

Process solutions for the manufacturing industry



We optimize manufacturing processes

Tebis AG is a leading global provider of CAD/CAM and MES software. With our expertise in consulting, implementation and support, we have been providing efficient and reliable process solutions for more than 30 years. These solutions give our customers the ability to manufacture high-quality single parts such as models, molds and dies as well as series parts of metal and plastic.

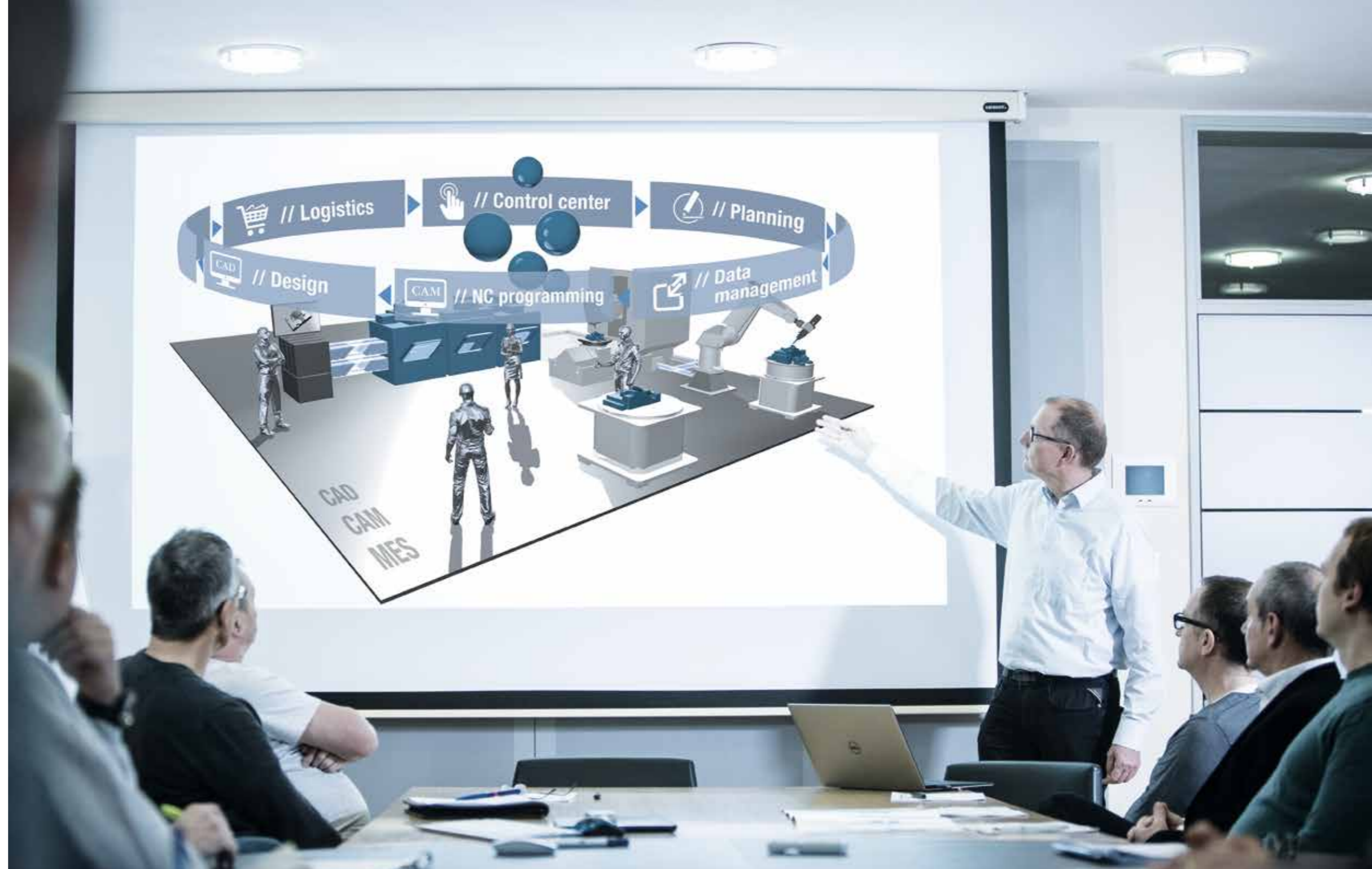
CAD = Computer-Aided Design
CAM = Computer-Aided Manufacturing
MES = Manufacturing Execution System

Tebis' process solutions are state-of-the-art and proven in practice thanks to our technology partners from different industries and our research with technical associations.



