Oversize Transport Handbook
POLAND
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1. Introduction

There is not precise, and the only unique definition of the oversize cargo. This is due to the multiplicity of forms which that kind of cargo has, including heavy lifts, overwide, overhigh units and cargo, which exceeds axle load. Their parameters differ from each other, which effects in the multiplicity of means of transport engaged in the oversize transport. Sometimes even specially designed to transport a particular type of oversize cargo. There are also special handling installations (terminals, factory sites, ports and docks) for oversize transport.

It could be said, that in all cases "oversize" determinants are:

1) cargo dimensions,
2) cargo weight,
3) available cargo space on the vehicle,
4) permissible pressure and stress on the loading surface,
5) permissible stress on surface of road/rails.

Additional important element is the shape of the cargo, because its irregular geometry could negatively affect static and dynamic stability of the vehicle. In every case handling, stowage and securing of such cargo must be done under the supervision of the surveyors, proper calculations should be made prior, and necessary permits and certificates should be obtained. All appropriate rules, i.a. issued by the International Maritime Organization, the Road Administration or Rail Administration, should be strictly respected.

Below are oversize cargo definitions in the different modes of transport: road, rail, inland shipping, sea and air transport.

In road transport oversize cargo exceeds maximal permitted parameters of standard road vehicle or exceeds permissible axle load of the vehicle. In consequence, there are oversize vehicles instead of oversize cargoes (Fig. 1 and 2).

In rail transport oversize cargo exceeds standard loading gauge or exceeds permissible axle load of the railway. Such a situation is called extraordinary delivery, which means, such transport can cause difficulties in rail transport and it is necessary to take special technical and/or operating actions (Fig. 3 and 4).

In inland shipping oversize cargo is cargo, that overcomes the vessel's length or/and width or which overcomes the standard air draft of the vessel (vertical clearness of bridges, gates etc.). It is taken under consideration the restricted visibility of the helmsman as well.

In the sea transport the oversize cargo is defined as: break bulk or general cargo unit, which overcome the parameters of standard cargo units. It means, it weights hundreds or even thousands of tons and its dimensions is counted in tens or even hundreds of meters.

In intermodal transport, oversize cargo is the cargo, that exceeds the average permissible parameters of means of transport in terms of size, shape, or/and permissible pressure and stress on the loading surface of minimum one mean of transport.
2. Oversize cargo in road transport

2.1. Description of oversize cargo

In road transport law regulations don’t concern cargo, but so-called "non-normative" vehicles, it means vehicles, that exceed maximal accepted dimensions or weight. According to "Road traffic law", a non-normative vehicle is the vehicle or combination of vehicles, which axle load, with or without cargo, exceeds permissible limits. Polish regulations are consistent with European law in this regard, especially with Directive 96/53:

1) maximum acceptable vehicle length:
   – motor vehicle or trailer -12,00 m,
   – articulated vehicle - 16,50 m,
   – road train - 18,75 m.
2) maximum acceptable vehicle width:
   – all vehicles - 2,55 m,
   – superstructure of refrigerated vehicles - 2,60 m.
3) maximum acceptable vehicle height - 4,00 m.
4) maximum acceptable vehicle weight:
   – road trains or articulated vehicles – 40 t,
   – articulated vehicles loaded with 40-feet containers– 44 t.

There is not any official statistic showing what sorts of cargo is transported by non-normative vehicles. According to carriers’ information the most common are:

– wind turbines (windmills),
– steel structures (building and for shipyard),
– construction machinery,
– agricultural machinery,
– industrial equipment (generators, transformer, production lines components)
– dutch houses,
– tanks.

Calculation methodology of charges for oversized vehicles transit in Poland

Users are obliged to incur costs for oversized vehicles transit through public roads in Poland. In accordance with Public Roads Act, 21 March 1985, the fee is being issued inter alia for:

1. one-time transit of an oversized vehicle in restricted period of time, through restricted route
2. one-time transit of an oversized vehicle which crosses the national border in restricted period of time,
3. designation of transit route and adaptation of specific public roads to allow transit of oversized vehicles.

5)
Ad. 1)
The cost, discussed in point 1), is being determined as a product of oversized vehicle transit kilometres total amount and the charge rate for exceeding permissible size of the vehicle. In case of exceeding more than one parameter's size, the fee is being calculated as a sum of charges occurring as a result of every single excess. If the excess occurs on several of vehicle's single or multiple axles, the cost is being calculated as a sum of charges for every single excess (table 1). The total fee is calculated and charged by General Directorate for National Roads and Motorways.

Ad. 2)
Costs, discussed in point 2, are as follows:
   a) 150 PLN – for exceeding permissible length of the vehicle by up to 2 metres;
   b) 150 PLN - for exceeding permissible width of the vehicle by up to 3 metres;
   c) 450 PLN - for exceeding permissible pressure on vehicle's axles by up to 15 %. The fee is charged by the Head of Customs when vehicle enters the territory of Poland.

