



# TheRingLord.com

## Scale Bra

### Beginner/Intermediate

This tutorial will provide you detailed instructions for constructing a supportive bra using aluminum rings and small scales. This bra is a stand alone piece and does not require a bra to be worn under it; it can however, be lined for comfort. *Please read the entire tutorial prior to starting your project.*

\*These instructions should be used as a guide for making a scale bra. Every scale bra will be different. Your bra may need fewer or more contractions than shown in this tutorial. A general rule is more area will require more contractions.

Supplies (based on D cup bra):

~1600 18g 7/32" bright aluminum rings

~700 small scales (anodized aluminum recommended)

*Please note: This ring size is specific to this bra pattern. If you are weaving the standard overlapping pattern, 18g 3/16" rings are used.*

*\*do NOT use split rings to make the bra - they will not work properly*

## Part 1: Weaving with Scales

1. Scales have 2 sides, the outside and the inside. For this tutorial, we will define the outside as the side that is domed, with the ridge like this: ^, and the inside as the side that is concave, like a scoop, with the ridge like this: v. The scales in *this section* are marked with '^' if they are pictured with the outside facing up and 'I' if they are pictured with the inside facing up.
2. When you weave scales, you will be working with the inside of the scales facing up, toward you.
3. For quick reference and easy pick up, it is advisable to use a large ring of a different color or a twist tie to put through your first, topmost scale.



4. Position your first scale so that the inside is facing up.

5. Place a scale on top of the first scale with the outside facing up.

6. Put an open ring through both scales (but not through the large ring on your first scale); close the ring.



7. Flip the scale on top over to the right, so the inside is now facing up, and it overlaps the first scale.



8. Place a scale on top of the first scale, as you did in step 5, but this time on the left side.

9. Put an open ring through both scales, making sure not to go through the large ring. Close the ring.



10. Flip the scale on top over to the left, so the inside is now facing up, and it overlaps the first scale.

**NOTE:** Anytime you need to add scales to the outermost edges of your bra, use steps 8 through 10.



## Part 1: Weaving with Scales, cont'd

In step 10, you finished the 2nd row of scales. Now we'll learn how to add subsequent rows.

**NOTE:** All the rings used in the bra you build will be the same size. The larger, colored rings in this tutorial are for instructional purposes only.



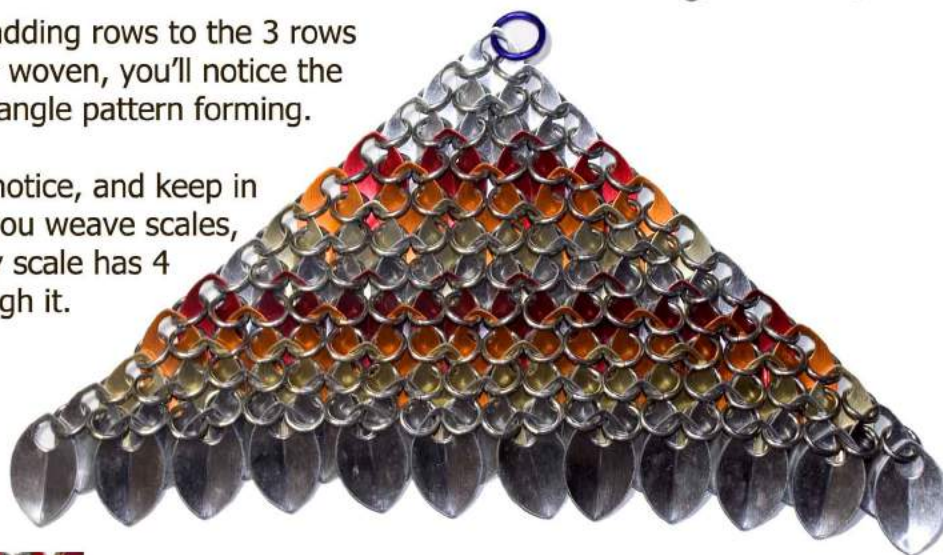
11. Position a scale, inside up, in the same column as your original scale, but below your second row of scales. This scale will overlap between the two scales in the second row, and will be attached to those scales. Place an open ring (note the 2 red rings in the photo to the left) through the current scale AND the scale above and to the right. Close the ring. Do the same for the left side.

12. To complete the 3rd row of scales, you'll add a scale to the right and left of the center scale you added in step 11. The red rings in the first 2 photos below show you where to place your open rings for the right hand scale. You'll follow the same procedure for the left hand scale.



13. As you continue adding rows to the 3 rows you have already woven, you'll notice the ever-widening triangle pattern forming.

