



product development  
technologies, inc.

One Corporate Drive, Suite 110  
Lake Zurich, Illinois 60047  
p 847 821 3000  
f 847 821 3020  
www.pdt.com

# Computer Aided Verification (CAV®)

CAV® is a revolutionary process that compares a prototype or production part directly to the CAD model for verifying tool accuracy. By using CAV for part inspection, the design engineer no longer needs to spend weeks or months creating 2-D detailed drawings to check against tabulated inspection reports generated from a CMM touch probe.

CAV® does the comparison, and then generates a series of FEA-style images that are color-coded to show dimensional deviations, sink, warp and contour errors in the part.

## Applications:

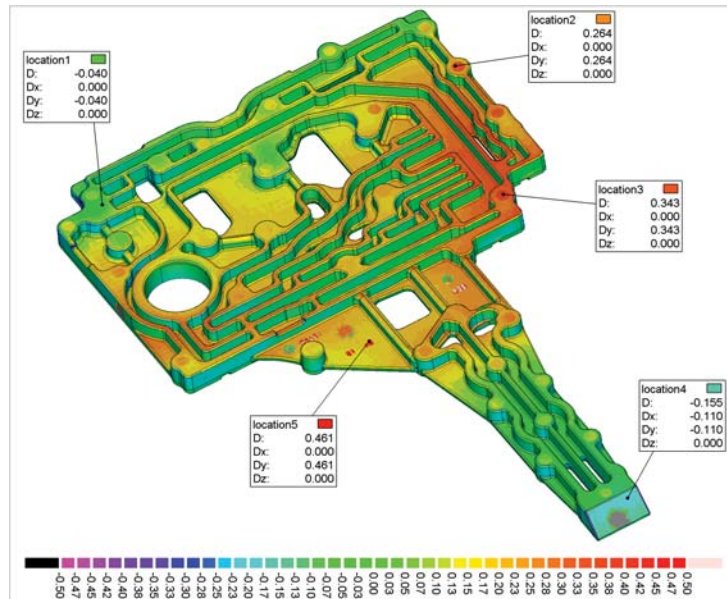
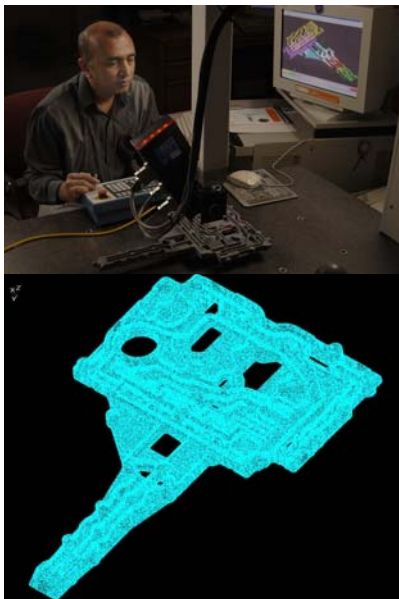
- Laser scanning and digitizing
- Part to CAD database verification
- Part to part comparison
- Mold inserts
- Inherited legacy data conversion

## Benefits:

- No drawings for first article inspection
- Increased inspection accuracy by providing more than one million measurements per part
- Non-destructive inspection process
- Touchless - great for flexible or delicate parts

## Specifications:

- Scan bed is 40" x 40" (larger parts can be scanned depending on geometry)
- Accuracy of  $\pm 0.001$ "
- Over 1,000,000 points per part
- Error color map created by comparing laser scan point cloud to database
- Ability to align to any datum, or simply best-fit
- Verify all tools and cavities are producing in-spec parts
- Tolerance plots can be made to show color only where part is out of specification



CAV® is a registered trademark of Product Development Technologies, Inc.



# Reverse Engineering

PDT offers several levels of reverse engineering depending on the needs of our customer. Our design engineers can create a fully parametric feature based model with an accuracy of better than 0.005", a NURB surface in IGES or STEP format, and anything in between.

