INTERNATIONAL STANDARD

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Road vehicles — Fuse-links —

Part 5: Fuse-links with axial terminals (Strip fuse-links) Types SF 30 and SF 51 and test fixtures

Véhicules routiers — Liaisons fusibles —

Partie 5: Liaisons fusibles avec languettes axiales (liaisons fusibles électriques) des types SF 30 et SF 51, et montages d'essai

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

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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).

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary Information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electric and electronic equipment*.

This second edition cancels and replaces the first edition (ISO 8820-5:2007), which has 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 2: User guidelines*

— *Part 3: Fuse-link with tabs (blade type) Type C (medium), Type E (high current) and Type F (miniature)*

— *Part 4: Fuse-links with female contacts (type A) and bolt-in contacts (type B) and their test fixtures*

— *Part 5: Fuse-links with axial terminals (Strip fuse-links) Types SF 30 and SF 51 and test fixtures*

— *Part 6 Single-bolt fuse-links*

— *Part 7: Fuse-links with tabs (Type G) with rated voltage of 450 V*

— *Part 8: Fuse-links with bolt-in contacts (Type H and J) with rated voltage of 450 V*

— *Part 9: Fuse-links with shortened tabs (Type K)*

— *Part 10: Fuse-links with tabs Type L (high current miniature)*

Road vehicles — Fuse-links —

Part 5: Fuse-links with axial terminals (Strip fuse-links) Types SF 30 and SF 51 and test fixtures

1 Scope

This part of ISO 8820 specifies fuse-links with axial terminals (Strip fuse-links) Type SF 30 and SF 51 and test fixtures for fuses in road vehicles. It establishes, for these fuse-link types, the rated current, test procedures, performance requirements, and dimensions.

This part of ISO 8820 is applicable to fuse-links with a rated voltage of 32 V, a current rating of 30 A to 500 A, and a breaking capacity of 2 000 A intended for use in the electrical system of road vehicles with a nominal voltage of 12 V and/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.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4017, *Fasteners — Hexagon head screws — Product grades A and B*

ISO 4032, *Hexagon regular nuts (style 1) — Product grades A and B*

ISO 7089, *Plain washers — Normal series — Product grade A*

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

ISO 8820-2, *Road vehicles — Fuse-links — Part 2: User guidelines*

3 Terms and definitions

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

4 Marking, labelling, and colour coding

The requirements given in Table 1 and ISO 8820-1 shall apply.

Table 1 — Fuse-link colour coding

Fuse-link current rating A	Fuse-link type SF 30	Fuse-link type SF 51
30	orange	
40	green	
50	red	
60	yellow	
70	brown	
80	white	red
100	blue	yellow
125	pink	green
150	grey	orange
175	light brown (tan)	white
200	violet	blue
225		light brown (tan)
250		pink
300		grey
350		dark green
400		violet
450		gold/dark yellow
500		brown

5 Tests and requirements

5.1 General

5.1.1 General test conditions

In addition to carrying out the test procedures in accordance with ISO 8820-1, the following criteria shall apply:

— tests shall be performed following the test sequences in Table 2;

— the test fixtures for electrical tests shall be designed in accordance with Figure 4 to Figure 7. The connection resistance shall be a maximum of 1,0 mΩ for SF 30 fuse-links and a maximum of 0,35 mΩ for SF 51 fuse-links to ensure the proper function of the test fixture;

— terminals shall have a suitable finish which will ensure corrosion protection and shall have satisfactory mechanical and electrical properties.

Fuse-link type SF 30 with a rated current of 150 A...200 A and fuse-link type SF 51 with a rated current of 300 A ... 500 A shall only be used for short circuit protection and have to be tested with a cable, the insulation of which will withstand the test without deterioration.

5.1.2 Test sequence

Table 2 — Test sequence

No	Test		Clause	Sample groups[a]						
				1	2	3	4	5	6	7
1	Dimensions		6	X	X	X				
2	Marking, labelling, and colour coding		4	X	X	X	X	X	X	X
3	Terminal strength		5.8	X	X	X	X	X	X	X
4	Fuse-link voltage drop		5.2	X	X	X				
5	Climatic load		5.4				X			
6	Chemical load		5.4					X		
7	Mechanical load		5.4						X	
8	Transient current cycling		5.3							X
9	Fuse-link voltage drop		5.2				X	X	X	X
10	Current step		5.6			X				
11	Breaking capacity		5.7	X						
12	Operating time rating	0,75 I_R, 1,0 I_R, or 1,1 I_R	5.5		X		X	X	X	X
		1,35 I_R or 1,5 I_R			Y[b]		Y	Y	Y	Y
		2,0 I_R			Y		Y	Y	Y	Y
		3,0 I_R or 3,5 I_R			Y		Y	Y	Y	Y
		5,0 I_R or 6,0 I_R			Y		Y	Y	Y	Y
13	Terminal strength (removal)		5.8	X	X	X	X	X	X	X

[a] Each sample group shall contain a minimum of eight fuse links.

[b] For these operating time tests noted with a Y, the sample groups 2, 4, 5, 6, and 7 each current rating shall be divided equally. These fuses are intended to be subjected to a single operating time test only.

5.1.3 Test cable sizes

Test cable sizes shall be as given in Table 3. 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 cable to be used in the vehicle application.