

METHOD OF IMPROVEMENT IN THE PROCESS OF STRETCHING NON-FERROUS METAL WIRE

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ABSTRACT: Non-ferrous metals and their alloys are the main construction materials in the national economy, aviation, rocketry, electrical engineering and radio engineering. Non-ferrous metallurgy in Uzbekistan has been developing since the 1930s on the basis of local mineral resources. Non-ferrous, rare and precious metals (gold, copper, lead, zinc, tungsten, molybdenum, mercury, etc.) are presented in the country.

KEYWORDS: Non-ferrous metal, metal wire, non-ferrous metallurgy, elongation process, chemical process, improvement.

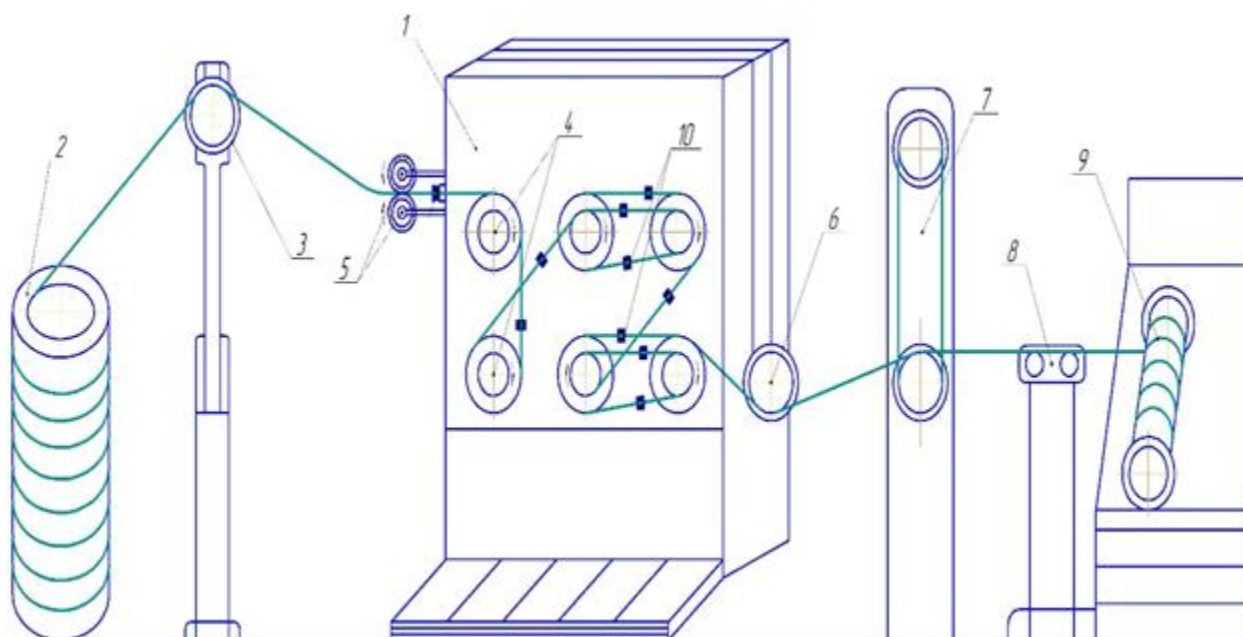
INTRODUCTION

The stretching process' efficiency is determined by increasing the load grade wire production costs while saving raw materials. This is accomplished by improving the technological process of cable product preparation and stretching while increasing product volume by increasing technological equipment productivity, forming equipment and component service life, reducing material waste, and increasing the machine tool's useful working vector.



1-picture. Stretch bench control system.

Due to the slide, the wires are now stretched on VSK-13 looms, which are one of the most important looms for wire stretching. This workbench's technological features are as follows: The diameter of the stretched Wire is 7,2-8 mm; the diameter of the finished Wire is 1-2,7 mm; the number of voloks is 7-13; the stretching speed is 10-30 M/s; the number of pulling rollers is 7; the diameter of the pulling Shears is 133-225; the total mass of the workpiece is 13870 kg; the dimensions of the workpiece are L-5,72 m, 353-343 M2.



