

# GRS Metal Former

## AND OPTIONAL ACCESSORY

Form perfect "C" style bracelets every time with the GRS Metal Former and optional accessories. Take a flat engraved bracelet and shape it easily using a Forming Die and Die Cup. The optional die set is made to shape non-traditional jewelry metal such as steel — and it's perfect for creating low dome or flat bracelets.

### BEFORE YOU START

Read all directions carefully before setup, installation, and use to prevent damage to products or materials. Use the *Die & Material Guide* table (p. 1) to choose the appropriate parts for different metals.

#### GRS Metal Former, #004-725

Includes: (1) CerroMetal die cup, (2) dies, (1) body, base, and handle unit.

#### Urethane Die & Flat Die Set, #004-726

Includes: (1) urethane die cup, (1) flat die.

### NECESSARY TOOLS

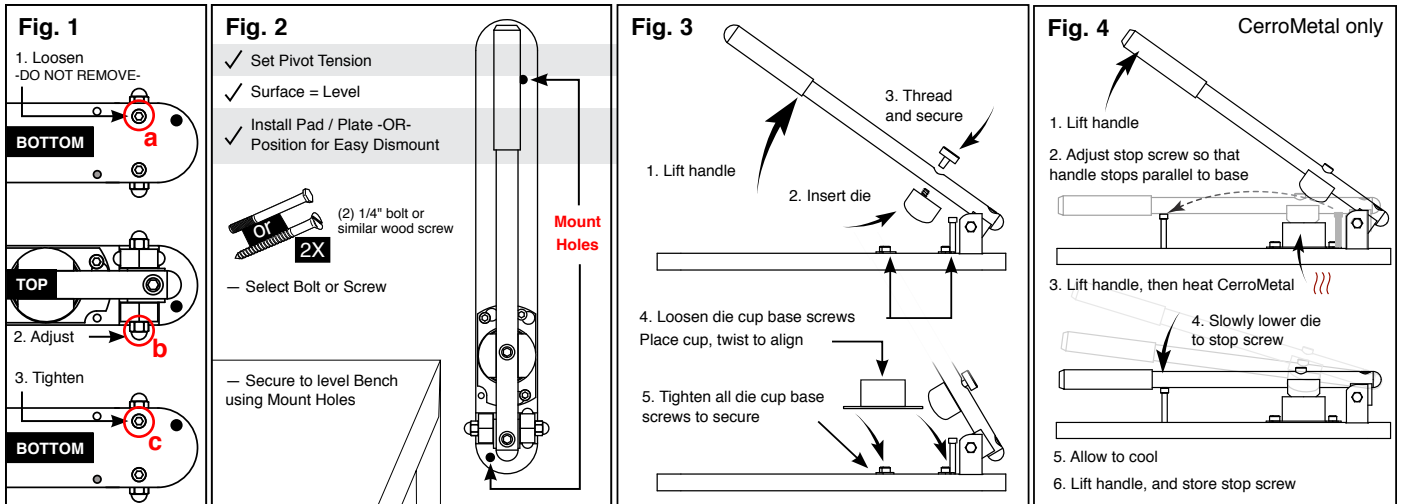
You will need tools not included with this product to make certain modifications or adjustments. Necessary tools may include:

- Electric Drill (for mounting)
- (2) 1/4" Bolts or Similar Wood Screws
- Screwdriver for bolts or screws
- Heating Device (for CerroMetal)

**!** IMPORTANT! Follow this manual to prevent product / material damage. If you have any questions, please contact us (p. 4) for support

### DIE & MATERIAL GUIDE

Table 1	CerroMetal Die Cup & Dies	Urethane Die Cup & Flat Die
Typical Metals	gold, silver, copper	most steels
Metal Thickness	0.03" — 0.08" (0.0762 cm — 0.2032 cm)	
Inner Curve	Standard Dome	Low Dome, Flat
Strip Width	0.25" - 1.25" (0.635 cm - 3.175 cm)	0.25" - 0.75" (0.635 cm - 1.9 cm)



## SETUP & ADJUSTMENTS

Use the illustrations as visual aids for the following instructions.

