

RGB CoroFlake® Assembly Instructions

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RGB CoroFlakes are a 3D, coro-based lighted element designed for high-end displays. CoroFlakes feature the following:

- Produced from lightweight but strong and durable corrugated plastic (coro) with UV and cold weather resistance to below -16f
- Ability to directly address each “leg” of the snowflake to create animated displays
- Built-in brass strain reliefs
- Detailed instructions – printed and video

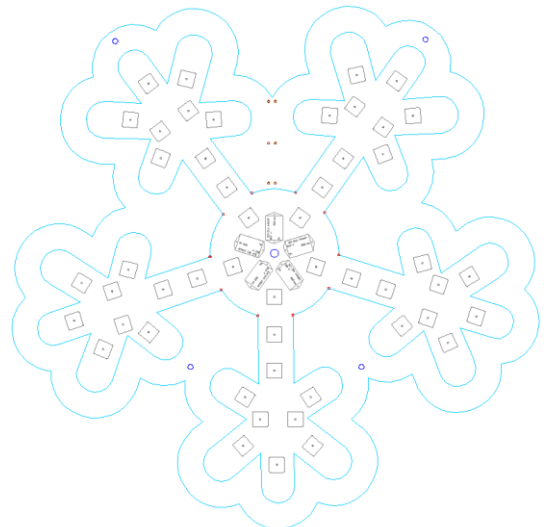


Before You Start

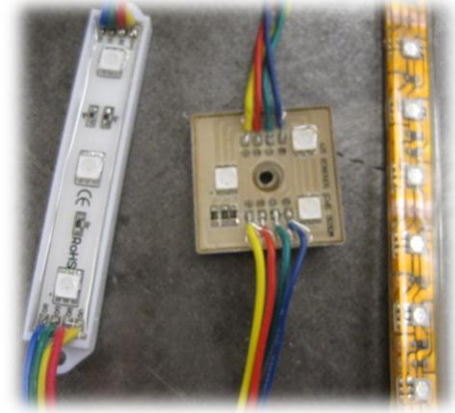
We highly recommend reading these instructions; start to finish - prior to assembling your CoroFlake.

CoroFlakes are a “do-it-yourself” item and are one part of a kit of items that will be required to complete the assembly. The following items are needed to complete the assembly:

- **RGB Light + Controller + Power Supply Packages** – If you’d like to purchase your lights, controllers and power supply in a single package, there are two packages available for the CoroFlake:
 - From CheapDMX.com using their rectangle LED modules:
<http://www.cheapdmx.com/packages/26-coroflake-holidaycorocom.html>
Note – the above does not include the CoroFlake, you will need to purchased that directly from HolidayCoro (item #129).



- From HolidayCoro.com using square LED modules (item #123). The layout of this style of RGB module is shown to the right.
- **RGB Lights** – This edition of the CoroFlake is designed to work with basic RGB modules, basic RGB strips or pixel modules. If you need more information on RGB, we recommend watching our video series which can be found at www.HolidayCoro.com/RGB. Our CoroFlake can be used with RGB lights as shown to the right – and using the DIY method, you can lay out the light (basic RGB or pixels), in a way that works best for you. You can find a selection of RGB lighting directly from China here:



<http://www.aliexpress.com/wholesale?SearchText=RGB+module&catId=0>

- **Controller(s)** – The CoroFlake can be controlled in any way you want – you can make them with just three channels for the entire CoroFlake or with each “leg” of the CoroFlake individually controllable. You could even use RGB pixel modules to control each section to allow for “bursts” and other interesting effects. How you design it is up to you. You can use centralized DC controllers such as the MR16 from DIYC, the LOR DC Controller, Renard DC controllers or place the controllers directly in or on the CoroFlake with individual three channel controllers such as these:



HolidayCoro <http://www.holidaycoro.com/Other.asp> item #25 & #26

CheapDMX <http://www.cheapdmx.com/1-3-channel-dmx.html>

You can purchase your DMX modules with pre-programmed addresses when you place your order or if you have an LOR or d-Light adapter, you can program your modules using your existing adapter using our free programming application. If you don't have an adapter you can purchase our inexpensive DMX “dongle” and programmer here:

<http://www.holidaycoro.com/Hardware.asp> (item #54)

- **Power Supply** – Any power supply that meets your voltage and current requirements will work fine. If using 12v DMX modules and lights, we highly recommend the following inexpensive waterproof power supplies.

CheapDMX: <http://www.cheapdmx.com/4-12v-dc-power-supply-45w.html>

HolidayCoro: <http://www.holidaycoro.com/Hardware.asp> (item #55)

AliExpress: <http://www.aliexpress.com/fm-store/701799/209855560-301813985/waterproof-switch-mode-power-supply-90-250VAC-input-12V-45W-output-P-N-NV1245C.html>

- **Hot Glue Gun** – An important part of the process for assembling the CoroFlake is a hot glue gun. You can use any standard glue gun including the sub-\$10 models available at Wal-Mart, hardware and craft stores. At HolidayCoro.com, we use the HG-305K Glue Gun from hot-stick.com - no, it's not cheap, but it has adjustable temperatures, a good stand, fast heat-up and switchable nozzles. Glue guns with adjustable temperature allow you to control the setup time so you don't spend more time than needed holding the part until the glue cools down.