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 E. Zoller GmbH & Co. KG • Starrag Technology GmbH • Rödgers GmbH
 Aura Frästechnik GmbH • Fooke GmbH • Hufschmied GmbH
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WBA Aachener Werkzeugbau Akademie GmbH
 Marktspiegel Werkzeugbau eG • VDWF e.V.
 Bundesverband Modell- und Formenbau e.V.



The future lies in digitalization and automation

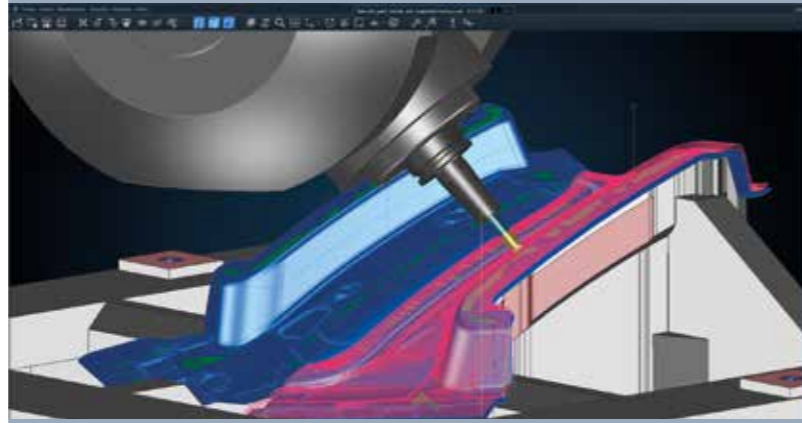
We guide our customers on their path to the digital era of Industry 4.0 and improve their technical CAD/CAM processes as well as their organizational and logistical MES processes. Our consultants with deep industry experience analyze existing processes and discover weaknesses and hidden costs. Typical

challenges are on-time delivery, cost-effectiveness, productivity, the lack of qualified personnel and machine utilization. We can then support our customers in implementing defined target processes and guide their employees in their daily activities.

We provide software, services and consulting

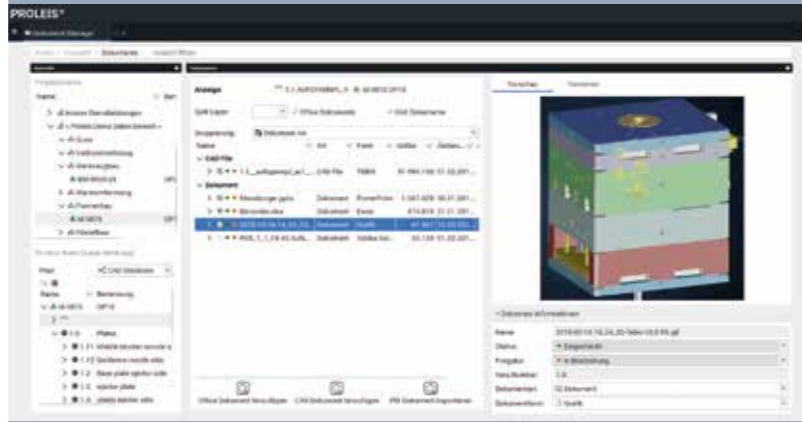
Tebis develops software and offers its customers a variety of services including the implementation of digital processes, user support and process management consulting.

Software



CAD/CAM software

Our CAD/CAM software enables you to carry out design and manufacturing projects efficiently and provide your clients with top-quality finished parts. You can expand your Tebis installation as desired for special design and manufacturing tasks.



