European containers before second World War. Parameters and Norms

1. INTRODUCTION

In 1926 begun regular connection of luxury passenger train London-Paris, Golden Arrow/Fleche d'Or. For conveyance baggage of passengers was use four containers. These containers was loaded in London or Paris and carried to ports, Dover or Calais, on flat cars in UK and “CIWL Pullman Golden Arrow Fourgon of CIWL” in France [1].

In begging of 30’s years railway had feel more and more competition from road transport. First big speaking was under First World Motor Transport Congress in London November 14-17, 1927. Six main headings for discussion have been agreed. These are as follow [10]:

1. Road construction and improvement in relation to the development, efficiency and economy of road transport.
2. Mechanical road transport as an instrument of development of world resources.
3. The necessity of co-operation between road and rail transport.
4. The development of motor vehicles suitable for service on had roads and for cross-country use.
5. The improvement of facilities for international travel by road.

After Second World Motor Transport Congress in Roma September 25-29 1928, the then president of the International Chamber of Commerce, Alberto Pirelli, invited the following organizations to form an international committee to conduct a competition with the object of finding the best container system [6]: Advisory and Technical Committee on Communications and Transit of the League of Nations; Bureau International de Normalisation de l'Automobile; Central Council of International Tourists’ Associations; International Federation of Commercial Motor Transport; International Association of Recognized Automobile Clubs; International Permanent Bureau of Motor Manufacturers; International Union of Railways. The committee was formed with S. E. Silvio Crespi as its chairman, and on January 24, 1930. drew up the conditions of the competition.

2. PARAMETERS FOR TESTS CONTAINERS FROM CONDITIONS OF COMPETITION WHICH ESTABLISHED IN JANUARY 24, 1930 [6]

A competition is opened for the best system of containers for use in international traffic.

This competition is organized by the following [6]: International Chamber of Commerce; Advisory and Technical Committee on Communications and Transit of the League of Nations; International Railway Union; Bureau Permanent International des Constructeurs d'Automobiles; International Association of Recognized Automobile Clubs; Conseil Central du Tourisme International; Federation Internationale des Transports Commerciaux Automobiles; Bureau International de Normalisation de l’Automobile.

The problem is to find the most practical method of through transport of goods by sea, rail, and highway, with a view to suppressing as far as possible costs of packing, storage, and sorting and to enable goods to be carried from the place of production to the place of consumption in the most rapid and economical manner.

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The conditions with which containers must comply and the terms of the competition are set forth below: the following are permitted to compete: Firms manufacturing railway or motor equipment. Transportation undertakings. Organizations of these industries. Technical schools and higher institutes of commercial training. Public institutions dealing with goods traffic and transportation matters.

The competition will take place at the headquarters of the International Chamber of Commerce in Paris, and will be governed by French law. All communications should be addressed to the International Committee for the Container Competition, International Chamber of Commerce, 38 Cours Albertler, Paris [6].

The containers are to be of two models; open and closed. For each model, competitors must submit three containers of different sizes. The outside dimensions of these three containers are to be as follows (Tab.1) [8]:

**Tab. 1. Parameters for European containers for competition in September 1931**

<table>
<thead>
<tr>
<th></th>
<th>First class</th>
<th>Second class</th>
<th>Third class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length [m]</td>
<td>3.95</td>
<td>At option of the competitor on condition however that, as far as possible, these be submultiples of class 1.</td>
<td></td>
</tr>
<tr>
<td>Width [m]</td>
<td>2.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height [m]</td>
<td></td>
<td>2.20 for closed containers. 1.10 for open containers.</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Le condizioni del concorso internazionale per casse mobili, Rivista Tecnica delle Ferrovie Italiane, 15 aprile 1930, p. 158-159*

1. All these containers to be so designed as to be able to carry 5 tons less their own weight. Competitors will endeavor to reduce the weight of their containers as far as possible, while specifying for their construction materials capable of withstanding the strain involved by the corresponding weight of contents. All containers must be capable of being carried on motor lorries, railway trucks, of normal gage or narrow gage, and on board ships.

