

Commission Decision of 23 January 2009 amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system (notified under document number C(2009) 38) (Text with EEA relevance) (2009/107/EC)

COMMISSION DECISION

of 23 January 2009

amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system

(notified under document number C(2009) 38)

(Text with EEA relevance)

(2009/107/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community (Recast)⁽¹⁾, and in particular Article 6(1) thereof,

Having regard to the recommendation of the European Railway Agency on the intermediate revision of the freight wagon TSI (ERA/REC/INT/03-2008) of 27 October 2008,

Whereas:

- (1) Article 12 of Regulation (EC) No 881/2004 of the European Parliament and the Council of⁽²⁾ requires that the European Rail Agency (hereinafter referred to as the Agency) shall ensure that the technical specifications for interoperability (TSIs) are adapted to technical progress and market trends and to the social requirements and propose to the Commission the amendments to the TSIs which it considers necessary.
- (2) By Decision C(2007) 3371 of 13 July 2007, the Commission gave a framework mandate to the Agency to perform certain activities under Council Directive 96/48/EC of 23 July 1996 on the interoperability of the trans-European high-speed rail system⁽³⁾ and Directive 2001/16/EC of the European Parliament and of the Council of 19 March 2001 on the interoperability of the trans-European conventional rail system⁽⁴⁾. Under the terms of this framework mandate, the Agency was requested to perform the revision of the TSI Rolling Stock — Freight wagon, adopted by Commission Decision 2006/861/EC of 28 July 2006 concerning the technical specification of interoperability relating to the subsystem rolling stock — freight wagons of the trans-European conventional rail system⁽⁵⁾, as well as to provide technical opinions on critical errors and to publish a list of detected minor errors.

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- (3) The entry into force of the 1999 Convention concerning International Carriage by Rail (COTIF) on 1 July 2006 brought in new rules governing the technical specifications applicable to wagons. The former RIV Agreement between railway undertakings was replaced partially by a new private and voluntary agreement, the General Contract of Use (GCU)⁽⁶⁾ between railway undertakings and wagon keepers, as well as by Decision 2006/861/EC.
- (4) Whilst wagons registered under the RIV agreement required only one authorisation issued by the registering Railway Undertaking, Directive 2001/16/EC required an authorisation for each Member State. This problem was provisionally resolved by section 7.6 of the Annex to Decision 2006/861/EC which provides that once safety certification or authorisation of placing in service is granted for grouped wagons in one Member State, this certification or authorisation shall be mutually recognised by all Member States in order to avoid duplication of safety and interoperability checks by Safety Authorities. It also provides that insofar as Decision 2006/861/EC contains open points, authorisations for placing in service will be mutually accepted, except as indicated in Annex JJ to that Decision. However, insofar as Annex JJ does not clearly identify the conditions under which an authorisation of placing in service of a wagon in one Member State has to be mutually recognised in other Member States, the application of section 7.6 of the Annex to Decision 2006/861/EC has led to differing interpretations. This has resulted in legal uncertainty and difficulties for the industry which has called for immediate action by the Commission.
- (5) That problem can now be resolved because Article 23(1) of Directive 2008/57/EC provides that vehicles in complete conformity with TSIs covering all aspects of the relevant subsystems without specific cases and without open points that are strictly related to technical compatibility between vehicle and network, shall not be subject to any additional authorisation for placing in service as long as they run on TSI conform networks in the other Member States or under the conditions specified in the corresponding TSIs.
- (6) Decision 2006/861/EC contains a number of open points and technical errors. Whilst National Technical Rules could apply in order to comply with the essential requirements linked to the open points, there is no legal certainty that these national solutions would be accepted by other Member States. In addition, in accordance with Article 7 of Directive 2008/57/EC, the appropriate procedure in the case of important or critical errors is to amend the relevant TSI specifications immediately.
- (7) In order to reinstate full interoperability of freight wagons dedicated to international transport, an immediate revision of to Decision 2006/861/EC is necessary in order to clarify the conditions under which an authorisation for placing in service a TSI conform wagon shall be valid in all other Member States.
- (8) Wagons which have been authorised to be placed in service according to Article 22(1) of Directive 2008/57/EC and which are provided with an authorisation valid in all Member States in accordance with Article 23(1) of Directive 2008/57/EC should be marked with a clear and easy to recognise alphabetical marking. It is therefore necessary to amend Annex P.5 to the TSI relating to the subsystem Traffic Operation and Management

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of the trans-European conventional rail system adopted under Commission Decision 2006/920/EC⁽⁷⁾.

- (9) Decisions 2006/861/EC and 2006/920/EC should therefore be amended accordingly.
- (10) The measures provided for in this Decision are in accordance with the opinion of the Committee established in accordance with Article 29(1) of Directive 2008/57/EC,

HAS ADOPTED THIS DECISION:

Article 1

Amendments to Decision 2006/861/EC

Decision 2006/861/EC is amended as follows:

- a) The following Article is inserted:

Article 1a

Technical Documents

- 1 The European Railway Agency (ERA) shall publish on its website the content of Annex LL as an ERA Technical Document.
- 2 The ERA shall publish on its website the list of fully approved composite brake-blocks for international transport referred to in Annexes P and JJ as an ERA Technical Document.
- 3 The Agency shall publish on its website the additional specifications related to the draw gear referred to in Annex JJ as an ERA Technical Document.
- 4 The Agency shall keep the Technical Documents referred to in paragraphs 1 to 3 up to date and inform the Commission of any revised version. The Commission shall inform the Member States through the Committee established under Article 29 of Directive 2008/57/EC. Should the Commission or a Member State consider that a Technical Document does not meet the requirements of Directive 2008/57/EC or of any other Community legislation, the matter shall be discussed in the Committee. On the basis of the Committee's deliberations and upon request of the Commission, the Technical Documents shall be withdrawn or modified by the Agency.
- b) The Annexes are amended as set out in Annex I.

Article 2

Amendment to Decision 2006/920/EC

Annex P.5 to Decision 2006/920/EC is amended as set out in Annex II.

