INTERNATIONAL STANDARD

ISO 11446-1

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Road vehicles — Connectors for the electrical connection of towing and towed vehicles —

Part 1:
13-pole connectors for vehicles with 12 V nominal supply voltage not intended to cross water fords

Véhicules routiers — Connecteurs pour liaisons électriques entre véhicules tracteurs et véhicules tractés —

Partie 1: Connecteurs à 13 contacts pour véhicules à tension d'alimentation nominale de 12 V non destinés à traverser des gués

Reference number
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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 11446-1 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This first edition of ISO 11446-1 cancels and replaces the third edition of ISO 11446:2004, which has been technically revised and divided into two parts, ISO 11446-1 for vehicles *not* intended to cross water fords and ISO 11446-2 for vehicles intended to cross water fords.

ISO 11446 consists of the following parts, under the general title *Road vehicles — Connectors for the electrical connection of towing and towed vehicles*:

— *Part 1: 13-pole connectors for vehicles with 12 V nominal supply voltage not intended to cross water fords*

— *Part 2: 13-pole connectors for vehicles with 12 V nominal supply voltage intended to cross water fords*

Road vehicles — Connectors for the electrical connection of towing and towed vehicles —

Part 1:
13-pole connectors for vehicles with 12 V nominal supply voltage not intended to cross water fords

1 Scope

This part of ISO 11446 specifies the dimensional characteristics of, and contact allocation and tests and requirements for, 13-pole connectors for the electrical connection of towing and towed vehicles with 12 V nominal supply voltage not intended to cross water fords. It specifies a park socket for receiving and storing 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 1103, *Road vehicles — Coupling balls for caravans and light trailers — Dimensions*

