

**Produkte** Products

Prüfbericht - Nr.: Test Report No.:	15032525 001		Seite 1 von 1 Page 1 of 1	
Auftraggeber: Client:		Wenzhou Jinlida Electrical Co., Ltd. Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604, P.R. China		
Gegenstand der Prüfung: Test item:	Low-voltage Fuse			
Bezeichnung: Identification:	NH00	Serien-Nr.: Serial No.:	Engineering sample	
Wareneingangs-Nr.: Receipt No.:	153123295	Eingangsdatum: Date of receipt:	22.06.2009	
Prüfort: Testing location:	Hunan Electrical Apparatus 4 Xinzhong Road, Changsha,			
Prüfgrundlage: Test specification:	IEC 60269-1:2006 IEC 60269-2:2006			
Prüfergebnis: Test Result:	Der Prüfgegenstand entspric The test item passed the test		Prüfgrundlage(n).	
Prüflaboratorium: Testing Laboratory:	TÜV Rheinland (Shanghai) C	o., Ltd.		
geprüft/ tested by:	kontrol	iert/ reviewed by:		
Datum Name/Stellu Date Name/Positio	ng Unterschrift Dat		ung Unterschrift	
Sonstiges/ Other Aspects:				
This report consists of two pa Part I for IEC 60269-1:2006. Part II for IEC 60269-2:2006.	rts:			
F(ail) = entsp N/A = nicht	oricht Prüfgrundlage oricht nicht Prüfgrundlage i anwendbar getestet	Abbreviations: P(ass) F(ail) N/A N/T	= passed = falled = not applicable = not tested	
Dieser Prüfbericht bezieht	sich nur auf das o.g. Prüfmuster igt werden. Dieser Bericht berec	und darf ohne Geneh	migung der Prüfstelle nicht	

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#### Test Report issued under the responsibility of:



#### TEST REPORT IEC 60269-1

#### Low-voltage fuses

Part 1: General requirements

Testing Laboratory ...... TÜV Rheinland (Shanghai) Co., Ltd.

Address ...... 10-15/F, Huatsing Building, No.88, Lane 777, Guangzhong Road

West, 200072 Shanghai Zhabei District, P.R. China

Applicant's name...... Wenzhou Jinlida Electrical Co., Ltd.

Address ...... Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604

P.R. China

Test specification:

Standard .....: IEC 60269-1:2006 (Fourth edition)

Test procedure ...... CB

Non-standard test method ...... N/A

Test Report Form No. ..... IEC60269\_1A

Test Report Form(s) Originator ......: EZU

Master TRF ...... Dated 2009-04

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Test item description ...... Fuses (fuse-link and fuse-base)

Trade Mark ...... JINLIDA

Manufacturer ...... Same as applicant

Model/Type reference .....: NH00

Ratings ...... AC 500V; 16A,20A,25A,32A,40A,50A,63A,80A,100A,125A,160A;

120kA; Size 00



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Test	ing procedure and testing location:			
	Testing Laboratory:	TÜV Rhei	nland (Shanghai) Co., Ltd.	
Test	ng location/ address	Hunan Electrical Apparatus Testing Institute		
		4 Xinzhong Road, Changsha, Hunan, P.R. China		
	Associated CB Test Laboratory:			
Testi	ng location/ address:			
	Tested by (name + signature):			
	Approved by (+ signature):			
ш	Testing procedure: TMP			
	Tested by (name + signature):			
	Approved by (+ signature):			
Testi	ng location/ address:			
	Testing procedure: WMT			
	Tested by (name + signature):			
	Witnessed by (+ signature):			
	Approved by (+ signature):			
Toeti	ng location/ address:			
1 030	ng location/ address			
	Testing procedure: SMT	,		
	Tested by (name + signature):			
	Approved by (+ signature):			
	Supervised by (+ signature):			
Testi	ng location/ address:			
	·			
	Testing procedure: RMT			
	Tested by (name + signature):			
	Approved by (+ signature)			
	Supervised by (+ signature):			
Testi	ng location/ address:			

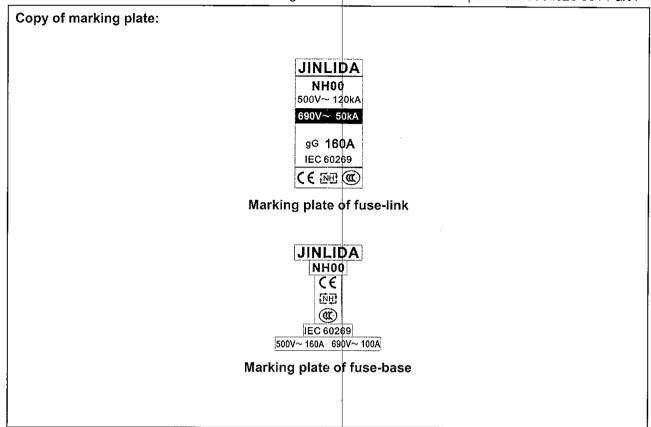


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Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
For homogeneous series of NH00, type tests are listed in table 11, 12, 13 and 14 in EN 60269-1:2006	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
Comment of the Commen	
Summary of compliance with National Differences	
N/A	



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Test item particulars	
Fuse-holder ::	Yes/No
Fuse-base:	Yes/No
Fuse-carrier:	Yes/No
Fuse-link:	Yes/No
Fuse for use by authorized persons:	Yes/No
Fuse for use by unskilled persons:	Yes/No
Possible test case verdicts:	
- test case does not apply to the test object:	N/A
- test object does meet the requirement:	P (Pass)
- test object does not meet the requirement:	F (Fail)
Testing:	
Date of receipt of test item:	06.2009
Date (s) of performance of tests:	06.2009-07.2009
General remarks:  The test results presented in this report relate only to the This report shall not be reproduced, except in full, withou "(see Enclosure #)" refers to additional information app "(see appended table)" refers to a table appended to the Throughout this report a comma (point) is used as the General product information:  N/A	It the written approval of the Issuing testing laboratory. ended to the report. report.



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
5	CHARACTERISTICS OF FUSES			
5.2	Rated voltage (V) as specified:	AC 500V	Р	
5.3.1	Rated current (A) of the fuse-link in accordance with specified values:	16A,20A,25A,32A,40A,50A,63 A,80A,100A,125A,160A	Р	
5.3.2	Rated current (A) of the fuse-holder:	160A	P	
5.4	Rated frequency (Hz):	50Hz	Р	
5.5	Max. rated power dissipation (VA) of fuse-link:	<=12W	Р	
	Rated acceptable power dissipation (VA) of fuse-holder:	12W	Р	
5.6	Limits of time-current characteristics based on reference ambient air temperature Ta of +20°C		Р	
5.6.1	Time-current zones deviated from standardized, or available in manufacturers documentation (with tolerances):		Р	
5.6.2	Conventional times and currents see Table 2 :		Р	
5.6.3	Gates:		Р	
5.7	Breaking range and breaking capacity	120kA	Р	
5.7.1	Breaking range and utilization category:	gG	Р	
5.7.2	Rated breaking capacity (A) of fuse-link corresponds to the rated voltage (V), and is equal or higher than given minimum (A) in subsequent part of this standard	120kA	Р	
5.8	Cut-off current and I <sup>2</sup> t characteristics are referred to the values of voltage, frequency and power factor		Р	
5.8.1	Cut-off current characteristics, if required, given by the manufacturer according to Figure 4:		Р	
5.8.2	Pre-arcing l <sup>2</sup> t characteristics for pre-arcing times of less than 0,1 s down to a time corresponding to the rated breaking capacity given by the manufacturer:		Р	
	The operating I <sup>2</sup> t characteristics with specified voltages as parameter for pre-arcing times less than 0,1 s given by the manufacturer:		P	



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
6	MARKINGS		
	Markings are durable and easily legible		Р
6.1	Fuse-holders marked by:	_l	Р
	- name of manufacturer or trade mark which enable identification of fuse-holder:	JINLIDA	Р
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.1:	NH00	Р
	- rated voltage (V):	500V	Р
	- rated current (A):	160A	Р
	- kind of current and rated frequency (Hz):	AC and 50Hz	P
6.2	Fuse-link(s) except small fuse-link(s) marked by:		Р
	- name of manufacturer or trade mark which enable identification of fuse-links:	JINLIDA	Р
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.2:	NH00	Р
	- rated voltage (V):	500V	Р
	- rated current (A):	16~160A	Р
	- breaking range and utilization category (if applicable) (5.7.1):	gG	Р
	- kind of current:	AC	Р
	- rated frequency (Hz), if applicable (5.4)	50Hz	Р
	Small fuse-links marked by:		N/A
	- trademark:		N/A
	- list reference of manufacturer:		N/A
	- rated voltage (V):		N/A
	- rated current (A):		N/A
6.3	Symbols for the kind of current and frequency in accordance with IEC 60417		Р



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
## 1900 1   1   1   1   1   1   1   1   1   1	STANDARD CONDITIONS FOR CONSTRU	JCTION		
7.1	Mechanical design			P
7.1.1	Replacement of fuse-links easily and safely			Р
7.1.2	Connections, including terminals			Р
	Contact force is not transmitted through insumaterial other than ceramic or other material characteristics not less suitable, unless			Р
	there is sufficient resilience in the metallic parameters compensate any possible shrinkage or other deformation of the insulating material			Р
	Terminals cannot turn or be displaced when connecting screws are tightened	the		Р
	Terminals shall be such, that the conductors be displaced	cannot		Р
	Parts gripping the conductors are of metal			Р
	Gripping parts cannot unduly damage condu	ctors		Р
	Terminals readily accessible under the intenconditions of installation	ded		Р
7.1.3	Fuse-contacts			Р
	Fuse-contacts are such that necessary contains maintained under the conditions of service operation			Р
	Contact is such that electromagnetic forces occurring during operation under conditions accordance with 7.5 not impair electrical corbetween			Р
	a) fuse-base and fuse-carrier			N/A
	b) fuse-carrier and fuse-link			N/A
	c) fuse-link and fuse-base			Р
	Fuse contacts are so constructed and of suc material that, when fuse is properly installed service conditions are normal, adequate con maintained	and		Р
	a) after repeated engagement and disengag	ement		Р
•	b) after being left undisturbed in service for l period	ong		Р
7.1.4	Construction of a gauge-piece			Р
	Gauge-piece is so designed that it withstand stresses occurring during use	s normal		P



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IEC 60269-1					
Clause	Requirement + Test		Result - Remark	Verdict	
7.1.5	Mechanical strength of fuse-link			P	
	Fuse-link have adequate mechanical strengt contacts are securely fixed	h and its		Р	
7.2	Insulating properties and suitability for isolation	on		Р	
	Fuses are such that they do not lose insulation properties at voltages to which they are subjection normal service			Р	
	Fuse passes the tests for verification of insul properties and suitability for isolation in account with 8.2			P	
7.3	Temperature rise, power dissipation of the fu and acceptable power dissipation of the fuse			Р	
	See Table 5	:		Р	
	Requirements are verified by tests according	to 8.3		Р	
7.4	Operation			Р	
	Fuse-link is so designed and proportioned the tested in its appropriate test arrangement at frequency and ambient air temperature of (2)	rated		Р	
	- is able to carry continuously any current not exceeding its rated current	į		Р	
	- is able to withstand overload conditions as may occur in normal service (see 8.4.3.4)	they		Р	
	Fuse-link satisfy these conditions if it passes tests prescribed in 8.4	the		Р	
7.5	Breaking capacity			Р	
	Fuse is capable of breaking, at rated frequer at voltage not exceeding the recovery voltage specified in 8.5, any circuit having prospective current between	ŧ		P	
	- current I <sub>f</sub> (for "g" fuse-links)	:		Р	
	- current k <sub>2</sub> l <sub>n</sub> (for "a" fuse-links)	:		N/A	
	- for a.c., rated breaking capacity at power fanot lower than those in Table 20	ctors		Р	
	- for d.c., rated breaking capacity at time connot greater than those limits in Table 21			N/A	
	Arc voltage not exceed values given in Table	6 :		Р	
	Fuse satisfy these conditions if it passes the prescribed in 8.5	tests		Р	
7.6	Cut-off current characteristic			Р	



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	IEC 60269-1		<del></del>
Clause	Requirement + Test	Result - Remark	Verdict
	Values of cut-off current measured as specified in 8.6 are less than, or equal to, the values corresponding to cut-off current characteristics assigned by the manufacturer		Р
7.7	I <sup>2</sup> t characteristics		Р
	Pre-arcing l <sup>2</sup> t values verified according to 8.7 (Table 7):		Р
	Operating I <sup>2</sup> t values verified according to 8.7:		Р
7.8	Overcurrent discrimination of fuse-links:		Р
7.9	Protection against electric shock		Р
	The degree of protection when the fuse is under normal service conditions:	IP00	Р
	The degree of protection when replacing the fuse-link::	IP00	Р
	The degree of protection when the fuse-link and fuse-carrier is removed:	IP	N/A
7.9.1	Clearances and creepage distances		Р
-	Clearances are not less than the values given in Table 9:		Р
	Creepage distances correspond to material group, as defined in 2.7.1.3 of IEC 60664-1, corresponding with rated voltage given in Table 10	500V	Р
7.9.2	Leakage currents of equipment suitable for isolation		N/A
	Value of leakage current (mA) not exceed		N/A
	- 0,5 mA per pole for fuses in new conditions:		N/A
	- 2 mA per pole for fuses having been submitted to test according to 8.5:		N/A
7.9.3	Additional constructional requirements for fuses with non-separable fuse-carriers, suitable for isolation		N/A
	Fuse-holder are marked with the symbol IEC 60617-S00369		N/A
	When fuse is in open position, with fuse-link remaining inside the fuse-carrier, isolating distance between the fuse contacts in accordance with the isolating function are provided		N/A
	Indication of this position is provided by the position of the fuse-carrier	1	N/A



