- Layer sequence -

the optimal sequence on the respective metal

In electroplating, metals are coated with a thin layer through electrochemical processes.

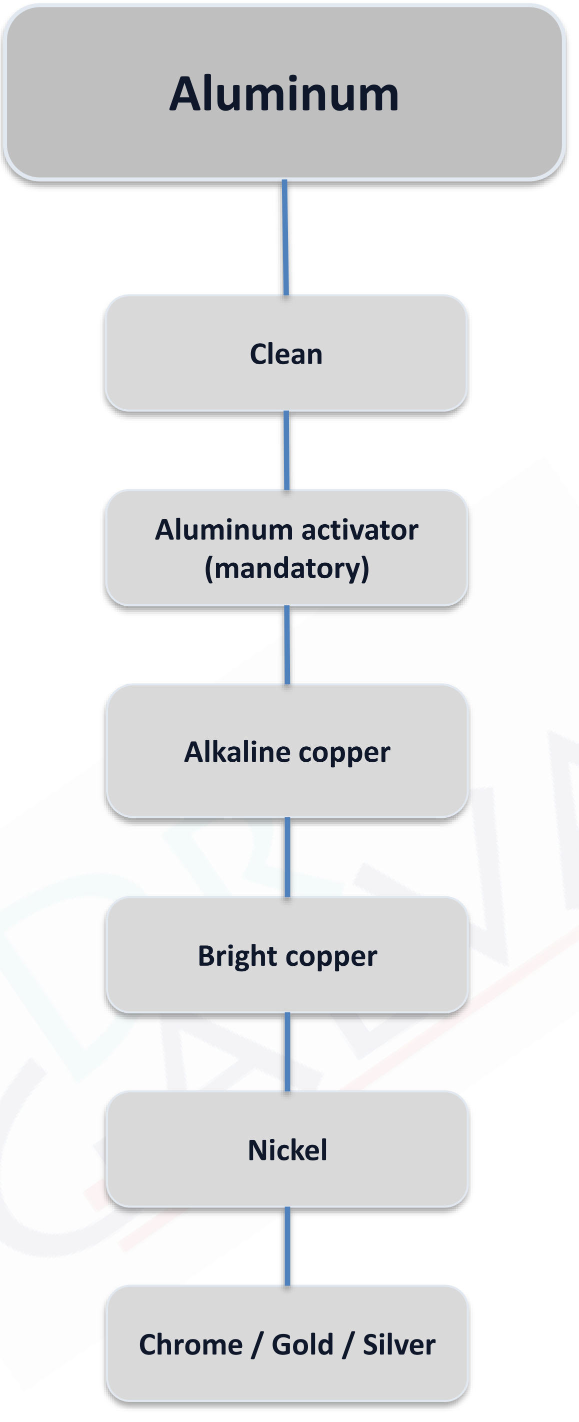
Each base metal has its own properties that influence the process.

- Aluminium immediately forms oxide - therefore it needs special pretreatment (Aluminium activator/ zincate).
- Copper deposits evenly and ensures a good adhesive layer. A distinction is made between alkaline copper electrolyte (for non-acid-resistant metals such as zinc and iron) and acidic bright copper (only for acid-resistant metals). Alkaline electrolyte ensures adhesion, acidic electrolyte provides luster.
- Nickel is used as a barrier and brightening layer, important for corrosion protection.
- Zinc protects against corrosion and serves as a classic sacrificial layer.
- Chromium enhances the appearance of surfaces and increases hardness, but on its own offers little corrosion protection. Therefore, always deposit it on top of nickel.

