Fig. 6. Visualization of radial and axial deformation per tooth on the large gear wheel with three to five sprues Source: MS-Schramberg; graphic: © Hanser

bility under series production conditions as early as the design stage.

The DoE method with autonomous optimization that was used here is available for each of these stages and offers a way of systematically and precisely studying all kinds of problems.

Sometimes, though, the results of filling simulations are just a first step towards a reliable solution. Details relating

to anisotropic material structure, fiber orientation or the deformed geometry after cooling, as determined with Sigmasoft, can be transferred to other FEA tools for a rigidity analysis, crash simulation or a service life simulation via the existing Sigmalink interface. This allows to determine the limits of a design with even greater precision in a follow-on analysis.

Conclusion

The possibility of activating and parameterizing individual geometry elements allowed a large number of geometric influences to be studied without a great deal of modeling effort. The two optimization loops led to a 10-fold reduction in axial deformation of the large gear wheel. The influence exerted on efficiency by the number of gates was accurately determined.

The simulations executed with Sigmasoft confirmed and extended the high level of development expertise possessed by MS-Schramberg. The documented simulations made a solid contribution to constructive discussions between customer and supplier. The gear wheel went into series production with the simulated changes in a three-platen mold (**Title figure**). The optimized quality feature lay within the desired tolerance right from the start.

Although this report merely reveals how to simulate a resilient design with simple tools, Sigmasoft Virtual Molding is then used to design the injection mold and determine the best processing window. Should unexpected problems arise, the tool helps to systematically run through alternative settings, geometry or material changes to quickly arrive at the best solution. ∎

**Sorting Solution for Bottle-to-Bottle and Food Applications**

4-in-1 Sorter for PET Recyclers

With the Sortex A GlowVision sorting solution, Switzerland-based **Bühler AG** introduces a 4-in-1' optical sorting solution that can be used for simultaneous color, polymer, foreign material and loose-label sorting.

In response to growing demand, the Sortex A GlowVision also offers a simultaneous re-sort function, which delivers the highest ever reject concentration – according to the company, up to 40 % when the re-sort channel is deployed. The Sortex A GlowVision is available in three to five chute models on a five-module frame and features a custom-built inspection system designed specifically for PET sorting.

Bühler expects great interest from PET processors who want to reduce contamination levels on key color and polymer defects. Thanks to its unique double-sided camera viewing technology, the Sortex A GlowVision provides good results, performing on a broad range of defects typically found in PET streams.

As as stated in a press release, the system deals effectively with opaque, white, and transparent colored flakes, as well as on polymer defects including polyvinyl chloride (PVC), polycarbonate (PC), polystyrene (PS) and polyamide (PA), not to mention a significant reduction of loose labels.
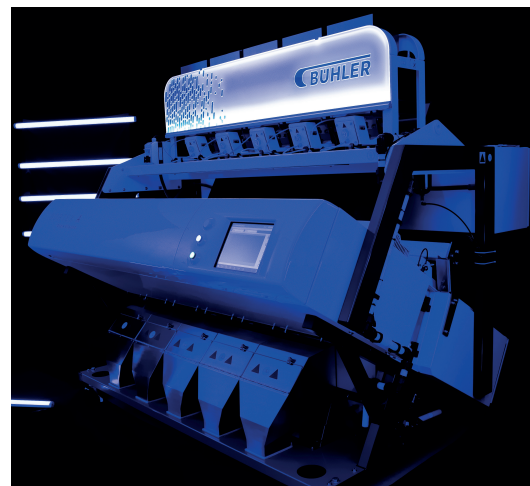
Sortex A Glow Vision is used for optical sorting
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