made by Prosydon and brought on line jointly with Jewa.

A rich supply of machines also requires the corresponding post-processor adjustment and a lot of experience in how to do that properly. Failing to work with the requisite care at that time means a drop in performance during machining, plain and simple.

And while we're talking about performance, VoluMill is a major accelerator when it comes to roughing. This program that is incorporated in CAMWorks ensures that parts can be machined in synchronous operation a good deal faster than using traditional methods.

The manufacturer itself speaks in terms of shortening cycles by up to 80%.

At the same time, it greatly increases tool life - by up to 500%. That's why VoluMill is used so often at Jewa - "We use it for almost every part," says Bernd Kotitschke.

These Franconian manufacturers will be expanding even more in the future. Finished plans are in place for an annex and new assembly hall and work is set to begin immediately. New machines have already been ordered and a push to expand automation even further will ensure continued growth.

The CAM system will also need to play a role in this forward push. Jewa is in good hands...



Conversation partners in Kreuzwertheim (right to left): Thomas Jessberger, CEO, Michael Baumann, Head of Production, Bernd Kotitschke, CNC programmer, and Andreas Beuschlein, Management Assignment Preparation Officer for Sales.

HCL



www.hcltech.com

HCL Technologies (HCL) empowers global enterprises with technology for the next decade today. HCL's Mode 1-2-3 strategy, through its deep-domain industry expertise, customer-centricity and entrepreneurial culture of ideapreneurship™ enables businesses to transform into next-gen enterprises.

HCL offers its services and products through three lines of business - IT and Business Services (ITBS), Engineering and R&D Services (ERS), and Products & Platforms (P&P). ITBS enables global enterprises to transform their businesses through offerings in areas of Applications, Infrastructure, Digital Process Operations, and next generation digital transformation solutions. ERS offers engineering services and solutions in all aspects of product development and platform engineering while under P&P, HCL provides modernized software products to global clients for their technology and industry specific requirements. Through its cutting-edge co-innovation labs, global delivery capabilities, and broad global network, HCL delivers holistic services in various industry verticals, categorized under Financial Services, Manufacturing, Technology & Services, Telecom & Media, Retail & CPG, Life Sciences, and Healthcare and Public Services.

As a leading global technology company, HCL takes pride in its diversity, social responsibility, sustainability, and education initiatives. As of 12 months ending on March 31, 2022, HCL has a consolidated revenue of US\$ 11.48 billion and its 209,000 ideapreneurs operate out of 52 countries. For more information, visit www.hcltech.com