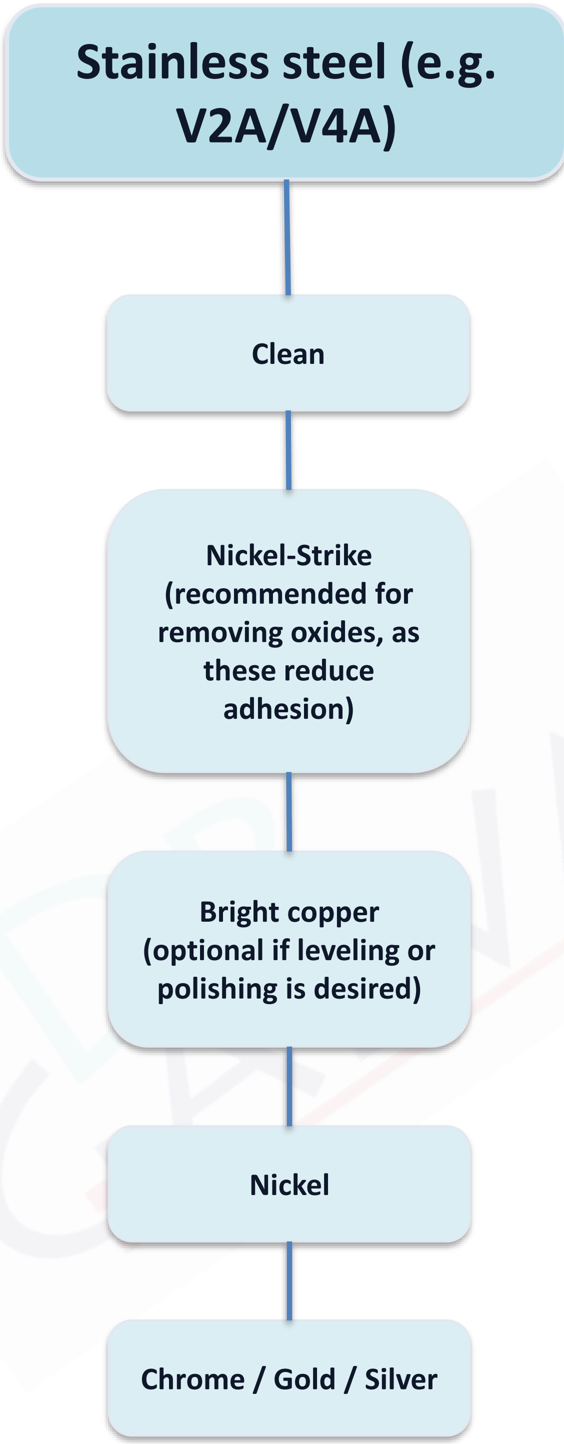
While individual intermediate layers can be omitted, this usually leads to disadvantages such as poor adhesion, porosity, or reduced corrosion protection.

If the base layer is rough, it must be prepared beforehand (e.g., polished), as significant unevenness is difficult and time-consuming to smooth out. Rinse thoroughly between each step. The sequence corresponds to the recommended layering process. Unwanted final layers can be omitted. Always apply chromium and gold over nickel to prevent diffusion of the metals.

