

Doors, footboards, windows, steps, handles and handrails of coaches and luggage vans

Portes, emmarchements, fenêtres, marchepieds, poignées et mains courantes des voitures et des fourgons

Türen, Einstiege, Fenster, Tritte und Griffe an Personen- und Gepäckwagen



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- Point 3.1.2 (1.7.96)
- Points 1.4.1, 1.8.3 and Appendix I (1.7.98)

By derogation, from 6.1.8.1 of the Leaflet the FS are allowed to use a locking device permitting to lock the sliding doors of couchette compartments without any restriction. The use of this system in international traffic shall be subject to bilateral or multilateral agreements

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Summary

This leaflet contains all provisions relating to the doors, footboards, windows, steps, handles and handrails of coaches and luggage vans running freely in international traffic.

The successive strengthening of safety requirements over the years, especially as far as door closing and locking mechanisms are concerned, has given rise to equipment variants, the dates of application of which are indicated in the relevant text passages as well as in the "Application" chapter.

1 - Entrance doors

1.1 - General provisions

- **1.1.1** - Each door must be fitted with two operating handles, one on the inside, the other on the outside, or with operating push-buttons.
- **1.1.2** - Side entrance doors that open outwards must be fitted with closing devices that also permit double-locking, when the door is closed manually.
- **1.1.3** - The double-locking system must consist of two separate components, or a single component, if this operates in two stages (preliminary and main locking).
- **1.1.4** - When closed, entrance doors must not project beyond the vehicle body.
- **1.1.4.1** - When open, entrance doors whose lower part is at least 1050 mm above rail level, when the buffers are at the minimum permissible height, may project beyond the reduced clearance gauge of the vehicle by at most 200 mm.
- **1.1.4.1.1** - Entrance doors of coaches to be built after 1 January 1986 must meet the specifications of point **1.1.4.1** even during the opening operation.
- **1.1.4.1.2** - The restriction laid down in point **1.1.4.1** does not apply to hinged entrance doors fitted to coaches before 1 January 1980.
- **1.1.4.2** - For side entrance doors situated beyond the bogie pivots and whose bottom edges are less than 1050 mm above the rail, the necessary reduction in the clearance gauge with the buffers in the lowest permissible position of 980 mm can at most be decreased:

- during opening and
- in the "open" position,

by the value $\frac{(w_a - 0,02)(n+a)}{a}$. This only applies if $w_a > 0,02$ m).

NB : When shunting speeds remain at or below 30 km/h, lateral play does not generally exceed 0,02 m.

Definitions:

- w_a = possible lateral displacement of bogie pivots and swing bolsters from the median position to the outside of the curve in metres,
- n = distance of the relevant section of the vehicle with respect to the closest bogie pivot in metres,
- a = centre-to-centre distance of the bogie pivots in metres.

- R 1.1.4.3** - It shall be permissible to use doors that meet the conditions of both points **1.1.4.1** and **1.1.4.2**.

In this case, the provision laid down in point **1.1.4.1 - page 2** also applies during the opening operation.

O 1.1.5 - The edges of entrance doors must be fitted with flexible joints to prevent hands being trapped.

O 1.1.6 - Side entrance doors opening towards the outside must be fitted with protection devices, which prevent hands being trapped.

O 1.1.7 - It must be possible to lock the entrance doors of vehicles built after 1 January 1983 in the closed position from the outside and the inside of the coach with the square socket key according to RIC.

R 1.1.7.1 - In case of coaches built before 1 January 1983, it is permissible for doors to be lockable only from the outside.

O 1.1.7.2 - On the front of locks for square socket keys, there must be a marker line that is in the vertical position, when the lock is open, and in the horizontal position, when the lock is closed.

1.1.8 - Colours of insides of doors.

O 1.1.8.1 - The colour shall provide a clear contrast with adjoining surfaces.

R 1.1.8.2 - A shade of the colour orange is recommended for coaches built before 1 January 1980 and not having been fitted with the door-locking system according to point **3 - page 10**.

O 1.1.9 - The inside surfaces of doors in the side walls must bear the following inscription:

"Ne pas ouvrir avant l'arrêt du train.
Nicht öffnen, bevor der Zug hält"
(Do not open before the train stops)

R 1.1.9.1 - This text may be added in one or more other languages.

R 1.1.9.2 - It is recommended to supplement this inscription with the corresponding pictogram of the UIC code.

1.1.10 - Protection against the effects of bad weather

R 1.1.10.1 - The entrance doors must be constructed as to ensure as complete tightness as possible to air and noise.

O 1.1.10.2 - Guiding systems, rollers, joints, insulated cables, sleeves etc., exposed to operating problems in winter conditions (frost, ice, etc.), must be well protected against the effects of bad weather.