2. Open containers are intended to carry raw materials and semimanufactured goods, that do not call for complete protection against weather conditions; on the contrary, the closed containers must be so constructed as to protect the goods carried against direct or indirect damage caused by weather, and in particular by damage that may be caused by interior condensation or by dampness of the floors of railway trucks or motor lorries. However, they must provide adequate means of ventilation. Competitors must describe in detail the devices used for the opening and closing of containers, and these devices must be such as to enable the container to be quickly opened or closed for loading and unloading. Should doors hung on vertical hinges be used, the bottom of these doors must be at least 50 centimeters from the bottom of the container, so as to allow the doors to swing over the sides of railway trucks and motor lorries. However, the whole lower part of the same side of the container must be capable of being lowered entirely (ISO degrees). The containers, both open and closed, must be so designed as to fit one on top of the other or one side by side the other. The interior of the containers must present no projections, but countersunk rings or other devices must be provided to enable goods to be attached at suitable heights inside the containers.

3. The containers must be very strongly built, as they will be subject to many shocks and various causes of injury, in particular the risk of shocks from the tackle of cranes, and also lateral strain when lifted loaded. Competitors must also take into account that, especially on board ship, these containers will be piled one on top of the other (at least three of the first class), without losing sight of the fact that the weight of the containers must be as low as possible.

4. The designs presented by competitors must be for rigid containers. Competitors will also have the right to present separate designs for folding containers, presenting the possibility of shipping empties by knocking-down the containers in sections or in parts. In the latter case, competitors must present means of keeping the component parts of the containers together to prevent loss.
5. In designing their containers, competitors must conform to the customs regulations applying to railway trucks (see chapter 2 of the final protocol of the International Conference of Berne, of May 18, 1907).

6. Containers must be provided with the necessary devices to permit their handling and their raising by means of cranes, tackle, lifting trucks, etc. They must also be provided with the necessary devices to permit their removal by sliding (ramp, inclined plane). In any case, it is advisable to avoid as far as possible the use of any detachable apparatus for the handling of containers by sliding, roiling, etc.

Competitors must indicate in detail what operations are necessary for loading the container from the ground on to the railway truck or motor lorry, its unloading, and its passage from railway truck to motor lorry and vice versa.

7. Competitors must indicate the methods of fastening containers to the railway trucks or motor lorries. If for such fastening the container includes special apparatus, the inventor must also submit drawings of such apparatus and indicate how it is to be used. In any case, the devices for fixing the containers must be such as not to injure the railway truck or motor lorry, and to be easily and quickly adaptable to existing trucks and lorries.

8. For each type of container designed, the competitors must indicate the class of material to be used in its manufacture, and indicate the weight contemplated, the approximate cost of manufacture of the container, of detachable apparatus and devices that maybe suggested to facilitate loading and unloading. Prices must be stated in dollars.

9. In order to decide on the relative value of the plans submitted, the jury will take into account:
   (a) The lightest weight;
   (b) the lowest cost of manufacture, taking into account royalties to be paid;
   (c) the lowest maintenance charges and greatest length of life;
   (d) the easiest, most rapid, and cheapest handling feature of the container;
   (e) the least trouble in fixing the container to railway trucks or motor lorries;
   (f) the best method of closing.

10. The competition will be in two parts. For the first part, competitors must present their plans to the International Chamber of Commerce before September 10, 1930, accompanied by:
   (a) General plans of the container on a scale of not less than 1 to 10;
   (b) detailed plans of the principal features and of the devices for attaching the container to the railway truck or motor lorry on a scale not less than 1 to 5;
   (c) calculation of the parts and devices subjected to heavy stress, especially lifting devices;
   (d) if necessary, a reference to patents covering the devices submitted in whole or in part, as well as an indication of royalties demanded for the use of each such patent.

The plans and documents submitted therewith must be in French. The jury will then proceed to a selection. The best plan will be retained for the second part of the competition. For the second part of the competition, competitors must undertake the construction of their models that will be submitted to the tests considered necessary by the jury. The jury may call upon several competitors to agree to present a single model, uniting the various features selected as best from their plans. In case of the refusal of the competitors to conform to the instructions of the jury provided in the two above paragraphs, the jury may have the model built and deduct the cost thereof from the prizes to be distributed to nonconsenting competitors.