Ad. 3)
The transit route designation fees consist of the following: costs of obtaining information regarding passability of roads included in the transit route by an organ competent to issue permissions for oversized vehicles transit, determining conditions of such transit and the costs of issuing a permission.
The costs are determined at level of 10% of transit fee (point 1 or 2). The costs are to be covered by the person effectuating transit of an oversized vehicle, at the time of incurring the transit fee.
The costs connected with adaptation of roads being part of transit route to oversized vehicles transit consist of:

   a) administrative costs of supplies, roadworks & road services
   b) costs of supplies, roadworks & road services, denoted in permission by the organ competent to issue permissions (professional evaluation & inspection costs of roads and engineering structures, supervision of oversized vehicle transit, temporary removal of road verges limitations, composition of road and engineering structures amplifications, construction of new or adjustment of existing diversions on transit route, closure or limitation of traffic).

   a) Costs connected with adaptation of roads being part of transit route to oversized vehicles transit are, if possible to establish on real costs basis, being covered by the client.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Rate in PLN per 1km</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Excess of permissible vehicle's length with or without cargo, for every metre above the limit.</td>
<td>0,15</td>
</tr>
<tr>
<td>2. Excess of permissible vehicle's height with or without cargo.</td>
<td>0,15 - 0,20</td>
</tr>
</tbody>
</table>
5. Excess of permissible pressure on vehicle's axles, on roads with permissible pressure limit of 8,0 t:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Rate in PLN per 1km</th>
</tr>
</thead>
<tbody>
<tr>
<td>For single non-driving axle, with axle pressure of over 8,0 t</td>
<td>Up to 1,30 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles not exceeding 1,0 m and combined axle pressure of over 8,8 t</td>
<td>Up to 1,30 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,0 m to 1,3 m and combined axle pressure of over 13,0 t</td>
<td>Up to 1,80 (for each 1,0 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,3 m to 1,8 m and combined axle pressure of over 17,5 t</td>
<td>Up to 2,20 (for each 1,0 t excess)</td>
</tr>
<tr>
<td>For triple axle motor vehicles, trailers and semi-trailers, with distance between the axles up to 1,3 m and combined axle pressure of over 19,5 t</td>
<td>Up to 2,90 (for each 1,0 t excess)</td>
</tr>
<tr>
<td>For multiple axle motor vehicles, trailers and semi-trailers, with number of axles greater than 3, distance between axles up to 1,3 m and pressure on each axle of over 6,0 t</td>
<td>Up 0,80 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For multiple axle motor vehicles, trailers and semi-trailers, with number of axles greater than 3, distance between axles greater than 1,3 m and pressure on each axle of over 6,5 t</td>
<td>Up to 1,00 (for each 0,5 t excess)</td>
</tr>
</tbody>
</table>

6. Excess of permissible pressure on vehicle’s axles, on roads with permissible pressure limit of 10,0 t:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Rate in PLN per 1km</th>
</tr>
</thead>
<tbody>
<tr>
<td>For single non-driving axle, with axle pressure of over 10,0 t</td>
<td>Up to 0,90 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles not exceeding 1,0 m and combined axle pressure of over 11 t</td>
<td>Up to 0,90 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,0 m to 1,3 m and combined axle pressure of over 14,4 t</td>
<td>Up to 1,10 (for each 1,0 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,3 m to 1,8 m and combined axle pressure of over 16,0 t</td>
<td>Up to 1,60 (for each 1,0 t excess)</td>
</tr>
<tr>
<td>For triple axle motor vehicles, trailers and semi-trailers, with distance between the axles up to 1,3 m and combined axle pressure of over 21,0 t</td>
<td>Up to 1,60 (for each 1,5 t excess)</td>
</tr>
<tr>
<td>For triple axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,3 m to 1,4 m and combined axle pressure of over 24,0 t</td>
<td>Up to 1,80 (for each 1,5 t excess)</td>
</tr>
<tr>
<td>or multiple axle motor vehicles, trailers and semi-trailers, with number of axles greater than 3, distance between axles up to 1,3 m and pressure on each axle of over 6,5 t</td>
<td>Up to 0,60 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For multiple axle motor vehicles, trailers and semi-trailers, with number of axles greater than 3, distance between axles greater than 1,3 m and pressure on each axle of over 7,3 t</td>
<td>Up to 0,60 (for each 0,5 t excess)</td>
</tr>
</tbody>
</table>

