

RhinoGold[®]

GoldSmith Studio for Rhino

Tutorial – Cross

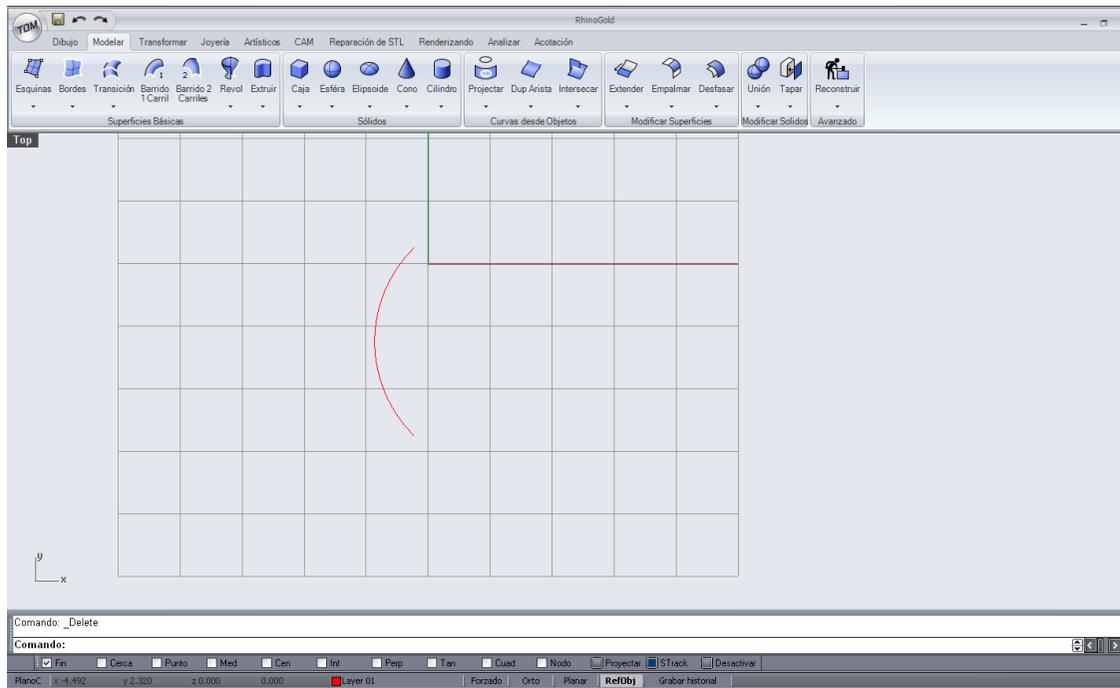
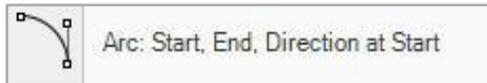
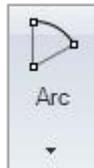
Cross

In this tutorial, you'll see how to create a cross in just a few very simple steps.

Cross

Click on TDM icon and save as **Cross**.

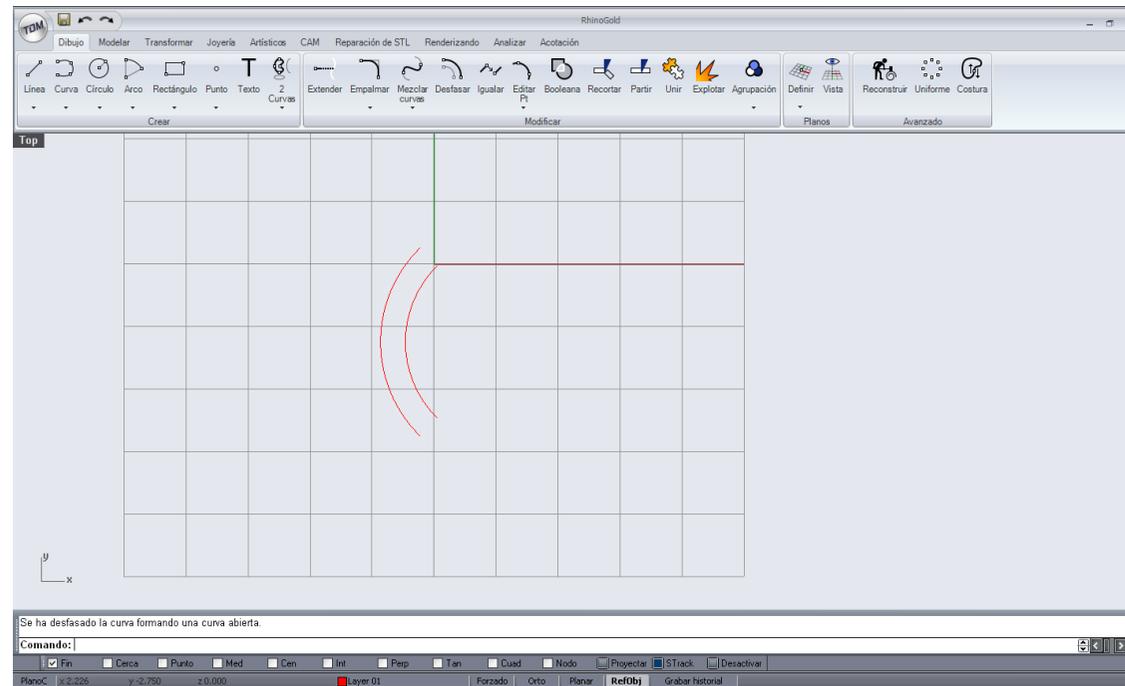
1. We'll begin by situating ourselves at the **Top** view.
2. Next we will go to the **Drawing** tab in order to open the **Arc** command and afterwards execute the **Arc** command: **Start, End, Start Direction** in order to make the arc.