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

ISO 4141 (all parts), *Road vehicles — Multi-core connecting cables*

3 Terms and definitions

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

4 Dimensions

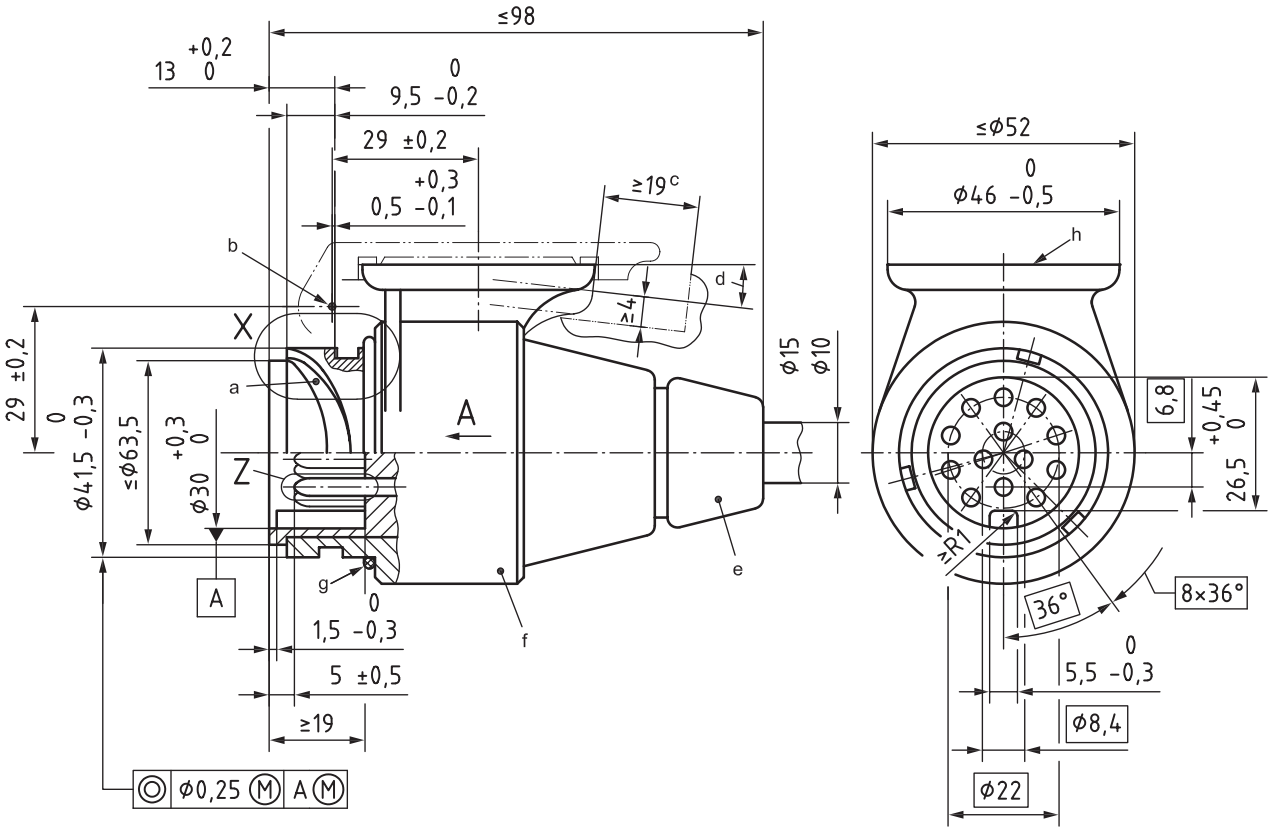
4.1 General

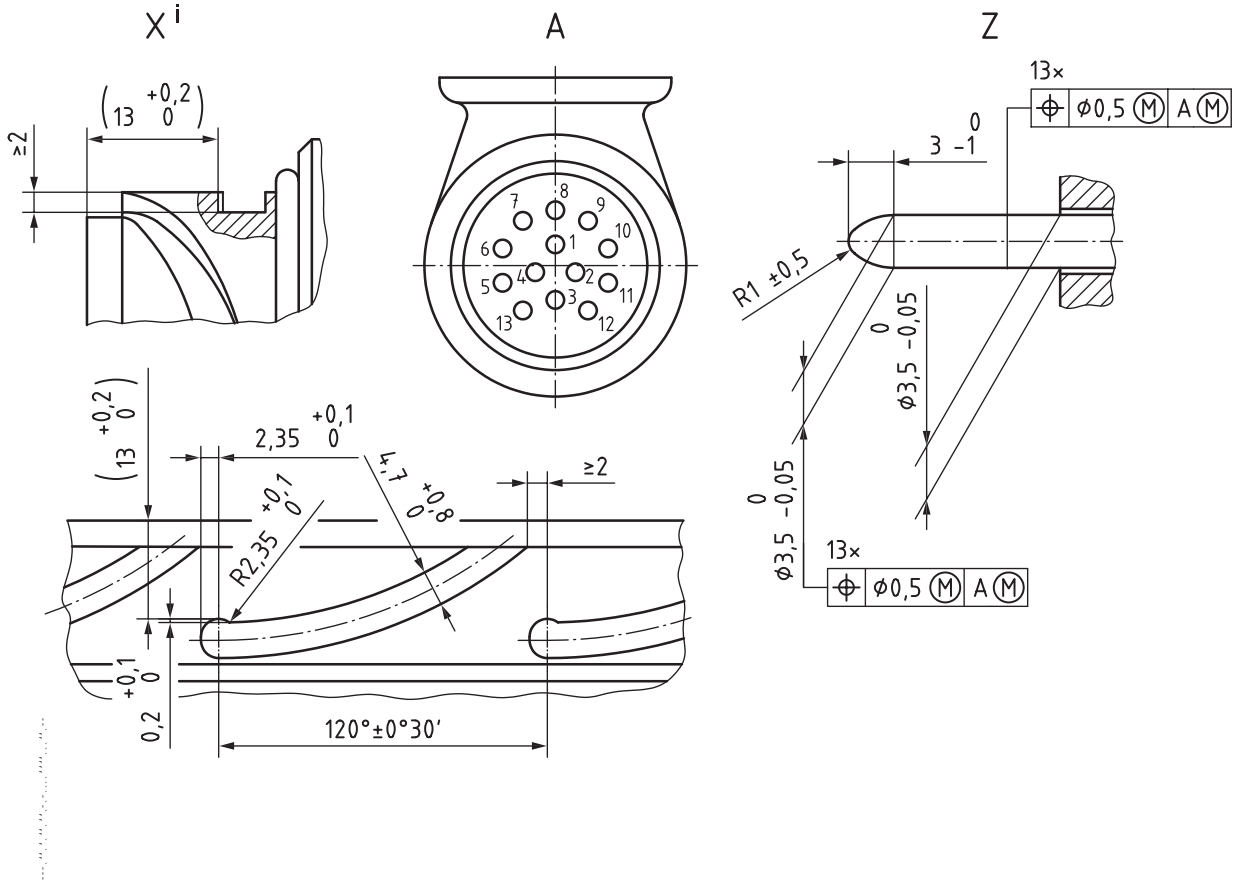
Details not specified are at the manufacturer's discretion. The contacts shall be floating and shall align to the datum position when plug and socket are engaged.