2-picture. General view of the VSK-13 bench. 1-wire stretching chamber; 2-allowing drum; 3-guiding roller; 4-pulling rollers; 5-special pushing roller; 6-guiding roller; 7-condenser; 8 -controlling device; 9-receiving drum; 10-fil'yeraz;

The VSK-13 machine is designed to stretch wires with diameters ranging from 1 mm to 2,7 mm, as well as an oxygen-free copper cathode stretching with an 8 mm diameter. The VSK-13 bench appears to be two-sided. Copper wire stretching machine with a solid look;

1. Wire stretching camera – this camera is made up of six bandages that are parallel to each other. These bandages are made up of Paws, which have a geometrical shape of a cone, as well as holding devices for elephants, which are one of the primary tools in the stretching chamber. The workbench's name comes from the fact that there are 13 of these devices. The Wire is wrapped in a bandage on the lowest leg at first, and as the diameter lowers, it is rolled into the middle and upper leg. This procedure is carried out without the involvement of an emulsion liquid. The purpose of this liquid is to cool the heated bandages in the process of stretching and the elephants carrying out the process of stretching the wire is used to facilitate the movement of wire under such bandages, after the wire of a certain diameter is released, which is required from the stretching chamber, this wire is pulled using a wire puller. If a soft wire is required, the drawer will be given to the heating (OTJIG) device once the sheepskin is removed.

2. Transmitter drum—this drum's job is to provide direction to the stretching chamber of a stretched wire of a specific diameter.

3. Condenser – when the speed of the receiving device [vt, vq] is higher, this device fulfills the function of raising the speed of the receiving device. The compensator has been raised. If the speed of both devices is normal, the condenser is in the middle. The Wire is dragged into the drum device after passing through the condenser.

4. Receiving device—this device has its own engine and moves around on its own. A firm movement is performed by the device's drum.

The expansion to the Awazi improved the VSK-13 bench by allowing for the collection of object data on the process's continuity, wire quality, composition homogeneity, and the absence of non-material.

Figure 1 shows the taximization of the VSK-13 bench's working vector in one shift. Here, the maximum length of the stretch bench's stop arm is equal to 43 percent of the equipment's filling, connecting with the replacement of the divided volok by weight and using the elimination

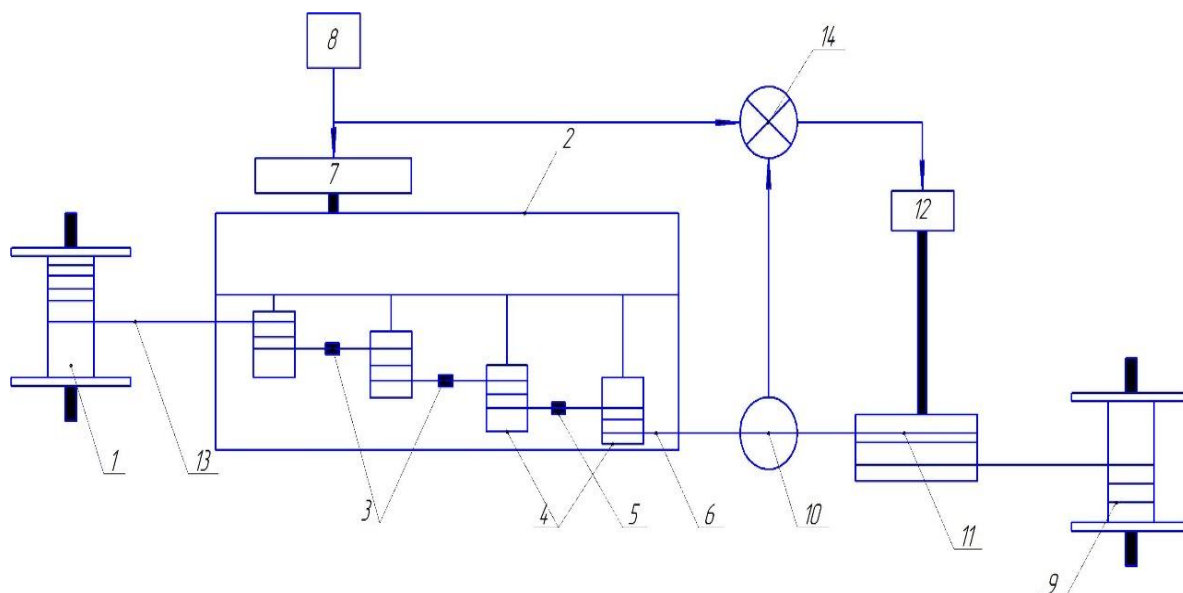
of interruptions, so that the filer's service life is extended and the option of increasing the stretch bench's productivity is available.

