

tribecraft – your partner for innovation

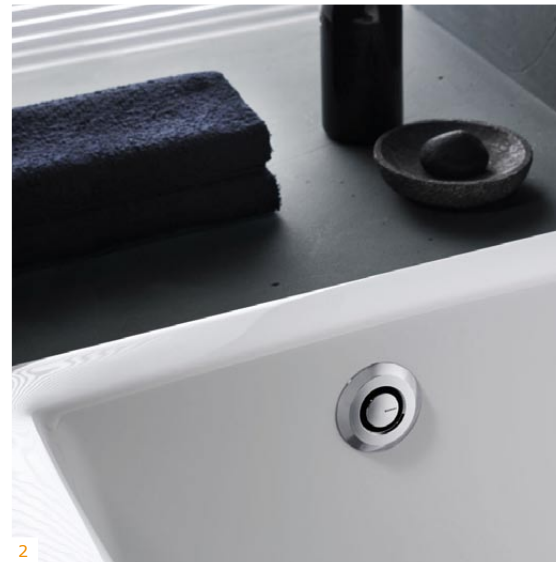
We specialize in innovative solutions for product development: from analyzing to designing and implementing series production. Interdisciplinary cooperation and thinking outside the box mean we are able to create new products with market potential.

innovation through cooperation

Our approach to innovation is interdisciplinary and holistic. Design expertise is partnered with engineering competence throughout the entire development process and merged with the customer's know-how. The various aspects regarding use, function, design and technology are always taken into consideration - even if only a partial solution is required. When we break away from traditional thought patterns, we discover completely new applications or are able to fundamentally improve the functionality, production method or quality of existing ones. Another plus for our clients is that many of our innovations are patentable and thus contribute to achieving a sustainable and protected competitive edge.



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- 1 Compression sprayer for Birchmeier [concept, simulation, design :: IF design award 2005]
- 2 Bathtub drain "PushControl" for Geberit [design :: IF design award 2008]
- 3 Headlamp for Karl Storz Endoscopy [design, construction]
- 4 "PAC-car II" record-breaking vehicle, project of ETH Zurich [design, coaching for concept & construction]
- 5 "max" shopping cart, for Leggero/Brüggli [concept, design, construction]
- 6 Fire starters for Lindner [concept for product, packaging, manufacturing process]

expertise and passion

Professional skills paired with a passion for challenges and the opportunity to make an impact describes the esprit at Tribecraft. The company was founded by the four partners Jörg Evertz, Daniel Irányi, Martin Schütz and Uwe Werner in 1999. With their carefully selected team of experts they unite diverse educational backgrounds and practical experience in design and engineering. Their creativity fosters innovation, their professionalism ensures efficient collaboration in projects and with clients.

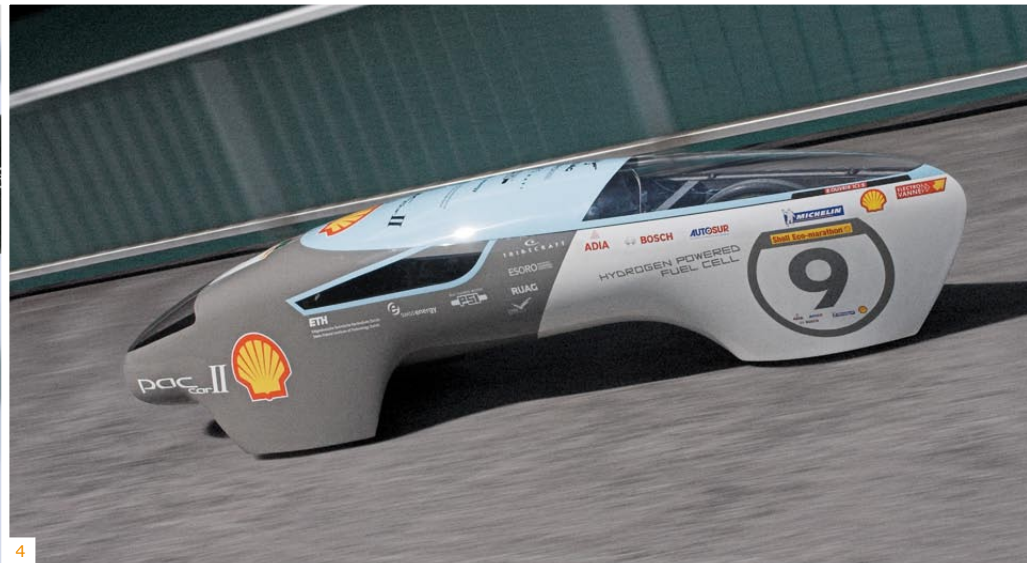
Tribecraft was originally a spin-off of the Center for Product Development at ETH Zurich. Today, several team members are visiting lecturers, both at ETH Zurich and Zurich University of the Arts.



