



BSI Standards Publication

# Road vehicles — Fully automatic coupling systems 24 V (FACS) for heavy commercial vehicle combinations

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Part 2: Electrical and pneumatic interface for 50 mm fifth wheel couplings

## National foreword

This British Standard is the UK implementation of ISO 13044-2:2021. It supersedes BS ISO 13044-2:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AUE/13, Commercial and public service vehicles.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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**Road vehicles — Fully automatic  
coupling systems 24 V (FACS)  
for heavy commercial vehicle  
combinations —**

Part 2:  
**Electrical and pneumatic interface for  
50 mm fifth wheel couplings**

*Véhicules routiers — Dispositifs d'attelage entièrement automatiques  
(FACS) à 24 V pour ensembles routiers lourds —*

*Partie 2: Interface électrique et pneumatique pour sellettes d'attelage  
de 50 mm*



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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.

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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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](http://www.iso.org/iso/foreword.html).

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

This second edition cancels and replaces the first edition (ISO 13044-2:2013), which has been technically revised. The main changes compared to the previous edition are as follows:

- changes to the normative references.

A list of all the parts in the ISO 13044 series can be found on the ISO website.

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](http://www.iso.org/members.html).

## Introduction

This document specifies the integrated electrical and pneumatic connections of an automated fifth wheel coupling system for articulated vehicles and related components.

Fully automated coupling systems improve safety for the driver and for the vehicle combinations. They also improve the work conditions for the driver and reduce cost for the end user.

- a) Higher safety standard is achieved for example by:
  - a reduction of operational accidents,
  - less injured drivers because there is no need for drivers to stay in the dangerous zone between the towing and the towed vehicle while uncoupling.
- b) Higher comfort level is achieved for example by:
  - elimination of necessity to access the coupling, landing gears and supply lines,
  - reduction of physical demands when operating the coupling and the landing gears or when climbing on or descending from chassis to manually connect or disconnect the supply lines.
- c) Cost reduction for end user is achieved for example by:
  - less repair and maintenance of cables and pipes,
  - less inactive periods for the vehicle combination due to less damage and repair,
  - new components create space for future extensions and potentials.

# Road vehicles — Fully automatic coupling systems 24 V (FACS) for heavy commercial vehicle combinations —

## Part 2:

# Electrical and pneumatic interface for 50 mm fifth wheel couplings

## 1 Scope

This document specifies the mechanical, electrical/electronic and pneumatic characteristics of a fully automated fifth wheel coupling system to ensure interchangeability between a towing vehicle and a coupled semi-trailer(s) with 24 V nominal supply voltage. The two vehicles together constitute an articulated vehicle or are part of a vehicle combination.

This document also supports the step-by-step introduction of fully automated fifth wheel coupling systems in the market. It specifies features necessary for mixed mode operation, i.e. the combination of a fully automated coupling system (FACS) equipped towing vehicle with a conventional semi-trailer, and vice versa, the combination of a conventional towing vehicle with a FACS-equipped semi-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 337, *Road vehicles — 50 semi-trailer fifth wheel coupling pin — Basic and mounting/interchangeability dimensions*

ISO 1726-1, *Road vehicles — Mechanical coupling between tractors and semi-trailers — Part 1: Interchangeability between tractors and semi-trailers for general cargo*

ISO 1726-2, *Road vehicles — Mechanical couplings between tractors and semi-trailers — Part 2: Interchangeability between low-coupling tractors and high-volume semi-trailers*

ISO 3842, *Road vehicles — Fifth wheels — Interchangeability*

ISO 6150:2018, *Pneumatic fluid power — Cylindrical quick-action couplings for maximum working pressures of 1 MPa, 1,6 MPa, and 2,5 MPa (10 bar, 16 bar and 25 bar) — Plug connecting dimensions, specifications, application guidelines and testing*

ISO 7638-1:2018, *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 11992 (all parts), *Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles*

ISO 12098:2020, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 15-pole connector for vehicles with 24 V nominal supply voltage*

ISO 13044-1, *Road vehicles — 24 V fully automatic coupling systems (FACS) for heavy commercial vehicle combinations — Part 1: General requirements and definitions*

ISO 16750-3:2012, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 3: Mechanical loads*