5. Uhlomerы with Nonius. Tehnycheskye conditions: GOST 5378-88. - [Approved Action and put into a resolution SSR State Committee on Standards from 17.10.88 № 3447. - M. Hosudarstvennыy committee standartov council of Ministers of the USSR, 1989. - 12 p.
6. triangles poverochnые 90º. Tehnycheskye conditions: GOST 3749-77. - [Approved Action and put into a resolution SSR State Committee on Standards from 22.06.77 № 1551]. - M. Hosudarstvennыy committee on Standards, 1977. - 9c.
7. schupov Sets of Numbers 1,2,3,4. Tehnycheskye conditions: TU3936-214-54769955-2008. - [Developer and holder podlynnyka TU3936-214-54769955-2008 - ZAO TD "instrumental`ny'j Chelyabinsk plant"]. - Chelyabinsk, 2008. - 3 p.

Of research wooden pallets accuracy of Monitor on a specially sozdannoy of automatic line.

Timber poddon, Linia Monitor pallets, accuracy, quality.

The research of accuracy of cutting the angles and milling the flat spots of bottom boards of wooden pallets on a newly designed processing line.

Wood, pallet, processing line, accuracy, quality.

UDC 674.023.05

INFLUENCE OF CUTTING PROCESS FOR STRUZHKOUTVORENNYA

RM Korobko, student
ZS Sirko, Candidate of Science

The effect on the process of cutting angle struzhkoutvorennya and cutting force.

Wood shavings, corner cutting, cutting force, struzhkoutvorennya.

Problem. It is known [1,2,3] that the entry of the tool into the wood its front face, which is placed at an angle cutting δ performs shift or lead generated with chips. The results of earlier studies show that the smaller the angle cutting δ the less strain zrizuvanoho layer and its shrinkage and the less effort required for entry into the wood cutter. We also know that with decreasing cutting angle decreases resistivity cutting. Reduced cutting force using cutters with small angles of cutting forces arising from consideration (Figure 1), which act on the part of the front face of the tool on wood [4]

$$P_1 = K_{ck} \cdot h(l - \frac{h}{2tg\delta}),$$

where P_1 - The force acting on the wood-side front face;

K_{ck} - Specific work cleavage;

h - Thickness of the layer is cut;

l - Length layer is cut.

The form of chips, which is formed by cutting, closely related to the cutting forces and surface finish quality [5]. The boundary between the cut chips and layer thickness h Removable passes line nn_1 (Fig. 1). It is believed that the plane, which is designed in line nn_1 Formed chips. When cutting blade penetration of the wood to size x under the influence of p_1 easier vidsharuvaty wood at some length l Than destroy compression force p_2.

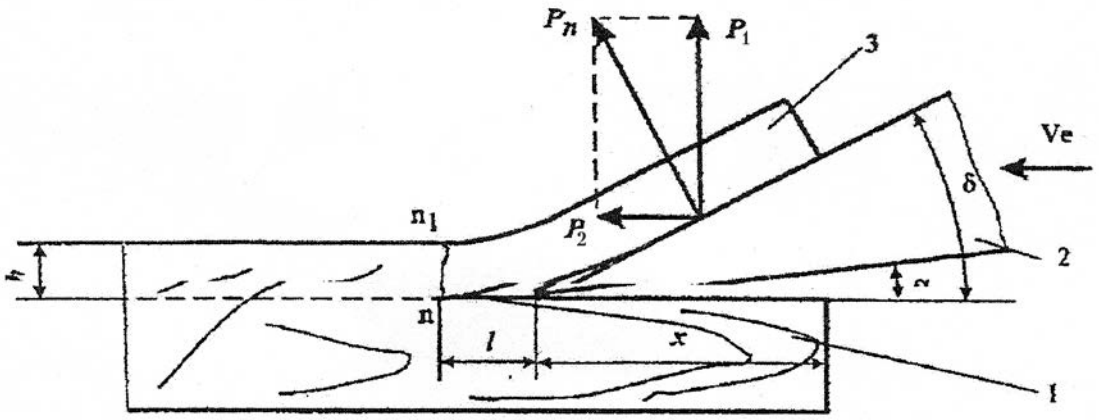

Fig. 1. Scheme struzhkoutvorennya when cutting wood 1 - blank; 2 - cutter; 3 - Chips; δ - Cutting angle; x - the tool path in the wood; P1 - shear strength; P2 - the force of compression; Pn - resultant cutting force; h - thickness of the chip; n-n1 - line separation chip.

