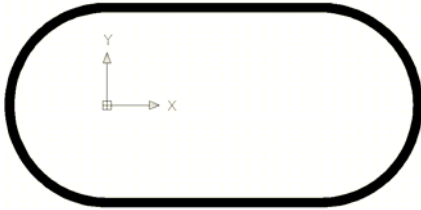


How to make a racetrack shape in AutoCAD



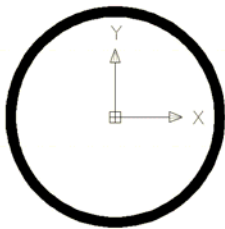
The above image is a “racetrack” shape which was created in AutoCAD. This document will explain how to create such a shape in a way which can, ultimately, be successfully converted to a JEOL52 v3.0 file (also referred to as “.v30” files).

Here is a brief summary outline of the procedure:

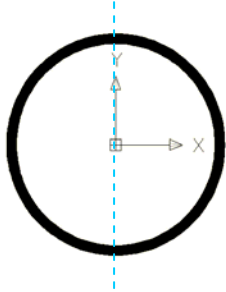
1. create a ring shape using “donut” command.
2. use “break” command to break the donut into one half piece
3. use “copy” command to create second half piece
4. use “rotate” command to rotate second half piece to face first piece
5. use “solid” command to draw to straight segments.

Here is a detailed procedure:

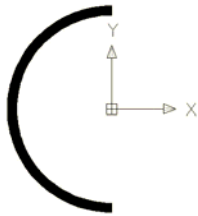
1. create a ring shape using “donut” command
 - a. type “donut”
 - b. specify inside diameter. we will use 10 in this example.
 - c. specify outside diameter. we will use 11 in this example.
 - d. specify center of donut. we will use 0,0 in this example.
 - e. this is the result:



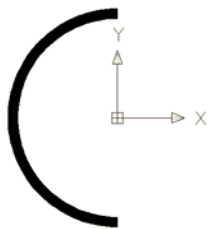
2. use “break” command to break the donut into one half piece
 - a. type “break”
 - b. select the object
 - c. we will now draw a “virtual” vertical line through the donut to cut it in half



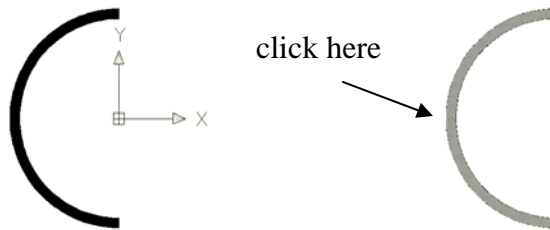
- d. type “f” to specify the first point. for this example, we will use 0,11.
- e. for the second point enter 0,-11.
- f. the result is below:



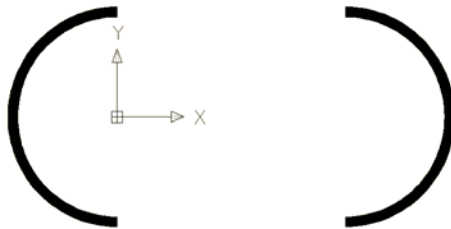
3. use “copy” command to create second half piece
 - a. type “copy”
 - b. select the object and press Enter
 - c. type “22,0” to copy the object in the +x direction by 22
 - d. below is the result



4. use “rotate” command to rotate second half piece to face first piece
 - a. type “rotate”
 - b. select the object on the right and press Enter
 - c. specify the base point to rotate around by clicking on the center of arc on the right as shown below:



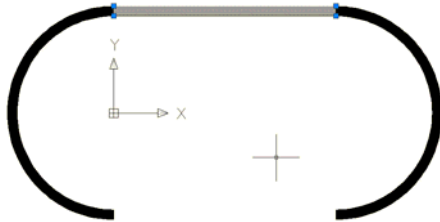
- d. specify rotation angle, type 180 and press Enter
- e. the drawing should now look like the following



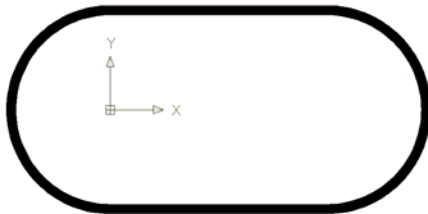
5. use “solid” command to draw to straight segments.
 - a. to draw the first straight segment at the top, type solid
 - b. rectangles are drawn in the following order
 - i. upper left corner
 - ii. upper right corner
 - iii. lower left corner
 - iv. lower right corner



- c. for this example, the first point should be “0 , 5.5”
- d. second point should be “11.5 , 5.5”
- e. third point should be “0 , 5.0”
- f. fourth point should be “11.5 , 5.0”
- g. the following should be the result



- h. now draw the second straight segment in similar manner as the first and below is the result



6. Finally, if you use LinkCAD to convert the .dxf file to a .gds file, you may have to increase the “Arc resolution” from 32 segments per 360 degrees to 64 segments.
7. If you use Layout BEAMER to convert the .dxf file directly to .v30 file, you may need to set the “Maximum Error for Circle Conversion” to 0.001um.