- **Hot Glue Sticks** – We've done a fair amount of testing with different hot glue sticks and their use with coro and we've found the best ones at Wal-Mart from the manufacture "Ad Tech" which come in 24 count, 10 inch long sticks (UPC code 0-2643854003-1 – catalog #220-11ZIP24) These can also be ordered on the internet from a variety of vendors. If you select another hot glue stick, we recommend testing the adherence with coro prior to building your CoroFlake. We also recommend looking for hot glue that specifically lists UV resistance so that the glue will not yellow or break down over time. If you are located in an exceptionally cold part of the country, look for hot glue that supports the temperature range you expect to subject it to.



- **Pliers** – You will need pliers or another suitable tool for removing the shipping pack staples used to secure the package in which your CoroFlake(s) were shipped.
- **Framing Square / Drywall T / Metal Ruler / Other long (~ 3 to 4 feet) flat metal object** – This will be used as a straight edge when cutting your coro for the vertical portions of your CoroFlakes.
- **Utility Knife** – This will be used to cutout your vertical sections of coro and perform minor trimming. **Be sure to use a new, sharp blade** – and please, no kitchen knives if you want to remain married.

- **CoroClaw or Plast-Kut Coro Cutting Knife** – This is a specially designed cutter for cutting coro. This cutter allows you to quickly, accurately and safely cut partial or complete flutes. We do **NOT** recommend attempting to use a standard knife for this process as it will not result in clean cuts, take significantly longer and is unsafe. We offer the CoroClaw at a price that is lower than any



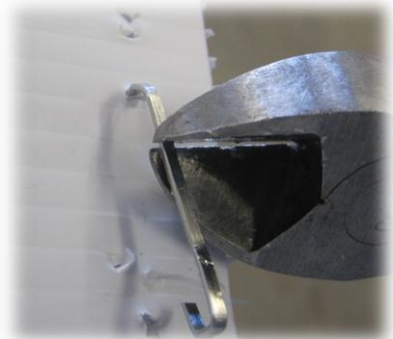
anywhere you'll find on the internet – check our Misc Items section of the website (<http://www.holidaycoro.com/Other.asp>). We are sure that after you use a CoroClaw that you'll find many more uses for coro!

- **Tape Measure or Ruler** – Any type will do just fine.
- **Pencil or Pen** – This is used to trace the outline of the top onto the base of the CoroFlake for layout of the lights. We recommend a pencil.
- **Soldering Iron and Solder** – Most RGB lighting solutions being DIY will require basic soldering.
- **Shrink Wrap Tubing** (optional) – When splicing RGB lights, we recommend 1/8" diameter and ¼" for other larger wires or CAT5 cable. As an alternative, you can use hot glue for covering soldered and bare wire connections.

Assembling the CoroFlake Top

When you receive your order, it is **VERY VERY** important that you not throw away the shipping container that your order was shipped in. This shipping container, also made from coro will serve as part of the materials for building your CoroFlake. If you ordered more than one CoroFlake, each will be packaged separately and then bundled together – be sure to save the exterior packing material from each package.

- If your order has multiple CoroFlakes, start by removing the tape that separates each individual package of the CoroFlakes.
- For each individual package, put the side with the cut down the middle on the bottom and then proceed to remove the staples along the edge of the coro using a pair of pliers or other suitable tool.
- Once the staples from the bottom of the package have been removed, flip over the package and remove the staples from both sides of the top of the package.
- Now pull off the packaging tape covering the long horizontal cut.

