

Calculate a part utilizing the Flex Through 3D Points of CALDsoft7.

This option was implemented in CALDsoft7 to be possible to make the calculation of parts (transitions or intersections) that are still not available in the pre-defined shapes library. For that, it is necessary for the user to know the coordinates of the part's points or have the 3D design of the part, the procedure is very simple and the user has the following options:

A- Obtain the coordinates of the points from any CAD program (or even through practical measurements) and type them manually inside the importer of points of CALDsoft7.

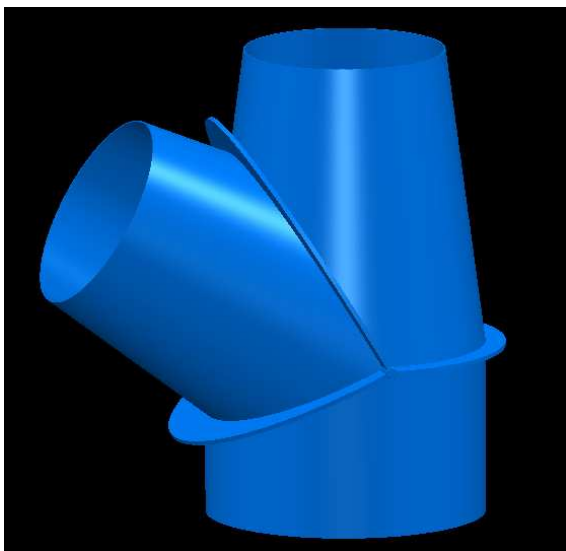
B- Obtain the coordinates of points, type them through the notepad in a text file *.txt in a fitting format and execute the reading by the CALDsoft7 importer (it will presented at the end of this document).

C- If the user of CALDsoft7 uses the AutoCAD, this capture of the coordinates of the points is easier, while it is suffice to load inside the AutoCAD the routine called 'getPoints.lsp' which is installed in the folder of CALDsoft7 generally in C: Program Files/CALDsoft7. To load it, it must be typed in the line of command of AutoCAD 'apload' then select the file getPoints.lsp in the folder of CALDsoft7. After the routine has been loaded, it must be typed in the command line of AutoCAD "getpoints" and then follow the instructions selecting the points.

Important:

The points imported to the Flex Through 3D Points of CALDsoft7 must be the points of the **medium line** of the parts.

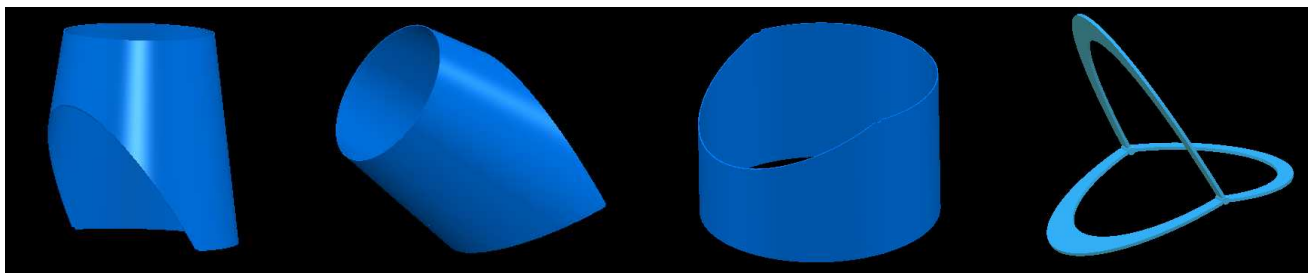
Example:



How to capture the points of a part so complex, as this Bifurcation?

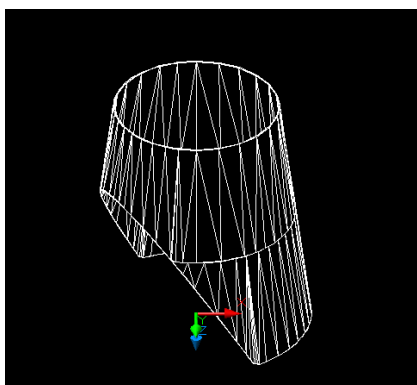
Figure 1

To use this tool of CALDsoft7 the user may choose to divide the 3D model of your part, observe in the images the division of the part represented in figure 1:



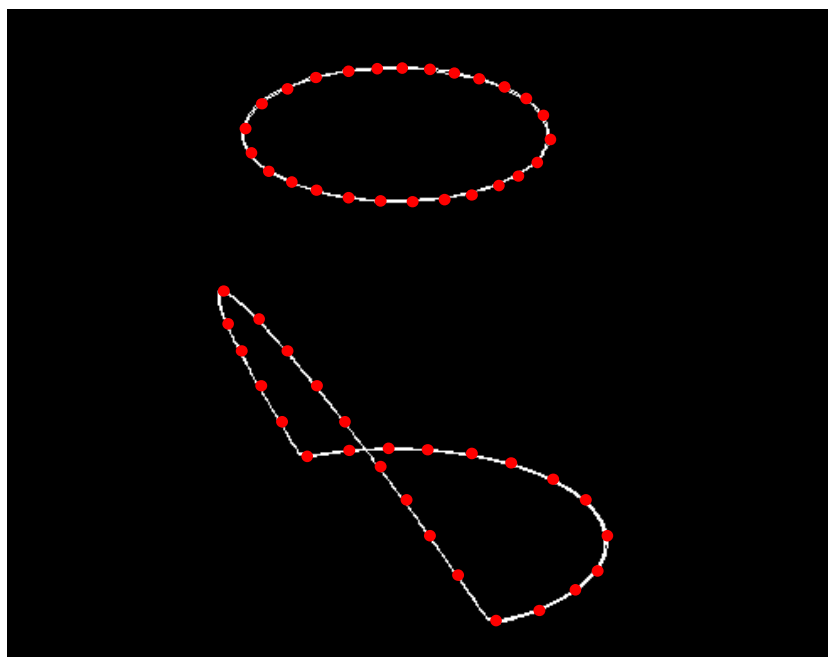
1 2 3 4 Figure 2

After having divided in shards of the part the user must divide the 'borders' of part using the value desired to the number of divisions:



Part 1 of figure 1

The coordinates must then be extracted from the "border" points of the medium line (highlighted points in red in the figure below):

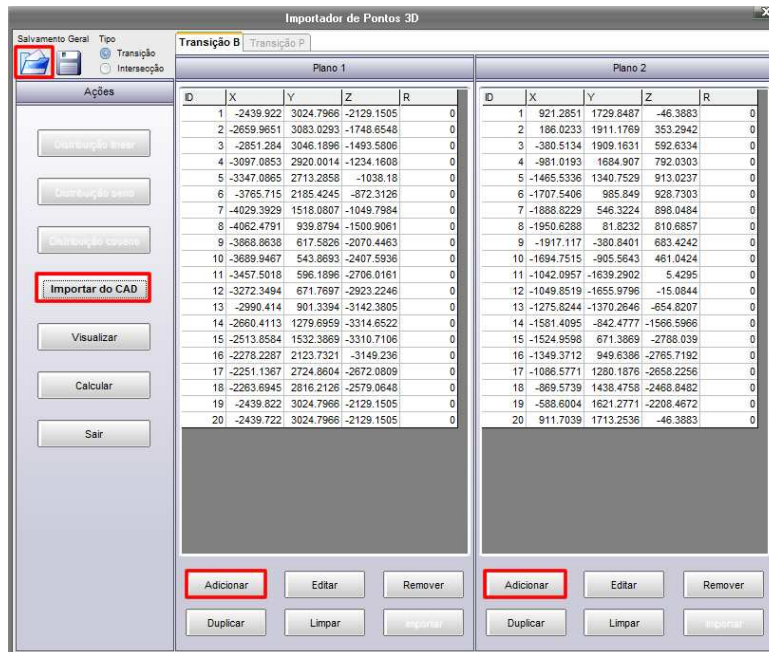


Part 1 already divided.

The points will be connected following the same sequence the way they were captured, therefore the two plans must possess the same quantity of points, and must be captured in the same sense, clockwise or anti-clockwise.

Hint 1: an effective way of dividing the borders of the plans is to utilize the "divide" command of AutoCAD.

Hint 2: Referring to parts that possess symmetry in relation to a plan, it can be extracted only a part of the points and after that, the executed Unfold can be mirrored.

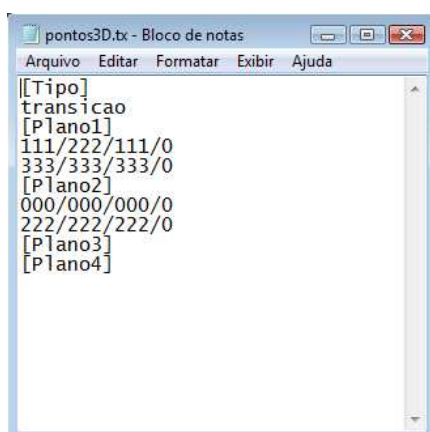


In the importer of points of CALDsoft7, the user must first select between transition or intersection. After that, if he possesses the coordinates of points, and will type them manually, he must then use the option **ADD**. If the user possesses the text file *.txt he must then utilize the option **Open**. And if the user has done the procedure in the AutoCAD he must use the **Import from CAD**.

Before the calculation of the part, the user may still **View** the 3D points that were imported to the CALDsoft7 and make a reference to obtain the desired result. If the view is corresponding, just click in the option **Calculate**.

Referring to topic B:

Having the coordinates of the points, the user can type them through the Notepad in a text file *.txt in a fitting format and after that rename the file to *.tx this way enabling the reading by the importer of CALDsoft7. The file must be in the following format:



[Type]: indicates if a transition or an intersection will be calculated.

[Plan]: indicates the plan to which the coordinates refer to.

The order of values: **X/Y/Z/Radius**