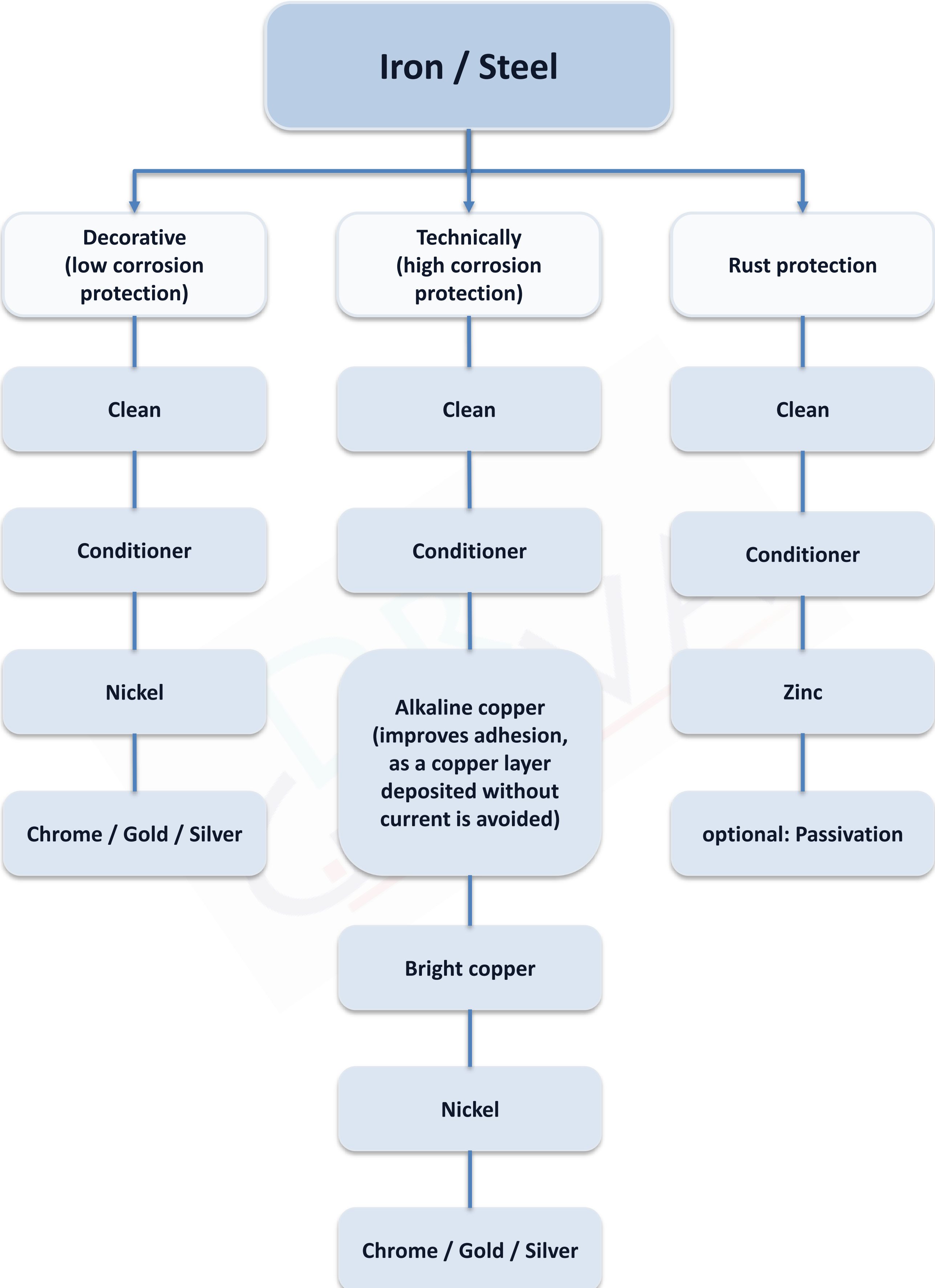
The flowchart shows the typical sequence and the most important properties of the layers.

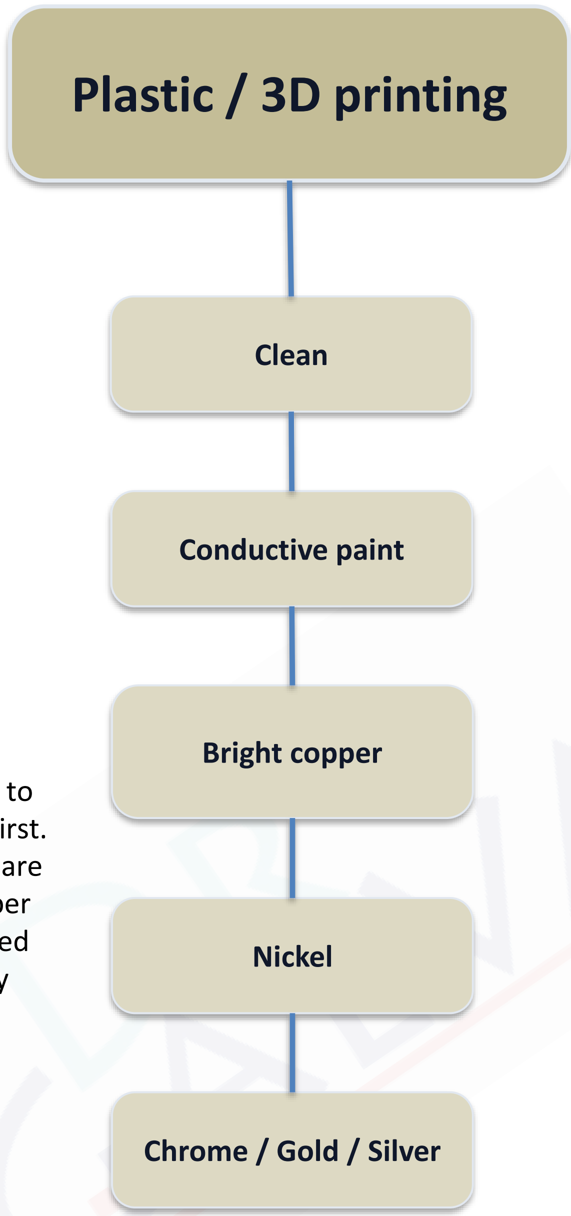


Aluminum is difficult to coat; with some alloys, the aluminum activator must be applied twice. Furthermore, the alkaline copper layer must not be too thin, as this can create minute pores, allowing the acid in the bright copper electrolyte to penetrate the layer and cause blistering (or flaking).

