

Influence of Machining Process on Surface Integrity of Plasma Coating

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Abstract : For the required function of components with the thermal spray coating, it is necessary to perform additional machining of the coated surface. The paper deals with assessing the surface integrity of Metco 2042, a plasma sprayed coating, after its machining. The selected plasma sprayed coating serves as an abradable sealing coating in a jet engine. Therefore, the spray and its surface must meet high quality and functional requirements. Plasma sprayed coatings are characterized by lamellar structure, which requires a special approach to their machining. Therefore, the experimental part involves the set-up of special cutting tools and cutting parameters under which the applied coating was machined. For the assessment of suitably set machining parameters, selected parameters of surface integrity were measured and evaluated during the experiment. To determine the size of surface irregularities and the effect of the selected machining technology on the sprayed coating surface, the surface roughness parameters Ra and Rz were measured. Furthermore, the measurement of sprayed coating surface hardness by the HR 15 Y method before and after machining process was used to determine the surface strengthening. The changes of strengthening were detected after the machining. The impact of chosen cutting parameters on the surface roughness after the machining was not proven.

Keywords : machining, plasma sprayed coating, surface integrity, strengthening

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