

## Brush Plating Overview

The plating voltage and time suggested below are a starting point based off our experience with the solution. We suggest using this as a starting point for your project. We suggest starting at the lower voltage and working your way up. Starting at too high of a voltage can result in burning or damaging your piece.

The recommended voltage and plating time can significantly differ depending on what the type of metal you are plating onto, the amount of solution carried in your sleeve and ?????

Pre- Treatment Solutions	Anode/Bit Required	Brush Voltage	Time	Temperature
Electro Cleaner	Stainless Steel	5 - 7 Volts	15 - 30 Seconds	Room
Surface Activator	Stainless Steel	6 Volts	15 - 30 Seconds	Room
Wood's Nickel Strike	Pure Nickel Anode	5 - 7 Volts	20 - 30 Seconds	Room
Chrome Stripper	Stainless Steel	N/A	As Required	Room
Trival	Platinum Plated Titanium	5 - 7 Volts	10 - 20 Seconds	Room
Copper Strike	Stainless Steel or Copper	2 - 4 Volts *very sensitive to voltage	10 - 15 Seconds	Room

Plating Solutions	Anode/Bit Required	Brush Voltage	Time	Temperature
24K Brush Gold	Stainless Steel	2.5 to 3 Volts	Plating time varies *	Room
Pen Gold	Stainless Steel	3 - 4 Volts	Plating time varies *	Room
Pure Gold	Platinum Plated Titanium	2 - 4 Volts *very sensitive to voltage	Plating time varies *	Room
Rose Gold - Brush	Stainless Steel	6 Volts	Plating time varies *	Room
Palladium	Platinum Plated Titanium	3.5 Volts *very sensitive to voltage	15 - 30 sec/in2	Room
Rhodium	Platinum Plated Titanium	3-5 Volts	5 - 10 sec/in2	Room
Silver NC	Stainless Steel	2 - 2.5 Volts	1 - 2 Minutes	Room
Bright Nickel	Pure Nickel Anode	3 Volts	10 - 20 sec/in2	Room
Bright Acid Copper	Stainless Steel or Copper	2.5 Volts	2 - 4 Minutes	Room

\* Brush gold usually becomes opaque at about 30 seconds/in2. The precise plating time will vary depending on job specifications.

## BATH PLATING 1 liter setup with the Jewel Master Plating or Single Auxiliary Units

The plating voltage and time suggested below are a starting point based off our experience with the solution. We suggest using this as a starting point for your project. We suggest starting at the lower voltage and working your way up. Starting at too high of a voltage can result in burning or damaging your piece.

The recommended voltage and plating time can significantly differ depending on what the type of metal you are plating onto and how much surface area is submerged in the beaker.

Pre- Treatment Solutions	Anode Required	Bath Voltage	Time	Temperature
Electro Cleaner	Stainless Steel	5 - 7 Volts	15 - 30 Seconds	Heated 120 F - 140F
Surface Activator	Stainless Steel or Graphite	6 Volts	15 - 30 Seconds	Room
Trival	Platinum Plated Titanium or Graphite	5 - 7 Volts	10 - 20 Seconds	Room
Wood's Nickel Strike	Pure Nickel Anode	5 - 7 Volts	20 - 30 Seconds	Room
Copper Strike	Stainless Steel or Copper	.8 Volts *very sensitive to voltage	10 - 15 Seconds	Room

Plating Solutions	Anode Required	Bath Voltage	Time	Temperature	Air Recommended
24K, 18K, 24K - Bath	Stainless Steel or Graphite	2 - 4 Volts	2 - 4 Minutes	95 - 105 F	Yes
Pure Gold	Platinum Plated Titanium	1.5 - 2.0 Volts *very sensitive to voltage	Time to deposit one micron ~ 5 minutes	120 - 150 F	Yes
Rose Gold - Bath	Stainless Steel	4 - 6 Volts	30 - 60 Seconds	120 - 130 F	Yes
Eco - Rose Gold	Stainless Steel	3 - 4 Volts	30 - 40 Seconds	130 - 140 F	Yes
Rhodium	Platinum Plated Titanium	2 - 4 Volts	30 - 60 Seconds	Room	Yes
Palladium	Platinum Plated Titanium	1.5 - 2 Volts *very sensitive to voltage	15 - 30 Seconds	125 F	Yes
Silver NC	Stainless Steel	1 - 3 Volts	1 - 2 Minutes	Room	Yes
Bright Nickel	Pure Nickel Anode	3-4 Volts	1 - 2 Minutes	110 - 130 F	Yes
Bright Acid Copper	Pure Copper w/Air Agitation	1 - 3 Volts	2 - 4 Minutes	Room	Yes

## BATH PLATING 5000 mL Setup with the ProLab cm Series

The plating voltage and time suggested below are a starting point based off our experience with the solution. We suggest using this as a starting point for your project. We suggest starting at the lower voltage and working your way up. Starting at too high of a voltage can result in burning or damaging your piece.