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
	There exists a locking means in order to loc fuses in the isolated position, locking is posonly in this position			N/A
	Fuses are designed so that the fuse-carrier remains attached to the fuse-base giving coindication of the open position, and of locking	rrect		N/A
7.10	Resistance to heat			Р
	All components are sufficiently resistant to which may occur in normal use (see 8.9 and			Р
7.11	Mechanical strength			Р
	All components of fuse are sufficiently resis mechanical stresses which may occur in no use (see 8.3 to 3.5 and 8.11.1)			Р
7.12	Resistance to corrosion			Р
	All metallic components of fuse are resistar corrosive influences which may occur in not			Р
7.12.1	Resistance to rusting			Р
" - 1 - 1 - 1 - 1	Ferrous components are so protected that t meet relevant tests (see 8.2.4.2 and 8.11.2.			Р
7.12.2	Resistance to season cracking			Р
	Current-carrying parts are sufficiently resistate season cracking (see 8.2.4.2 and 8.11.2.1)	ant to		Р
7.13	Resistance to abnormal heat and fire			Р
	All components of fuse are sufficiently resis abnormal heat and fire (see 8.11.2.2)	tant to		Р
7.14	Electromagnetic compatibility			N/A
	Fuses within the scope of this standard are sensitive to normal electromagnetic disturbations			N/A
	No immunity tests are required			N/A



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IEC 60269-1					
Clause	Requirement + Test	Result - Remark	Verdict		
8	TESTS				
8.1.2	At the beginning of each test, the fuse is approximately at the ambient temperature		P		
8.1.3	Tests made on fuses in clean and dry condition		Р		
8.1.4	Arrangement of the fuse and dimensions		Р		
	Except for degree of protection test (see 8.8), fuse are mounted in free air in draught-free surroundings in the normal operation position and on insulating material of sufficient rigidity		Р		
	Before tests are started, specified external dimensions are measured and results compared with dimensions specified in the relevant data sheet of the manufacturer or specified in subsequent parts		Р		
8.1.5	Testing of fuse-links		Р		
	Fuse-links tested with the kind(s) of current for which they are rated		Р		
	Fuse-links tested for a.c. with frequency for which they are rated		Р		
8.1.5.1	Complete tests		Р		
	Internal resistance R measured by a current ≤ 0,1 In		Р		
	Measuring current (A):		Р		
	Ambient air temperature in range of 20 ± 5 °C		Р		
	The values of resistance	(see appended table)	Р		
8.1.5.2	Testing of fuse-links of a homogeneous series		Р		
	Fuse-links tested like a homogeneous series:	Yes/No	Р		
	If yes: fuse-links have identical enclosures in form and construction (except of fuse-elements and contacts)		Р		
	- the same arc-extinguishing medium and same completeness of filling		Р		
	- fuse-elements of identical materials		Р		
	- their cross-section of fuse-elements not exceed the cross-section of fuse-links having the highest rated current		Р		
	- number of fuse-elements do not exceed number of fuse-elements of fuse-links with the highest rated current		Р		



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	IEC 6026	-	Keport No. 15032525	
Clause		1-1	Decult Decul	
Clause	Requirement + Test		Result - Remark	Verdict
	- minimum distances between adjacent fuse elements and between the fuse-elements ar inner surface of the cartridge is not less than the fuse-link with the highest rated current	d the		P
	- fuse-links used with a given fuse-holder, or			P
	fuse-links intended to be used in an arrang identical for all rated currents of the homoge series			N/A
	- value of RI <sub>n</sub> <sup>3/2</sup> does not exceed the value for fuse-link with largest rated current of the homogeneous series (R measured as indica 8.1.5.1)			N/A
	the rated breaking capacity of fuse-links not than that of the fuse-link with the largest rate within the homogeneous series			P
	- if not, the fuse-links with greater breaking c subjected to tests no. 1 and no. 2	apacity		N/A
	The fuse-link having the largest rated curren completely according to Table 11	t tested		Р
	The fuse-link having the smallest rated curre only according to Table 12	nt tested		Р
	The fuse-links between the largest and smal rated current tested according to Table 13	lest		P
8.1.6	Testing of fuse-holders			Р
	The fuse-holders are subjected to the tests according to Table 14			Р
8.2	Verification of the insulating properties and c suitability for isolation	f the		Р
8.2.1	Arrangement of the fuse-holder			Р
	The fuse-holder fitted with a fuse-links of the dimensions for the type of fuse-holder conce			Р
	The fuse-base fixed to a metal plate, unless otherwise specified			Р
	Fuse-link is replace while live - surfaces of fu of device for replacing it or of fuse-carrier, if insulating material, are provided with metal of connected during tests to the frame of the ap if of metal, they are connected direct to the fi	of coverings paratus;		P
8.2.2	Verification of the insulating properties			Р
	Points of application of the test voltage			Р
	The test voltage is applied between:			Р



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	IEC 60269-1	· · · · · · · · · · · · · · · · · · ·	
Clause	Requirement + Test	Result - Remark	Verdict
	a) live parts and the frame with the fuse-link and the device for replacing it, or		P
	the fuse-carrier, if any, in position		N/A
	no breakdown of insulation or flashover during 1 min of the applying test voltage		Р
	b) the terminals without fuse-link, device for replacing or the fuse-carrier		Р
	no breakdown of insulation or flashover during 1 min of the applying test voltage		Р
	c) live parts of different polarity in the case of multipole fuse-holder with fuse-links, fuse-carrier(s) or device(s) for replacing the fuse-links		N/A
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N/A
	d) live parts which in the case of a multipole fuse- holder reach different potential after the fuse- link operates (equipped by fuse-carrier or device for replacing without fuse-link)		N/A
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N/A
	The r.m.s. value of test voltage (V) as specified in Table 15	1890V	Р
8.2.2.3.2	Fuse-holder is subjected to humid atmospheric conditions		Р
	Relative humidity of ambient air (%):	91-95	Р
	Ambient air temperature (°C)	20-30	Р
	Duration of treatment (h)	144	Р
	Insulation resistance is measured between the points prescribed in 8.2.2.1 by applying d.c. voltage of approximately 500 V	3	Р
	Points of measuring:	,	Р
	a) min. measured value (MΩ):	200ΜΩ	Р
	b) min. measured value (MΩ):	200ΜΩ	Р
	c) min. measured value (MΩ):		N/A
	d) min. measured value (MΩ):		N/A
	The insulation resistance not less than M $\Omega$ :	1ΜΩ	Р
8.2.3	Verification of the suitability for isolation		N/A



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
	Clearances larger than values given in Table verified by dimensional measurement or by verified by the dimensional measurement of the dimensional measurement			N/A
	Points of application of the test voltage			N/A
	The test voltage is applied between:			N/A
	- terminals when the fuse-link and device for replacing it, are removed			N/A
	Test voltage (kV) for verification of the rated withstand voltage is given in Table 16		kV	N/A
	The 1,2/50 µs impulse voltage applied 5 time each polarity at intervals of 1 s minimum	s for		N/A
	no breakdown of insulation or flashover during applying test voltage	g of the		N/A
	no disruptive discharge during the test			N/A
8.2.4.2	Fuse-holder is subjected to humid atmosphe conditions	eric		N/A
	Relative humidity of ambient air (%)	:		N/A
	Ambient air temperature (°C)	:		N/A
	Duration of treatment (h)	:		N/A
	Insulation resistance is measured between the prescribed in 8.2.2.1 by applying d.c. voltage approximately 500 V			N/A
	Points of measuring:			N/A
	a) min. measured value (MΩ)	:		N/A
	b) min. measured value (MΩ)	:		N/A
	c) min. measured value (MΩ)	:		N/A
	d) min. measured value (MΩ)	:		N/A
	The insulation resistance not less than 1 MΩ	·····::		N/A
8.3	Verification of temperature rise and power di	ssipation		Р
8.3.1	One fuse used for test (unless otherwise state the manufacturer) mounted in free air	ted by		Р
	Test performed at an ambient air temperatur (20±5) °C	e of		Р
	Ambient air temperature during the test (°C)	:		Р
	Cross-sectional area (see Table17) (mm² or mm x mm)		70 mm <sup>2</sup>	



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Tightened by torque; torque (Nm)	ethod of : fuse- ed by	Result - Remark  10Nm  Thermocouple	Verdict P P
The temperature of the fuse measured by measuring	ethod of : fuse- ed by		Р
measuring  Measurement of the power dissipation of the link  One fuse used for test (unless otherwise stat the manufacturer) mounted in free air  Test performed at an ambient air temperature (20±5) °C	fuse-	Thermocouple	Р
link  One fuse used for test (unless otherwise stat the manufacturer) mounted in free air  Test performed at an ambient air temperature (20±5) °C	ed by		
the manufacturer) mounted in free air  Test performed at an ambient air temperature (20±5) °C			
(20±5) °C	e of		P
A 1-1			Р
Ambient air temperature during the test (°C)	:	20°C	P
Cross-sectional area (see Table17) (mm² or mm x mm)	:	70 mm <sup>2</sup>	
Tightened by torque; torque (Nm)	:	10Nm	
Temperature rise of the fuse-holder			Р
Applied a.c. current (A) for test equal to the racurrent of the fuse-holder	ated	160A	Р
Test made with fuse-link (A), or	:	160A	Р
1		Part II	Р
Temperature rise limits T for contacts and ter	minals (	Гable 5):	Р
spring loaded contacts; limit (K)	:	unenclosed / e <del>nclosed</del> max. 44K<65K	Р
bolted contacts; limit (K)	:	unenclosed / enclosed	N/A
		unenclosed / enclosed max. 44K<65K	Р
Power dissipation of a fuse-link			Р
		160A	Р
The points of measuring	:	Central of blade	Р
		10,3W<12W	Р
not less than the rated power dissipation of the	ne		Р
of the fuse-holders cooled down to ambient temperature withstood the test voltage accord	ding to	1890V	Р
	Tightened by torque; torque (Nm)  Temperature rise of the fuse-holder  Applied a.c. current (A) for test equal to the racurrent of the fuse-holder  Test made with fuse-link (A), or	Applied a.c. current (A) for test equal to the rated current of the fuse-holder	Tightened by torque; torque (Nm)



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
	No deformation after tests of 8.3			P
8.4	Verification of operation		For 160A	P
8.4.1	The test arrangement as specified in 8.1.4			P
	Length (m) of conductors (see 8.3.1)	:	2m	P
	their cross-sectional area (mm²) as specified Table 17		70	P
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fu	sing		Р
	a) the fuse-link subjected to the conventiona fusing current (Inf) (see Table 2)		200A	
	the fuse-link did not operate within the conve time of (h) (Table 2)		2h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional for current (I <sub>f</sub> ) (see Table 2)	using	256A	
	the fuse-link operated within the conventiona (minutes) (Table 2)		57,3min	Р
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	0 h		Р
	On-period equal to conventional time (h)	:	2h	Р
	Off-period of 0,1 of the conventional time	:	12min	P
	Test current (A) equal to 1,05 of the rated cu	rrent .:	168A	Р
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		200A	
	the fuse-link did not operate within the convetime of (h) (Table 2)		2h	Р
8.4	Verification of operation		For 125A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17		50	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fu	ısing		Р



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Clause	Requirement + Test		Result - Remark	Verdict
	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		156,3A	
	the fuse-link did not operate within the conve time of (h) (Table 2)		2h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (If) (see Table 2)	using		_
	the fuse-link operated within the conventiona (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
•	One fuse-link submitted to a pulse test for 10	0 h		Р
	On-period equal to conventional time (h)	:	2h	Р
	Off-period of 0,1 of the conventional time	:	12min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent . :	131,3A	Р
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		156,3A	_
	the fuse-link did not operate within the conve time of (h) (Table 2)		2h	Р
8.4	Verification of operation		For 100A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17		35	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fu	ısing		Р
	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		125A	_
•	the fuse-link did not operate within the conve time of (h) (Table 2)		2h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (If) (see Table 2)	using		
	the fuse-link operated within the conventiona (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р



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Clause	Requirement + Test	Result - Remark	Verdict
	One fuse-link submitted to a pulse test for 100 h		P
	On-period equal to conventional time (h):	2h	P
	Off-period of 0,1 of the conventional time:	12min	Р
	Test current (A) equal to 1,05 of the rated current .:	105A	P
	After the test, the fuse-link not have changed its characteristics		Р
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	125A	
	the fuse-link did not operate within the conventional time of (h) (Table 2)	2h	Р
8.4	Verification of operation	For 80A	Р
8.4.1	The test arrangement as specified in 8.1.4		Р
,	Length (m) of conductors (see 8.3.1):	2m	Р
	their cross-sectional area (mm2) as specified in Table 17:	25	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р
	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2):	100A	_
	the fuse-link did not operate within the conventional time of (h) (Table 2):	2h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2)		_
	the fuse-link operated within the conventiona time of (minutes) (Table 2):		N/A
8.4.3.2	Verification of rated current of "g" fuse-links		Р
	One fuse-link submitted to a pulse test for 100 h		Р
	On-period equal to conventional time (h):	2h	Р
	Off-period of 0,1 of the conventional time:	12min	Р
•	Test current (A) equal to 1,05 of the rated current .:	84A	Р
	After the test, the fuse-link not have changed its characteristics		Р
8.4.3.1	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2):	100A	-



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Clause	Requirement + Test		Result - Remark	Verdict
	the fuse-link did not operate within the conve time of (h) (Table 2)		2h	Р
8.4	Verification of operation		For 63A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specifie Table 17		16	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fi current	using		Р
	a) the fuse-link subjected to the conventiona fusing current (Inf) (see Table 2)		78,7A	
	the fuse-link did not operate within the convetime of (h) (Table 2)		2h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional f current (If) (see Table 2)	using		_
	the fuse-link operated within the conventional (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	00 h		Р
	On-period equal to conventional time (h)	:	1h	Р
-	Off-period of 0,1 of the conventional time	:	6min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent . :	66,2A	Р
-100	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		78,7A	
	the fuse-link did not operate within the conve time of (h) (Table 2)		1h	P
8.4	Verification of operation		For 50A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specifie Table 17		10	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р