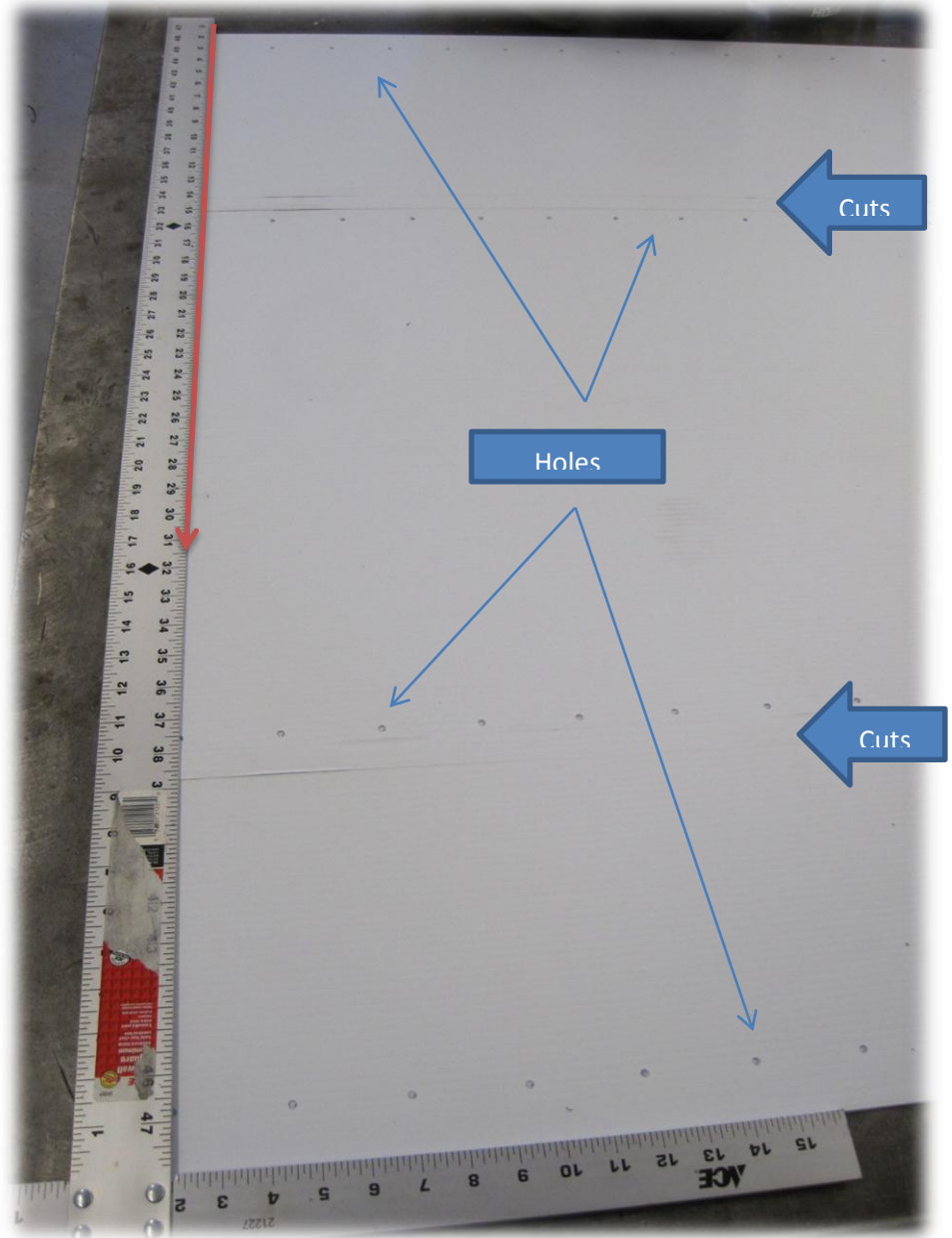


- You should now have four parts inside the package – two “bars” that were on the end of the package, the white coro top and the black coro base. You can throw-away the two “bars” (noted below with blue “X”s) with the staples in them as they will not be necessary to complete assembly of the CoroFlake:



- Set the two inside parts aside. Find a suitable place to cut the coro – ideally it will be at least 48” and have a surface that can endure repeated cuts with a knife. A scrap of plywood, an old counter top, smooth concrete or other suitable surface. Shown in the sample photos below is a metal topped table.
- *HINT – If the outside of your coro got dirty as a result of shipping, we recommend using rubbing alcohol or mild soap and water to remove any containments from the coro. Don’t worry if you can’t get all the coro clean as the packaging provides three times more material than you need to complete your CoroFlake – so you’ll be able to leave out sections of damaged or dirty coro.*
- *HINT - The edges of the top and bottom of the CoroFlake may have “fuzzies” that result during the cutting process of coro – this is completely normal. These do not in any way affect the visual function of the CoroFlake and are not visible as used in nearly all displays. If you like things “perfect” you can use a sharp utility knife to trim off the “fuzzies” at the start or conclusion of assembly.*

- With the flutes in the plastic running horizontally in front of you (as shown in the photo to the right), you will see four rows of holes running horizontally – these are alignment holes. Place your T-Square, long ruler (~48") or other straight guide along the four holes so that the guide lines up in the middle of each of the four holes.
- Using your sharp utility knife and making sure to hold the guide completely straight, cut along the entire length of the coro, making sure to cut through the entire depth of the coro. We

