

STUDY OF THE TECHNOLOGY OF PROCESSING WOOD MATERIALS WITH THE HELP OF A BAND (METABO) SAW MACHINE IN TECHNOLOGY LESSONS.

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Annotation: This article provides information about the Band (Metabo) saw machine for processing wood. Information is provided about the layout of the band saw machine, safety rules, advantages and disadvantages.

Keywords: Bandsaw (Metabo), wood,

The main goal of the large-scale work currently being carried out in our Republic to improve the public education and higher education system to a modern level is to create all the conditions for educating the younger generation, improving its quality and efficiency, raising them as loyal children of their country and acquiring solid knowledge.

A new person is coming of age, a producer who combines physical and mental labor in all respects, with a high professional level and skills, who deeply understands the polytechnical foundations of today's production, and who is able to quickly master the latest machines and technological processes. At the same time, it is necessary to conscientiously demonstrate efficiency and work effectively, so that he himself is inspired and others are pleased with his work. They are cultivating the qualities of creative initiative and activity in work. This allows them to improve both themselves and their actions to creative maturity.

Based on the concept of the President of the Republic of Uzbekistan dated October 8, 2019, No. PF-5847 "Development of the higher education system of the Republic of Uzbekistan until 2030", dated October 29, 2020, No. PF-6097 "Development of science until 2030". Students of the 60111300 technology direction "Technology of processing metal and non-metallic materials" are required to study woodworking technology on modern machine tools.

The multi-edged woodworking Bandsaw (Metabo) has two cutting speeds (410 and 880 m/min). This allows you to work with a variety of wood materials. A band saw (Metabo) is a machine that uses band-shaped saw teeth to cut wood into various shapes and angles. It is widely used in furniture production, woodworking, construction, and other industries.

The main parts of a band saw (Metabo) are:

Saw band – equipped with steel or primary carbide (bimetallic) teeth;

Motor – for rotating the band (0.5–5 kW);



- Workbench – for mounting the material, it is bent using bends;
- Dust collector – for cleaning waste from the work process;
- Tensioning mechanism – ensures the correct tension of the band.



It guarantees high-quality and accurate cutting of wood materials. A ring guide with three steel rollers at the top and bottom is used to adjust the angle of the saw table, which allows you to perform a wide range of tasks, such as fine-angle cutting. An LED light illuminating the cutting area ensures high accuracy.



A quick-release lever and tool-free door opening allow for quick saw blade changes. The presence of a rotating table extension allows you to work with large workpieces. The asynchronous type motor does not require special maintenance and guarantees low noise levels. A special box for collecting sawdust, as well as an adapter for connecting an external suction device, ensure a clean workplace.



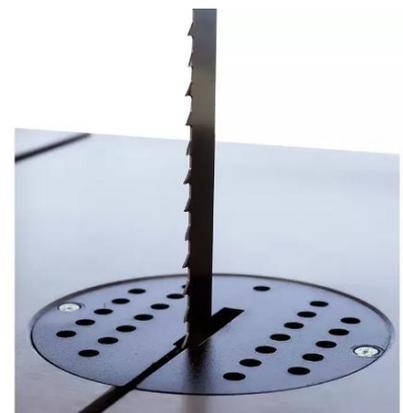
The Metabo band saw bench is easy to operate with two buttons to start and stop the saw. This makes the control process as easy as possible for students.



The parallel stop is securely fixed and does not move during operation, which allows you to process identical workpieces without preliminary markings.

The supporting legs of the stand provide the necessary rigidity and stability of the structure, and the wheels provide ease of transportation.

Advantages of the band saw (Metabo) - a fine and precise cut compared to other saws, the ability to cut wood of great thickness (up to 300 mm), it is convenient to make curved and complex shapes. Disadvantages - the tape breaks quickly, especially on hard wood.



Cutting methods

Straight cutting – standard work, cutting thick wood, plates and beams.

Curved cutting – used in the production of furniture details, decorative elements.



For maximum cutting quality, high accuracy and stability, the belt should run smoothly due to balanced rollers with rubber coating, and for high accuracy, there should be a fine saw blade guide with three HSS steel rollers at the top and bottom.

The most common and functional woodworking machine in demand among various enterprises working with wood. The main part of the design of the band saw is a closed flexible steel belt with teeth, which in this case is the cutting element. It is located vertically or horizontally. The workpiece is fed to the work table. The tilt of the table allows you to cut at an angle. The machine start buttons are located on the body, which simplifies operation.

Upper roller tilt regulator (saw blade adjustment) for band saws. Three HSS steel rollers are located at the top and bottom for high accuracy. The regulator allows you to change the tilt of the upper roller of the band saw. By changing the inclination, the saw blade is aligned so that it is centered on the plastic pads of the band saw rollers.

Stand on wheels for easy movement. The supporting legs of the stand provide the necessary rigidity and stability of the structure, and the wheels provide ease of transportation.

Additional options

Elastic sheets - control the tension of the tape.

Pneumatic or mechanical cutting tensioners - secure hold of the material.

Dust extraction system - ensure cleanliness during work.

Safety rules:

To protect yourself, you should wear earplugs, goggles to protect your eyes, and a respirator to prevent dust.

To keep the workplace clean, you should use a dust collection system and regularly clean the workplace after work.

The saw blade should be checked regularly. If the cutting ability of the blade has decreased, it should be replaced or re-installed.

The work must be done correctly. The cutting line must be carefully followed and the instructions must be followed.

In the event of a power outage, the power restart protection must be checked and accidental restart must be prevented.

The machine must be switched off when changing the tape.

In conclusion, the Band Saw (Metabo) is easy and convenient for students compared to other saws, it is much easier to make thin and precise cuts, and it is much easier to make curved and complex shapes.

List of used literature

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