



## Z Corp - Z Scanner 3D Scanner – Technology overview

### Patented and Industry Proven

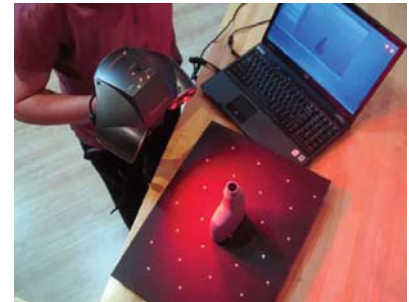
The Z Scanner is the only completely hand held 3D scanner on the market that can do continuous 3D scanning. The Z Corp technology allows the user to move both the scanner and part while scanning. This offers unmatched versatility, portability and ease of use without sacrificing resolution and accuracy.



Z Scanner

### How does it work?

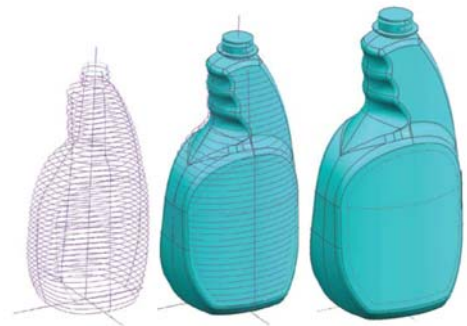
The Z Scanner works by attaching stick-on reflective targets randomly on the part or placing the part on a backdrop with targets. The Z Scanner uses the targets as a reference system as it continuously scans the part. The Z Scanner can continuously scan as long as it sees four targets. If more targets are needed they can be add at any time. Users can start and stop scanning at will. The best analogy is to think of spray painting. You can scan over area until you have collected all the data required and since you see this instantly with the Z Scan software you know when you have collected enough data.



Continuous hand held 3D scanning

### How does this work with my CAD system?

The raw Z Scanner scan data is output as an STL file (polygon mesh) and then imported in a scanning software system like GeoMagic or RapidForm. These systems allow the user to create CAD data in mesh, surface and solid model formats. RapidForm includes direct interfaces to Pro/E, SolidWorks and Siemens NX. The finished file can also be output in a neutral CAD formats such as IGES or STEP which can be imported in any CAD system.



Polygon, surface and solid model Creation from scan data



## Why use 3D Scanning?

3D scanning and reverse engineering are very valuable when no CAD data exists or can't be accessed. Users can scan the physical object and then create a usable CAD model so they may analyze, edit and create new 3D CAD data. New physical parts can then be made through rapid prototyping or traditional manufacturing methods.

## How is the Z Scanner different than other scanners?

The Z Scanner is the only truly portable 3D scanner. Other so-called hand held scanners use infrared line of sight, magnetic fields and other means to be somewhat portable. They are all limited when compared to the Z Scanner. Other types of scanners include tri-pod mounted and arm based scanners. Arm based scanners are not very portable and limited by reach. Tri-pod mounted scanners take one scan at a time so they require much more time to scan, move, scan, move etc. When finished all the scan data must be fitted together through a process called data registration. This is time consuming and prone to errors. Desktop scanners have become popular lately because of their low cost. Unfortunately they are very limited to part size, accuracy and detail.

## Most Common Scanning Technologies.







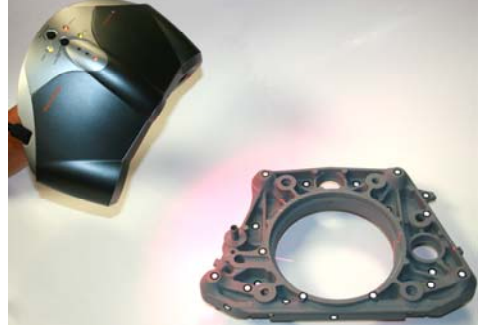


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|--|--|---|--|
|                                        |                            |    |                                  |
| <p><b>Z Scanner</b><br/>The only truly hand held scanner. Continuous scanning while moving the part and the scanner.</p> | <p><b>Desktop Scanner</b><br/>Part size is very limited. Scanning resolution and accuracy are very poor.</p> | <p><b>Arm based scanner.</b><br/>Many setups will be needed to scan this part. The scanner base and part can't be moved while scanning.</p> | <p><b>Tri-pod mounted scanner.</b><br/>This will take hundreds of scans, one at a time to capture this race car.</p> |

## How much does a Z Scanner Cost?

A Z Scanner starts at \$29,900 but requires software, training and a good performing laptop. Contact EMS for the different models and prices. Many scanners cost a lot more and a lot less than the Z Scanner but the Z Scanner offers the best value by mixing unmatched portability, very good accuracy, resolution and ease of use.

## What applications is 3D Scanning used for?

3D scanning is used in many applications including historic preservation, packaging, aftermarket auto accessories, aerospace, automotive, art, architecture and much more. Here are a few examples.

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| <p>Dinosaur bone 3D scanned and duplicated on a 3D printer. This preserves the original fossil.</p>   | <p>3D Scanning of large industrial pump. Scan data was compared to original CAD data for analysis of wear.</p>         | <p>3D Scanning of automotive parts for duplication. No CAD data ever existed for these parts.</p>  |
|   |                                     |                |
| <p>3D scan of unidentified human for forensic reconstruction. Scanned skull is 3D printed and artist then adds clay to the 3D print of the skull model.</p> | <p>3D scanning of the top of a helicopter. Scan data is used to make a "trainer" helicopter for military training.</p> | <p>3D scanning of an automobile to create aftermarket body accessory parts.</p>                    |
|    |                                    |               |
| <p>3D Scanning of complex mechanical part</p>   | <p>Finished CAD data from scan data as a feature based solid model. This model is fully editable in a CAD system</p>   | <p>3D Scanning of a shoe sole. The original CAD data didn't exist and changes need to be made.</p> |

Visit [www.ems-usa.com](http://www.ems-usa.com) for more information.