

# Influence of MoC Coatings on Wear of Edges of Steel Knives and Cutting Parameters for Milling Oak Wood

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2022

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**Ключевые слова:** wood milling, knife edge wear, MoC coatings, cutting power, surface roughness R a.

**Abstract:** The article studies the characteristics of mill knives of high-speed steel HS 18-0-2-5 with as well as without MoC and Mo 2 C molybdenum carbide coating at plane milling of oak wood. The molybdenum carbide coating was deposited by arc vacuum physical vapor deposition (Arc-PVD). The knife edge wear was determined using a contour measuring system for determining the displacement of the cutting edge along the axis of the cutter wedge sharpness angle (WB W ). Compared to a milling cutter with knives

without coating, the molybdenum carbide coating improves the wear resistance of the knife blades and increases the cutting power by almost 40% when milling oak wood samples. The mills with the knife edges coated with the molybdenum carbides exhibited an average reduction in oak wood surface roughness  $R_a$  by 1.5–3  $\mu\text{m}$  as compared to the bare tool in the entire range of applied feed rates and milling length. The laboratory tests of the wood-cutting tool covered with MoC coating prove that their durability has increased by 30% against the durability of the bare tool used in milling oak wood.

**Источник публикации:** Influence of MoC Coatings on Wear of Edges of Steel Knives and Cutting Parameters for Milling / V. V. Chayauski [et al.] // Journal of Friction and Wear. – 2022. – Vol. 43, No. 6 – P. 370–376.

Режим доступа:

<https://link.springer.com/article/10.3103/S1068366622060034#citeas>.