Notes:

Cross

- Once the command is selected and the arc made, we will use the **Offset** command to duplicate the arc created, maintaining the curvature.



At the moment we select the command, it asks us to select the curve we wish to Offset. Once we have selected our curve, it will ask us the distance at which we wish to Offset. After the distance has been introduced, we press intro.

The position where we have the pointer at this moment will determine the direction of the Offset.

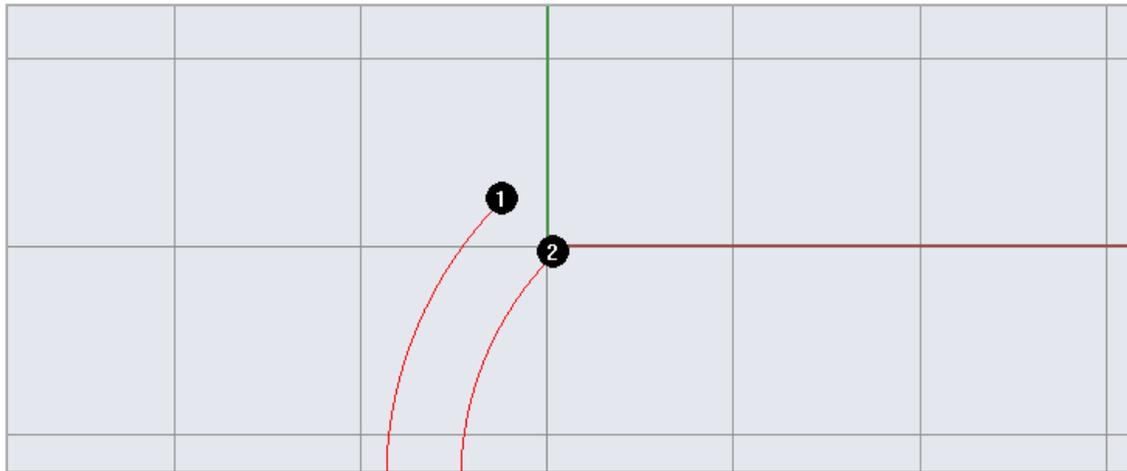
Notes:

4. Next, and also in the **Drawing tab**, we will select the Circle command; within this command we will select **2 points**



In this way we can decide about the two ends or faces of the circle we are going to create.

5. Now we will select the two points through which we want to create the circle, in our case, points 1 and 2

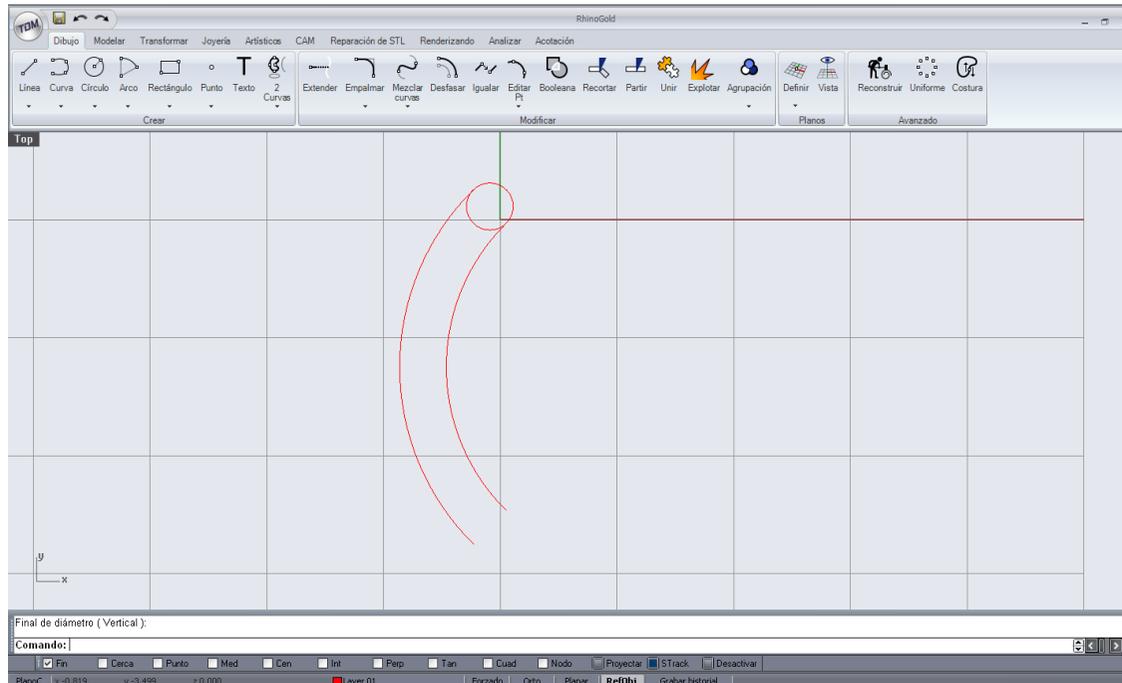


It is important that before selecting the two ends of the curves 1 and 2 we previously activate the **object reference menu**.

This is one that allows us to work with exactitude and precision



Notes:



6. Once we have made the first circle, we can make the other one with the **Mirror** command, which is within the **Transform** menu.

