

Automated

Easy to use

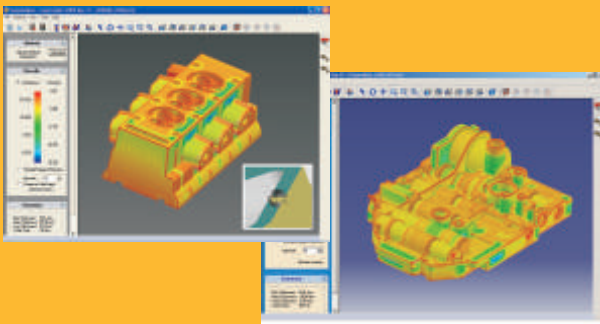
Integrated



Accurate

Advanced Visualization

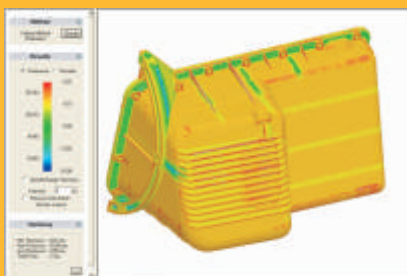
The standard in 3D thickness analysis



Measurement of wall thickness is a key element in the design process, as it forms the basis to identify regions critical from strength, manufacturing, or material flow standpoint. It is often difficult for a design engineer to maintain the desired wall thickness, especially while incorporating changes incurred in the design process.

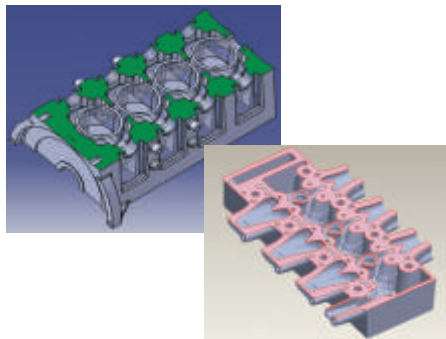
Salient Features

- Quick and accurate thickness measurement tool
- Very easy user interface
- Dual measurement methods (Ray and Rolling sphere)
- Locates critical thickness regions for both 2D and 3D thickness measurements
- Computes thickness at selected regions
- Dynamic thickness display available at point click for Ray and Sphere method
- Advanced visualization with customizable color bands for easy interpretation of results
- Ability to recognize and ignore small thickness at edges
- Ability to preserve color band settings for future computations
- Supports for multi core processing
- Industry standard Flex LM based licensing
- Comprehensive customizable reports in XML format
- Ability to import critical regions inside CATIA V5



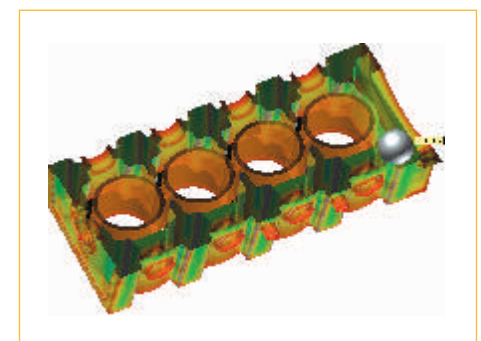
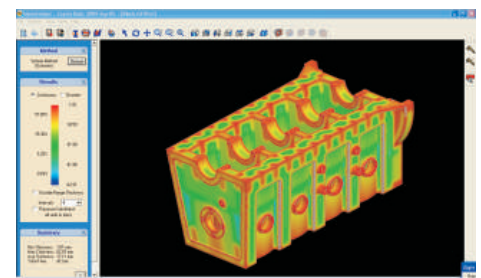
Product Need

The wall condition in a model is one of the most important parameters in the molding, casting, plastic, foam and rubber industry. While thin wall sections can cause breakage of the part during manufacturing or during usage; thick wall sections increase the weight of the part, thus increasing the cost of materials used, wastage and transportation.



The current process of checking the wall thickness in a model involves measuring sections of the design along the standard axis using CAD tools. Though a tedious and time-consuming manual process, it cannot be ignored, as it ensures design performance optimization through reduction in material costs and improvement in overall efficiency.

GeomCaliper, is an innovative and automated tool that facilitates measurement and checking of wall thickness in 3D CAD models precisely and efficiently. It accelerates the design review process for manufacturability, enabling designs to be prototyped and produced faster. Unlike the traditional measurement tools, GeomCaliper is fast and easy to use and provides savings in downstream costs by improving the part quality at the design stage itself. The tool implements thickness measurement by two key methods namely Normal Ray and Rolling Sphere. It gives users the flexibility to select the analysis method based on the geometry of the part for improved results.



Case Study

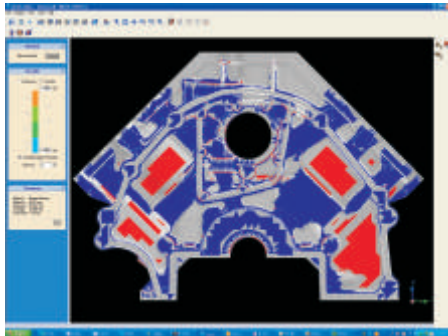
Electronic Caliper shows where to add muscle and cut fat

The complexity of a part's design makes it difficult to maintain a desired wall thickness throughout the design process.