7. Excess of permissible pressure on vehicle’s axles, on roads with permissible pressure limit of 11,5 t:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Rate in PLN per 1km</th>
</tr>
</thead>
<tbody>
<tr>
<td>For single non-driving axle, with axle pressure of over 10,0 t</td>
<td>Up to 0,40 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles not exceeding 1,0 m and combined axle pressure of over 11 t</td>
<td>Up to 0,40 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,0 m to 1,3 m and combined axle pressure of over 14,4 t</td>
<td>Up to 0,70 (for each 1,0 t excess)</td>
</tr>
<tr>
<td>For double axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,3 m to 1,8 m and combined axle pressure of over 16,0 t</td>
<td>Up to 0,60 (for each 1,0 t excess)</td>
</tr>
<tr>
<td>For triple axle motor vehicles, trailers and semi-trailers, with distance between the axles up to 1,3 m and combined axle pressure of over 21,0 t</td>
<td>Up to 0,90 (for each 1,5 t excess)</td>
</tr>
<tr>
<td>For triple axle motor vehicles, trailers and semi-trailers, with distance between the axles from 1,3 m to 1,4 m and combined axle pressure of over 24,0 t</td>
<td>Up to 1,00 (for each 1,5 t excess)</td>
</tr>
<tr>
<td>or multiple axle motor vehicles, trailers and semi-trailers, with number of axles greater than 3, distance between axles up to 1,3 m and pressure on each axle of over 7,0 t</td>
<td>Up to 0,40 (for each 0,5 t excess)</td>
</tr>
<tr>
<td>For multiple axle motor vehicles, trailers and semi-trailers, with number of axles greater than 3, distance between axles greater than 1,3 m and pressure on each axle of over 7,3 t</td>
<td>Up to 0,40 (for each 0,5 t excess)</td>
</tr>
</tbody>
</table>

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Phone number: +370 46 390857  
Email address: [transportaoversize@kmtp.lt](mailto:transportaoversize@kmtp.lt)
### Specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>Rate in PLN per 1km</th>
</tr>
</thead>
<tbody>
<tr>
<td>than 3, distance between axles greater than 1,3 m and pressure on each axle of over 8,0 t</td>
<td>0.5 t excess</td>
</tr>
</tbody>
</table>

#### 7. Excess of total permissible weight:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Rate in PLN per 1km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double axle trailer over, 18,0 t</td>
<td>Up to 1,80 (for each 5,0 t excess)</td>
</tr>
<tr>
<td>Triple axle trailer, over 24,0 t</td>
<td>Up to 1,80 (for each 5,0 t excess)</td>
</tr>
<tr>
<td>Articulated vehicle, consisting of double axle tractor head and triple axle semi-trailer, over 40,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Combination of vehicles, consisting of double or triple axle motor vehicle and triple axle trailer, over 40,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Combination of vehicles, consisting of triple axle motor vehicle and double axle trailer, over 40,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Articulated vehicle, consisting of double axle tractor head and triple axle semi-trailer, over 40,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Articulated vehicle, consisting of triple axle tractor head and double or triple axle semi-trailer, over 40,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Combination of vehicles, consisting of 4 axles at total – double axle motor vehicle and double axle trailer, over 36,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Articulated vehicle, consisting of 4 axles at total – double axle tractor head and double axle semi-trailer, if the distance between axles is greater than 1,3m, over 36,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Articulated vehicle, consisting of 4 axles at total – double axle tractor head and double axle semi-trailer, if the distance between axles is greater than 1,8m and the driving axle is equipped with twin tires &amp; pneumatic (or equivalent) suspension, over 38,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
<tr>
<td>Articulated vehicle, consisting of motor vehicle and trailer, registered before 13 March 2003, over 42,0 t</td>
<td>Up to 3,60 (for each 10,0 t excess)</td>
</tr>
</tbody>
</table>

*If excesses of permissible pressures on constituent axles of multiple axle motor vehicles, trailers or semi-trailers with number of axles greater than 3, exceed permissible values, the fee is regulated for every excess separately.*
Example 1.
Costs calculation of oversized vehicle of 75.5 t total mass. Route length equals 72.80 km on roads with permissible pressure limit of up to 8 t, 478.00 km on roads with permissible pressure limit of up to 10t, 242.00 km on roads with permissible pressure limit of up to 11.5 t.

**Vehicles parameters**

<table>
<thead>
<tr>
<th>No.</th>
<th>Tractor Head</th>
<th>semi-trailer</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Empty vehicle weight (t)</td>
<td>20.00</td>
</tr>
<tr>
<td>4.</td>
<td>Number of axles</td>
<td>4</td>
</tr>
</tbody>
</table>

**Parameters for the combination of vehicles loaded with cargo**

<table>
<thead>
<tr>
<th>No.</th>
<th>Length (m)</th>
<th>36.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Width (m)</td>
<td>2.75</td>
</tr>
<tr>
<td>3.</td>
<td>Height (m)</td>
<td>3.25</td>
</tr>
<tr>
<td>4.</td>
<td>Cargo Weight (t)</td>
<td>40.00</td>
</tr>
<tr>
<td>5.</td>
<td>Total Weight (t)</td>
<td>75.50</td>
</tr>
</tbody>
</table>