Insulated cables must be fitted in such a way that water cannot accumulate and freeze.

Sleeves and other recesses must be provided with sufficient ventilation and drainage.

Open and hollow weather-stripping, in which water can accumulate, must be avoided. The elastomers chosen must be sufficiently resilient to withstand low temperatures.

1.1.11 - Window glazing

- O** 1.1.11.1 - The upper part of the door shall be fitted with a window made of glass (see *UIC Leaflet 564-1*).
- R** 1.1.11.2 - The provision of double glazing is recommended.
- R** 1.1.12 - It is recommended that the kinematics of the door closing movement should be such that frozen snow can be easily broken off.
- R** 1.1.13 - The control system for entrance doors should be designed in such a way that the doors close automatically after a certain period of time when low temperatures prevail.

The following must be observed regarding passenger safety:

- monitoring the entrance doors using a "passenger-flow detector", for example a photoelectric system or pressure-sensitive step;
- determining precisely the period of time elapsed between a person boarding and the doors closing;
- light and/or acoustic signal to indicate the doors are about to close (intermittent acoustic signal).

It must also be possible to disconnect the above equipment in workshops.

- R** 1.1.14 - For vehicles to be built, it is recommended fitting the access doors with opening aids.

1.2 - General provisions for entrance doors with automatic opening control

- O** 1.2.1 - Entrance doors must be locked mechanically, when closed.
- O** 1.2.2 - However, the automatic opening command must not become operative until the door has been unlocked.
- R** 1.2.3 - The door may be unlocked either manually or by an electric command from a push-button or a handle.
- O** 1.2.3.1 - If the release of the lock by electric command or by the automatic opening command fails, it must be possible to unlock and open the door manually.

1.2.3.2 - Safety of electric door-command system

- O** 1.2.3.2.1 - If locking is by electric command, it must function in such a manner that - when the speed exceeds 5km/h - under normal running conditions, at least two separate failures must occur before the particular entrance door opens accidentally (except failures that are improbable in actual conditions).
- R** 1.2.3.2.2 - In order to guarantee this, it is recommended to use modern failure detection methods, either continuously or during normal maintenance work.

1.2.4 - Opening devices

- R** 1.2.4.1 - Opening devices on coaches yet to be built.

- O 1.2.4.1.1** - The levels to be selected for the arrangement of internal and external handles and buttons on coaches to be built after 1 January 1985 are shown in Appendix H - page 32.
- R 1.2.4.1.2** - If the entrance door is opened by means of a handle, a push-button for use by passengers to control closing of the respective door must be fitted on the inside of the coach near the respective door on the door frame nearest the end wall at a height of approximately 900 mm above the floor.
- O 1.2.4.1.3** - External and internal handles must be designed without an opening for the hand so that passengers cannot grip them (see Appendices D - page 28 and E - page 29 for examples of the design).
- O 1.2.4.1.4** - When entrance doors are opened and closed by means of a push-button, the following push-button arrangement is obligatory:

Inside	Adjacent opening and closing buttons on the door frame nearest end wall at a height of approximately 1350 mm above floor level.
Outside	Adjacent opening and closing buttons on the wall containing the door 1550 ± 300 mm above rail top (see Appendix H).
- R 1.2.4.1.5** - The outside closing button may be omitted, if the door can be closed manually from the track bed.
- R 1.2.4.1.6** - It is recommended to indicate the opening direction of the door by means of an arrow placed near the inside handle.
- 1.2.4.2** - Opening devices on vehicles constructed before 1 January 1985.
- R 1.2.4.2.1** - In the case of coaches with neither handrails nor outside steps for shunters, it is recommended to design the dimensions of the outside opening devices as shown in Appendix H.
- O 1.2.4.2.2** - In this case, the dimension of the lower edge of the outside opening device shown in Appendix H may be a maximum 1700 mm.
- O 1.2.5** - Entrance doors must close automatically, when the speed of the train exceeds 5 km/h.
- 1.2.6** - Protection against the risk of jamming
- O 1.2.6.1** - When the doors close, there must be no risk of jamming, injury to persons or damage to luggage. If the closing door encounters an obstacle:
 - either the door must reopen automatically and reclose after approximately 15 seconds,
 - or closing must be halted for approximately 10 seconds,
 - or the closing pressure, measured at the edge of the door, must be less than 150 N.
- R 1.2.6.2** - On coaches constructed before 1 January 1986, doors may be reclosed, after reopening, by means of:
 - a push-button, pressed by a passenger, or
 - remote control, or
 - automatic closing at 5 km/h.

