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# Upgrade of spindle assembly to increase accuracy of the machine

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*The article considers one of the problem solutions of increasing processing accuracy of the products on metal-cutting machines. Spindle unit is one of the basic elements that determines the accuracy and productivity of the processing. The ways to improve the centering accuracy of different designs of vertical milling machine spindle unit were identified. We reviewed double-seat design of base model spindle, and introduced intermediate support in one design, in other versions replacement of bearings in a spindle unit support was carried out.*

*We made checking calculations of rigidity for all design versions. To this purpose we made calculations of the spindle deflection caused by the resultant of cutting forces for various design versions. In order to determine the resultant cutting forces the modes of processing of heat-resistant steel were calculated. In the result of the study we identified structural scheme that ensured the highest precision processing.*

**Keywords:** spindle, accuracy, rigidity.

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