**Calculation**

<table>
<thead>
<tr>
<th>No.</th>
<th>PARAMETER</th>
<th>Value</th>
<th>Excess</th>
<th>Coefficient</th>
<th>Charges [zł]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Długość [m]</td>
<td>36.00</td>
<td>19.50</td>
<td>3.00</td>
<td>2 378.40</td>
</tr>
<tr>
<td>2</td>
<td>Szerokość [m]</td>
<td>2.75</td>
<td>0.20</td>
<td>0.20</td>
<td>158.56</td>
</tr>
<tr>
<td>3</td>
<td>Wysokość [m]</td>
<td>3.25</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>Masacalk. [t]</td>
<td>75.50</td>
<td>33.50</td>
<td>2.40</td>
<td>1 902.72</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Axe</th>
<th>Distance</th>
<th>Load</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>[m]</td>
<td>[t]</td>
<td>8t</td>
</tr>
<tr>
<td>5</td>
<td>0.50</td>
<td>8.82</td>
<td>2.80</td>
</tr>
<tr>
<td>6</td>
<td>3.00</td>
<td>9.31</td>
<td>0.50</td>
</tr>
<tr>
<td>7</td>
<td>0.50</td>
<td>9.31</td>
<td>0.50</td>
</tr>
<tr>
<td>8</td>
<td>0.50</td>
<td>9.31</td>
<td>4.10</td>
</tr>
<tr>
<td>9</td>
<td>2.00</td>
<td>9.31</td>
<td>4.10</td>
</tr>
<tr>
<td>10</td>
<td>0.50</td>
<td>9.31</td>
<td>15.20</td>
</tr>
<tr>
<td>11</td>
<td>0.50</td>
<td>9.31</td>
<td>15.20</td>
</tr>
</tbody>
</table>

**2.2. Procedures for issuing permits**

General Directorate for National Roads and Motorways and Directors of Customs are responsible for issuing permits for carriers and forwarder transporting oversize cargo. The permits include:

1) permit for single transit of oversized vehicle in appointed time (no longer than 7 days) and route, issued by the General Directorate for National Roads and Motorways,
2) permit for single transit in appointed time (72 hours) for oversize vehicle crossing the Polish border, issued by the Customs Director, for vehicles satisfying minimum one of following conditions:

- height, total weight are normative,
- total width doesn’t exceed 3 m,
- total length exceeds permissible value not more than 2 m,
- axle loads exceed permissible value not more than 15%.

Carriers and forwarders contact authority, which is issuing the permit, by telephone, fax or e-mail. Application is usually available on the website. Fulfilled and signed application can be send by fax or e-mail and original paper can e delivered afterwards. There is application generator available on the internet website of the General Directorate for National Roads and Motorways, Central Department in Warsaw (www.gddkia.gov.pl), which is also available in German and English. Usually customers prefer to get the permit personally, because they are in a hurry, but there is possibility to send it by post at the expense of the applicant.
Application to get permit for oversize cargo transit has to include:

1) name and address of the entrepreneur and the person acting on behalf of him,
2) term and addresses of the beginning and the end of transit, and in case if transport starts or ends outside borders of the country- the place of border crossing,
3) type of cargo and its total weight.
4) unladen vehicle data: brand, registration number, weight, permissible cargo capacity, number of axles and number of wheels on every axle (in case of combined transport, this data is given separately for motor vehicle and trailer),
5) dimensions and total weight of single vehicle/road train with and without cargo,
6) wheel base and each axle load of laden vehicle,
7) scheme of cargo stowing on the vehicle/trailer.

There are no corridors dedicated for oversize vehicles and every time transit route is agreed with road directors of community, region, voivodship and divisions of GDDKiA.
Transit route is appointed on the principle "the shortest way that fulfils requirements on width, accessible load per axel/axles". Most of the time, if it is possible, the applicant’s wishes are met. Sometimes the shortest distance between two waypoints is to be elongated due to the obstructions on the shortest planned route. If detour is enforced, not rarely, three times longer distance has to be worked out.

If road transport of one cargo unit is impossible, it is suggested to divide it or to change the mean of transport. Practically no refusal is observed, because applications are fulfilled after phone conference and customer knows beforehand if the transport operation could be done. Frequently, preplanning of the route is needed so the carriers analyze the chances for the best passage. In some extreme cases, the additional expertise for permissible pressure on the road surface is to be done at the expense of an applicant.

According to the regulations, the maximum period for issuing the permit is 30 days, but practically the administration needs not more than two weeks. In some cases the permit is issued in 2 days. Issuance fee is established by a special computer program, which is used in the General Directorate for National Roads and Motorways. The longer route and the greater dimension excess the more expensive issuance fee is. Maximum price could be over 10.000 PLN.

2.3. Description of main market players

State institutions engaged in road oversize transport include:

- General Directorate for National Roads and Motorways (Generalna Dyrekcja Dróg Krajowych i Autostrad - GDDKiA) – administration of main roads and highways, issuing permits for oversize vehicles; central division of the GDDKiA in Warsaw is responsible for servicing foreigners.
- Road Transport Inspection (Inspekcja Transportu Drogowego - ITD) - state authority, which started its activities in 2002 and is responsible for control of vehicles with a weight above 3.5 tonnes, as well as drivers and freight, and administration of any penalties.
- Police - is the central organ of government, competent in matters of protection of human security and the maintenance of public order and security; Police executes control, prosecution and punishment of both all vehicles and drivers; Additionally, the police offers escort for the oversize transport.

On the Polish market is a few dozen specialized companies offering oversize road transport appearing as a carrier and/or freight forwarder.

