CASE STUDY

METALIZZ

How do you provide the lustre of precious metal to a 3D-printed polymer part?

Customer
Nagaré Design SA

Design, Interior architecture & Branding Studio - Switzerland

Markets
Style - Luxury & Leather Goods - Cosmetics

Objective

To coat with a precious metal, for example gold, a stylish and functional object such as, here, a bespoke door handle.

Background

A major Swiss global design studio has created a made-to-measure and personalised door handle for a Swiss bank which mixes style with functionality.

The choice of manufacturing technology adopted was for 3D-printing, SLS technology, using a glass-fibre reinforced thermoplastic.

To provide value to this unique object and ensure an optimised and personalised user experience, the customer requested a satin gold finish.

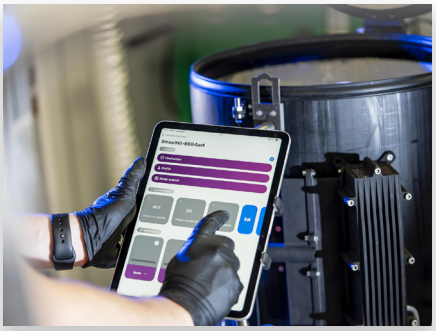
Manufacture - Solutions

Step 1
Cleaning the parts

Initially, the parts are cleaned and degreased in a special solution which removes any remaining powder residues, optimised by ultrasound using the **Uscleaner** machine.

Step 2
Surface smoothing

The parts are treated to improve the surface finish (roughness and porosity) to facilitate the finishing operations.
The M.i.M. process, implemented in the **Smoothit** machine, deposits a translucent levelling varnish. To obtain the ideal rendering, a quick manual sanding phase was carried out beforehand.



Step 3

Primary conductor phase

This is where the parts are made conducting using a functional coating through the deposit of a primary silver-based conductor obtained by spraying at ambient temperature and atmospheric pressure with the **Metalfog** machine.

The parts are ready to be metallized in the electrolytic solutions.

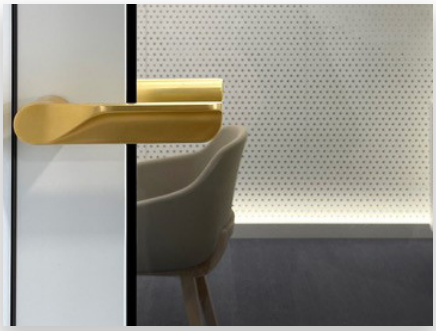
Step 4

Galvanising

A number of copper and nickel solutions are needed to give weight to the handles before the finish in X3 satin gold.

Results

The parts were accepted by the customer and installed in the bank's branches.



Technical data

Material: PA - GF

Manufacture: 3D printing, SLS

Processes used:

- Cleaning & decontamination
- MiM smoothing - translucent levelling varnish: 80 microns
- Light manual sanding
- Utility Silver Layer - primary conductor: 1 micron
- Electroplating
  Copper - Bright Nickel - Gold: 100 microns

Advantages

Unlimited creativity, customisation, metal finish, speed of manufacture, bringing processes in-house.

Conclusion

With the growth in 3D printing across all sectors, the metallization of plastic parts has taken on a new role and become an ally in the quest to obtain finished parts with high added value.

Metalizz offers solutions through its various processes for metallizing printed polymers on a one-off basis (prototyping) as well as small or large production runs.