A method for manufacturing a tool part for an injection molding process, a hot embossing process, a nano-imprint process, or an extrusion process

The present invention relates to a method for manufacturing a tool part for an injection molding process, a hot embossing process, nano-imprint process or an extrusion process. First, there is provided a master structure (10) with a surface area comprising nanometre-sized protrusions (11) with a minimum density of approximately 105 protrusions/mm2, the protrusions being positioned in a non-periodic, irregular pattern, said protrusions being created by a process comprising alternating passivation and etching into the master structure. Secondly, there is made a transfer of the master structure into a metal insert (20), the metal insert having a corresponding nanometre-sized pattern (21) from said protrusions, and thirdly, adapting the metal insert into a tool part (30) for enabling nanometre-sized patterns being formed by the tool part. The invention provides an easier and faster way of manufacturing the master structure, e.g. a black silicon wafer. It is a further advantage of the present invention that it provides an advantageous way of making tools capable of producing self-cleaning surfaces without the need for chemical coating.

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