You should also notice, and keep in mind whenever you weave scales, that almost every scale has 4 rings going through it.



14. To change the shape of the scale patch from a triangle to a diamond, leave off the outermost scale on each side of each row. Each row will be reduced by a total of 2 scales.



## Part II: Putting in Contractions

Contractions are the key to making a piece fit a curved area. One contraction removes one column of scales from the point of the contraction down to the bottom of the piece. Weave in the contractions as you go. If you put them in after the fact, you'll be undoing and redoing a lot of work.



**NOTE:** Contractions are a 3 row event; it takes 3 rows to complete 1 contraction.

1. Identify where your contraction will be placed. Note the 2 red rings at the bottom center of the triangle. Those are the scales that will be used for the contraction.



2. Use an open ring to attach the 2 scales together. There's no trick to this; simply put a ring through both holes horizontally (Fig 1) and close the ring. One ring will slightly overlap the other.



3. Now you'll need to add scales to form the next row. Add 1 scale to the left side of the 2 joined scales in the row above, then add 1 scale to the right side of the 2 joined scales in the row above (purple scales in Figure 2). Notice the larger "hole" between the 2 purple scales, denoted by the V shape. Continue adding scales to the rest of this row as normal.

**NOTE:** In this section, active scales are purple with purple rings. They are replaced with silver scales and silver rings when the next row becomes active.



4. The next row is where you'll close the larger hole. Place a scale over the larger hole, like the center scale in Figure 3. Notice that it is directly below the 2 scales held together by the red ring, 2 rows above. Attach the right and left rings in the usual manner. Open a ring and place it VERTICALLY through the scale you just added AND the *ring* that was used to hold the 2 scales together (red ring in Figure 3).

### PART III: BEFORE YOU WEAVE THE BRA

Essentially, a scale bra is made up of 2 diamonds attached at the center (Figure 1), with added modifications that force the bra to cup around the breast. If you create 2 diamonds and attach them at the center, but don't add the modifications that will be talked about in the next section, you'll have a scale halter top that hangs over the breasts but doesn't support them.

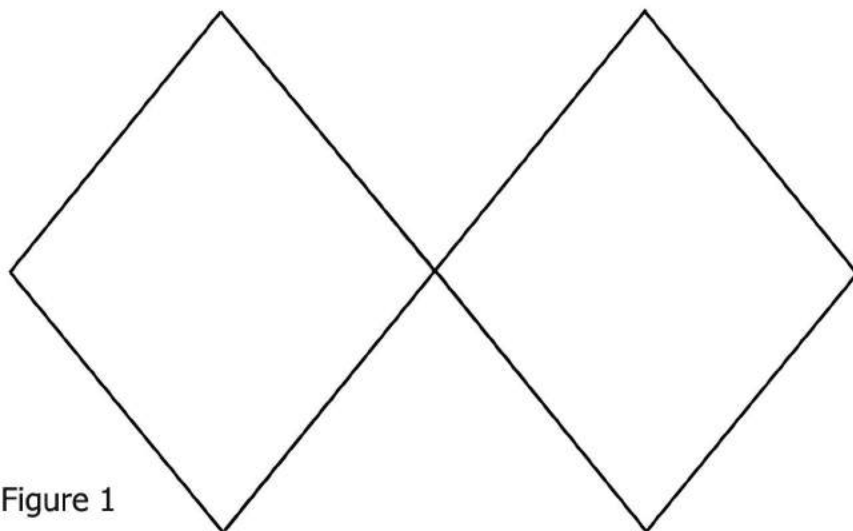


Figure 1

Once you have added in the 4 contractions, the shape of the diamonds changes to what you see in Figure 2 below, if the cups were sitting side by side with the inner points touching.

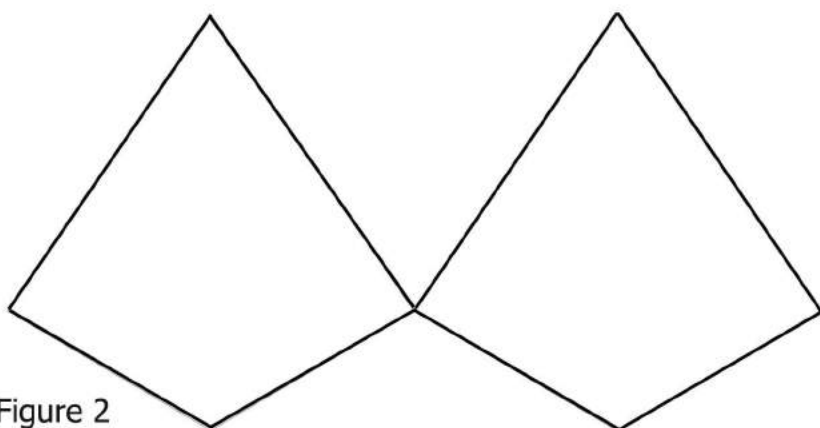


Figure 2

And after you've adjusted the new shapes from Figure 2 so that the area between them matches your measurements and gives as much coverage over the cleavage as is desired, the final shape of the bra is achieved.(Figure 3)