MES software

With our ProLeiS MES software, you can ensure that all components are completed on-time and you can deliver your products as planned. It enables real-time monitoring and ad-hoc analyses of key production parameters such as machine run times or faults in the production process.

Services



Tebis software services

A Tebis service contract ensures that you are always on the leading edge. You will benefit from software that is always up to date, our expert hotline and contact with other Tebis users in the Tebis community. We also offer optional services such as CAD/CAM and MES training programs, digitalization of your manufacturing environment and proven manufacturing knowledge as well as the representation of your organizational and logistic processes.

Consulting



We don't just consult – we also implement

Our consultants help medium-sized companies to develop a corporate strategy and improve their project management. In manufacturing process consulting, we develop concepts to automate the flow of information, increase machine productivity and reduce throughput times. Once concepts have been decided upon, we actively support the implementation in practice.

BEST OF CONSULTING
— 2018 —
MITTELSTAND

WETTBEWERBSSTRATEGIE
- 1. Platz -
2016-17

Wirtschafts Woche



Physicists, mathematicians and computer scientists work together with designers, tool and machine manufacturers in our teams, ensuring both practical and innovative service.

With over 30 years of market experience and long-term trust-based customer relationships, we are continuously developing market-compliant products.

Mold manufacturing

Tebis customers in mold manufacturing produce molds for the series production of plastic and metal parts. The products range from vehicle dashboards and bumpers to smaller parts such as electrical plug connectors.



Injection molds comprise purchased parts and components manufactured by the mold maker using Tebis CAD/CAM technology. Tebis AG also offers ProLeiS MES software (Manufacturing Execution System) for material logistics and for machine and personnel planning.



Fiberglass and carbon parts are made using lamination molds. Foam molds and blow molds are needed for series production parts with insulating properties and for bottles. Tebis customers use CAD/CAM and CAQ technologies for design, manufacturing and quality control.



Thermoforming molds are needed for the series production of plastic parts. Tebis is often used here for trimming edges and cutouts.



Die-casting molds and forging dies are used to manufacture metallic components, mostly for drive units.



Schneider Form GmbH • Integrity Tool & Mold Inc.
 Hi-Tech Mold & Engineering Inc. • Hella Werkzeug-Technologiezentrum GmbH
 Siebenwurst GmbH & Co. KG • DST Dräxlmaier Systemtechnik GmbH
 Schweiger GmbH & Co. KG • pro forma GmbH • ITH Technik GmbH
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 RSB Rationelle Stahlbearbeitung GmbH & Co. KG • Bosch Formenbau GmbH
 Langer GmbH & Co. KG • ElringKlinger AG • KraussMaffei Technologies
 GmbH FRIMO Sontra GmbH • M. Reuss GmbH

Typical Tebis software technology in mold manufacturing

- CAD:** Design of entire molds and individual mold components
- CAD/CAM:** Complete electrode process for sinker EDM
- CAM:** Automated milling and drilling from 2.5D to simultaneous 5 axis
- CAM:** Wire EDM of mold inserts
- Viewer:** Access to all 3D data in the shop
- CAQ:** Measurement of finished mold parts and electrodes
- MES:** Planning and controlling projects, data management

