

Special Issue

Identification of the Impact of Tool Protective Coatings on Temperature and Heat Distribution in the Cutting Zone

Message from the Guest Editors

Machining is still the basic technique for manufacturing machine parts. Most of the tools used in the engineering industry are coated tools. The main task of using protective coatings is to reduce tool wear. Protective coatings primarily change the tribological interactions at the interface between the cutting tool and the workpiece. They also affect the amount of heat generated during cutting, and above all, the change in heat flows flowing from the decohesion zone of the material to the blade, to the chip and to the workpiece. High temperature in cutting is an unfavorable phenomenon because it promotes wear of the blade. Recently, the machine parts industry has been striving to miniaturize the manufactured elements, to create products with a complex shape and to use materials that are difficult to machine. Tools are being used more and more often in harsh conditions. Therefore, knowledge of the mechanisms of the impact of coatings on the cutting process, and especially on the amount of heat generated and its distribution in the cutting zone, is so important.

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