Article 3

If the marking 'TEN' of freight wagons which were placed in service before the entry into force of this Decision is not in conformity with the meaning specified in Annex II, that marking shall be removed by 31 December 2010.

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Article 4

This Decision shall apply from 1 July 2009.

Article 5

This Decision is addressed to the Member States.

Done at Brussels, 23 January 2009.

For the Commission

Antonio TAJANI

Vice President

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ANNEX I

The Annexes to Decision 2006/861/EC are amended as follows:

- 1) The Annex is amended as follows:
 - (a) Section 4.2.3.3.2 is replaced by the following:

This remains an open point except for wagons which comply with the conditions set out in section 7.6.4.
 - (b) In section 4.2.3.4.2.1, the second indent on Y/Q forces is replaced by the following:

— **Y/Q forces**

To limit the risk of wheel climb on the rail the quotient of lateral force Y and vertical load Q of a wheel shall not exceed

$(Y/Q)_{lim} = 0,8$ for dynamic on-track tests

$(Y/Q)_{lim} = 1,2$ for stationary tests
 - (c) In section 4.2.3.4.2.2, the first sentence is replaced by the following:

Wagons are able to run on twisted tracks when (Y/Q) for stationary tests does not exceed the limit given in section 4.2.3.4.2.1 in a curve of radius $R = 150$ m and for a given twisted track:
 - (d) The following section is inserted after section 6.2.3.2.1.3:

6.2.3.2.1.4 Exemptions from stationary tests

Freight wagons are exempted from the stationary tests mentioned in section 4.2.3.4.2.1 if they comply with the requirements of UIC leaflet 530-2 (May 2006)
 - (e) Section 7.6 is replaced by the following:

7.6 AUTHORISATION FOR PLACING IN SERVICE OF TSI CONFORM WAGONS

7.6.1. In accordance with Article 17(1) of Directive 2008/57/EC, where compliance with the TSIs has been achieved and an EC Declaration of Verification is issued within one Member State for freight wagons, this shall be mutually recognised by all Member States.

7.6.2. When seeking authorisations of placing in service under Article 21 of Directive 2008/57/EC, applicants may seek authorisations for placing in service of grouped wagons. Wagons may be grouped according to series, in which case Article 21(13) of Directive 2008/57/EC applies, or according to type, in which case Article 26 of that Directive applies.

7.6.3. In accordance with Article 21(5) of Directive 2008/57/EC, the authorisation for placing in service granted by one Member State shall be valid in all Member States unless additional authorisations are requested. However Member States may use this possibility only under the conditions specified in Articles 23 and 25 of that

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Directive. In accordance with Article 23(4) of that Directive, one of the conditions allowing a Member State to request for an “additional authorisation” procedure is the case of open points related to technical compatibility between infrastructure and vehicles. To this end, Annex JJ sets out the list of open points as requested in Article 5(6) of that Directive and also identifies those open points that may require additional checks with a view to ensuring technical compatibility between infrastructure and vehicles.

7.6.4. An authorisation of placing in service granted by one Member State shall be valid in all other Member States under the following conditions:

- (a) the wagon has been authorised in accordance with Article 22 of Directive 2008/57/EC, on the basis of this TSI, including the verifications related to the open points identified in Annex JJ part 1;
- (b) the wagon is compatible with the 1435 mm track gauge;
- (c) the wagon has a G1 loading gauge, as specified in Annex C3;
- (d) the wagon is equipped with an axle distance that does not exceed 17 500 mm between two adjacent axles;
- (e) the wagon complies with the requirements of Annex JJ part 2.

7.6.5. Even if a wagon has been authorised for placing in service, there is a need to ensure that it is operated on compatible infrastructures; this may be done through the use of Infrastructure and Rolling Stock registers.

2) Annex B is amended as follows:

- (a) in point B.3, remark 4) is replaced by the following:
 - 4) Existing wagons that can be forwarded with the same loads as in S-traffic at 120 km/h, are already marked with the sign “***” placed to the right of the maximum load markings; no additional wagons can be added to this category.
- (b) in point B.3, the following remark is added:
 - 5) New wagons with the braking performance of “S2”-wagons according to the table in section 4.2.4.1.2.2, that can be forwarded with the same loads as in S-traffic at 120 km/h according to particular specifications listed in Annex Y, shall have the sign “***” placed to the right of the maximum load markings.
- (c) point B.32 is replaced by the following:

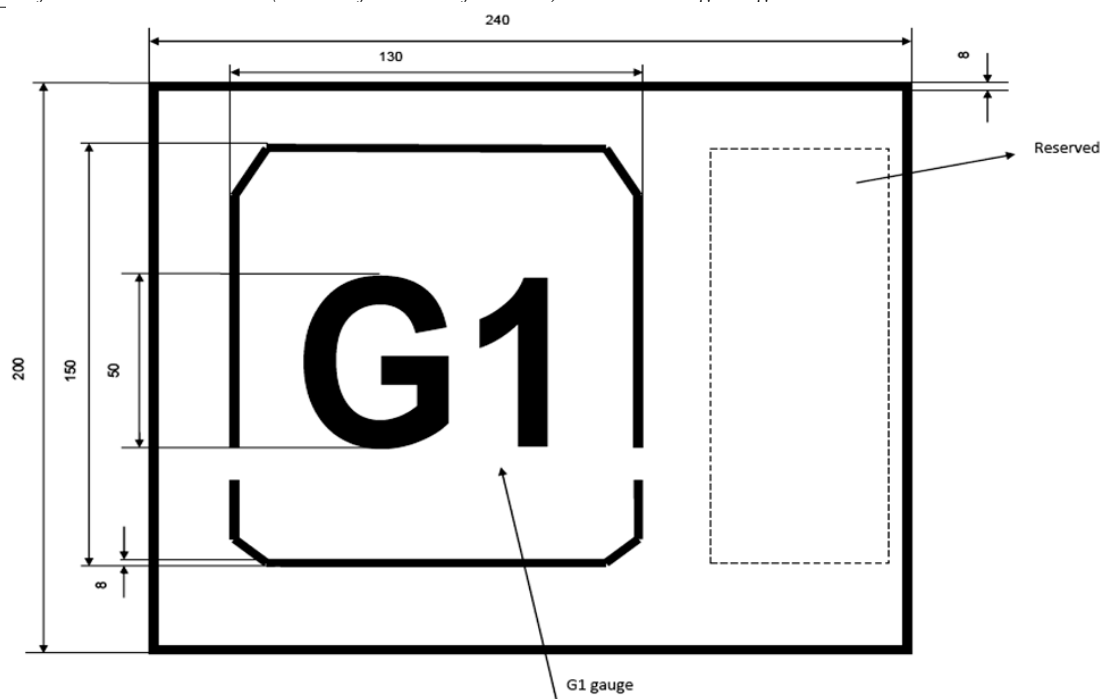
B.32. MARKING OF WAGONS GAUGE

 - (1) Wagons built to gauge G1 will be marked as follows:

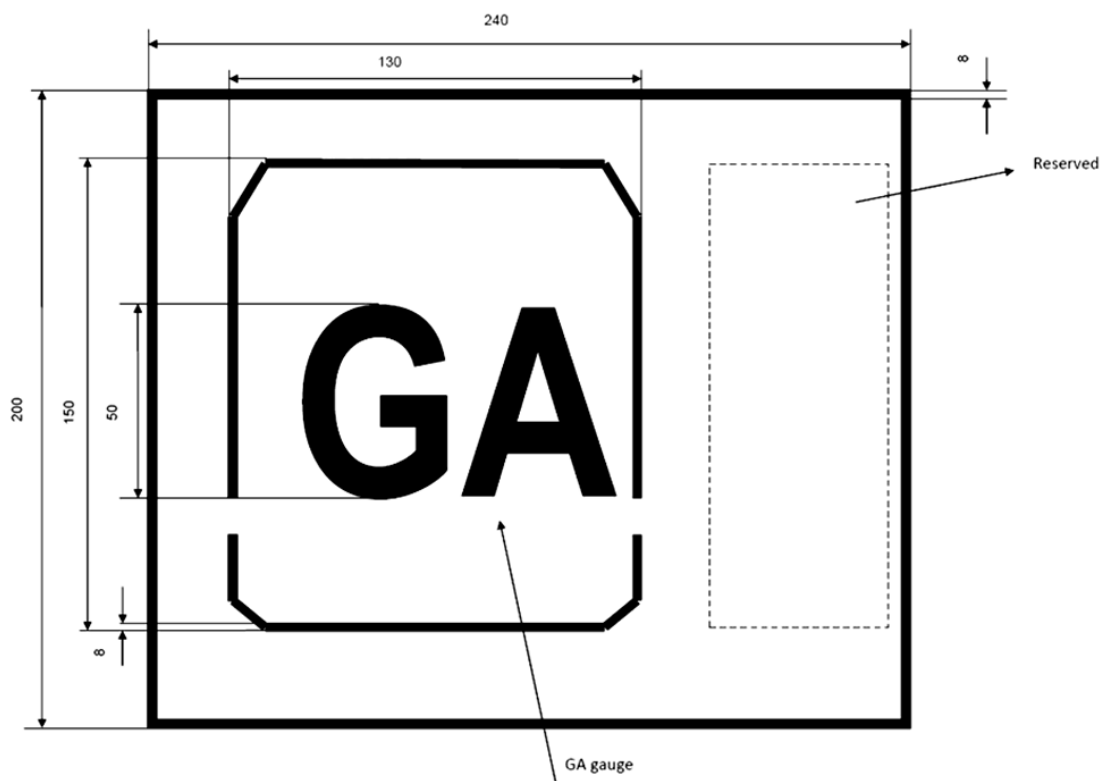
ANNEX I

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(2) Wagons built to gauges GA, GB or GC will be marked as follows:



3) In Annex L, point L.1.4.2.1, the last sentence is replaced by the following:

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When monobloc wheels are fitted to wagons that are 100 % tread braked, the following parameters should be taken into account:

Wheel diameter range(in mm)	1 000 to 920and920 to 840	840 to 760	760 to 680
Power	50 kW	42,5 kW	38 kW
Application time	45 min	45 min	45 min
Running speed	60 km/h	60 km/h	60 km/h

Note: For specific types of freight traffic, the values for power and/or application time and/or running speed and/or axle loads and/or wheel diameters can be modified to check on the thermo-mechanical behaviour of these wheels in the context of a limited utilisation.

- 4) In Annex P, point P.1.10, ‘Brake blocks’, is replaced by the following:

P.1.10. Brake blocks

The test procedure for design assessment to be used for the Interoperability Constituent brake blocks is to be carried out in accordance with the specification in Annex I section I.10.2. This specification is still an open point for composite brake blocks.

Composite brake blocks that are already in use have passed the assessment according to P.2.10 successfully. The list of fully approved composite brake blocks for international transport is set out in a Technical Document to be published by the European Rail Agency on its website.

- 5) Annex JJ is replaced by the following:

ANNEX JJ.1.LIST OF OPEN POINTS

The table hereunder summarises the open points of this TSI and classifies each of them if related (column “YES”) or not (column “NO”) to technical compatibility between infrastructure and vehicles.

TSI reference	Title	YES	NO
4.2.3.3.2	Hot axle box detection	X	
4.2.6.2	Aerodynamic effects		X
4.2.6.3	Cross winds	X	
4.3.3	Traffic operation and management subsystem		X
6.1.2.2	Assessment of welding joints shall be made according to national rules.	X	

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6.2.2.1	Assessment of welding joints shall be made according to national rules.	X	
6.2.2.3	Assessment of Maintenance	X	
6.2.3.4.2	Aerodynamic effects		X
6.2.3.4.3	Cross winds	X	
Annex E	Wheel treads remain an open point until EN is published	X	
Annex L	The specification of cast steel wheels is an open point. A new EN is requested.	X	
Annex P			
P.1.1	Distributor		X
P.1.2	Relay valve for variable load and automatic empty-load change-over		X
P.1.3	Wheel slide protection device		X
P.1.7	End Cocks		X
P.1.10	Brake blocks — Design assessment	X	
P.1.11	Accelerator valve		X
P.1.12	Automatic variable load sensing and empty/load changeover device		X
P.2.10	Brake blocks — Product assessment	X	

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JJ.2. CLOSURE OF OPEN POINTS AND ADDITIONAL SPECIFICATIONS IN THE CASE OF WAGONS REFERRED TO IN SECTION 7.6.4

1. Closure of open points

For wagons identified in section 7.6 of this TSI, the open points identified in column “YES” of Annex JJ-1 are closed in this section.

