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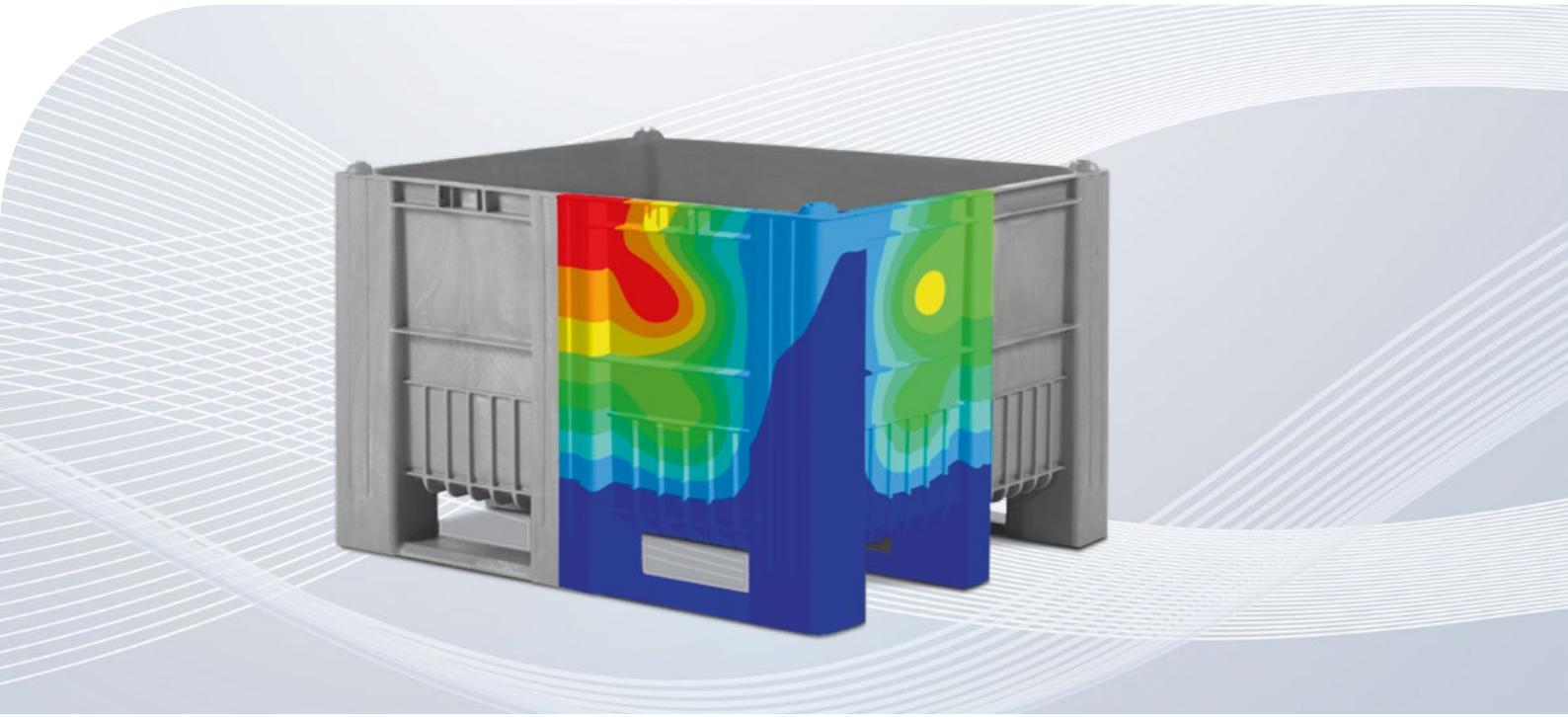

Geometry Optimization of Plastic Components

Minimizing Component Tests and Prototypes Through Modern Optimization Methods

Plastics are indispensable in the modern world and are used in nearly all industries and applications. Depending on the chosen manufacturing process and application, various factors play a crucial role in the design of plastic components. For Craemer GmbH, we optimized a pallet box type CB3 for maximum load capacity and minimal deformation. Essentially, every component optimization also considers factors such as material usage, cost reduction, and for plastic components the use of recycled materials.

In the CB3 container project, in addition to the mentioned optimization factors, the suitability for use in high racks and the stackability of filled containers were also significant optimization goals. For this purpose, very precise specifications regarding the deformation of the components in use, both lateral expansion and deformation of the stacking surface, had to be adhered to.

The implementation of the project was carried out in several steps:

- Conducting various creep tests with the current design status
- Creating simulations and fitting them to the test results (plausibility check of the simulation)
- Optimizing the base geometry (Step 1)
- Importing deformed geometry structures to simulate stacking
- Further optimization of the geometry to achieve the ideal cost-benefit ratio
- Manufacturing prototypes of the new geometry and verifying the results through components tests

simulations driven by engineering excellence

We accelerate our customers' innovations through virtual simulations and precise calculations of physical and technical requirements. We transform our results into practical solutions that enable our customers to achieve excellence in engineering technology.

Dr. Frank Brehmer,
Managing Director ITB

Our services

- **Component Strength Analysis**
- **CAD Construction**
- **Component Verification**
- **Electrothermal Simulation**
- **Flow Simulation**
- **Light Simulation**

Are you planning your next project and want more security from our expertise? Then get in touch with us:

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