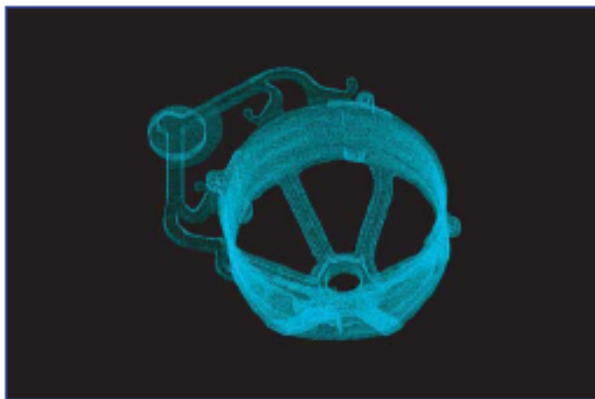
With experience recreating the geometries of parts ranging in size from a screw machine part with a diameter of 0.080" to a full size 6' bathtub, our laser scanning process allows a wide range of accurate solid-model reproduction. Our models are verified with our CAV process to ensure accuracy before they are delivered to the customer.

## Applications:

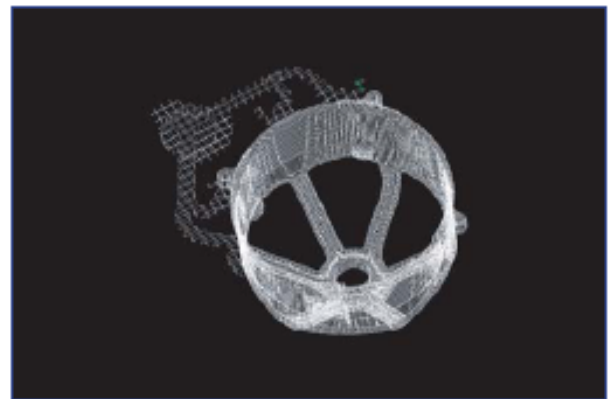
- Lost drawings
- Modified tools without documentation
- Retrofit applications
- Aftermarket products
- New product design
- Inherited tooling and dies

## Benefits:

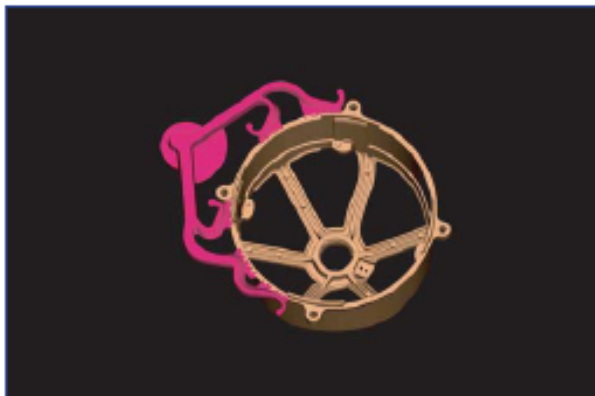
- High accuracy ( $\pm 0.005"$ )
  - Fast turnaround
  - Non-destructive
  - Touchless - great for flexible or delicate parts
  - Ensure that part model is available if old tooling fails
- CAV® PLOT Color Analysis



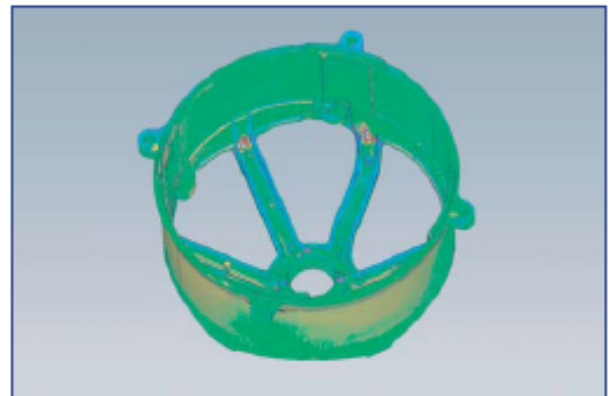
Assembled Point Cloud



Cross Sections, X, Y, Z Planes



Pro/E Model



CAV PLOT Color Analysis

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