

Lecture 12. Transport and cargo complexes for bulk and dry bulk cargoes of closed storage.

Purpose of the lecture: to plan loading and unloading operations at stations and terminals to ensure comprehensive automation of reloading processes, as well as to reduce the downtime of wagons during cargo operations and ensure the safety of goods based on the use of high-performance machines and devices, automation equipment and computers;

Keywords: bulk and bulk cargo closed storage, technological sections

Types of lectures : Lecture-explanation.

12.1. Transport characteristics of bulk and bulk cargo closed storage

12.2. Classification and characteristics of closed warehouses bulk and bulk cargo

12.1. Transport characteristics of bulk and bulk cargo closed storage

Bulk and bulk include cargoes, which are a homogeneous mass of fractional components (particles, pieces) with mutual mobility (flowability). A feature of bulk cargo is that when loading into wagons and other vehicles, recounting of seats is not required. In rail transport, there are bulk and bulk cargoes as different groups of cargoes. However, on all other modes of transport they are assigned to the same group of bulk cargoes, which are called “bulk” cargoes abroad.

This chapter discusses warehouses for bulk cargo that require protection from suitable conditions during transportation and storage. It should be noted that transport-freight complexes of bulk cargo transported and stored in some containers or containers are considered and created as warehouses of piece or container cargo, respectively (see chapters 10 and 11). main cargo groups: cement, mineral fertilizers, chemical materials, ore concentrates, grain, flour, vegetables. These goods are transported in covered specialized wagons (hopper hopper cars, in tanks), in tankers, in special bulk carriers. Ore concentrates and some other bulk cargoes of closed storage during transportation over short distances can be transported in open rolling stock, but are stored in covered warehouses. Until recently, due to the lack of specialized wagons, a part of bulk cargoes of closed storage was transported in universal covered wagons (for example, grain, cement, chemical materials).

12.2. Classification and characteristics of closed warehouses bulk and bulk cargo

The closed bulk cargo warehouse has a simple structure in comparison with unit cargo warehouses and consists of three technological sections (unloading of arrivals, main storage, loading of departing vehicles) and internal storage. Closed bulk cargo warehouses classify:

- by the nature of the processed cargo (warehouses of ore concentrate, mineral fertilizers, grain, cement, etc.);
- for its intended purpose (warehouses of finished products of enterprises, warehouses of raw materials and materials of industrial enterprises, wholesale trading warehouses, transshipment and storage complexes in trunk transport - in rail transport, in sea and river ports);
- on the construction part of the main storage area (pavilion, tent, tent-roving-semi-hopper, frame from prefabricated reinforced concrete structures, sewage, hopper);
- for technical equipment and basic lifting and handling equipment \neg (with mobile conveyors and continuous loaders, crane, conveyor, with scraper kratzer cranes);

- according to the degree of automation (mechanized mechanically controlled mechanisms, semi-automatic, automatic).

Warehouses play an important role in freight transport systems for the delivery of bulk cargoes of closed storage, transforming cargo flows at points of interaction of different production and transport systems.

Questions:

1. Why do some bulk goods need to be processed and stored in closed warehouses?
2. What rolling stock is used for transportation of bulk cargo closed storage?
3. What devices and mechanisms are used for unloading bulk goods of closed storage from wagons?
4. What types of closed warehouses are used for storing bulk goods?

Literature and resources

1. Zhuravlev N.P., Malikov O.B. Transport and cargo complexes: Textbook. allowance. - M.: Route, 2016.-- 232 p.
2. Boyko N.I., Cherednichenko S.P. Transport and cargo systems and warehouses: textbook / N.I. Boyko, S.P. Cherednichenko. - Rostov n / a.: Phoenix, 2007.-- 400 p.
3. Transport and cargo systems. Textbook / A.S. Balalaev, I.A. Baburova, A. Yu. Kostenko. - Khabarovsk: Publishing house of FVGUPS, 2015.-- 101 p.
4. 4. Complex mechanization and automation of loading and unloading operations: Textbook / Ed. Timoshina A.A. and Machulsky I.I.-M.: Route, 2013.- 400 p.

Internet resources:

1. Abdikerimov, G.S. Logistic management of cargo transportation and terminal and warehouse activities [Text]: A textbook for specialists / G.S. Abdikerimov, S.Yu. Eliseev, V.M. Nikolashin, A.S. Sinitsyna, O.B. Malikov // M: FGBOU "Educational-methodical / center for education in railway transport". - 2013.-- 428 p. <https://e.lanbook.com/reader/book/59016/#1>
2. Balalaev A.S., Leontiev R.G. Transport and logistics interaction in multimodal transportation: monograph. - M.: FGBOU "Educational-methodical center for education in railway transport", 2012. - 268 p. - <http://e.lanbook.com/view/book/58896/page58/>
3. Design of loading and unloading devices and warehouses: Method. instructions / compiled by V.A. Bolotin, E.K. Korovyakovsky, N.G. Yankovskaya.- SPb.: FSBEI HPE PGUPS, 2015.- 38 p.

Available online: Additional educational material and Internet sources used to complete the assignments of lectures, seminars, CDS, will be available on your page in the Univer.kaznu system.