The recommended voltage and plating time can significantly differ depending on what the type of metal you are plating onto and how much surface area is submerged in the beaker.

Pre- Treatment Solutions	Anode Required	Bath Voltage	Time	Temperature
Electro Cleaner	Stainless Steel	6 - 7 Volts	15 - 30 Seconds	Heated 120 F - 140F
Chrome Stripper	Stainless Steel	N/A	As Required	Room
Surface Activator	Stainless Steel or Graphite	6 Volts	15 - 30 Seconds	Room
Trival	Platinum Plated Titanium or Graphite	5 - 7 Volts	10 - 20 Seconds	Room
Wood's Nickel Strike	Pure Nickel Anode	5 - 7 Volts	20 - 30 Seconds	Room
Copper Strike	Stainless Steel or Copper	2 - 4 Volts *very sensitive to voltage	10 - 15 Seconds	Room

Plating Solutions	Anode Required	Bath Voltage	Time	Temperature	Air Recommended
24K, 18K, 24K - Bath	Stainless Steel or Graphite	2 - 4 Volts	2 - 4 Minutes	95 - 105 F	Yes
Pure Gold	Platinum Plated Titanium	1.5 - 2.0 Volts *very sensitive to voltage	Time to deposit one micron ~ 5 minutes	120 - 150 F	Yes
Rose Gold - Bath	Stainless Steel	4 - 6 Volts	30 - 60 Seconds	120 - 130 F	Yes
Eco - Rose Gold	Stainless Steel	3 - 4 Volts	30 - 40 Seconds	130 - 140 F	Yes
Rhodium	Platinum Plated Titanium	2 - 4 Volts	30 - 60 Seconds	Room	Yes
Palladium	Platinum Plated Titanium	1.5 - 2 Volts *very sensitive to voltage	15 - 30 Seconds	125 F	Yes
Silver NC	Stainless Steel	1 - 3 Volts	1 - 2 Minutes	Room	Yes
Bright Nickel	Pure Nickel Anode	2.3 Volts	1 - 2 Minutes	110 - 130 F	Yes

Bright Acid Copper	Pure Copper w/Air Agitation	1 - 3 Volts	2 - 4 Minutes	Room	Yes
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## Required Solution Steps by Metal Type

Pre-Treatment Solutions Required to Activate Surface of Metal					Is the metal Magnetic?
Metal Type	Step 1	Step 2	Step 3	Step 4	
<b>Stainless Steel</b>	Electro-cleaner	Wood's Nickel Strike or TriVal Gold Strike	Plating Solution	N/A	YES
<b>Carbon Steel / Steel</b>	Electro-cleaner	Copper Strike or Wood's Nickel Strike	Bright Nickel or Palladium	Plating Solution	YES
<b>Chrome</b>	Chrome Stripper in proper mode	Surface Activator	Plating Solution	N/A	<b>Chrome NO, but the nickel under is.</b>
<b>Nickel</b>	Electro-cleaner	Surface Activator	Plating Solution	N/A	YES
<b>Bronze</b>	Electro-cleaner	Surface Activator	Nickel	Plating Solution	NO
<b>Copper, Brass, Silver</b>	Electro-cleaner	Surface Activator	Bright Nickel or Palladium	Plating Solution	NO
<b>Tin</b>	Electro-cleaner	Copper Strike	Bright Nickel or Palladium	Plating Solution	NO
<b>Pewter</b>	Electro-cleaner	Copper Strike	Bright Nickel or Palladium	Plating Solution	NO
<b>Lead</b>	Electro-cleaner	Surface Activator	Plating Solution	N/A	NO
<b>Solder</b>	Electro-cleaner	Surface Activator, Copper Strike if tin-based	Bright Nickel or Palladium	Plating Solution	NO
<b>Zinc plated steel</b>	Strip Zinc, then Electro-cleaner	Copper Strike	Bright Nickel or Palladium	Plating Solution	YES
<b>Solid Zinc</b>	Electro-Cleaner	Copper Strike	Bright Nickel or Palladium	Plating Solution	NO
<b>Cobalt</b>					YES
<b>Iron</b>					YES
<b>Tungsten &amp; Tungsten Alloys</b>	The plating process may differ depending on tungsten purity. Contact us for more information.				NO
<b>PVD</b>	Cannot plate onto PVD unless it has a specialized additive or coating.				NO
<b>Aluminum</b>	Can not perform at an amateur level. Please seek professional plating company to apply nickel onto aluminum for proper adhesion. Once nickel is applied correctly, follow pre-treatment recommendations.				NO
<b>Titanium</b>	Can not be plated onto				NO

Compounds and alloys can also be magnetic if they contain iron, cobalt, or nickel.

### Metals requiring a Nickel or Palladium Diffusion Barriers prior to plating

Copper
Brass
Silver
Carbon Steel
Tin
Pewter
Solder
Zinc