Jewelry & Metal Arts

- Foldforming
  - Foldforming Tools
  - Foldforming Resources
- PMC
  - PMC Precious Metal Clay
- Dial Height Gauge
- Wire Wrapping
- Chasing and Repousse
  - Chasing and Repousse Tools
- Enameling on Copper
  - Torch Fired Annealing on Copper
  - Kiln Fired annealing on Copper
- Cutting and Forming Copper Sheet Metal
- Metalsmithing Hammer Use Guide: Steel vs. Brass
- Safety Posters
  - Jewelry and Metal Arts Safety Posters
- BMS Jewelry and Metal Arts Survey Link May 2026

Foldforming

Foldforming Tools

Foldforming is a metalworking technique developed by Charles Lewton-Brain, known for creating three-dimensional forms through a combination of folding, forging, annealing, and unfolding metal sheets.

?? **Essential Tools for Foldforming:**

- **Cross-peen Hammer**
- **Forging Hammers**
- **Anvil or Steel Bench Block**
- **Torch (for annealing metal)**
- **Jeweler’s Pliers & Tongs**
- **Pickle Pot & Safety Equipment (gloves, glasses, etc.)**

Foldforming Resources

Foldforming is a metalworking technique developed by Charles Lewton-Brain, known for creating three-dimensional forms through a combination of folding, forging, annealing, and unfolding metal sheets.

?Books and videos

- **Foldforming** by Charles Lewton-Brain (definitive book, considered essential)
- **Metals Technic** by Tim McCreight
  - Contains a chapter on foldforming by Charles Lewton-Brain, alongside other metalsmithing techniques.

- **Rio Grande's Foldforming Videos**
  - Rio Grande Jewelry Tutorials on YouTube

- **Ganoksin (The Orchid Forum)**
  - Ganoksin Foldforming Articles

- **Charles Lewton-Brain Official YouTube Channel**
  - Charles Lewton-Brain YouTube

- **Brain Press (Charles Lewton-Brain's Official Website)**
  - Articles, resources, and book sales:
  - brainpress.com

- **Interweave Jewelry**
  - Tutorials and project ideas for beginners and advanced artisans:
  - interweave.com

  - https://www.youtube.com/watch?v=KORNvzeTFdg
  -

PMC

PMC

PMC Precious Metal Clay

Requires very clean workspace and toolkits.

Due to the expense of working with Precious Metals - Bronze or copper clay is recommended for starter projects.

Dial Height Gauge

A **dial height gauge is** used in metalworking and precision machining to measure vertical distances from a reference surface—typically a **surface plate**, which is the large, heavy, flat round metal plate it's standing on in the photo.

Primary purposes of the dial height gauge:

1. **Measuring Height**: It measures the height of objects or features with high accuracy.
2. **Scribing lines**: When fitted with a scribe or scriber instead of a dial probe, it can mark precise horizontal lines on a workpiece.
3. **Comparative Measurement**: It can compare the height of different parts or features to ensure uniformity.
4. **Precision Layout Work**: Common in tool and die making, it helps in laying out precision measurements on metal surfaces.

The dial indicator on it allows for highly accurate readings and can detect very small differences in height.

0
10
20
30
40
50
60
70
80
90

Wire Wrapping

Chasing and Repousse

Chasing and Repousse Tools

Pitch Pots
Repousse
Chasing

Needs Safety training

Enameling on Copper

Torch Fired Annealing on Copper

Kiln Fired annealing on Copper

Cutting and Forming Copper Sheet Metal

Cutting and forming sheet metal can be done with shears, Disk Cutting tools are for cutting and forming copper Sheet Metal and are often used in jewelry and small metalwork.
Here's a breakdown of how to use some of them on **copper sheet metal**:

Burrlife or Beeswax for lubrication of cutting surface
Steel Block as work surface, not wood.
Heavy Brass Mallet
Disk Cutters, Bevelled end up - the cutting side of the punch is a flat smooth surface.

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1. **Disk Cutter (circular tool with round holes)**

This is used to **punch out perfect circles** of metal.