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Clause	Requirement + Test		Result - Remark	Verdict
8.4.3.1	Verification of conventional non-fusing and fu	ısing		P
	a) the fuse-link subjected to the conventiona fusing current (Inf) (see Table 2)		62,5A	_
	the fuse-link did not operate within the convetime of (h) (Table 2)		1h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (If) (see Table 2)	ısing		_
	the fuse-link operated within the conventiona (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	00 h		Р
	On-period equal to conventional time (h)	:	1h	Р
	Off-period of 0,1 of the conventional time	:	6min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent .:	52,5A	P
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		62,5A	_
	the fuse-link did not operate within the conve time of (h) (Table 2)		1h	Р
8.4	Verification of operation		For 40A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17	1	10	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fu	ısing		Р
	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		50A	_
	the fuse-link did not operate within the conve time of (h) (Table 2)		1h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (If) (see Table 2)	sing		_



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Clause	Requirement + Test	:	Result - Remark	Verdict
	the fuse-link operated within the conventional (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 100	) h		Р
	On-period equal to conventional time (h)	:	1h	Р
	Off-period of 0,1 of the conventional time	:	6min	Р
	Test current (A) equal to 1,05 of the rated curr	rent . :	42A	Р
	After the test, the fuse-link not have changed i characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional r fusing current (Inf) (see Table 2)		50A	_
	the fuse-link did not operate within the conventime of (h) (Table 2)		1h	Р
8.4	Verification of operation		For 32A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17		6	Р
8.4.2	Ambient air temperature during test within (20	±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fus current	sing		Р
	a) the fuse-link subjected to the conventional r fusing current (Inf) (see Table 2)		40A	-
	the fuse-link did not operate within the conventime of (h) (Table 2)		1h	Р
	b) the same fuse-link, after cooled down to an temperature, subjected to the conventional fus current (If) (see Table 2)	sing		-
	the fuse-link operated within the conventional (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 100	) h		Р
	On-period equal to conventional time (h)	:	1h	Р
	Off-period of 0,1 of the conventional time	:	6min	Р
	Test current (A) equal to 1,05 of the rated curr	ent .:	33,6A	Р
	After the test, the fuse-link not have changed in characteristics	its		Р



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Clause	Requirement + Test		Result - Remark	Verdict
8.4.3.1	a) the fuse-link subjected to the conventiona fusing current (Inf) (see Table 2)		40A	
	the fuse-link did not operate within the conve time of (h) (Table 2)		1h	Р
8.4	Verification of operation		For 25A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17		4	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fu	sing		Р
	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		31,3A	_
	the fuse-link did not operate within the conve time of (h) (Table 2)		1h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (If) (see Table 2)	ısing		_
	the fuse-link operated within the conventiona (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	00 h		Р
	On-period equal to conventional time (h)	:	1h	Р
	Off-period of 0,1 of the conventional time	:	6min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent .:	26,3A	Р
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		31,3A	_
	the fuse-link did not operate within the convetime of (h) (Table 2)		1h	Р
8.4	Verification of operation		For 20A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17		2,5	Р



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Clause	Requirement + Test	Result - Remark	Verdict
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р
	a) the fuse-link subjected to the conventional non-fusing current (lnf) (see Table 2):	25A	_
	the fuse-link did not operate within the conventional time of (h) (Table 2)	1h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2)		_
	the fuse-link operated within the conventional time of (minutes) (Table 2)		N/A
8.4.3.2	Verification of rated current of "g" fuse-links		Р
	One fuse-link submitted to a pulse test for 100 h		Р
	On-period equal to conventional time (h):	1h	P
	Off-period of 0,1 of the conventional time:	6min	Р
	Test current (A) equal to 1,05 of the rated current .:	21A	Р
	After the test, the fuse-link not have changed its characteristics		Р
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2)	25A	_
	the fuse-link did not operate within the conventional time of (h) (Table 2)	1h	Р
8.4	Verification of operation	For 16A	Р
8.4.1	The test arrangement as specified in 8.1.4		Р
	Length (m) of conductors (see 8.3.1):	2m	Р
	their cross-sectional area (mm2) as specified in Table 17	2,5	Р
8.4.2	Ambient air temperature during test within (20±5) °C		P
8.4.3.1	Verification of conventional non-fusing and fusing current		Р
	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2)	20A	_
	the fuse-link did not operate within the conventional time of (h) (Table 2):	1h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2)		_



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Clause	Requirement + Test		Result - Remark	Verdict
	the fuse-link operated within the conventiona (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	0 h		Р
	On-period equal to conventional time (h)		1h	Р
-	Off-period of 0,1 of the conventional time	:	6min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent .:	16,8A	Р
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		20A	_
	the fuse-link did not operate within the conve time of (h) (Table 2)	ntional :	1h	Р
8.4.3.3	Verification of time-current characteristics an	d gates		Р
8.4.3.3.1	The time-current characteristics verified on the of the test according to 8.5	ne basis		Р
	Values of pre-arcing and operating times with	nin the tin	ne-current zones:	Р
	- indicated by the manufacturer			N/A
	- specified in subsequent parts	:	Part II	Р
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in case			N/A
	"g" fuse-links (except "gD", "gG" and "gM")			N/A
	Tests made in connection with verification of gates (see8.4.3.3.2)	the		N/A
	Ambient air temperature within (20±5) °C	:		N/A
	rated current In (A) of the fuse-link	:		-
	test performed at voltage (V)	:	_	- · · · · · · · · · · · · · · · · · · ·
	test 3a) prospective current (A) equal to kIn $(10 \le k \le 20)$	:		N/A
	pre-arcing time (s)			<u> </u>
_	specified pre-arcing time (s) max./min	·····i		N/A
	test 4a) prospective current (A) equal to kIn $(5 \le k \le 8)$	:		N/A
	pre-arcing time (s)	:		
	specified pre-arcing time (s) max./min	:		N/A



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Clause	Requirement + Test		Result - Remark	Verdict	
	test 5a) prospective current (A) equal to kIn $(2,5 \le k \le 4)$	:		N/A	
	pre-arcing time (s)	:		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	specified pre-arcing time (s) max./min	:		N/A	
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in case			N/A	
	"a" fuse-links			N/A	
	Ambient air temperature within (20±5) °C	:		N/A	
	rated current In (A) of the fuse-link	:		V 10 2 10 1 10 10 10 10 10 10 10 10 10 10 10 1	
	test performed at voltage (V)	:		Water the second of the second	
	test 3a) prospective current (A) equal to nk₂ l (5≤ n ≤ 8)			N/A	
	pre-arcing time (s)	1		E. S.	
	specified pre-arcing time (s) max./min	:		N/A	
	test 4a) prospective current (A) equal to nk₂ I (2≤ n ≤ 3)			N/A	
	pre-arcing time (s)				
	specified pre-arcing time (s) max./min	:		N/A	
	test 5a) prospective current (A) equal to nk₂ I (1≤ n ≤ 1,5)			N/A	
	pre-arcing time (s)			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	specified pre-arcing time (s) max./min	:		N/A	
8.4.3.3.2	Verification of gates			Р	
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р	
	rated current of the fuse-link (A)	:	160		
	test performed at voltage (V)	:	Not specified		
	a) testing current (A); pre-arcing time (s) high		460A;54s	Р	
-	b) testing current (A); pre-arcing time (s) less 5 s	than	950A;3,3s	Р	
	c) testing current (A); pre-arcing time (s) high 0,1 s		1450A;638ms	Р	
	d) testing current (A); pre-arcing time (s) less 0,1 s	than	2590A;10ms	Р	
	"aM" fuse-links			N/A	
	rated current of the fuse-link (A)	:			



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Clause	Requirement + Test		Result - Remark	Verdict
	test performed at voltage (V)			
	Cross-sectional area (see Table18)			- 70
	(mm² or mm x mm)	:		
	e) testing current (A); pre-arcing time (s) high 60 s			N/A
	f) testing current (A); pre-arcing time (s) less 60 s			N/A
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A
8.4.3.3.2	Verification of gates			Р
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A)	:	125	_
	test performed at voltage (V)	:	Not specified	_
	a) testing current (A); pre-arcing time (s) high 10 s		355A;68s	Р
	b) testing current (A); pre-arcing time (s) less 5 s	than	715A;2,8s	Р
	c) testing current (A); pre-arcing time (s) high 0,1 s		1100A;626ms	Р
	d) testing current (A); pre-arcing time (s) less 0,1 s		1910A;9ms	Р
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)	:		_
	test performed at voltage (V)	:		_
•	Cross-sectional area (see Table18)			_
	(mm2 or mm x mm)	:		
	e) testing current (A); pre-arcing time (s) high			N/A
	f) testing current (A); pre-arcing time (s) less 60 s	than		N/A
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A
8.4.3.3.2	Verification of gates			Р



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Clause	Requirement + Test		Result - Remark	Verdict	
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	P	
	rated current of the fuse-link (A)	:	100	_	
	test performed at voltage (V)	:	Not specified		
	a) testing current (A); pre-arcing time (s) high 10 s		290A;54s	P	
	b) testing current (A); pre-arcing time (s) less 5 s		580A;3,0s	Р	
	c) testing current (A); pre-arcing time (s) high 0,1 s		820A;800ms	Р	
	d) testing current (A); pre-arcing time (s) less 0,1 s		1450A;8ms	Р	
	"aM" fuse-links			N/A	
	rated current of the fuse-link (A)	:			
	test performed at voltage (V)	:		-	
	Cross-sectional area (see Table18)			*****	
	(mm2 or mm x mm)	:			
	e) testing current (A); pre-arcing time (s) high 60 s	er than		N/A	
	f) testing current (A); pre-arcing time (s) less 60 s			N/A	
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A	
3.00	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A	
8.4.3.3.2	Verification of gates			Р	
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р	
	rated current of the fuse-link (A)	:	80	_	
	test performed at voltage (V)	:	Not specified	_	
	a) testing current (A); pre-arcing time (s) high 10 s		215A;64s	Р	
	b) testing current (A); pre-arcing time (s) less 5 s	than	425A;2,6s	Р	
	c) testing current (A); pre-arcing time (s) high 0,1 s		610A;780ms	Р	
	d) testing current (A); pre-arcing time (s) less 0,1 s	than	1100A;9ms	Р	
	"aM" fuse-links			N/A	



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Clause	Requirement + Test		Result - Remark	Verdict	
	rated current of the fuse-link (A)				
	test performed at voltage (V)				
	Cross-sectional area (see Table18)				
	(mm2 or mm x mm)			_	
	e) testing current (A); pre-arcing time (s) high	er than		N/A	
	f) testing current (A); pre-arcing time (s) less 60 s			N/A	
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A	
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A	
8.4.3.3.2	Verification of gates			Р	
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р	
	rated current of the fuse-link (A)	:	63		
	test performed at voltage (V)	:	Not specified	_	
	a) testing current (A); pre-arcing time (s) high 10 s		160A;78s	Р	
	b) testing current (A); pre-arcing time (s) less 5 s		320A;2,9s	Р	
	c) testing current (A); pre-arcing time (s) high 0,1 s		450A;680ms	Р	
	d) testing current (A); pre-arcing time (s) less 0,1 s		820A;8ms	Р	
	"aM" fuse-links			N/A	
	rated current of the fuse-link (A)	:		_	
	test performed at voltage (V)	:		_	
	Cross-sectional area (see Table18)		}	_	
	(mm2 or mm x mm)	:			
	e) testing current (A); pre-arcing time (s) high			N/A	
	f) testing current (A); pre-arcing time (s) less 60 s			N/A	
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A	
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A	



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Clause	Requirement + Test		Result - Remark	Verdict	
8,4.3.3.2	Verification of gates				
	"gG" and "gM" fuse-links		"gG" / <del>-"gM"</del>	Р	
	rated current of the fuse-link (A)	:	50		
	test performed at voltage (V)	:	Not specified	_	
	a) testing current (A); pre-arcing time (s) high 10 s		125A;60s	Р	
	b) testing current (A); pre-arcing time (s) less 5 s		250A;3,1s	Р	
	c) testing current (A); pre-arcing time (s) high 0,1 s		350A;706ms	Р	
	d) testing current (A); pre-arcing time (s) less 0,1 s		610A;9ms	Р	
	"aM" fuse-links			N/A	
	rated current of the fuse-link (A)	:			
	test performed at voltage (V)	:			
	Cross-sectional area (see Table18) (mm2 or mm x mm)	:		_	
	e) testing current (A); pre-arcing time (s) high 60 s			N/A	
	f) testing current (A); pre-arcing time (s) less 60 s			N/A	
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A	
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A	
8.4.3.3.2	Verification of gates			Р	
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р	
	rated current of the fuse-link (A)	:	40		
	test performed at voltage (V)	:	Not specified	_	
	a) testing current (A); pre-arcing time (s) high		95A;62s	Р	
	b) testing current (A); pre-arcing time (s) less 5 s		190A;2,8s	Р	
	c) testing current (A); pre-arcing time (s) high 0,1 s		260A;680ms	Р	
	d) testing current (A); pre-arcing time (s) less 0,1 s		450A;8ms	Р	



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Clause	Requirement + Test	Result - Remark	Verdict		
	"aM" fuse-links		N/A		
	rated current of the fuse-link (A):				
·	test performed at voltage (V):				
	Cross-sectional area (see Table18)				
	(mm2 or mm x mm):		_		
-	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A		
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A		
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A		
	h) testing current (A); pre-arcing time (s) less than 0,10 s:		N/A		
8.4.3.3.2	Verification of gates		Р		
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	Р		
	rated current of the fuse-link (A):	32	_		
	test performed at voltage (V):	Not specified	_		
	a) testing current (A); pre-arcing time (s) higher than 10 s:	75A;80s	Р		
	b) testing current (A); pre-arcing time (s) less than 5 s	150A;3,1s	Р		
	c) testing current (A); pre-arcing time (s) higher than 0,1 s	200A;820ms	Р		
	d) testing current (A); pre-arcing time (s) less than 0,1 s	350A;10ms	Р		
	"aM" fuse-links		N/A		
	rated current of the fuse-link (A):		_		
·	test performed at voltage (V):		_		
	Cross-sectional area (see Table18)		_		
	(mm2 or mm x mm):				
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A		
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A		
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A		