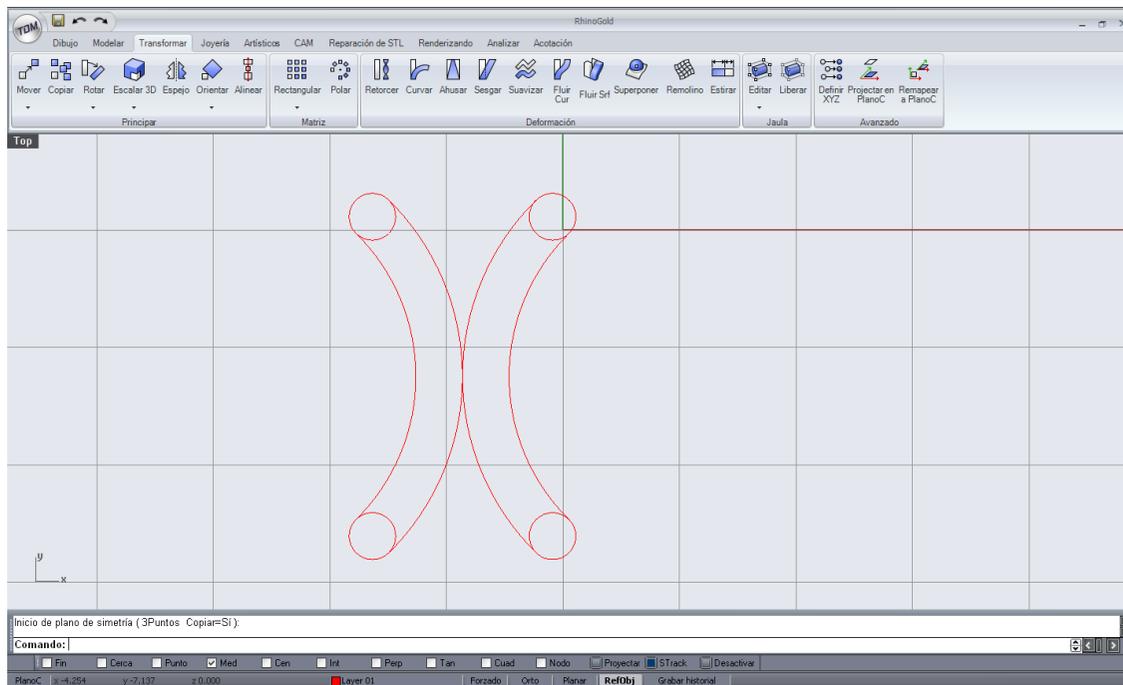


Notes:

When using this command, it asks us for the symmetry plan that, in our case, is half of the arc. It is recommendable to look for the middle point of the arc using **Mid** and **Osnap**.

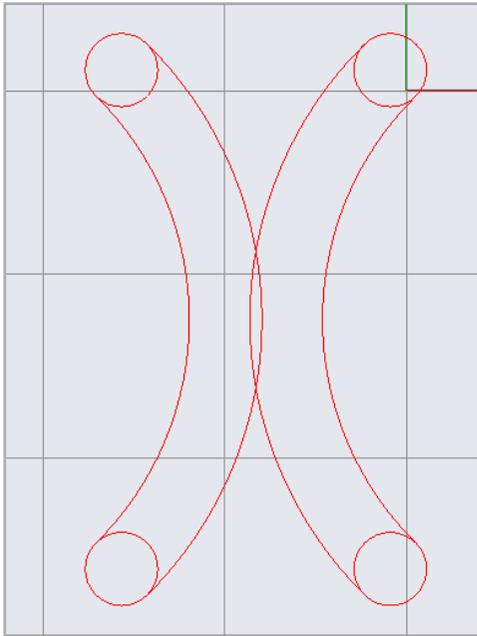
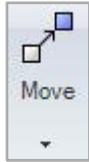
Osnap is an option that will help us work with 180° angles, since it does not allow working with superior or inferior angles once it is activated. This option function vertically, as well as horizontally.

7. Next we should select everything we have done for the moment and repeat the **Mirror** command horizontally towards the left, whereby the symmetry point should be the same one as before.

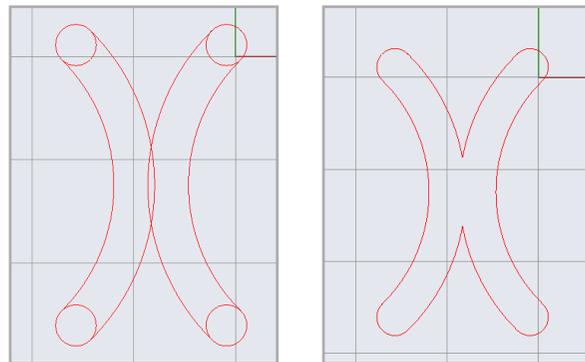


8. Afterwards we should move one of the two objects so that the two intercept themselves. In order to do this, we will go to the **Transform** menu and select the **Mover** command, whereby we will activate **Osnap**

Notes:



9. Una vez hecho esto deberemos de recortar las intersecciones sobrantes usando el comando **Recortar** que se encuentra en el menú.



Notes:

In order to do this, we have selected the command Trim and next we have selected everything we have done up to this. We then press intro and trim all the lines we wanted to eliminate.

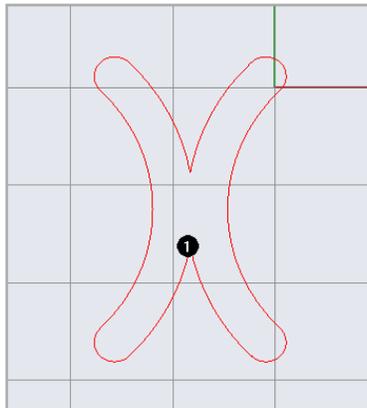
Whenever we carry out any trimming, we should join all the curves that were involved in the trimming.



