International Standard

ISO 4009

Commercial vehicles — Location of electrical and pneumatic connections between towing vehicles and trailers

Véhicules utilitaires — Emplacement des connexions électriques et pneumatiques entre véhicules tracteurs et véhicules remorqués

Fourth edition
2026-02

Reference number
ISO 4009:2026(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement. For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 40, *Specific aspects for passenger cars, light and heavy commercial vehicles, special vehicles, buses and trailers/caravans*.

This fourth edition of ISO 4009 is a technical revision of ISO 4009:2000, which was withdrawn in 2017.

The main changes are as follows:

— multiple-vehicle combinations have been added to the scope;

— new connectors have been added in Figure 1 to Figure 4;

— the arrangement of the connectors has been changed in Figure 1 to Figure 4;

— general requirement for the length of flexible pipes has been added;

— the arrangement of the connectors has been added in a new Annex A;

— editorial changes have been made.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Standardization requirements for the arrangement of electrical and pneumatic connections between towing vehicles and trailers are crucial to ensure seamless connectivity, operational safety, and the reliable functioning of vehicle combinations. As vehicle technology advances rapidly and an increasing variety of vehicles enter transportation market, more standardized requirements have been proposed for the arrangement of these connections. For instance, some vehicles allow the upper and lower mounting surfaces of connectors to be integrated into a single plane. Unifying the arrangement of connectors for drawbar-trailers and centre-axle trailers would further improve operational convenience. Some pipelines are installed at low positions, making them prone to ground contact and abrasion, so adding protective measures is beneficial for the pipelines. Additionally, incorporating schematic diagrams of connector layouts in this standard enhances its practicality.

Therefore, further ways to enhance the interchangeability between tractors and trailers, standardize the arrangement of connections, and ensure the safe operation of vehicle combinations must be explored.

Commercial vehicles — Location of electrical and pneumatic connections between towing vehicles and trailers

1 Scope

This document specifies the locations of coupling devices for electrical and pneumatic connections between towing and towed commercial road vehicles. It is applicable to heavy vehicles equipped with pneumatic braking systems and 24 V electrical equipment of the following types: drawbar-trailer combinations, centre-axle trailer combinations and multiple-vehicle combinations whose towing vehicles or trailers have rear-mounted couplings or couplings mounted forward and below, and articulated vehicles.

This document is not applicable to car carriers, or road vehicles equipped only with fully automatic coupling system (FACS) according to the ISO 13044 series, not mounted on the front of the trailer.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1728, *Road vehicles — Pneumatic braking connections between motor vehicles and towed vehicles — Interchangeability*

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

ISO 25981, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — Connectors for electronically monitored charging systems with 12 V or 24 V nominal supply voltage*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Connection locations

The locations for electrical and pneumatic connections shall be in accordance with Figure 1 and Figure 2 for towing vehicles or trailers with rear-mounted couplings, Figure 3 for towing vehicles or trailers with couplings mounted forward and below, and Figure 4 for articulated vehicles. Selection of the respective