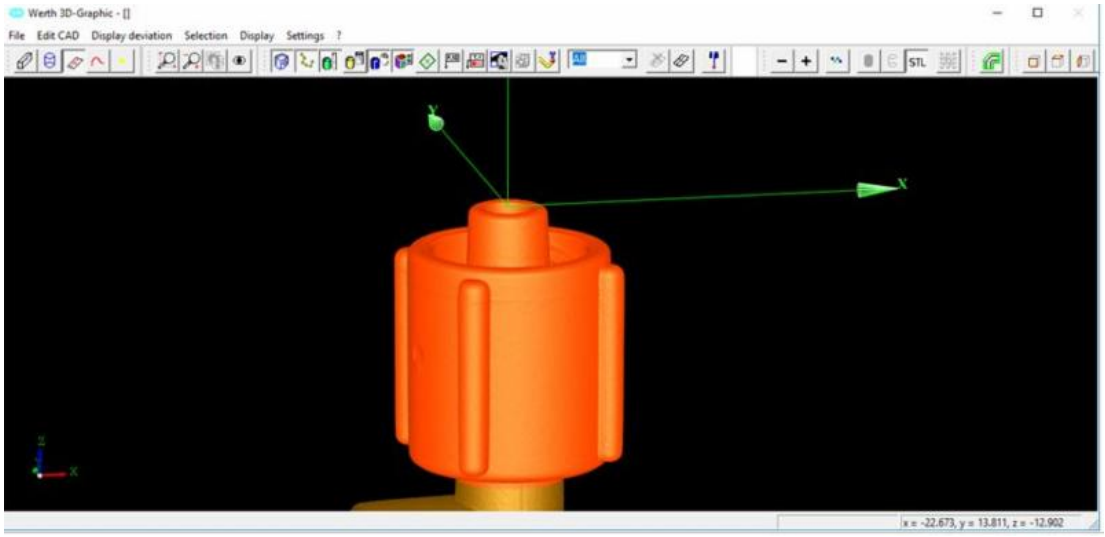
Automatically Measuring Medical Male and Female Luers following the ISO 80369-7 Standard

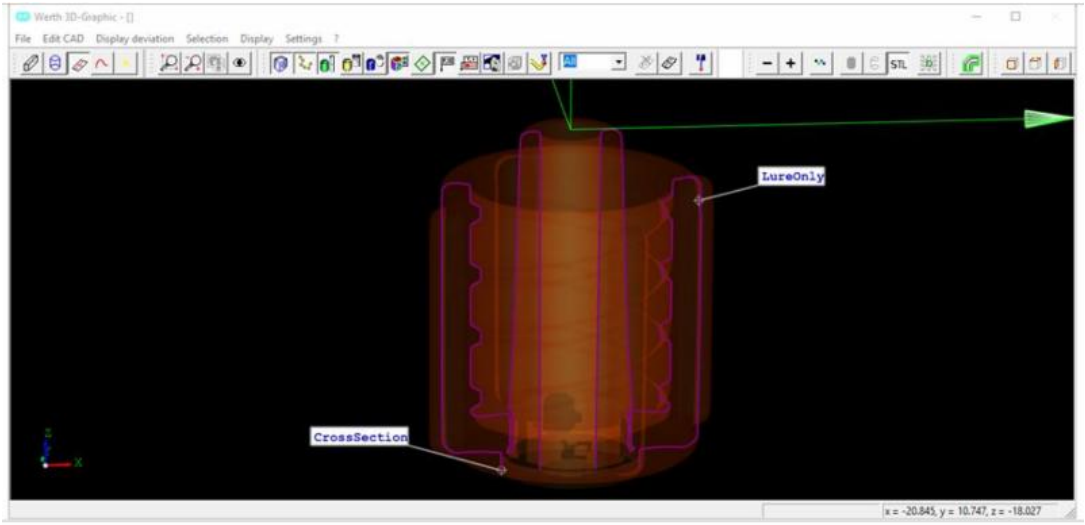
Starting in 2018 all manufactures of medical luers are required to measure the luer thread dimensions following the ISO 80369-7 standard. The current manufacturing method of the inner thread uses core pins in the mold. The angular orientation of those core pins is no constraint to the angular orientation of the overall part, therefore any cross section of the thread profile will most likely not be oriented to one of the key dimensions of the ISO standard, the first full thread. In addition all other important thread features are in a random Z positions, which makes them difficult to measure.