1.1. Hot Axle Box detection

The open point identified in section 4.2.3.3.2 of this TSI is closed if the wagon complies with the specifications of the related ERA Technical Document.

1.2. Cross winds

The open point identified in sections 4.2.6.3 and 6.2.3.4.3 of this TSI is closed without any mandatory provision concerning wagon design. Some operational measures could apply.

1.3. Assessment of welding joints

The open point identified in sections 6.1.2.2 and 6.2.21 of this TSI is closed with the application of EN 15085-5 of October 2007.

1.4. Assessment of maintenance

The open point identified in Annex D of this TSI is closed as follows: Any maintenance file which:

- (a) was applied by a former registering RU member of RIV at the time of the revocation of RIV, or
- (b) was approved in accordance with a national or international rule

and which also complies with the requirements of this TSI is valid. The in-service performances are considered as satisfactory.

1.5. Wheel treads

The open point identified in Annex E of this TSI is closed as follows: the wheel tread defects will be considered in the maintenance frame.

1.6. Cast wheels

The open point identified in Annex L of this TSI is closed as follows: cast steel wheels are not authorised pending the publication of a European standard

1.7. Design and Assessment of composite brake blocks

The open point identified in Annexes P.1.10 and P.2.10 of this TSI is closed with the related technical document which is published on the ERA website.

2. Additional specifications

The following additional specifications are also required for wagons identified in section 7.6.4.

2.1. Buffers and draw gears

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- In addition to the specifications of section 4.2.2.1.2.1 of this TSI, it is also required that buffers of wagons must be fitted with a guiding device for the plunger which prevents the latter from revolving freely around its longitudinal axis. The permitted tolerance for rotation is $\pm 2^\circ$ for buffers when new.
- In addition to the specifications of section 4.2.2.1.2.2 of this TSI, it is also required that:
 - (a) The intermediate draw gear of each set of permanently coupled wagons (or multiple wagons) must have a breaking strength in traction higher than that of the end draw gear.
 - (b) The ERA Technical Document on “additional specifications applicable to the draw gear” related to the following issues also applies (the prEN 15551 is expected to be published in April 2009):
 - dynamic energy capacity,
 - attachments,
 - stroke and anti-rotation device,
 - mechanical resistance,
 - elastic characteristics,
 - markings,
 - buffer override calculation and buffer plate material,
 - dimension of the draw bar aperture,
 - (c) For the mechanical resistance of assemblies, the draw gear (excluding elastic device), draw hooks, and screw coupling shall be designed for a life time of thirty years. Twenty years may be agreed at the customer's request.
 - (d) The following table shows the range of forces and number of cycles to be applied for the dynamic type test.

CONDITIONS FOR THE DYNAMIC TYPE TESTS

Operational requirements			Range of forces to be applied		
Lifecycle (years)	Survival probability (%)	Safety factor (f _N)	Designation	Step 1	Step 2
			1MN	ΔF1 = 200 kN	ΔF2 = 675 kN
			1,2 MN	ΔF1 = 240 kN	ΔF2 = 810 kN
			1,5 MN	ΔF1 = 300 kN	ΔF2 = 1015 kN
				N1 in cycles	N2 in cycles
20	97,5	1,7	All	10 ⁶	1,45 × 10 ³

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30	97,5	1,7	All	$1,5 \times 10^6$	$2,15 \times 10^3$
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The dynamic type tests have to be carried out on three draw gears without elastic device. All three samples have to endure the tests without showing any damage. They shall not show any cracks, and the tensile force shall not drop below 1 000 kN.

2.2. Strength of main vehicle structure

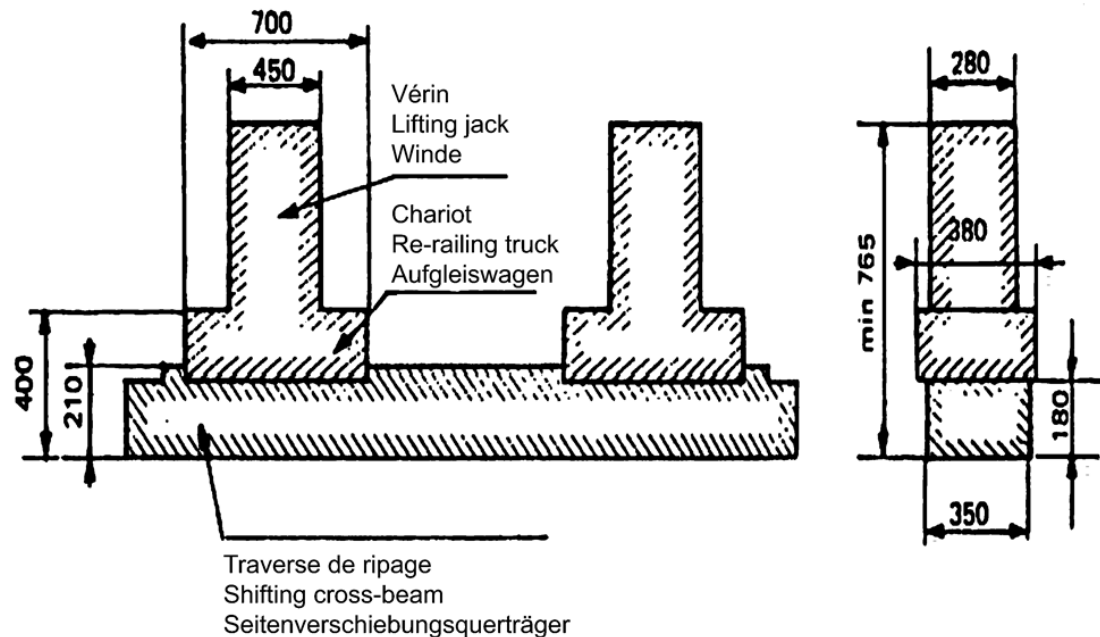
In addition to the specifications of section 4.2.2.3.1 of this TSI, it is also required that:

- only tests and calculations for which numerical simulations have been validated are accepted;
- the maintenance file should take into account the following: the use of thermomechanical rolled steel requires special measures regarding heat (treatment).