The method of improving the stretching machine and adapting it to the technological process is considered in this variant, and the practical results of its implementation are presented with the definition of the physical model of the system "stretching machine+additional pulling drum," as well as the technical and economic indicators of the stretching machine improvement with the installation of an additional pulling drum.

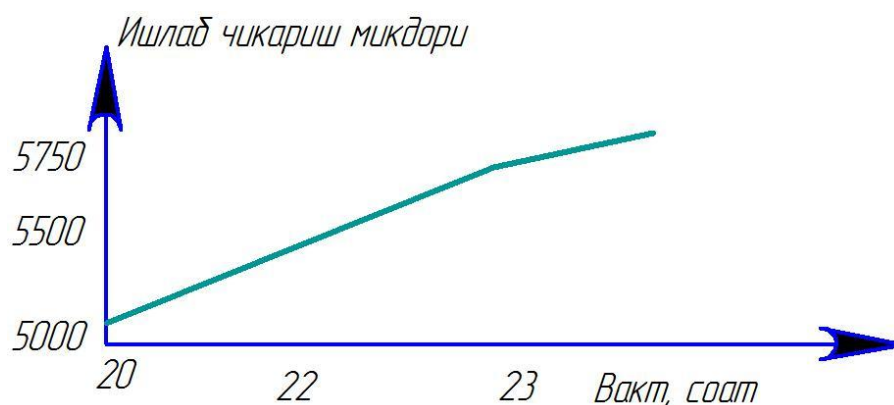
Production of cable The goal of developing a method for raising the resource-saving max of stretching equipment by extending the service life of the volok is to increase the quality of the completed product in a single unit while increasing production efficiency.

The following is the kiln system that we presented in the technique of upgrading the stretching machine tool (Figure 3): 1 - giver; 2 - loom; 3 - fillers; 4-6 - retracting Drums; 5 - clean filera; 7 - electro-engine; 8 - encoder(reverse connection); 9 - cable-killing device; 10 - gauge of diameter; 11 - additional pulling drum; 13 - copper wire; 14 – simulator.

A clean (diamond) voloka allows to increase the service life by an average of 15% as a result of the improvement work carried out during the studies, but its price in this instance is up to 250 euros per unit, whereas the cost of Kattic cotishmeli filers is up to 84 euros per unit.



3-picture. Scheme of the technique of improving the stretching bench



4-picture. Productivity analysis of the stretching bench.

All this made it possible to conduct a comparative analysis of the impact of stretching technologies on the object of stretching (Table 1).

The following accounting information on the technical and economic indicators of improvement was obtained.

Table 1

Name of the parameter	Improvement -until the resurrection	After improvement	
		Filer service life increase, 10%	Filer service life increase, 15%
Machine power meter, clock	20	22	23
The amount of working shifts	8	2,7	2,9
Productivity, shift / km	5 000	5 500	5 750
Productivity, year / km	1 523 000	1 675 300	1 738 800

The proposed findings were based on the enhancement of existing stretching technology by adding more stretching blocks to the takcoslage and stretching bench, which improved the stretching process' efficiency and reduced the cost of increasing the diamond filer's working life. The recommended kilo approach enables for the rapid development of various stretching machines by making minor structural changes in a short amount of time.

