

**SLOVENSKI STANDARD
SIST EN ISO 8092-2:2001****01-junij-2001**

**Road vehicles - Connections for on-board electrical wiring harnesses - Part 2:
Definitions, test methods and general performance requirements (ISO 8092-2:1996)**Road vehicles - Connections for on-board electrical wiring harnesses - Part 2:
Definitions, test methods and general performance requirements (ISO 8092-2:1996)Straßenfahrzeuge - Steckverbindungen für das elektrische Fahrzeug- Bordnetz - Teil 2:
Begriffe, Prüfungen und allgemeine Anforderungen (ISO 8092-2:1996)Véhicules routiers - Connexions pour faisceaux de câblage électrique embarqués -
Partie 2: Définitions, méthodes d'essai et exigences générales (ISO 8092-2:1996)

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 8092-2

August 1998

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English version

Road vehicles - Connections for on-board electrical wiring harnesses - Part 2: Definitions, test methods and general performance requirements (ISO 8092-2:1996)

Véhicules routiers - Connexions pour faisceaux de câblage électrique embarqués - Partie 2: Définitions, méthodes d'essai et exigences générales (ISO 8092-2:1996)

Straßenfahrzeuge - Steckverbindungen für das elektrische Fahrzeug-Bordnetz - Teil 2: Begriffe, Prüfungen und allgemeine Anforderungen (ISO 8092-2:1996)

This European Standard was approved by CEN on 26 July 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

The text of the International Standard from Technical Committee ISO/TC 22 "Road vehicles" of the International Organization for Standardization (ISO) has been taken over as an European Standard by CEN/CS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard supersedes EN 28092-2:1991.

Endorsement notice

The text of the International Standard ISO 8092-2:1996 has been approved by CEN as a European Standard without any modification.

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INTERNATIONAL STANDARD

ISO
8092-2

Second edition
1996-02-01

Road vehicles — Connections for on-board electrical wiring harnesses —

Part 2:

Definitions, test methods and general
performance requirements

[SIST EN ISO 8092-2:2001](https://standards.iteh.ai/catalog/standards/sist/527f8c99-dbd2-41df-8367-9688c933025/sist-en-iso-8092-2-2001)

<https://standards.iteh.ai/catalog/standards/sist/527f8c99-dbd2-41df-8367-9688c933025/sist-en-iso-8092-2-2001>
Véhicules routiers — Connexions pour faisceaux de câblage électrique
embarqués —

Partie 2: Définitions, méthodes d'essai et exigences générales



Reference number
ISO 8092-2:1996(E)

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.

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.

International Standard ISO 8092-2 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This second edition cancels and replaces the first edition (ISO 8092-2:1988), of which it constitutes a technical revision.

ISO 8092 consists of the following parts, under the general title *Road vehicles — Connections for on-board electrical wiring harnesses*:

- *Part 1: Tabs for single-pole connections — Dimensions and specific requirements*
- *Part 2: Definitions, test methods and general performance requirements*
- *Part 3: Tabs for multi-pole connections — Dimensions and specific requirements*
- *Part 4: Pins for single- and multi-pole connections — Dimensions and specific requirements*

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Road vehicles — Connections for on-board electrical wiring harnesses —

Part 2:

Definitions, test methods and general performance requirements

1 Scope

This part of ISO 8092 gives definitions, and specifies test methods and general performance requirements for single-pole and multi-pole connections for on-board electrical wiring harnesses of road vehicles. It applies to connectors designed to be disconnected after mounting in the vehicle for the purposes of repair and/or maintenance only. ISO 8092 does not cover one-part connections, i.e. where one part of the connection has direct contact to the pattern of the printed circuit board. The requirements are not intended for connections internal to electronic devices.

ISO 6722-4:1993, *Road vehicles — Unscreened low-tension cables — Part 4: Conductor sizes and dimensions for thin-wall insulated cables.*

ISO 9227:1990, *Corrosion tests in artificial atmospheres — Salt spray tests.*

IEC 50 (581):1978, *International Electrotechnical Vocabulary — Chapter 581: Electromechanical components for electronic equipment.*

IEC 529:1989, *Degrees of protection by enclosures (IP code).*

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8092. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8092 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6722-3:1993, *Road vehicles — Unscreened low-tension cables — Part 3: Conductor sizes and dimensions for thick-wall insulated cables.*

3 Definitions

For the purposes of all parts of ISO 8092, the definitions in IEC 50, chapter 581, and the following definitions apply.

3.1 male contact: Electrical contact which can be pushed into a female contact forming an electric connection. (See figure 1.)