11. The jury will be entirely free to award, within the limits of the credits placed at its disposal for this purpose, such prizes as it may consider justified by the importance of the new inventions submitted to it. The above credit is a maximum which the jury is not obliged to award in full if it thinks fit.

12. The prize-winning models will be exhibited. They may be accompanied by a text in the competitor’s native tongue [8].

The jury nominated by the committee was constituted as follows [6]: League of Nations.—General de Candolle; International Chamber of Commerce.—Jacques Lacour-Gayet, A. Maynard, Paul Silverberg; Dr. Zietzschmann; International Union of Railways.—G. Del Guerra, F. Duchatel, H. W.
The competition was intended not only for transport undertakings and builders of transport material, but also for forwarding agents’ organizations, i.e., all those interested in traffic questions. On September 10, 1930, drawings of competitors from the following countries were submitted: Czechoslovakia, France, Germany, Great Britain, Italy, Rumania, Spain, and Switzerland.

The jury retained the 14 following drawings for the first stage of the competition:

- Butterley Iron Works Derby (England).
- Christoph & Unmack Aktiengesellschaft, Niesky (Germany).
- Ewak A. G., Berne.
- Forges de Strasbourg, Strasbourg.
- Gesellschaft m. b. H. fur Oberbauforschung, Berlin.
- Gothaer Waggonfabrik A. G., Gotha.
- Gottfried Lindner Aktiengesellschaft, Ammendorf (Germany).
- Le Metal Deploye, Paris.
- Maschinenfabrik Augsburg-Nurnberg A. G.
- Officine Mecanniche Italiane, Reggio Emilia (Italy).
- Siegener Eisenbahnbedarf Aktiengesellschaft, Siegen (Germany).
- Thiercelin Aine et Boissee, Paris.
- Waggonfabrik A. G. Uerdingen (Germany).

These drawings were examined by the jury, the following points being specially taken into consideration: tare or maximum load, unit capacity of loading, resistance to normal strain, impact resistance, protection against condensation, ventilation, protection against rain, weatherproof properties of door joints, protection against risk of damp, arrangement of doors, their number and position, fastening of doors, handling of containers, placing of them side by side and one on the other, securing of containers, projections in the interior of the containers, cost of manufacture, cost of maintenance, and assembling component parts of collapsible containers. Out of 14 competitors, the following 6 were retained for the second stage:

- Butterley Iron Works, Derby;
- Gesellschaft m. b. H. fur Oberbauforschung (Sirius), Berlin;
- Gloucester Railway Carriage & Wagon Co. Ltd., Gloucester;
- Gothaer Waggonfabrik A.G., Gotha;
- Officine Mecanniche Italiane, Reggio Emilia;
- Siegener Eisenbahnbedarf Aktiengesellschaft, Siegen.

These competitors were asked to submit models belonging to the first category laid down in the competition conditions. The practical tests which formed the second stage of the competition took place in Venice on September 30, 1931, on one of the platforms of the Maritime Station (Mole di Ponente), kindly placed at the disposal of the jury by the Italian railway management, who had taken the greatest care to provide all the equipment necessary to conduct the various tests [6].

Tests including [3]: Drenching for 5 minutes by means of the special appliance which delivered water under pressure over all parts of containers, Shock resistance when loaded with 5 ton and shunted against a dead stop buffer at speed of 0 kilometers per hour, Compression under a superimposed load 12.5 tons, Result of a drop or fall from a height of 1 ft. 7 in. (50cm), for this purpose one end only was lifted to the requisite height and then suddenly released, Tests of loading into vessel [3].

3. NORMS FOR EUROPEAN CONTAINERS

Under the auspices of the International Chamber of Commerce on February 22, 1933, in Paris, France, has been taken resolution by the Committee recommending the creation of an International
Container Bureau, and was the inaugural meeting of the International Container Bureau (BIC). In addition to the German, French, British, Italian, and Belgian railways, who have already agreed in principle to affiliate, many of the railway administrations belonging to the International Union of Railways, as well as the automobile organizations, shipping companies, associations of forwarding agents, etc., of a number of countries were represented at this meeting. The object of the International Container Bureau is to organize International collaboration on a permanent basis for the best possible exploitation of containers in international traffic [4].