The **Join** command is within the **Drawing** menu

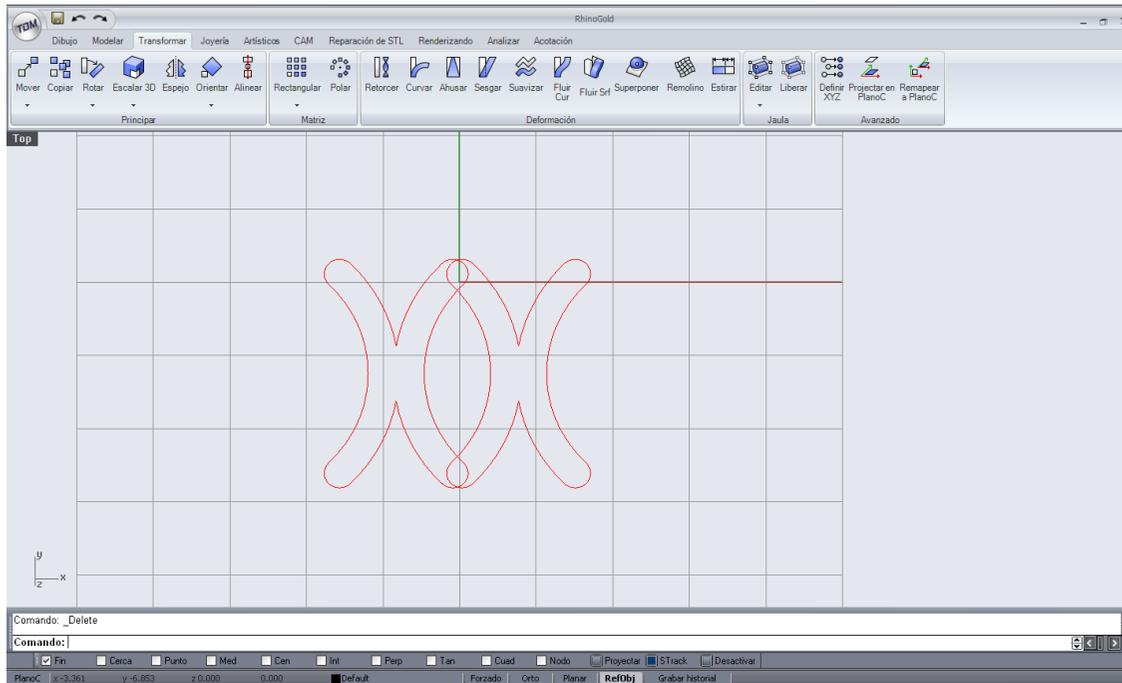
Now we have the principal motif of our cross; next we should repeat this motif in order to create a texture.

In order to create the texture, we will use the command in the (Transform) menu.



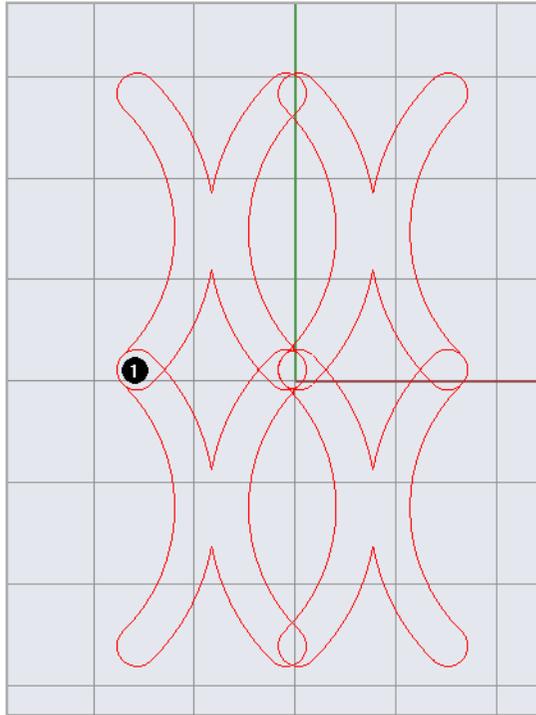
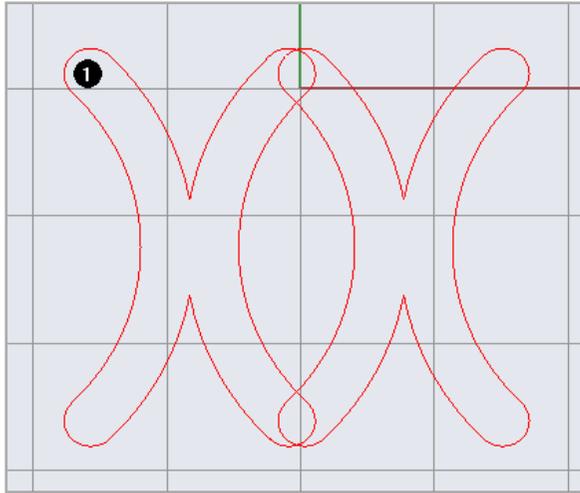
Notes:

And when it ask us for the point to which we want to copy, we will introduce the distance at which we want to copy. For example, 8, If we have done it correctly and have activated Orto, we should obtain something similar to this.



10. Now we have to repeat the process vertically, introducing a value or using the mirror command, whereby we have the symmetry point indicated as 1.