### Setting the Pivot Tension

The pivot tension is factory-set during assembly. However, if you prefer a different tension:

1. Locate bolt shown in *Fig. 1a*. Loosen (DO NOT REMOVE) using included hex wrench.
2. Next, locate nut in *Fig. 1b*. Tighten or loosen to attain desired tension.
3. Tighten loosened bolt. [*Fig. 1c*]

### Mounting the Former

Mounting the former, which we suggest for best performance, gives you a free hand to guide the bracelet.

1. First, make sure desired pivot tension is set and the mounting area is level (to avoid spills when heating the CerroMetal).
2. Do one of the following:
  - Install a **ceramic pad or metal plate** to provide insulation for your bench surface.

OR

  - Position the Metal Former so it is easy to remove from the bench before using a heating device.
3. Use the two mount holes on the base [*Fig. 2*] with 1/4" bolt or similar size wood screw and secure to your bench surface.

### Changing the Die & Cup

The larger die and die cup are installed during assembly. To change [*Fig. 3*]:

1. Lift handle to a comfortable level.
2. If die is installed, use thumb screw to remove. Insert new die on handle.
3. Holding die in place, secure thumb screw onto die set screw.
4. Loosen die cup base screws on the former base and remove current die cup if necessary. Place new die cup over screws and twist cup to align.
5. Tighten screws to secure.
6. Check that the die and die cup are aligned. If not, reinstall die.

### Forming the CerroMetal

The CerroMetal is an alloy composed of bismuth and tin, which melts at 281°F. The alloy is soft enough to prevent damage to the material being formed, but stable enough to prevent distortions during the forming process. *A level surface is required.* To form [*Fig. 4*]:

1. Lift handle away from die cup.
2. Install and set Stop Screw so that handle stops parallel to base.
3. Lift handle, then heat die cup material with heating device until the material has liquefied.
4. Slowly lower die into material until the handle is against the Stop Screw.
5. Allow material to cool. Do not move the former until cooled.
6. When cooled, lift handle. Remove and store screw.

## USING THE FORMER

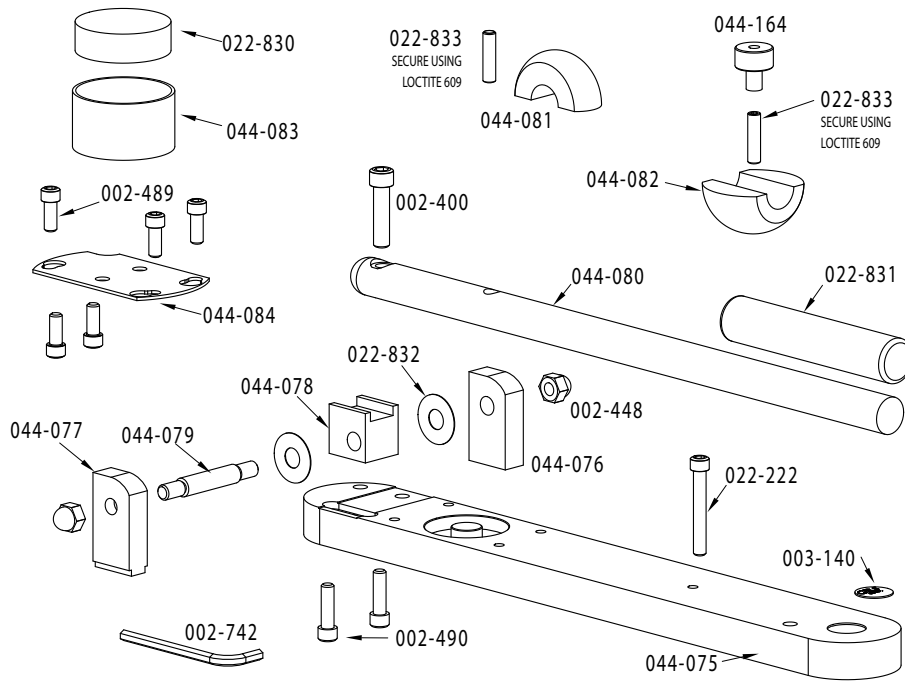
Easily shape "C" style bracelets after engraving and before setting stones. Before you begin forming, check the Die & Material Guide (p. 1) first. To use:

1. Start with end of bracelet on the die cup under forming die.
2. Press down on handle with adequate pressure to form the material.
3. Continue to work the bracelet through the former until you have reached the desired "C" style shape.