4.2 Plug

The dimensions of the plug shall be in accordance with Figure 1.

Dimensions in millimetres





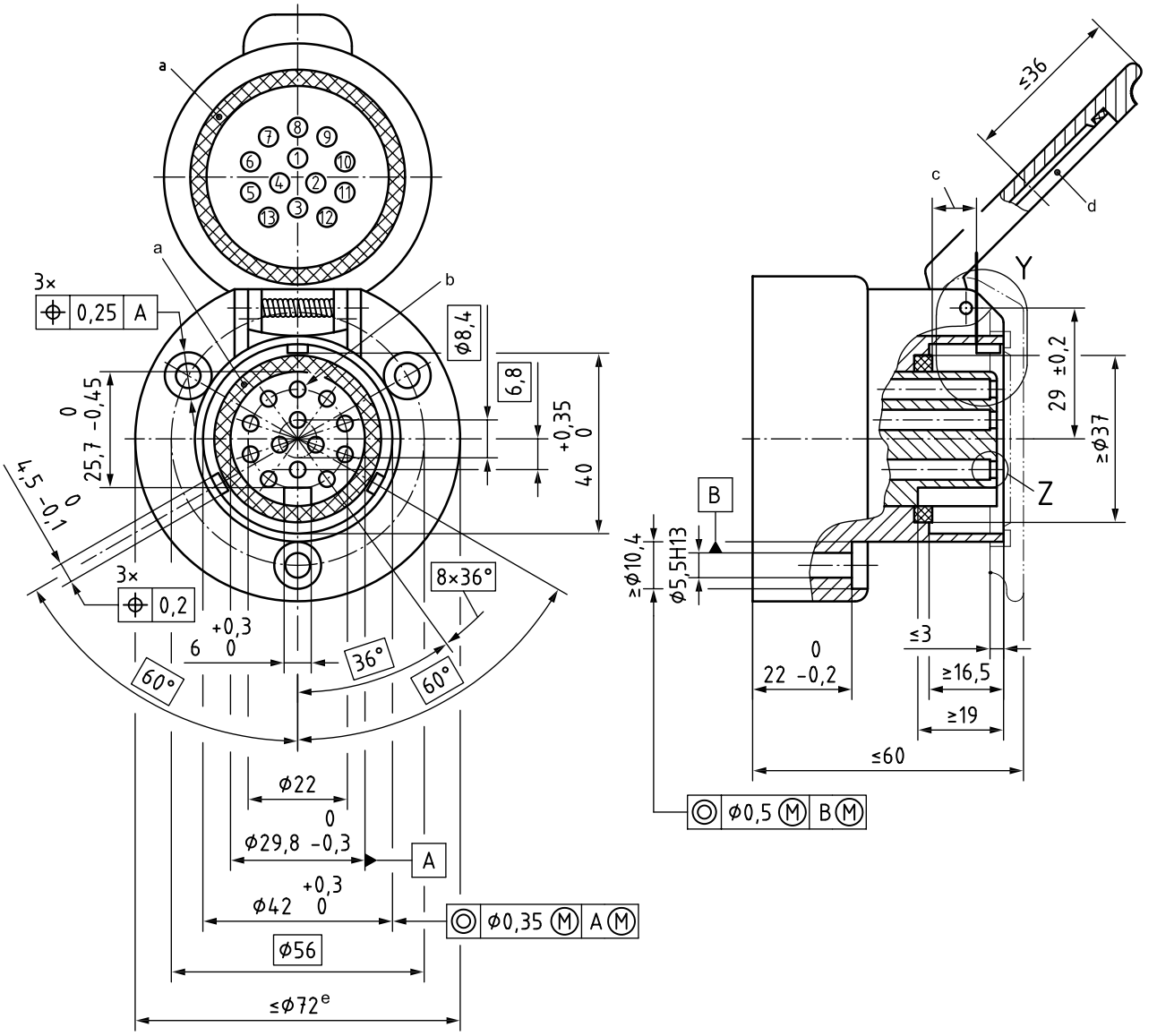
a Twist lock shown in locked position.
b Reference point cover pivot of socket.
c Limiting line specifying the minimum space required for the socket cover to rest on the cover rest.
d Angle as selected by the manufacturer.
e Retention and sealing of connecting cable.
f Coupling ring.
g Sealing ring.
h Cover rest.
i Twist lock profile.