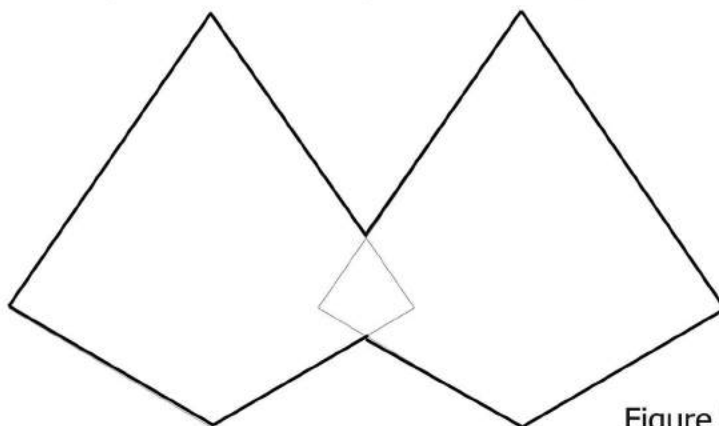


Figure 3



### Part III: Before You Weave the Bra, cont'd

When you are measuring for the bra, keep in mind that you'll need to join the 2 cups of the bra in such a way that they add support in the middle of the bra. To achieve this, you'll be removing the inside point from one cup, and as much of the cup as is needed, then reattaching it to the other cup.

Look at Figures 2 and 3 again; they illustrate the above point.

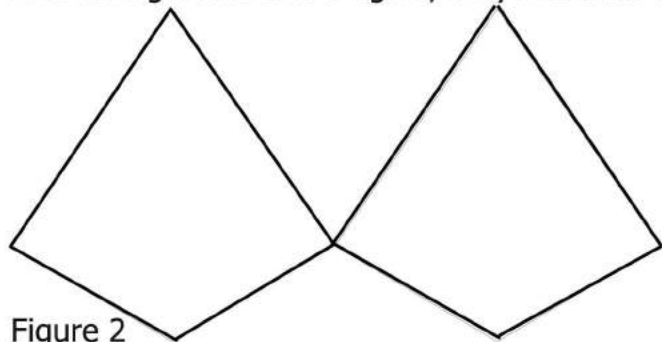


Figure 2

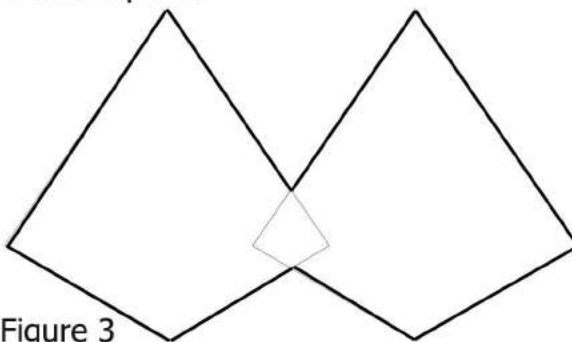


Figure 3

In Figure 2, you have the modified diamonds that make up the cups next to each other. The area in the center is very thin, and will allow the breasts to separate and stretch the middle of the bra, lifting the bottom of it off of the area of the chest below the breasts. This style may work for breasts that don't require a large amount of support, but note that the bra will not push the breasts together, forming cleavage (if that is what's desired).

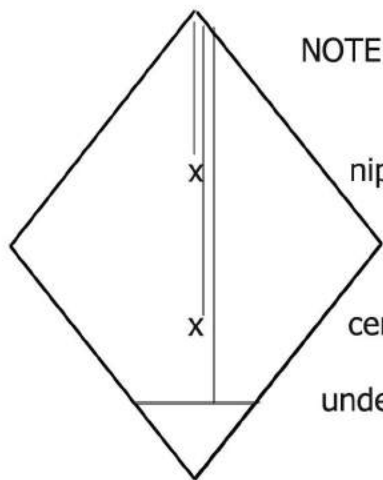
In Figure 3, there is more material between the breasts which will help support the bra and make it harder for the breasts to stretch the material and lift it off the chest, as well as giving the breasts more coverage. The more material you have between the breasts, the more overall support across the bra.