Typical software services

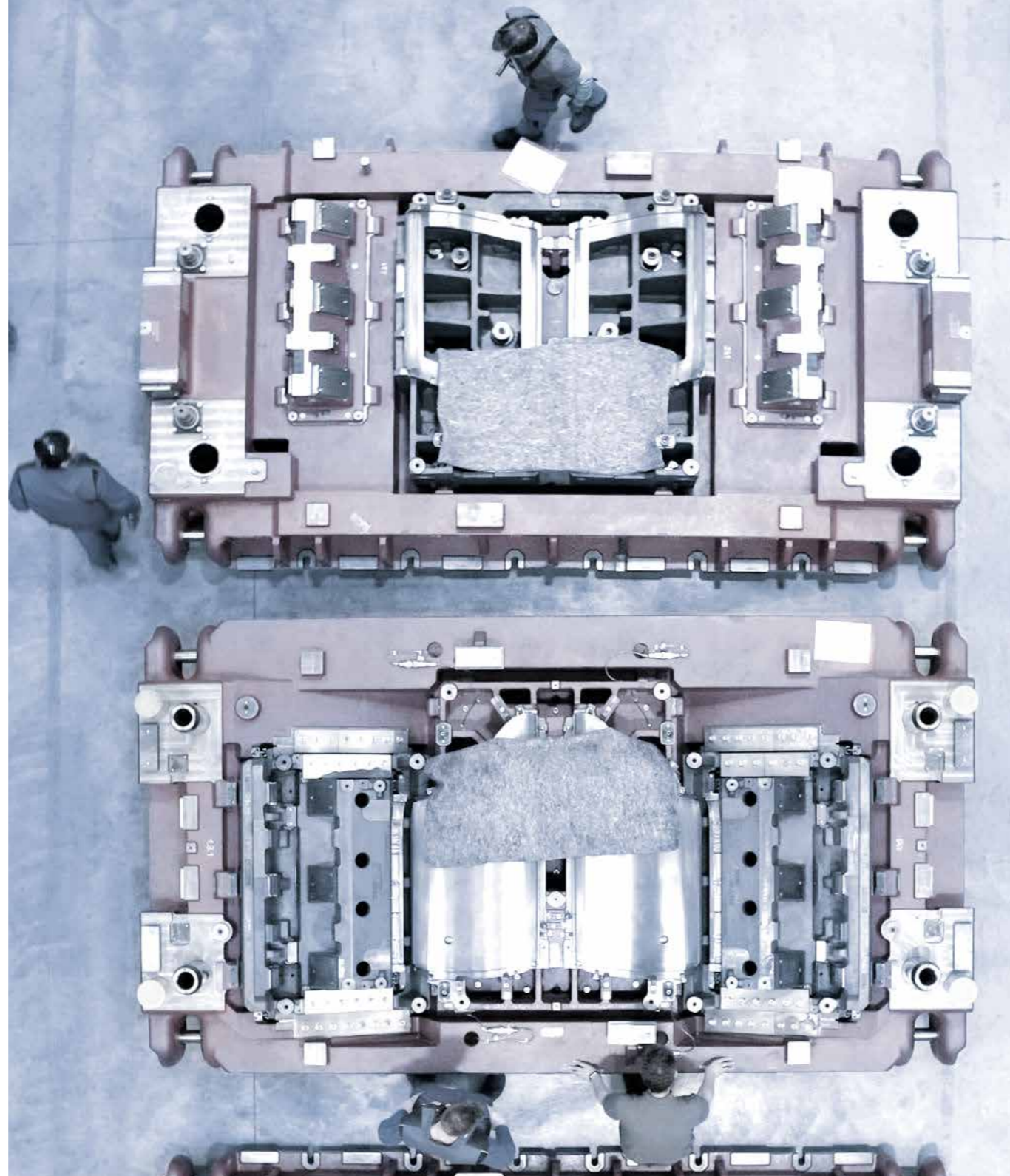
- Storage of manufacturing environment and knowledge in Tebis
- Digital representation of order processing

Typical consulting projects

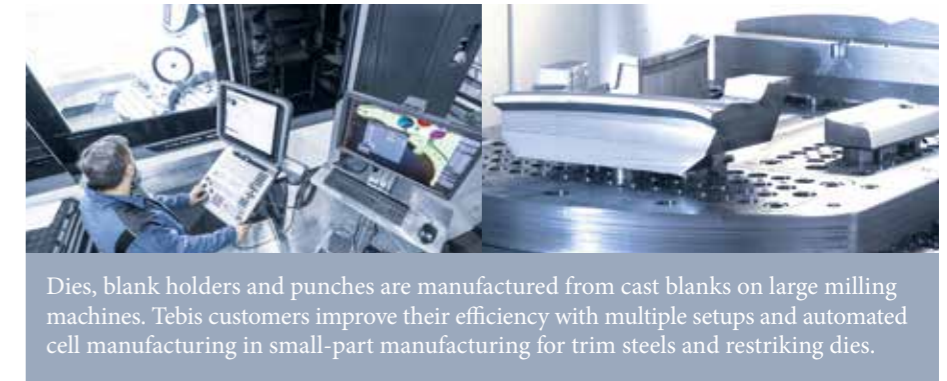
- Implementing project management
- Increasing machine utilization