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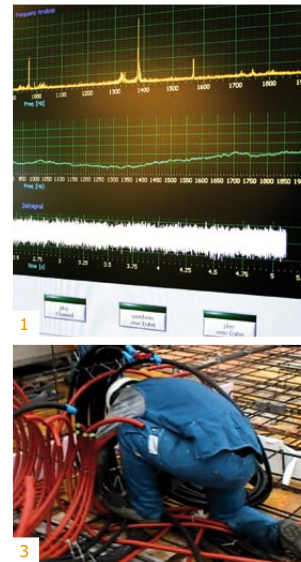
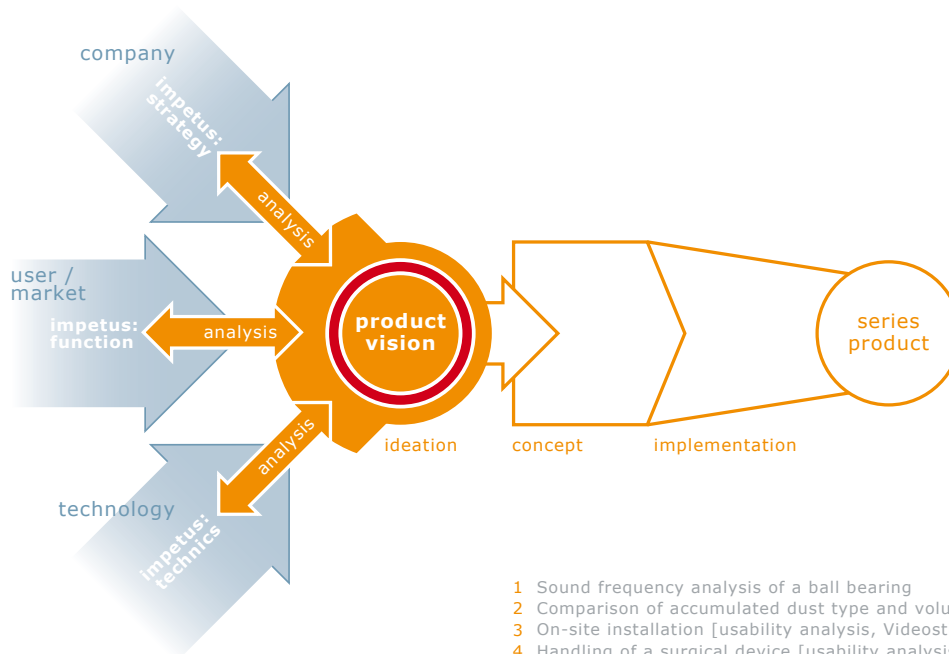
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a process overview – part I

A precise analysis of the specific environment accelerates innovation, a product vision makes potential tangible and creates a platform for discussion. We attach great importance to these initial steps, before we draw up a concept and proceed to series production. Clients select the process steps they wish to entrust us with – or the entire development process, as required.

analysis: the key to potential

Analysis is the portal to understanding the core issue. We combine proven, goal-oriented analysis methods with unconventional and creative approaches. Learning from the users is a high priority since we have to first experience and internalize the product and its environment before developing it. This creates valuable knowledge, which we can then access throughout the entire development process. In order to spot potential for innovations, our analyses radically and consistently question what exists. And we think ahead – by exploring unique selling propositions and the marketability of the product.



- 1 Sound frequency analysis of a ball bearing
- 2 Comparison of accumulated dust type and volume according to task
- 3 On-site installation [usability analysis, Videostill]
- 4 Handling of a surgical device [usability analysis, Videostill]
- 5 Steps taken in a kitchen [usability analysis, Videostill]
- 6 Evaluation of ideas generated for a flow control
- 7 Product vision – preliminary study for mobile exhibition architecture as an idea cluster
- 8 Product vision – design study for an ultra-light electric scooter
- 9 Product vision – medical headlamp with integrated battery pack

product vision: making ideas perceivable

Human beings think in images. We conceive new ideas and possible solutions, and with visualization techniques we make them accessible. Via a product vision, the product is sketched out in pictures and text. In this way, the key innovation components are made tangible and open to discussion. This is done without anticipating a decision on the actual realization path. Uniting abstraction and concretization in the product vision is a challenge, but very useful for the development process. It facilitates goal definition and is conducive to discussions with extensive know-how transfer and can also be used as a communication tool both internally and externally.



