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Tribological properties of laser textured and DLC coated surfaces with solid lubricants

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Hydrogen free diamond-like coatings (DLC) have excellent tribological properties at room temperature and humid conditions. However, the coefficient of friction and wear rate against steel surfaces increase at elevated temperatures. Adding solid lubricant into micro-reservoirs produced by Laser Surface Texturing (LST) has been reported to decrease the coefficient of friction of sliding surfaces. In this study, incorporation of solid lubricants e.g. MoS_2 onto laser textured and DLC coated steel surface was demonstrated to provide excellent tribological properties at elevated temperature with an extended lifetime of the surfaces. Solid lubricants were applied to the surface both by burnishing and magnetron sputtering.

Keywords
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