Steps to use:

1. **Anneal your copper** (heat it to a dull red and let it air cool or quench in water if it's safe—wear gloves).
2. Place your copper sheet between the plates of the disk cutter.
3. Select the punch size that fits the hole.
4. Align the sheet so the desired area is under the hole.
5. Insert the corresponding punch into the hole.
6. Use a **heavy brass mallet** or an **arbor press** to strike the bevelled end of the punch. It will shear the metal and drop a disk through the bottom

?? Proper Usage Tips

- **Insert the Punch Correctly**: Always insert the flat, sharp end of the punch into the corresponding hole of the disc cutter, ensuring it makes direct contact with the metal sheet.
- **Strike the Beveled End**: Use a heavy mallet or hammer to strike the beveled end of the punch. This will drive the sharp end through the metal, creating a clean cut.
- **Avoid Reversing the Punch**: Striking the sharp cutting end can damage both the punch and the disc cutter, leading to poor cuts and potential injury.

Quick Reference: Using Disk Cutters on Copper

- Anneal copper before cutting (heat to dull red, then cool).
- Use a heavy mallet or arbor press for clean punches.
- Lubricate punch tips with Bur Life or beeswax.
- Always place cutter on a steel block, not wood.
- Align copper and punch carefully—no tilt.
- Check punch sharpness regularly.
- Use correct gauge copper (20–24 gauge ideal).
- Remove stuck punches gently by flipping and tapping.

Disk Cutter Troubleshooting Guide

Issue	Cause	Solution
Cutter won't pierce copper	Copper is too hard (work-hardened)	Anneal the copper before cutting
Punch doesn't go through	Not enough force used	Use a brass/rawhide mallet or an arbor press
Punch gets stuck	No lubrication / tight fit	Lubricate punch with Bur Life or beeswax
Ragged or uneven cuts	Copper or punch misaligned	Ensure copper is flat and punch is vertical
Noisy, ineffective cut	Cutter not on solid surface	Place on a steel bench block or anvil
Won't cut thicker sheet	Gauge is too high for tool	Use thinner copper or alternative tools
Punch not sharp	Edge dull or damaged	Sharpen or replace punch

Metalsmithing Hammer Use Guide: Steel vs. Brass

? Steel Hammer — When to Use

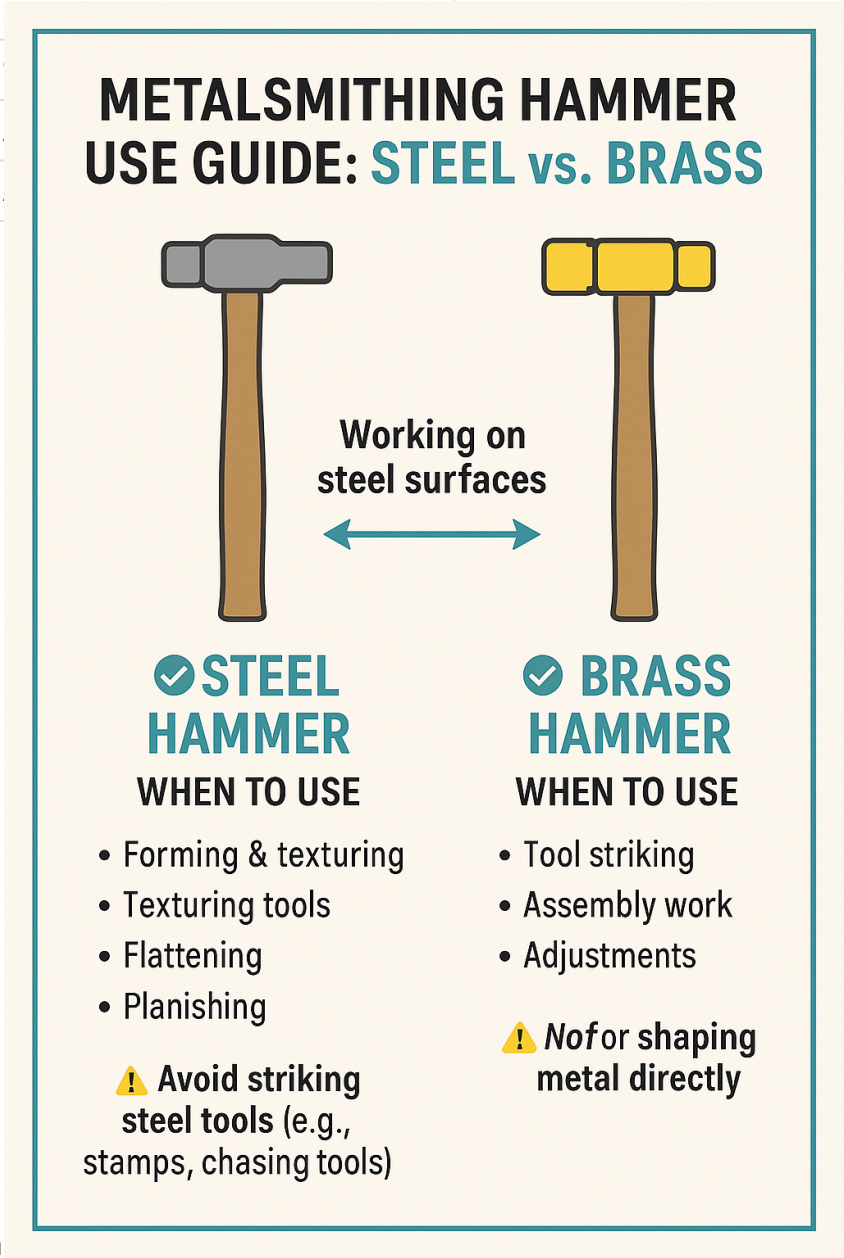
- **Purpose:** Used when you need precision force or when working directly with metal that can withstand a harder impact.
- **Common Uses:**
  - **Forming & Texturing:** Ideal for shaping metal (e.g., doming, raising, forging).
  - **Texturing Tools:** Used with metal stamps or texturing tools on steel blocks.
  - **Flattening:** Excellent for flattening wire or sheet metal.
  - **Planishing:** Used to smooth metal after forming (with a polished face).
- **Surface Compatibility:**
  - Always used on a steel block or anvil.
  - Suitable for non-ferrous metals (copper, brass, silver, gold) but can leave marks if the face isn't polished.
- **Caution:**
  - Avoid using on delicate or finished pieces — can cause unwanted marks or dents.
  - Never strike steel tools (like chasing tools or stamps) with a steel hammer — risk of chipping tools.