2.4. Legal basis for oversize transport

Oversize cargo transport is regulated by many acts of law issued by the Ministry. The most important are:

- Act of June 20th 1997 - Road traffic law (section II - Road traffic; chapter 5: Order and traffic safety on roads; chapter 4: Conditions for use of vehicles on the road - Art. 61 – 64, Dz. U. z 2003 r. Nr 58, poz. 515);
– Act of March 21th 1985, about public roads (Dz. U. z 2007 r. Nr 19, poz. 115);  
– Act of September 6th 2001 r. about road transport (Dz. U. 2004 r. Nr 204 poz. 2088);  
– Decree of the Minister of December 31st 2002 on vehicles technical conditions and range of their necessary equipment (Dz. U. z 2003 r. Nr 32, poz. 262 zezm.)  
– Decree of the Minister of December 16th 2004 r. on special conditions and permits issuing procedure for oversize vehicles transit (Dz. U. Nr 267, poz. 2660);  
– Decree of the Infrastructural of July 26th 2004 about costs connected with transit route defining (Dz. U. Nr 170, poz. 1792);  
– Decree of the Home Affairs and Administration of December 30th 2002, about road traffic control (Dz. U. z 2003 r. Nr 14, poz. 144 zezm.);  
– Decree of the Infrastructural Minister of April 26th 2004 about vehicles which make pilotage (Dz. U. Nr 110, poz. 1165).

Abundance of documents don’t foster easiness and coherence of law applied to carriers, forwarders and institutions that operate oversize vehicle transport. Currently there could be observed some effort to change and simplify existing Road Traffic Law and other acts with the aim to reorganize existing legal order in discussed area. New act is being widely discussed and opened for public consultation.

2.5. Oversize transport Infrastructure

Road transport infrastructure, which is used by oversize cargo carriers, is divided into:
– linear infrastructure – roads,  
– point infrastructure-road junctions, logistic centres, transhipment points, parking places, service stations, etc.

The main infrastructural obstacles in oversize transport aspect in road transport are:
– bridges,  
– overpass,  
– the small values of radius of curves and bends of the roads,  
– the breadth of the roads,  
– technical condition of the road surface,  
– objects situated directly by the road or in the communication row,  
– inadequate road standard against the axle load requirements (max. 11,5 t/axle),  
– traction, power or telephone lanes crossing the road above,
In Poland, there are detailed regulations for transport on public roads, depending on technical conditions of roads and the permissible axle load, including propulsion, non-propulsion and component axle.

<table>
<thead>
<tr>
<th>Type of the road:</th>
<th>Permissible axle load [kN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>District and local road</td>
<td>80</td>
</tr>
<tr>
<td>Voivodeship road</td>
<td>100</td>
</tr>
<tr>
<td>Highway, express road, national roads</td>
<td>115</td>
</tr>
</tbody>
</table>

Basic technical limitations are associated with buildings and objects along the route and with bad condition of roads. The restrictions are including the following:

- bridges and flyovers limiting allowable pressure on axle/axles,
- too low and narrow bridges,
- too small width of the road,
- roundabout with too small turning radius, that unable to travel straight ahead,
- the poor state of roads, even not correspond to the values of the design for the road category (up to 11.5 tons per drive axle at national roads, 10 tons per drive axle for regional roads and 8 tons for other public roads),
- sharp turn in forests,
- stable objects in the urban area, such as lamps, road signs, advertising,
- electric traction, traction over the street,
- traction, electrical, telephone nets placed over the carriageway,
- carried out repairs of roads etc.
In accordance with the provisions, the road oversize transport may be safely performed if the road conditions allow such transport. This means, transport will not endanger the construction of bridge, viaducts and other buildings located near the route, does not undermine the road, nor threaten its security.

In many cases, when planning a safe route of oversize cargo, tests should be made for resistance of buildings located along the route. Sometimes, tests confirming the maximum permissible load of the road are needed. If necessary, removal or upheaving power/telecommunication/traction lines should be arranged, road signs and others obstructions should be dismantled, roundabouts threatening the safety of transport should be disassembled. Currently there is no fast accessible information about the up-to-date technical parameters of roads, including bridges, flyovers, roundabouts etc. As a result, the unplanned prolongation and delay of the oversize transport operations is very often.

Very important issue is the need to take into account the oversize transport when designing, building and approving the road infrastructure. Especially road facilities, such as bridges, roundabouts, intersections, islands, signs, etc. On main roads roundabouts should be constructed in such a way, that makes possible to drive straight ahead, e.g. after opening a road barrier using a smart card. Following the example of Denmark, each opening of the roundabout could result in a fee (the amount of a specific issue to discuss). Use of the card would also leave trace on monitoring system, so that in case of any damage of labelling or other elements of the road, it would be much easier to find guilty oversize vehicle. The indicated company will cover the costs of the damage with the help of carrier’s obligatory insurance. Another problem is the vertical road signs, which should be placed on the road in the way to avoid disassembling and re-assembly during transport of oversize cargo, as it is in some Western Europe countries. Moreover, the arms of hanging signs should be swinging to avoid disassembling and then assembling them for the passage of the oversize vehicle.
3. Oversize cargo in rail transport

3.1. Description of oversize cargo

In rail transport oversize cargo is treated as “extraordinary delivery”, which means, such transport can cause difficulties in rail transport. Therefore, it is necessary and to maintain special technical-operating conditions, taking into consideration:
1) cargo’s shape, size and weight,
2) way of loading, stowing and securing it on the wagon,
3) transport means to be used,
4) transit route.

