SIX THETA® DESIGN
Right First Time
PREDICTABLE PRODUCT PERFORMANCE AND CONTROLLABLE ENGINEERING PROCESSES

We support organisations in developing products and components with predictable performance by offering our proprietary Six Theta® design methodology for achieving unambiguous engineering design.

The impact of Six Theta® design includes reduced development time, a higher innovation height and reduced production costs. In addition, in-market performance of products will be much less influenced by changes in ambient conditions.

Six Theta® design contains concrete tools and methods that help engineers improve quality of their mechanical design both with regards to the overall conceptual design architecture and the smallest component details. Our mindset is that before going into detailed design, we should be able to predict how our solution will perform in tests and in the hands of the end-user.

In addition to teaching engineers how to design better solutions, Six Theta® design enables a comparison of design quality of different solution concepts in an objective, quantifiable way thereby eliminating the use of “gut feeling” when designing products.

By implementing Six Theta® design, organisations will experience that they save time in the development processes with fewer design and prototype iterations. Furthermore, demands for tolerances and the complexity of measurements on drawings will be significantly reduced. This results in reduced complexity in the manufacturing processes, a quicker production ramp-up and lower QA costs.

SIX SIGMA VERSUS SIX THETA® DESIGN

In the same way as Six Sigma is an objective measure of production capability, Six Theta® is an objective measure of design capability.

While the Six Sigma methodology strives to reduce variance by optimising production technologies and processes, Six Theta® design reduces the sensitivity to variance of a given engineering design thus easing production demands.

The two methods are supplementary:
EXAMPLE OF USE OF SIX THETA® TO CREATE PREDICTABLE DESIGN OF PIN-HOLE CONNECTION

ORIGINAL NON-COMPLIANT SIX THETA® DESIGN

NEW COMPLIANT SIX THETA® DESIGN

Impact of Six Theta® compliant design on pin-hole connection:

- 60% of all critical dimensions removed from drawing
- Tolerance demands from very hard to easy to produce; from 0.025 mm to 0.08 mm
- Better performance of solution with less sensitivity to production tolerances

The components do not have a predictable positioning. Risk of the two components not getting assembled correctly.
TRAINING AND CERTIFICATION
Valcon Design offers training and certification in Six Theta® design for both large and small organisations. Also, Valcon Design has initiated the Robust Design Academy at the Technical University of Denmark, and today the majority of Danish mechanical engineering students are trained in Six Theta® design.

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<th>EXPERTISE</th>
<th>ABOUT US</th>
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<td>EXPERTISE</td>
<td>The Six Theta® methodology has been developed by Valcon Design over a period of 10 years. One of our first major Six Theta® design implementations was with one of Denmark’s leading companies, the health care company Novo Nordisk. Today, our client portfolio includes leading European companies within automotive, aerospace, defence, medical devices, consumer products, machine elements, energy, etc.</td>
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