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Clause	Requirement + Test	Result - Remark	Verdict		
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A		
8.4.3.3.2	Verification of gates		Р		
	"gG" and "gM" fuse-links	"gG" / "gM"	Р		
	rated current of the fuse-link (A):	25	_		
-	test performed at voltage (V):	Not specified	***		
	a) testing current (A); pre-arcing time (s) higher than 10 s:	52A;78s	Р		
	b) testing current (A); pre-arcing time (s) less than 5 s	110A;2,9s	Р		
	c) testing current (A); pre-arcing time (s) higher than 0,1 s	150A;760ms	Р		
	d) testing current (A); pre-arcing time (s) less than 0,1 s	260A;9ms	Р		
	"aM" fuse-links		N/A		
	rated current of the fuse-link (A):		1		
	test performed at voltage (V):				
	Cross-sectional area (see Table18) (mm2 or mm x mm)		_		
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A		
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A		
	g) testing current (A); pre-arcing time (s) higher than 0,2 s		N/A		
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A		
3.4.3.3.2	Verification of gates		Р		
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	Р		
	rated current of the fuse-link (A):	20	_		
	test performed at voltage (V):	Not specified	_		
	a) testing current (A); pre-arcing time (s) higher than 10 s	42A;110s	Р		
	b) testing current (A); pre-arcing time (s) less than 5 s	85A;3,4s	Р		
	c) testing current (A); pre-arcing time (s) higher than 0,1 s	110A;820ms	Р		



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Clause	Requirement + Test		Result - Remark	Verdict	
	d) testing current (A); pre-arcing time (s) less		200A;10ms	Р	
	"aM" fuse-links			N/A	
	rated current of the fuse-link (A)	:			
	test performed at voltage (V)	:		_	
	Cross-sectional area (see Table18)			_	
	(mm2 or mm x mm)	:			
	e) testing current (A); pre-arcing time (s) high 60 s			N/A	
	f) testing current (A); pre-arcing time (s) less 60 s			N/A	
	g) testing current (A); pre-arcing time (s) high 0,2 s	er than		N/A	
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A	
8.4.3.3.2	Verification of gates			Р	
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р	
	rated current of the fuse-link (A)	:	16		
	test performed at voltage (V)	<del>:</del>	Not specified	_	
	a) testing current (A); pre-arcing time (s) high		33A;108s	Р	
	b) testing current (A); pre-arcing time (s) less 5 s		65A;3,4s	Р	
	c) testing current (A); pre-arcing time (s) high 0,1 s		85A;780ms	P	
	d) testing current (A); pre-arcing time (s) less 0,1 s		150A;10ms	Р	
	"aM" fuse-links			N/A	
	rated current of the fuse-link (A)	:		_	
	test performed at voltage (V)				
	Cross-sectional area (see Table18) (mm2 or mm x mm)			_	
	e) testing current (A); pre-arcing time (s) high	er than		N/A	
	f) testing current (A); pre-arcing time (s) less 60 s	than		N/A	



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Clause	Requirement + Test	Result - Remark	Verdict
	g) testing current (A); pre-arcing time (s) higher that 0,2 s		N/A
	h) testing current (A); pre-arcing time (s) less than 0,10 s	:	N/A
8.4.3.4	Overload	For 16A and 160A	P
	The test arrangement is same as that for the temperature rise test (see 8.3.1)		Р
	Three fuse-links submitted to 50 pulses having the same duration and test current	:	Р
	test performed at voltage (V)	: Not specified	And 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	"g" fuse-links:		Р
	test current (A) equal to 0,8 times the current states for a pre-arcing time of 5 s		. P
	duration of each pulse 5 s		Р
	time (s) interval between pulses equal to 20 % of the conventional time (s) specified in Table 2		Р
	"a" fuse-links:		N/A
	rated current In (A) of fuse-link	:	N/A
	test current (A) equal to k <sub>1</sub> I <sub>n</sub> ± 2%	•	N/A
	the pulse duration (s) corresponds to that indicated on the overload curve for $k_1 l_n$ stated by manufacturer		N/A
	time (s) intervals between pulses equal to 30 times the pulse duration		N/A N/A N/A N/A
	fuse-links having ambient air temperature subjecte to a current (A) equal to current for the overload tes	30,4A/464A it	Р
	pre-arcing time (s) of sample lies within the manufacturers time-current zone	1) 68s/64,9s 2) 74s/46,3s 3) 72s/57,2s	Р
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links only)		Р
·	fuse-link mounted as specified in 8.4.1		Р
	provided with PVC insulated copper conductors of cross-sectional area (mm²) (see Table 19)	70	Р
	fuse and conductor connected to it, preheated with rated current (A) of fuse-link	160A	Р
	for a time (h) equal to the conventional time	: 2h	Р



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Clause	Requirement + Test	Result - Remark	Verdict		
	test current increased to 1,45 I <sub>z</sub> (A) (I <sub>z</sub> specified in Table 19)		Р		
	the fuse-link operated in time (s) less than the conventional time (s)	5207s	Р		
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links only)		Р		
	fuse-link mounted as specified in 8.4.1		Р		
	provided with PVC insulated copper conductors of cross-sectional area (mm2) (see Table 19)		Р		
	fuse and conductor connected to it, preheated wi rated current (A) of fuse-link		Р		
,	for a time (h) equal to the conventional time	: 2h	Р		
	test current increased to 1,45 lz (A) (lz specified Table 19)		Р		
	the fuse-link operated in time (s) less than the conventional time (s)	3798s	Р		
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links only)		Р		
	fuse-link mounted as specified in 8.4.1		Р		
	provided with PVC insulated copper conductors of cross-sectional area (mm2) (see Table 19)		Р		
	fuse and conductor connected to it, preheated wi rated current (A) of fuse-link		Р		
	for a time (h) equal to the conventional time	: 1h	Р		
	test current increased to 1,45 lz (A) (Iz specified Table 19)		Р		
	the fuse-link operated in time (s) less than the conventional time (s)	: 4007s	Р		
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links only)		Р		
	fuse-link mounted as specified in 8.4.1		Р		
	provided with PVC insulated copper conductors of cross-sectional area (mm2) (see Table 19)		Р		
	fuse and conductor connected to it, preheated wi rated current (A) of fuse-link		Р		
	for a time (h) equal to the conventional time	: 1h	Р		
	test current increased to 1,45 lz (A) (Iz specified Table 19)		Р		



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Clause	Requirement + Test	Result - Remark	Verdict
	the fuse-link operated in time (s) less than the conventional time (s)	3452s	Р
8.4.3.6	Operation of indicating devices and strikers, if any		Р
	Operation of indicating device verified in combination with the verification of breaking capacity (see 8.5.5)		Р
	The verification of striker operation:		N/A
	"g" fuse-link tested at current (A) equal to current I <sub>4</sub> (see Table 20 abd 21):		N/A
	recovery voltage (V):		N/A
	stated recovery voltage (V):		N/A
	"a" fuse-link tested at current (A) equal to current 2k <sub>1</sub> l <sub>n</sub> (A) (see Figure 2):		N/A
	recovery voltage (V)		N/A
	stated recovery voltage (V)		N/A
•	Striker operate during all tests made at recovery voltage of at least 20 V		N/A
	No failure of indicating device or striker		Р
8.5	Verification of the breaking capacity		Р
8.5.1	The test arrangements as specified in 8.1.4		Р
8.5.2	Characteristics of the test circuit as specified		Р
	Scheme of test circuit (see Figure 5)		Р
	Deviations form specified characteristics of test circuit		Р
8.5.3	Measuring instruments		Р
8.5.4	Calibration of test circuit		Р
	Calibration oscillograms and their evaluation		P
8.5.6	The breaking-capacity tests made at an ambient air temperature of (20 ± 5) °C		Р
	Breaking-capacity tests on a.c. fuses		Ч
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links	For 16A	Р
	Rated breaking capacity of the fuse-links (kA), at voltage (V):	120kA,500VAC	_
	Rated current (A) of the fuse-links:	16A	Р
	Prospective current I <sub>1</sub> (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%:	120kA	Р
	Power factor:	0,20	Р



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Clause	Requirement + Test	Result - Remark	Verdict	
	Initiation of arcing after voltage zero: within 40° - 65° for sample 1 and within 65° - 90° for sample 2 and 3, or	1) 49,2 2) 66,3 3) 85,3	Р	
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°		N/A	
	Power-frequency recovery voltage: voltage (V) i.e (%) of rated voltage within 105% + 5%, - 0% of the rated voltage or 110% + 5%, - 0% of the rated voltage	1) 568V 2) 568V 3) 568V	Р	
	Cut-off current (A):	1) 3,7kA 2) 3,8kA 3) 3,7kA	Р	
8.5.8	Acceptability of No. 1 test results		Р	
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6)	918,6V<2500V	Р	
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р	
	c) no permanent arcing, flashover or ejection of dangerous flames		Р	
	d) no damage of fuse components hindering from their further use		Р	
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р	
	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р	
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 15 2) 25 3) 15	Р	
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links	For 160A	Р	
	Rated breaking capacity of the fuse-links (kA), at voltage (V)	120kA,500VAC	_	
·	Rated current (A) of the fuse-links:	160A	Р	
	Prospective current I1 (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%:	120kA	Р	
	Power factor:	0,20	Р	
	Initiation of arcing after voltage zero: within 40° - 65° for sample 1 and within 65° - 90° for sample 2 and 3, or	1) 58,8 2) 86,7	Р	
		3) 89,3		



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Clause	Requirement + Test		Result - Remark	Verdict
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°	:		N/A
	Power-frequency recovery voltage: voltage (V) (%) of rated voltage within 105% + 5%, - 0% of rated voltage or 110% + 5%, - 0% of the rated voltage	f the	1) 568V 2) 568V 3) 568V	Р
	Cut-off current (A)	·····:	1)12,6kA 2) 14,5kA 3) 15,3kA	Р
8.5.8	Acceptability of No. 1 test results			Р
	a) max. arc voltage (V) did not exceed stated v of 7.5 (Table 6)		914,3V<2500V	Р
	b) fuse-links operated without external effects of damage to the components of the complete fusions.			Р
	c) no permanent arcing, flashover or ejection of dangerous flames	of		Р
	d) no damage of fuse components hindering fr their further use	om		Р
	e) no damage of fuse-link such, that it is difficu dangerous to replace them	ılt or		Р
	f) fuse-link remains in one piece before its rem from the fuse- carrier	ioval		Р
	g) resistance (M $\Omega$ ) between contacts of fuse-line after test not less than 50 000 $\Omega$ for the rated v of fuse-links to 250 V, 100 000 $\Omega$ in all other call.	oltage/	1) 25 2) 7 3) 20	Р
8.5.5.1	Table 20, test No. 2 for "g" and "a" fuse-links			Р
	Prospective current I <sub>2</sub> (kA)	:	11,88kA	Р
	Test made under conditions which approximate those giving maximum arc energy	e		P
	Power factor	:	0,27	Р
	Making angle after voltage zero: within tolerand		1) 8,6 2) 5,6 3) 8,7	Р
	Power-frequency recovery voltage: voltage (V) (%) of rated voltage within 105% + 5%, - 0% of rated voltage or 110% + 5%, - 0% of the rated voltage	f the	1) 568 2) 568 3) 568	Р
	Recovery voltage maintained at a value (V); du (s) for sample (No.)			Р



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Clause	Requirement + Test		Result - Remark	Verdict
	For other samples duration 15 s (8.5.5.2)			Р
8.5.8	Acceptability of No. 2 test results			Р
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		1035V<2500V	Р
	b) fuse-links operated without external effect damage to the components of the complete			Р
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р
	d) no damage of fuse components hindering their further use	from		Р
	e) no damage of fuse-link such, that it is diffidangerous to replace them	cult or		Р
_	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		Р
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 500 2) 300 3) 500	Р
8.5.5.1	Table 20, test No. 2* for "g" and "a" fuse-link $I_2 \ge I_1$	s, for	(see appended table)	N/A
	Prospective current I <sub>2</sub> (kA) for test No. 2 greather rated breaking capacity (kA)	ter than		N/A
	Test made on six samples replacing tests of and 2. Test made with current I <sub>1</sub> (kA)			N/A
	Making angels differ approximately 30° between test	een		N/A
	Power factor	:		N/A
8.5.8	Acceptability of No. 2 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)	values		N/A
	b) fuse-links operated without external effect damage to the components of the complete			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is diffi dangerous to replace them	cult or		N/A
	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5.1	Table 20, test No. 3 for "g" and "a" fuse-links		P
	Prospective current for "g" fuse-link I <sub>3</sub> (A) equal to 3,2 I <sub>f</sub>		P
	Prospective current for "a" fuse-link I <sub>3</sub> (A) equal to 2,5 k <sub>2</sub> I <sub>n</sub>		N/A
	Power factor	I	Р
	Tolerance on current ± 20%	***	Р
	Recovery voltage (V) maintained for 15 s (8.5.5.2)	)	Р
8.5.8	Acceptability of No. 3 test results		Р
	a) max. arc voltage (V) did not exceed stated valu of 7.5 (Table 6)		Р
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р
	c) no permanent arcing, flashover or ejection of dangerous flames		Р
	d) no damage of fuse components hindering from their further use	i	Р
	e) no damage of fuse-link such, that it is difficult o dangerous to replace them	r	Р
	f) fuse-link remains in one piece before its remove from the fuse- carrier	al	Р
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated volta of fuse-links to 250 V, 100 000 $\Omega$ in all other case:	age   2)	Р
8.5.5.1	Table 20, test No. 4 for "g" and "a" fuse-links	<u> </u>	Р
	Prospective current for "g" fuse-link I <sub>4</sub> (A) equal to 2,0 I <sub>f</sub>		Р
	Prospective current for "a" fuse-link I <sub>4</sub> (A) equal to 1,6 k <sub>2</sub> I <sub>n</sub>		N/A
	Power factor		Р
_	Tolerance on current + 20%, - 0%		Р
	Recovery voltage (V) maintained for 15 s (8.5.5.2)	):	Р
8.5.8	Acceptability of No. 4 test results		Р
	a) max. arc voltage (V) did not exceed stated value of 7.5 (Table 6)		Р
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р