? Brass Hammer — When to Use

- **Purpose:** Used when you need force without damaging tools or delicate surfaces.
- **Common Uses:**
  - **Tool Striking:** Perfect for striking steel tools such as:
    - Metal stamps
    - Chasing tools
    - Center punches
  - **Assembly Work:** Tapping mandrels, dapping punches, bezel setting tools without damaging them.
  - **Adjustments:** Useful when adjusting or bending pieces gently without leaving heavy marks.
- **Surface Compatibility:**
  - Can be used on steel surfaces (blocks, mandrels) without damaging them.
  - Softer than steel so it reduces rebound and reduces risk of chipping tools.
- **Caution:**
  - Not suitable for shaping metal directly — brass is softer and will mushroom or deform over time.
  - Not for texturing or planishing metal sheets.

? Quick Rule of Thumb

Situation	Use Steel Hammer	Use Brass Hammer
Shaping/Flattening Metal	□	□
Texturing Directly on Metal	□	□
		□
		□
		□
		□



Safety Posters

Jewelry and Metal Arts Safety Posters

JEWELRY & METAL ARTS

STUDIO SAFETY POSTERS · PRINT & POST AT EACH STATION

WORK AREA
JEWELRY BENCH

1. **Clear the bench after every session**
   Leave the surface completely clear — no tools, scraps or personal items — so the next maker can start straight away.
2. **Sweep the surface and bench pin**
   Use the bench brush to sweep all filings and clippings into the bench tray. Never brush onto the floor.
3. **Wipe out the pull-out drawer**
   Empty metal dust and scraps from the catch drawer and wipe it clean with a dry cloth before you leave.
4. **Return all tools to their hooks**
   Files, pliers and cutters go back on designated hooks. Bench blocks return to the shelf.
5. **Check the floor**
   Sweep any dropped pieces — small metal fragments are a hazard for everyone in the studio.

▲ LEAVE IT CLEANER THAN YOU FOUND IT

JEWELRY & METAL ARTS
BELLINGHAM MAKERSPACE

EQUIPMENT
ROTARY TOOLS & FOOT PEDALS

1. **No off button — the pedal IS the switch**
   These tools have no power button. The foot pedal controls all power. Treat it as a live switch at all times.
2. **Connect the pedal only when ready to work**
   Plug in the foot pedal only after your handpiece is fitted and you are seated and ready to begin.
3. **Return the pedal to the locker after every use**
   Unplug and store the foot pedal in its designated locker immediately. Never leave it on the floor.
4. **Hang the handpiece above the bench**
   After each use, hang the handpiece on its hook above the bench — keeps cords clear and the surface free for others.
5. **Wear eye protection at all times**
   Flying debris from burrs and bits is a serious hazard. Safety glasses on whenever the tool is running.