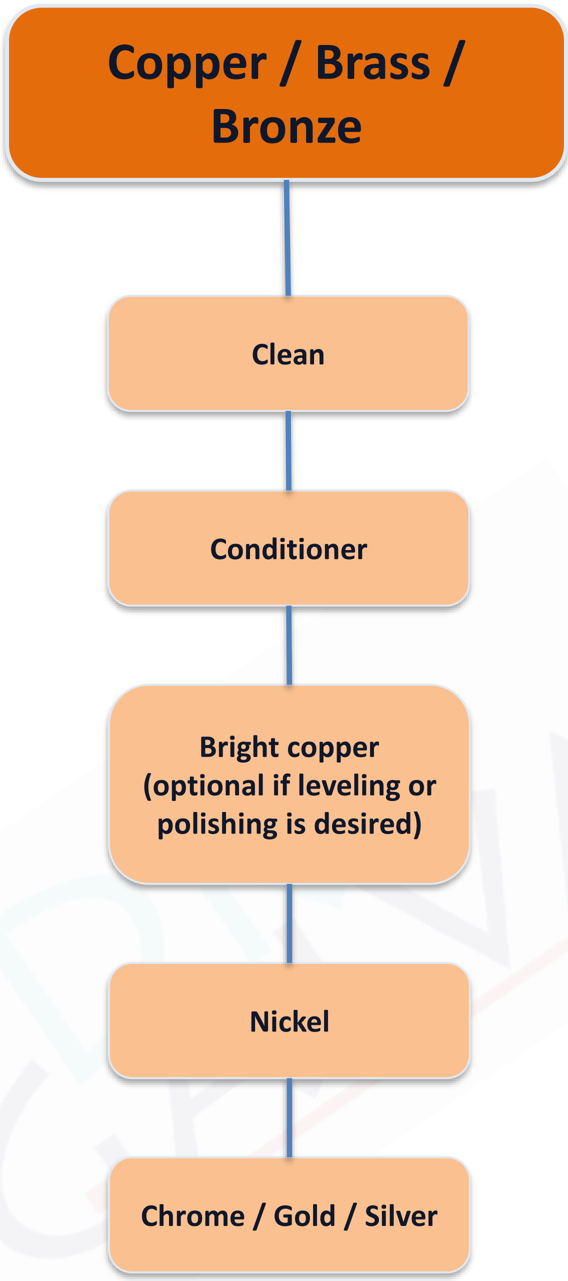


Although stainless steel can be coated directly, pretreatment with nickel strike is recommended. This removes the protective oxide layer and applies a thin layer of nickel. Nickel plating can then be carried out.