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Clause	Requirement + Test	Result - Remark	Verdict	
	c) no permanent arcing, flashover or ejection of dangerous flames		Р	
	d) no damage of fuse components hindering from their further use		Р	
	e) no damage of fuse-link such, that it is difficult of dangerous to replace them	r	Р	
	f) fuse-link remains in one piece before its remova from the fuse- carrier	al	Р	
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated volta of fuse-links to 250 V, 100 000 $\Omega$ in all other cases	age   2)	Р	
8.5.5.1	Table 20, test No. 5 for "g" and "a" fuse-links		Р	
	Prospective current for "g" fuse-link I <sub>5</sub> (A) equal to 1,25 I <sub>f</sub>		Р	
	Prospective current for "a" fuse-link I <sub>5</sub> (A) equal to k <sub>2</sub> I <sub>n</sub>		N/A	
	Power factor	.: 0,45	P	
	Tolerance on current + 20%, - 0%		Р	
	Recovery voltage (V) maintained for 15 s (8.5.5.2)	):	Р	
8.5.8	Acceptability of No. 5 test results		Р	
	a) max. arc voltage (V) did not exceed stated valu of 7.5 (Table 6)		Р	
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р	
	c) no permanent arcing, flashover or ejection of dangerous flames		Р	
	d) no damage of fuse components hindering from their further use		Р	
	e) no damage of fuse-link such, that it is difficult of dangerous to replace them	r	Р	
	f) fuse-link remains in one piece before its remove from the fuse- carrier	al l	P	
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated volta of fuse-links to 250 V, 100 000 $\Omega$ in all other cases	age 2)	Р	
	Breaking-capacity tests on d.c. fuses		N/A	
8.5.5.1	Table 21, d.c.test No. 1 for "g" and "a" fuse-links		N/A	



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Clause	Requirement + Test		Result - Remark	Verdict
	Rated breaking d.c. capacity of the fuse-links (k. voltage (V)			For the second s
	Rated current (A) of the fuse-links	:		N/A
	Rated voltage (V) of the fuse-links	:		N/A
	Prospective current I <sub>1</sub> (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%			N/A
	Time constant (ms) between 15 to 20 ms	:		N/A
	Arcing commences at current (A)	:	1) 2) 3)	
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage.	:	1) 2) 3)	N/A
8.5.8	Acceptability of No. 1 test results			N/A
	a) max. arc voltage (V) did not exceed stated va of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effects or damage to the components of the complete fuse			N/A
	c) no permanent arcing, flashover or ejection of dangerous flames			N/A
	d) no damage of fuse components hindering from their further use	m		N/A
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	or		N/A
	f) fuse-link remains in one piece before its remo- from the fuse- carrier	val		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-link after test not less than 50 000 $\Omega$ for the rated vo of fuse-links to 250 V, 100 000 $\Omega$ in all other cas	Itage	1) 2) 3)	N/A
8.5.5.1	Table 21, d.c.test No. 2 for "g" and "a" fuse-links	3		N/A
	a) During test No. 1 arcing commences at a curr ≥ 0,5 I₁, test No. 2 was not performed	rent		N/A
	b) Prospective current I <sub>2</sub> (A). Test made under conditions which approximate those giving maxi arc energy		:	N/A
	Time constant (ms) between 15 to 20 ms	:		N/A



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Clause	Requirement + Test		Result - Remark	Verdict
	Arcing commences at current (A)		1) 2) 3)	
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	je ;	1) 2) 3)	N/A
8.5.8	Acceptability of No. 2 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effects damage to the components of the complete f			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is diffid dangerous to replace them	ult or		N/A
	f) fuse-link remains in one piece before its ref from the fuse- carrier	moval		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 2) 3)	N/A
8.5.5.1	Table 21, d.c.test No. 3 for "g" and "a" fuse-li	nks		N/A
	Conventional fusing current (A)	:		
	Prospective current I <sub>3</sub> (A) equal to 3,2 I <sub>f</sub>	:		N/A
	Tolerance on current (%) ± 20%	:		N/A
	Time constant (ms) between 15 to 20 ms	:		N/A
	Arcing commences at current (A)	:	1) 2) 3)	_::: 
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	je:	1) 2) 3)	N/A
8.5.8	Acceptability of No. 3 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effects damage to the components of the complete			N/A



### Page 44 of 50

IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is diffic dangerous to replace them	ult or		N/A
	f) fuse-link remains in one piece before its refrom the fuse- carrier	noval		N/A
,	g) resistance (M $\Omega$ ) between contacts of fuse-after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 2) 3)	N/A
8.5.5.1	Table 21, d.c.test No. 4 for "g" and "a" fuse-lir	nks		N/A
	Conventional fusing current (A)	:		
	Prospective current I <sub>4</sub> (A) equal to 2,0 I <sub>f</sub>	:		N/A
	Tolerance on current (%) + 20%, - 0%	:		N/A
	Time constant (ms) between 15 to 20 ms	:		N/A
	Arcing commences at current (A)	:	1) 2) 3)	
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	e:	1) 2) 3)	N/A
8.5.8	Acceptability of No. 4 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effects damage to the components of the complete f			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is diffic dangerous to replace them	ult or		N/A
	f) fuse-link remains in one piece before its ref from the fuse- carrier	noval		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other c	voltage	1) 2) 3)	N/A



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
8.5.5.1	Table 21, d.c.test No. 5 for "g" and "a" fuse-li	nks		N/A
	Conventional fusing current (A)	:		_
	Prospective current I <sub>5</sub> (A) equal to 1,25 I <sub>f</sub>	:		N/A
	Tolerance on current (%) + 20%, - 0%	:		N/A
	Time constant (ms) between 15 to 20 ms	:		N/A
	Arcing commences at current (A)		1) 2) 3)	
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	je:	1) 2) 3)	N/A
8.5.8	Acceptability of No. 5 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effect damage to the components of the complete			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	cult or		N/A
	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 2) 3)	N/A
8.6	Verification of the cut-off current characterist	ics		Р
8.6.2	The values measured did not exceed cut-off characteristics indicated by the manufacturer 5.8.1)			Р
8.7	Verification of I <sup>2</sup> t characteristics and overcurn discrimination	ent		Р
8.7.2	The operating I <sup>2</sup> t values measured not exceed values indicated by the manufacturer, or	d the		Р
	those specified in subsequent parts			Р
	The pre-arcing l <sup>2</sup> t values not less than minimarcing values given by the manufacturer, or	um pre-		N/A



# Page 46 of 50

IEC 60269-1					
Clause	Requirement + Test	Result - Remark	Verdict		
	they lie within the limits indicated in Table 7		P		
8.7.3	Verification of compliance for fuse-links at 0,01 s		Р		
	"gG" and "gM" fuse-links at 0,01 s comply with Table 7		Р		
8.7.4	Verification of overcurrent discrimination		Р		
	The discrimination of the fuse-links verified by me of the time-current characteristics and the pre-are and operating I <sup>2</sup> t values		Р		
8.8	Verification of the degree of protection of enclosur	res	Р		
	Degree of protection IP	: IP00	Р		
	Verification by test under conditions specified in IEC 60529	:	Р		
8.9	Verification of resistance to heat		Р		
	No damage impaired by heat during the previous tests (in particular with respect to 8.3, 8.4, 8.5 and 8.10)		Р		
8.10	Verification of non-deterioration of contacts		Р		
8.10.1	Three samples provided with standardized dumn fuse-links of the highest current rating (A) intended be used in the fuse-holder (see subsequent parts	ed to	Р		
8.10.2	Test current (A) for load period	: 200A	Р		
	Duration (s) of load period	: 0,5h	Р		
	Duration (s) of no-load period	: 0,2h	Р		
	a) Test of 250 cycles, measured values not exceet the limits given in subsequent parts	ed	Р.		
	b) Test of 750 cycles, measured values not exceed the limits given in subsequent parts	ed	Р		
8.11	Mechanical and miscellaneous tests		Р		
8.11.1	Mechanical strength		Р		
	Mechanical characteristics of fuse and its parts judged in the context of normal handling and mounting as well as with results shown after breaking-capacity test (see 8.5), if not otherwise specified in the subsequent parts		Р		
8.11.2	Miscellaneous tests		Р		
8.11.2.1	Verification of freedom from season cracking		Р		



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
	Current-carrying parts made of rolled copper with less than 83% copper content and with a grease removed, placed for 4 h in test cabine temperature of (30 ± 10) °C	all		Р
	After this, samples placed for 8 h in test cabin the bottom of which is ammonium chloride so having pH value 10 - 11			Р
	After test no cracks visible to the unaided eye	<b>2</b>		Р
8.11.2.2	Verification of resistance to abnormal heat ar	nd fire		Р
8.11.2.2.1	Parts of insulating material, except ceramic, limited duration of burning without spreading flames or burning droplets or glowing particle from the specimen	fire by		Р
8.11.2.2.5	Glow-wire test: (650 ± 10) °C			N/A
	Parts of insulating materials not necessary to current-carrying parts in position even though are in contact with them, made the glow-wire (650 ± 10) °C	they		N/A
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after ren the glow-wire. Limit (30 ± 1) s	noval of		N/A
	No burning of the tissue paper			N/A
	No scorching of the pinewood board			N/A
	Glow-wire test: (960 ± 10) °C		No flame	Р
	Parts of insulating materials necessary to retrourrent-carrying parts and parts of the earthin circuit, if any, in position , made the glow-wire (960 ± 10) °C	ng .		Р
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after ren the glow-wire. Limit (30 $\pm$ 1) s	noval of		P
	No burning of the tissue paper			Р
	No scorching of the pinewood board			Р
8.11.2.3	Verification of resistance to rusting			Р
	Tested parts after degreasing (10 min in spe solution) placed for 10 min in air saturated wi moisture and after that dried 10 min in an am temperature (100 ± 5) °C	ith		Р
	Surface of tested parts show no signs of rust			P



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					IEC	6026	<del>)</del> -1						
Clause	Red	quirement	+ Test					F	Result - I	Remark			Verdict
APPENDI)	V 1												
8.1.5.1	<u> </u>	TABLE: I	nternal r	ecictano	e of the	fuec_lir	ske						P
0.1.0.1		a) rated of						16	3		·-		
	•	measurin			:	`	•	1,0					
		ambient a			°C)	:		25					
internal		: 44		,,,,,,,,	- 1	san	iple No	L					
resistan											.i- -		
ce													
	1	2	3	4	5	6	7		8	9	10	11	12
R (mΩ)	6,813		7,188		7,563	7,688	7,37		7,188	7,313	7,625	7,938	7,500
		b) rated o			fuse-lin	<	:	20	)			# 100 mm	AN AMAZON CONTROL CONT
		measurin			:			2				100 100 100 100 100 100 100 100 100 100	Face and the second sec
		ambient a	air temp	erature (	°C)	:		25	<u> </u>			New York of the Control of the Contr	
internal						san	iple No				7. 4.00		
resistan		1. T	V										
ce	i ng ing Garangan Managan	75	12	rz	1 =	<u>, 1984</u>	- F	1,51.4			T = = . = .		
	1 ===	2	3	4	5				ļ				
$R (m\Omega)$	4,550	4,650	5,550		4,950			<u>۔</u>	<u> </u>			<del></del>	
		c) rated c			tuse-link	<u> </u>	:	25				-   -	
		measurin	_		:		:	2,! 25					
·		ambient a	air temp	erature (	°C)		!. 81.		) Anglesia	1.4. 1	1 - 1 - 2 - 2 - 2 - 2 - 2 - 2		
internal						san	nple No	).		i i			
resistan ce													
	-26-1 1	12	3	[4	]5 <sup></sup>	6	- [		1	1	T	יר	
R (mΩ)	3,320		3,520		3,640	3,680			<del>-</del>				
17 (11122)	0,020	c) rated c						32	<u>                                     </u>			<del>'  </del>	
		measurin	<del> \</del>		:	`	<u>-</u>	3,2					
		ambient a	<del>-</del>		°C)	•		25					
internal		<u> </u>		orataro (		san	nple No			jan -	Y		
resistan					, i								
ce					1 · · ·							3	
	1	2	3	4	5		_[		]				
R (mΩ)	2,531	2,594	2,656	2,625	2,750								
		c) rated c	current (/	4) of the	fuse-link	<	:	40	)				
		measurin	ig currer	nt (A)	•			4					
		ambient a	air temp	erature (	°C)	:		25	·		-		
internal		wa kana ka				san	iple No						
resistan		Marietz											
ce	ļei.			r	, <u>-</u>	-1		25.3			т	,,,,,,,	
	1 705	2	3	4 705	5	·			. <del> </del>				
R (mΩ)	1,725		1,800	1,725	1,750			E0	1	1	1	1 1970	
		c) rated c			ruse-iini	(	:	50	,			11 3 E	AM <del>TI</del> EF.
		measurin			:	_		5	<del> </del>				
· , · · · · ·		ambient a	air temp	erature (	°C)	:	1 - AI	25			With the	- 1 -	
internal		** <u></u> **				san	nple No	).				,	
resistan								1	. Našir			n. ≗ ' .	
ce	1	2	3	4	5			. :	T CONTRACTOR	*		<u> </u>	<del>- r</del>
25626.1715	1	14	13		13		L	********	.L		<u></u>		J



