Prototype tools

Prototype tools made within the PolyMetal project

Content:

Scope of the report: 6 pages

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1 Introduction

The so-called "cool-touch effect" can be achieved either using thermally conductive plastic additives or by the use of special processing technologies that apply a more or less thin metal layer to the surface of the plastic. Selected technologies for the PolyMetal project used injection moulding for the production project demonstrators. The project partners decided to make two series of prototype tool inserts. All of them were design and produced by project partner Hiebler. The first series (3 tool inserts) had a narrow surface with three different surface roughnesses, the second series (3 tool inserts) had different surface roughnesses with PolyMetal & Interreg SI-AT logos and SI-AT maps and dots on the maps showing the location from each project partners. Tool inserts were made for existing tools from the project partner FTPO, where all the injection moulding tests with produced tool inserts were made. Project partner Hiebler made also 3D drawings of the tool inserts. This drawing used project partner MUL for simulation of the injection moulding.

2 Prototype tools with different surface roughnesses

All tool inserts were designed (Figure 2) and produced (Figure 1) at project partner Hiebler and used at project partner FTPO on the existing injection moulding tool. Different surface roughness Ra values were 6 µm, 18 µm and 30 µm.

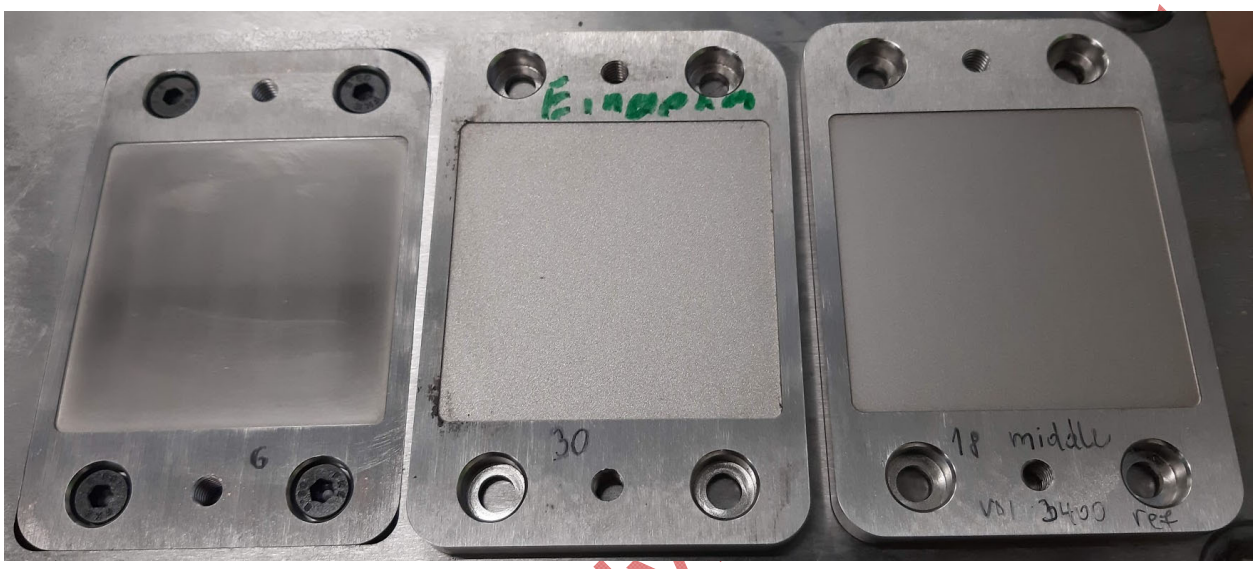

Figure 1: Prototype tool inserts with different surface roughnesses

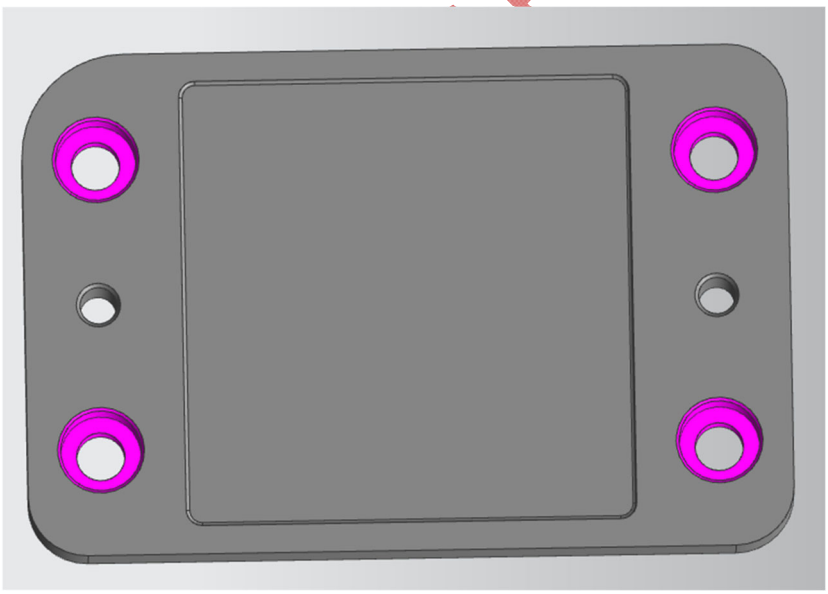

Figure 2: 3D drawing of a prototype tool insert

3 Prototype tools with different surface roughnesses with PolyMetal & Interreg SI-AT logos and SI-AT maps

All tool inserts were designed (Figure 5) and produced (Figure 3) at project partner Hiebler and used at project partner FTPO on the existing injection moulding tool. Different surface roughness Ra values were 6 µm, 18 µm and 30 µm. With the dots on the maps, the location of each project partner is marked (Figure 4). Those tool inserts were used for both selected technologies within the project (Figure 6).

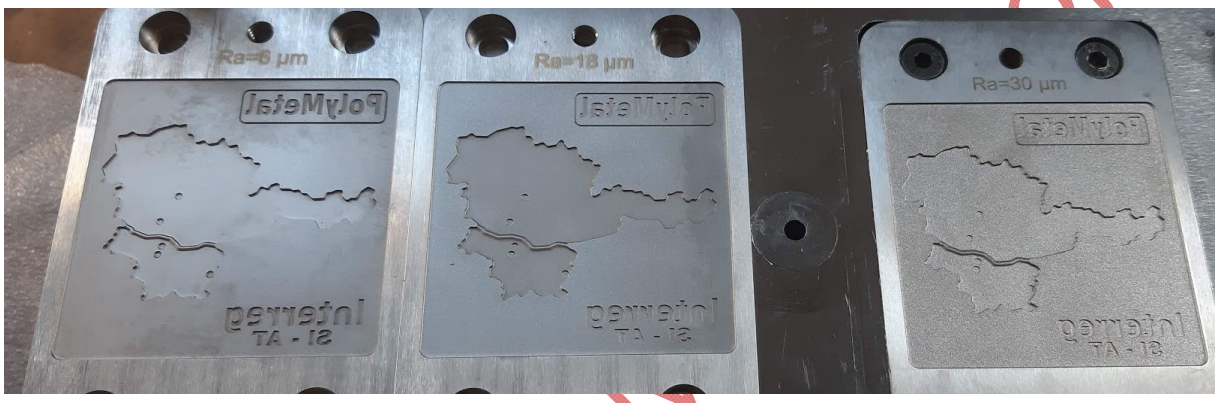

Figure 3: Prototype tool inserts with different surface roughnesses and with PolyMetal & Interreg SI-AT logos and SI-AT maps

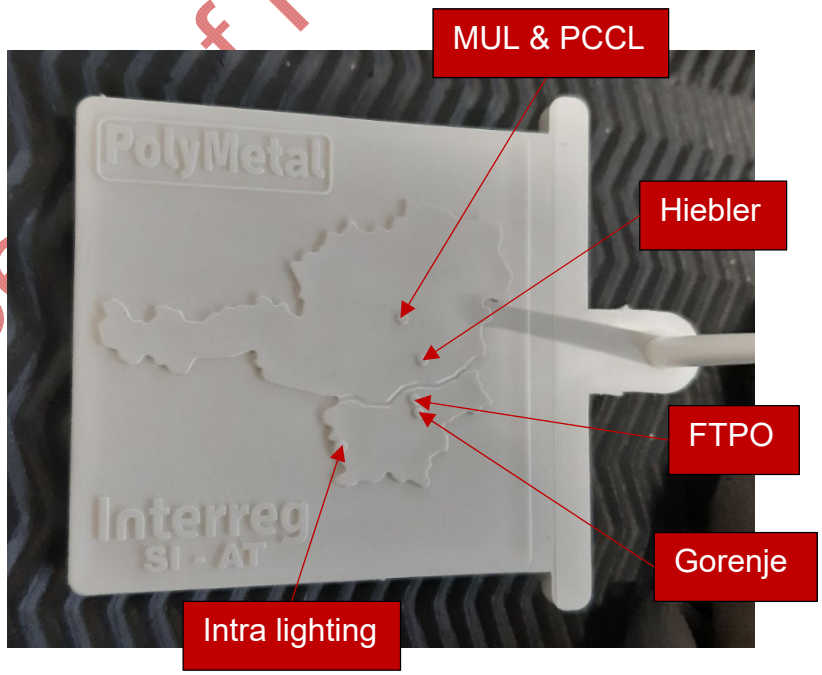

Figure 4: Prototype injection moulded part from tool inserts with different surface roughnesses and with PolyMetal & Interreg SI-AT logos and SI-AT maps