3.1. First norm for European containers from 1933 year

In June 1933 'Bureau International des Containers et du Transport Intermodal' (B.I.C.) decided about obligatory parameters for containers uses in international traffic. Containers handled by means of lifting gear, such as cranes, overhead conveyors, etc. for traveling elevators (group I containers), constructed after July 1, 1933 [9]. OBLIGATORY REGULATIONS (Tab.2):

Clause 1.—Containers are, as regards form, either of the closed or the open type, and, as regards capacity, either of the heavy or the light type.

Clause 2.—The loading capacity of containers must be such that their total weight (load, plus tare) is: 5 metric tons for containers of the heavy type; 2.5 metric tons for containers of the light type; a tolerance of 5 percent excess on the total weight is allowable under the same conditions as for wagon loads [9].

Tab.2. First norm for European containers from 1933 year

<table>
<thead>
<tr>
<th>Heavy types</th>
<th>length [m]</th>
<th>width [m]</th>
<th>high [m]</th>
<th>Total mass [tons]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close type 62</td>
<td>3.25</td>
<td>2.15</td>
<td>2.20</td>
<td>5</td>
</tr>
<tr>
<td>Close type 42</td>
<td>2.15</td>
<td>2.15</td>
<td>2.20</td>
<td></td>
</tr>
<tr>
<td>Open type 61</td>
<td>3.25</td>
<td>2.15</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>Open type 41</td>
<td>2.15</td>
<td>2.15</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>Light Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close type 22</td>
<td>2.15</td>
<td>1.05</td>
<td>2.20</td>
<td>2.5</td>
</tr>
<tr>
<td>Close type 201</td>
<td>2.15</td>
<td>1.05</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>Open type 21</td>
<td>2.15</td>
<td>1.05</td>
<td>1.10</td>
<td></td>
</tr>
</tbody>
</table>

3.2. Second norm for European containers from 1935 year

From 1 January 1935 in Europe was UIC Convention on the mutual use of the container. It define word container, low of owner of containers and a customs regulation [11].

Under meeting of UIC in Baden-Baden was established parameters for intentional container for use after 1 April 1935. Obligatory parameters for containers uses in international traffic (Tab.3) [5]:

Tab.3. Obligatory norms for European containers since 1 April 1935

<table>
<thead>
<tr>
<th>Category</th>
<th>Length [m]</th>
<th>Width [m]</th>
<th>High [m]</th>
<th>Total mass [tons]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Heavy types</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close</td>
<td>62</td>
<td>3.25</td>
<td>2.15</td>
<td>2.550</td>
</tr>
<tr>
<td></td>
<td>42</td>
<td>2.15</td>
<td>2.15</td>
<td>2.550</td>
</tr>
<tr>
<td>Open</td>
<td>61</td>
<td>3.25</td>
<td>2.15</td>
<td>1.125</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>2.15</td>
<td>2.15</td>
<td>1.125</td>
</tr>
<tr>
<td>2) Light Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close</td>
<td>32</td>
<td>1.50</td>
<td>2.15</td>
<td>2.550</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>1.05</td>
<td>2.15</td>
<td>2.550</td>
</tr>
</tbody>
</table>

In 11-19 April, 1935, in Milano was Second Meeting of B.I.C. There were was presentation and tests of containers [7]. In 16-19 June 1937 was in Paris The Second International Week of Containers. Under this meeting was spoken about developing of container transport in Europe ad was a
presentation types of containers [2]. 1 September 1939 Nazi Germany and Slovakia invade Poland, beginning the European phase of World War II.

4. SUMMARY

Europe had standard for containers before Second World War. It means that Malcolm McLean wasn’t pioneer of containers for Europe, and isn’t father of containerization.

Abstract

In many articles we can read that containers weren't in Europe before 1966, when ship SS Fairland came with 35 feet’s containers invented by Keith Tantlinger for Sea Land company owned by Malcom McLean. The focus of this study is on the problem with development norms for European containers. Analyzed the literature review. Presented as containers developed in Europe. Article presented three European norms for containers, which were described before Second World War.

Keywords: Europe, containers, norm, Second World War

Europejskie kontenery przed Drugą Wojną Światową. Parametry i normy

Streszczenie


Słowa kluczowe: Europa, kontenery, norma, II Wojna Światowa

LITERATURA

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