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METHOD OF CONVEYOR BELTS JOINTING WHEN USING SPECIAL VOLCANIZATION COMPOUNDS

Abstract: This article discusses methods for joining conveyor belts using special vulcanizing compounds. And also, their history of appearance, advantages, application is analyzed. We tried to reveal the essence of the method of joining conveyor belts using special vulcanizing compounds.

Key words: vulcanization, methods, joining, conveyor belts, temperature, rubber, hot vulcanization, rubbers, mechanical characteristics.

Language: English

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Introduction

Hot vulcanization is a special method of joining conveyor belts using special vulcanizing compounds, under the influence of high pressures and temperatures, synthetic and natural rubber resins "fuse" with the working surface of the conveyor belt, forming a continuous working layer. In terms of bond quality, hot vulcanization is the best way to join belts and makes up 90% of the strength of the conveyor belt itself.

History.

The history of hot vulcanization is inextricably linked with the invention of rubber by Charles Goodyear, who patented a new material in 1844. Controlled thermal exposure significantly speeds up the chemical reaction to convert the feedstock into a finished product. The combined effect of uniform heating and high pressure ensures the transformation of raw rubber into a plastic material with high strength and the necessary physical and mechanical characteristics.

Main part

Advantages.

The joints of rubber-fabric and rubber-cord conveyor belts are the most vulnerable areas of a flexible conveyor operated under conditions of smoothly changing loads. The use of the hot vulcanization method provides the highest quality connection of materials with the formation of an elastic homogeneous seam that is resistant to high dynamic loads.

- The main advantages of hot vulcanization technology:
 - Immediate restoration of the conveyor performance;
 - High joint strength;
 - No gaps;
 - Uniform tape thickness;
 - High flexibility and elasticity of the butt joint;
 - Possibility of docking at negative ambient temperatures;
 - Possibility of docking when the premises are very dusty;

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- Small errors are allowed when cutting the tape;
- Application for tapes made of various materials;
- Restoration of the belt without dismantling from the conveyor;
- Guaranteed durability of the joint;
- Spillage of transported materials is excluded;
- Wide operating temperature range.

The technology can be used to repair belt conveyors used to transport high-temperature cargo. Hot joining of the conveyor belt ensures the formation of a homogeneous conveyor that does not overload the rollers during operation.

Restrictions.

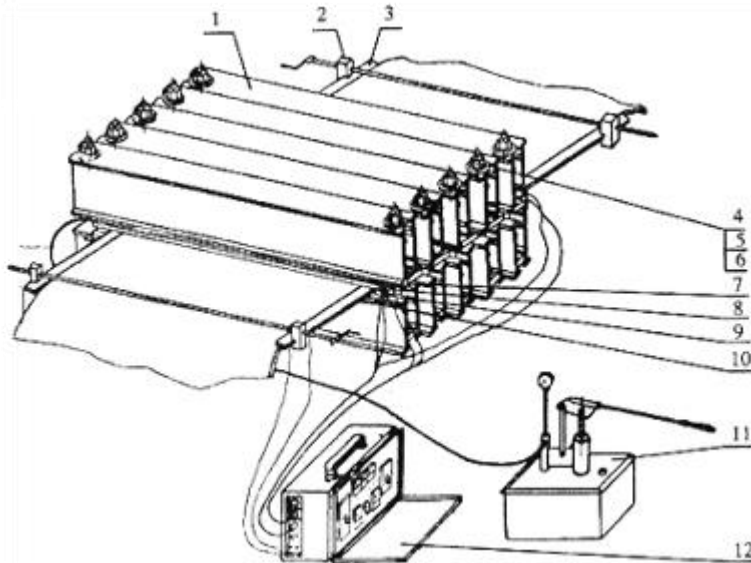
The main limitations hindering the widespread use of hot vulcanization technology are: high labor

intensity of the process and the high cost of specialized devices. The need to relocate massive vulcanizing equipment complicates the repair process in a working environment. The laboriousness of the repair process is successfully compensated by the affordable cost of consumables and the impeccable quality of the restored conveyor belt.

Application area.

Hot vulcanization technology, with numerous advantages, is used to rebuild conveyors operating in normal and highly dusty industrial environments, as well as outdoors. The guaranteed high quality of the result allows the use of technology to restore conveyor lines used for the transportation of highly heated goods, bulk materials and food products.