Die manufacturing

In die manufacturing for sheet metal forming, prototype and series dies are created which are subsequently used for series production in press plants. These are mostly exterior and structural components such as car hoods, side panels and doors as well as internal and reinforcing sheets.



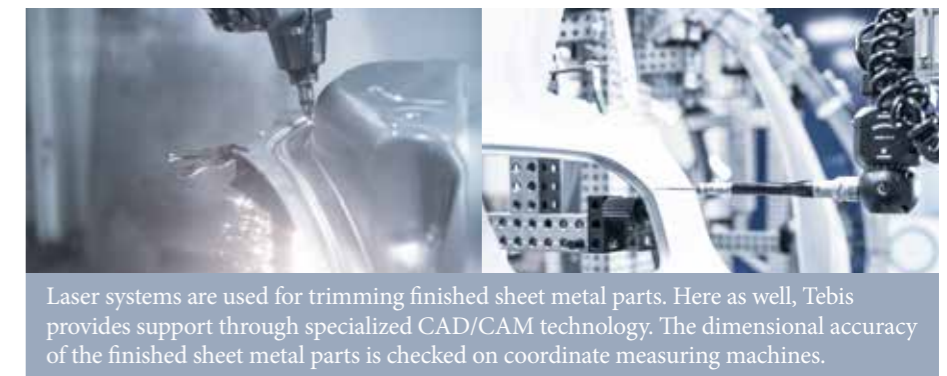
Design involves the interaction of multiple CAD activities such as method planning, die design and active surface design. This data is stored in the Tebis CAD file and can be used in combination.



Dies, blank holders and punches are manufactured from cast blanks on large milling machines. Tebis customers improve their efficiency with multiple setups and automated cell manufacturing in small-part manufacturing for trim steels and restriking dies.



In die assembly, the die manufacturer assembles in-house manufactured and purchased parts using our Tebis Viewer and ProLeiS MES system. Tebis reverse engineering is then used in tryout after extensive manual grinding work. The modified areas are scanned and transferred to the CAD tool set.



Laser systems are used for trimming finished sheet metal parts. Here as well, Tebis provides support through specialized CAD/CAM technology. The dimensional accuracy of the finished sheet metal parts is checked on coordinate measuring machines.



BMW Group • Volkswagen AG • Daimler AG • General Motors
 Ford Motor Company • Porsche Werkzeugbau GmbH • Hermesmeier &
 Greweling GmbH & Co. KG • ThyssenKrupp System Engineering GmbH
 SD Automotive GmbH • Opel Automobile GmbH
 FMF-WWF Werkzeug- und Prototypenbau GmbH • EBZ Systec GmbH
 Volvo Car Corporation • JoRe Werkzeugbau GmbH
 Gestamp Tooling Erandio, S.L. • Batz, S. COOP. LTDA.
 Toyota Motor Corporation • Johannes Meier Werkzeugbau GmbH
 SWB Schmedthenke Werkzeugbau GmbH • Schweikert GmbH

Typical Tebis software technology in die manufacturing

- CAD:** Active surface design and NC preparation
- CAD:** Reverse engineering and springback compensation
- CAM:** Automated milling and drilling from 2.5D to simultaneous 5 axis
- CAM:** Laser hardening of high-stressed surfaces
- CAM:** Laser weld cladding in modifications and repairs
- CAM:** Laser cutting of finished sheet metal parts on the edge and in cutouts
- CAD/CAM:** Complete small parts process for manufacturing trim and coining steels
- Viewer:** Access to all 3D data in the shop
- CAQ:** Measurement of finished die components and sheet metal parts
- MES:** Planning and controlling projects, data management

