

AT A GLANCE

Prairiefire and Sensitivity-Based Design (S-BD) improve quality, reliability, and cost, starting from design or concept geometry, and without requiring production statistics.

Prairiefire:

- Refines designs to be consistently high quality, reliable, and less costly.
- Quantitatively predicts quality, performance, and fit-up from geometry and concepts.

BENEFITS

- Find & fix root causes instead of just tightening tolerances
- Quantitatively predict concept quality
- Solve inconsistent performance & durability
- Identify the influence of design parameters on cost, risk, performance, and fit-up
- Capture testing & analysis data in design

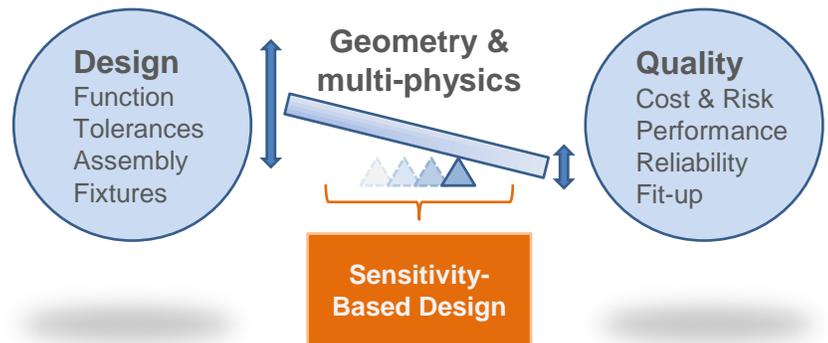
EXAMPLES

- 25% reduction in required surgical precision of knee implant with self-aligning geometry
- 50% reduction in takt time of skid steer lift arm through fixture refinements

WHAT IS SENSITIVITY-BASED DESIGN?

Sensitivity-Based Design is finding and manipulating system sensitivities to improve quality. Sensitivities act like levers – design inputs like manufacturing tolerances have different amounts of leverage on quality outputs.

Prairiefire focuses on finding the right levers and adjusting the pivots rather than just tightening tolerances. It is a more effective and sustainable solution for both quality and cost-reduction.



TREAT THE PROBLEM, NOT JUST THE SYMPTOMS

Quality is often addressed through data collection during production. But fixing problems in that late stage may just be treating symptoms – most of the quality has already been locked into the design.

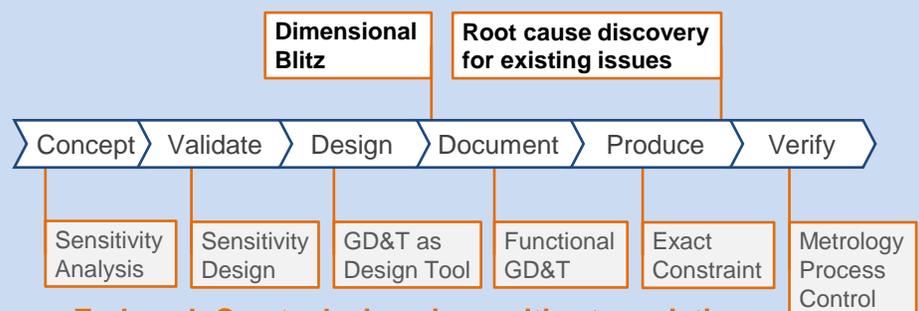
Instead, Prairiefire prevents and solves product issues by adjusting system sensitivities before production.

The result is a more efficient, sustainable solution – variation has less impact on quality in the first place and you only pay for the precision you need.

WHERE TO START?

While we prevent problems throughout the design cycle, we often start by solving an existing issue through root cause discovery or a Dimensional Blitz.

Want to talk in person? We waive our consulting fees for our first day on-site.



End goal: Create designs insensitive to variation

info@pfcae.com

pfcae.com

224.484.0411

Prairiefire puts over 20 years of experience to work for you, improving product quality for engineering and manufacturing companies. We optimize performance and fit-up through design and analysis of variation. We are also 6σ certified and have taught Sensitivity-Based Design, GD&T, and Dimensional Management to hundreds of engineers in 8 countries.