

До фізичних способів знезараження води можна віднести і кип'ятіння. При кип'ятінні води вбиваються віруси, бактерії, антибіотики, видаляються розчинені гази, також зменшується загальна жорсткість.

У більшості випадків для якісного знезараження води результативніше всього буде використання комбінованої системи. Можна поєднувати УФ знезараження з подальшим періодичним хлоруванням (в невеликих дозах), озонування з хлоруванням ці способи знезараження дадуть бажаний результат і збережуть органолептичні властивості води.

**Reuka V.I.**

*Student,*

*Scientific advisor: Moskovskaya N.M.*

*PhD, Associate Professor,*

*N.E. Zhukovskiy National Aerospace University*

*«Kharkiv Aviation Institute»*

## **MODERNIZATION OF A LINE FOR PACKING OF BULK PRODUCTS FOR ITS FOLLOWING AUTOMATION**

The presence of conveyor lines is a prerequisite for the successful and efficient operation of large and small industries, warehouses and other enterprises.

Automation of conveyor lines allows to bring production to a new level and more than doubles its throughput with an increase in turnover up to 20-25% [1].

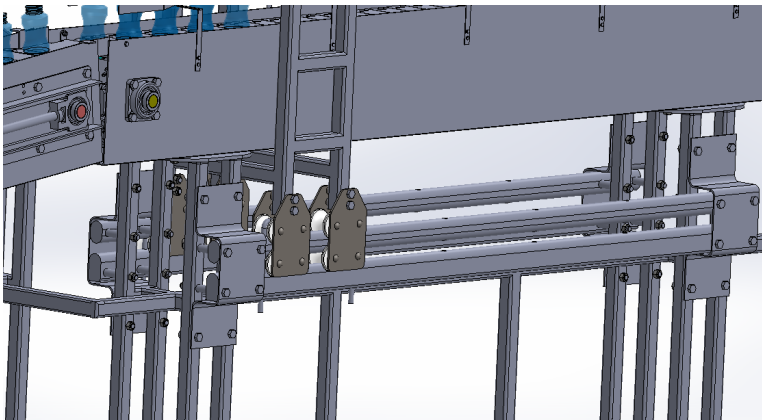
The task of automation of conveyors is linked with the improvement of its mechanical design by organizing joint work with other equipment of the production line.

In the proposed work, the problem was solved by combining the conveyor and dispenser for bulk products. The system for moving the dispenser along the conveyor (using rollers) (Figure 1) was developed in the SOLIDWORKS program (Figure 1).

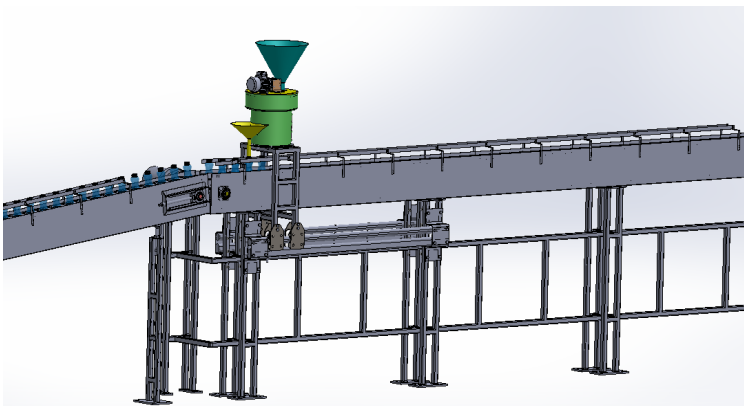
The dispenser moves on rollers along the rails with a given step (Figure 2).

Brackets are fixed to the metering support structure using bolts (1). The bracket is made of two slats (2), interconnected by pins (3). The pins act as the axis of rotation of the two pairs of rollers (4) (Figure 3).

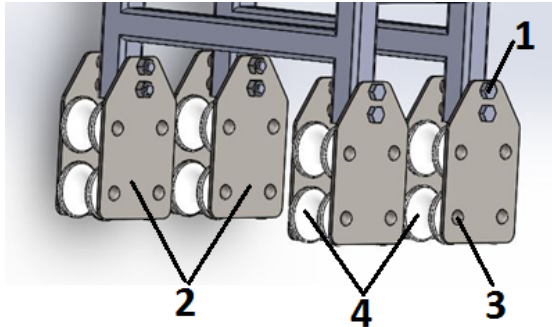
In the work, it is proposed to use the simplest locking system for the rollers of dispenser. To do this, holes are made in the guide beams for installing the locking pins at certain distances. The distance between the holes depends on the size and type of packaging and the step of the feed and does not repeat rhythmically (without a constant step).



**Figure 1. Roller construction**



**Figure 2. General scheme of the conveyor with dosing**



**Figure 3. Bracket design**

Because this design makes it possible to install several dosing systems on one conveyor, the main problem in the development of the design was the correct choice of the guide profile and their length (without installing additional supports). The length of the guide beams was selected by determining the allowable deflection. The amount of deflection was set as the minimum possible distance between the top of the package and the dispenser.

The proposed design solutions allow to upgrade existing packaging lines by making minimal changes to their design, which will enable their further automation.

### **Список використаних джерел:**

1. Гавва О.М., Беспалько А.П., Волчко А.І. Пакувальне обладнання в Г 12 3 кн. – 1 кн. Обладнання для пакування продукції у споживчу тару / За ред. О.М. Гавви. – Київ: ІАЦ «Упаковка», 2008. – 436 с.
2. Анурьев В.И. Справочник конструктора-машиностроителя: в 3 т. – 5-е изд., перераб. и доп. – М.: Машиностроение, 1980. – 936 с.