Notes:

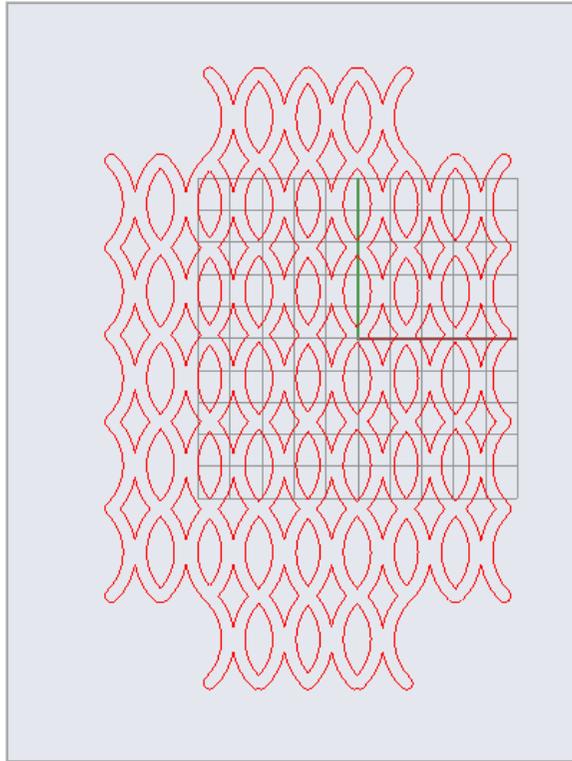


In order to correctly select point 1, we should activate



11. From this moment on, we only have to repeat the copying process or use the **Mirror** command and afterwards the **Trim** command until getting a result similar to this one.

Notes:



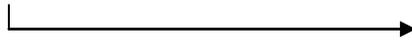
12. For now we have created the motif or texture that we will see in the background. Next we are going to create the form we will see in the foreground.

Notes:

As of this moment, it is recommended to change the colour of the layer. In order to achieve this, we will press the central button of the mouse and next the **Layer** command; by doing so, a menu will open at the right part of our screen.



In this case, we can see how we have activated layer 01 in red.



Then we will go to the zone marked in red in order to activate layer 03 and automatically deactivate 01.



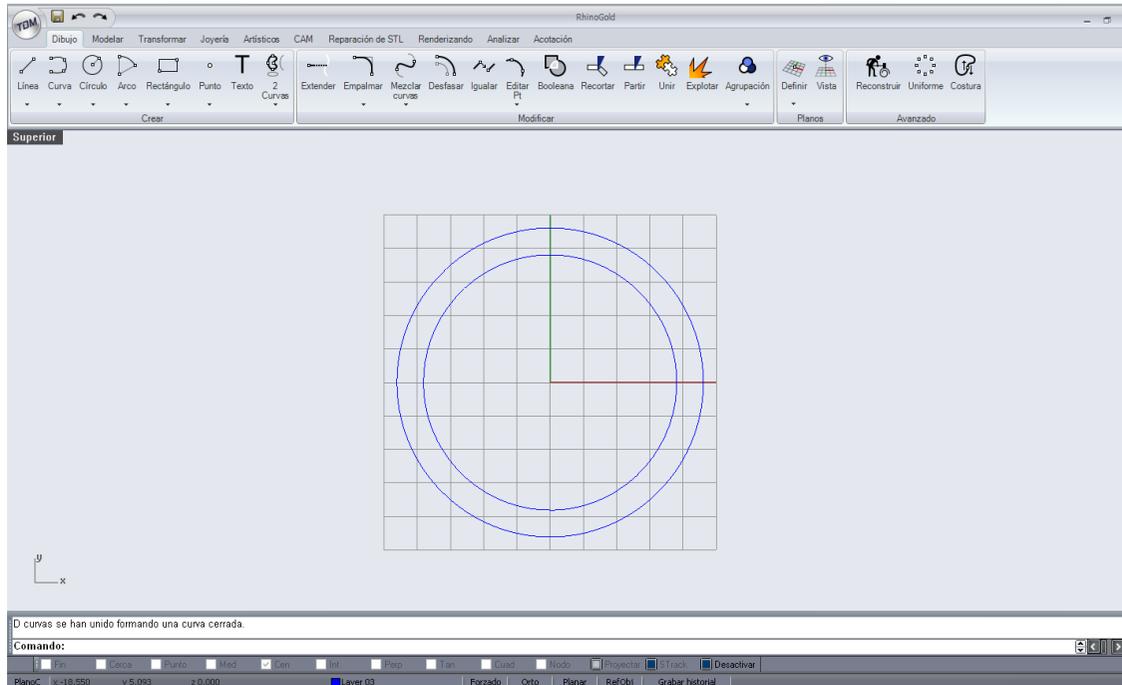
Then we will go to the zone marked in red in order to activate layer 03 and automatically deactivate 01.

We can make layers visible or invisible in the same manner, but they will never be eliminated unless we select something and eliminate it.