EXAMPLES

tab

pin

blade

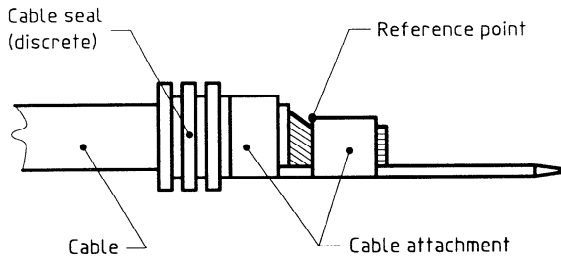


Figure 1 — Male contact

3.2 female contact: Electrical contact which receives the male contact forming an electric connection. (See figure 2.)

EXAMPLES

receptacle

sleeve

socket

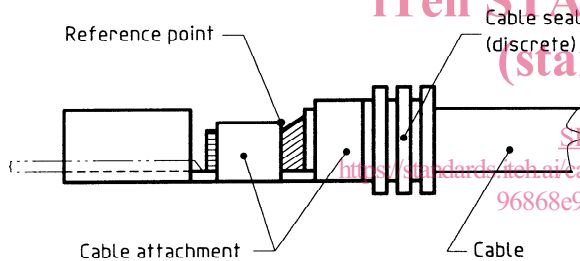


Figure 2 — Female contact

3.3 positive locking female contact: Female contact with automatic positive locking and manual unlocking device engaging a hole or dimple in the male contact.

3.4 detent: Raised portion of the female contact which engages a hole or dimple in the male contact thus providing a latch for the mating parts.

3.5 reference point: Specially identified point used when making electric test measurements. (See figures 1, 2, 6 and 7.)

3.6 connection: Two mated connectors or contacts. (See figure 3 for examples.)

3.7 multi-pole connection: Two mated connectors with more than one contact pair. (See figure 4.)

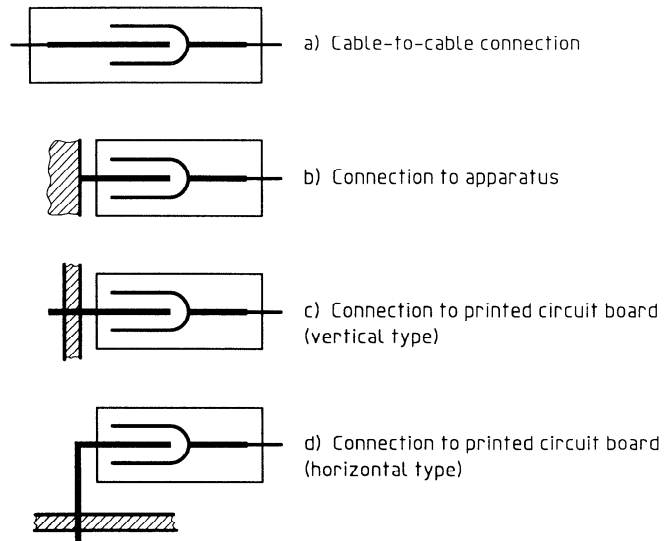


Figure 3 — Typical examples of connections

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4 Test procedures and performance requirements

4.1 General

4.1.1 Test methods, general specifications

All test procedures shall be carried out at an ambient temperature of $(23 \pm 5) ^\circ\text{C}$ and a relative humidity between 45 % and 75 %, unless otherwise stated.

Each test sequence (see table 1) shall be started with unused test samples manufactured to conform to the dimensions specified in the applicable part of ISO 8092. Female contacts which have a locking device shall be tested with male contacts with hole or dimple to permit locking.

Contacts (where applicable) shall be fixed to the cable with a crimping tool used in accordance with the manufacturer's recommendations.

Cables shall be in accordance with ISO 6722-3 or ISO 6722-4, and the cable(s) used shall be noted in the test report.

Care shall be taken that test samples do not influence each other, for example in the heat chamber.

NOTE 1 The total number of samples is not specified.