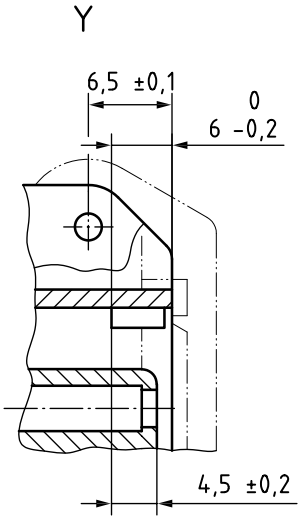
Figure 1 — Plug

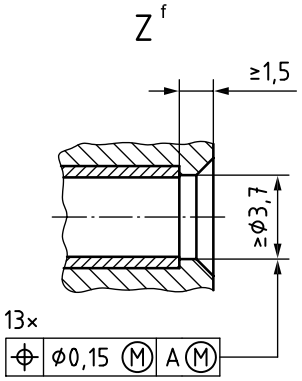
4.3 Socket

The dimensions of the socket shall be in accordance with Figure 2. The cover is shown in the open position. It shall close automatically when the plug is disconnected.

Dimensions in millimetres







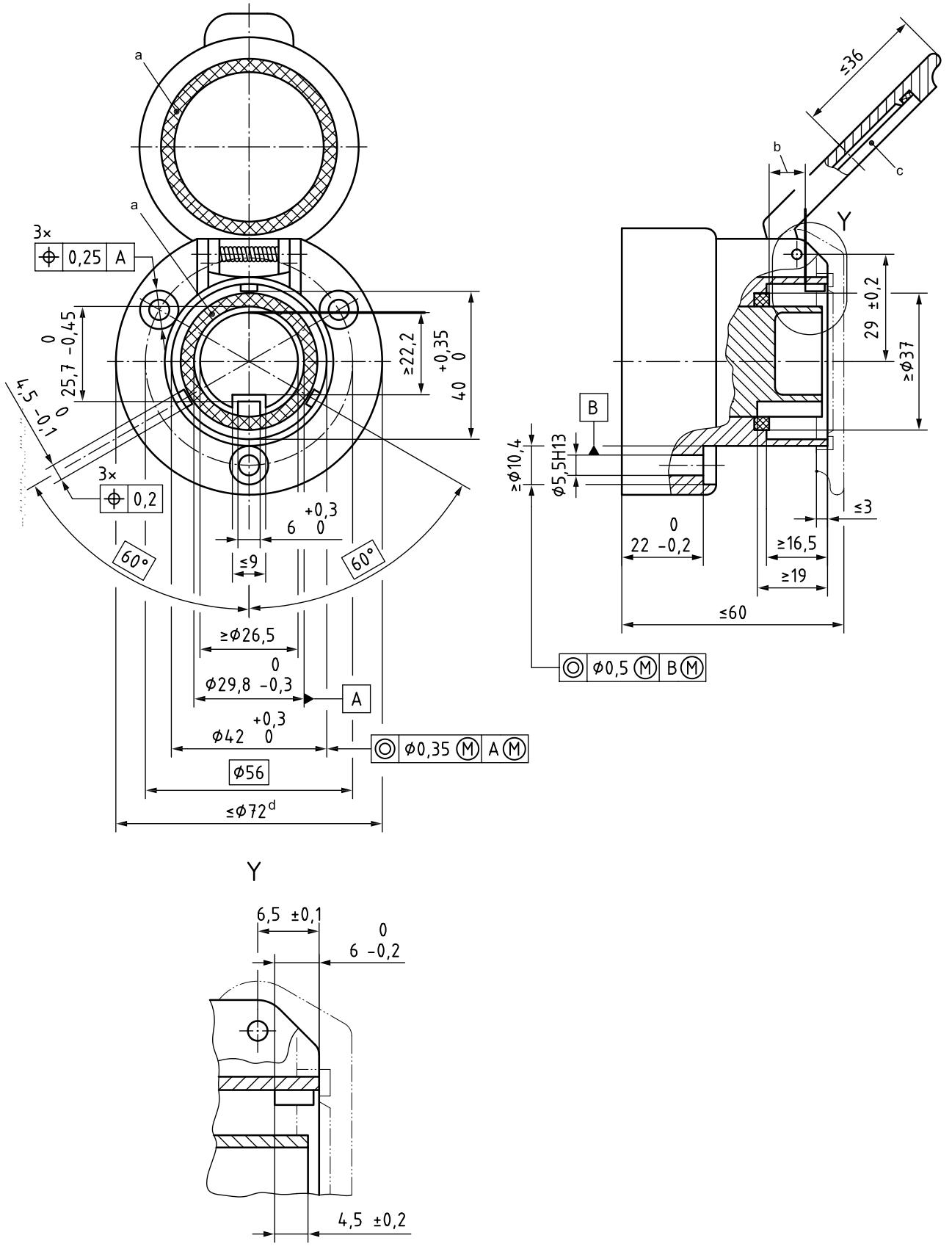
a Sealing as selected by the manufacturer.
b Contact No. 8.
c Position according to the plug dimension and twist lock torque between 1 N·m and 3,5 N·m.
d Opening angle minimum 135°.
e Other housing design is permitted provided the dimensions are within the maximum diameter.
f Contact sleeve.

Figure 2 — Socket

4.4 Park socket

The dimensions of the park socket shall be in accordance with Figure 3. The cover is shown in the open position. It shall close automatically when the plug is disconnected.

Dimensions in millimetres



a Sealing as selected by the manufacturer.

b Position according to the plug dimension and twist lock torque between 1 N·m and 3,5 N·m.

c Opening angle minimum 135°.

d Other housing design is permitted provided the dimensions are within the maximum diameter.