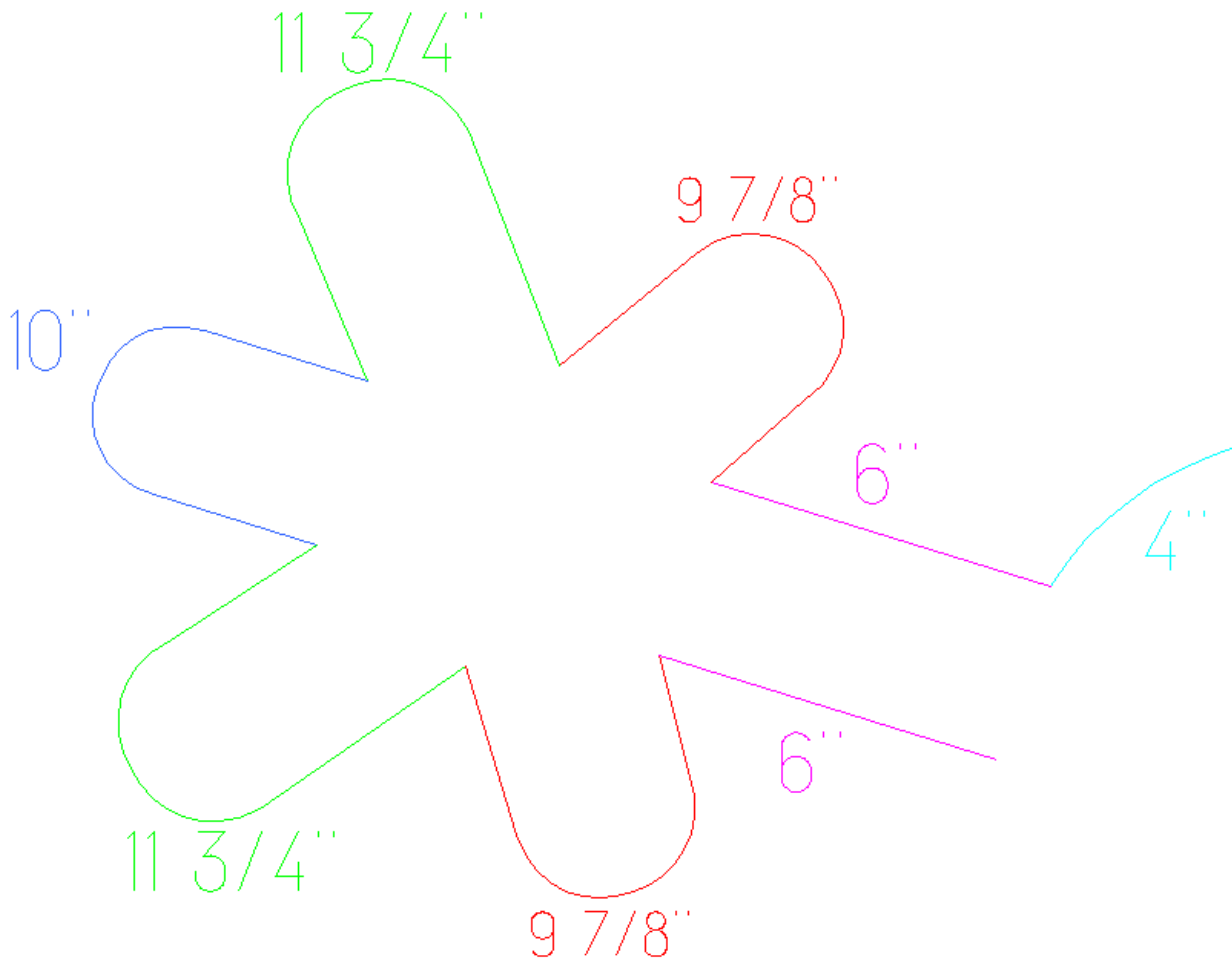


recommend making sure to have the blade slightly angled toward the guide to ensure that the blade stays directly next to the guide, ensuring a straight cut.

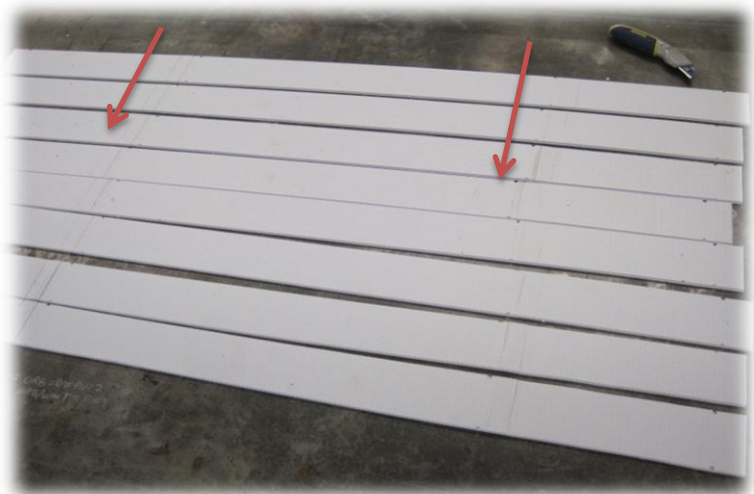
- When you have cut off one section of the coro, it should be ~2.5" wide and 46.9" long and the flutes in the coro should be running perpendicular to the long (46.9") length and should look like the photo to the right.
- Proceed to cut the remaining 17 sections. You will end up with the two ends of the coro where the staples were located and those can be thrown away.
- You should now have about 18 strips of coro, or if you made any mistakes, maybe a few less – which isn't a problem as your kit includes extra.



- The CoroFlake contains five identical “arms” for each section of the snow flake. Within each of these “arms” there are five different lengths of coro required to make each “arm” as shown in the diagram below:



- In total, you will need the following quantity of each length of coro strip to complete a single CoroFlake:
 - $4''$ – quantity of 5
 - $6''$ – quantity of 10
 - $9 \frac{7}{8}''$ – quantity of 10
 - $10''$ – quantity of 5
 - $11 \frac{3}{4}''$ – quantity of 10
- Within each of the strips of coro that were cutout in the prior section, you will notice that each strip is broken down into three sections of different lengths – each separated with