1.3 - Provisions for folding hinged entrance doors

- **1.3.1** - Folding hinged entrance doors must be designed as shown in Appendices **A - page 25** and **B - page 26**.
- **1.3.2** - The hinged cover attached to the large leaf of the entrance door, which masks the steps, must be fitted to it by an arrangement causing it to stand up vertically against the door leaf, when the door is open.
- **1.3.3** - The entrance doors must leave a free passage at least 740 mm wide, when open. In the area of the door handle, the guard and raised cover, at least 650 mm must be available.
- **1.3.4** - The broad door leaf shall be equipped with a fixed or openable safety glass window.
- **1.3.5** - The inner door handle must be secured by a guard against unintentional opening it should also be provided with an idle stroke.
- R **1.3.5.1** - It is recommended that the direction of rotation of the door handle, permitting the door to be opened or closed, is indicated by an arrow or pictogram near the handle.
- **1.3.5.2** - The end positions shall be marked as follows:
 "Ouvert - Fermé
 Offen - Zu"
 (Open - Closed)
- R **1.3.5.2.1** - This text may be added in one or more other languages.
- R **1.3.5.2.2** - It is recommended that the respective position of the handle be also indicated by a graphical symbol.
- R **1.3.6** - It is recommended to install automatic closure of the door, when the speed of the train exceeds 5 km/h.
- R **1.3.7** - It is recommended:
 - that double-locking be ensured using the upper lock as described in point **1.1.3 - page 2**;
 - that the lower lock be designed with an elastic spring element in such a way that the lock has a stabilising function only.

○ 1.4 - Provisions for sliding-plug entrance doors

- 1.4.1** - Sliding-plug entrance doors must be designed as shown in Appendix **H - page 32**¹.
- 1.4.2** - The entrance doors must mask the steps on the outside, except the bottom step (folding)¹.
- 1.4.3** - The entrance doors must leave a free passage 800 mm wide, when open¹.
- 1.4.4** - The sliding-plug doors shall be fitted with fixed windows.

1. For Mu-type sleeping-cars, sliding-plug doors may allow for a smaller free passage of at least 725 mm.

o 1.5 - Provisions for swing-plug entrance doors

1.5.1 - Swing-plug doors must be designed as shown in Appendix C - page 27.

1.5.2 - The entrance doors must mask the entrance steps except the bottom two (one being a folding step).

1.5.3 - The entrance doors must leave a free passage at least 800 mm wide, when open.

1.5.4 - Outside handles that make it possible to use the steps, when the door is closed, are forbidden.

1.5.5 - Swing plug doors must be equipped with fixed windows.

1.6 - Side loading doors of luggage vans

R 1.6.1 - The loading doors may be of the sliding, folding or metal shutter type.

o 1.6.2 - The loading doors must be designed in such a way that they cannot fall out of their guides; metal shutters must be protected against accidental closure.

o 1.6.3 - Sliding and folding doors of luggage vans and luggage compartments must be fitted with a device, which prevents accidental closure of the doors. The free open space shall be at least 300 mm.

o 1.6.4 - If the side loading doors are of the sliding or metal-shutter type, movable safety bars (railings) must be placed near these doors, making it possible to prevent passage of the doors, when left open.

1.7 - Side loading doors of dining cars

o 1.7.1 - The loading doors must be of the sliding, sliding-plug or hinged type opening inward.

o 1.7.2 - The guides must be designed in such a way that partially or fully open loading doors cannot be torn away by the air current produced by train running.

o 1.7.3 - Each door must be fitted with a handle for inside operation.

o 1.7.4 - Each door must be fitted with a device, which prevents unintentional closure, when open.

o 1.7.5 - The loading doors must be designed in such a way that they can be locked in the closed position from inside using the square socket key according to RIC.

1.7.6 - Interior markings

o 1.7.6.1 - A plate with the following inscription must be placed on the inside surface of loading doors:

"Porte de chargement. Interdit aux voyageurs
Ladetür. Nicht für Reisende"
(Loading door. Not for passengers)

R 1.7.6.2 - This text may be added in one or more other languages.

R 1.7.6.3 - It is recommended that an additional plate be affixed with the following inscription:

"La porte de chargement ne doit être ouverte qu'à l'arrêt du train en vue du chargement et du déchargement.

Ladetür darf nur bei Stillstand des Zuges zum Be- und Entladen geöffnet werden".

(The loading door may only be opened for loading and unloading when the train is stationary.)

R 1.7.6.4 - This text may be added in one or more other languages.

o 1.8 - Special provisions to ensure safe closing

1.8.1 - The closing devices must be designed and maintained in a state which ensures safe performance of their function in normal service.

1.8.2 - In particular, the fixed parts (latch) and moving parts (pivot pins, hinged pivot pins) of locking devices must always have sufficient overlap.

1.8.3 - Door-closing mechanisms must be so designed that self-locking closure is ensured. This state must also be maintained during normal service.