Extraordinary deliveries are divided into extraordinary deliveries in national and international transport directions.

3.2. Procedures for issuing permits

Decision on oversize transport, called extraordinary delivery, if there are technical and operational possibilities, is made by rail infrastructure managing institution, PKP Polish Railway Lines Company S.A. The decision is usually made within 30 days and is containing conditions given by all appropriate PKP Polish Railway Lines Company Local Departments.

3.3. Description of the main market players

State institution engaged in rail oversize transport is PKP Polish Railway Lines Company S.A. (PKP Polskie Linie Kolejowe S.A. – PKP PLK), which is responsible for rail infrastructure, including administration and maintenance. PKP PLK issues permits for railway carriers transporting oversize cargoes. Among the rail carriers, should be mentioned:
- PKP CARGO S.A. continues the tradition of the former monopolist PKP and still has the largest share of oversize transport on the Polish market. The company has its own rolling stock meeting specific technical requirements of extraordinary cargoes.
- STK S.A. is a licensed rail carrier in rail transport services, including transport of the extraordinary oversize and extremely heavy deliveries.

3.4. Legal basis for oversize transport

Conditions of cargo transport by rail are identified in:
- Decree of June, the 7th 2006 (with later changes) on kind and conditions on transporting cargo, that can cause transport difficulties in rail transport (Dz. U. nr 108, poz. 746).
- Cargo delivery regulation (RPT) PKP Cargo S.A. (text codified with changes from the 1st of January 2010)
- Ch5 Instruction how to transport extraordinary delivery PKP Cargo S.A.
3.5. **Oversize transport Infrastructure**

When planning a special delivery of rail transport, the following limitations of infrastructure have to be considered:
- loading gauge, building gauge,
- pressure per one meter of rail,
- radius of rail curves,
- permissible load on bridges and overpasses.

Safe transport of oversized cargo by rail requires taking into consideration: the permissible values of the wheels pressure on the rails, extreme curve arc, side inclination of rail track, load capacity of bridges and overpasses, dimensions of tunnels and other infrastructure facilities, and sometimes speed limitations. In Poland, the railway lines have been divided according to operational performance into 4 categories. The safest transport of the cargo exceeding the gauge is on the main railway lines, where the pressure on the axles has a maximum acceptable value and there is a good technical condition of rail infrastructure. However, on these railway lines there is the biggest traffic congestion, which is in conflict with low speed of oversize cargo trains.

<table>
<thead>
<tr>
<th>Railway lines category</th>
<th>Cargo trains max. speed $V_{\text{max}}$ [km/h]</th>
<th>Permissible axle load - $P$ [kN]</th>
<th>Carriage load $T$ [Tg/rok]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main (0)</td>
<td>$80 &lt; M_{\text{ax}} \leq 120$</td>
<td>$P \leq 221$</td>
<td>$T \geq 25$</td>
</tr>
<tr>
<td>First-class (1)</td>
<td>$60 &lt; M_{\text{ax}} \leq 80$</td>
<td>$210 \leq P &lt; 221$</td>
<td>$10 \leq T &lt; 25$</td>
</tr>
<tr>
<td>Second-class (2)</td>
<td>$50 &lt; V_{\text{max}} \leq 60$</td>
<td>$200 \leq P &lt; 210$</td>
<td>$3 \leq T &lt; 10$</td>
</tr>
<tr>
<td>Local importance (3)</td>
<td>$V_{\text{max}} \leq 50$</td>
<td>$P &lt; 200$</td>
<td>$T &lt; 3$</td>
</tr>
</tbody>
</table>
The network of PKP Polish Railway Lines SA is operating approximately 1600 stations. The sequence of railway lines in operation includes more than 14200 intersections with roads and pedestrian crossings. The number of 2700 of such crossings are guarded. PKP Polish Railway Lines SA maintains over 26000 engineering structures, including almost 7000 bridges and overpasses.

There are the railway lines important to the international East-West and North-South transit. These lines are covered by international agreements AGC and AGTC.

In rail transport technical limitations include such elements as semaphores, signs, switches, towers, kiosks of the railway watchmen, train stations and platforms, the distance between platforms etc., should be also taken into consideration.

One of the technical obstacles of transport is the height of traction network wires. The standard suspension height is 5600 mm.
4. Oversize cargo in inland shipping

4.1. Description of oversize cargo

In inland shipping oversize cargo is divided into two types.

1) 1st type of oversize cargo includes:
   - Ships, which at least one parameter is inconsistent with requirements given in appropriate regulations on shipping on inland waterways, that means:
     - length, width, height of the highest indivisible part of a ship, draught, speed of a ship/combination of ships, are not corresponding with operating parameters of waterway, on which oversize transport is planned,
     - ships’ maximum dimensions, the highest number of ships lashed together and either pushed or pulled by tugs, the permissible draught in relation to the transit depth, the permissible speed on the waterway, are not corresponding with requirements described in local law regulations,

2) 2nd type of oversize cargo includes:
   - cargo protrudes from ships’ hold and exceed permissible height, taking into consideration the highest indivisible part of the ship, the infrastructural parameters of the waterway (bridge vertical clearance, lock gates) and helmsman’s limited visibility,
   - cargo protrudes beyond the horizontal outline of the ship.