2.3. Jacking

In addition to the specifications of section 4.2.2.3.2.4 of this TSI, the compliance of the jacking with the following diagram is also required:

Figure Relevage sur la voie / Rerailing



2.4. Axle

In addition to the specifications of section 5.4.2.4 and Annex M 1.4 of this TSI, for maximum permissible stresses the following standards apply: EN 13103 section 7, EN 13260 section 3.2.2 and EN 13261 section 3.2.3.

2.5. Dynamic behaviour of the vehicle

In addition to the specifications of section 4.2.3.4 of this TSI, it is required that for the particular cases of the bogies not listed in annex Y, EN 14363 or leaflet UIC 432 apply.

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In addition to the specifications of section 4.2.3.4.2.2 of this TSI on safety against derailment when running on twisted tracks:

- One of the three methods given in EN 14363 applies;
- Freight wagons are exempted from these tests if they comply with the requirements of UIC leaflet 530-2.

2.6. Longitudinal compressive force

In addition to the specifications of sections 4.2.3.5 and Annex R of this TSI, compliance with section 3.2 of UIC leaflet 530-2 is also required, except for the requirements to communicate with and to receive the agreement from the UIC Study Group (SG) 2.

2.7. Braking

2.7.1. Energy storage

In addition to the specifications of section 4.2.4.1.2.4 of this TSI, it is required that the energy storage has to be designed in such a way that after a brake application (with the maximum brake cylinder pressure and maximum possible cylinder output stroke of the wagon at any load state) the pressure in the auxiliary reservoir must be at least 0,3 bar more than the brake cylinder pressure without the addition of any further energy.

2.8. Two-axle wagons

In addition to the specifications of section 4.2.3.4.2.4 of this TSI, the application of UIC leaflet 517 is mandatory for the calculation of the suspension of two-axle wagons.

2.9. Electric or electromagnetic interference

Wagons fitted with a source of energy which may cause electrical interference must be examined against leaflets UIC 550-2 and 550-3. The electromagnetic signature of maximum train compositions must be validated.

2.10. Special types of wagons

For each of the following types of wagon, the related additional specifications apply:

- For wagons fitted with internal combustion engine: UIC leaflet 538;
- For multiple and articulated wagons: UIC leaflet 572;
- For wagons for the carriage of containers, swap bodies and horizontally loaded movable units: UIC leaflet 571-4;
- For heat insulated and refrigerated wagons: UIC leaflet 554-2;
- For semi trailers on bogies: UIC leaflet 597.

2.11. Wagons coming to UK

The wagons coming to the UK must also comply with UIC leaflet 503 requirements related to the specific UK conditions.

- 6) The following new Annex is inserted after Annex KK:

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ANNEX LL

HOT AXLE BOX DETECTION REFERENCE DOCUMENT

1. TERMS AND DEFINITIONS

For the purposes of this Annex, the following terms and definitions apply.

Axle bearing: a bearing or bearing assembly on a rail vehicle axle that transmits a proportion of the weight of the rail vehicle directly to the wheelset.

Axle box: the structure, including for example cartridge bearing adaptor, which houses, or is in contact with, the axle journal bearing and provides an interface with the bogie and/or suspension arrangement.

Hot axle box detector (HABD):

Target zone: a defined area on the underside of an axle box that is designed to have its temperature monitored by a HABD.

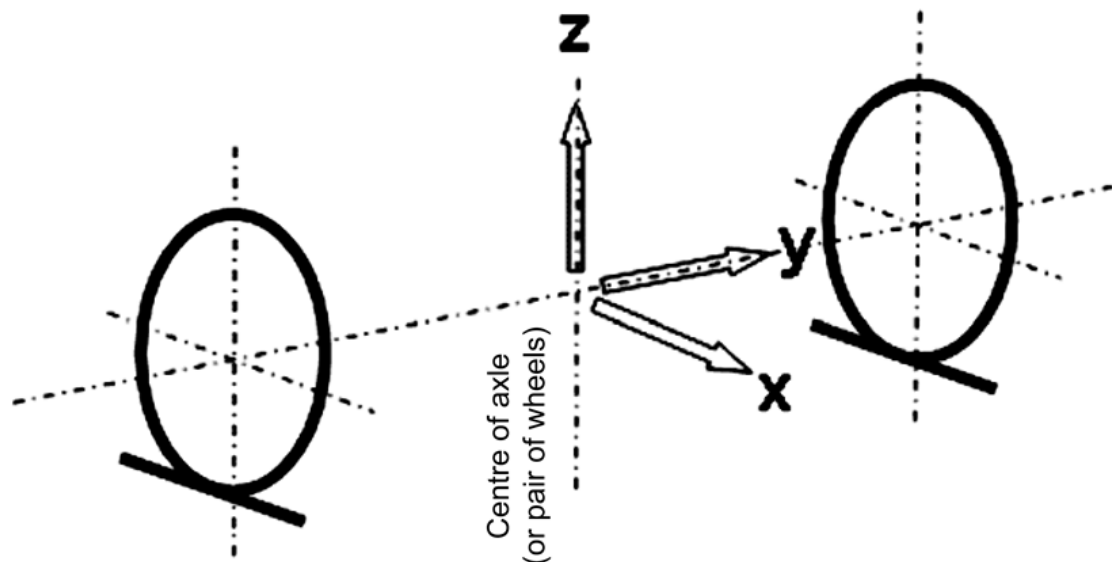
Target area: the plan view dimensions, that is in the XY plane, of the target zone.

