

10th edition, June 2005

Translation

O R

Electrical power supply for trains - Standard technical characteristics of the train line

*Alimentation des trains en énergie électrique - Caractéristiques techniques unifiées de la ligne de train
Versorgung der Züge mit elektrischer Energie - Technische Einheitsmerkmale der Zugsammelschiene (ZS)*



UNION INTERNATIONALE DES CHEMINS DE FER
INTERNATIONALER EISENBAHNVERBAND
INTERNATIONAL UNION OF RAILWAYS

Leaflet to be classified in Volumes:

V - Rolling Stock

VI- Traction

Application:

With effect from 1 June 2005

All members of the International Union of Railways

Record of updates

1st edition, January 1930

First issue under the title: "Electric heating - Coaches" and with the code No. 44. New code in 1952.

9th edition, January 1997

10th edition, June 2005

Editorial revision (point 3.4 is new)

Addition of standards in the bibliography:

- EN 60529:2000

- ISO 3864:1984

Important: the points in this leaflet have been renumbered in the new edition. The first digit of each point has been increased by one (i.e. 0 $\Rightarrow$ 1, 1 $\Rightarrow$ 2, etc.). Please take account of this when using cross-references from other leaflets!

The person responsible for this leaflet is named in the UIC Code

Contents

Summary	1
1 - General.....	2
2 - Characteristics of the train line	3
3 - Coupling gear for the train line.....	4
4 - Characteristics of conductors for the train line	5
5 - Locking of coupling gear	6
6 - Test voltages	7
7 - Inscriptions.....	8
Appendix A - Permissible train line load ($I = f(T_e)$)	9
Appendix B - Schematic diagram of the train line on a vehicle	10
Appendix C - Train line - Coupling	11
Appendix D - Coupling parts for the train line	12
D.1 - Securing the coupler plug in the coupler socket and example of a coupler socket with lock.....	12
D.2 - Locking key: maximum size.....	13
Appendix E - Coupling parts for the train line - Position of the couplings for the train line.....	14
Appendix F - Train line / Power supply - Inscriptions.....	15
F.1 - Marking and inscriptions for passenger coaches.....	15
F.2 - Marking and inscriptions for freight wagons	16
Bibliography	17

Summary

This leaflet applies to all rolling stock and tractive units used in international traffic which are equipped with a train line and contains general provisions which are to be observed by the train line for supplying the train with electrical power, including the components such as coupling fittings and conductors.

o 1 - General

1.1 - This leaflet shall apply to all rolling stock used in international traffic and which is equipped with a train line.

It shall also apply to the train lines of tractive units.

1.2 - This leaflet contains general provisions which are to be observed by the train line for supplying the train with electrical power.

2 - Characteristics of the train line

- 2.1 - The train line shall be capable of operation under the voltages specified in *UIC Leaflet 550, Appendix B* (see Bibliography - page 17) (including the voltage tolerances).
- 2.2 - The train line should be dimensioned only for those rated voltages which it will encounter in operation.
- 2.3 - The single-pole train line comprises the coupling gear mounted on the vehicle headstocks and one or more continuous conductors. The diagram in Appendix B - page 10 shows a train line in a vehicle.
- 2.4 - The train line shall be capable of providing the current flow corresponding to the values of the diagram in Appendix A - page 9.
- 2.5 - All metal parts encompassing the train line shall be of non-magnetic material to avoid heating due to eddy-current losses. This covers principally the handles of coupler plugs, coupler sockets, cable-holder junction boxes and the metallic covering of the cable.
- 2.6 - The train line shall be so installed that it is protected against physical damage and electrical interference.

3 - Coupling gear for the train line

3.1 - The train line coupling gear at the vehicle end shall comprise:

- a coupler socket;
- a cable-holder junction box;
- a coupler plug with cable. The earthing conductor for the coupler plug handle shall be integrated in the plug cable;
- a dummy socket.

3.2 - The layout of the coupling gear at vehicle ends and the length of the plug cable shall conform to Appendix E - page 14. The plug cable in the coupler socket of the adjacent vehicle or in the dummy socket of its own vehicle shall not foul the vehicle gauge as defined in *UIC Leaflet 505-1* (see Bibliography - page 17).

3.3 - Coupler plugs, coupler sockets and dummy sockets shall conform to the specifications and limit dimensions of Appendix C - page 11. With the cover closed, and also with the coupler plug inserted, the coupler socket shall provide protection to IP 54 of EN 60529 (see Bibliography - page 17) by means of the spring pressure.

3.4 - The coupler plug inserted completely into the coupler socket shall be secured against disengaging and falling out in all operating conditions. For this purpose, there shall be a securing catch located on the inside of the coupler socket cover and which engages into the corresponding groove of the coupler plug by means of the spring pressure of the cover (see point D.1 - page 12).