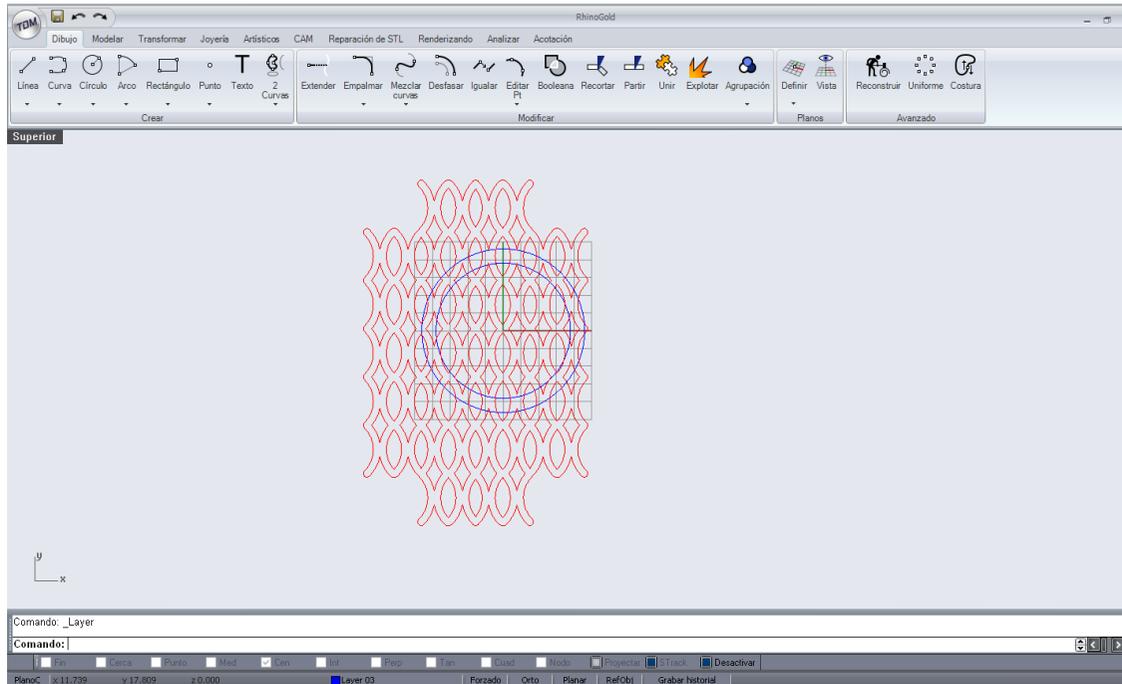
Notes:

13. Once we have selected a new layer, we will hide the red layer and will make any type of shape and move it some millimetres outwards.



Notes:

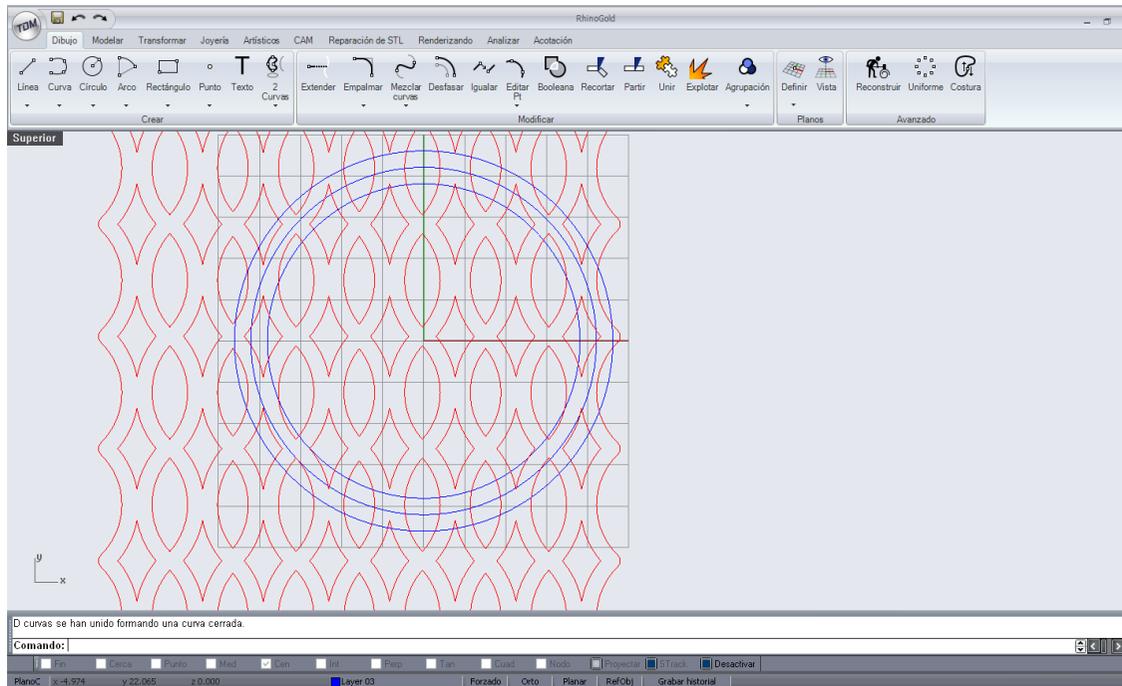
14. Then we can already show the content of the previous layer.



Notes:

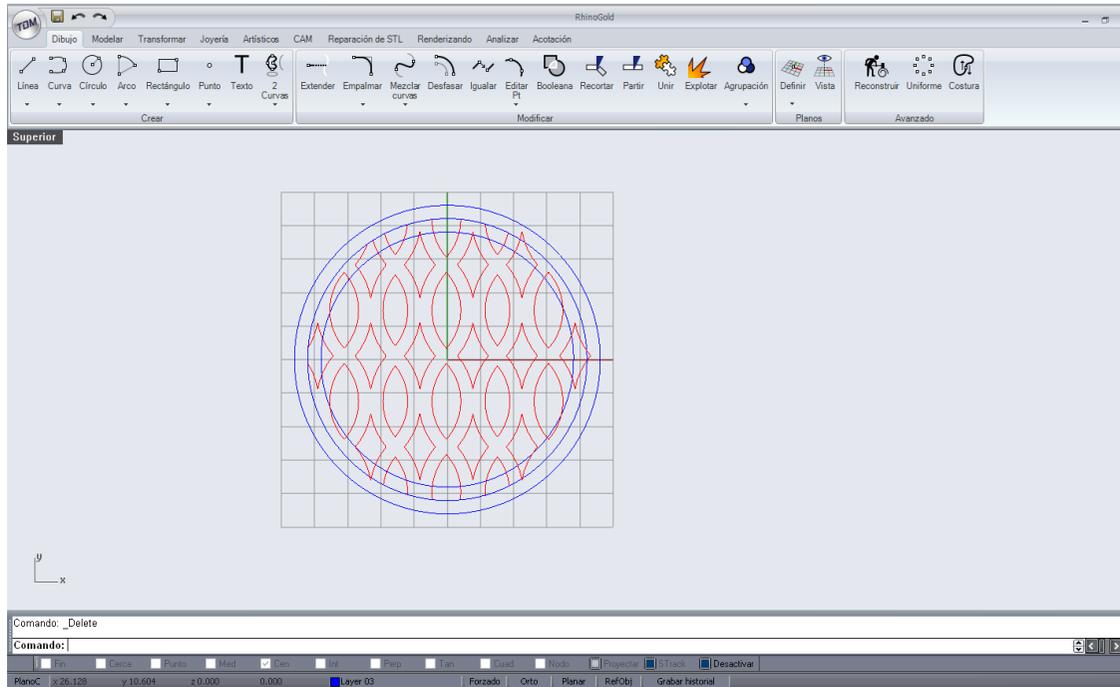
15. Now we should eliminate the elements that are left over in the following manner.

We will begin by moving the inside curve towards about half of the thickness.



Notes:

We have made this curve with the intention of using it as an element for splitting the curves of the red layer. In order to achieve something similar to the following image.

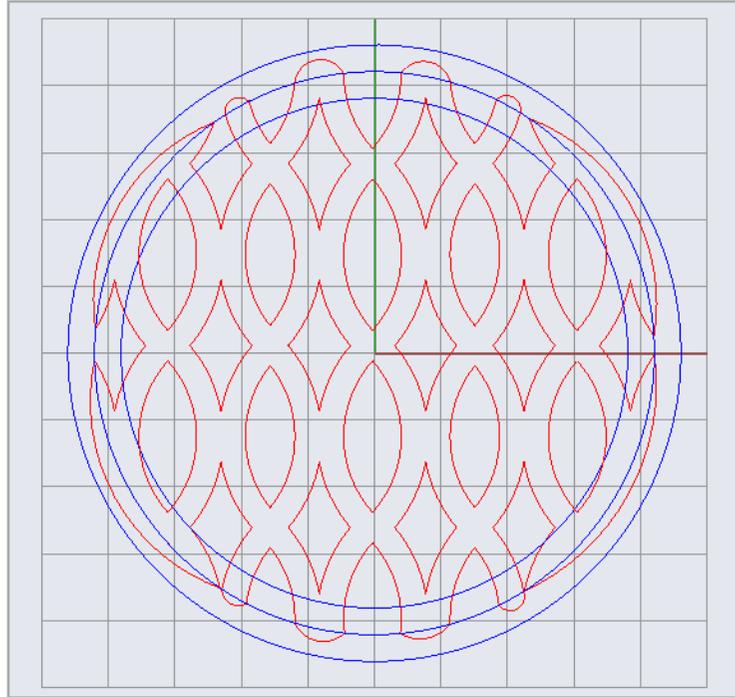


Now we have some curves; the majority of them are open.

We should always work with closed curves, since the open curves either overlap themselves or cannot be extruded.

Notes:

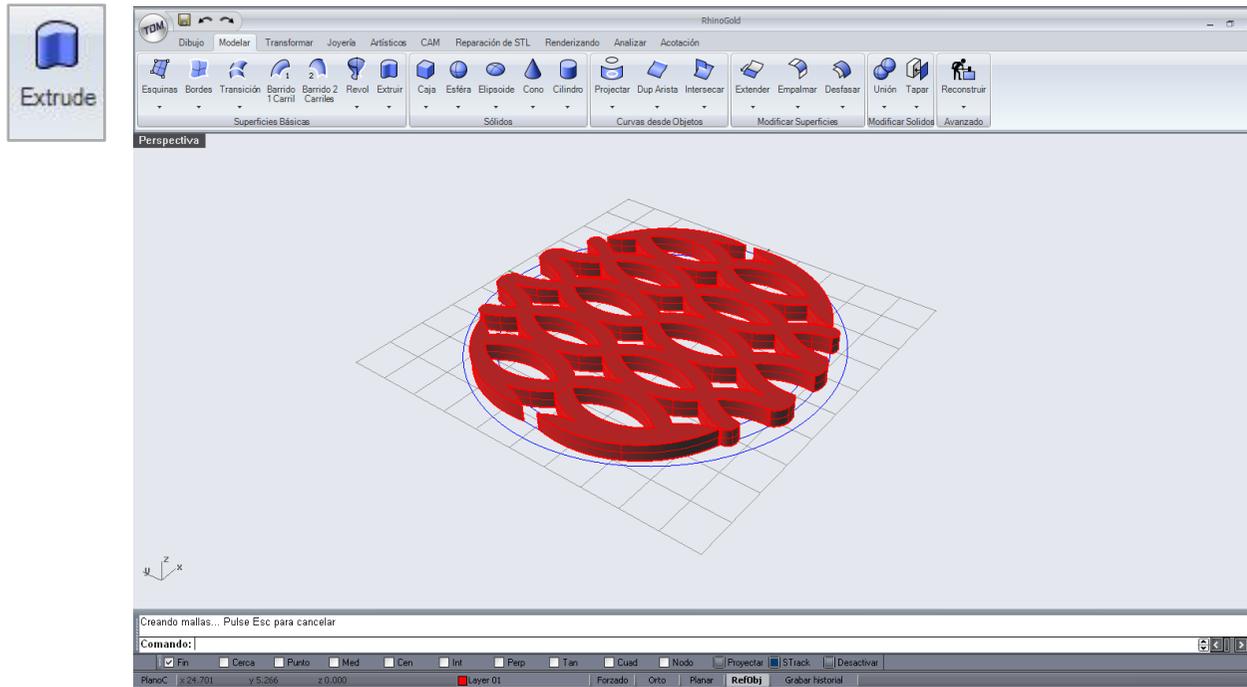
16. So as to convert these open curves into closed ones, we simply have to close using curves or arcs.