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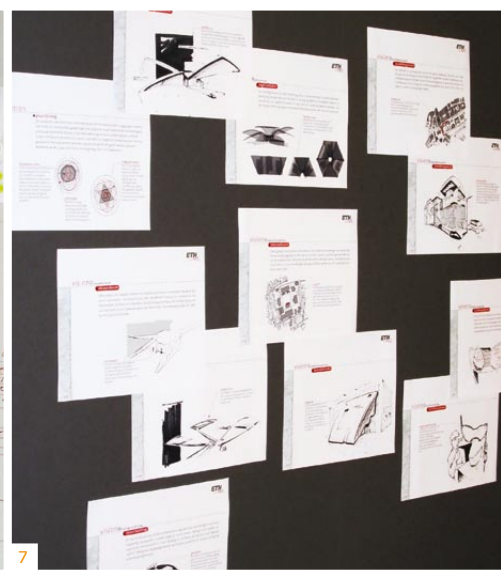
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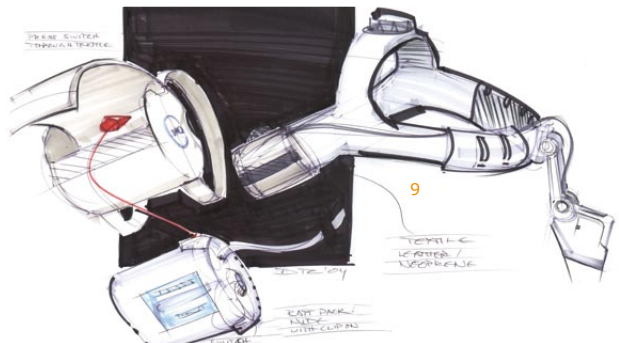
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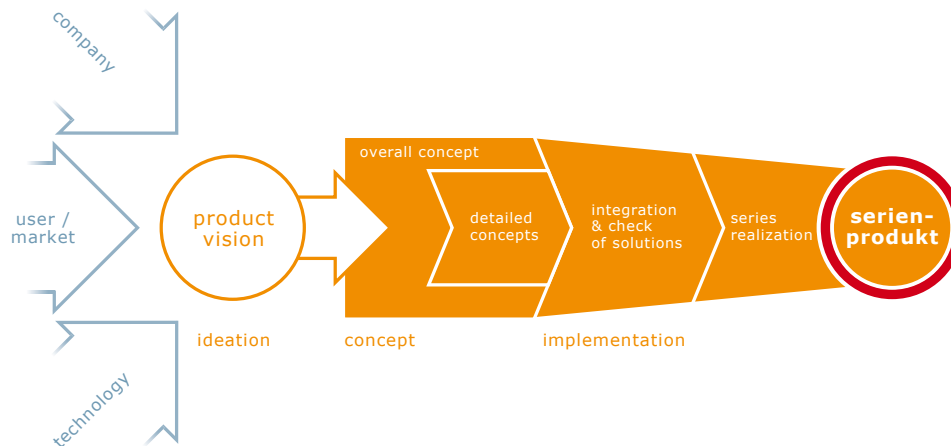
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a process overview – part II

After having defined the goals, realizable solutions are drawn up in the concept phase. In the implementation phase they are brought together and concretized – until the final product is ready for series production. Our comprehensive know-how is a major advantage in all phases of product development.

concept: creating feasible benefits

At Tribecraft it is natural for designers and engineers to work on an interdisciplinary level throughout the course of the development. In the concept phase, this overlapping of expertise in teamwork is particularly valuable. This is where the product becomes concrete, and the knowledge acquired in the analysis phase flows into the many small decisions that must be made during the process. We employ digital tools and hands-on models and test the solutions in our own workshop. We challenge our clients and ourselves by keeping our open-minded and critical perspective until the very end. The result: a sophisticated concept for the innovation – with feasible benefit for you and your customers.