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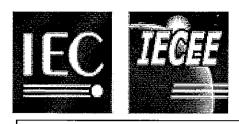
						C 6026		-				2323 00 1	
Clause	Re	quiremen	t + Test						Result -	Remark		,	Verdict
R (mΩ)	1,400	1,380	1,460	1,480	1,420	1			1	1	I		
(	· · · · · · · · · · · · · · · · · · ·			(A) of the		<u> </u>		63	3		. J		
			ng curre	<u> </u>	:	· · · · · · · · · · · · · · · · · · ·	<u>.</u>	6,				<del>-  -</del>	
				erature	(°C)			2				4.73	
internal resistan ce							nple N		-	e de la desagni Jenio de la desagnio		A second	
A CONTRACTOR OF THE CONTRACTOR	1	2	3	4	5	6							
$R (m\Omega)$	1,206		1,254		1,286	1,317	7						
		c) rated			fuse-lin	<b>&lt;</b>	:	80	)				. 17 15 16 16
			ng curre		:			8				, 1, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	
		ambient	air temp	<u>erature (</u>	°C)	:		25	5			\$ - T	· ·
internal						sar	nple N	lo.	-		1	100 P (10 P 10 P 10 P 10 P 10 P 10 P 10	
resistan ce													
ļ	11	2	3	4	5	6							
R (mΩ)	0,750		0,763		0,763	0,775					<u> </u>		
		c) rated			fuse-linl	<b>(</b>	:	10				10 m	
			ng currer		•			10				AA77 7 117 117 117 117 117 117 117 117 1	The state of the s
		ambient	air temp	erature (	°C)	:		25	5			51x = -0.0	<u> </u>
internal resistan ce		- 72 <sup>2</sup> -			η	sar	nple N	lo. 		-,			
	1	2	3	4	5	ļ		************	ļ				
R (mΩ)	0,620				0,620				<u> </u>	<u> </u>		<u> </u>	
		c) rated			tuse-link	<u> </u>	:	12					
		measurii			:				2,5				
		ambient	air temp	<u>erature (</u>	°C)	<u> </u>	# 1, # W . W .	25	<u> </u>				
internal resistan ce	1	12	3	4	] ]5	san	nple N	o. 	1			The state of the s	
R (mΩ)	0,464		0,472		0,488		<b> </b>		•		†	·	<b> </b>
(,,,,,,,,,	-, -, -	c) rated				<u> </u>	:	16	0	1		<u>-</u>	<u> </u>
		measurir			:	<del>-</del>	<u>-                                      </u>	16				TATE	
		ambient		<del></del>	°C)			25				15 Telescope	
internal resistan			,			san	nple N			re meje Pr.		The second of th	
ce				1			.21	y Yata				P.P	
FILL.	1	2	3	4	5	6	7	2-1-14	18	[9	T10	711	12
R (mΩ)	0,306	0,319	0,325	0,344	0,325	0,331		13	0,331	0,325	0,344	0,306	0,338
internal				F.E.E.			ple N						
resistan ce					,		- <b></b>		,	. <b>.</b>	: *********		
1,1	13 0,319	14 0,313	15 0,350	16 0,338	17 0,306	18 0,319	19 0,3		]		<u> </u>		



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IEC 60269-1	
Clause Requirement + Test Result - Remark	Verdict

8.5.5.1	TABLE: Table	20, test No. 2* for "g" and	"a" fuse-linl	N/A	
sample No.	making angle after voltage zero	recovery voltag	e	cut off current	resistance between contacts
	(°)	[] (v)	(%)	(A)	(MΩ)
1			***************************************		
2					***************************************
3					
4					***************************************
5					
6					***************************************
				A	



Test Report issued under the responsibility of:



#### TEST REPORT IEC 60269-2

#### Low-voltage fuses

Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to I

Panart Pafaranca Na	15032525 001 P	ort II
Report Reference No	10002020 001 F	ait    
Date of issue:	30.07.2009	
Total number of pages	18 pages	
Testing Laboratory:	TÜV Rheinland	(Shanghai) Co., Ltd.
Address:		Building, No.88, Lane 777, Guangzhong Road anghai Zhabei District, P.R. China
Applicant's name	Wenzhou Jinlida	a Electrical Co., Ltd.
Address	Xirendang Indust P.R. China	rial Zone, Liushi, Wenzhou, Zhejiang 325604
Test specification:		
Standard	IEC 60269 - 2 : 20	06 (third edition) (see also IEC 60269 – 1:1998)
Test procedure:	СВ	
Non-standard test method:	N/A	
Test Report Form No	IEC60269_2A	
Test Report Form(s) Originator:	EZU	
Master TRF	Dated 2007-12	
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description::	Fuses(fuse link	and fuse base)
Trade Mark:	JINLIDA	
Manufacturer	Same as applicar	nt
Model/Type reference	NH00	
Ratings:	AC 500V; 16A,20, 120kA; Size 00	A,25A,32A,40A,50A,63A,80A,100A,125A,160A;



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Report	No.1	5032525	001	Part II
OPOIL		0002020	001	, all II

Test	ing procedure and testing location:		
$\boxtimes$	Testing Laboratory:	TÜV Rhein	and (Shanghai) Co., Ltd.
Test	ing location/ address:	Hunan Elect 4 Xinzhong	rical Apparatus Testing Institute Road, Changsha, Hunan, P.R. China
	Associated CB Test Laboratory:		
Test	ing location/ address		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Testing procedure: TMP		
	Tested by (name + signature):		
	Approved by (+ signature):		
Testi	ing location/ address:		
	Testing procedure: WMT		
	Tested by (name + signature):		
	Witnessed by (+ signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: SMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: RMT		-
	Tested by (name + signature):		
l	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		



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Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
For homogeneous series of NH00, type tests are listed in table 11, 12, 13 and 14 in EN 60269-1:2006	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
Summary of compliance with National Differences	5:
N/A	



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Copy of marking plate:
Refer to 15032525 001 part I.



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Report No.15032525 001 Part II Test item particulars..... Classification of installation and use...... See part I Supply Connection ...... See part I Fuse system ..... A /B/C/D/E/F/G/H/I ...... Possible test case verdicts: - test case does not apply to the test object .....: N/A - test object does meet the requirement...... P (Pass) - test object does not meet the requirement...... F (Fail) Testing....: Date of receipt of test item ...... : 06.2009 Date (s) of performance of tests...... : 06.2009-07.2009 General remarks: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma (point) is used as the decimal separator. General product information: N/A



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IEC 60269-2						
Clause	Requirement + Test	Result - Remark	Verdict			
	Requirements IEC 60269-1		and the second s			
FUSE SYS	TEM A - FUSES WITH FUSE-LINKS WITH BLADE CO	ONTACTS (NH FUSE SYSTEM)	Q			
Service Control of Con	CHARACTERISTICS OF FUSES		A CONTROL OF THE CONTROL OF T			
5.2	Rated voltage (V) as specified	500VAC	Р			
5.3.1	Rated current (A) of the fuse-link in accordance with specified values		Р			
5.3.2	Rated current (A) of the fuse-holder and the size of the fuse-link	Size 00	Р			
5.5	Rated power (W) dissipation of fuse-link see Figure 101	<12W	P			
	Rated acceptable power (VA) dissipation of fuse-bases given in Figure 102	12W	Р			
5.6	Limits of time-current characteristics		Р			
5.6.1	Time-current characteristics, time-current zones and overload curves:		Р			
5.6.2	Conventional times and current see Table 101:		Р			
5.6.3	Gates:		Р			
5.7.2	Rated breaking capacity (A)	120kA	Р			
6.75 N and	MARKING "STATE OF THE PARTY OF	Total Control Contro	* * **********************************			
·	Markings are legible		Р			
6.1	Fuse-holders marked by:		Р			
	- IEC 60269-2		Р			
	- size	00	Р			
	Marking of rated current and rated voltage are discernible from the front		Р			
6.2	Fuse-links marked by:		Р			
	- IEC 60269-2:		Р			
	- size or reference	00	Р			
	- rated breaking capacity:	120kA	Р			
	Marking of rated current and rated voltage are discernible from the front		Р			
	Fuse-links are marked as described in Table 104:		Р			



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	IEC 60269-2							
Clause	Requirement + Test	Result - Remark	Verdict					
7	STANDARD CONDITIONS FOR CONSTRUCTION		V 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
7.1	Mechanical design	A A V steps years	Р					
	The dimensions of the fuse-links given in Figure 101		Р					
	Dimensions:		Р					
	dimension marking a1: prescribed (mm); measured (mm)	78,5±1,5;	Р					
	dimension marking a2: prescribed (mm); measured (mm):	54-6;	Р					
	dimension marking a3: prescribed (mm); measured (mm)	45±1,5;	Р					
	dimension marking a4: prescribed (mm); measured (mm):	49±1,5;	Р					
	dimension marking b1min: prescribed (mm); measured (mm):	15;	Р					
	dimension marking b2min: prescribed (mm); measured (mm):	4,5;	Р					
	dimension marking b3max: prescribed (mm); measured (mm)	5;	Р					
	dimension marking b4min: prescribed (mm); measured (mm):	12;	Р					
	dimension marking c1: prescribed (mm); measured (mm)	35;	Р					
	dimension marking c2: prescribed (mm); measured (mm)	10-1;	Р					
	dimension marking d: prescribed (mm); measured (mm):	2+1,5/-0,5	Р					
	dimension marking e1max: prescribed (mm); measured (mm):	48;	Р					
	dimension marking e2max: prescribed (mm); measured (mm):	30;	P					
	dimension marking e3: prescribed (mm); measured (mm)	20±5;	Р					
	dimension marking e4: prescribed (mm); measured (mm)	6;	Р					
	dimension marking f: prescribed (mm); measured (mm):	15;	Р					
	dimension marking z: prescribed (mm); measured (mm)	3;	P					



#### Page 8 of 18

	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	The dimensions of the fuse-base given in Figure 102	2	Р
	Dimensions:	· · · · · · · · · · · · · · · · · · ·	P
	dimension marking g: prescribed (mm); measured (mm)	47±1;	Р
	dimension marking h: prescribed (mm); measured (mm):	100±1,5;	P
	dimension marking n1max: prescribed (mm); measured (mm):	30;	Р
	dimension marking n2max: prescribed (mm); measured (mm)	38;	Р
	dimension marking p1max: prescribed (mm); measured (mm):	40;	Р
	dimension marking p2: prescribed (mm); measured (mm)		N/A
	dimension marking r min: prescribed (mm); measured (mm):	17	Р
	dimension marking s max: prescribed (mm); measured (mm)	21	Р
	dimension marking t min: prescribed (mm); measured (mm):	15	Р
	dimension marking v: prescribed (mm); measured (mm)	56,5+1,5	Р
	dimension marking w1: prescribed (mm); measured (mm):	0±0,7;	Р
	dimension marking w2: prescribed (mm); measured (mm):	25±0,7;	Р
	dimension marking x min: prescribed (mm); measured (mm):	14;	Р
	dimension marking y: prescribed (mm); measured (mm):	7,5±0,5;	Р
	dimension marking z max: prescribed (mm); measured (mm)	3	Р
7.1.2	Connections, including terminals		Р
	cross-sectional ranges (Table 105)		
	torques to be applied (Table 111) (lug terminal):		
7.1.3	Contact surfaces should be silver plated:	Yes / No	Р



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IEC 60269-2				
Clause	Requirement + Test	Result - Remark	Verdict	
	If no test according to 8.10 are passed with dumn described in 8.10.1	nies	Р	
7.1.5	Dynamic short-circuit withstand shall meet cut-off currents (Table 112)		Р	
7.1.7	Construction of fuse-link		Р	
	Blade contacts made of solid material		Р	
	If any other construction, manufacturer demonstrathat construction adequate		N/A	
.,	Endplates not permitted to protrude radially from insulation body	:	Р	
-	preferable to insulate the gripping lugs from live p	arts	Р	
	Fuse-links has an indicator		P	
	Electrically conductive parts of indicator not ejecter from the fuse-link during operation	ed:	Р	
7.2	Insulating properties		P	
	Creepage distances and clearances of fuses and fuse-accessories meet requirements of IEC 6066 for overvoltage category III and pollution degree 3	4-1	Р	
7.7	I <sup>2</sup> t characteristics		Р	
	maximum pre-arcing I <sup>2</sup> t		P	
-	(Table 7 of IEC 60269-1)	:		
	rated currents lower than 16 A (Table 106)	:	N/A	
	maximum operating I <sup>2</sup> t for "aM" fuse-links		N/A	
	(Table 107)			
	test No. 2 of the largest rated current of each homogeneous series (Table 20 of IEC 60269-1) .	:		
7.8	Overcurrent discrimination of "gG" fuse-links		Р	
	(see 8.7.4, Table 108)	:		
7.9	Protection against electric shock		Р	
_	increased by means of partition walls and covers of fuse-contacts		Р	
	operation by authorized persons, instructed in electrical matters, using replacement handles according to this fuse system	:	Р	



