ADVANTAGES AND DISADVANTAGES OF USE PNEUMATIC TRANSPORT IN AGRICULTURAL PRODUCTION

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The efficiency of production, including farming, largely depends on the performance and reliability of equipment that provides cargo handling, transportation and storage operations. Today, agriculture is widely used transport bulk cargo using pneumatic transport. However, analysis of scientific papers shows that there are problems relevant energy efficiency, reducing consumption of compressed air, limiting the level of pressure in the pneumatic system, confirming the need for further theoretical and experimental research in this area.

The purpose of research - analysis of existing research results and practical use of pneumatic transport in agriculture to improve a design pneumatic devices, development of new design solutions adapted to specific conditions, which will enable to reduce specific energy consumption, increase stability and reduce transportation ineffective use of resources.

Results. Air transport installations - a set of devices that can move the bulk (powdered, granular, powdered, etc.) loads with compressed or rarefied gas.

In the pipelines transporting medium used as air. Moving bulk materials is carried out by transferring the solid particles suspended material in a state of flux flowing through the air, causing the material becomes fluidity. Work pneumatic systems caused air traffic due to the pressure difference at the beginning and end of the pipeline, created injection or vacuum pumps. This pnevmotransportuvannya can be used for mass and piece goods.

Scope of pneumatic transport are agriculture, food processing, flour and grain processing enterprises, which are used for pneumatic vnutrishnotsehovoho and intershop moving grain grinding intermediates and finished products. Performance air transport facilities ranging from a few kg to 700 tons for 1 h, and the length of the transport line can be up to 2 km, lifting height - 300 m, the weight concentration of

the mixture - more than 100. In the pneumatic transport systems mainly use pipes with a diameter of 70 to 1200 mm, which lay on a complex trajectory at the desired angle or with turns that are impossible for mechanical transport devices.

The structure of the air transport units for moving loose or powder are bootable device (pump feeder nozzle) transport pipeline, pipeline switch, dust collectors and control device. The process of pneumatic transport is largely dependent on the concentration of particles transported material in aerosumishi. Wear pipeline increases with the speed of particles transported, so it is feasible to transport at low solids. Reducing the rate of particulate matter is directly related to a decrease in flow rate, which is also cost-effective. Along with this, there is an increase in the concentration of inappropriate material transported in the pipeline, which could lead to cutting transport tube.

Pneumatic install different types of boot devices bearing pressure flow system, the weight ratio of the material transported particles and air, that is - the concentration of the mixture. Let us consider the basic types of pneumatic transport used for grain processing enterprises.

Pneumatic systems can be vertical and horizontal piping, closed or disconnected air cycle. Depending on how you create a pressure difference at the beginning and end of the pipeline installation are suction, delivery and combined. In the settings suction air pressure in the pipeline less than atmospheric, and injection - more. Suction installation creates maximum dilution of 50 to 95 kPa, ie pressure loss across the installation can not be more than the specified value, limiting the transportation aerosumishi and its concentration. Combined installation combined suction and injection systems, their use if necessary sampling bulk material from the mound and move it over long distances.

With the pressure difference at the beginning and end of the pneumatic installation setup distinguish low, medium and high pressure. To set the low pressure (5000 Pa) using high pressure fans; installations for medium pressure (up to 10 000 Pa) - Fans or blowers machines; installations for high pressure (more than 10 000 Pa)

compressors and vacuum pumps. For intershop move on grain processing enterprises use the settings that work at low and high concentrations aerosumishi.

Depending on the number of pipelines produce simple installation (single pipe) and branched (with two or more pipelines). By way of installing pneumatic equipment - stationary, mobile and floating.

Depending on the location of equipment installation pneumotransport divided into vnutrishnotsehovi and mizhtsehovi when reception is carried out in a shop, unloading - in another.

The efficiency of air transport system measured at the load on the cross-sectional area of the pipeline, that is, the number of bulk material that passes through a unit cross-sectional area per unit time.

The advantages of pneumatic transport systems is that they require a relatively small space for equipment and pipelines can be laid, taking into account any local production conditions, even in remote places. Pneumatic equipment is simple operation, ease of management, the ability to remote control allows you to combine operations transporting cargo while drying, cleaning and exfoliation grains from light impurities.

The disadvantages of pneumatic relatively high specific energy consumption per 1 ton of cargo transported and wear pipelines and other parts of the installation in places osculation of transported material.

Conclusions

The basic types of pneumatic transport, widely use in agricultural production, considered the principle of the transport device for moving bulk and powder and grain materials using compressed or rarefied air. Noted the advantages and disadvantages of using pneumatic for effective use in the study area.