The design engineers at Chrysler faced a similar situation, and the 3D CAD model design had to be checked after every iteration. The traditional method for measuring the wall conditions was manual and time consuming. It became very complicated with more complex models and the design engineers landed up spending most of their quality time in checking and measuring the 3D CAD model manually for the wall conditions, leading to a major loss of productivity.

When Chrysler's Powertrain department evaluated GeomCaliper, they found that it measured thick and thin material conditions of CATIA V5 models in less than an hour, a process that earlier took them up to two days for an average part!

The design engineers were impressed with the ease of use of GeomCaliper too, since all they had to do was open the part in CATIA V5, click on the GeomCaliper icon, and enter the desired wall thickness values. The results were immediately displayed on the screen in the form of a 3D color map, which showed the problem areas that needed to be addressed. The process was repeated till all the wall conditions were resolved.



GeomCaliper identifies thin and thick conditions, such as on this part where 1.9 lbs. of excess material was located and removed.

GeomCaliper automatically generated reports that could be shared with engineers and managers in the form of XML graphic files. It also located the thick wall needing removal of excess material. This helped Chrysler reduce material costs and reduce the part weight. In case of injection molded parts, GeomCaliper helped create smooth gradient change in wall thickness, thereby increasing fuel efficiency and performance.

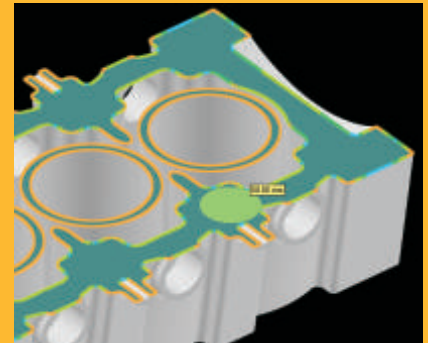
Customer Speak

"GeomCaliper has proven to be an effective and valuable tool in the campaign to keep quality up and costs down. We have integrated GeomCaliper into our design process and it has resulted in a 75% reduction in the time taken to check wall thickness of complex models. At the same time, it is allowing us to discover those hidden critical areas that otherwise may have gone undetected."

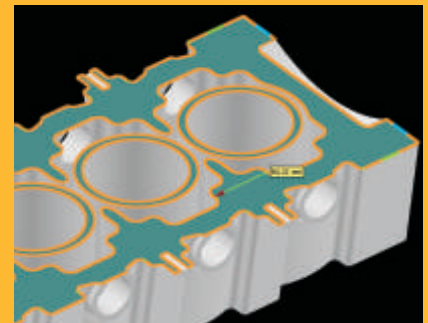
Scott Lanski
Design Manager
Chrysler Corporation

Benefits

- Quick & easy way to check design for manufacturability
- Locates thick and thin wall thickness regions in 3D CAD models
- Savings in downstream costs due to improved part quality, as a result of early analysis and design correction
- Improved design productivity and quality
- Saves considerable time and effort for thickness analysis and eliminates errors when compared to traditional method.



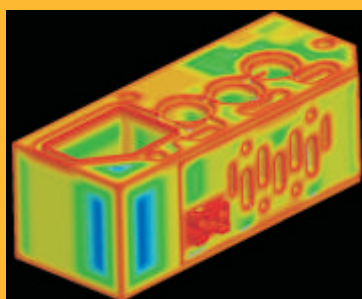
Rolling sphere method



Normal ray method

Industry verticals

- Automotive
- Aerospace
- Heavy Engineering
- Consumer durables
- High-Tech
- Healthcare



Customer Speak

"From the beginning of tests on GeomCaliper, we found that GeomCaliper was an efficient and high quality solution to the conception work. It is clear that GeomCaliper brings so many advantages if compared to the old way of making thickness analysis. Without GeomCaliper, several sections of the model were created manually along X, Y and Z axes and then some detailed analysis were made locally. Time need for the 2D classical analysis was very important.

GeomCaliper let users make semi-automatic 3D analysis on the entire model. GeomCaliper input data are exactly the same data that are produced from user, no additional pre processing is needed: GeomCaliper directly reads CATIA V5 files! Other kinds of thickness analysis are available too but their utilization in PSA is lower.

GeomCaliper integration in PSA environment has been easy and low cost; its interface with CATIA V5 is good and improved at every new release."

Mario BASILE,
Chargé d'Affaires CAO SSC
PSA Peugeot Citroën

Technical Specifications

Supported CAD Systems

- CATIA V5®
- Creo Elements/Pro®
(formerly Pro/Engineer WildFire® 5.0)

System Requirement

- Microsoft® Windows® XP Professional, Windows® Vista 32 and 64 bit
- 512 MB of RAM with 500 MB or more of free temp space (1 GB of RAM with higher temp space is recommended for analysis of large parts)

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