



PRECISION  
IS THE ENGINE  
THAT DRIVES  
RELIABILITY

### Our Customers

*"We are using CETOL for all of our powertrain tolerance analysis within the Chrysler group... In fact the new Phoenix engine and the new axle program tolerance specification development is done with the aid of the CETOL software. The Sigmatrrix CETOL product fits very well within our DFSS (Design for Six Sigma) process at the tolerance design/ allocation and optimization phase."*

**Praveen Gomer**  
Powertrain Dimensional Management  
DaimlerChrysler

- |                  |                   |
|------------------|-------------------|
| BAE Systems      | Polaris           |
| Bosch            | Raytheon          |
| Caterpillar      | Roche             |
| Chrysler         | Sandia Nat'l Labs |
| Covidien         | Schlumberger      |
| Cummins          | St. Jude Medical  |
| Detroit Diesel   | Stanley           |
| Diebold          | Stryker           |
| Eaton Electrical | TetraPak          |
| Emerson          | Toyota            |
| Ericsson         | TVS Motors        |
| GE               | Tyco Electronics  |
| Goodrich         | U.S. Army         |
| Honeywell        | Volkswagen        |
| John Deere       | Volvo             |
| Motorola         | Whirlpool         |
| Northrup         | Xerox             |
| Paccar           |                   |

### Tolerance Management Drives PLM Reliability

Delivering quality products on time and maximizing profit requires very precise, efficient analytical tools that take advantage of the Pro/ENGINEER® Wildfire™ model information. Product analyses must become comprehensive as the design matures through the PLM process. For tolerance management, this maturity evolves from conceptual functional interfaces and critical datum references, to accurate, well-defined acceptance criteria for parts, assemblies, tooling, and inspection processes.

#### The Need for Precision

- Most companies recognize the need for better tolerance-optimization tools and processes.
- Most companies want the most precise understanding of how tolerance specifications and manufacturing variations impact product quality.
- Most companies desire highly integrated solutions with their current CAD system.
- Most companies are limited by the difficulty in conducting reliable tolerance analysis on projects.

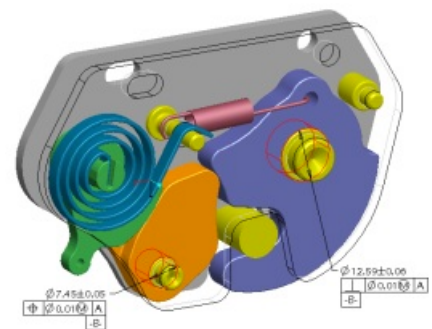
CETOL 6σ v8.0 has been reengineered to address these needs.

### CETOL 6σ Key Benefits

CETOL 6σ provides product development teams with the insight required to confidently release designs to manufacturing. Precise calculation of surface sensitivities exposes the critical-to-quality dimensions in the assembly. Utilizing advanced mathematical solutions, CETOL accelerates tolerance optimization to achieve robust designs ready for manufacturing.

- Accelerate product quality maturity and promote engineering best practices throughout the PLM process.
- Produce the most accurate, comprehensive, reliable answers using native Pro/ENGINEER Wildfire geometry.
- Improve product quality and gain design insight by understanding the true, derived relationship between critical product requirements, and design input variables.
- Reduce modeling time and increase confidence of simple-to-complex analyses.

- Optimize design and manufacturing goals rapidly without resolving the analysis.
- Assess and manage the "as-manufactured" product quality using supplier capability data.
- Drive knowledge transfer and achieve maximum productivity with model reuse.
- Easily communicate results via advanced reporting tools, interactive analysis visualization, and true sensitivity animation.





### Modeling Accuracy

Complex problems require complex solutions. Being able to model and analyze complex problems quickly and accurately is a necessity. Without an easy-to-use interface, assembly analyses can take weeks to model. We understand that an accurate assembly model is critical to predicting the variation of assembly requirements. Sigmatrrix CETOL 6σ assembly modeling tools deliver complete control over the behavior of your assembly model at each interface. The end result is faster development of higher quality products at a lower cost.

