

Precision manufacturing of polymer micro-nano fluidic systems - DTU Orbit (08/11/2017)

Precision manufacturing of polymer micro-nano fluidic systems

Lab-on-a-Chip (LoC) technologies require the possibility of fabricating devices which include micro down to sub-micrometre features with high production rate and low cost. In the present study precision injection moulding is performed using a COC Topas 5013 L10 polymer to produce LoC devices for DNA barcoding with functional features in the 100 nm to 10 μ m range. Replication quality of produced features (from nickel to polymer) was assessed by calibrated atomic force microscope (AFM) measurements performed on multiple nanochannels test structures arrays placed at different positions in the sample. Design of experiment (DOE) was adopted to characterize the replication fidelity of produced polymer features. Results have shown the possibility of performing quality control of micro- and sub- μ m features, taking into account the polymer shrinkage, depending on process conditions at both micro and nano dimensional scales.

General information

State: Published

Organisations: Department of Mechanical Engineering, Manufacturing Engineering, Danish Fundamental Metrology

Authors: Garnæs, J. (Ekstern), Calaon, M. (Intern), Tosello, G. (Intern), Matusiewicz, K. (Intern), Hansen, H. N. (Intern)

Pages: 31-32

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the 15th International Conference of the European Society for Precision Engineering and Nanotechnology

Publisher: The European Society for Precision Engineering and Nanotechnology

ISBN (Print): 9780956679079

Main Research Area: Technical/natural sciences

Conference: 15th euspen International Conference & Exhibition (2015), Leuven, Belgium, 01/06/2015 - 01/06/2015

Source: FindIt

Source-ID: 2288940028

Publication: Research - peer-review › Article in proceedings – Annual report year: 2015