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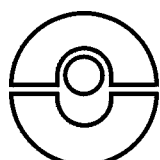
2nd edition, December 2000

Translation

Standardisation of transport stock and components - Principles, procedures, results

Normalisation du matériel de transport et de ses éléments - Principes, procédures, résultats

Normung der Fahrzeuge und ihrer Bauteile Grundsätze, Verfahren, Ergebnisse



*Union Internationale des Chemins de fer
Internationaler Eisenbahnverband
International Union of Railways*

UIC



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V - Transport stock

VI - Traction

VIII - Technical specifications

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With effect from 1st January 1989

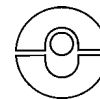
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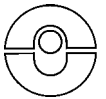
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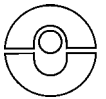
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Summary

This leaflet is the reference document for use by the Technical and Research Committee, its working bodies and ERRI (see - [List of abbreviations - page 15](#)) in rolling stock standardisation work. It lays the foundations for the following:

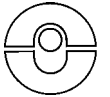
- series of leaflets in section 4 insofar as the managing body for the various leaflets is the Technical and Research Committee,
- series of leaflets in section 5,
- series of leaflets in section 6,
- series of leaflets in section 8,

The appendices to the leaflet provide a concise overview of vehicles and bogies already standardised.

A prerequisite for developing a uniform railway image, enhancing the productivity of railways and improving their competitiveness is the standardisation of rolling stock in line with the UIC (see - [List of abbreviations - page 15](#)) general objectives. This standardisation is an essential condition for:

- trouble-free organisation of international traffic;
- unrestricted rolling stock utilisation;
- offering uniform product range to customers;
- safe railway operations;
- staff work facilitation;
- ensuring uniform technical quality;
- uniform vehicle maintenance;
- guaranteeing product quality;
- joint procurement;
- rationalisation.

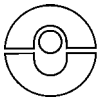
Standardisation must be based on a differentiated approach, with sufficient flexibility to ensure application of the optimum solution in each case without jeopardising technical development. Standardisation must be started at the earliest possible development stage to avoid parallel developments and duplication.



1 - Scope and purpose

This leaflet shall be the reference document for use by the Technical and Research Committee, its working bodies and ERRI in rolling stock standardisation activities

Its appended tables are designed to give a concise overview of vehicles and bogies already standardised.



2 - Standardisation degrees

2.1 - Designation of the standardisation degrees

Standardisation of items and functions may be undertaken at 6 different degrees:

2.1.1. - degree 1 : "Qualitative and dimensional standardisation"

2.1.2. - degree 2 : "Compatibility"

2.1.3. - degree 3 : "Interchangeability"

2.1.4. - degree 4 : "Unification"

2.1.5. - degree 5 : "Partial standardisation"

2.1.6. - degree 6 : "Full standardisation".

This graduated concept has been devised in such a way that the degrees from degree 4 upwards cover all preceding degrees.

2.2 - Definition of standardisation degrees

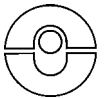
2.2.1 - Degree 1 "Qualitative and dimensional standardisation"

Qualitative standardisation includes among other things:

- participation in studies on qualitative standardisation undertaken by the International Organisation for Standardisation (ISO);
- definition of technical specifications for railway rolling stock and equipment;
- development of standard testing methods for acceptance-testing of railway rolling stock;
- standardisation of filling metal for welds;
- compilation of comparative lists of materials (steel, aluminium, etc.).

Dimensional standardisation includes among other things:

- participation in studies of the International Organisation for Standardisation (ISO) on dimensional standardisation;
- application by UIC ([see - List of abbreviations - page 15](#)) of international units of measurement (SI Units);
- definition of general basic technical standards;
- compilation of selective lists of connection elements, machine components and intermediate products;



- definition of tolerance standards;
- definition of standards for UIC and ERRI drawings (see - List of abbreviations - page 15).

2.2.2 - Degree 2 "Compatibility"

Compliance with minimum requirements guaranteeing compatibility between vehicles and track and between vehicles themselves in the same train. The key problem areas for investigation in this context are the following system components:

- wheel/rail;
- vehicle gauge/clearance gauge;
- brakes;
- buffing and draw gear.

2.2.3 - Degree 3 "Interchangeability"

Adaptation of different component parts fulfilling the same or similar functions to specific interfaces, such as axle-boxes.

It should be noted that only those dimensions required for ensuring interchangeability are set, but not manufacturing dimensions.

2.2.4 - Degree 4 "Unification"

Determination of the most important characteristics governing constitution, functioning and use by customers (e.g. main dimensions, load characteristics, equipment and fittings, etc.) together with conditions for vehicle operation and use.

This degree also includes degree 2 and 3, though in the latter case only when interchangeable parts exist.