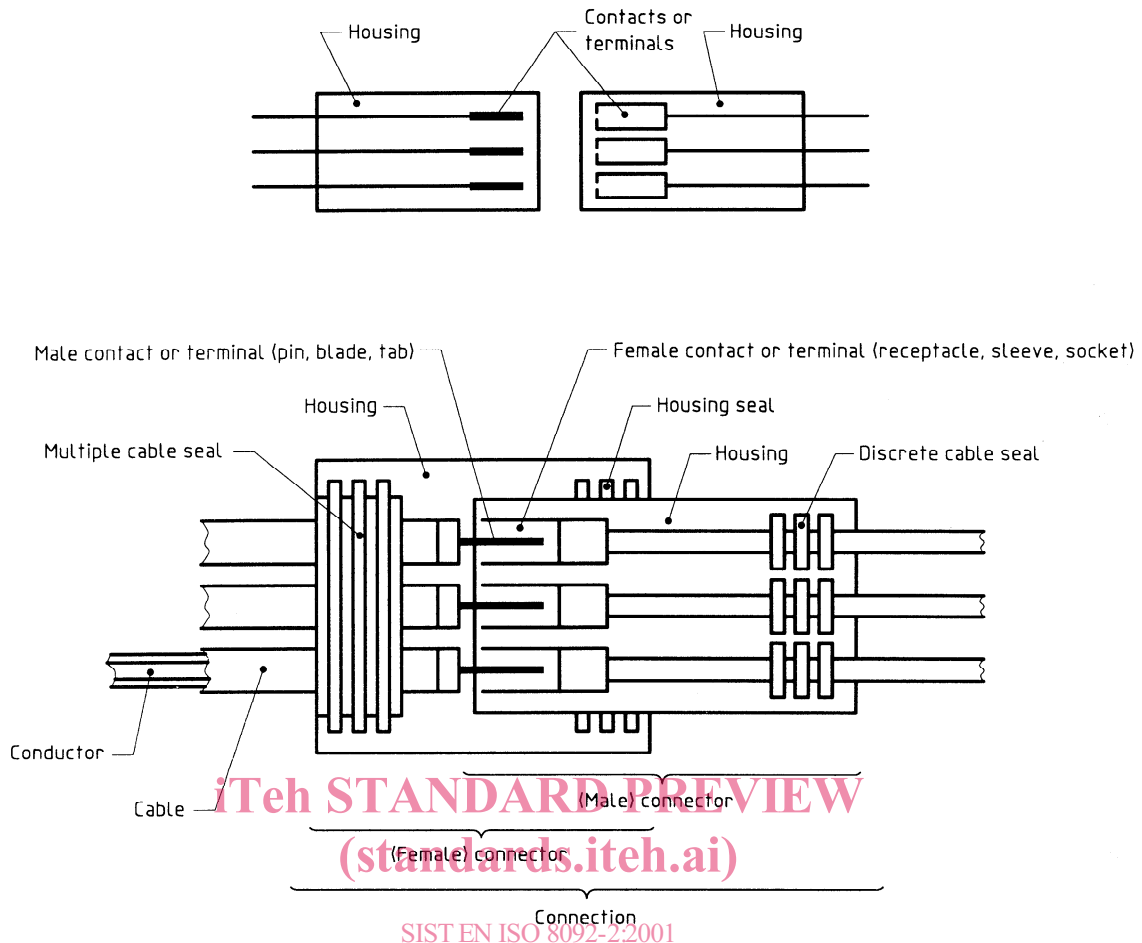


Figure 4 — Multi-pole connectors/connections

4.1.2 General performance requirements

Connectors and/or contacts that allow connections for multiple positions shall meet the requirements in all intended positions.

4.1.3 Test sequences

For each test sample group in table 1, a test sequence is indicated by Xs from top to bottom.

For unsealed connectors, apply tests as in the test sample groups A, B, C, D, E, F, H, I.

NOTE 2 Test sample group G is for sealed connectors and splash-proof connectors only.

For sealed connectors and splash-proof connectors, apply tests as in the test sample groups A, B, C, D, E, G, H, I.

NOTE 3 Test sample group F is for unsealed connectors only.

Each test sample group shall contain at least

20 test samples in the case of single-pole connectors;

10 test samples in the case of 2-pole connectors;

7 test samples in the case of 3-pole connectors;

5 test samples in the case of 4-pole connectors.

A minimum of 20 contacts of each type shall be tested in the case of connectors with mixed types of contacts.

All test samples shall be used for all tests in a test sample group.

Each connector shall have the full complement of contacts fitted, unless otherwise specified in the test method.

Measurements shall be taken on a minimum of four contacts per connector unless otherwise specified in the test methods. For 1-, 2-, and 3-pole connectors, all contacts shall be measured.

