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### **MACHINE VICE WITH ELECTROMECHANICAL CLAMP**

In the context of the challenges of the industrial revolution known as "Industry 4.0" and approaching "Industry 5.0", it is becoming important to improve the technical level of metal cutting machines, in particular the milling group, to perform high-speed and precision processing. This involves improving the characteristics of their main mechanisms and technological equipment.

Technological equipment significantly affects the productivity and accuracy of processing parts, because it depends on cutting modes, auxiliary time consumption, rigidity and vibration resistance of the technological system of the machine, the accuracy of installation and fastening of workpieces and cutting tools [1,3].

Machine tools often use traditional designs of technological equipment, which violates the consistency of their design and principles of work with the general design of the machine, which is constantly being improved in connection with the requirements of modern production.

The work is aimed at the design, development, scientific research and production of innovative designs of universal machines for processing materials using electromechanical clamping. Vises are intended for fastening parts on various metal-cutting machines and in metalworking. They are used for processing planes, cylindrical and conical holes with the help of various tools.

Processing takes place under difficult conditions due to the low rigidity of the machine tool system, requiring accuracy in diametrical and linear dimensions, shape and location of surfaces.

A vise, as a type of technological equipment [2], is also possible in various classifications, which take into account the design, types of mechanisms, technical systems, the possibility of rotary movements for convenience, adjustment methods, the number of kinematic chains and the type of drive.

In addition, new approaches and perspectives may contribute to the development of other classification methods. The essence of the improvement lies in the fact that a stepper electric motor with an adjustable torque clutch is used in the installation of the manual clamp handle. The torque is proportional to the tension of the elastic element, which is carried out by the adjustable nut.

### **Conclusions**

The use of universal vices with electromechanical clamps allows you to significantly improve the main technical and economic indicators of milling machines and expand their technical capabilities due to various layouts and control systems.

### **References**

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