Prohibitive zone: a zone in which heat sources such as exhausts, which might influence the behaviour of a HABD, are excluded or thermally shielded.

Rolling stock coordinates: rolling stock coordinates, figure 1, are based on the right hand rule Cartesian coordinate system, where the positive X-axis (longitudinal) is along the vehicle in the direction of travel, the Z-axis is vertically upwards and the origin is at the centre of the wheelset axle. The Y-axis is the lateral axis.

Figure 1

Rolling Stock Coordinates



Changes to legislation: Commission Decision of 23 January 2009 amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system (notified under document number C(2009) 38) (Text with EEA relevance) (2009/107/EC) is up to date with all changes known to be in force on or before 28 August 2023. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Wheelset: a unit comprising: an axle, two wheels and their axle bearings, or a pair of independent wheels located at the same longitudinal position and their bearings.

Heat source: a part of the rolling stock that may have a temperature above the in-service running temperature of the underside of the axle box, such as a hot load or an exhaust pipe.

2. SYMBOLS AND ABBREVIATIONS

For the purposes of this Annex, the following symbols and abbreviated terms apply:

HABD	Hot Axle box Detector
IM	Infrastructure Manager (as defined in the TSIs)
LPZ	Longitudinal length in mm of the prohibitive zone
LTA	Longitudinal length in mm of the target area
PZ	Prohibited zone
RST	Rolling stock (as defined in TSI)
RU	Railway Undertaking (as defined in TSI)
TA	Target area
TSI	Technical Specification for Interoperability
WPZ	Lateral width in mm of the prohibitive zone
WTA	Lateral width in mm of the target area
YPZ	Lateral position in mm of the centre of the prohibitive zone relative to the centre line of the vehicle
XTA	Longitudinal position of the centre of the target area relative to the centre line of the vehicle
YTA	Lateral position of the centre of the target area relative to the centre line of the vehicle

3. ROLLING STOCK REQUIREMENTS

This section contains the requirements for the rolling stock side of the HABD interface.

3.1. Target Zone

The target zone is an area on the underside surface of an axle box described by the intersection of the axle box with a virtual cuboid that has a horizontal cross sectional area given by the dimensions XTA and YTA using the rolling stock coordinates. The horizontal cross sectional area of the virtual cuboid is therefore congruent to the plan view area (that is in the XY plane) of the target zone, herein named the target area.

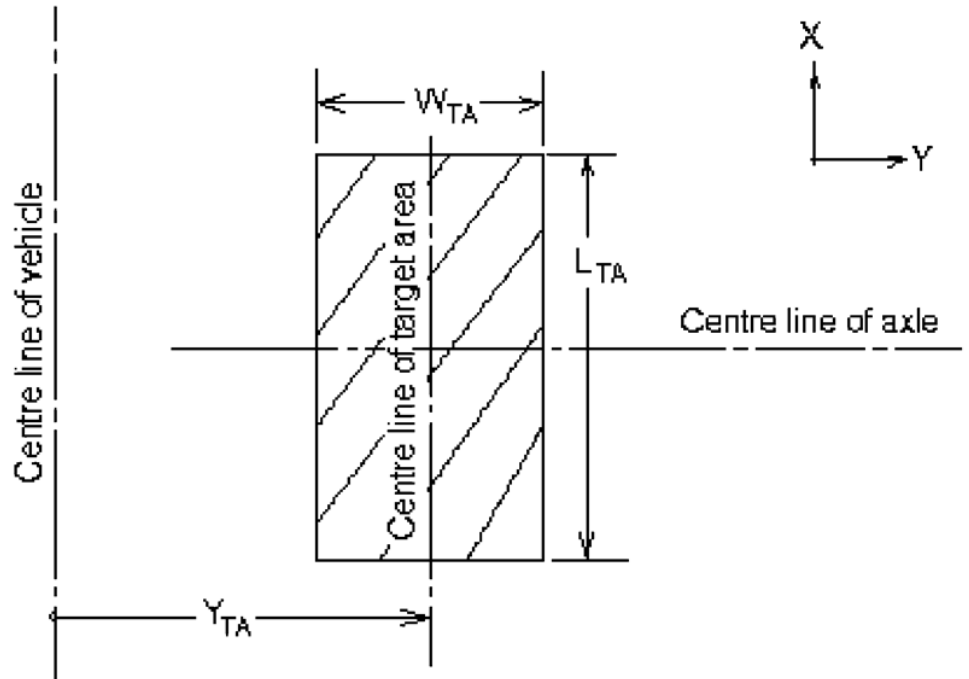
3.2. Target area

The target area is set in space relative to the axle dimensions, and defines an area in which a HABD can focus to monitor the temperature of an axle box. Figure 2 shows the position and minimum dimensions of the target area using rolling stock coordinates.

Figure 2

Changes to legislation: Commission Decision of 23 January 2009 amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system (notified under document number C(2009) 38) (Text with EEA relevance) (2009/107/EC) is up to date with all changes known to be in force on or before 28 August 2023. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Dimensions and position of the target area (TA) in the XY plane (viewed from below)



3.3. Dimensions of the Target Area

Taking into account mechanical tolerances the target area shall:

- have a lateral width, W_{TA} , greater than or equal to 50 mm;
- have a longitudinal length, L_{TA} , greater than or equal to 100 mm.

3.4. Position of the Target Area in the XY plane

In the XY plane the centre of the target area shall be positioned at a lateral distance, Y_{TA} , relative to the centre of the axle (or centre of a pair of wheels at the same position), where 1 065 mm is less than or equal to Y_{TA} and Y_{TA} is less than or equal to 1 095 mm. In the longitudinal axis the centre of the target area shall be congruent with the centre line of the axle.

3.5. Visibility requirements for the Target Area

Rolling stock shall be designed with no obstruction between the target zone and the HABD that would impede or prevent the HABD from focusing within the target zone and thereby prevent a measurement of its thermal radiation.

Note : The design of the rolling stock axle box should aim to achieve a homogeneous temperature distribution within the target zone.

