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Translation

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Intermodal Transport Units (other than semi-trailers) for vertical transshipment and suitable for carriage on wagons - Minimum requirements

Unités de Transport Intermodal à transbordement vertical, autres que semi-remorques, aptes au transport sur wagons - Exigences minimales

Intermodale Ladeeinheiten für Vertikalumschlag, außer Sattelanhänger, zur Beförderung auf Wagen - Mindestanforderungen



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Summary

This leaflet catalogues the intermodal transport units (ITUs) other than semi-trailers which may be carried by rail.

It also lists the references for standardised ITUs and defines the minimum requirements for specific ITU types.

1 - Introduction

This leaflet catalogues the intermodal transport units (ITUs) other than semi-trailers which may be carried by rail.

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2 - Inventory of ITUs

The following table lists the reference texts and requirements to be complied with for each type of ITU (see Glossary - [page 43](#), standards, see Bibliography - [page 44](#) and points of the present leaflet).

	Type	Dimensions and ratings	Marking	Strength ^a
2.1.	ISO container	ISO 668	ISO 6346	ISO 1496-1 to 5
2.2.	Containers of classes 2 and 3 :	Appendix A	Appendix A and point 8	Point 6.2
2.3.	ITUs of class C	EN 284	Point 8	EN 283
2.4.	Stackable ITUs of class C	EN 13853	Point 8	EN 13853
2.5.	Refrigerated ITUs of class C	EN 12406	Point 8	EN 12406
2.6.	ITUs of class A	EN 452	Point 8	EN 452
2.7.	Stackable ITUs of class A	EN 14993	Point 8	EN 14993
2.8.	Refrigerated ITUs of class A	EN 12410	Point 8	EN 12410
2.9.	Tank ITUs	EN 1432	Point 8	EN 1432
2.10.	ITUs which do not fall under points 2.3 to 2.9 but whose dimensions allow them to be coded using <i>UIC Leaflet 596-6</i>	Must be suitable for transport on carrying wagons with accounting code C	Point 8	Point 6.3
2.11.	ITUs with a base width of > 2 600 mm	Appendix B	Point 8 ^b	Point 6.3
2.12.	ITUs which, due to their dimensions or weight, may not be freely loaded onto carrying wagons with accounting code C	Appendix C	Point 8	Point 6.3
2.13.	Non-standardised ITUs carried stacked	Reserved		

a. Strength is proven by the application of a CSC plate and/or a coding plate.

b. Specific marking.

3 - Requirements of the ITU/wagon interface

During its conveyance on the carrying wagon, the ITU shall be placed on the 4 lower corner fittings. The corner fittings shall comply with the distances indicated in point [D.1 - page 23](#). The dimensions of the corner fittings shall correspond to those given in Appendix [E - page 24](#).

The corner fittings shall be mounted such that in any loading situation, they lie with their entire surface in contact with the carrying wagon, and that this support is visible from the outside.

ITUs of a width greater than 2 500 mm but with an indent next to the securing devices thus giving a width of 2 500 mm, as provided for in Appendix [F - page 25](#), may be loaded onto pocket wagons as defined in *UIC Leaflet 571-4* (see [Bibliography - page 44](#)) and shall be marked with an additional plate as provided for in Appendix [G - page 26](#), to be positioned next to the code-number plate.

If the lower part of the ITU has more than 4 corner fittings, these pieces shall be marked as described in Appendix [H - page 27](#).

During their conveyance on pocket wagons or on wagons which do not allow other forms of support for swap bodies between the anchor points on the carrying wagon, ITUs shall be laid with their lower anchor points only on the support brackets. Pocket wagons as defined in *UIC Leaflet 571-4*, point. 3.1.3.2 are provided with support brackets which support the ITU in the area of the main beams in the centre to limit vertical oscillations.

If due to their design ITUs of groups 40 to 49 and 91 to 97 also require an intermediary bearing during carriage by rail, provision shall be made for this particularity during construction (positioning and strength of support points).

The positioning and dimensions of intermediary bearings shall comply with Appendix [I - page 28](#).

The length codes with regard to the positioning of the corner fittings are given in Appendix [J - page 29](#).