4.2. Procedures for issuing oversize transport permits

In regulations for shipping on inland waterways is described, that oversize carriages in inland shipping are special deliveries, which can take place only on the base of permit. It is issued, upon request of shipowner, by the Inland Navigation Office appropriate for the place of the beginning of the route. For every special transport requirements for ship’s crew should be given. The crew members have to comply with the appropriate requirements of shipping regulations and requirements on professional qualification.

Special transit routes in inland shipping are identified in the application submitted to the Inland Navigation Office appropriate for the place of the beginning of the route. Before issuing the permit, the administration checks shipowner proposal, taking into consideration shipping traffic safety. Eventually, if it is possible, route is optimally adapted to the operating parameters of the ship/combination of ships and to parameters of the waterway.

Documents needed to apply for the permit are enlisted below:

1) valid navigability certification,
2) ship’s dimensions,
3) cargo stowing and securing plan and information about ship’s stability,
4) the watertight test for the hulls transported from the shipyard.

The official period to obtain permit for inland shipping oversize transport is 2 weeks, in practice:
   - the Inland Navigation Office in Wrocław – 3-7 days,
– the Inland Navigation Office in Szczecin – without delay if the permit requires an inspection of the vessel and the inspector cannot perform it on the day of application - then 2-3 days.

The period of validity of the permit - a permit is issued depending on the length of the route planned for the boat and the final date is given always in considerable extension. The weather conditions, the state of water, possible delay due to break downs of facilities are always taken into consideration.

4.3. Description of the main market players

State institution engaged in inland shipping oversize transport is the Inland Navigation Office (Urząd Żeglugi Śródlądowej - UŻŚ), which is administrating waterways and inland shipping traffic. The institution issues permits for shipowners transporting oversize cargoes/ships. The following companies are experienced in inland shipping transport of oversize cargo: ODRATRANS SA, Navigar Deneko Garbień Sp.j., Odra Lloyd Ltd.

4.4. Legal basis for oversize transport

In inland shipping transport oversize cargo transport is regulated by:

1) Ordinance of Infrastructure Minister of April, 28th 2003 on regulations for shipping on inland waterways,

2) Local law regulations published by appropriate territorial Inland Navigation Office Directors. For example for lower section of the Odra river there are:

– Ordinance of Inland Navigation Office Director in Szczecin from June, 7th 2004 regarding local law on inland waterways.

– Ordinance of Inland Navigation Office Director in Szczecin from December 4th 2009 regarding shipping on the border waters of Oder, West Oder and the river Lusatioan Neisse.

4.5. Oversize transport Infrastructure

Inland waterways are divided into 7 classes, depending on the permissible parameters, including:

– the air draft (minimum clearance under bridges, pipelines and other devices crossed the waterway overhead),

– the minimum draft (clearance of the water under keel).
### Polish classification of inland waterways routes

<table>
<thead>
<tr>
<th>Inland waterway class</th>
<th>Minimum dimension of the channel</th>
<th>Minimum ground clearance under the bridges [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width of the navigable route[^a] [m]</td>
<td>Minimum water depth in the channel [m]</td>
</tr>
<tr>
<td>Ia</td>
<td>12</td>
<td>1,5</td>
</tr>
<tr>
<td>Ib</td>
<td>18</td>
<td>2,0</td>
</tr>
<tr>
<td>II</td>
<td>25</td>
<td>2,2</td>
</tr>
<tr>
<td>III</td>
<td>35</td>
<td>2,5</td>
</tr>
<tr>
<td>IV</td>
<td>40</td>
<td>3,5</td>
</tr>
<tr>
<td>Va</td>
<td>45</td>
<td>3,5</td>
</tr>
<tr>
<td>Vb</td>
<td>45</td>
<td>3,5</td>
</tr>
</tbody>
</table>

[^a]: navigable width of the trail at the bottom of the vessel with a maximum permissible load for a full immersion.

The higher the class of the waterway, the better are conditions to carry oversized cargo. Class V offers better technical parameters, i.e. bigger permissible draft, easier manoeuvrability for watercrafts, larger clearances under bridges, allowing safer transport of oversize cargo then the lower classes.

The main inland waterway in Poland is the Oder Waterway, along with Gliwicki and Kędzierzyński Canal. However, there are foul navigational conditions, i.e. depth of the main transit, in the central section of the river from Brzeg Dolny to the estuary of the...
Warta river. Therefore, transport between the upper and lower section of the Oder is not possible during the most of the navigation season.

The following restrictions are specified in local law that is issued by the Inland Navigation Office in Szczecin. Limitations are related to the dimensions of the navigable routes, locks and clearance under bridges, pipelines and other devices crossing the waterway, the width of the bridges and the depth of the shipping route.

