



## Application Note

*The Fastest, Easiest, Most Accurate Way to Compare a Part to a CAD File™*

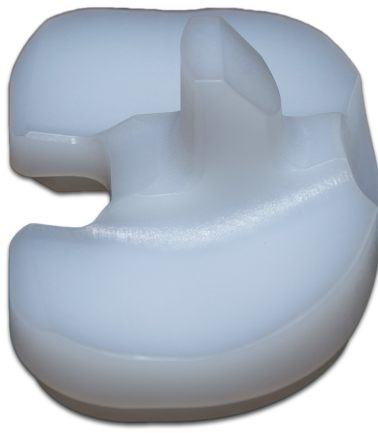
### **VisionGauge® Digital Optical Comparator For Accurate & Robust Inspection & Measurement Of Plastic Medical Implants**

A wide variety of plastic materials are used in medical implants. For example, today most total knee replacement implants and many total hip replacement implants contain ultra-high molecular-weight polyethylene (UHMWPE). Among other benefits, this plastic provides cushioning and movement. Other examples of plastic medical implants include high density polyethylene (HDPE) for facial reconstruction implants and polyketones (PEEK) that are common for spinal applications. For the right applications, plastic materials can present significant benefits as plastics are in general both more resistant to chemicals and lighter than metals. Given all of this, it's not surprising that the range of medical implant applications for plastics is very wide.



Total hip and knee replacement systems are made up of both metal & plastic components

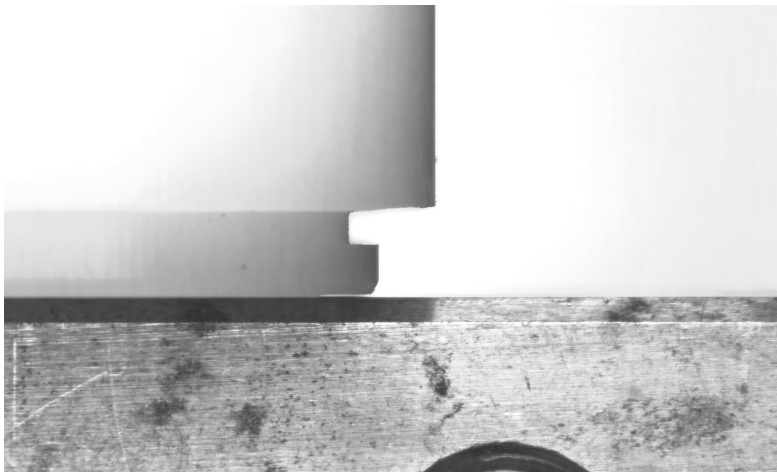
Many plastic medical implants can be produced using conventional manufacturing processes such as CNC machining, injection molding and 3D printing. This allows the fabrication of medical implants with very complex and unique geometries.



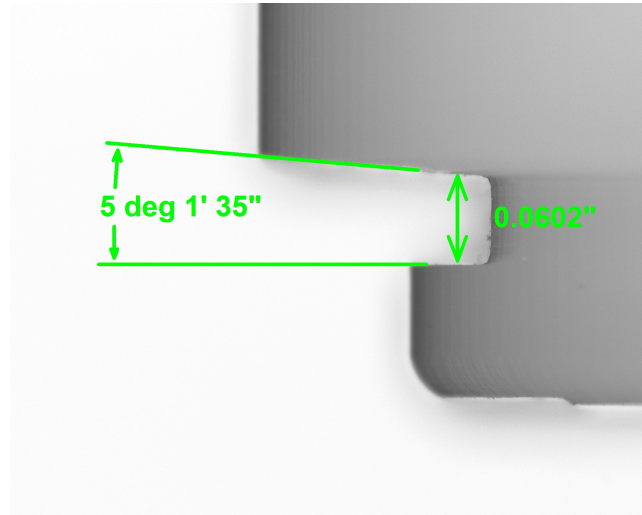
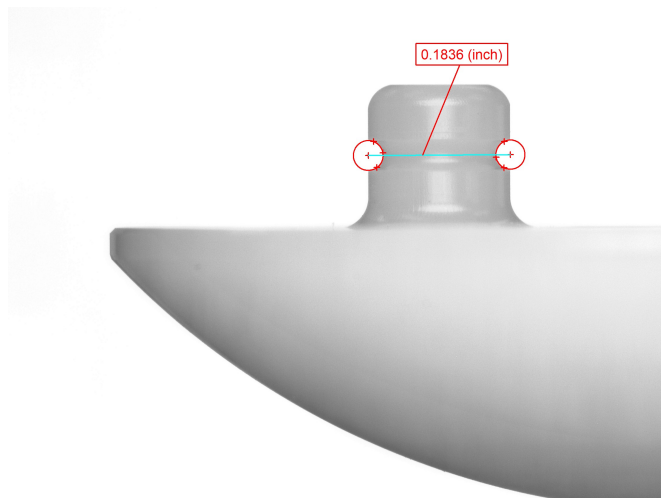
Plastic implants come in many different geometries  
to carry out a wide range of functions

However, like with all medical implants, the tight geometries involved need to be precisely controlled. In the past, this was often problematic as optical comparators, historically one of the most used inspection systems for medical implants, have struggled when dealing with plastic parts. Specifically, the image of plastic parts produced by these systems tends to exhibit lots of glare and reflections. With traditional optical comparators it's often difficult to determine an appropriate level of illumination that allows the user to make out the features of interest without creating an over-brilliance of other surfaces. It's a difficult balance that tends to introduce even more operator-subjectivity.

The VisionGauge® Digital Optical Comparator overcomes all these limitations. Its illumination is based on new & completely different technology that produces crisp & clear high-resolution images, with high contrast and superb definition, of plastic parts. Furthermore, all of VisionGauge®'s illumination is LED-based and programmable. This eliminates operator-to-operator variability and produces repeatable illumination conditions for extremely repeatable measurements!



VisionGauge®'s illumination works just as well on plastic parts as it does on metal parts



The crisp & sharp edges produced by VisionGauge® allow for very accurate measurements

Finally, note that VisionGauge®'s illumination is extremely flexible and that many different types are available (i.e. transmitted, reflected on-axis and off-axis, etc...). Furthermore, because it is LED-based VisionGauge®'s illumination produces very low heat, requires very little power and remains stable over a very long lifetime.

With its new, advanced & flexible illumination the VisionGauge® Digital Optical Comparator is the ideal solution for the detailed inspection & high-accuracy measurement, directly on the shop floor and with no operator-to-operator variability, of the wide variety of plastic implants being produced by today's medical manufacturers.

## Distributed By:



## Developed By:

**VISIONx Inc.**  
210 Brunswick  
Pointe-Claire, QC  
Canada H9R 1A6

Tel: (514) 694-9290  
Fax: (514) 694-9488  
Email: [info@visionxinc.com](mailto:info@visionxinc.com)  
Web: [www.visionxinc.com](http://www.visionxinc.com)