REFERENCES

1. Fayzimatov Sh. H, Tajiev B. A. The O. DEVELOPMENT OF METHODS FOR DETERMINING THE FORMING SURFACES WHEN STRETCHING NON-FERROUS METAL WIRES WITH ROLLER VOLOGUES //Scientific progress. – 2021. – Т. 2. – №. 6. – P. 603-608.
2. Tajiev B. A. THE METHODS FOR DETERMINING THE FORCE OF GRAVITY FORMED DURING THE STRETCHING OF NON-FERROUS METAL WIRES //Scientific progress. – 2021. – Т. 2. – №. 1. – P. 416-422.
3. Shuhrat Numonovich Fayzimatov, Boburbek Abdulhakim o'g'li Tojiyev, DEVELOPMENT OF METHODS FOR DETERMINING THE FORMING SURFACES WHEN STRETCHING NON-FERROUS METAL WIRES WITH ROLLER VOLOGUES // Scientific progress. 2021. №6. URL: <https://cyberleninka.ru/article/n/rolikli-voloklar-bilan-rangli-metal-similarini-ch-zishda-osil-b-luvchi-yuzalarni-ani-lash-usullarini-ishlab-chi-ish> (дата обращения: 03.12.2021).
4. Turaev T. Batirov Ya. A., Tojiev B. A. Modernization of the wire product drawing process //Universum: technical sciences. – 2019. – №. 3 (60).
5. Fayzimatov, Shuxrat Numanovich, Tojiyev, Boburbek Abdulhakim O'g'li, Raximov, Sharifjon Esonaliyevich TO DEVELOP A METHOD FOR DETERMINING THE FORCES OF GRAVITY FORMED IN THE PROCESS OF STRETCHING NON-FERROUS METAL WIRES ON THE WORKBENCH OF VOLOCHENIA // ORIENSS. 2021. №10. URL: <https://cyberleninka.ru/article/n/volocheniya-dastgo-larida-rangli-metal-similarini-ch-zish-zharayonida-osil-b-luvchi-tortish-kuchlarini-ani-lash-usulini-ishlab-chi> (дата обращения: 03.12.2021).
6. Fayzimatov S. N. ENCREASING OF EFFICIENCY OF CUPTURE INSTALLATION ON AUTOMATIC MANIPULATOR //Актуальные проблемы современной науки. – 2011. – №. 1. – С. 192-194.
7. Fayzimatov S., Rubidinov S. DETERMINATION OF THE BENDING STIFFNESS OF THIN-WALLED SHAFTS BY THE EXPERIMENTAL METHODOLOGICAL METHOD DUE TO THE FORMATION OF INTERNAL STRESSES //International Engineering Journal For Research & Development. – 2021. – Т. 6. – №. 2. – С. 5-5.
8. Файзиматов Ш. Н. ПРИМЕНЕНИЕ ПНЕВМОВИХРЕВОГО ЭФФЕКТА ДЛЯ АВТОМАТИЗАЦИИ ПРОЦЕССА ПЕРЕКАЧКИ АГРЕССИВНЫХ СРЕД USING THE PNEUMOVORTICAL EFFECT METHOD FOR AUTOMATED PUMPING OF AGGRESSIVE MEDIA

//Ученые записки Комсомольского-на-Амуре государственного технического университета. – 2011. – Т. 1. – №. 5. – С. 39-42.

9. Teshabaev A., Sharifjon R. The innovation activity on large uzbek companyas a key factor of personnel development //ACADEMICIA: An International Multidisciplinary Research Journal. – 2020. – Т. 10. – №. 5. – С. 416-423.
10. Рахимов Ш. Э., Юсупов С. М. Разработка листового металлического компонента с формированием дизайна с использованием программного обеспечения САЕ (Unigraphics NX-8.5) для улучшения и дизайна //ИТЖ ФерПИ (STJ FerPI). – 2018. – №. 3.