
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

Véhicules routiers — Raccords pour les connexions électriques des véhicules tracteurs et des véhicules tractés — Raccords pour systèmes de charge contrôlés électroniquement à tension d'alimentation nominale de 12 V ou 24 V.

ISO 25981:2008

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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Foreword

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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 25981 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

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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

1 Scope

This International Standard specifies dimensional characteristics, contact allocation, tests and requirements of 7-pole connectors for electrical connections of electronically monitored charging systems of towing and towed vehicles. The electronic monitoring system is designed to detect 12 V and 24 V nominal supply voltage and to limit the current to 50 A. This is a connector without breaking capacity.

This electrical connection is intended for use with separable truck-trailer combinations in order to connect an additional battery pack of the trailer with the generator of the truck using an electronically monitored charging system. Additional battery packs in trailers are basically used with tailgate lifts, electrical forklifts or other technical equipment with high current consumption.

This International Standard further specifies a park socket used to receive and store the plug when it is disconnected.

2 Normative references

The following referenced documents are indispensable for the 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 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 4009, *Commercial vehicles — Location of electrical and pneumatic connections between towing vehicles and trailers*

ISO 4091, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — Definitions, tests and requirements*

ISO 4141-3, *Road vehicles — Multi-core connecting cables — Part 3: Construction, dimensions and marking of unscreened sheathed low-voltage cables*

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 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 60512-13-5, *Connectors for electronic equipment — Tests and measurements — Part 13-5: Mechanical operation tests — Test 13e: Polarizing and keying method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4091 apply.

4 Dimensions

4.1 General

Details not specified are at the manufacturer's discretion.

The contacts shall be floating and shall align to the datum position when plug and socket are engaged.

4.2 Plug

Dimensions of the plug shall be as in Figure 1.

The locking lever design shall take into consideration the space required for screws used to fasten the socket (see section B-B in Figure 2).

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4.3 Socket

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Dimensions of the socket shall be as in Figure 2.

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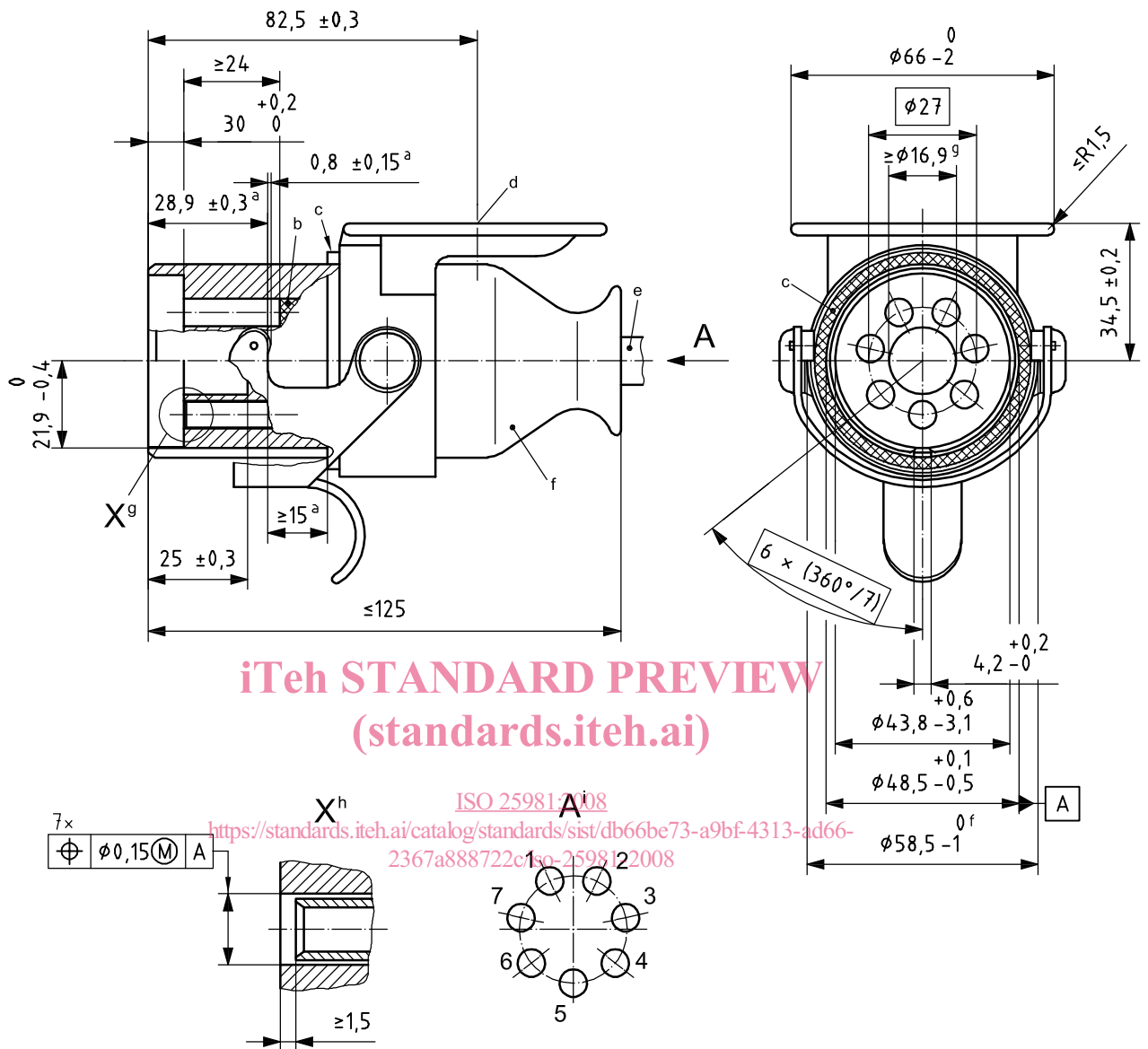
The cover is shown in opened position. It shall close automatically when the plug is disconnected.

