

2nd edition, April 2002

*Translation*

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## Wagons

### Variable-gauge running gear for 1435 mm/1520 mm and 1668 mm

### Recommendations for bilateral agreements

*Wagons*

*Organes de roulement à écartement variable 1435 mm/1520 mm et 1668 mm*

*Recommandations pour les accords bilatéraux*

*Güterwagen*

*Fahrwerke mit Spurwechsel 1435 mm/1520 mm und 1668 mm*

*Empfehlungen für bilaterale Abkommen*



UNION INTERNATIONALE DES CHEMINS DE FER  
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INTERNATIONAL UNION OF RAILWAYS



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## Summary

This leaflet applies to freight wagons with automatic variable-gauge wheelsets, which are able to run on railways with different track gauges. It is intended to allow the railways concerned to conclude the necessary bi- or multilateral agreements, and may be revised in the light of experience. Because of their special equipment, these wagons shall not carry the RIV symbol.

### Note:

Points 1.2, 1.5, 2.1.1.6, 2.1.2, 2.1.3.4, 2.1.4.1 to 2.1.4.4, 2.1.5, 2.2.1, 2.2.2, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.4.4, 2.5.1, 2.5.2, 2.5.6, 4.1.1, 4.1.4, 4.2.1, 4.2.2 **must be complied with** to facilitate the conclusion of bi- or multilateral agreements.

Points 2.1.1.4, 2.1.1.5, 2.1.3.2, 2.2.4 and 2.4.3 correspond to provisions that **are already obligatory** in another existing UIC leaflet.

# 1 - General conditions applicable to running gear

**1.1** - The running gear should be so designed that wagons equipped with it can run at a speed of  $\leq 120$  km/h with an axle-load of  $\leq 22,5$  t, and at a speed of  $120 \text{ km/h} < v \leq 160 \text{ km/h}$  with an axle-load of  $\leq 18,0$  t.

**1.2** - Running gear, including the mechanisms required for gauge adjustment, shall not exceed the kinematic gauge reference profile specified in *UIC Leaflet 505-1* (see Bibliography - page 17).

**1.3** - It is recommended that the wheelbase of the running gear be  $\leq 2,0$  m.

**1.4** - Wagons equipped with the running gear must be able to:

- negotiate curves with a radius of 150 m when coupled to form a train;
- negotiate curves with a radius of 75 m as individual vehicles;
- pass over hump and flat shunting installations in the operating position in accordance with *UIC Leaflet 505-1*.

Vehicles used in train-ferry traffic should be able to negotiate curves of 120 m radius and a ferry ramp angle of  $2,5^\circ$ .

**1.5** - Running gear intended for use on European rail networks of 1520 mm gauge shall be able to withstand an operating temperature range of  $-40^\circ\text{C}$  to  $+40^\circ\text{C}$ . For Asian 1520 mm gauge networks, running gear should be suitable for a temperature range of  $-60^\circ\text{C}$  to  $+45^\circ\text{C}$  and a relative humidity of 0 - 100%.

**1.6** - The overall space occupied by the running gear should be such that it may be used on existing vehicles.

**1.7** - The noise emissions should not exceed those of existing vehicles.

**1.8** - The weight of the running gear should be as low as possible.

**1.9** - To identify running gear with automatic variable-gauge wheelsets, the symbol shown in Appendix A - page 14 shall be applied to the running gear frame.

## 2 - Conditions and characteristics for running gear components from the design and maintenance standpoints

### 2.1 - Variable-gauge wheelsets

#### 2.1.1 - General characteristics

**2.1.1.1** - The weight of the wheelset including locking mechanisms should be as low as possible.

**2.1.1.2** - The wheels should be able to move axially to a position allowing them to run on track of 1435 mm and 1520 mm or of 1435 mm and 1668 mm gauge.

It is recommended that the axial movement of the wheels permit running on track of all three gauges.

**2.1.1.3** - When adjusted for the gauge concerned, the wheels may either be coupled to the axle body so as not to rotate, and locked, or else mounted and locked on a fixed axle with freedom to rotate.

**2.1.1.4** - The wheelset shall be suitable for an axle-load of 20 t and a speed of 120 km/h.

The maximum dimensions for manufacture, reprofiling and operation shall be those set out in *UIC Leaflet 510-2, points 1.3 and 1.4*.

For 1435 mm gauge, the maximum and minimum dimensions for the distance between the inner faces of the wheel flanges of a wheelset and for the distance between the outside surfaces of the wheel flanges are set out in *UIC Leaflet 510-2, points 1.5 and 1.6*. For 1520 mm and 1668 mm gauges, the following dimensions are to be observed:

- Distance between the inner faces of the wheel flanges:

|      |           |   |               |
|------|-----------|---|---------------|
| min. | : 1590 mm | } | 1668 mm gauge |
| max. | : 1596 mm |   |               |

|      |           |   |               |
|------|-----------|---|---------------|
| min. | : 1437 mm | } | 1520 mm gauge |
| max. | : 1443 mm |   |               |

- Distance between the outside surfaces of the wheel flanges:

|      |           |   |               |
|------|-----------|---|---------------|
| min. | : 1643 mm | } | 1668 mm gauge |
| max. | : 1659 mm |   |               |