4. OTHER MECHANICAL DESIGN REQUIREMENTS

To minimise the opportunity for a HABD to calculate a temperature from a heat source that is not an axle box, rolling stock shall be designed so that other heat sources, for example hot payload or exhaust, are not immediately adjacent to or directly above the

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target area position. To facilitate this no other heat source shall be located within the prohibitive zone defined in this document.

- Note 1* : If, due to the design of the rolling stock, it is possible/unavoidable for a heat source other than that of an axle box to be contained within the prohibitive zone, that heat source shall be thermally shielded to prevent erroneous temperature calculations by a HABD measuring its thermal radiation.
- Note 2* : The prohibitive zone shall be maintained for all rolling stock, including for example rolling stock with inboard bearings.

4.1. Prohibitive Zone

The prohibited zone is defined by a rectangular area, which includes the target area, and is extended vertically to form a virtual cuboid. The dimensions of the cuboid are LPZ and WPZ in the XY plane and HPZ in the vertical axes. Figure 3 shows a possible position of the target area in the prohibitive zone using rolling stock coordinates.

The dimensions of the prohibitive zone's cuboid, taking into account mechanical tolerances, shall be:

- lateral width, WPZ, greater than or equal to 100 mm;
- longitudinal length, LPZ, greater than or equal to 500 mm;
- vertical height, HPZ, starts at a point in the XY plane immediately above the HABD and ends at either the height of the target area, the height of a thermal shield or the height of the vehicle.

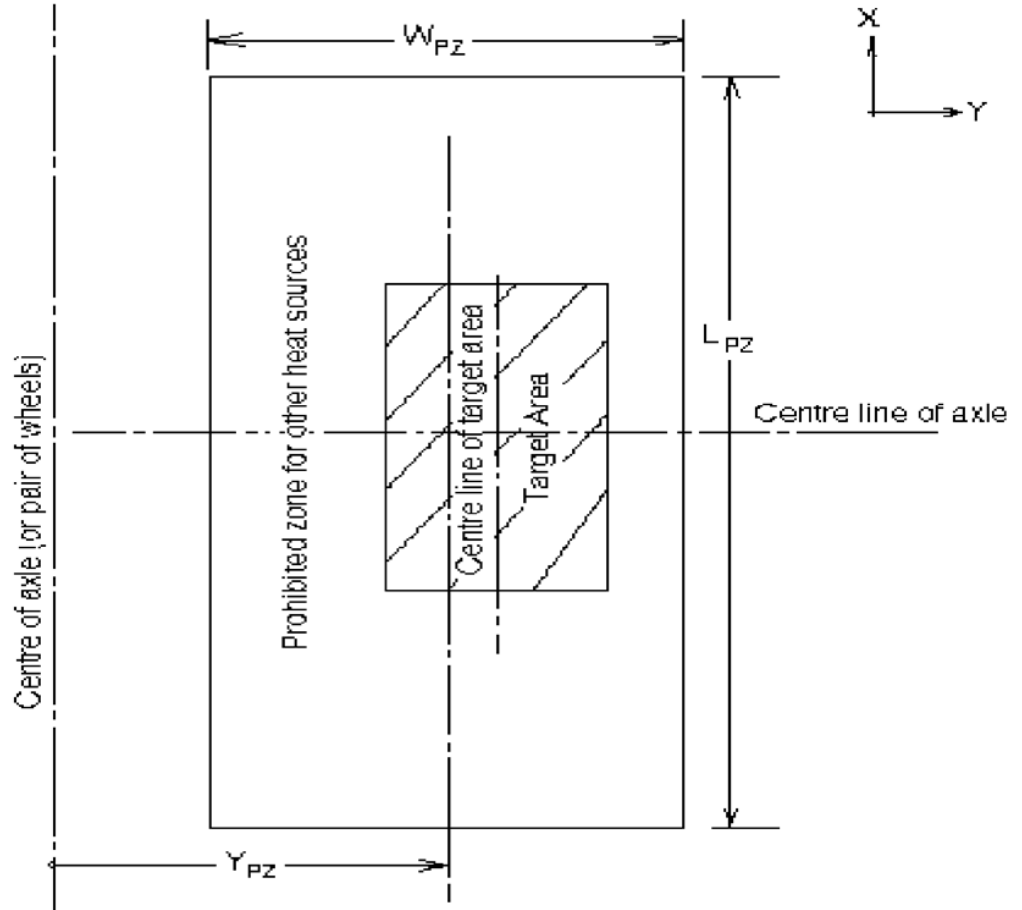
The position of the centre of the prohibitive zone in the X-Y plane shall be:

- in the lateral direction, YPZ = 1080 mm ± 5 mm measured relative to the centre of the axle (or centre of a pair of wheels at the same position);
- in the longitudinal direction it shall be congruent with the centre line of the axle ± 5 mm.

Figure 3

Changes to legislation: Commission Decision of 23 January 2009 amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system (notified under document number C(2009) 38) (Text with EEA relevance) (2009/107/EC) is up to date with all changes known to be in force on or before 28 August 2023. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Dimensions of the prohibitive zone (PZ) in the XY plane (viewed from below) showing a possible position of a target area



5. CROSS REFERENCE TABLE

For the purposes of traceability a cross-reference table relating this document with the original prEN 15437 is included

Document Section Ref.	prEN15437 Section Ref.
1	3.0
2	4.0
3	5
3.1	5.1
3.2	5.1.1
3.3	5.1.2
3.4	5.1.3

ANNEX II

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Changes to legislation: Commission Decision of 23 January 2009 amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system (notified under document number C(2009) 38) (Text with EEA relevance) (2009/107/EC) is up to date with all changes known to be in force on or before 28 August 2023. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

3.5	5.1.4
4	5.2
4.1	5.2.1

ANNEX II

Annex P.5 of Decision 2006/920/EC is replaced by the following:

ANNEX P.5

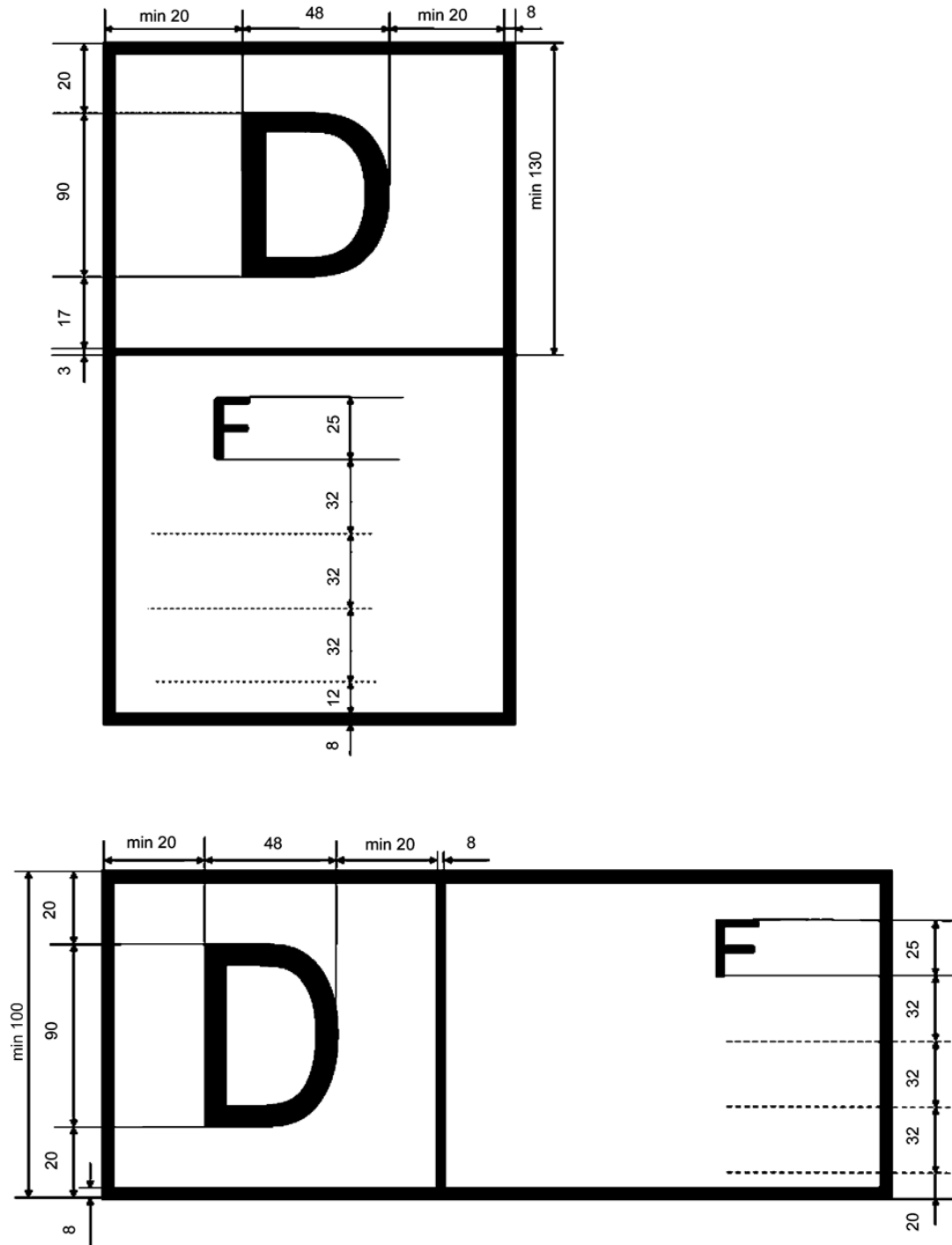
ALPHABETICAL MARKING OF THE INTEROPERABILITY CAPABILITY

- “TEN” : Vehicle which complies with the following conditions:
- it complies with all relevant TSIs which are in force at the moment of placing in service and has been authorised to be placed in service according to Article 22(1) of Directive 2008/57/EC,
 - it is provided with an authorisation valid in all Member States in accordance with Article 23(1) of Directive 2008/57/EC, or, as an alternative, it has received individual authorisations by all Member States,
- “PPV/PPW” : Wagon which complies with PPV/PPW agreement (inside OSJD States) (original: ППВ (Правила пользования вагонами в международном сообщении)).

Notes:

- a) Vehicles marked TEN correspond to coding 0 to 3 of the first digit in the vehicle number specified in Annex P.6.
- b) Vehicles which are not authorised for operation in all Member States need a marking indicating the Member States where they have been authorised. The list of authorising MS should be marked according to one of the following drawings, where D stands for the MS who has granted the first authorisation (in the given example, Germany) and F stands for the second authorising MS (in the given example, France). The MS are codified in accordance with Annex P.4. This may cover vehicles which are TSI compliant or which are not. These vehicles correspond to coding 4 or 8 of the first digit in the vehicle number specified in Annex P.6.

Changes to legislation: Commission Decision of 23 January 2009 amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system (notified under document number C(2009) 38) (Text with EEA relevance) (2009/107/EC) is up to date with all changes known to be in force on or before 28 August 2023. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes



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- (1) [OJ L 191, 18.7.2008, p. 1.](#)
- (2) [OJ L 164, 30.4.2004, p. 1](#), as corrected [OJ L 220, 21.6.2004, p. 3.](#)
- (3) [OJ L 235, 17.9.1996, p. 6.](#)
- (4) [OJ L 110, 20.4.2001, p. 1.](#)
- (5) [OJ L 344, 8.12.2006, p. 1.](#)
- (6) The GCU website: <http://www.gcubureau.org>
- (7) [OJ L 359, 18.12.2006, p. 1.](#)

Changes to legislation:

Commission Decision of 23 January 2009 amending Decisions 2006/861/EC and 2006/920/EC concerning technical specifications of interoperability relating to subsystems of the trans-European conventional rail system (notified under document number C(2009) 38) (Text with EEA relevance) (2009/107/EC) is up to date with all changes known to be in force on or before 28 August 2023. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations.

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Changes and effects yet to be applied to :

- Decision partial repeal by [EUDN 2011/314](#) Decision
- Decision partial repeal by [EUR 2013/321](#) Regulation