How much material you have between the breasts and on both sides of the breasts depends on how you envision the bra fitting. There has to be enough to hold and cup the breasts, but aside from that, the rest is up to you.

### Measuring Your Model

In order to get an accurate measurement, have your model wear a bra that fits similarly to the way the scale bra should fit. There are a few things you will need to measure:

1. from the outer edge of one breast to the outer edge of the other breast; keep in mind that you'll want to have enough material on the sides to both cover the entirety of the breast as well as use the outside points of the diamonds to attach the ribbon to for tying on the bra
2. from the top of one cup to nipple
3. from the top of one cup to a point centered on the curve of the underbust
4. from the top of one cup to where the underwire of the regular bra cup is (or would be)

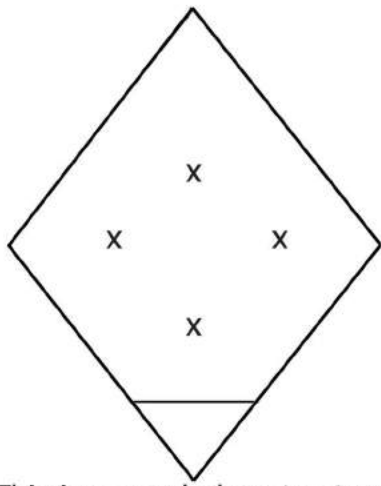


NOTE: the vertical lines indicate the areas to be measured

nipple

center of curve of underbust

underwire (where breast meets chest)



### PART III: BEFORE YOU WEAVE THE BRA, cont'd

Using the image from the Measuring Your Model section, you can see there are now 4 x's. Each x represents where you will put a contraction in each cup of the bra. The horizontal line represents where you will put the tensioning chain.

NOTE: The east and west contractions are on the same horizontal line, and are positioned about halfway along the curve of the breast, between the nipple and the chest. Because of where these contractions are located, it's important to make sure that the overall size of the bra cups is wide enough to encompass both the innermost contractions AND removal of some portion of one of the cups. In other words, make sure you aren't placing your inner contraction in a place where it will be removed when you attach the cups together.

This is a good place to stop and think about what your bra will look like on the outside when you are done. When you are designing the way you want your bra to look, what colors you'll use, where each scale will be placed, etc, make sure you take into account the 4 contractions and the way they will not only change the shape of the diamond (and the pattern), but how they will change the layout of the scales involved in each contraction. Do some test patches to make sure you can work out how to get the design and layout correct before you weave the entire bra.

### PART IV: Weaving the Bra

At this point in the tutorial it is assumed that you: are comfortable weaving with scales, have measured your model, have created your bra design and know where your contractions will be placed. The first photo in this section is the same as the first photo in the Putting in Contractions section. Once you reach this point in the tutorial, you should have woven your bra up to and including the first contraction, which is placed over the nipple.



Continue weaving your bra, making sure that when you get to the widest point, you remember to start the diamond shape by leaving off the outermost scale at either end.

This photo shows the cup at the 3rd row of the diamond pattern. It also shows 1 completed contraction and 2 in-progress contractions (the red rings are where the contractions are to be placed).





## Part IV: Weaving the Bra, cont'd

The next 2 photos show the cup at the 4th row of the diamond pattern. They also show the same 3 contractions as the previous photo, with the difference being that these contractions are completed.



### Adding the Tensioning Chain:

The tensioning chain can be added while you are building the cup or after you are done. This is the part of the bra that acts somewhat like underwire does in a cloth bra.



The tensioning chain is created from the rings that are already in the bra; no additional rings are needed. Following one row of scales, open a ring that is directly next to another ring. Put that ring through the ring next to it without removing it from the scales it is attached to. Close the ring.