### Page 10 of 18

	IEC 60269-2					
Clause	Requirement + Test		Result - Remark	Verdict		
8	TESTS			FAMOUR SALES TO SEE		
	IEC 60269-1 applies with the following supplementary requirements	,		Р		
8.1.4	Arrangement of fuse and dimensions			Р		
	Requirements of 7.2 verified on fuse-bases	:		P		
	Creepage distances and clearances of fuse-link according to 7.2 are verified			Р		
	Clearances verified on fuse-link inserted into mo			Р		
8.1.6	Testing of fuse-holders			Р		
	In addition to test given in IEC 60269-1 tested according to Table 109	:		Р		
8.2.2.1	Points of application of test voltage			Р		
	In addition to IEC 60269-1		1890V	Р		
	e) between isolated metal gripping-lugs and terminals of test fuse-bases	:				
8.2.3.2	Value of test voltage		Not applicable	N/A		
	rated impulse withstand voltage in Table 110	:		N/A		
8.2.3.3	Test method			N/A		
	5 impulses of both polarities and of shape 1,2/50 and rated withstand voltage level according to	0 μ <b>s</b>		N/A		
	Table 110	:				
	minimum period between impulses are 1 s	:				
8.2.4	Acceptability of test results			Р		
8.2.4.3	No flash-over or puncture shall occur during test	t: .		Р		
8.2.5	Resistance to tracking			Р		
	plastic parts of fuse-links and fuse-bases tested shall pass at PTI level stated by manufacturer		500M	Р		
8.3	Verification of temperature rise and power dissip	ation		Р		
8.3.1	Arrangement of the fuse			Р		
	Tightened by torque (Nm)	:	10	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
8.3.2	Measurement of the temperature rise			Р		
	Protective covers and fuse-carriers as provided manufacturer mounted			Р		
8.3.4.1	Temperature rise of the fuse-holder		See part I	Р		



### Page 11 of 18

	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	Dummy (Figure 105)  Point at which temperature rise is measured (Figure 106)		Р
8.3.4.2	Power dissipation of a fuse-link (Figure 106)	10,3W	Р
8.4.3.1	Verification of conventional non-fusing and fusing current	See part I	Р
	non-fusing current test – second test specimen are used for b)	See part I	Р
8.4.3.5	Conventional cable overload protection test (for "gG" fuse-links only)	See part I	Р
	Details of special test are given in Annex A	Not required	N/A
Annex A	Special test for cable overload protection		N/A
	For fuses with $I_n > 16$ A of the sizes 00, 0, 1 and 2.:		N/A
A.1	Arrangement of the fuse		N/A
	Three fuse-links in fuse-bases mounted in a box:		N/A
	Ambient air temperature outside the fuse box shall be (30 <sup>+5</sup> <sub>0</sub> °C)	°C	N/A
A.2	Test method and acceptability of test results		N/A
	1,13 I <sub>n</sub> flowed through the fuse-links for conventional time (see Table 2 of IEC 60269-1):	A for s	N/A
	Non of fuse-links operated:		N/A
	Test current raised without interruption within 5 s to 1,45 l <sub>n</sub> :	A	N/A
	One fuse-link operated within conventional time:		N/A
8.5.5.1	Verification of the peak withstand current of a fuse- base	Not applicable	N/A
	not be carried out , if this has already been verified during the breaking capacity test of fuse-links with the highest rating of the size:		N/A
8.5.5.1.1	Arrangement of the fuse		N/A
	single-phase type, 8.5.1 of IEC 60269-1		N/A
	peak values of the test currents (Table 112):		
	maximumum values (see 8.5.5.1.3):		
	dummy fuse-link (Figure 101):		
8.5.5.1.2	Test method		N/A



#### Page 12 of 18

IEC 60269-2				
Clause	Requirement + Test	Result - Remark	Verdict	
	fuse-base 1 (Figure107) resilient spring travel is limited to elastic range:		N/A	
	fuse-base 2 (see 8.11.1.2)  F <sub>max</sub> according to Table 118		N/A	
8.5.5.1.3	Acceptability of test results		N/A	
	fuse-links not be ejected		N/A	
	no signs of arcing or welding or other damage		N/A	
8.5.8	Acceptability of test results		N/A	
	Fuse or circuit-breaker not operate during this test		N/A	
8.7.4	Verification of overcurrent discrimination		Р	
	verified by I <sup>2</sup> t values evaluated from the recorded test results		Р	
	Arrangement of the samples as for the breaking capacity test		Р	
	two samples tested at the r.m.s. prospective test current I, corresponding to minimum pre-arcing I <sup>2</sup> t	1) 2)	Р	
	the other samples tested at the r.m.s. prospective test current I, corresponding to operrating I2t	3) 4)	Р	
	test voltage (V)		V 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	
	The values of l²t lìe within corresponding limits specified in Table 113:		Р	
8.9	Verification of resistance to heat		Р	
	Tests apply to fuse-link and fuse-base		Р	
	Fuse-holder with fuse-links having maximum power dissipation are cyclically loaded as pre-treatment:		Р	
	After cooling to normal temperature		Р	
	breaking capacity tested at I <sub>1</sub> (see 8.5)::	I <sub>1</sub> = 120kA		
	Fuse-links with organic material		N/A	
	Fuse-holder with fuse-links having maximum power dissipation are cyclically loaded as pre-treatment			
	After cooling to normal temperature	l <sub>1</sub> =	N/A	
	breaking capacity tested at I <sub>1</sub> and I <sub>5</sub> (see 8.5)::	l <sub>5</sub> =		
8.9.1	Fuse-base		Р	



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	IEC 6026	9-2		
Clause	Requirement + Test		Result - Remark	Verdict
	test below apply if it is not obvious that comp are not affected adverselly by given tempera withdrawal forces			P
8.9.1.1	Test arrangement			Р
	Figure 105 and 108			Р
	Test se-up in heating chamber			Р
8.9.1.2	Test method			Р
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h			Р
	160% rated current for 2 h	:	160% I <sub>n</sub> =256A	Р
	Test voltage	:	50 V	100 mm
	3 min after switching off			Р
	tensile force F <sub>max</sub> (see Table 118) exerted for	15 s	F <sub>max</sub> =	
8.9.1.3	Acceptability of test results			Р
	Contact pieces not have moved to affect the use	further		Р
	Dimensions of Figure 102 are considered			Р
	Insulating mounting part no broken and no sh signs of cracks	now any		Р
8.9.2	Fuse-links with gripping lugs of moulded mat of metal fixed in moulded material	erial or	No such part	N/A
8.9.2.1	Test arrangement			N/A
	Figure 108			N/A
8.9.2.2	Test method			N/A
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h			N/A
	150% rated current for conventional time	:	A for h	N/A
	Test voltage	:	V	1
	3 min after fuse-link operated or conventiona expired	time	F <sub>max</sub> =	N/A
	tensile force F <sub>max</sub> (see Table 118) exerted for	15 s	max —	
8.9.2.3	Acceptability of test results			N/A
	Gripping lugs remain fully operational			N/A
	Dimensions of Figure 101 (d and c <sub>2</sub> ) not be exceeded by more than 2 mm			N/A
8.10	Verification of non-deterioration of contacts direct terminal clamps	and		Р



### Page 14 of 18

	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
8.10.1	Arrangement of the fuse		Р
	Figure 105	-	Р
	for lug terminals, torgue in Table 111:	10 Nm	2
	Insulation of conductors removed over the whole length		Р
8.10.1.2	Direct terminal clamps		Р
	Test performed on 10 direct terminal clamps of five fuse-bases		Р
	Distance between fuse-base centres of at least three times e <sub>2</sub> (see Figure 101)		Р
	Torque of tightened of screws:	Nm	1
	Conductor cross-section:	mm <sup>2</sup>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
8.10.2	Test method		Р
	Test current (A) for load period:	200A	Р
	Duration (s) of load period:	0,5h	Р
	Duration (s) of no-load period:	0,2h	Р
	Test voltage (V):	50V	**************************************
	a) Test of 50 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
	b) Test of 250 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
	c) Test of 500 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
	d) Test of 750 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
8.10.2.1	Contacts		Р
	Points between voltage drop is measured		Р
	(A and B in Figure 106)		
	Withdrawal force (Table 118); measured force after	1)	Р
	250 cycles (N)	2)	
		3)	



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IEC 60269-2				
Clause	Requirement + Test	Result - Remark	Verdict	
	Withdrawal force (Table 118); measured force after 750 cycles (N)	1) 2) 3)	P	
	If measured values too low, test of 8.5.5.1:	<u> </u>	N/A	
8.10.2.2	Direct terminal clamps		Р	
	Points between voltage drop is measured (Figure 110)		Р	
	Test sequence for all types conductors (see Table 116)		Р	
	Verification of temperature rise (see 8.3.4.1) (see figure 110):		Р	
8.10.3	Acceptability of test results		Р	
8.10.3.1	Contacts		Р	
	Limit value after 250 <sup>th</sup> cycle ≤ 15%		Р	
	Limit value after 500 <sup>th</sup> cycle ≤ 30%		Р	
	Limit value after 750 <sup>th</sup> cycle ≤ 40%		Р	
	Difference between last and first measurement of temperature rise less than 20 K:		Р	
8.10.3.2	Direct terminal clamps		Р	
	Permissible tolerance for resistance $R_{cl0}$ for Al conductors : $R_{cl0max} \le 2R_{cl0min}$		Р	
	Permissible changes of the resistance from R of 50 to R of 750 : see Table 117:		Р	
	Copper or cleaned aluminium conductors:		Р	
	Uncleaned aluminium conductors:		N/A	
	Change from 50 <sup>th</sup> to 250 <sup>th</sup> cycle		Р	
	Change after 250 <sup>th</sup> to 500 <sup>th</sup> cycle		Р	
	Change after 500 <sup>th</sup> to 750 <sup>th</sup> cycle		Р	
	Change between 50 <sup>th</sup> to 750 <sup>th</sup> cycle		Р	
	Temperature rise at test spot F < 75K		Р	
8.11	Mechanical and miscellaneous tests		Р	
8.11.1.1	Mechanical strength of fuse-holders		Р	
	Test set-up subjected to temperature rise test at rated current:	160A	Р	



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IEC 60269-2					
Clause	Requirement + Test	Result - Remark	Verdict		
	fuse-link or fuse-carrier are withdrawn and inserted into fuse-base 100 times	100 times			
	All parts are intact and function normally		Р		
	Test set-up subjected to further temperature rise test at rated current (values obtained are not more than 5 K or 15 % above the values from temperature-rise test prior)		Р		
8.11.1.2	Mechanical strength of the fuse-base		Р		
	Test-link inserted three times in the fuse-base:		Р		
	(Dimensions of blade contacts see Figure 101)				
	(Withdrawal force F lied within limits in Table 118)				
	Steel screws are fastened three times at the terminals, torque of 1,2 times value specified by manufacturer or value of Table 111:		Р		
	Contact pieces not have moved to affect the further use		Р		
	Insulating mounting part no broken and no show any signs of cracks		Р		
8.11.1.8	Impact resistance of gripping-lugs of moulded material or of metal fixed in moulded material		N/A		
8.11.1.8.1	Test arrangement		N/A		
8.11.1.8.2	Facility is given in Figure 109:		N/A		
	One fuse-link(150±5)°C for 168 h				
·	Another one15°C for 72 h		The state of the s		
	One impact on each of gripping-lugs		N/A		
8.11.1.8.3	Acceptability of test results		N/A		
	No damage capable of hindering their further use		N/A		
	No bent out by more than 3 mm		N/A		
	Coupling with a handle (Figure 103) not are hindered		N/A		
8.11.2.3	Verification of resistance to rusting		N/A		
8.11.2.3.1	According to ISO 6988		N/A		
	cyclic moist atmosphere containing 0,2% SO2				
	(SFW 0,2 S) for 1 cycle				
8.11.2.3.2	Optional test (severe environmental conditions)		N/A		



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	IEC 6026	9-2		
Clause	Requirement + Test		Result - Remark	Verdict
	Fuse-links and fuse-bases for used in enviro of pollution degree ≥3 tested with SFW 2,0 S	1		N/A
	for 5 cycles	:		
	They marked accordingly	:		N/A
8.11.2.4	Non-deterioration of insulating parts of fuse-l fuse-base	ink and		Р
8.11.2.4.1	Test method			Р
<u> </u>	Period 168 h	:	168	
	for equipment comprising moulded elements support live parts (150±5)°C	to	150	A CAMMAND A CAMM
	for covers (100±5)°C			
	Period greater than 1 h	:	1h	2 Committee 1 Comm
	for sealing compounds; stability of marking(150±5)°C			The state of the s
	After cooling to ambient temperature the folloare tested.	wing		P
	Fuse-links: breaking capacity with I <sub>1</sub> and I <sub>2</sub> .	:		Р
	Fuse-base: mechanical strength in accorda 8.11.1.2	nce with		Р
8.11.1.2	Mechanical strength of the fuse-base			Р
	Test-link inserted three times in the fuse-base	e:		Р
	(Dimensions of blade contacts see Figure 10	1)		
	(Withdrawal force F lied within limits in Table	118)		
	Steel screws are fastened three times at the terminals, torque of 1,2 times value specified manufacturer or value of Table 111			Р
	Contact pieces not have moved to affect the use	further		Р
	Insulating mounting part no broken and no sh signs of cracks	ow any		Р
8.11.2.4.2	Acceptability of test results			Р
	Not have changed of positions of fuse-base of to correct functioning	ontacts		Р
	No fracture nor any signs of fracture on insula body with terminals	ating		Р
	Mechanical strength of cemented joints not in	npaired		Р



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	9		2020 00 1 1 UI 1			
	IEC 60269-2					
Clause	Verdict					
	Sealing compounds not shifted to extent permittin live parts to exposed	g	Р			
Fuse-links operate correctly		Р				
	Marking are durable and easily legible		Р			



**Produkte Products** 

Prüfbericht - Nr.: Test Report No.:	15033141 001		Seite 1 von 1 Page 1 of 1	
Auftraggeber: Client:		Wenzhou Jinlida Electrical Co., Ltd. Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604, P.R. China		
Gegenstand der Prüfung: Test item:	Low-voltage Fuse			
Bezeichnung: Identification:	NH1	Serien-Nr.: Serial No.:	Engineering sample	
Wareneingangs-Nr.: Receipt No.:	153123295	Eingangsdatum: Date of receipt:	22.06.2009	
Prüfort: Testing location:	Hunan Electrical Equipment No. 4 Xinzhong Road, Changsl			
Prüfgrundlage: Test specification:	IEC 60269-1:2006 IEC 60269-2:2006			
Prüfergebnis: Test Result:	Der Prüfgegenstand entspric The test item passed the test s		rüfgrundlage(n).	
Prüflaboratorium: Testing Laboratory:	TÜV Rheinland (Shanghai) C	o., Ltd.		
geprüftl tested by:	kontrolli	ert/ reviewed by:		
Datum Name/Stellu Date Name/Positic	ng Unterschrift Datu	m Name/Stellu	ng Unterschrift	
Sonstiges/ Other Aspects:				
This report consists of two pa Part I for IEC 60269-1:2006. Part II for IEC 60269-2:2006.	rts:			
F(ail) = entsp N/A = nicht N/T = nicht	oricht Prüfgrundlage oricht nicht Prüfgrundlage t anwendbar t getestet sich nur auf das o.g. Prüfmuster	Abbreviations: P(ass) F(ail) N/A N/T und darf ohne Genehn	= passed = failed = not applicable = not tested nigung der Prüfstelle nicht	

auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.





