

UDC 621.913:621.633

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**STUDY OF GEAR HONING OF COGWHEELS AFTER GEAR SHAVING
AND HEAT PROCESSING**

Research paper considers a new method of gearing cylindrical gears, after gear shaving and heat processing with worm diamond elastic hones. The main disadvantages of the existing methods of gearing honing are given. The main advantage of the new method of gear honing is that serial milling or grinding machines can be used to implement it. To ensure spring linkage in the system tool–detail a special device has been developed. As a tool, a specially developed diamond elastic worm hone instead of a disk hone was used. The use of worm hone equalized the cutting speed of the gear height and significantly reduced the dynamic load while gear honing, compared with the disk gear hone. The characteristics of the diamond worm hone, the modes and quality of machining gears are stated. To assess the quality of machining gears, the surface roughness parameters were used, which were measured before gearing honing. For measuring the roughness of the surface of gear honing, a complex was created by measurement with data output to a computer. The complex is connected to a computer, which allows to automatically obtain the following roughness parameters: R_a , R_q , R_t , R_z , R_c , R_{sm} , as well as the supporting curve. The roughness was measured both along the involute profile and along the honing line of the cogwheel. For statistical assessment of the results, the roughness supporting curves were constructed before and after processing. From the analysis of the scattering curves, it was found that the roughness of the surface of the gear wheels after gear honing can be reduced by 2–3 times. In addition to providing roughness parameters, the process of gear honing allows correcting local defects (cracks) of the profile. All gears after the gearing are recognized as suitable ones for the construction of hydraulic machines. The conclusions and perspectives of further research are presented.

Keywords: final polishing, roughness, cogwheel, cylindrical gearings, worm hone, diamond-abrasive processing.

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