In other words, in order to reduce energy consumption in sharp incisors should be used if possible at lower cutting corners.

The purpose of research is to study the influence of cutting angle on cutting force depending on the direction of the wood fibers.

Materials and methods research. Experimental studies were conducted on a special unit, which is the ability to adjust the feed rate blanks. Incisor tooth served frame saws, which together with the body of the saw could fix and return the necessary value of cutting corners.

The samples were made of pine wood size 300 x 100 x 20 mm.

General view of the installation shown in Fig. 2.

Fig. 2. General view of the experimental setup for the study process Sawing

Cutting force was determined using universal dynamometer UDM 100 measure of the effort by the axes X, Y, Z 1000 H (Fig. 3).

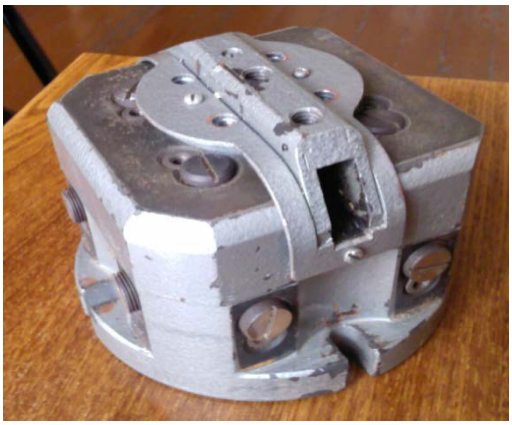

Fig. 3. General view of universal dynamometer UDM-100.

The principle of operation of the dynamometer is based on the change in the electrical circuit sensor that turns small elastic deformation (under the action of cutting) in varying electrical quantities. In the process of cutting force $P_{z,}P_{y}$ and P_{x} Acting on the cutter, which is enshrined in the dynamometer directly transmitted elastic support elements and measured load cells. To avoid interference component force sensors sharp turn on a bridge measuring circuit strictly defined manner consistent enable sensors to measure the power circuit.

Results. Past studies struzhkoutvorennya when cutting samples of pine wood in the face, the longitudinal and transverse directions. We determined the cutting force at different angles of cutting δ for ease of comparison and expressed them using coefficients are given in the table.

1. The coefficients depending cutting efforts at different angles and directions cutting /

The direction of cutting	Angle							
	30º	45º	50º	55º	60º	70º	80º	90º
Frontal	0.6	1.0	1.15	1.3	1.45	2.0	2.8	-
Longitudinal	0.7	1.0	1.10	1.2	1.3	1.7	2.4	-
Cross	0.9	1.0	1.05	1.06	1.09	1.15	1.22	1.3

Studies have shown that with increasing angle cutting a face, the longitudinal and transverse directions cutting force increases.

Conclusions

1. From the angle cut in different directions cutting cutting force increases.

2. In order to reduce energy consumption for cutting must use cutters with less cutting corners.

3. The smaller the angle the less deformation cutting chips.

References

1. Resurrection SA Rezanye timber / SA Resurrection. - M .: Hoslesbumyzdat, 1995. - 200 p.
2. Ivanovo EG Rezanye timber / EG Ivanovo. - M .: Lesnaya Industry, 1975. - 200 p.
3. Lubchenco VI Rezanye timber and drevesnыh materials / VI Lubchenco. - M .: Lesnaya Industry, 1986. - 295 p.
4. Deshevoy MA Mehanycheskaya TECHNOLOGY tree / MA Deshevoy. - L .: Hoslesbumyzdat, 1939. - 550 p.
5. Ivanovo EG Rezanye timber / EG Ivanovo. - M .: Lesnaya Industry, 1975. - 200 p.

The influence of research on the process corner rezanyya struzhkoobrazovanyya and usylyya rezanyya.

Timber and chips ugol rezanyya, usylye rezanyya, struzhkoobrazovanye

The influence of angle of cutting on chip formation process and cutting force was researched.

Wood, angle of cutting, cutting force, chip formation.

UDC 681.3.06 + 674.047

COMPUTER-AIDED DESIGN AND RESEARCH OF FOREST DRYING CHAMBERS BY MEANS OF SolidWorksAPI AND COSMOSFLOWORKS

Ya.I. Sokolovskyy, Doctor of Technics