Werth has developed algorithms to extract the thread cross section clocked to the angular orientation of the first full thread. Using this technology, all dimensions of the ISO 80369-7 standard can be measured on all Male and Female luers.

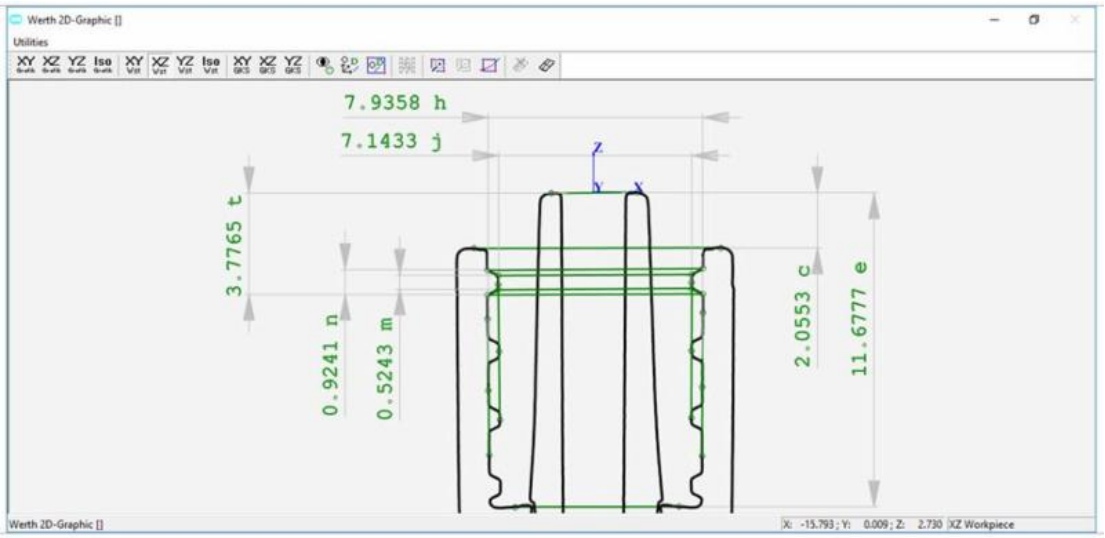
Using the Werth TomoScope XS we are able to scan the parts in just a few minutes and generate a very dense STL file.



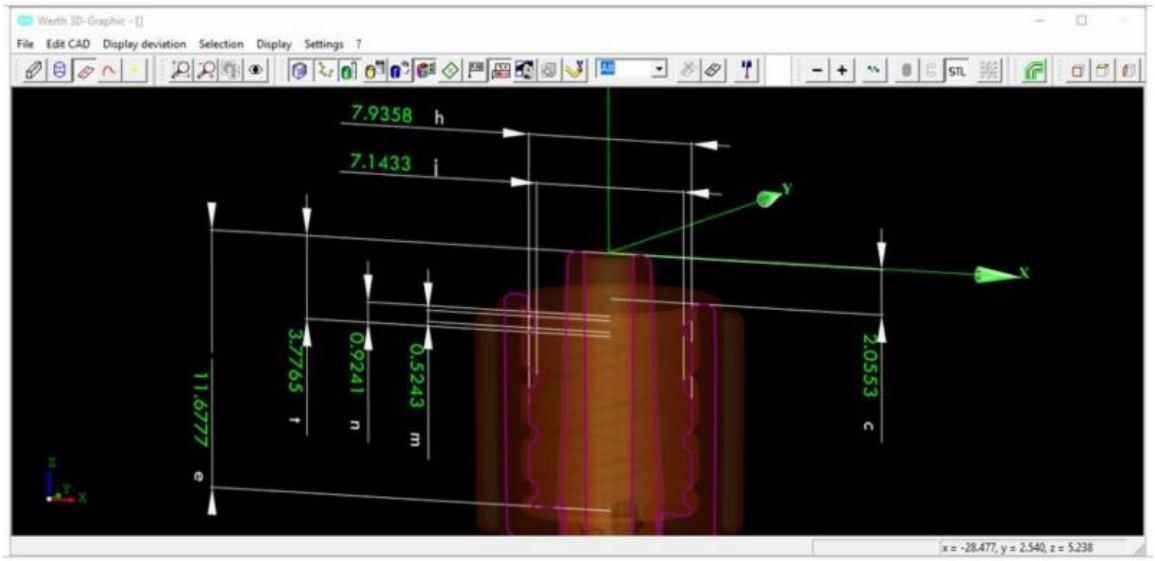
The WinWerth software handles the entire metrology task and is able to establish multiple coordinate systems. Here we extracted the first Male luer with a local datum structure.



