
Road vehicles — Fuse-links —

Part 3:

Fuse-links with tabs (blade type)

Véhicules routiers — Liaisons fusibles —

Partie 3: Liaisons fusibles à languette (type plat)

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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 3.

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 part of ISO 8820 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8820-3 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 editions of ISO 8820-3:1994 and ISO 8820-2:1994, which have been technically revised.

ISO 8820 consists of the following parts, under the general title *Road vehicles — Fuse-links*:

- *Part 1: Definitions and general test requirements*
- *Part 3: Fuse-links with tabs (blade type)*
- *Part 4: Fuse-links with female contacts (type A) and bolt-in contacts (type B) and their test fixtures*

The following parts are under preparation:

- *Part 2: User's guide*
- *Part 5: Strip fuse-links (type SF 30 and SF 51) and test fixtures*

Annex A of this part of ISO 8820 is for information only.

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Road vehicles — Fuse-links —

Part 3: Fuse-links with tabs (blade type)

1 Scope

This part of ISO 8820 specifies low-voltage fuse-links with tabs (blade type) for fuses in road vehicles. It establishes, for this fuse-link type, the rated current, test procedures, performance requirements and dimensions.

This part of ISO 8820 is applicable to those fuse-links with a rated voltage of 32 V, a current rating of ≤ 80 A and a breaking capacity of 1 000 A, intended for use in road vehicles at a nominal voltage of 12 V or 24 V.

This part of ISO 8820 is intended to be used in conjunction with ISO 8820-1, and with ISO 8820-2. The numbering of its clauses corresponds to that of ISO 8820-1, whose requirements are applicable, except where modified by requirements particular to this part of ISO 8820.

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2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 8820. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8820 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 8820-1:2002, *Road vehicles — Fuse-links — Part 1: Definitions and general test requirements*

3 Terms and definitions

For the purposes of this part of ISO 8820, the terms and definitions given in ISO 8820-1 apply.

4 Rated current and identification

See ISO 8820-1.

5 Test procedures

5.1 General

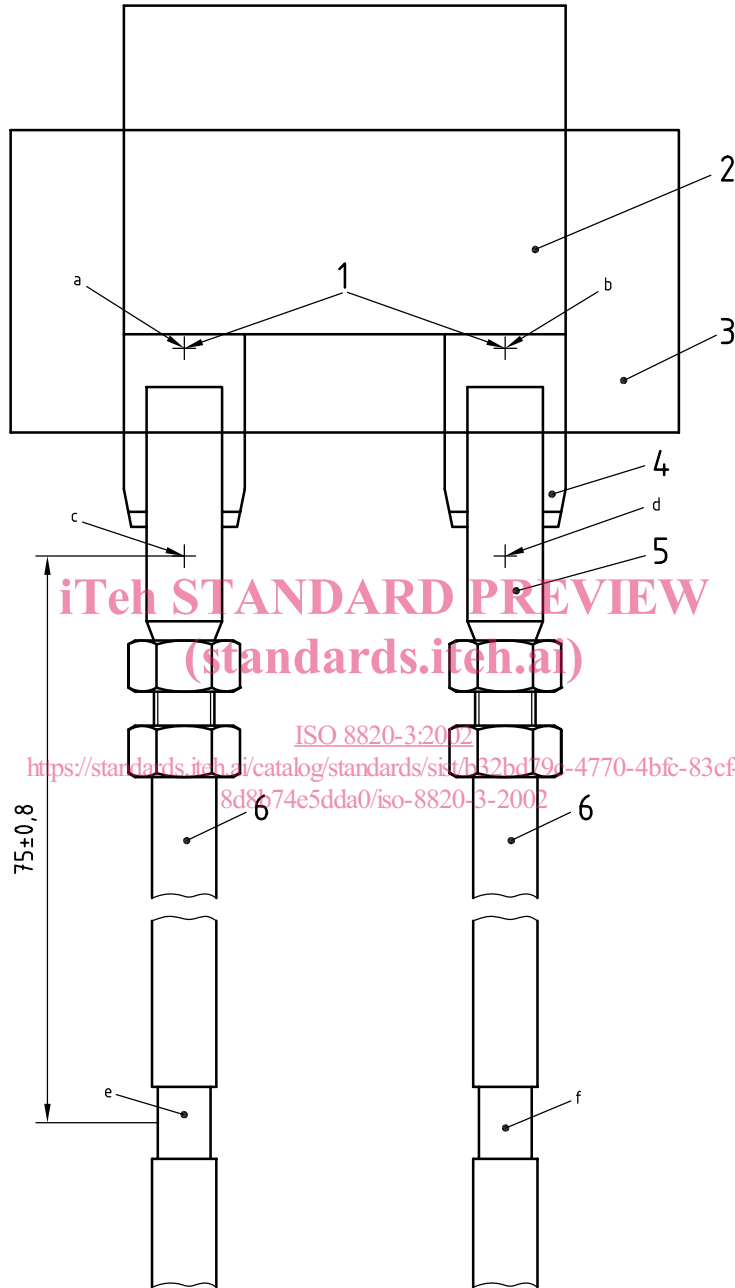
In addition to carrying out the test procedures in accordance with clause 5 of ISO 8820-1:2002, the following criteria shall be observed.