You may find that additional shaping by hand or small hammer is needed to achieve a more specific shape.

## TIPS & NOTES

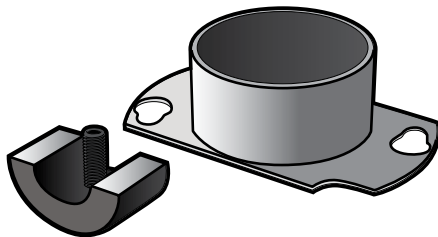
- Any future adjustments to the pivot tension may be made only after dismantling the former.
- Every time you change the die for the CerroMetal Die Cup, you must heat and form the metal to the die again.
- Recreate a uniform CerroMetal surface by heating and reforming.
- Forming should ALWAYS take place after engraving but before stone setting.
- Protect work from light abrasions during the forming process by covering with non-damaging tape.



Part No.	Description
002-400	1 - Cap Screw for Handle (1/4-20 x 1-3/4" SHCS)
002-448	Nut - 2 (5/16-18 Acorn Z/P)
002-489	5 - Cap Screw for Die Cup (1/4-20 x 1-3/4" SHCS)
002-490	2 - Cap Screw for Former (1/4-20 x 1-3/4" SHCS)
002-742	3/16" Hex Wrench
003-140	GRS Decal
022-222	Stop Screw (1/4-20 x 1-3/4" SHCS)
022-830	CerroMetal
022-831	Handle Grip
022-832	Washer for Pivot Block
022-833	Set Screw (1/4-28 x 1" SHSS)
044-075	Former Base
044-076	Right Post
044-077	Left Post
044-078	Center Pivot Block
044-079	Pivot Shaft
044-080	Former Handle
044-081	2" x 1/2" Forming Die
044-082	2" x 1" Forming Die
044-083	Die Cup
044-084	Base Plate for Die Cup
044-164	Thumb Screw (1/4-28)

# GRS Urethane Die Cup & Flat Die Set

OPTIONAL ACCESSORY FOR THE GRS METAL FORMER



You can purchase the optional Urethane Die Cup & Flat Die Set to shape non-traditional jewelry metal such as steel.

It's designed to work with harder metals, and this set is useful for creating low dome or flat bracelets.

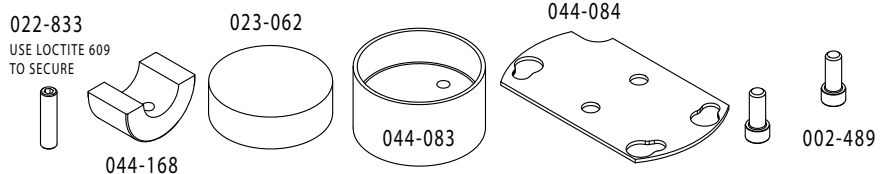
This set features a conformable urethane die cup and a flat forming die. Works as an optional accessory for the GRS Metal Former (#004-725).

Please contact GRS if you have any questions about this product.

## Urethane Die Cup & Flat Die Set PARTS LIST

Do not heat or ingest. For Material Safety Data Sheet on Urethane Material contained in #023-062, please contact us.

Part No.	Description
002-489	2 - Cap Screw for Die Cup (1/4-20 x 1-3/4" SHCS)
022-833	Set Screw (1/4-28 x 1" SHSS)
023-062	Urethane Die Material
044-168	1.5" x 0.84" Flat Forming Die
044-083	Die Cup
044-084	Base Plate for Die Cup



# MATERIAL SAFETY DATA SHEET

## I. Product Identification

Trade Name: CerroMetal  
Part Numbers: 022-830  
MFG's Name: Glendo Corporation  
Address: 900 Overlander Rd.  
Emporia, KS 66801  
Phone: 620-343-1084

## EMERGENCY HAZARD RATING

Health: 2 Flammability: 0 Reactivity: 0

## II. Composition

Chemical Name: Tin  
Reg. by OSHA: ??  
CAS#: 7440-31-5  
OSHA PEL: 2.0  
ACGIH / TLV: mg/cu m  
Carcinogen: No

Chemical Name: Bismuth  
Reg. by OSHA: ??  
CAS#: 7440-69-9  
OSHA PEL: NE  
ACGIH / TLV: NE  
Carcinogen: No