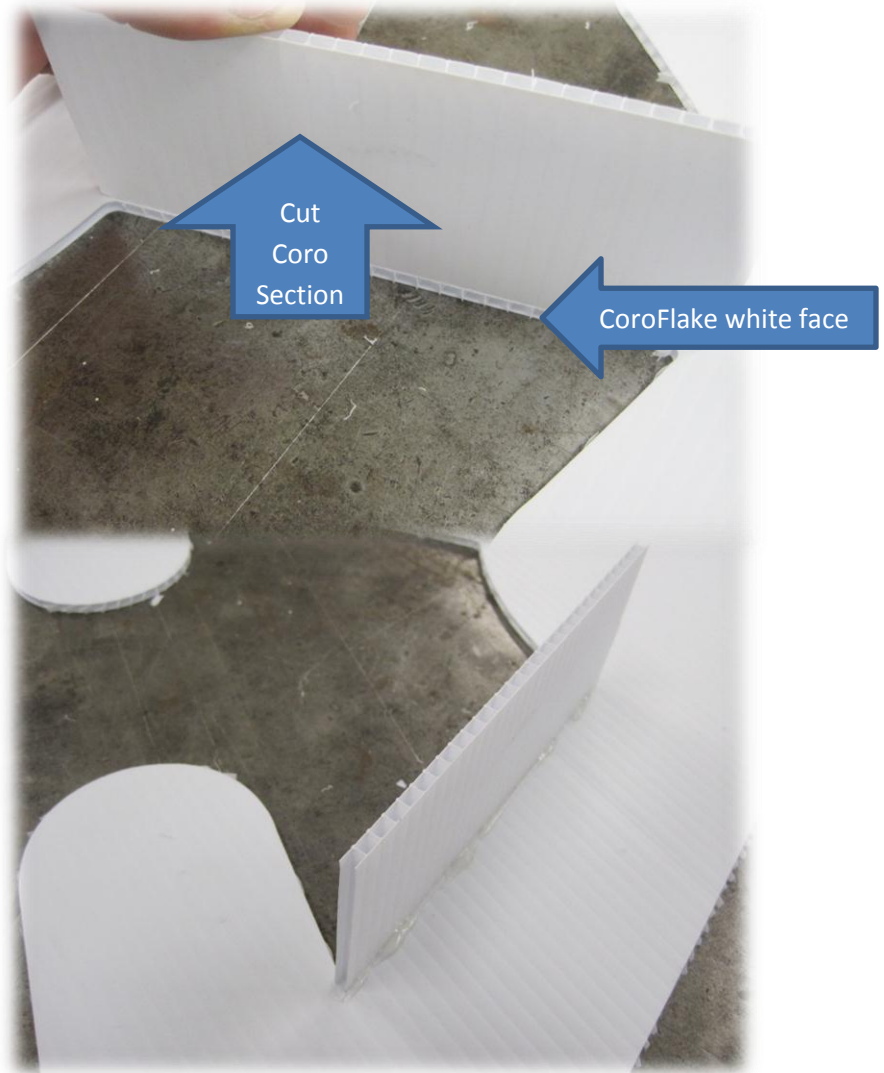


cuts in the coro with unbroken sections of 9.3", 22.8" and 12.7". So, you should be able to cutout sections of the 11 3/4" length from the 12.7" length, a 10" and a 9 7/8" from each section of the 22.8" section and so-forth. From which section you cutout your lengths depends on how many extra strips you have left after cutting them out.

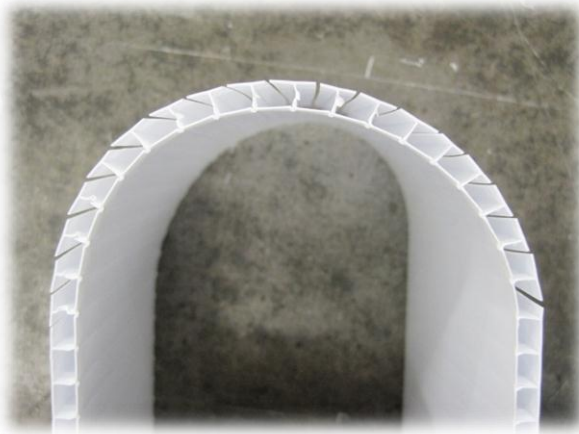
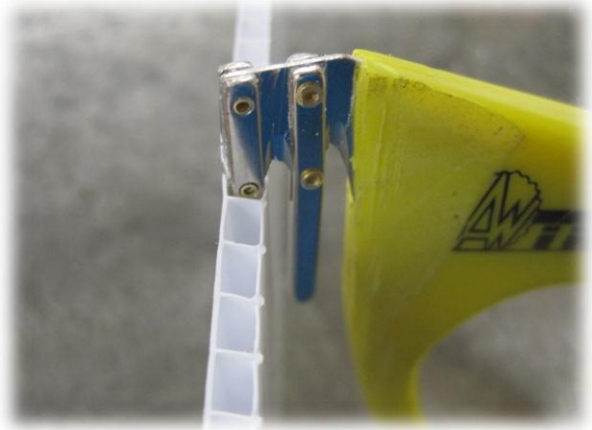
- We recommend starting by cutting only the lengths necessary for one arm of the CoroFlake to start with so you can make adjustments if necessary in the remaining arms. We also recommend cutting each length about a 1/4" (about 1-2 flutes wide) longer than indicated to allow for a little "play" as it is easier to cut off extra than adding to a short section of coro.
- Measure out the section of coro you intend to cut and then using the coro knife (CoroClaw), place the center "tooth" of the coro knife into the center flute of where you want to cut the coro and then just pull on the coro knife to cut the coro. When complete you should have your first cut section of coro – proceed to cutout all 8 lengths (see above for exact lengths) for one "arm" of the snow flake.
- *HINT: For lengths of coro that are identical, just use the first one you cut as a template to determine where to cut the rest that are the same size.*



- You should now have the eight parts necessary to make one “arm” of the snow flake.
- On a table or other **flat** hard surface (do not use carpet) unfold the white snow flake pattern out flat and lay the side that has been cut facing up.
- *NOTE: If you are going to be gluing on a surface that could be damaged by the hot glue, we recommend putting down card board or some other material to protect the surface below where you will be working.*
- Plug in or turn on your hot glue gun and insert one of the glue sticks into your glue gun.
- Starting with the straight section at the base of the arm (6”) – test fit it to make sure that it is the correct length. If it appears to be the correct length (see photo to right), apply hot glue to the vertical section of the coro, making sure to get glue into the flutes of the coro. After the glue has been applied to the coro, quickly place it onto the snow flake pattern, making sure to align it so that both of the edges are aligned and that it is perpendicular to the face of the coro snow flake pattern. You may need to hold the part in place for 10-30 seconds depending on the temperature of your hot glue until the glue hardens.
- *HINT: If there is extra glue on the side of the joint, don't attempt to remove it when it is hot – it is much easier to wait for it to cool completely and then cut it off with a sharp knife or razor.*