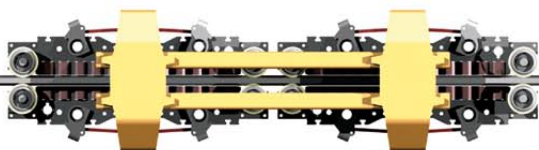
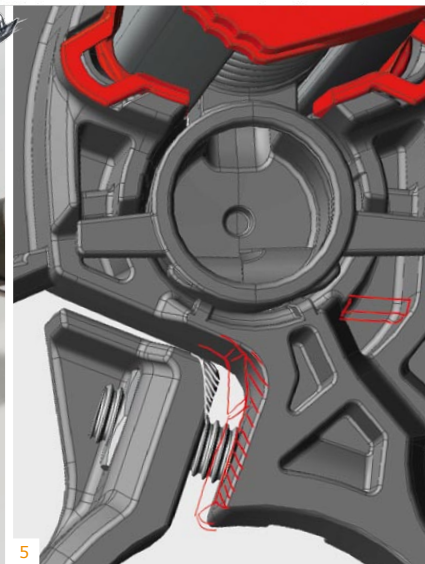
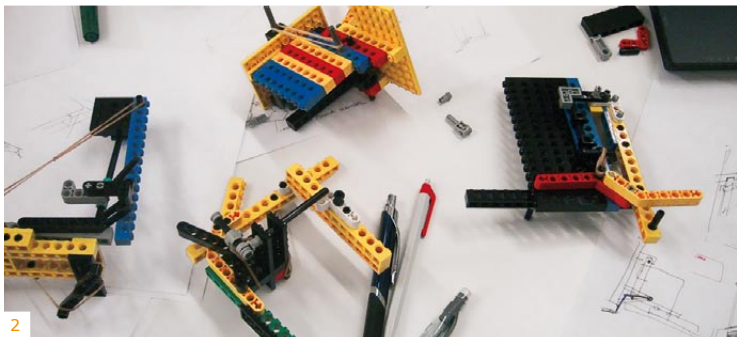
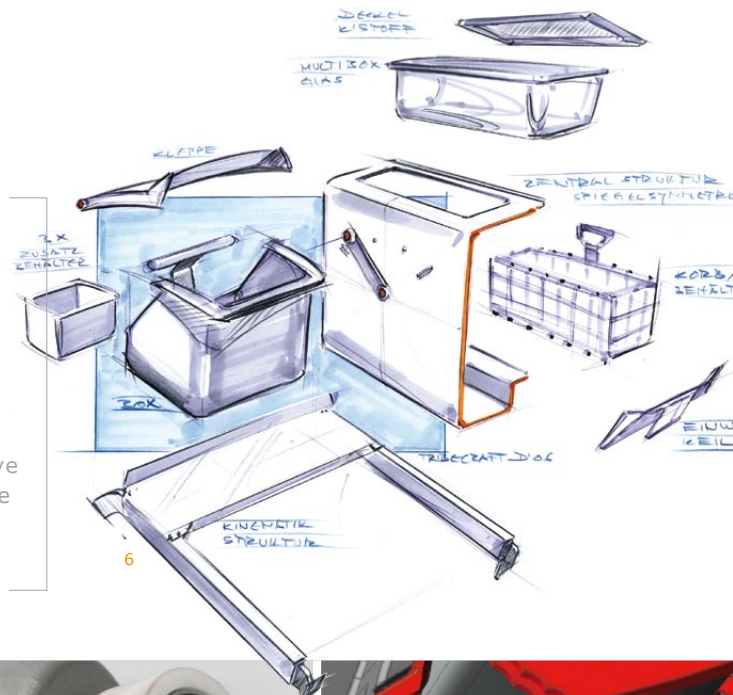


- 1 Workshop on processing procedures of wood fibers
- 2 Interlocking kinematics concept models made of Lego
- 3 Functional model/exhibition prototype of a push-tilt mechanism
- 4 Ergonomics optimization on a RapidPrototyping handle
- 5 Production optimization for a plastic injection molding component on CAD
- 6 Assembly concept for a kitchen storage system
- 7 CAD layout of a drive assembly with linear motors

implementation: ensuring series production

We realize projects up to market launch and also take on product care, if required. Our in-depth knowledge of materials and processes as well as our experience with series production assures implementation.