All tests should be performed to simulate the vehicle electrical system.

During the tests, the test voltage shall not exceed the rated voltage of the fuse-link.

The test fixtures for electrical tests shall be designed in accordance with Figure 1 and shall meet the voltage drop requirements specified in 5.2.1 and 5.2.2.

Dimensions in millimetres



Key

- 1 Measuring points for fuse-link voltage drop
- 2 Fuse-link
- 3 Test module
- 4 Fuse blade
- 5 Test clip
- 6 Copper cable size according to Table 1.
- a, b, c, d, e, f Measuring points

Figure 1 — Test schematic

5.2 Voltage drop

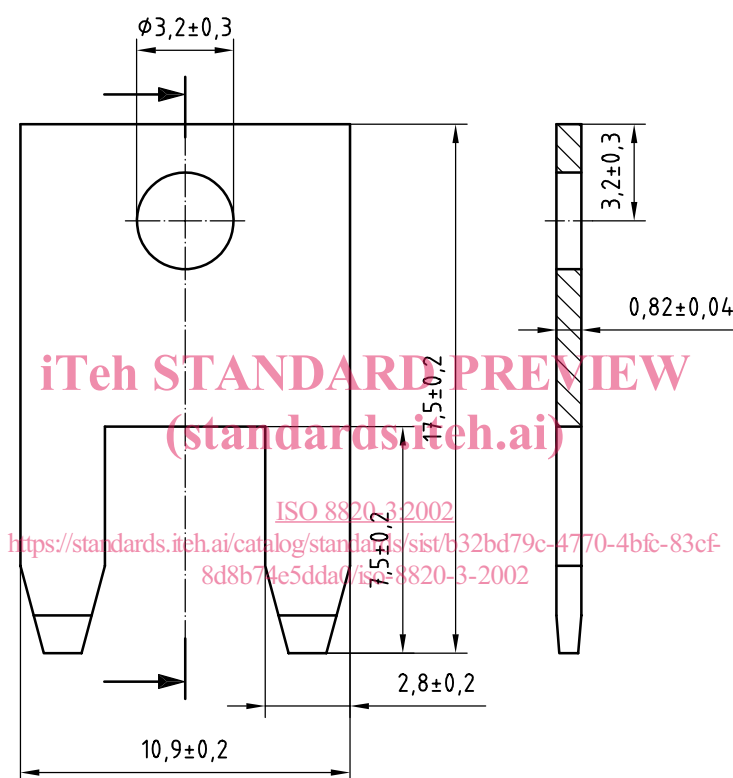
5.2.1 Interface voltage drop

5.2.1.1 General

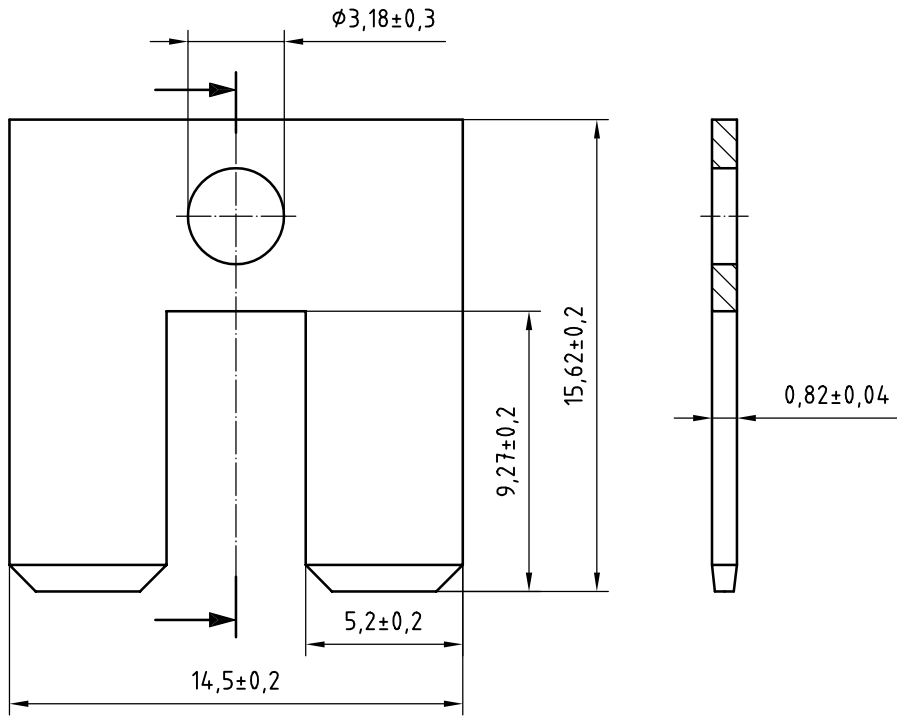
The interface voltage drop measurement shall be made using a solid copper alloy dummy with dimensions in accordance with Figure 2, a), b), or c), as appropriate. Use a current of 10 A for this measurement.

