

MINIMUM TECHNICAL CHARACTERISTICS OF RAILWAY TRANSPORT TO BE USED BY TRANSIT TRAFFIC

The undermentioned technical characteristics of the railway transport have been based on the Agreement on Organizational Aspects of Combined Transport Services between Europe and Asia concluded in 1997 under the areas of the Organization for Cooperation between Railways (OSZhD) which is compatible with the European Agreement on Important International Combined Transport Lines and related Installations (AGTC) of 1st February 1991 (ECE/TRANS/88).

TECHNICAL CHARACTERISTICS OF RAILWAY LINES OF IMPORTANCE FOR TRANSIT AND COMBINED (MULTIMODAL) TRANSPORT

The **parameters** of railway lines of importance for transit and combined (multimodal) transport are shown in the Table-I below. The target values shown in column A of the Table are to be regarded as important objectives to be achieved in accordance with national railway development plans. Any divergence from these values should be regarded as exceptional.

Railway lines have been divided into two main categories:

- (A) **Existing** lines which can, if necessary, be modernized. If modernization or adaptation is difficult or impossible, the requirements for these lines may be eased;
- (B) **New** lines to be built.

The parameters shown in Table-I also apply, where appropriate, to ferry services which are an integral part of the railway network.

TABLE-I

PARAMETERS OF RAILWAY LINES OF IMPORTANCE FOR TRANSIT AND COMBINED TRANSPORT

{P Categories of railway lines	A	B
--------------------------------	---	---

RIV ATE }	Parameters	Existing lines		New lines
		At present	Target values	
		1	Gauge	1435mm 1520mm 1676mm
2	Number of tracks	1-2	1-2	1-2
3	Loading gauge (static)	According to the Annex-5 to SMGS	OSZhD/ UIC(2) GB	OSZhD/ UIC(2) GC
4	Minimum distance between tract centers (1)	4.0-4.8	4.5-4.8m	4.5-4.8m
5	Nominal minimum speed	40-90 km/h	90-120 km/h (3)	120 km/h (3)
6	Authorized axle load by the speed: upto 100 km/h above 100 km/h	17.27-22.5t 20t	22.5t 20t	22.5t 22.5t
7	Maximum gradient (1)	(Not specified)		12.5 mm/m
8	Minimum useful siding length	385-850m	750-850m	750-850m

1. Recommended.
2. UIC (International Union of Railways)
3. Minimum standards for Combined Transport Trains

Footnote to Sr.No.3 of the Table:

The Railways having limits different from the Loading gauge (static) from Annex-5 to SMGS, should inform it to the Railway Administrations of the other Contracting Parties.

Footnote to Sr.No.5 of the Table:

The Railway Administrations establishing provisional speed limits of different levels than the speed mentioned at Sr.No.5 of the Table should inform to the Railway Administrations of the other Contracting Parties about it.

Explanation of some Parameters contained in the above Table

1. Number of Tracks

Transit and Combined transport lines must provide adequate capacity and enable strict compliance with timetables.

It is generally possible to meet both requirements only on a line with at least two tracks. However, single-track lines are permissible if the other parameters of the Agreement are complied with.

2. Loading Gauge

The minimum loading gauge for Transit and Combined transport lines are featured at **Figure-1**.

Since, on new lines, the use of a large gauge does not usually entail any major investment the UIC GC gauge has been chosen.

The UIC GC gauge allows, for instance:

- a. The transport of road goods vehicles and road trains (lorry with trailer, articulated vehicle, tractor and semi-trailer) conforming to the European road loading gauge (height 4m, width 2.5m) on special wagons with a loading height of not more than 60 cm above rail level;
- b. The transport of ordinary road semi-trailers of 2.5m width and 4m height on recess wagons with normal bogies;
- c. The transport of ISO containers of 2.44m width and 2.9m height on ordinary flat wagons;
- d. The transport swap bodies of 2.5m width on ordinary flat wagons;
- e. The transport of containers/swap bodies of 2.5m width and 2.9m height on suitable wagons.

The **existing lines** through mountainous regions have many tunnels conforming to the loading gauge, or gauges of slightly greater height at the center of the track. Increasing this to conform to the UIC GC gauge is in almost all cases impossible from the economic and financial standpoints.

The UIC GB gauge has therefore been chosen for these lines, as it allows, for instance:

- a. The transport of ISO containers of 2.44m width and 2.90m height on flat container wagons with a loading height of 1.18m above rail level;
- b. The transport of swap bodies of 2.5m width and 2.6m height on ordinary flat wagons (loading height of 1.246m);
- c. The transport of semi-trailers on recess wagons;
- d. The transport of containers/swap bodies of 2.6m width and 2.9m height on special low-loader wagons.

Most existing Transit and Combined transport lines offer at least the UIC B gauge. In the case of the others, improvement to that standard would not normally require major investment.

3. **Nominal Minimum Speed**

The nominal minimum speed would be determined by the geometrical characteristics of the track (radius of curves), safety requirements and the braking coefficients of the rolling stock.

4. **Authorized Axle Load**

This is the authorized load per axle which Transit and Combined transport lines should be able to bear.

Transit and Combined transport lines should be capable of taking the most modern existing and future rolling stock traffic, in particular:

Wagons with a load per axle of 20t. which corresponds to UIC classification C. Pursuant to UIC decisions a wagon load per axle of 22.5t has been adopted for speeds up to 100 km/h. The load per axle limits of 20t are those set by

the UIC regulations.

In accordance with the UIC regulations, the said loads per axle are applicable for a wheel diameter of not less than 840 mm.

Figure - 1

Loading gauges GA, GB and GC to UIC leaflet 506 OR