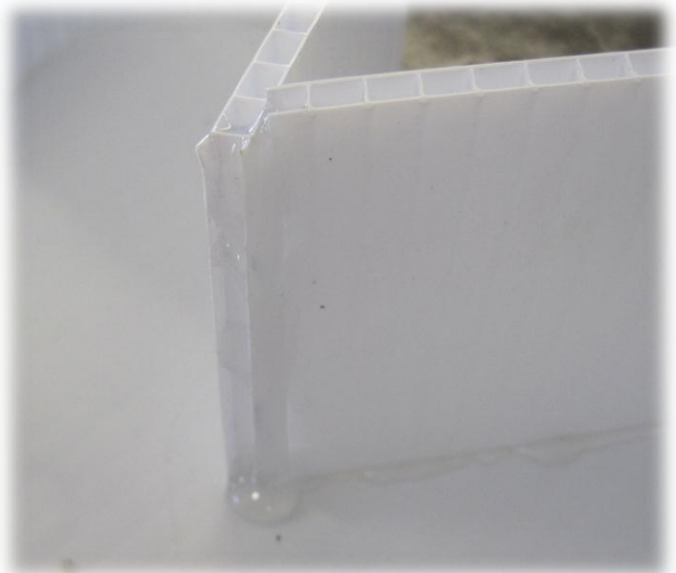


- For the next section which is curved, you will need to allow the coro to curve around the tips of the snow flake. Start by placing the appropriate sectioned length of coro (9 7/8" long) in place and then using your coro knife with the outer most "tooth" in the center of the coro, make a cut so that only one half of the coro is now cut as shown in the photo to the right.



- Proceed to make approximately 18-21 additional cuts around the outside until the entire curve is completed as shown in the photo to the left. Test fit the part to make sure that the curve is even as it goes around the tip of the snow flake.

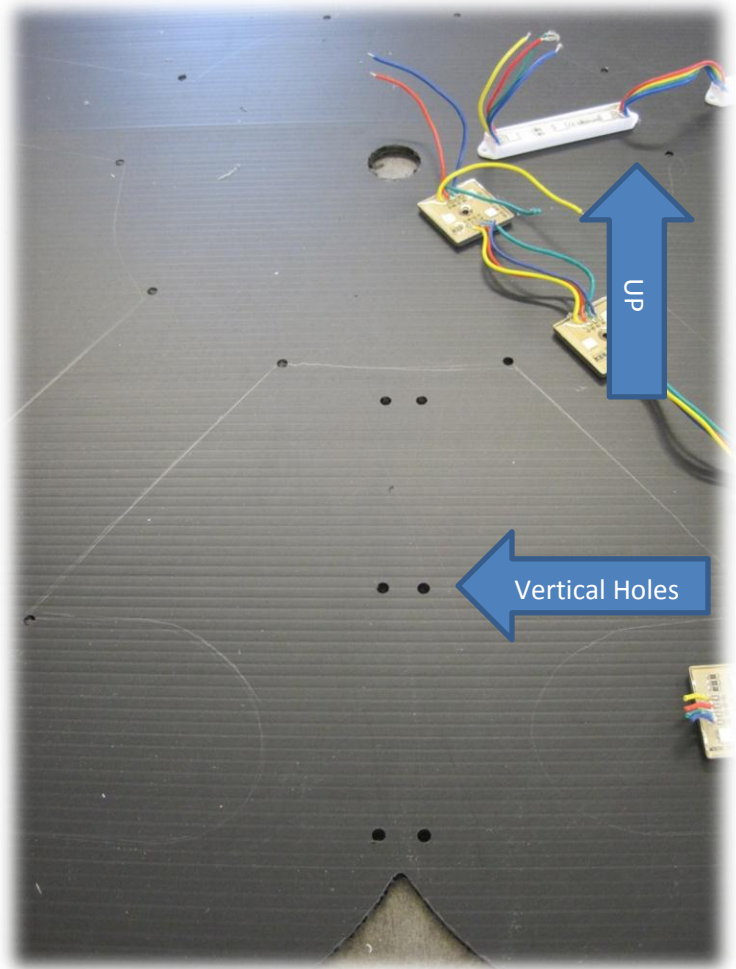
- When you have completed cutting the remaining sections, apply hot glue to the edge around the finger on the snow flake arm and then put the vertical section into the glue and hold until it sets up. Proceed to do each identical part all the way around the CoroFlake and then do the next length of coro.
- After you have completed attaching all the individual sections, apply glue to the vertical sections where two disconnected sections of coro come together as shown in the photo to the right.
- Trim any extra length of coro from the inside, intersecting, sections where the fingers come together with a utility knife.
- Complete the remaining arms.
- At this point your CoroFlake top should be completed and you are ready to move onto the base.



Attaching the Lights

Next you will need to attach the lights to the base of your CoroFlake.

- The CoroFlake has a top and a bottom – you can find the bottom indicated by the row of three holes that go up the center of the CoroFlake toward the center hole as shown in the photo to the right. These three holes are used as the cord strain relief.
- You will notice that there are ten holes around the center of the CoroFlake – these are the alignment marks for each of the five arms in the CoroFlake. Take your CoroFlake top and then using the holes as a guide for the ends of the arms, rest it on the base. Make any adjustments to make it look centered if it isn't already.
- Once you have the top in place, using a marker or pencil, trace around the entire circumference of the CoroFlake so you have a complete outline of the top on the base. In the photo above you can see the faint pencil lines after the tracing has been completed. This outline will serve as the boundary of where the lights will be placed.