Typical software services

- Storage of manufacturing environment and knowledge in Tebis
- Digital representation of order processing

Typical consulting projects

- Implementing project management
- Reducing tryout times

Model manufacturing

Our model manufacturing customers produce real objects for visualization, making an important contribution for subsequent series production. The standard repertoire of model manufacturers also includes foundry models, gauges and fixtures.



Clay models for design verification are generated in design model manufacturing and in design studios. For example, finished part models are processed using silicone molds to fabricate prototype parts for lighting systems.



Tebis customers in gauge and fixture manufacturing produce functional models and fixtures for assembly and quality control in subsequent series production.



In auto body model manufacturing, Tebis customers produce data control and cubing models as well as prototype vehicles.



In foundry model manufacturing, Tebis customers produce all components, including models, mold boxes, sand molds and Exporit models needed for casting blanks in sheet metal die manufacturing.



BMW Group • Dr. Ing. h.c. F. Porsche AG • Aston Martin Lagonda Ltd.
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 Modelleria Bagatti S.R.L.

Typical Tebis software technology in model manufacturing

- CAD:** Design of standard and complex geometry
- CAD:** Reverse engineering from scanned clay models
- CAM:** Automated milling and drilling
- CAM:** Multiple setup and verification of NC programs
- Viewer:** Access to all 3D data in the shop
- CAQ:** Measurement of completed models on machines and on measuring tables

Typical software services

- Digital representation of the manufacturing environment in Tebis
- Storage of manufacturing knowledge in Tebis

Typical consulting projects

- Developing corporate strategy
- Reducing throughput times

Machine manufacturing and aerospace

Companies in series and small-scale manufacturing also rely on Tebis processes, especially in the machine manufacturing and aerospace industries. They manufacture parts from solid material, machine cast, plastic and sheet metal parts as well as forgings and welded elements.



In machine manufacturing, expensive blanks and semi-finished products with added value through casting, forging and welding are the norm. Tebis simulation technologies ensure reliable machining.



Tebis enables extensive machining tasks such as drilling, milling, turning, gun drilling and wire EDM in one system. This reduces risk and promotes efficiency.



Large machines with high hourly costs must be optimally used. A virtual manufacturing environment and digitized manufacturing knowledge ensures that this process is automated and effective.



The NC simulation and verification integrated in the CAD/CAM environment improve manufacturing reliability and efficiency. Reliable NC programs are a prerequisite for automation and multi-machine operation.

Toyota Motorsport GmbH • Legacy Industries • Motofil Servicios, LDA
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 Safran Power Units • Collins Aerospace

Typical Tebis software technologies in the machine manufacturing and aerospace industries

- CAD:** Design and preparation of parts suitable for manufacturing
- CAM:** Automated milling and drilling from 2.5D to simultaneous 5 axis
- CAM:** Automated turning and millturning
- CAM:** Trimming plastic and sheet metal parts
- CAM:** Multiple setup and verification of NC programs
- CAQ:** Measurement integrated in manufacturing process
- Viewer:** Access to all 3D data in the shop

Typical software services

- Storage of manufacturing environment and knowledge in Tebis
- Establishing a process for checking calculated NC programs

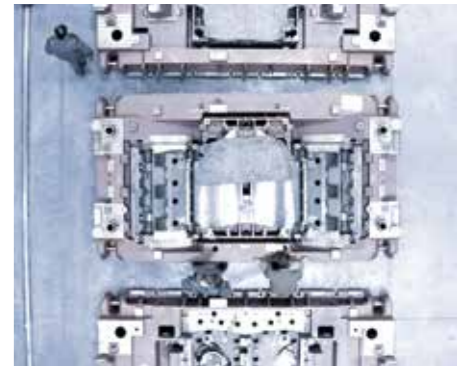
Typical consulting projects

- Boosting machine productivity
- Automating the flow of information

We are driven by our customers' success

Tebis customers are among the most coveted partners for the global automotive, aerospace and machine manufacturing industries.