Equipment and materials. For hot vulcanization of conveyor belts, special presses - vulcanizers are used:



Picture 1.

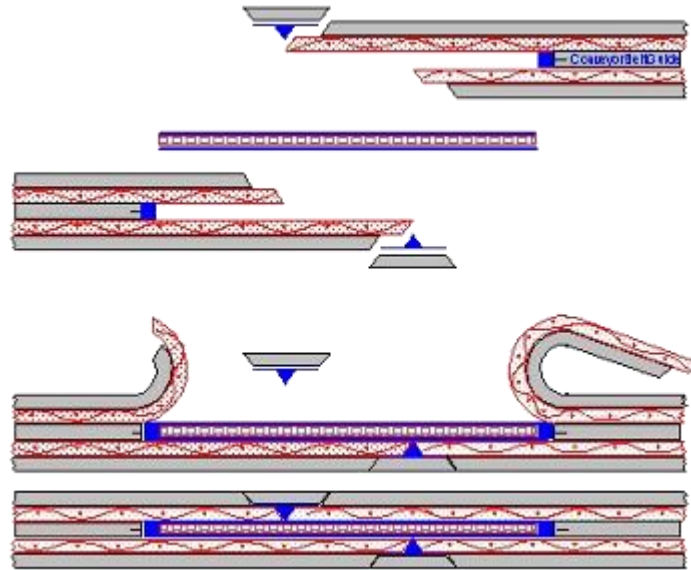
1. typesetting frame
2. Fixing device
3. leveler plate
4. 5. 6. - bolt with nut and gaskets
7. thermal insulation plate
8. the top heat plate for hot vulcanization
9. bottom heat plate for hot vulcanization of the non-running surface of the belt
10. pressing device
11. pressing system
12. device for controlling the heating of the plates.

Hot vulcanization is a very reliable system for joining conveyor belts, the employees of our company use German technologies and consumables for hot vulcanization, all work is carried out with strict quality control at each stage. Before hot vulcanization, preliminary work must be done to prepare the

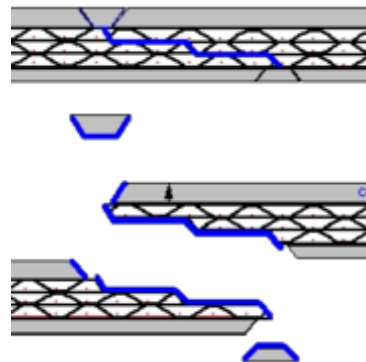
conveyor belt for hot vulcanization. Depending on the conveyor belt used, the joining methods may differ from each other, so for example, in preparation for hot vulcanization, a thin conveyor belt is cut according to the following scheme:

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Picture 2. Hot vulcanization of double layer conveyor belt



Picture 3. Hot vulcanization of three-layer conveyor belt

The use of German technologies, equipment and adhesive mixtures of such manufacturers as "Tip-Top, Nilos" allows you to work in difficult operating conditions of conveyor belts and guarantee the joint of the belt.

Careful adherence to technology in combination with the use of high-quality components eliminates the risk of splitting of butt joints, ensuring the stability of the strength and performance characteristics of the conveyors.

Hot vulcanization is the most efficient and reliable of all conveyor belt joining methods. And for enterprises that use heat-resistant or rubber-cord conveyor belts, hot vulcanization is not only the best, but also the only possible way to join belts.

The most durable of all conveyor belt splicing methods. If you comply with all the necessary requirements for joining by hot vulcanization using high-quality materials, then the joint strength is guaranteed up to 90% of the breaking strength of the tape. The operation of the tape can be started immediately after the completion of joining work, therefore, production downtime is minimized as much as possible. The maximum temperature at which it is possible to use conveyor belts (naturally, subject to the use of specialized materials) is + 200 ° C. It is possible to join tapes by hot vulcanization even in winter at low temperatures.

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Picture 4.

It is also possible to perform docking works in case of strong dustiness.

Conclusion.

The materials used for hot vulcanization are cheaper than those used for cold vulcanization. Errors are allowed in the preparatory stage of docking. This

method is available for joining rope belts, in contrast to cold vulcanization. Docking of the conveyor belt by hot vulcanization. Specialized expensive equipment is used. In addition, it is quite heavy and massive - it creates some difficulties when delivering it to the conveyor. The most time consuming method of joining conveyor belts is hot vulcanization.

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