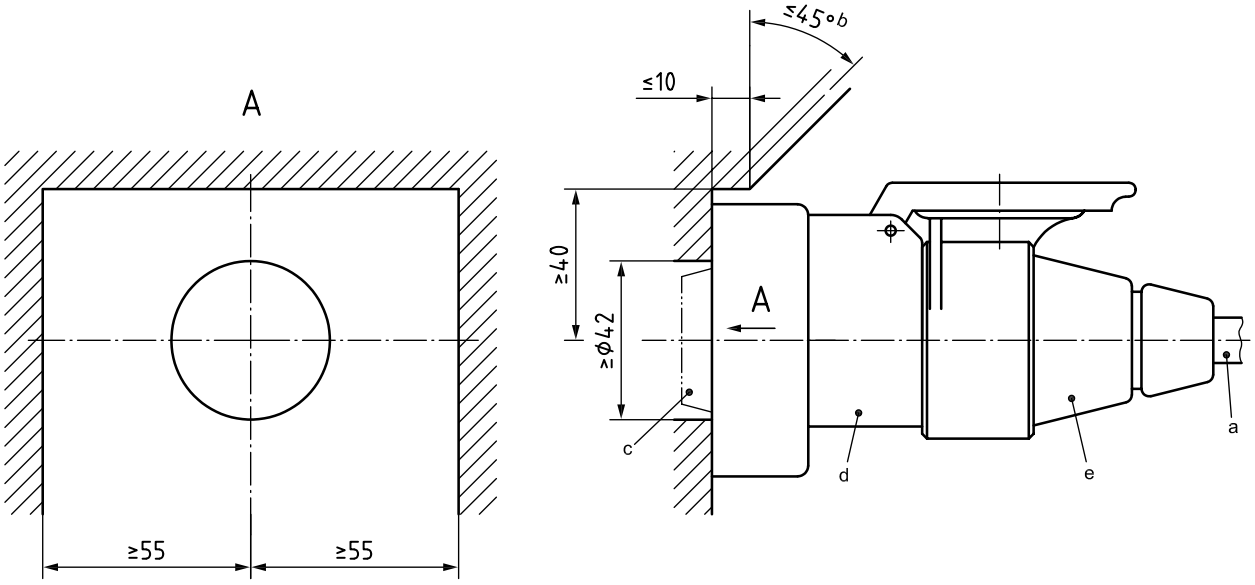
Figure 3 — Park socket

5 Application of the connector

5.1 Connector positions and free space

The positions of, and free space around, the connectors shall comply with ISO 1103 and Figure 4.

Dimensions in millimetres



a Multi-core connecting cable.

b The angle of max. 45° shall extend across the horizontal free space.

c Rear sealing and free space as selected by the manufacturer.

d Socket.

e Plug.

Figure 4 — Free space

5.2 Contact allocation

The contact allocation shall be in accordance with Table 1.

5.3 Contact designation

The contact designation numbers shall be permanently marked on the inside of the socket cover and on the terminal faces of the plug and socket.

The character size shall not be less than 2 mm. However, where limited space is available, a smaller size may be used on the terminal face.

Table 1 — Contact allocation

Contact No.	Function
1	Left-hand direction indicator light
2	Rear fog light
3[a]	Common return for contacts 1 and 2 and 4 to 8
4	Right-hand direction indicator light
5	Right-hand rear position light(s), right-hand marker lights, and rear registration plate illumination device[b]
6	Stop lights
7	Left-hand rear position light(s), left-hand marker lights, and rear registration plate illumination device[b]
8	Reversing light
9	Permanent power supply (+12 V)
10	Power supply controlled by ignition switch (+12 V)
11[a]	Return for contact No. 10
12	Reserved for future allocation
13[a]	Return for contact No. 9

NOTE The allocation of Pin 12 has been changed from “Coding for coupled trailer” to “Reserved for future allocation”.

[a] The three return circuits shall not be connected electrically in the trailer.

[b] The rear registration plate illumination device shall be connected such that no lamp of the device has a common connection with both Contacts 5 and 7.

5.4 Terminals

The terminals at the rear side of the pins and tubes shall be capable of accepting cables with the following nominal cross-sectional areas:

— Contacts 1, 2, 4, 5, 6, 7 and 8: 1,5 mm^2;

— Contacts 3, 9, 10, 11 and 13: 2,5 mm^2.

Terminals accepting cables with different cross-sectional areas shall be as agreed between manufacturer and user.

5.5 Connecting cable

The connecting cable shall meet the requirements of the applicable part of ISO 4141.

6 Tests and requirements

Connectors according to this International Standard shall be tested in accordance with ISO 4091 and shall fulfil its requirements.

ICS 43.040.10

Price based on 8 pages