In this phase we work closely together with our clients. We investigate the capabilities of the production processes at hand and use this latitude for the new product. The fact that production and market potential were already considered early in the comprehensive analysis phase pays off at the latest here. Long-term success in the market is the explicit goal of all our product developments.



our core competence – integration of engineering and design

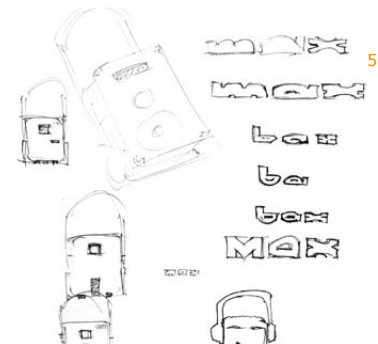
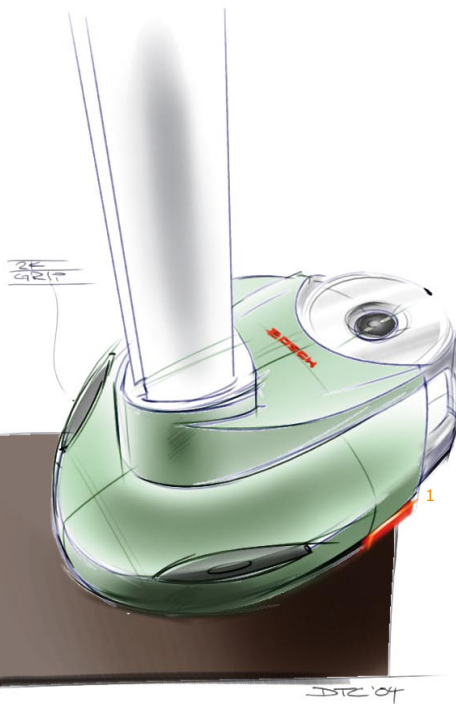
At Tribecraft, engineers and designers collaborate – usually simultaneously, always on a par. Together we make sure there is a common thread between form and function. A function only creates value when it is accessible to the user and intuitively understood.

design: the language of the product

Design delivers a form to the element between people and things. That is why product design involves much more than aesthetics or appearance – namely the gamut of interaction between product and user. In order for something to function, it must send the clear message of what it is, what it does and how it is used. Ergonomics and emotional values play a major role in accomplishing this.

With such tools as mood boards, visualizations and mock-ups, products are made manifest for the strategic course – before it is implemented. Depending on the job definition, budget and urgency, we create real or virtual design models.

We see design as an integral element of the development process, extending even to product care. Moreover, this integrative approach becomes evident in the quality of the final product.



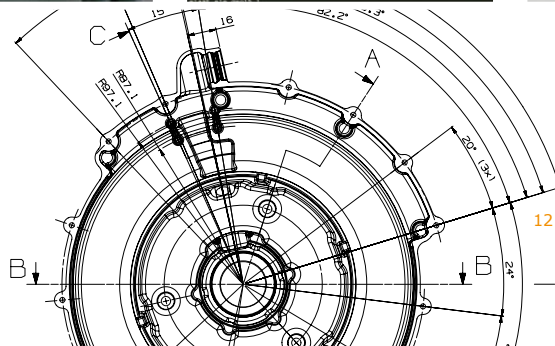
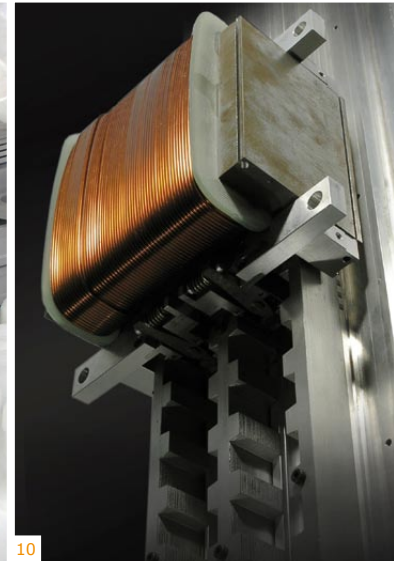
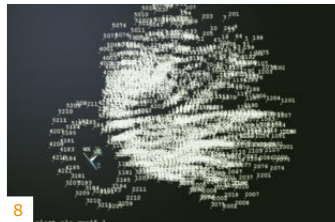
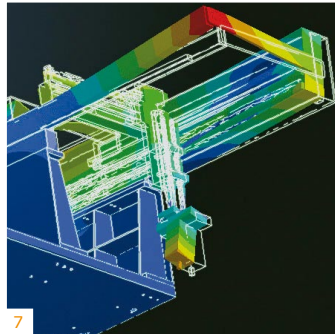
- 1 Conceptual design of the "positioning mouse" for the Bosch drill
- 2 Material and surface evaluation for a carbon-fiber bicycle
- 3 Targeted geometry design of reflections; chrome plated trap for Geberit
- 4 Corporate Design guideline for small public buildings for the City of Zurich (manual)
- 5 Parallel development of graphics and product character via sketches
- 6 Study on the implementation of newly developed toilet technologies, design model
- 7 Eigenfrequency on a 3-axis pick & place robotic arm
- 8 Structural analysis of a planet carrier (FEM node number representation)
- 9 "D.bow" fuel cell end plates prior to assembly
- 10 Function and measurement prototype of a linear motor (transversal flow principle)
- 11 "Opium"; mountain bike with drive-neutral, 4 pivot suspension kinematics
- 12 Production drawing of an engine cover made of aluminium die cast

engineering: the precise function

Good engineering relies on specific skills: it is absolutely essential to have the technical knowledge of how things work and how they are manufactured. Equally important is an understanding of the economic and physical world in which a product is to exist.