$U_{cd} - U_{ab}$ and U_{ef} refer to the measuring points, a, b, c, d, e and f, in Figure 1.

Dimensions in millimetres

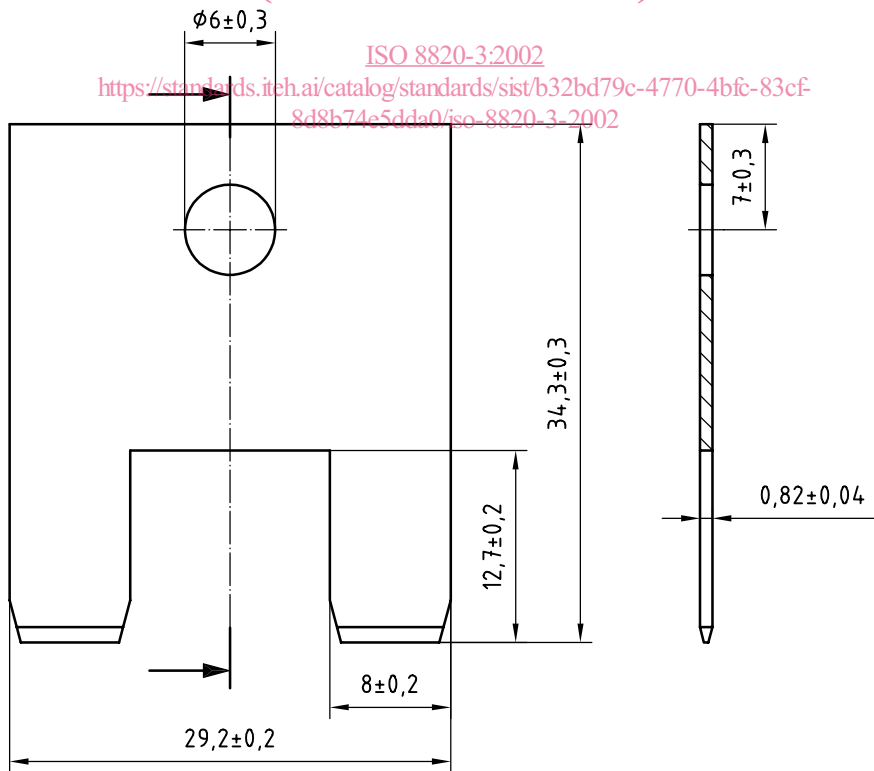


a) Test dummy for miniature fuse-links with tabs



b) Test dummy for medium fuse-links with tabs

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c) Test dummy for high-current fuse-links with tabs

Figure 2 — Test dummies

5.2.1.2 Miniature and medium fuse-links with tabs

The interface voltage drop, $U_{cd} - U_{ab}$, shall not exceed 2 mV/A and the total voltage drop, U_{ef} , shall not exceed 4 mV/A.

5.2.1.3 High-current fuse-links with tabs

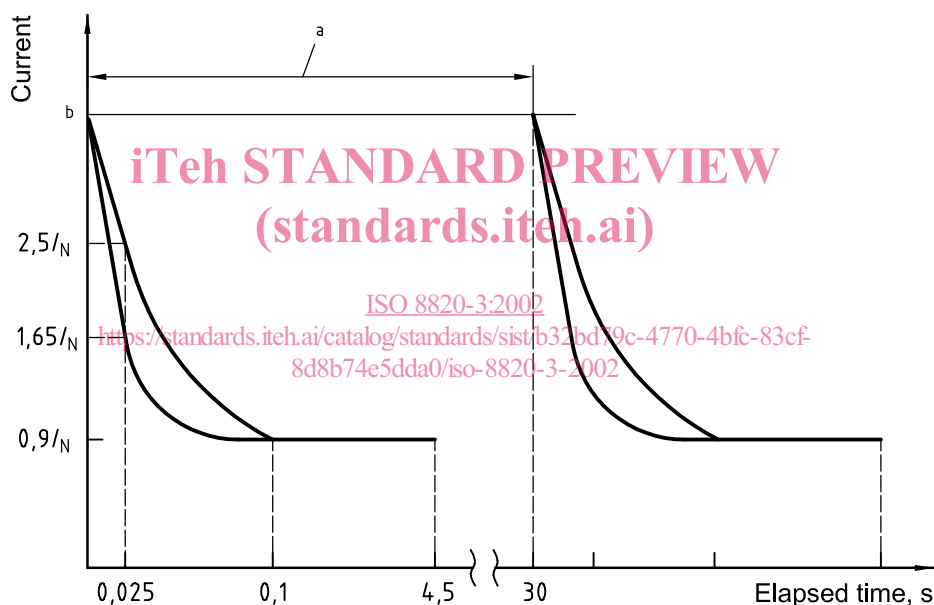
The interface voltage drop, $U_{cd} - U_{ab}$, shall not exceed 1 mV/A and the total voltage drop, U_{ef} , shall not exceed 2 mV/A.