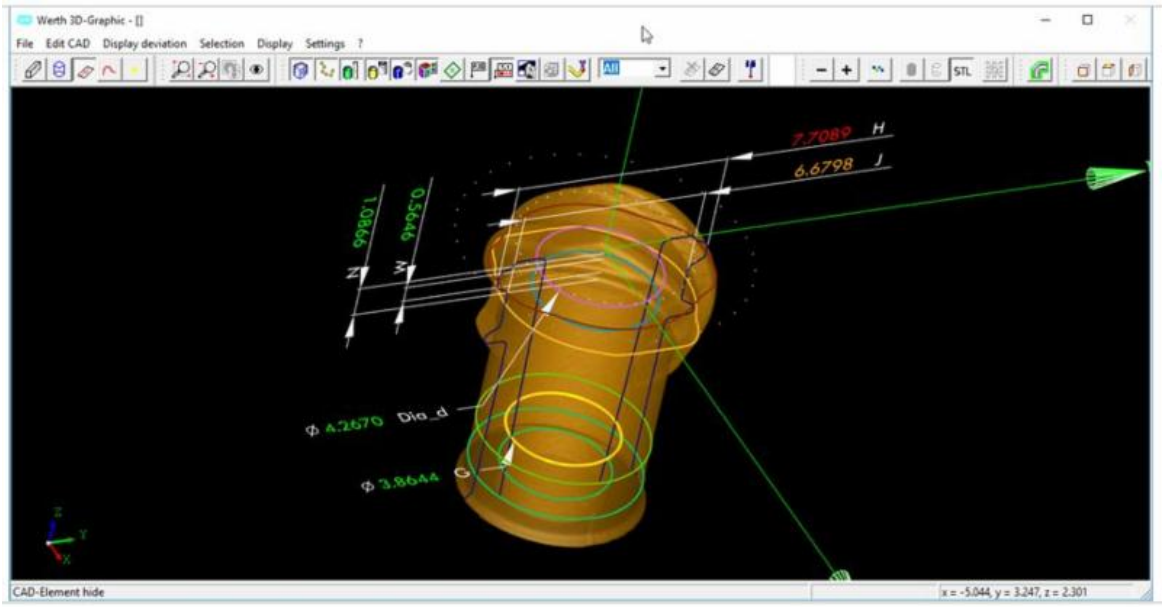
The advanced clocking algorithms will extract a cross section of the luer with the angular orientation of the first full thread.



Now the 2D cross section is used and all the dimensions required following the ISO 80369-7 standard *are easily extracted.*



All luer dimensions for a Male luer in 3D view.



All luer dimensions for a Female luer.

Get Results within Minutes:

The algorithms for the male and the female luers can be easily implemented into the WinWerth application program. Within just 2-3 minutes, the WinWerth software can handle the entire process without any additional operator interactions. The key steps are:

- Loading the part and starting the application program
- WinWerth will handle all tasks related to the scan
- As soon as we have the first x-ray projection WinWerth starts the reconstruction process
- Just a few moments after the last scan stops, we automatically start the calculation of the STL point cloud
- Within the same application program WinWerth performs the alignment of the scanned part to either a CD model or if this is not available to a pre-aligned “Master Part”
- Having the datum aligned part, we can measure any required dimension and extract single or multiple male or female luer sections to be processed as outline above.

For additional information or a demonstrations contact Werth, Inc