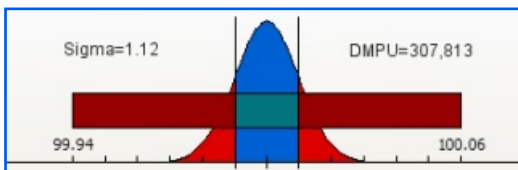
### CETOL 6σ Version 8.0

#### Software Highlights for Version 8.0

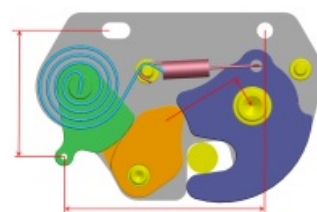
- Advanced assembly modeling technologies
- Tolerance Model Advisor™
- True sensitivity animation
- Active object control
- Advanced network model graph
- Model templates for analysis reuse
- Pro/ENGINEER Wildfire highlight from all CETOL interfaces
- Expanded GD&T coverage
- Flexible data storage—no data integrity loss
- Direct export to .html or .csv files
- Advanced reporting and interrogation tools
  - Rapid “what-if” without resimulation
  - Interactive analysis visualization
  - Clean, organized, and highly interactive
  - Report creation wizard
  - WYSIWYG reporting

#### Easily Model Assembly Variation with CETOL 6σ Technologies

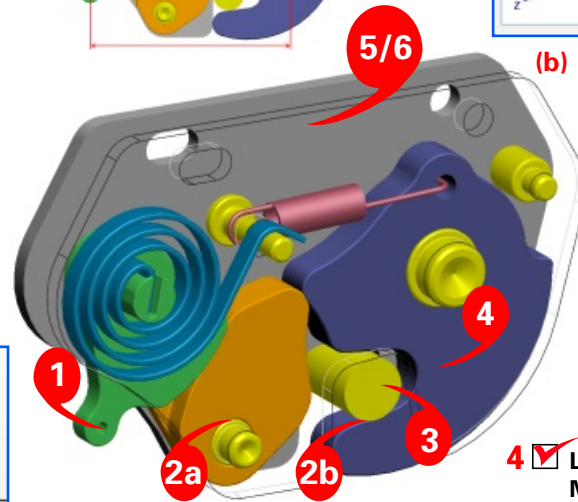
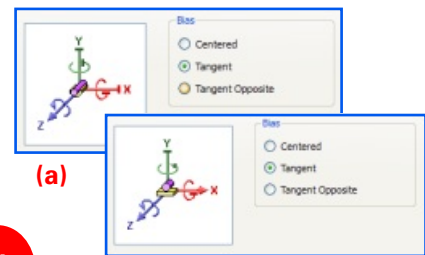
#### 6 ✓ Results are Accurate and Reliable



#### 1 ✓ Precise Measurement



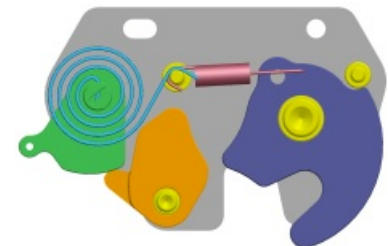
#### 2 ✓ Complex Kinematic Relationships



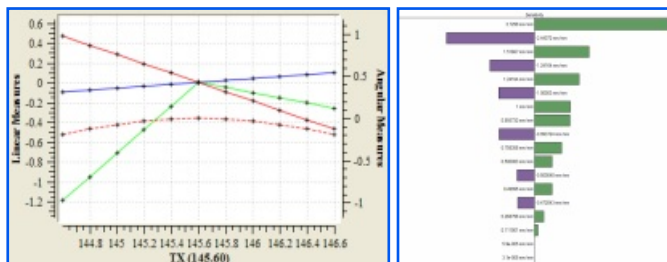
#### 3 ✓ Closure—True Nominal



#### 4 ✓ Latch Open—Solve Multiple Configurations



#### 5 ✓ Sensitivity Animation and Sensitivity Tornado Chart



CETOL 6σ, the Sigma-Check icon, Tolerance Model Advisor and Sigmatrrix are trademarks of Sigmatrrix, LLC. Pro/ENGINEER is a registered trademark, and Wildfire and PTC Partner Advantage are trademarks of PTC. © 2007 by Sigmatrrix, LLC