2.2.5 - Degree 5 "Partial standardisation"

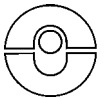
More extensive definition of characteristics than degree 4. Uniform positioning and configuration and groups of components standardise to the furthest possible degree, in order to make given vehicles procured separately by individual railways more similar, with a view:

- to offering customers a uniform product,
- creating a joint fleet (for example EUROP) and common maintenance practices,

though not on the basis of a complete and standard set of drawings for the particular item.

The incomplete set of drawings to be compiled shall only comprise:

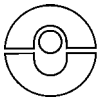
- general drawings giving the main dimensions, as well as



- construction and assembly drawings for the standard components used.

2.2.6 - Degree 6 "Standardisation"

Identical rolling stock or equipment based on a full set of standard drawings for allowance for a limited number of alternative versions in warranted instances.



3 - Standardisation procedure

3.1 - Responsibilities

The UIC Technical and Research Committee shall manage application of the standardisation procedure and bear responsibility for arranging the participation of UIC bodies concerned with or interested in the component to be standardised, irrespective of any preliminary studies carried out or decisions adopted by other bodies (for example UIC Assembly of Active Members or other UIC Commissions).

The standardisation procedure applicable in each case shall depend on whether the element to be standardised:

3.1.1. - comes under the sole responsibility of the Technical and Research Committee (for example: laminated suspension springs);

3.1.2. - affects the interests of other UIC Commissions or Committees more or less directly (for example the Passenger Commission where coaches are concerned, the Freight Commission where wagons are concerned);

3.1.3. - is to be standardised with or without ERRI collaboration (for example: negotiations, investigations, research, tests, actual standardisation).

3.2 - Proposals for standardisation of items

Proposals may be submitted at any time by:

- UIC member railways;
- UIC bodies;
- ERRI.

3.2.1. - to the Chairman of the Technical and Research Committee;

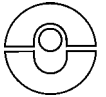
3.2.2. - or to the Chairman of the particular working body (Sub-Committee or Working Party) of the Technical and Research Committee which is responsible for work on the item to be standardised.

3.3 - Procedure

If the UIC Assembly of Active Members, or several UIC Commissions concerned collectively, have not yet defined any specific procedure, the following procedure shall apply.

3.3.1. - In the case of a proposal in accordance with point **3.2.1 - page 6**, the Chairman of the UIC Technical and Research Committee shall, depending on the circumstances if appropriate, after prior clarification and consultation with the Chairman of the working body concerned, and where relevant by joint agreement with the Chairmen of the UIC Commissions involved, initiate the decision-making process in order to determine;

- whether the item in question should be standardised;



- measures to be taken such as preliminary studies, participation of other bodies, preparation of a feasibility study;
- whether and when the proposal should be submitted to the other UIC Commissions concerned, to their working bodies and to the UIC Assembly of Active Members.

The Chairman shall refer the matter to the UIC Technical and Research Committee at a very early stage in the course of the procedure in the manner deemed appropriate.

3.3.2. - In the case of proposals in accordance with point **3.2.2 - page 6**, the Chairman of the working body concerned shall submit this proposal together with a commentary to the Chairman of the UIC Technical and Research Committee for a decision. The latter shall then proceed in the same way as indicated in point **3.3.1 - page 6**.

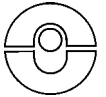
3.4 - Results of standardisation

The results of standardisation shall be set out:

3.4.1. - in the UIC Code, for standardisation degrees 1 to 4;

3.4.2. - in ERRI specifications, and where appropriate in the UIC Code, as well as in the drawings for standardisation degree 5 where they go beyond standardisation degree 4;

3.4.3. - in the UIC Code and in ERRI drawings and lists for standardisation degree 6.



4 - Table of standard items

Standard vehicles and standard wagon bogies shall be listed in Appendices **A - page 9** to **D - page 13** for information. These vehicles and bogie types should be given preference for railway procurement. The vehicles concerned shall be designed for fitting with the automatic coupler.

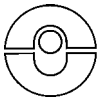
Standard vehicles and components are listed in ERRI Document DG 4 together with drawing numbers.

The drawing number and checklist number are given for these standard or partially standardised vehicles and their component parts.