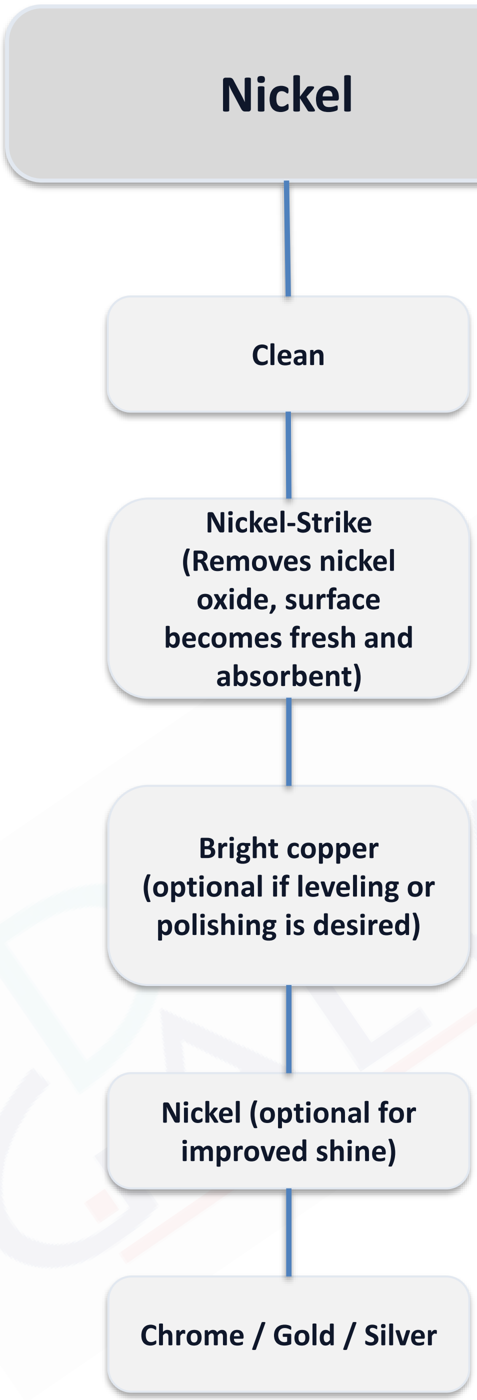

Iron / Steel
Decorative (low corrosion protection)
Clean
Conditioner
Nickel
Chrome / Gold / Silver
Technically (high corrosion protection)
Clean
Conditioner
Alkaline copper (improves adhesion, as a copper layer deposited without current is avoided)
Bright copper
Nickel
Chrome / Gold / Silver
Rust protection
Clean
Conditioner
Zinc
optional: Passivation



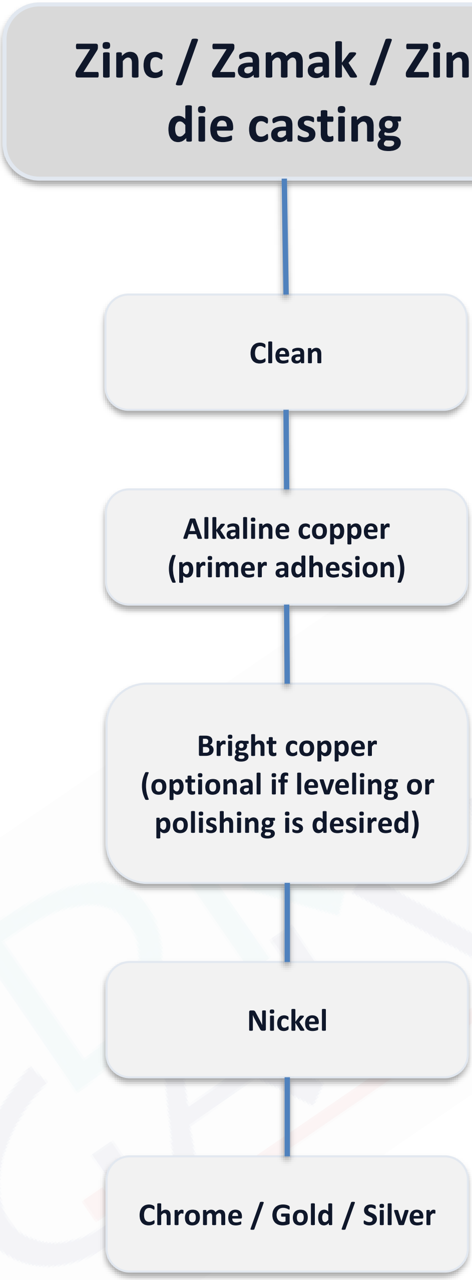
Plastics themselves are not conductive, so it is necessary to create a conductive surface first. Suitable conductive coatings are used for this purpose. A copper layer can then be electroplated onto this coating, followed by further layers.



Copper alloys are usually sufficiently acid-resistant, so they can be nickel-plated directly. If necessary, they can first be smoothed with bright copper plating.



Older nickel plating must be activated with Nickel Strike to remove the oxide layer. This ensures reliable adhesion of new plating. Nickel is usually the base layer for chromium plating.



Zinc is easily soluble in acid, therefore it is first copper-plated in an alkaline solution, followed by layers of acidic electrolytes.