▲ PEDAL UNPLUGGED · HANDPIECE HUNG · BENCH CLEAR

JEWELRY & METAL ARTS
BELLINGHAM MAKERSPACE

HAZARDOUS AREA
SOLDERING STATION

1. **Check ventilation before lighting the torch**
   Confirm the fume extractor is on and drawing properly. Never solder without active ventilation running.
2. **Ignite safely — torch pointing away from your body**
   Direct the tip away from yourself and others before striking. Never use matches to light the torch.
3. **Hot metal looks exactly like cold metal**
   Always assume freshly soldered metal is hot. Use cross-locking tweezers or quench in water before handling bare-handed.
4. **Extinguish the torch whenever you step away**
   Stepping away for any reason — even briefly — means the torch goes off completely.
5. **Cool, clean and clear before you leave**
   Quench work, rinse flux residue, wipe the soldering pad and brick, and return all tools to their tray.

▲ FIRE EXTINGUISHER LOCATED BY THE STUDIO DOOR

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EXTREME HEAT
KILN AREA

1. **Confirm the correct programme before firing**
   Check the schedule is set for your material. Never override or interrupt a programme already running.
2. **Wear heat-resistant gloves and eye protection**
   Kiln gloves and shaded glasses are required when opening the kiln or handling work directly out of it.
3. **Never reach into a hot kiln without proper tools**
   Use kiln tongs or loading forks. Keep face and body clear of the door when opening — heat escapes rapidly.
4. **Place hot work on the cooling shelf only**
   Freshly fired pieces go on the designated cooling shelf — never on the bench, floor, or near flammables.
5. **Log your firing and sign out**
   Record your name, material, programme and end time in the kiln logbook after every use.

▲ SURFACE TEMPERATURES EXCEED 900 °C · DO NOT TOUCH

JEWELRY & METAL ARTS
BELLINGHAM MAKERSPACE

CHEMICAL HAZARD
PICKLING AREA

1. **Wear nitrile gloves and eye protection**
   Pickle solution is acidic. Gloves and safety glasses are mandatory before handling the pot or any work from it.
2. **Never put steel into the pickle pot**
   Steel tools contaminate the solution and will copper-plate your work. Use only copper or plastic tongs.
3. **Rinse work thoroughly after pickling**
   Remove all acid residue with a full water rinse before returning work to the bench or continuing to solder.
4. **Keep the lid on when not in use**
   Replace the pot lid immediately after adding or removing work — reduces fumes and prevents splash accidents.
5. **Skin contact — rinse immediately and notify staff**
   Flush affected skin with running water right away. Do not attempt to neutralise alone — find a staff member.

▲ ACID SOLUTION · NO STEEL TOOLS · RINSE SKIN IMMEDIATELY ON CONTACT

JEWELRY & METAL ARTS
BELLINGHAM MAKERSPACE

SHARP EQUIPMENT
METAL SHEARS / GUILLOTINE

1. **Keep fingers clear of the blade line**
   Never place fingers within the marked safety zone. Use the hold-down guide to position your material.
2. **One operator at a time**
   No one else should reach near the blade while the shear is in use. Bystanders should stay behind the marked floor line.
3. **Support both sides of long sheet metal**
   Wide or long stock can drop suddenly after cutting — use the outfeed support or ask a helper to catch falling pieces.
4. **Gloves are recommended when handling cut sheet**
   Cut edges can be razor-sharp. Cut-resistant gloves are recommended before edges are filed or finished.
5. **Clear metal offcuts from the area right away**
   Put metal pieces directly into the scrap bin — loose offcuts on the floor are a hazard for everyone.

▲ BLADE IS ALWAYS SHARP · NEVER REACH UNDER THE GUARD

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BELLINGHAM MAKERSPACE

Printable individual

files.zip

BMS Jewelry & Metal Arts – Safety Posters.html

BMS Jewelry and Metal Arts Survey Link May 2026

BMS Jewelry Studio Workshop Interest
Help us plan tool training and workshops for the Bellingham Makerspace Jewelry and Metal Arts Studio.
Tell us which tool areas interest you and we'll reach out as safety and orientation workshops get scheduled.
Check as many as you'd like - no commitment required.

https://forms.gle/M1rCbzVSU5YwsNoy5