## III. Physical Properties

Melting point: 281°F  
Boiling point: N/A

Specific gravity g/cc: 8.721

Vapor pressure: Not Volatile

Vapor density (air is 1): Not Volatile

Evaporation: N/A  
Solubility in water: NIL

Appearance and color: Silver to gray metal

Odor: None  
% Volatile: Nil  
pH: N/A

## IV. Fire and Explosion Data

Flash Point: Information not available

Flammability Limits: Information not available

Autoignition Temperature: Information not available

Solid, massive form of material is not combustible under ordinary fire conditions. Fire and explosion hazards are moderate when material is in the form of dust and exposed to heat or flames, chemical reaction, or contact with powerful oxidizers. Fire extinguishing methods: Use special mixtures of dry chemicals. Do not use water or moist sand. Fire fighters should wear self-contained breathing apparatus and protective clothing.

## V. Reactivity Data

Massive material is stable at ordinary temperatures, but dust presents moderate fire and explosion hazards. Material may be incompatible with acids, bases, and oxidizers. Molten metal may react violently with water. For additional information, users should consult data sheets on individual component elements.

## VI. Health Hazards Data

TLV: See Section II.

Primary routes of entry: Ingestion of dust, inhalation of dust or fume.

Exposure to the massive form of tin presents few hazards in itself. However, normal handling of tin may result in generation of dusts containing the component elements, and inhalation or ingestion of these dusts may present potentially significant health hazards. Thermal cutting and melting of tin may produce fumes containing the components elements, and breathing these fumes may also present potentially significant health hazards. Special precautions should be taken if metal is contaminated: See section IX.

Prolonged inhalation of tin fumes or dust, or ingestion of tin compounds can result in tin poisoning. Symptoms include abdominal pain or colic, constipation, nausea, joint and muscle pains, and muscular weakness. Severe cases of overexposure may lead to central nervous systems disorders, characterized by somnolence, stupor, and ultimately death.

Bismuth is not considered a toxic or dangerous material, however, it is always good practice to maintain good housekeeping procedures and wash thoroughly.

## VII. Spill Procedures

No special precautions are necessary for spills of bulk material. If large quantities of dust are spilled, remove by vacuuming with a "Hepa" filter or net sweeping to prevent heavy concentrations of airborne dust. Clean-up personnel should wear respirators and protective clothing. Metal can be reclaimed for reuse. Follow federal, state, and local regulations regarding disposal.

## VIII. Special Protection Information

Use general and local exhaust ventilation to keep airborne concentrations of dust or fume below the TLV. Employees should wear OSHA or NIOSH approved respirators for protection against airborne dust or fumes. Full protective clothing should be worn by workers exposed to heavy concentrations of dust, and showering should be required before changing into street clothes. Gloves and barrier creams may be necessary to prevent skin sensitization and dermatitis.

Approved safety glasses or goggles should be worn when working with dusty material and molten metal. Safety stations should be provided in close proximity to work areas.

Pre-employment and periodic medical evaluations should be provided. Attention should be directed toward skin, eyes, respiratory tract, blood, kidneys, pulmonary function, and neurologic health. Chest x-rays should be included if Symptoms are rescent.

Food should not be consumed in the work area. No smoking in work area. Hands and face must be washed before eating or smoking. Cosmetics should not be applied in areas where this product is used.

## IX. Special Precautions

Use good housekeeping practices to prevent accumulations of dust and to keep airborne dust concentrations at a minimum. Avoid breathing dust or fumes.

Store material away from incompatible materials, and keep dust away from sources of ignition.

## XI. Other Information

This fact sheet was prepared by Hallmark Metals Corporation. The information recommendations and suggestions were compiled from reference materials and other sources believed to be reliable. However, the fact sheets' accuracy or completeness is not guaranteed by Hallmark Metals Corporation, nor is any responsibility assumed or implied for any loss or damage resulting from inaccuracies or omissions. Appropriate warning and safe handling procedures should be provided to handlers and users. No warranty is implied or expressed regarding the accuracy of this data. Liability is expressly disclaimed for loss or injury arising out of use of this information or the use of any materials designated.

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For Material Safety Data Sheet on Urethane material contained in #023-062, please contact us. Request Literature #023-062MSDS.