5.2.2 Fuse-link voltage drop

The voltage drop shall be measured at measuring points a and b across the fuse-link tabs as shown in Figure 1.

5.3 Transient current cycling

At an elapsed time of 0,025 s on-time, the current shall fall to a value between $1,65 I_N$ and $2,5 I_N$ of rated current. At no time shall the steady-state current fall below 90 % I_N . See Figure 3.



- a One cycle
 b $(5,6 \dots 6) I_N$ for $I_N > 5A$
 $(4,6 \dots 5) I_N$ for $I_N \leq 5A$

Figure 3 — Transient current cycling

5.4 Vibration

See ISO 8820-1.

5.5 Environmental conditions

5.5.1 Accelerated ageing

See ISO 8820-1.

5.5.2 Fluid compatibility

See ISO 8820-1.

5.6 Operating time rating

See ISO 8820-1.

5.7 Current steps

See ISO 8820-1.

5.8 Breaking capacity

Test cable sizes shall be in accordance with Tables 1 and 2. All tests for a particular fuse-link rating shall be performed using the same cable size.

Test cable sizes are specified to allow comparative fuse-link tests to be carried out. The cable size specified does not necessarily indicate the size of the cable to be used in the vehicle application. For additional information see annex A.

Table 1 — Test cable sizes — Miniature and medium fuse-links with tabs

Fuse-link rating	Conductor cross-sectional area ^a
A	mm ²
1	1,5 to 2,0
2	1,5 to 2,0
3	1,5 to 2,0
4	1,5 to 2,0
5	1,5 to 2,0
7,5	1,5 to 2,0
10	1,5 to 2,0
15	4,0 to 5,0
20	4,0 to 5,0
25	4,0 to 5,0
30	4,0 to 5,0
^a Copper material.	

Table 2 — Test cable sizes — High-current fuse-links with tabs

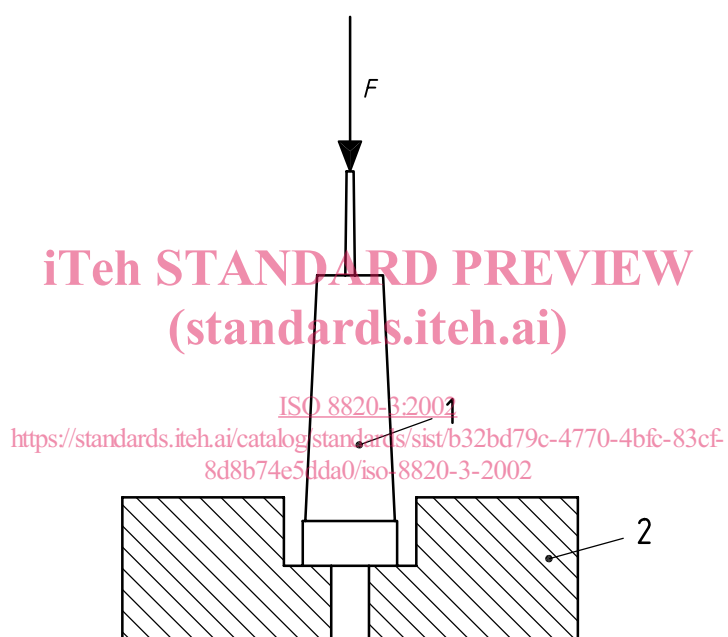
Fuse-link rating	Conductor cross-sectional area ^a
A	mm ²
20	4,0 to 5,0
30	4,0 to 5,0
40	4,0 to 5,0
50	5,0 to 6,0
60	5,0 to 6,0
70	8,0 to 10,0
80	8,0 to 10,0
^a Copper material.	

5.9 Strength of terminal

A force, F , shall be applied to the tabs of the fuse-link in accordance with Table 3 and Figure 4.

Table 3 — Forces

Fuse-link size	Force F N
Miniature	50
Medium	70
High-current	90



Key

- 1 Fuse-link
- 2 Test fixture

Figure 4 — Strength of terminal

6 Performance requirements

6.1 General

See ISO 8820-1.

6.2 Voltage drop

See 5.2 and Table 4.