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Road vehicles — Connectors for the electrical connection of towing and towed vehicles — Definitions, tests and requirements

National foreword

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**Road vehicles — Connectors for the
electrical connection of towing and towed
vehicles — Definitions, tests and
requirements**

*Véhicules routiers — Connecteurs pour liaisons électriques entre
véhicules tracteurs et véhicules tractés — Définitions, essais et
exigences*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4091 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This third edition cancels and replaces the second edition (ISO 4091:1992), which has been technically revised.

Road vehicles — Connectors for the electrical connection of towing and towed vehicles — Definitions, tests and requirements

1 Scope

This International Standard gives definitions and specifies tests and requirements for connectors used for the electrical connection of towing and towed road vehicles. It is applicable to connectors of all types used for this purpose, as specified in ISO 1185, ISO 1724, ISO 3731, ISO 3732, ISO 7638-1, ISO 7638-2, ISO 11446 and ISO 12098.

NOTE Dimensions and particular requirements related to the design of the connector are given in separate International Standards.

2 Normative references

The following referenced documents are indispensable for application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1185, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 7-pole connector type 24 N (normal) for vehicles with 24 V nominal supply voltage*

ISO 1724, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 7-pole connector type 12 N (normal) for vehicles with 12 V nominal supply voltage*

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 3731, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 7-pole connector type 24 S (supplementary) for vehicles with 24 V nominal supply voltage*

ISO 3732, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 7-pole connector type 12 S (supplementary) for vehicles with 12 V nominal supply voltage*

ISO 7638-1, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — Part 1: Connectors for braking systems and running gear of vehicles with 24 V nominal supply voltage*

ISO 7638-2, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — Part 2: Connectors for braking systems and running gear of vehicles with 12 V nominal supply voltage*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 11446, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 13-pole connectors for vehicles with 12 V nominal supply voltage*

ISO 12098, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 15-pole connector for vehicles with 24 V nominal supply voltage*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

3 Terms and definitions

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

3.1

connection

two mated connectors or contacts

3.2

connector

assembly of contacts and housing which terminates conductors for the purpose of providing connection and disconnection to a suitable mating connector

3.3

contact

conductive element in a connector (including means for cable attachment) which mates with a corresponding element to provide an electrical path

3.4

contact area

area in contact between two mated contacts, which provides an electrical path

3.5

female contact

electrical contact (including means for cable attachment) intended to make electrical engagement on its inner surface and to accept entry of a male contact, thus forming an electrical connection

EXAMPLE Receptacle, sleeve.

3.6

male contact

electrical contact (including means for cable attachment) intended to make electrical engagement on its outer surface and to enter a female contact, thus forming an electrical connection

EXAMPLE Tab, pin, blade.

3.7

plug

free connector intended to mate with a socket

3.8

socket

connector intended to mate with a plug-in device

3.9

park socket

socket for storing the plug when it is disconnected