The next section only provides a rough outline as to how to configure your lights. Due to the huge variety of RGB lights, we are unable to provide specific spacing or quantity recommendations. If after reviewing the information below, you should still have questions, please feel free to contact us. **If you are new to RGB lighting, we highly recommend watching our video series on RGB lights here:**

<http://www.HolidayCoro.com/RGB>

There are two basic RGB options you can use with the CoroFlake – RGB pixels or Basic RGB lights:

- **RGB Pixels** - It is perfectly fine to use pixels with the CoroFlake and their use will allow for some pretty dramatic “star burst” and related effects. The key thing to keep in mind when using pixels is to use modules or strips and completely layout your design prior to building as this design will determine your addressing. We do not recommend using pixel nodes.
- **Basic RGB Lights** – These are just simple, three color light strings powered by DC voltage. We recommend RGB modules but you can also use RGB strip, though it will generally require more cutting and splicing.

Once you are ready to start attaching your RGB lights to the base, keep in mind the following:

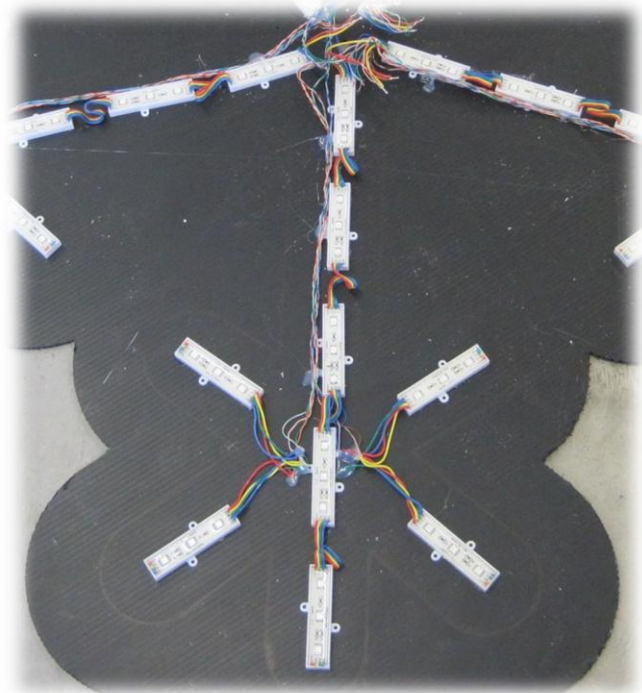
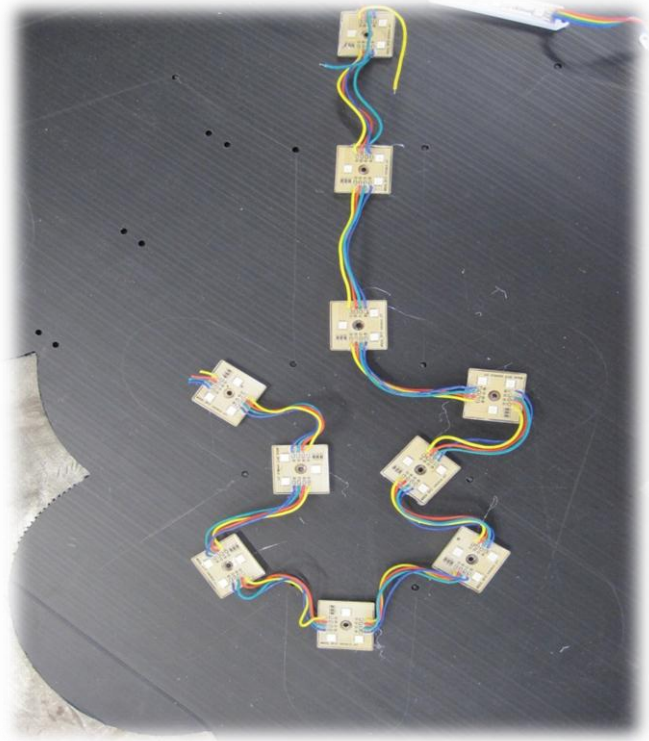
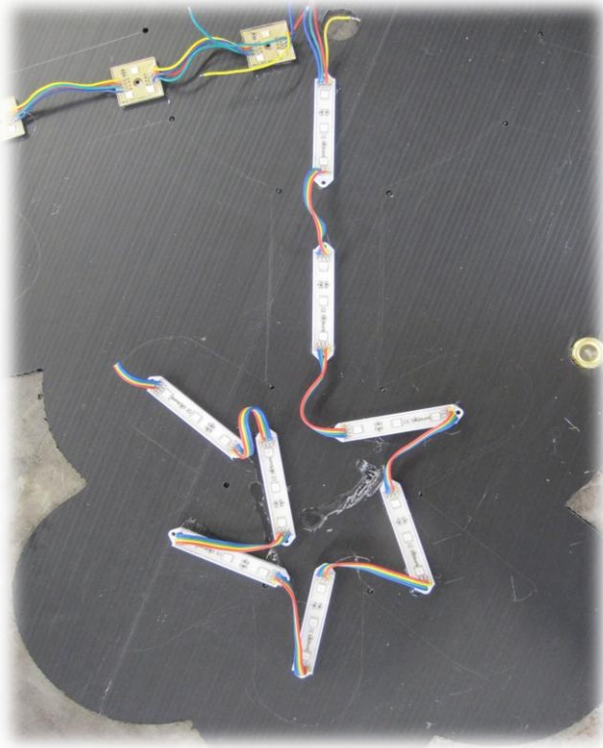
- The lights don’t need to be completely perfectly spaced within the arms due to the diffusion of the coro.