4 - Requirements of the ITU/transshipment interface

In order to enable handling by crane or other means of transshipment, all ITUs shall be suitable for grab handling and shall be fitted with either:

- Upper corner fittings compliant with *ISO 1161* (see Bibliography - page 44) or Appendix K - page 31;
- Grab zones compliant with point D.2 - page 23, and with *EN 284* or *EN 452* (see Bibliography - page 44) depending on the length of the ITU.

5 - Minimum requirements for certain types of ITU

ITUs may be built to various types allowed by the relevant ISO and/or CEN standards (see [Glossary - page 43](#)).

For other ITUs, the following provisions apply.

5.1 - All ITUs

When an ITU, irrespective of type, is fitted with a ladder, each rung of this ladder shall be able to withstand a load of at least 200 kg.

5.2 - Refrigerated ITUs

ITUs suitable for temperature-controlled carriage shall comply with the provisions of the ATP (see [Glossary - page 43](#)) if vehicles are intended for use on convoys run under said agreement, and shall bear the marks provided for by *ATP Appendix 1, Annex 4*.

5.3 - Tank ITUs

5.3.1 - The tanks shall withstand an internal pressure of 0,3 bar, unless a more restrictive value is prescribed by RID/ADR (see [Glossary - page 43](#)).

5.3.2 - Tank units intended for the carriage of dangerous goods listed in the RID/ADR shall meet the provisions of these documents. The prescriptions of the present leaflet shall also be applied as long as they do not contradict the RID/ADR.

5.4 - ITUs with a rigid closed superstructure

Reserved.

5.5 - ITUs with a flexible closed superstructure

For ITUs which can be carried in both directions under SS conditions (120 km/h), their superstructure (in particular doors, shutters, collapsible sides/ends and their fastenings) shall withstand wind pressure and in particular the pressure increases and drops occurring when traversing tunnels or when passing another train.

In the case of ITUs covered by tarpaulins, the strength and the securing of the tarpaulin to the superstructure shall comply with the conditions of *EN 12641-1 or -2* (see [Bibliography - page 44](#)). When all or part of the walls is missing or not rigid, adjustments shall be made to ensure that the load may be fastened to the floor of the swap body. The number, configuration and positioning of lashing points are specified in *EN 12640* (see [Bibliography - page 44](#)).

5.6 - ITU beds with tarpaulin-covered sides (unit with side boards, tarpaulins and hoops)

The roofing shall be designed such as to avoid the formation of pools of water. The hoops and removable boards shall be correctly held in place to prevent them from becoming detached.

The equipment securing the tarpaulins on the ITU shall be designed such that they prevent any loosening or slackening during carriage, including under dynamic and aerodynamic influences.

The quality and securing of tarpaulins are defined in *EN 12641-1*.

5.7 - Curtain-sided ITUs

The equipment securing the tarpaulins on the ITU shall be designed such that they prevent any slackening or loosening during carriage, including under dynamic and aerodynamic influences.

The quality and securing of tarpaulins are defined in *EN 12641-1*.

5.8 - ITU beds

The floors of ITUs of this type shall be fitted with lashing devices as per *EN 12640*.

5.9 - ITU beds with end walls

During carriage by rail, the end walls will generally be raised. Loads placed on this type of ITU bed must not foul the loading gauge formed in the longitudinal or transverse plane by the end walls and/or raised stanchions.

If this type of ITU is carried empty in stacked form (homogenous stack, number of ITU beds depending on manufacturer data and requiring approval), a code plate shall be defined for the stack.

If this type of ITU is carried empty in stacked form (non-homogenous stack), then the conditions of the UIC Loading Guidelines shall apply; the profile number mentioned on the code plate does not apply.

In all cases, the ITUs shall be locked together; the mobile components in the upper part of the pile shall be double locked. It must be easy to check they have been locked.

See "coding plate" (see point 8 - page 11) on markings and "dynamic tests" (see point 6 - page 9).

5.10 - ITU beds without end walls

This type of ITU shall not be given a coding plate but an identification plate. The latter shall not contain the permitted profile number, which is replaced by the inscription "Flat". Convoys carried on this type of ITU shall undergo geometric profiling beforehand. An example of an identification plate is contained in Appendix L - page 32.