Appendix A - Table of standard vehicles

Serial No.	Description	Standardisation degree			Reference documents	
		4	5	6	UIC Leaflet No.	No. in E RRI list of drawings
1.	Type X coaches				567-1	
1.1	A10 Side-corridor 1st class seater coach	X				
1.2	B12 Side-corridor 2nd class seater coach	X				
1.3	A5 B6 Side-corridor 1st/2nd class seater coach	X				
1.4	Bc Side-corridor 2nd class couchette coach	X				
2.	Type Y coaches				567-1	
2.1	A9 Side-corridor 1st class seater coach	X				
2.2	B10 Side-corridor 2nd class seater coach	X				
2.3	A4 B5 Side-corridor 1st/2nd class seater coach	X				
2.4	Ac Side-corridor 1st class couchette coach	X				
2.5	Bc Side-corridor 2nd class couchette coach	X				
2.6	Ac Bc Side-corridor 1st/2nd class couchette coach	X				
3.	Type Z coaches				567-2	
3.1	A9 Side-corridor 1st class seater coach	X				
3.2	B11 Side-corridor 2nd class seater coach	X				
3.3	A4 B6 Side-corridor 1st/2nd class seater coach	X				
3.4	Bc 10 Side-corridor 2nd class couchette coach	X				
3.5	Ap (At, Amh) Centre aisle 1st class seater coach	X				
3.6	Bp (Bt, Bmh) Centre aisle 2nd class seater coach	X				
4.	Sleeping cars	X			565-1	
5.	Dining cars	X			565-2	
6.	Standard open bogie wagon for the conveyance of motor cars	X			567-4	



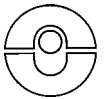
Appendix B - Table of standard wagons with independent axles

Serial No.	Description	Standardisation degree			Reference documents	
		4	5	6	UIC Leaflet No.	No. in E RRI list of drawings
1.	Covered wagons				<i>571-1</i>	
1.1	Type 1 (Gbs)	X				
1.2	Type 2 (Gs)	X				
1.3	Type 3 (Hbfs)	X				
2.	High-sided open wagon (Es)	X			<i>571-1</i>	
3.	Flat wagon (Ks)	X			<i>571-1</i>	
4.	Mixed open high-side/flat wagon (Os)	X			<i>571-1</i>	
5.	Refrigerator and insulated wagons				<i>571-3</i>	
5.1	Type 1 (lbbs)	X				
5.2	Type 2 (lbfs)	X				
6.	Mechanically-refrigerated wagons				<i>571-3</i>	
6.1	Type 1 (lbbgs)	X				
6.2	Type 2 (lbfgs)	X				
7.	Two-tier wagons for the conveyance of motor cars				<i>571-3</i>	
7.1	Type 1 (Laaeks) 4 axles	X				
7.2	Type 2 (Laek(k)s) 3 axles	X				
8.	Wagons with bilateral automatic gravity unloading at the top				<i>571-3</i>	
8.1	Type 1 (Fcs)	X				
8.2	Type 2 (Tds)	X				
9.	Covered wagons with sliding walls				<i>571-3</i>	
9.1	Type 1A (Hbins) average capacity	X				
9.2	Type 1B (Hbillns) average capacity	X				
9.3	Type 2A (Hibbins) large capacity		X			M 0003 0044
9.4	Type 2B (Hbillns) large capacity		X			M 0003 0043
10	Container-carrying wagons				<i>571-4</i>	
10.1	Type 5, L = 40' (Lgss)	X				



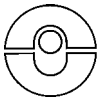
Appendix C - Table of standard bogies wagons

Serial No.	Description	Standardisation degree			Reference documents	
		4	5	6	UIC Leaflet No.	No. in E RRI list of drawings
1.	Covered wagons				<i>571-2</i>	ERRI
1.1	Type 1 (Gas/GASS)	X				
1.2	Type 1b (Gabs/Gabss)			X		M0003 0015 ^a M0003 0025 ^b
2.	High-sided open wagons				<i>571-2</i>	
2.1	Type 1 (Eaos)			X		M0003 0010
2.2	Type 2 (Eanos)			X		M0003 0067
3.	Flat wagons					
3.1	Type 1 (Rs/Rns)	X			<i>571-2</i>	M0003 0023
3.2	Type 2K (Rmms/Remms)	X			<i>571-2</i>	M0003 0024
3.3	Type 2K (Rmms/Remms)	X			<i>571-2</i>	M0003 0028
3.4	Type 2A (Remms/Remms)	X			<i>571-2</i>	M0003 0029
3.5	Type A (Rils) with mechanical sheeting	X			<i>571-3</i>	
3.6	Type B (Rilns) with mechanical sheeting	X			<i>571-3</i>	
3.7	Type Snps	X			<i>571-3</i>	
3.8	Type Sammns, with 2 3-axle bogies	X			<i>571-3</i>	
4.	Wagons under controlled temperature				<i>571-3</i>	
4.1	Type 3 mechanically-refrigerated wagons (las) version 1	X				
4.2	Type 3 mechanically-refrigerated wagons (las) version 2	X				
4.3	Type 3 refrigerated wagons (lags) version 1	X				
4.4	Type 3 refrigerated wagons (lags) version 2	X				
5.	Wagons with opening roof				<i>571-3</i>	
5.1	Taems			X		M0003 0055 ^c M0003 0057 ^d
6.	Covered wagons with sliding walls				<i>571-3</i>	
6.1	Type 1 (Habiss)			X		M0003 0030
6.2	Type 2A (Habbins)	X				
6.3	Type 2B (Habbills)	X				