Table 1 — Test sequences and performance requirements

| Test | | Test sample group | | | | | | | | | Performance requirements subclause |
|--|-----------|-------------------|---|---|---|---|---|---|---|---|------------------------------------|
| Title | Subclause | A | B | C | D | E | F | G | H | I | |
| Visual examination | 4.2.1 | x | x | x | x | x | x | x | x | x | 4.2.2 |
| Tensile strength of cable attachment | 4.4.1 | | | | | | | | | x | 4.4.2 |
| Contact insertion | 4.6.1 | x | | | | | | | | | 4.6.2 |
| Contact retention | 4.7.1 | x | | | | | | | | | 4.7.2 |
| First insertion of connector | 4.3.1 | | x | | | | | | | | 4.3.2 |
| Connection resistance at millivolt level and specified current | 4.8.1 | | x | x | x | x | x | | | | 4.8.2 |
| First disconnection to 10th connection of connector | 4.3.1 | | x | | | | | | | | 4.3.2 |
| Current cycling | 4.17.1 | | | x | | | | | | | 4.17.2 |
| Insulation resistance | 4.12.1 | | | | x | | | x | | | 4.12.2 |
| Dielectric strength | 4.13.1 | | | | x | | | x | | | 4.13.2 |
| Temperature/humidity | 4.10.1 | | | | x | | | | | | 4.10.2 |
| Vibration | 4.11.1 | | | | | x | | | | | 4.11.2 |
| Ageing | 4.18.1 | | | | | | | x | | | 4.18.2 |
| Watertightness | 4.9.1 | | | | | | | x | | | 4.9.2 |
| Temperature rise | 4.14.1 | | | | | | | | x | | 4.14.2 |
| Polarizing | 4.15.1 | | | | | | | | x | | 4.15.2 |
| Connection resistance at millivolt level and specified current | 4.8.1 | | x | x | | x | | | | | 4.8.2 |
| Locking device strength | 4.5.1 | | x | | | | | | | | 4.5.2 |
| Insulation resistance | 4.12.1 | | | | x | | | x | | | 4.12.2 |
| Dielectric strength | 4.13.1 | | | | x | | x | x | | | 4.13.2 |
| Salt spray | 4.16.1 | | | | | | x | | | | 4.16.2 |
| Connection resistance at millivolt level and specified current | 4.8.1 | | | | x | | x | | | | 4.8.2 |
| Visual examination | 4.2.1 | x | x | x | x | x | x | x | x | x | 4.2.2 |

NOTE — The arrows between the Xs indicate that the subsequent test shall be performed without interruption.

4.2 Visual examination

4.2.1 Test method

Carry out the visual examination with the naked eye, at normal strength of vision and normal colour perception, at the most favourable viewing distance, and with suitable illumination.

4.2.2 Performance

Visual examination as detailed in 4.2.1 shall allow identification, appearance, workmanship and finish of the item to be checked against the relevant specification.

If the connector has a cable insulation support, the insulation grip shall not cut through the insulation and shall firmly enclose the cable.

Both insulation and the cable conductor shall be visible between the conductor crimp and the insulation support on the male and female contacts, as shown in figure 5, except for insulation displacement connections.

Conductors shall protrude from the conductor attachment but shall not interfere with the mating part. All wire strands shall be enclosed by the conductor attachment. There shall be no damaged wire strand(s).

During visual examination, after tests as in the test sample groups A to I, special care shall be taken to ensure that as a minimum requirement no cracking, discoloration, deformation, and no water ingress (for test sample group G only), is in evidence.

4.3 Connection and disconnection

4.3.1 Test method

Perform connection and disconnection of connectors as intended or as specified in the particular product specification.

Use a rate for connection and disconnection of a constant speed between 50 mm/min and 150 mm/min. The applied speed shall be noted in the test report.

Subject the connectors to test 4.3.1.1 or 4.3.1.2 as appropriate.

4.3.1.1 Female contacts (without positive locking)

Subject the connector to 10 connections and disconnections. Measure the force necessary at

- first connection;
- first disconnection;
- 10th disconnection.

4.3.1.2 Positive locking female contacts

Perform 11 cycles of connection and disconnection as follows.

Perform the first 10 cycles operating the locking device at each cycle in accordance with the manufacturer's instruction and normal use.

Measure the force necessary at

- first connection;
- first disconnection;
- 10th disconnection.

Perform the 11th cycle with the locking device engaged for the locking device strength test as in 4.5.1.2.

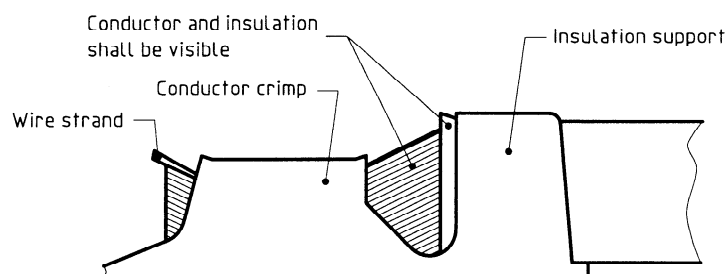


Figure 5 — Conductor and insulation crimp