That is why engineering know-how flows into our projects from the very start. Early in the process, we compute and calculate and we use simulations to elicit potential and possible sources of error.

We know how things are made. And we use a wide range of methods, e.g. parametric CAD construction, FEM, RapidPrototyping, as well as practical work in the shop and on test equipment, to ensure an efficient and flexible development process, which results in a real product you are sure to be satisfied with.



our range of services – product development from a to z or in modules

We offer a comprehensive range of services that is built on our interdisciplinary principles.

Consequently, we are able to conduct projects from A to Z or offer tailor-made services. For each order, we put together an individual and need-oriented service package that utilizes the most appropriate instruments and methods.

product vision

The product vision involves working on a product idea and its physical form in word and image. This helps a company grasp the potential of an idea by rendering the decisive elements of a product tangible, bringing it to life. Besides *ideation* and *conceptual work*, various *visualization tools* are used.

concept

The concept is the basis for decision which influences all the further development steps. This is where the product ideas are tested for coherence and feasibility, which generally results in several versions. We apply such methods and instruments as *usability analysis*, *idea generation* and *functional models*.

industrial design / transportation design

Industrial design is finding solutions to improve industrial and consumer goods by taking into consideration the context of use, materials and processes. Transportation design is concerned with mobility concepts as well as the complete styling of all types of vehicles. In both fields, the focus is on aesthetics, functionality, ergonomic and economic aspects.

Our skills in this area include *environment analysis*, *ergonomic testing*, creating *mockups*, and even *fully parametrical Class A surfacing*.

interaction design

Interaction design creates an interface between the dimensions man, technology and function for each application. Since visual, emotional as well as the haptic levels play a role, the challenge lies both in the areas of conception and visualization of dynamic processes. When designing processes of this kind, we take software as well as hardware aspects into consideration. *Usability analyses*, *development of scenarios*, *usability simulations* and *feedback systems* are a few of the tools we use.

corporate product design

Corporate product design makes a company's identity recognizable in products and product families. Besides the corporate values, the ecological and economic aspects and the life cycle of the entire product range are taken into consideration. To successfully integrate new products in an existing environment, we work with *character definitions* and *mood boards* before beginning with the actual conception. We also offer our services in individual phases of product development, for example *specific color definition* and *product graphics*, and comprehensive *design support* of the products on the market as well.

mechanical engineering

Mechanical engineering turns a concept into a functioning and manufacturable product. Here, the central tasks are function definition, layout and dimensioning; targeted design in terms of function, production and assembly, product structuring, CAD modelling and simulation. Finally solution analysis, as well as the testing of the mass-produced parts and subassemblies.

To accomplish all this, we implement state-of-the-art *CAX-Tools* and work with our own methods of solution finding and modelling, which we constantly improve and add to. One of our core competences is *continual, fully parametrical CAD modelling* with which we can portray products digitally in a short time. Thanks to our top-down approach, the resulting digital model nevertheless remains flexible, which ultimately increases efficiency during the development process.

simulation

Simulation serves to continuously examine and improve the solutions developed in all project phases. This service comprises the area of model building via "*Matlab/Simulink*" as well as structural analysis and optimization of single components or subassemblies by means of *FEM* in all the conventional materials: from alloys to plastics and even non-linear materials such as elastomers. With simulation we also address multiphysics systems and complex contact problems and apply *multi-body simulation*, which maps the physical behavior of a mechanical system. Our qualified measurement system ensures that reliable data is available for all project phases.

product optimization

Product optimization is used, on the one hand, to specifically extend the life of existing products that have been tried and tested on the market. On the other hand, it is also considered an effective means of eliminating problems systematically and rooting out critical product areas. The proposed tasks are generally highly complex with the aim of achieving functional improvements or cost reductions. Through *systematic analysis* of the situation and the environment as well as *methodical concepts*, we create solutions that succeed in the long run.



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