

УДК 811.111: 621.91

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## **Wood Processing Machine Tools**

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A beautifully crafted piece of wood has always been considered a good addition to any interior. To carry out such work, a wood lathe is used. Such a woodworking machine allows you to perform a large number of operations using various cutting tools. Structurally, various types of such aggregates for processing wood products are constructed from elements having the same functional purpose as a lathe for machining metal workpieces. Regardless of belonging to the category, the wood lathe construction includes the following elements: a massive frame (the main nodes are located on it); a headstock with fixed spindle; a tailstock with elements of fixing the workpiece; a caliper used for feeding the processing tool; a rotation transmission drive; an engine; a rotation speed control system (performed discrete with multiple rotation speeds); elements of the electrical equipment circuit; manual controls (usually they are implemented using various forms of handles, flywheels, electric buttons or switches); dust and sawdust protection; an apron; a powerful vacuum cleaner to remove wood waste [1].

Despite the uniformity of the elements, each manufacturer offers its own wood lathe device, using its own technical solutions. The frame is made of cast iron or steel and has a large weight, which allows to stabilize the rotation of the engine and all rotating parts. All the main nodes are attached to it.

Any lathe headstock, including for woodwork, is made according to the standard scheme. It has: 1) a spindle equipped with a system of fastening the work-piece; 2) multiple bearings (three bearings are included: thrust, front and rear); 3) special adjusting nuts; 4) coupling for switching [2].

The second element is the tailstock of the lathe. It has two degrees of freedom. This feature allows to change the position of the workpiece in the horizontal and vertical direction. This fastening system provides high-quality processing of parts of the most complex shape. Pinole is used in lathes to increase the rigidity of the work-piece attachment. It is made in the form of a sleeve, moves along the main axis.

There are two functions assigned to the lathe support: fixing the tool from the included and moving in the specified planes for processing.

The caliper is located on the bed. It is equipped with two types of sleds (transverse upper and longitudinal, which are called a carriage). To make a turn, it has a rotary system. The whole system of changing the position of the caliper is called a feed drive. The connection of the caliper with the spindle is carried out through a reversible device called a trenzel.

The rotation of the lathe parts is carried out by means of a belt drive, which serves as a transfer element from the electric motor to the headstock. These elements make up the drive of the main movement. For each design, the manufacturer offers its own number of spindle rotation speeds. In the bulk of machines, the range of rotation speeds of parts varies from 200 rpm to 1000 rpm [2].

The basis of all turning units, including wood, is based on one processing method: impact on the surface of a wooden workpiece with a cutting tool. The principle of operation of a lathe for processing wood workpieces differs only in that the cutting tool can be fed automatically or manually. The manual feeding technique depends on the nature of the wood, the

cutting tool used and the complexity of the configuration of the future product. Before starting work, the workpiece is attached in special devices between the front and tailstock. As a tool, special cutters or chisels of various profiles can be used for wood workpieces. They can be flat or curly. Thanks to the shape of the cutting edge, any surface can be cut. To do this, they are sharpened in one or more planes. The main criterion on the basis of which the classification of incisors is made is the shape and type of the workpiece [3].

Specialized chisels are applied in case of special-purpose processing: reyers having a semicircular blade for performing retreatment; meissels for final processing as well as for finishing and grinding of recesses and grooves; chiselhooks for sharpening recesses; chiselcombs for threading and making wooden hardware; scraper for leveling cylindrical workpieces.

The processing with such chisels must be performed manually, which allows to implement any ideas of the master. To obtain a high-quality surface, it is necessary to precisely set the rotation speed of the workpiece and determine the angle of the tool feed and the pressure force.

#### References:

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