In addition, Tebis customers have clients from the motorsports, energy, agricultural machinery and medical technology industries as well as the consumer goods sector.



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Our die manufacturers around the world have benefited from the new reverse engineering methods.

[Roland Schöbel, head of machining in the Volkswagen die manufacturing operation in Wolfsburg, Germany]

We were able to improve the efficiency of our overall manufacturing process by implementing a single end-to-end system.

[Ryan Hotchkiss, head of manufacturing at Integrity Tool and Mold, Canada]

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Thanks to the order wizard and the planning templates, we can plan an entire vehicle type with just a few clicks of the mouse – it couldn't be easier.

[Frank Eberhardt, planner for equipment manufacturing at Daimler AG, Sindelfingen, Germany]

Tebis provides extensive process consulting and has precise knowledge of our die manufacturing industry. There is no equal to this combination.

[Diedrich Diedrichsen, managing partner, Heinz Schwarz GmbH & Co. KG, Germany]

”

The geometric reliability of the data and the resulting models are a true quality feature in the design process.

[Falk Visarius, head of Technology Design Models at Dr. Ing. h.c. F. Porsche AG, Germany]

The surface quality is outstanding. Tebis can't be beat in this area.

[Andre Reuschel, team manager, invenio GmbH Engineering Services, Germany]

”

Tebis is much more than just a CAM software manufacturer. For us, Tebis is a process provider. The process chain must be perfectly coordinated – from design to the milling machine. We can now operate our machines 24/7 with a single shift.

[Anton Schweiger, managing director, Schweiger GmbH & Co. KG, Germany]

Innovation right from the start

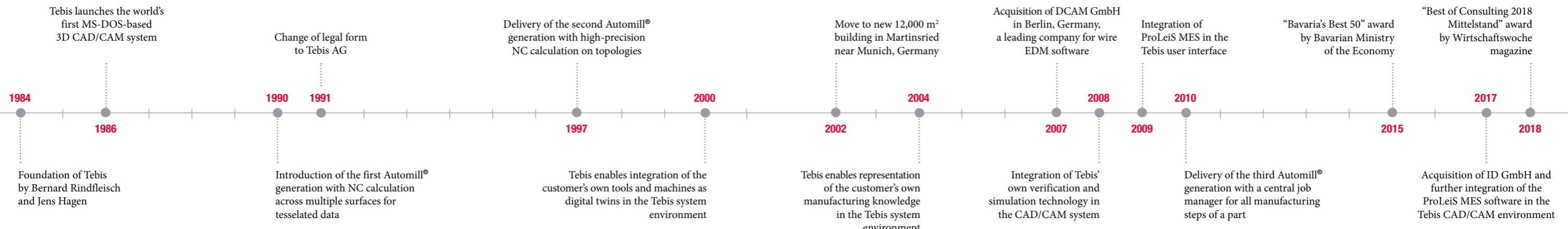
Tebis founders Bernhard Rindfleisch and Jens Hagen always had their vision of automated manufacturing. With the help of Tebis software and services, companies in model, mold and die manufacturing were steered in the direction of standardized work and NC automation at an early stage. Their manufacturing processes have become increasingly efficient and reliable through Tebis Automill® technology, which is being continuously developed.

For the past 35 years, Tebis AG has systematically maintained its position as a provider of complete CAD/CAM solutions through ongoing integration of further manufacturing technologies.

To better prepare customers for the Industry 4.0 era, Tebis AG has extended its portfolio in 2009 to include MES software.

Tebis AG has received multiple awards for its consulting work, most recently from the Wirtschaftswoche magazine in 2018.

Automill®



We are a global company

Thirteen Tebis sales and service branches with a total of 400 employees support our customers worldwide. We also work with 20 distributors.





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