- More lights isn’t always better – start off with fewer and if necessary, increase the quantity of lights. As a reference, the photo to the right shows CoroFlakes each with 9 RGB modules per arm, for a total of only 27 RGB 5050 LEDs per arm. They were clearly visible from over 200 feet away at night time.



- Where possible, request larger wire spacing between your modules (5-6 inches) which will make spacing easier.
- Square modules are easier to angle than rectangular shaped modules.
- If you are unsure about the spacing or light output, put a small amount of hot glue on the lights and test fit one section as a test and just temporarily lay the CoroFlake top over the lights.
- Work from the center outward to the tips moving in a clock wise or counter clock wise direction.
- To attach the lights to the coro base, just use hot glue.
- Prior to attaching the top to the base, we highly recommend “burning in” your CoroFlakes for 1 to 2 weeks to ensure there are no failures of items that will be “sealed” in your CoroFlake.

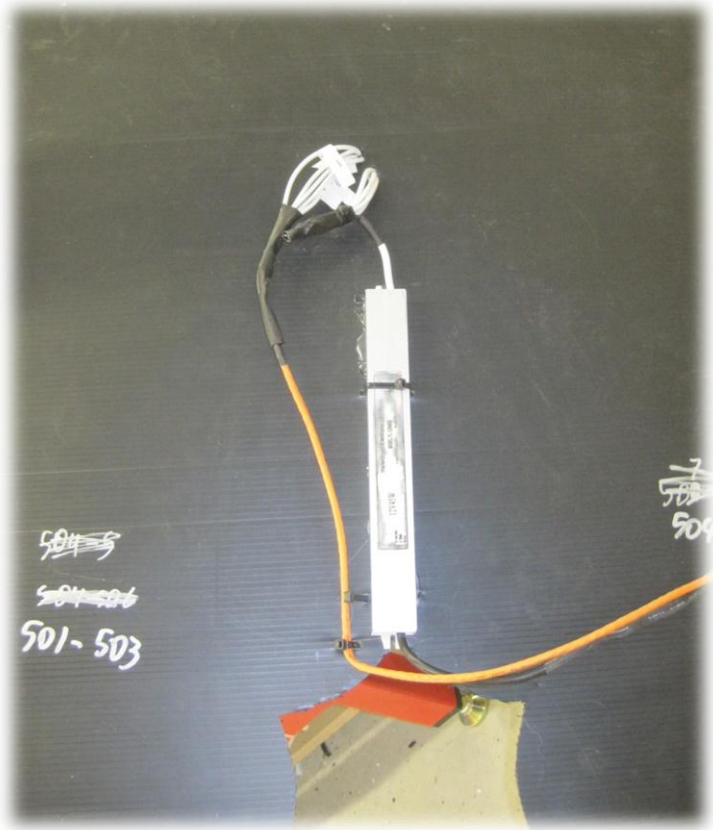
On this page, there are three different examples of RGB modules and strip to give you an idea of possible spacing and layout.



Attaching the Controller & Power

Again, as with the RGB lights – you have a variety of options on how you control your RGB lights:

- Mount the controller(s) inside the center of the CoroFlake
 - When using this method, make sure you will be able to remotely set the address of the controller without physically accessing it as it will be “sealed” inside the CoroFlake.
 - This is the cleanest method and doesn’t leave any visible items outside the CoroFlake.
Recommended controllers for this are the HolidayCoro RGB DMX controllers, item #25 and #26.
- Mount the controller(s) to the back of the CoroFlake
 - This method allows easy access to the controllers for replacement and when necessary, setting addresses.
- Mount the controller(s) external to the CoroFlake
 - If you have a more centralized DC controller system, you can run the output of externally located controllers to the CoroFlake, usually over CAT5 cable.



We highly recommend small waterproof power supplies as they can be attached directly to the back of the CoroFlake. Of course you can also run direct DC power lines from a centralized DC power system to the CoroFlake. In the photo above, you can see the 12v power supply attached directly to the back of the CoroFlake using hot glue and zip ties. The other orange cable is the DMX input cable – so mounting the CoroFlake is as simple as hanging it, plugging in the power and plugging the signal cable into an existing controller in the display.

When mounting your controller and power supply we have the following tips:

- If the controller is inside the CoroFlake, be sure to label the signal input cable with the channel number to make it easier to identify which cable belongs to which leg of the snowflake. Additionally, make sure you make your connections outside the CoroFlake.

- Write the DMX address on back of the specific leg of the CoroFlake for easier future identification.
- Hot glue makes wonderful wire insulation when you have lots of splices.



Attaching the Top to the Base

Once you have completed all mounting and testing of lights and power and have completed the burn-in period you are ready to attach the top to the base. Just place the base down with the diffuser on top. Lift up one leg and about every 3-4 inches; apply a small amount of hot glue between the top and the base. Hold in place until it sets up. Repeat for all remaining legs.

Mounting the CoroFlake in your Display

The CoroFlake is designed to be mounted either on a vertical (fence, wall, window, door, building face, etc.), slightly angled surface (roof, yard), post (tree) or suspended between two vertical structures (trees). To support your CoroFlake, we recommend either wire (18ga or higher) or rope be used through the included grommets. We highly recommend attaching at all four points to prevent “sailing” when supported only by the top supports. If you will be mounting them to the ground, we recommend just using a coat hanger cut in half and secured through the holes and the outside edge of the coro.