Serial No.	Description	Standardisation degree			Reference documents	
		4	5	6	UIC Leaflet No.	No. in E RRI list of drawings
7.	Wagons for the conveyance of coiled metal fitted with telescopic hoods and loading cradles				571-3	
7.1	Type 1A (Shimms) with telescopic hoods			X		M0003 0016
7.2	Type 1B (Shimms/Shimms) with tarpaulins in synthetic reatereal			X		M0003 0017
7.3	Type 2 (Suhimms)			X		M0003 0046
8.	Wagons with bilateral bulk gravity unloading at the bottom				571-3	
8.1	Type 1 (Talns)			X		M0003 0063 ^e M0003 0065 ^f
8.2	Type 2 (Falns)	X				
9.	Container and/or swap-body carrier-wagons				571-4	
9.1	Type 1, L = 40', version 1 (Sgmms ; Sgkmmss)	X				
9.2	Type 1, L = 40', variant 2 (SSgkmmss)	X				
9.3	Type 2, L = 60', variant 1 (Sgss)			X		M0003 0036
9.4	Type 2, L = 60', version 2 (Sgjss)			X		M0003 0007
9.5	Type 2a, L = 60' (Sgnss)	X				
9.6	Type 2b, L > 60' (Sggnss)	X				
9.7	Type 4, L = 80' (Sggoss)			X		M0003 0037
9.8	Type 4a, L > 80' (Sggnoss)	X				
9.9	Type 6 (Sgmss)	X				
10.	Wagons for rail-road combined transport				571-4	
10.1	Type 1a (Sdgkkmss) recess wagons			X		M0003 0054
10.2	Type 1b (Sdgmss) recess wagons	X				
10.3	Type 4a (Saadkms) "alpine rolling road" wagons	X				
10.4	Type 4b (Saadkms) "lowland rolling road" wagons	X				
11.	Wagons for the conveyance of swap bodies with horizontal transshipment				571-4	
11.1	Type 1 (Sccnbss)	X				

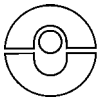
- a. with wooden panels.
- b. with metal panels.
- c. with folding roof in synthetic material (version S).
- d. with winding roof in light alloy (version M).
- e. with mechanised trap closing.
- f. with manual trap closing.



Appendix D - Table of standard bogies for wagons

Serial No.	Description	Standardisation degree			Reference documents	
		4	5	6	UIC Leaflet No.	No. in E RRI list of drawings
1.	Bogies designed for 20T axle-loads^a				<i>510-1</i>	
1.1	Y25Rs bogie			X		M1203 0020
1.2	Y25Rss bogie			X		M1203 0023
1.3	Y25Rsi bogie			X		M1203 0024
1.4	Y25Rsif bogie			X		M1203 0025
1.5	Y25Rsa bogie			X		M1203 0026
1.6	Y25Rssa bogie			X		M1203 0029
1.7	Y25Rsm bogie			X		M1203 0030
1.8	Y25Rssm bogie			X		M1203 0033
1.9	Y25Rsim bogie			X		M1203 0034
1.10	Y25Rifm bogie			X		M1203 0035
2.	Bogies designed for 22.5 tonnes axle-loads				<i>510-1</i>	
2.1	Y25Lsd bogie			X		M1203 0038
2.2	Y25Lsd1 bogie			X		M1203 0039
2.3	Y25Lsdm bogie			X		M1203 0040
2.4	65sd bogie			X		M1203 0065
2.5	Y25Lsod bogie			X		M1203 0046
2.6	Y25Ls(s)i1 bogie			X		M1203 0042
2.7	Y25Ls(s)i2 bogie			X		M1203 0043
2.8	Y25Ls(s)if1 bogie			X		M1203 0044
2.9	Y25Ls(s)if2 bogie			X		M1203 0045

a. With effect from October 1983, the use of reinforced bogies in type Y25R (which is considered as the basic model) is recommended for all new wagons. However, Railways can continue using the Y25C model. The corresponding drawings are held by ERRI solely in microfiche form and will no longer be modified. Drawing numbers are given in ERRI DT 85.



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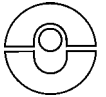
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"Traction and Rolling Stock Committee. - Question 45/C - Point 9.1.2 - Approval of modifications to Leaflet no. 500", Paris, October 1994.

"Traction and Rolling Stock Committee. - Question 45/B/30 - Wagons - Wagon normalisation - Standardisation of wagons Rils, Rilns, Snps and Sammns", Berlin, May 1995.



List of abbreviations

ERRI	European Rail Research Institute
UIC	International Union of Railways
EUROP	Pool of wagons exchanged more regularly and on the basis of detailed rules agreed between the member railways of this pool