Hot Spot® Jump Ring Soldering Machine

Hot Spot® is the ideal machine for use with traditional as well as solder-filled jump rings. See a full selection of jump rings online at riogrande.com or in your Rio Grande Gems & Findings catalog.

Package Contents

- Hot Spot jump ring soldering machine (115V–5A)
- Pliers with attached grounding cable
- Handpiece with grounding cable attached
- Foot control pedal
- Replacement graphite electrodes; pkg/3
- Electro flux; 6-oz. bottle
- Sterling 20-gauge solder-filled jump-ring assortment; 20 each of sizes 2.4, 3.2, and 4mm (½", ⅜", ⅝")
Because the power sources on the Hot Spot® have no polarity, you can connect the cable on the handpiece or the pliers to either connection point on the front panel.

**Setting Up the Machine**

- Take all components out of the box.
- Place the Hot Spot machine on a sturdy, level surface.
- Attach the grounding cables to either of the power sources on the front of the Hot Spot machine.
- Install a graphite electrode into the collet:
  a. Unscrew the cap on the handpiece and push out the cord to expose collet.
  b. Gently push the graphite electrode into the collet.
  c. Screw the handpiece cap back on to secure the electrode. Hand-tighten only to avoid stripping the threads. The electrode should protrude approximately 1/4” to 1/2” from the tip of the handpiece cap.
- Plug the foot control cable into the back of the machine. Place the foot pedal beneath the machine on the floor.
- While the machine is off, plug the power cord into a grounded 115V AC outlet.

**Please Note:**

- Getting consistently good results with the Hot Spot will take practice; give yourself time to get comfortable with the machine and to get familiar with how it operates.
- Use only the accessories included with the Hot Spot machine for best results.
- When the carbon electrode wears down to the bottom of the copper fitting paper, remove it from the hand piece, turn it around and reinstall it (electrodes are two-sided so you can use both ends). Replace the electrode only when both ends are exhausted.
- The tip of the electrode must fully contact the solder joint on jump rings.
- Use liquid Electro flux as needed when working with solder-filled jump rings.
- Excess flux on the jump rings may cause arcing (sparks) to occur; this will not cause any damage.

**Safety Precautions**

- Carefully read all instructions before operating the Hot Spot.
- Always wear safety glasses.
- Use only with a properly grounded 115V AC outlet.
- Keep long hair and loose clothing away from work area when operating the unit.
- Keep cords and the foot control pedal away from traffic areas.
- To avoid serious burns, do not touch heated equipment.
- Always apply the graphite electrode to jump rings before activating power with the foot pedal; this will help prevent sparks.
Preparing Solder-Filled Jump Rings

1. Apply Electro flux to the jump rings with a flux brush or simply dip the rings into the flux using the pliers. Use care to avoid getting any flux on the pliers themselves.

2. Close jump rings, making certain that no gap exists. The ends should be neatly butted together, with full and complete contact, to ensure a secure connection and proper solder flow. We recommend using an Optivisor™ to get the best view of the contact point.

3. If there is excess flux on the ring, you can catch it with a cotton swab; use care to avoid wiping off too much as this could prevent the solder from flowing properly. Again, some sparks due to excess flux are normal and harmless.

Preparing Standard Jump Rings

1. Using paste solder is very effective when working with rings that are not made from solder-filled wire; simply put a dab of paste on the underside of the closed joint of the ring (inside the ring) with your solder pick.

2. Place the electrode on top of the ring and solder as usual. You will be able to actually see the solder reach its melt point, and it will flow upward where the ends of the ring meet.

3. As you become more proficient with the Hot Spot, you will use less paste and achieve a smooth, clean, joint that will be virtually undetectable.

4. When soldering standard (not solder-filled) rings, the paste will build up on jaws of your pliers and the electrode. You’ll want to purchase the electrode sharpener/dresser to clean and re-surface your electrode as needed. Fine-grit polishing paper can be used to clean the jaws of your pliers.

Operating the machine

1. Press the red “ON” switch on the front left of the machine.

2. Start with a time setting (top knob) between 2 and 3. The timer is calibrated in half-second increments up to three seconds. Different rings require different times; it helps to keep a record of the best settings for your particular applications and materials. Different machines behave somewhat differently, and it will take time to get familiar with yours.