Figure 5: Prototype tool inserts with different surface roughnesses and with PolyMetal & Interreg SI-AT logos and SI-AT maps – 3D drawing

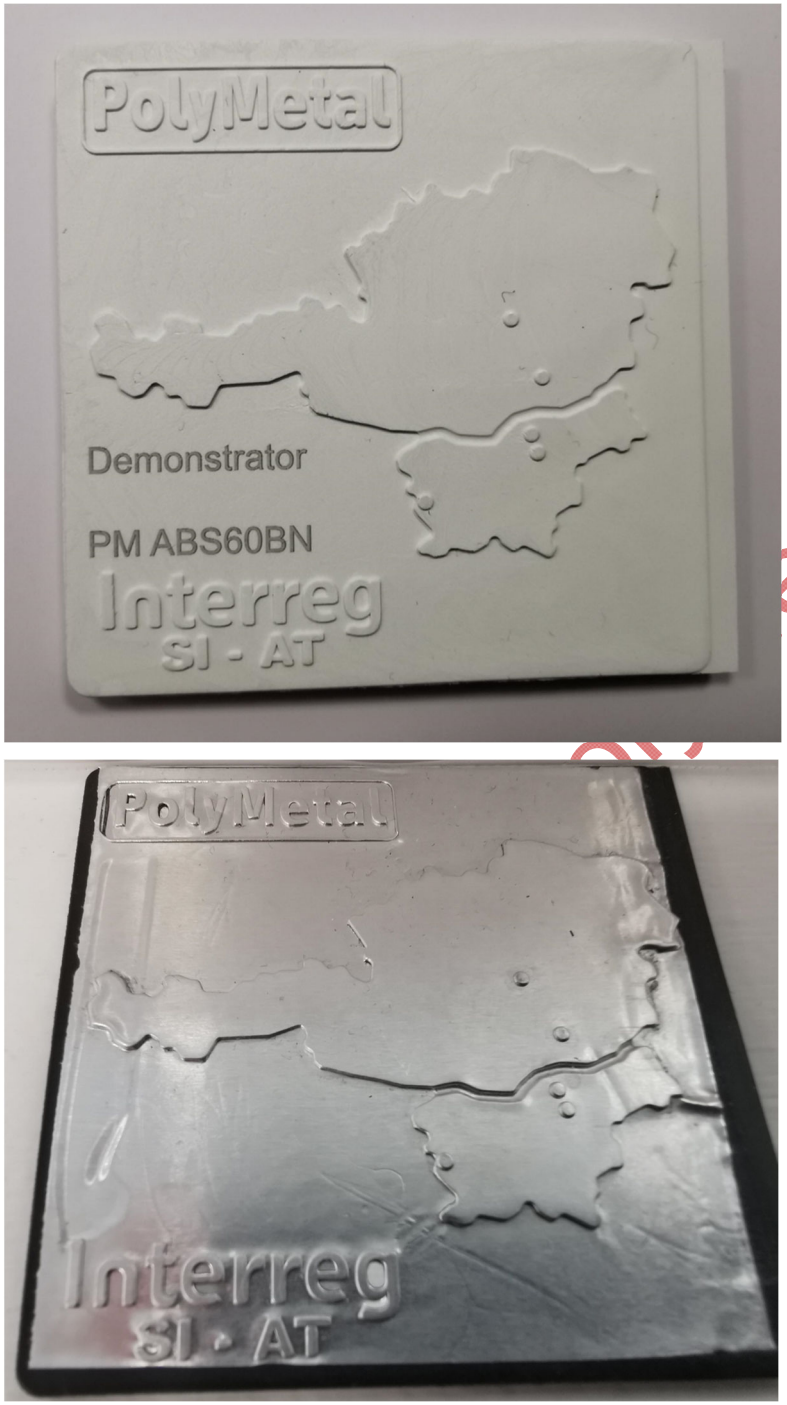

Figure 6: Produced samples from the prototype tool (composite with high thermal conductivity – top, IML technology – bottom)