4.4 Park socket

Dimensions of the park socket shall be as in Figure 3.

The cover is shown in closed position. It shall close automatically when the plug is disconnected.

Dimensions in millimetres



- a Dimension refers to the locking lever in its locked position.
- b Plug housing with 7 bushings and coding.
- c The sealing ring shall be mounted such that it cannot become detached under normal use.
- d Centre of cover rest.
- e See ISO 4141-3 for correct sealing.
- f Other housing designs are permitted in compliance with the maximum distance of 58 mm for the locking lever.
- g Contact bushing with 6,0 mm² terminal for contacts 1 to 4 and 1,0 mm² terminal for contacts 5 to 7.
- h Spring tube.
- i Contact numbers.

Figure 1 — Plug

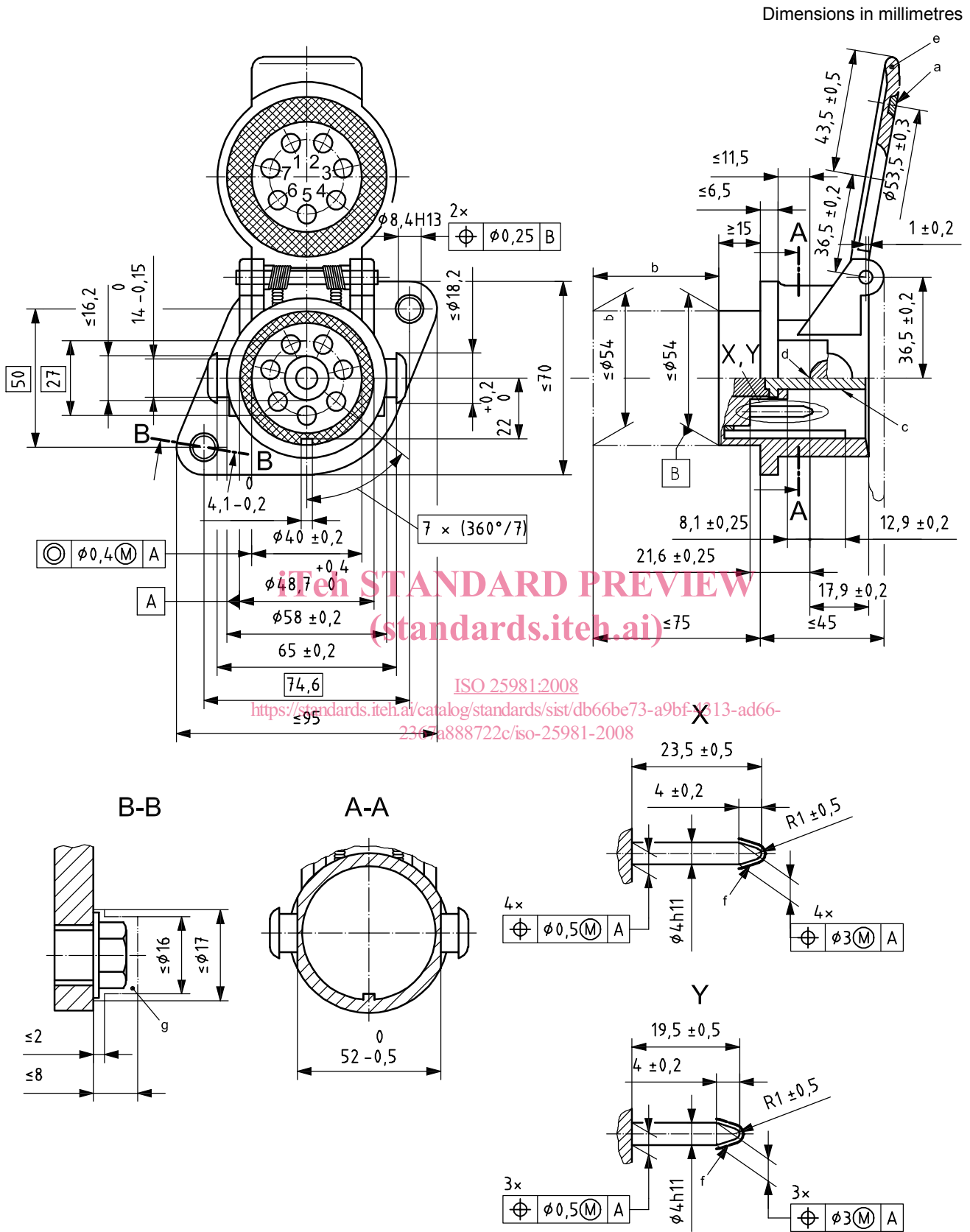


Figure 2 (continued)

Key

- X contacts 1 to 4 with 6,0 mm² terminal and 23,5 mm length
- Y contacts 5 to 7 with 1,0 mm² terminal and 19,5 mm length
- a The sealing ring shall be mounted such that it cannot become detached under normal use.
- b For existing products for which the cable outlet is mounted from the rear, the outside diameter of the outlet may be larger with the vehicle manufacturer's agreement. However, to ensure socket exchangeability, it is recommended to allow for future applications that the maximum outside diameter be 54 mm over a maximum length of 75 mm. See ISO 4141-3 for correct sealing.
- c Spring loaded ejector optional.
- d Reference point for engaged locking lever.
- e Opening angle of cover 120° min.
- f This area shall be smooth and burr free.
- g Minimum space required for screws used to fasten the socket.

Figure 2 — Socket

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