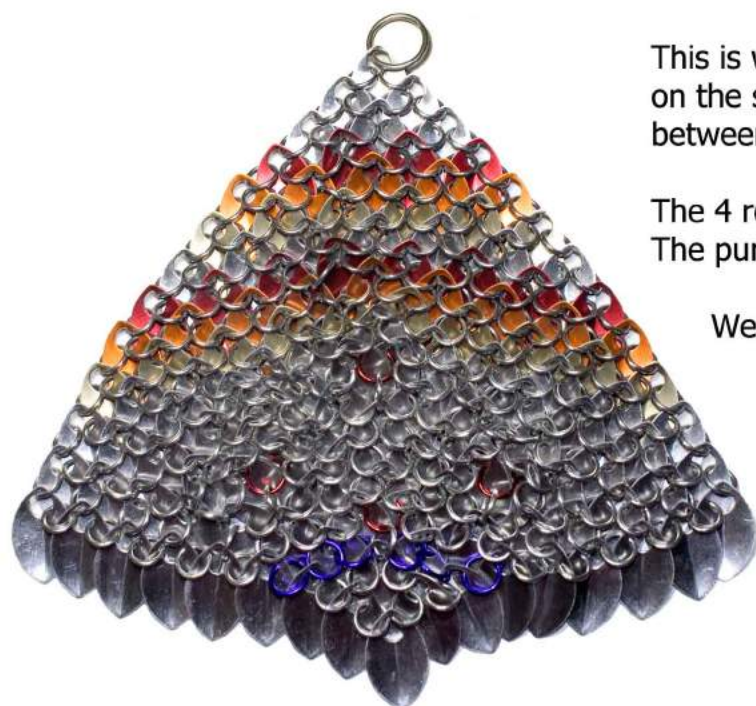
Continue that procedure across the whole row.

NOTE: Your tensioning chain may be longer than the one pictured. It depends on where in your bra it is located and how large your bra is.





## Part V: Finishing the Bra



This is what one finished cup will look like. Depending on the size of your bra, there may be obvious differences between yours and the one pictured.

The 4 red rings represent the 4 contractions in the bra cup. The purple rings are the tensioning chain.

Weave a second bra cup that is identical to the first.

Two identical bra cups placed side by side.



Place the 2 cups beside each other. You can move one inward, overlapping the other one, so you can see what the bra will look like once the cups are attached.

You will make the final decision of how many scales to remove from the inner point of one cup at this point in the build.

The same cups as pictured above, only attached in the center.



Remove the scales from the cup, then attach the 2 cups together, making sure that you use the normal scale pattern.

The cups should integrate seamlessly together.



## Part V: Finishing the Bra, cont'd

### Adding the Stabilizing Rings to the Bottom Edge:

The scales around the bottom of the bra now need to be stabilized. To do that, you'll be adding rings to the scales, then connecting those rings together.



For scales that go up and to the right:

1. Attach an extra ring on the right side of each scale, making sure you go only through the hole, not the rings already there.
2. Do this on both cups of the bra.



3. Place an open ring through both of the rings on the left and the bottom ring (that you just added) on the right. Close the ring.
4. Continue adding rings in this manner, making sure you are going through 3 rings, not 4.

The new ring should hang below the hole in each scale.

5. For scales that go up and to the left, you'll attach an extra ring to the left side of each scale. Then place an open ring through both rings on the right and the bottom ring (that you just added) on the left. Close the ring. Continue adding rings, making sure you are going through 3 rings, not 4. Like the ones that go up and right, the new ring should hang below the hole in each scale.



6. At the 2 points, add the connecting ring through the 2 bottom rings.





### Adding the Stabilizing Rings to the Side Edges:

Each scale going around the side edges of the bra needs to be stabilized.

1. Open a ring.
2. Position it so that it goes through 4 rings (see the photo to the left for exact position).
3. Close the ring.
4. Do this for each scale located on each of the 4 side edges.



You can see in this photo how the stabilizing rings both at the bottom and at the edges are supposed to look.

The ones around the sides "hide" behind the scale they are next to.

You can also see that the middle scale, where the 2 sides meet, has a stabilizing ring which goes through 4 rings.



A close up view of the stabilizing rings around the edges "hiding."



## Part V: Finishing the Bra, cont'd



Model: Tiffany Wozniak Brock  
Photos by Dragon's Lair Photography



Bra and photos by Eric Matwe

Here are examples of 2 different scale bras. You can see that they are built differently, but both offer support.

The bra on the left uses straps made from scales to hold the bra up over the shoulders. The one on the right uses a piece of leather to secure it around the neck. You can use ribbon, a line of scales (as shown) or other maille weaves for your straps. Some suggested maille weaves are: E4-1, E6-1, HP3-1. Rubber rings in the straps are not recommended as they will allow the straps to stretch downward with the weight of the breasts.



Looking at the bras from the side, you will notice that the breasts are held within the cups, with no parts of the breasts overflowing the top or sides of the bra. Because of the contractions within the bra, the scale material curves nicely around the breasts.



The back of the bra can be tied with ribbons of any material (silk, leather, suede, etc) or you can use short lengths of maille and clasps to secure it. If you use clasps, make sure they are strong enough to secure the bra without breaking under the pressure of the body moving and stretching the 2 sides of the bra.

Please note that no extra scales were added to the outer points of either bra pictured; the bras were woven with enough width to reach a point at least under the arm and then tied.