



Zinc Plating Guide for Beginners

Brush / Tampon and Bath Plating

This guide is **beginner-friendly, practical**, and aligned with **commonly accepted international sources**. It applies **equally to brush/tampon plating and bath plating** using a **zinc electrolyte** (e.g. BMG-098.1).

Zinc provides **excellent corrosion protection for iron and steel** and is widely used for **new plating, repairs, and re-plating**.

1. What Is Zinc Plating?

Zinc plating is an electrochemical process that deposits a **bright zinc layer** onto metal surfaces. Zinc acts as a **sacrificial coating**, protecting steel and iron from rust even if the coating is damaged.

2. Suitable and Unsuitable Materials

Suitable:

- Iron
- Steel
- Copper
- Brass

Not suitable:

- Chrome
- Aluminum
- Titanium

3. Safety

- not classified as hazardous, but **irritating**
- Wear protective gloves
- Wear safety goggles
- Avoid skin and eye contact

4. Surface Preparation (Critical for Corrosion Protection)

Rust Removal (Iron / Steel)

- Remove rust completely (mechanical and chemical)
- Grind and sand thoroughly
- Remove scale and dark oxidation layers

Cleaning & Degreasing

- Degrease thoroughly (electro cleaner, acetone, etc.)
- Clean clamps and contact points
- Handle only with gloves afterward

5. Electrical Connections

- **Positive (+):** handpiece with electrode and pad



- **Negative (-):** workpiece with crocodile clip

Electrodes:

- **Zinc anodes recommended**
- Stainless steel anodes only conditionally suitable

6. Technical Parameters (Beginner Guidelines)

- **Voltage:** start at **4 V**
- **Temperature:** minimum room temperature
- **Electrolyte:** liquid or thickened (gel former optional)

7. Brush / Tampon Zinc Plating

- Best for **small to medium areas**
- Recommended max. **2 dm²** surface area

Procedure:

1. Soak pad with zinc electrolyte
2. Connect polarity correctly
3. Plate using light, circular movements
4. Build a uniform zinc layer

8. Zinc Bath Plating

General Notes

- Orange flocculation in the electrolyte is normal
- Fresh zinc deposits appear **matte gray**
- Shine is achieved by polishing after plating

Current & Voltage

- Key parameter: **current density**
- Guideline: approx. **2.5 A / dm²**

Adjust current slowly until a uniform gray deposit forms without excessive gas evolution.

Anodes & Arrangement

- Use **zinc anodes only**
- Clean and sand anodes before use
- Ensure even anode distribution around the workpiece

9. Post-Treatment & Protection

- Rinse with water
- Dry and polish

To prevent white rust:

- blue chromate / passivation (note material removal)
- sealing or corrosion protection coatings

10. Common Beginner Issues

Dark deposits: current too high

Layer dissolves: surface too large (brush plating), wrong anodes



White rust: missing post-treatment

Key takeaway:

Zinc protects steel by sacrificing itself – proper preparation and post-treatment determine durability.