3. Set the power (bottom knob) to approximately 2.5; start low and slowly increase as needed to flow solder. If arcing occurs, or if the ring melts, reduce time. It is better to reduce or increase time first if you think you are a bit too hot or to cold; adjusting both knobs will multiply the tweaks necessary. If time alone doesn’t correct the issue, then adjust the temperature knob.

4. Hold the pliers in one hand and grasp the jump ring. Position the pliers so that the jaws contact both sides of the ring (see Figure 1).

5. If necessary, apply paste solder to the underside of the joint on the jump ring. Solder-free rings require added solder; solder-filled rings do not.

6. Pick up the handpiece with the other hand, and touch the electrode securely to the jump ring. Be certain to make full contact between the electrode and the ring being soldered. Important: The electrode must be smooth and free of debris (see Figure 2).

7. Press the foot pedal until the timer runs out. The metal should redden, and the solder should flow. If it doesn’t, go back to step 1, increase the time setting slightly and finish the steps. Power will cease when the timer stops, even if the foot pedal is still depressed.

8. When the solder cools, clean the joint with a polishing wheel, light emery stick or paper or a fine needle file.
Setting Suggestions

The suggested time- and power settings for the silver solder-filled jump rings included with your Hot Spot are below. **Please Note:** These settings are guidelines only; there is no specific setting for any one ring type or size. You will need to vary the time and power settings to achieve combinations appropriate to your applications.

<table>
<thead>
<tr>
<th>Sterling Jump Rings solder-filled</th>
<th>Gauge</th>
<th>Diameter</th>
<th>Time Setting</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>#693-407, #693-408, #693-409</td>
<td>20 gauge</td>
<td>2.4mm</td>
<td>2.5–3</td>
<td>7.5–8</td>
</tr>
</tbody>
</table>

Safety Features

- Durable Teflon® handpiece has phenolic insulators to protect your hands from heat.
- Three-second timer cuts off heat automatically—even when foot pedal is depressed.
- “Re-cirk-it” switch on the back of the machine recirculates power to the machine if it overheats.
- Hot Spot produces little or no noise and releases little or no harmful fumes when using liquid flux with solder-filled jump rings. If using a paste solder, do not choose a low-temperature paste flux.

Maintenance

Keep the graphite electrodes and plier tips free from carbon buildup. Wipe plier tips with a clean, soft cloth or clean them with a fine-grit sanding paper or stick. For the most efficient soldering, use an electrode sharpener to reshape the electrode whenever it becomes rough or worn.

Troubleshooting

The Hot Spot® jump ring soldering machine is relatively easy to use; however, getting consistently good results with the Hot Spot will take practice; give yourself time to get comfortable with the machine and to get familiar with how it operates. The table below offers solutions to some more common questions. Please call our technical support team at 800-545-6566 if you require more information.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Possible Cause</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrode is worn</td>
<td>Overuse; too much pressure applied; poor contact with piece</td>
<td>Use the opposite end of the electrode; reshape the electrode using the sharpener or fine-grain sandpaper; replace the electrode.</td>
</tr>
<tr>
<td>Electrode becomes loose in the collar after long use</td>
<td>Handpiece collar has overheated</td>
<td>Power off the machine and let it cool for 30–60 mins.</td>
</tr>
<tr>
<td>Machine is overheated</td>
<td>Too much power going through</td>
<td>Ensure that you are using a 115V AC outlet, or press the “Re-cirk-it” button on the back of the machine.</td>
</tr>
<tr>
<td>Heat is not conducting through the collet</td>
<td>Loose connection to power source</td>
<td>Tighten the handpiece connection.</td>
</tr>
<tr>
<td>Jump rings are melting</td>
<td>Exposed to heat too long; too much pressure applied to jump ring; operator touched electrode to jump ring after activating power with the foot pedal</td>
<td>Reduce the heating time and/or pressure; touch electrode to jump ring before pressing the foot pedal.</td>
</tr>
<tr>
<td>Metal sparks and burns</td>
<td>Too much power or poor electrode contact on the metal surface</td>
<td>Clean and reshape the electrode; clean plier tips; reduce power setting/adjust dwell time downward; ensure that the electrode does not contact any flux.</td>
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