



BALES

METAL SURFACE SOLUTIONS

Here at Bales, we understand customer success is essential for building strong partnerships. This case study provides insight on our solution, which empowered our client to overcome industry challenges, boost productivity, and achieve their growth goals.

OPTIMAL PART QUALITY

GUARANTEED SATISFACTION

TRUSTED PARTNERSHIP

DIAMOND EN for Wear Lasts Two Years

Challenge

A customer approached Bales to help with their high wear molding situation. The base material of the tool is H11 steel, while the molding material used is a glass-filled resin known as PMMA (Polymethyl methacrylate). They faced challenges with the H11 steel, particularly due to its susceptibility to scratching and pitting. The resin often resulted in scratches on the tool, necessitating frequent touch-ups. Continuous polishing to address these scratches further exacerbated the issue, leading to deeper pits in the steel.

Solution

To combat the wear and damage, the Bales suggested coating with **Diamond EN** plating, which offers high hardness. This plating contains diamond particles distributed throughout, achieving a hardness of 57 Rockwell. As an electroless nickel plating, **Diamond EN** provides consistent coating for complete coverage. This coating is often recommended when glass, wood, and other abrasive fillers are being molded to protect the base material from wear.

Results

After applying the **Diamond EN** coating, the customer stopped experiencing scratches on the molding surfaces. For two years after the plating, the tool has performed well and only recently started showing signs of wear at the edges of the tool. The post-baked **Diamond EN** coating has successfully withstood the harsh conditions posed by the glass-filled resin reducing costly downtime and additional processing.

Conclusion

Applying the right plating for the situation, **Diamond EN** to combat wear, provided years of production and decreased downtime. Bales also provides Preventative Maintenance training for customers where they learn how to spot wear visually as well as through production output, a checklist and basic record keeping. This helps to better support our customers and their production goals.

Investment: Masking was applied to all areas except the molding area per cavity block. The cost for Diamond EN plating, measuring 0.0006 to 0.0007 inches per side, was \$7,800 with a lead time of twelve business days, and the plating lasted for two years.