Comparison of 3 methods on fabricating micro- /nano- structured surface on 3D mold cavity

The methods to manufacture micro- or nano- structures on surfaces have been an area of intense investigation. Demands are shown for technologies for surface structuring on real 3D parts in many fields. However, most technologies for the fabrication of micro-structured functional surfaces are still limited to flat or simple shaped geometries. In this paper, 3 approaches for fabricating micro and nano- structured surfaces on a mold cavity for injection moulding are investigated and compared. The first approach is to use pre-fabricated plate with micro-structured surface as an insert for the mold, in this way micro holes (Ø4 μm) was obtained. The second approach is to produce the cavity part using anodizing process chain, and in this way sub-micro structures can be obtained all over the cavity surface. The third approach is to machine the surface inside the cavity directly by femtosecond laser combined with mask projection technique.

General information
State: Published
Organisations: Department of Mechanical Engineering, Manufacturing Engineering
Contributors: Zhang, Y., Hansen, H. N., Bissacco, G., Biondani, F. G.
Number of pages: 2
Publication date: 2015

Host publication information
Title of host publication: Proceedings of Euspen's 15th International Conference & Exhibition
Keywords: Micro structured surface, Laser, 3D geometry, Injection moulding
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015