If this type of unit is carried empty in stacked form, the conditions of the UIC Loading Guidelines shall apply.

If this type of unit is carried in combined transport in stacked form, the conditions of point 5.9 - page 7 shall be complied with to the extent that they are applicable.

Stacking in accordance with point 5.9.

5.11 - ITUs suitable for the carriage of concentrated loads

ITUs suitable for the carriage of concentrated loads shall bear a marking to that end, which is to be applied to the side walls near the coding plate, e.g. as depicted in Fig. 16 - page 27.

ITUs which have been specially upgraded to carry steel coils or comparable concentrated loads must bear an inscription giving a loading diagram and specifying the maximum and minimum diameters and maximum permitted mass for each cradle, e.g. as depicted in Fig. 17 - page 27.

The application of these markings shall be immediate. On existing ITUs, the markings shall be applied by 31 December 2011.

6 - ITU strength tests

The ITU tested shall be considered satisfactory on condition that after each test, it presents no anomalies or deformation rendering it unsuitable for use or unable to comply with the dimensional prescriptions of the present leaflet as regards handling, securing and interchangeability.

For all static load tests, the test load shall be applied for a minimum of 5 minutes.

In the following tests, the letters R, P and n signify:

- R = maximum gross mass
- P = payload
- n = number of units forming the pile during the stacking test

6.1 - Strength tests on standardised ITUs

ITUs standardised against ISO and/or CEN are satisfactory as long as they meet the stated conditions.

6.2 - Strength tests for containers of class 2 and class 3

ITUs described in the present leaflet as containers of class 2 or class 3 are satisfactory if they meet the conditions of the strength tests in *ISO standards 1496-1 to 5* (see [Bibliography - page 44](#)) using the same procedures except for the stacking test, which may be conducted against the provisions of Appendix [N - page 34](#).

6.3 - Strength tests for non-standardised ITUs

Non-standardised ITUs shall meet the requirements of the tests indicated in Appendix [N](#).

7 - Approval and coding of ITUs

Each ITU used in combined transport shall comply with the following conditions.

7.1 - Approval

Other than those mentioned in point 2.1 of table (see point 2 - page 3), all ITUs shall be approved in line with the following procedure:

7.1.1 - Certification of prototype or prototype variant

The approval procedure for a prototype or prototype variant is described in Appendix O - page 40.

7.1.2 - Coding

The approval procedure for series ITUs is described in Appendix P - page 41.

7.2 - Coding

- ITUs as described in points. 2.3 to 2.10 of table (see point 2 - page 3) shall be coded by a railway undertaking or combined transport company recognised in accordance with the terms of *UIC Leaflet 596-6* (see Bibliography - page 44).
- Authorisation to affix code plates as per *UIC Leaflet 596-6*, shall be given on the basis of the technical dossier, the approval certificate for the prototype ITU, and/or the series.
- The coding body shall keep a record of the codes allotted and shall make them available to other RUs if need be.

8 - ITU markings

All ITUs equipped with ladders shall be marked with a lightning bolt next to each ladder in accordance with Appendix Q - page 42.

8.1 - ITUs as per point 2.2 of table

(see point 2 - page 3)

Besides the general indications, ITUs compliant with point 2.2 of table (see point 2 - page 3) shall bear a marker plate if their dimensions do not correspond to the required dimensions or corner heights.

In this case, the manufacturer or its nominee shall request authorisation from the coding body, supplying the manufacturer's confirmation and the type approval certificate from an accredited assessment body, as well as a cross-sectional drawing enabling the CT number to be calculated in accordance with *UIC Leaflet 596-6*.

On the basis of this documentation, the coding body shall obtain the data for the marker plate as provided for by point A.3.2 - page 17 and shall issue authorisation for this marker plate to be affixed to the ITUs concerned.

8.2 - ITUs as per point 2.12 of table

(see point 2)

The marking of these ITUs shall be carried out by the RU concerned as described in Appendix B - page 19, complying with any bi- or multilateral agreements.

8.3 - Code plate

A code plate shall be affixed in a visible manner at the bottom of each ITU side wall.

Code plates may take the shape of flexible self-adhesive printed sheets as long as the inscriptions comply with the dimensions set out in *UIC Leaflet 596-6*.