It is important, when finishing the curves or arcs in order to make closed curves, to join everything, since if we don't proceed this way, we will not be able to join it.

Notes:

17. Then we can proceed to extrude the content of the red layer.



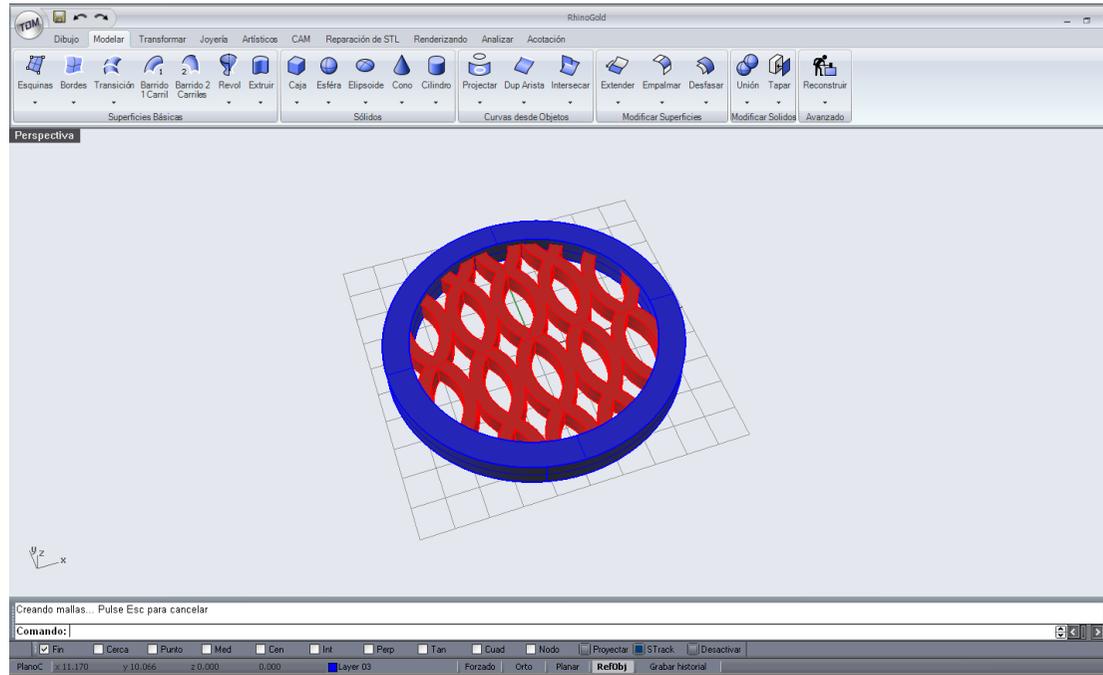
When using this command, it is important to activate the following options.

```
Comando: _ExtrudeCrv
Distancia de extrusión <2.207> ( Dirección AmbosLados=No Tapar=Sí EliminarOriginal=No ):
```

At this moment we can also introduce a numeric value, which will be the height of the extrusion.

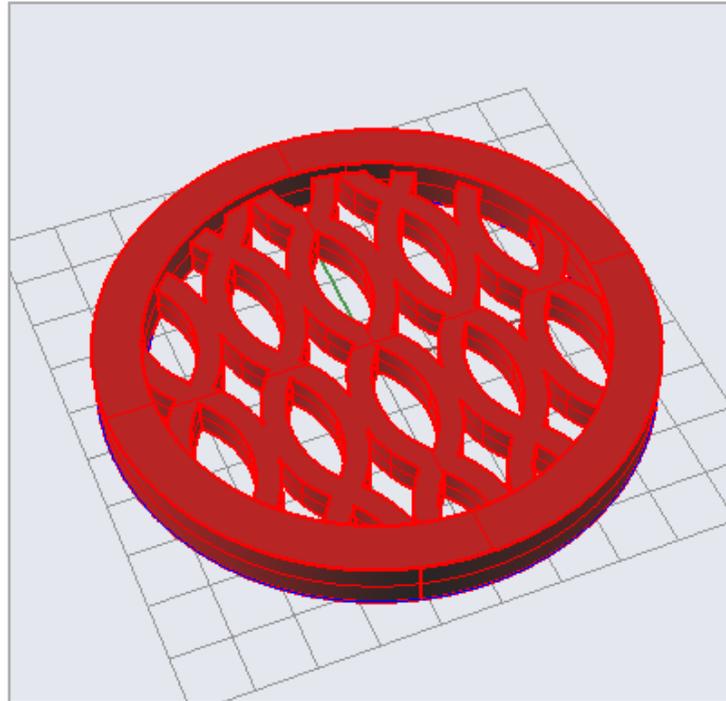
Notes:

18. Now we will repeat the process on the other layer, but with a superior extrusion height



Notes:

Now the piece is finished, but the way it is now, it is not a closed volume. In order to do this, we simply have to make a **Boolean bond** of the two objects.



Notes:

Tutorial created by Joan Codina.