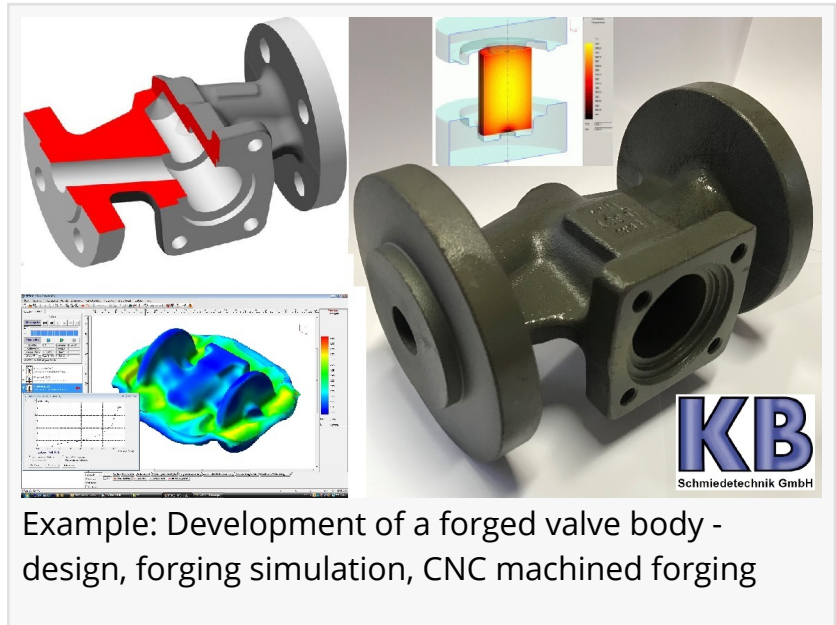


Grain Flow-Optimised Forgings for Maximum Stability

KB Schmiedetechnik: 20 years of enhancing structural integrity in forged components by optimising grain flow through advanced simulation

HAGEN (NRW), GERMANY, October 2, 2024 /EINPresswire.com/ -- KB Schmiedetechnik (<https://kb-schmiedetechnik.de/about-us.html>) is adept at handling challenging materials like duplex stainless steel, nickel-based superalloys like Monel®, as well as titanium, requiring expert knowledge to avoid defects and tool damage during the forging process. The die forging process involves hot forging, which plastically deforms the alloy between two tool halves, enhancing the material's fibre orientation. This method results in exceptional mechanical strength due to the optimised grain flow.



Example: Development of a forged valve body - design, forging simulation, CNC machined forging

Forging Versus Casting: A Comparative Insight

Forged components offer a modified internal structure with aligned grain orientation, whereas casting processes result in materials with no specific grain alignment, often leading to defects such as porosity and shrinkage. By refining the grain structure, forged parts boast superior strength and fatigue resistance. Despite casting's ability to create complex shapes easily, its mechanical properties are generally inferior to those of forged components due to inherent defects.

According to studies from the University of Toledo (Ohio), the tensile strength of forged components is over 25% higher than that of cast iron, and fatigue strength in crankshafts can be up to 36% greater.

Meeting Industry Demands

Forged products are engineered for demanding applications, ensuring exceptional reliability and mechanical performance. KB Schmiedetechnik's expertise in material flow simulation and transition advisory for assemblies, such as welded structures and cast parts, highlights its commitment to delivering superior forged solutions. This strategic approach is vital for components operating under extreme conditions, where structural integrity is paramount.

Primary material wastage represents a significant energy loss, as metallic waste like chips and burrs contains substantial amounts of energy that cannot be fully reclaimed through recycling. Forging simulation helps reduce this waste, enabling material savings.

KB Schmiedetechnik GmbH (<https://kb-schmiedetechnik.de/about-us.html>), a premier drop forge based in Western Germany, excels in producing high-performance forged components. With a focus on grain flow optimization and an extensive knowledge base, the company ensures superior quality and reliability across various critical applications in multiple industries.

Some videos from the production at KB's can be viewed on this YouTube channel:

<https://www.youtube.com/@ThomasHenneke-bv2hd> .

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This press release can be viewed online at: <https://www.einpresswire.com/article/748406770>

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