

Lecture 11. Transport complexes for containers.

Purpose of the lecture: optimize the use of the throughput and processing capacity of transport infrastructure, technical means and advanced technologies in order to reduce the cost of transportation, ensure their efficiency;

Keywords: technical equipment, subsystems, lifting transport vehicles, Hoisting machines

Types of lectures: Classical lecture.

11.1. Characteristics of containers

11.2. Organization of containerized cargo transportation

11.3. Equipment for container terminals

11.1. Characteristics of containers

Transport and cargo complexes for containers represent a specific area of logistics, the most rapidly developing in recent years. The annual growth in container traffic in some areas reaches 20-30%. The containers themselves are bulky and heavy cargoes, but valuable cargo is transported in them and the processing technology differs from handling and storage and transport operations with ordinary bulky and heavy cargoes.

Container flows are often associated with foreign trade, require customs control and are transferred from one mode of transport to another through seaports. Therefore, container transport and cargo complexes are considered in this chapter separately.

A cargo container is an unsteady transport capacity with an internal volume of more than 1 m³, designed for multiple transportations and temporary storage of goods.

In a structural respect, containers are typically closed containers in the form of a rectangular parallelepiped. They have a welded frame made of cold-drawn channel 60x40x3 mm, sheathed with steel or aluminum corrugated sheets with a thickness of 1.5 mm. Sometimes containers with an open top or with a roof made of rubberized fabric fixed to the frame with thin ropes are also used. Distinctive features of the container: closed type design; sufficient strength for repeated use; the possibility of transportation by various means of transport without intermediate unloading of goods from the container the presence in the design of devices that ensure quick loading, unloading and reloading from one mode of transport to another; simplicity of loading goods into the container and unloading them.

The main parameters of the container: gross mass (the largest mass of the container with cargo); length, width and height, external and internal; internal volume; own weight of the container. Containers classify:

- by the nature of the goods transported (universal - for various goods, specialized - for certain goods);
- gross weight (small tonnage - up to 2.5 tons, medium tonnage - 3-5 tons, large tonnage - 10 tons or more);
- by the type of transport that transports them (standardized - for transportation by any type of transport, for certain types of transport - automobile, aviation).

11.2. Organization of containerized cargo transportation

Container transportation of goods is carried out as part of the container transport system (CTS), which is a combination of technical means, facilities, transportation technology and container processing, transportation management system. Within the country, the CCC is legally coordinated by state standards, transport charters, and other regulatory and technical documents.

In international container transportation there is a technical and legal interaction between different countries, their business entities, design and development, transport and trading companies and industrial enterprises in the production and use of technical means and organizing the most rational and efficient container transportation on the basis of international regulatory documents.

KTS includes the following components:

- fleet of containers with all their types, parameters, characteristics, design, technical requirements and conditions of manufacture, transportation, storage;
- rolling stock of different types of transport (universal and specialized) with all its parameters and characteristics;
- cargo terminals located at the points of interaction of different types of transport and serving to transform container flows when transferring them from one mode of transport to another (with all their facilities and facilities, technical equipment. lifting-and-transport equipment, technology container recycling);
- information support of container transportation on all types of transport, including marketing research in this area, automated container transportation management systems, monitoring the progress of container flows and accounting for the movement of containers, databases and database management systems for all issues related to container transportation, computer technology for feasibility studies and support for management decisions in the field of container transportation, etc.
- legal support of container transportation on domestic and international transportation, including the laws of individual states, international conventions, treaties, the creation of a single legal space, legislative norms and rules for all participants in container transportation;

11.3. Equipment for container terminals

The equipment of container terminals can be divided into two groups:

- The main technological equipment for the processing, transshipment and storage of containers (cranes, loaders, lifting devices, etc.);
- Equipment for auxiliary services and facilities of the container terminal (electrical, plumbing, repair, security, communication devices, alarm systems, fire extinguishing, etc.).

At land container terminals (rail-car or only road), containers are unloaded from the rolling stock of rail and road vehicles or loaded onto it using various cranes (jib, gantry, bridge) or forklifts. The same equipment is used for moving containers at a storage, sorting and loading site for rail or road transport.

Questions:

1. What is a freight container?
2. What are the characteristics of the container?

3. What are the types of containers?
4. What are the components of a container transport system?
5. What rolling stock is used for container transportation?

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.

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