In the administration ordinances are given such particulars as the dimensions of vessels and towing trains permitted to navigate on specific sections of waterways.

Maximal dimensions of ships on Odra river
5. Oversize cargo in maritime transport

5.1. Description of oversize cargo

Oversize cargoes, often described as “heavy lifts”, are those measured from tens to hundreds of meters and weight hundreds or even thousands of tons. Some of extra-large oversize units are being transported on special, unique ships, built on purpose.

The example of such is the Semi-Submersible ship (SEMI). The floating oversize cargo (on barge or by itself) is positioned on deck which is flooded and submerged underwater. When the ballast is pumped out, the deck comes up and oversize cargo remains on dry deck. Such system of loading is named Flo-Flo. Apart of the SEMI ships, to carry the oversize cargoes, there are also semisubmersible pontoons, standard pontoons and barges, or even classical ships.

The oversize cargo could be loaded by heavy crane (floating or shore) with load capacity from 100 to 2000 tons and over. That system of loading is named Lo-Lo.

The shape of the oversize often exceeds the dimension of the carrier which must be carefully taken into account when passing narrows.

In every case, during loading and the sea passage, it should be taken into account following safety factors:
1) distribution of the weight of the cargo,
2) centre of gravity and centre of inertia of weight,
3) transverse moments,
4) torsion and vibration,
5) stability of the loaded ship.

5.2. Procedures for issuing oversize transport permits

There are no permit procedures for transport of oversize cargo in maritime transport.

5.3. Description of the main market players

Polish owners do not operate any specialised ships for heavy lifts. However the oversize cargoes are incidentally carried on board, mostly as deck cargo. Polish forwarding companies as Morska Agencja Gdynia Sp. z o.o., C.Hartwig Szczecin, C.Hartwig Gdynia and Rhenus Port Logistic S.A cooperate with owners specialized in oversize cargoes transport.

The oversize cargo operations in Polish ports, are provided by the stevedore companies, i.a. DB Port Szczecin Sp. z o.o. and Port Gdański Eksploatacja.

5.4. Legal basis for oversize transport

In Poland the Law defining the sea transport taken as the whole, is The Polish Maritime Code issued on 18 of September 2001. There is not any particular law regarding oversize cargoes, therefore carrying such type of cargo, apart from the ship’s Loading and Stability Instructions, one must follow the standards of Safe Practice for
cargo Stowage and Securing, and other safety procedures enforced by the IMO Conventions. The institution of Maritime Code, however in different forms, is enforced in all Maritime Countries.

The following International Regulations will be observed when carrying the oversize cargoes

- International Convention for the Safety of Life at Sea (SOLAS), 1974
- International Convention on Load Lines, 1966
- International Convention for Safe Containers, 1972 (CSC)
- International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)
- Code of safe practice to cargo stowage and securing (CSS IMO Code)
- Regulation of the local Maritime Administrations

Regarding the oversize transport, the local law imposes on the Administration the duty to monitor and supervise the movement of such cargoes. In practice it is limited to one time permit given to the water crafts carrying oversize cargoes, for entering the port and to navigate on the waters under jurisdiction of the said administration. It applies however to all ships deferring from the standard parameters for draft, dimensions and manoeuvrability.

Due to the variability of the oversize cargoes, apart from General Regulations originated from the Port Regulations, the regulations referring the oversize cargoes alone are not defined, and the permit for movement is given for one passage only. It should be emphasized that in every case the additional tugboat assistance should be given and frequently, second pilot. The terms of the additional insurance coverage for the carrier will be produced.

In case of the Polish ports such Port Regulations origin from the Directives, Announcements and Orders of the Director of the Maritime Office.

### 5.5. Oversize transport Infrastructure

Transport of the oversize cargoes by the sea vessels, i.e. sea barges or ships, demands the specialized port infrastructure. This is the main factor defining the port’s capability to perform the oversize cargo handling operations. In Poland that kind of services could be provided in Port of Szczecin-Świnoujście, Port of Gdańsk and Port of Gdynia. All ports are easily accessible by the road and rail and, additionally, Port of Szczecin-Świnoujście is a river port.

In Szczecin, the oversize cargo is handled either by mobile crane „Gottwald” of 100 tons load or by floating crane of 200 tons load. Due to that, oversize cargoes could be handled at almost every quay, but most often such a cargo is handled at the Ewa Terminal or at the Duty Free Zone, where as a rule blocks of granite are loaded.

In Port of Gdańsk oversize cargoes are handled at the Port Free Zone by mobile Crane of 100 tons load. The other port operator owns floating crane of 63 tons load. Additionally, Gdańsk Shipyard “Remontowa” owns floating crane of 200 tons load, and Polish Ship Salvage Company (Polskie Ratownictwo Okrętowe–PRO) owns the biggest floating crane “Maja” of 300 tons capacity.
In Port of Gdynia oversize cargoes are handled by the Baltic General Cargo Terminal Gdynia Ltd. with the aid of the ship’s gear or mobile cranes and floating cranes chartered from outsiders.

The technical conditions of oversize transport by sea are mainly connected with ship’s parameters and capabilities.