#### Test Report issued under the responsibility of:



#### TEST REPORT IEC 60269-1

#### Low-voltage fuses

#### Part 1: General requirements

Testing Laboratory...... TÜV Rheinland (Shanghai) Co., Ltd.

Address ......: 10-15/F, Huatsing Building, No.88, Lane 777, Guangzhong Road

West, 200072 Shanghai Zhabei District, P.R. China

Applicant's name...... Wenzhou Jinlida Electrical Co., Ltd.

Address ....... Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604

P.R. China

Test specification:

Standard ...... IEC 60269-1:2006 (Fourth edition)

Test procedure ...... CB

Non-standard test method ...... N/A

Test Report Form No. .....: IEC60269\_1A

Test Report Form(s) Originator .....: EZU

Master TRF ...... Dated 2009-04

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description ...... Fuses (fuse-link and fuse-base)

Trade Mark .....: JINLIDA

Manufacturer ...... Same as applicant

Model/Type reference .....: NH1

Ratings ...... AC 500V; 80A,100A,125A,160A,200A,224A,250A; 120kA; Size 1



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Test	ing procedure and testing location:	-	
$\boxtimes$	Testing Laboratory:	TÜV Rhei	ıland (Shanghai) Co., Ltd.
Test	ing location/ address:	Hunan Ele	ctrical Apparatus Testing Institute
		4 Xinzhong	Road, Changsha, Hunan, P.R. China
	Associated CB Test Laboratory:		
Test	ing location/ address:		
	Tested by (name + signature):		
	Approved by (+ signature)		
	Testing procedure: TMP		
	Tested by (name + signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: WMT		
	Tested by (name + signature):		
	Witnessed by (+ signature):		
	,		
Tosti	Approved by (+ signature): ng location/ address:		
1630	ng location address		
	Testing procedure: SMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: RMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		
. 551			



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Report No. 15032525 001 Part I

Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
For homogeneous series of NH1, type tests are listed in table 11, 12, 13 and 14 in EN 60269-1:2006	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
Summary of compliance with National Differences	s:
N/A	

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Report No. 15032525 001 Part I

Copy of marking plate:

JINLIDA

NH1

500V~ 120kA

690V~ 50kA

gG 250A

IEC 60269

(C 区型 (C)

Marking plate of fuse-link

JINLIDA

NH1

500V∼ 250A 690V∼ 200A

IEC 60269

Marking plate of fuse-base



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Report No. 15032525 001 Part I

Test item particulars:	
Fuse-holder 2	es/No
Fuse-base:	es/No
Fuse-carrier	<del>/es</del> /No
Fuse-link	es/ <del>No</del>
Fuse for use by authorized persons	es/ <del>No</del>
Fuse for use by unskilled persons	<del>(es</del> /No
Possible test case verdicts:	
- test case does not apply to the test object: N	VA
- test object does meet the requirement F	(Pass)
- test object does not meet the requirement: F	(Fail)
Testing	
Date of receipt of test item C	6.2009
Date (s) of performance of tests:	6.2009-07.2009
The test results presented in this report relate only to the of This report shall not be reproduced, except in full, without "(see Enclosure #)" refers to additional information apper "(see appended table)" refers to a table appended to the result of Throughout this report a comma (point) is used as the descent of General product information:  N/A	the written approval of the Issuing testing laboratory.  ded to the report.  eport.



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
5	CHARACTERISTICS OF FUSES			The second of th
5.2	Rated voltage (V) as specified		AC 500V	Р
5.3.1	Rated current (A) of the fuse-link in accordar specified values		80A,100A,125A,160A,200A,22 4A,250A	Р
5.3.2	Rated current (A) of the fuse-holder	·····::	250A	Р
5.4	Rated frequency (Hz)	:	50Hz	Р
5.5	Max. rated power dissipation (VA) of fuse-link	:	<=23W	Р
	Rated acceptable power dissipation (VA) of f		32W	Р
5.6	Limits of time-current characteristics based or reference ambient air temperature Ta of +20			Р
5.6.1	Time-current zones deviated from standardize available in manufacturers documentation (witolerances)	ith		Р
5.6.2	Conventional times and currents see Table	2 :		Р
5.6.3	Gates	:		Р
5.7	Breaking range and breaking capacity		120kA	Р
5.7.1	Breaking range and utilization category	:	gG	Р
5.7.2	Rated breaking capacity (A) of fuse-link correto the rated voltage (V), and is equal or higher given minimum (A) in subsequent part of this standard	r than	120kA	Р
5.8	Cut-off current and I <sup>2</sup> t characteristics are refethe values of voltage, frequency and power fa			Р
5.8.1	Cut-off current characteristics, if required, give the manufacturer according to Figure 4			Р
5.8.2	Pre-arcing I <sup>2</sup> t characteristics for pre-arcing times than 0,1 s down to a time corresponding rated breaking capacity given by the manufacture.	to the		Р
	The operating I <sup>2</sup> t characteristics with specified voltages as parameter for pre-arcing times les 0,1 s given by the manufacturer	ss than		Р



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
6	MARKINGS	- 13種類を含む 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	: 7: <sub>4-1</sub>	
	Markings are durable and easily legible		Р	
6.1	Fuse-holders marked by:		Р	
	- name of manufacturer or trade mark which enable identification of fuse-holder:	JINLIDA	Р	
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.1:	NH1	Р	
	- rated voltage (V):	500V	Р	
	- rated current (A):	250A	Р	
	- kind of current and rated frequency (Hz):	AC and 50Hz	Р	
6.2	Fuse-link(s) except small fuse-link(s) marked by:		Р	
	- name of manufacturer or trade mark which enable identification of fuse-links:	JINLIDA	Р	
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.2:	NH1	Р	
	- rated voltage (V):	500V	Р	
	- rated current (A):	80~250A	Р	
	- breaking range and utilization category (if applicable) (5.7.1)	gG	Р	
	- kind of current:	AC	P	
	- rated frequency (Hz), if applicable (5.4)	50Hz	Р	
	Small fuse-links marked by:		N/A	
	- trademark:		N/A	
	- list reference of manufacturer:		N/A	
	- rated voltage (V):	11	N/A	
	- rated current (A):		N/A	
6.3	Symbols for the kind of current and frequency in accordance with IEC 60417		Р	



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IEC 60269-1					
Clause	Requirement + Test		Result - Remark		Verdict
7	STANDARD CONDITIONS FOR CONSTRU	CTION		- 100 - 100	-
7.1	Mechanical design		A CAPAGE AND A CAP	Annabas or a service	Р
7.1.1	Replacement of fuse-links easily and safely				P
7.1.2	Connections, including terminals			,	P
	Contact force is not transmitted through insula material other than ceramic or other material characteristics not less suitable, unless				Р
	there is sufficient resilience in the metallic par compensate any possible shrinkage or other deformation of the insulating material	ts to			Р
	Terminals cannot turn or be displaced when to connecting screws are tightened	he			Р
	Terminals shall be such, that the conductors be displaced	cannot			Р
	Parts gripping the conductors are of metal				Р
	Gripping parts cannot unduly damage conduc	tors			Р
	Terminals readily accessible under the intend conditions of installation	ed			P
7.1.3	Fuse-contacts				Р
	Fuse-contacts are such that necessary contacts maintained under the conditions of service operation			,,,	Р
	Contact is such that electromagnetic forces occurring during operation under conditions in accordance with 7.5 not impair electrical confibetween				Р
	a) fuse-base and fuse-carrier				N/A
	b) fuse-carrier and fuse-link				N/A
	c) fuse-link and fuse-base				Р
	Fuse contacts are so constructed and of such material that, when fuse is properly installed a service conditions are normal, adequate contamaintained	nd			Р
	a) after repeated engagement and disengage	ment			Р
	b) after being left undisturbed in service for lor period	ng			Р
7.1.4	Construction of a gauge-piece				Р
	Gauge-piece is so designed that it withstands stresses occurring during use	normal			Р



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	IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict	
7.1.5	Mechanical strength of fuse-link			Р	
	Fuse-link have adequate mechanical streng contacts are securely fixed	th and its		Р	
7.2	Insulating properties and suitability for isolati	on		Р	
	Fuses are such that they do not lose insulati properties at voltages to which they are subj normal service			Р	
	Fuse passes the tests for verification of insu properties and suitability for isolation in accowith 8.2			Р	
7.3	Temperature rise, power dissipation of the fu			, P	
	See Table 5	:		Р	
	Requirements are verified by tests according	to 8.3		Р	
7.4	Operation			Р	
	Fuse-link is so designed and proportioned the tested in its appropriate test arrangement at frequency and ambient air temperature of (2)	rated		Р	
	- is able to carry continuously any current no exceeding its rated current	t		Р	
	- is able to withstand overload conditions as may occur in normal service (see 8.4.3.4)	they		Р	
	Fuse-link satisfy these conditions if it passes tests prescribed in 8.4	the		Р	
7.5	Breaking capacity			Р	
	Fuse is capable of breaking, at rated frequer at voltage not exceeding the recovery voltag specified in 8.5, any circuit having prospective current between	e		Р	
	- current I <sub>f</sub> (for "g" fuse-links)	:		Р	
	- current k <sub>2</sub> I <sub>n</sub> (for "a" fuse-links)	:		N/A	
	- for a.c., rated breaking capacity at power fa not lower than those in Table 20			Р	
	- for d.c., rated breaking capacity at time connot greater than those limits in Table 21			N/A	
	Arc voltage not exceed values given in Table	6 :		Р	
	Fuse satisfy these conditions if it passes the prescribed in 8.5	tests		Р	
7.6	Cut-off current characteristic			Р	



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	IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict		
	Values of cut-off current measured as specified in 8.6 are less than, or equal to, the values corresponding to cut-off current characteristics assigned by the manufacturer		Р		
7.7	I <sup>2</sup> t characteristics		P		
	Pre-arcing I <sup>2</sup> t values verified according to 8.7 (Table 7)	:	Р		
·-	Operating I <sup>2</sup> t values verified according to 8.7	:	Р		
7.8	Overcurrent discrimination of fuse-links	:	Р		
7.9	Protection against electric shock		Р		
	The degree of protection when the fuse is under normal service conditions:	IP00	Р		
	The degree of protection when replacing the fuse-link:		Р		
	The degree of protection when the fuse-link and fuse-carrier is removed:	IP	N/A		
7.9.1	Clearances and creepage distances		Р		
	Clearances are not less than the values given in Table 9	:	Р		
	Creepage distances correspond to material group as defined in 2.7.1.3 of IEC 60664-1, correspondir with rated voltage given in Table 10	ng	Р		
7.9.2	Leakage currents of equipment suitable for isolation		N/A		
	Value of leakage current (mA) not exceed		N/A		
	- 0,5 mA per pole for fuses in new conditions		N/A		
	- 2 mA per pole for fuses having been submitted to test according to 8.5		N/A		
7.9.3	Additional constructional requirements for fuses with non-separable fuse-carriers, suitable for isolation		N/A		
	Fuse-holder are marked with the symbol IEC 60617-S00369		N/A		
	When fuse is in open position, with fuse-link remaining inside the fuse-carrier, isolating distance between the fuse contacts in accordance with the isolating function are provided	Э	N/A		
	Indication of this position is provided by the positio of the fuse-carrier	n	N/A		



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
	There exists a locking means in order to loc fuses in the isolated position, locking is pos only in this position			N/A
	Fuses are designed so that the fuse-carrier remains attached to the fuse-base giving coindication of the open position, and of locking	rrect		N/A
7.10	Resistance to heat			Р
	All components are sufficiently resistant to he which may occur in normal use (see 8.9 and			Р
7.11	Mechanical strength			Р
	All components of fuse are sufficiently resis mechanical stresses which may occur in no use (see 8.3 to 8.5 and 8.11.1)			P
7.12	Resistance to corrosion			Р
	All metallic components of fuse are resistant corrosive influences which may occur in nor			Р
7.12.1	Resistance to rusting			Р
	Ferrous components are so protected that t meet relevant tests (see 8.2.4.2 and 8.11.2.	hey 3)		Р
7.12.2	Resistance to season cracking			Р
	Current-carrying parts are sufficiently resistate season cracking (see 8.2.4.2 and 8.11.2.1)	ent to		Р
7.13	Resistance to abnormal heat and fire			Р
	All components of fuse are sufficiently resistabnormal heat and fire (see 8.11.2.2)	tant to		Р
7.14	Electromagnetic compatibility			N/A
	Fuses within the scope of this standard are sensitive to normal electromagnetic disturba			N/A
	No immunity tests are required			N/A



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IEC 60269-1					
Clause	Requirement + Test		Result - Remark	Verdict	
8	TESTS				
8.1.2	At the beginning of each test, the fuse is approximately at the ambient temperature			Р	
8.1.3	Tests made on fuses in clean and dry condition	on		Р	
8.1.4	Arrangement of the fuse and dimensions			Р	
	Except for degree of protection test (see 8.8), are mounted in free air in draught-free surrount in the normal operation position and on insula material of sufficient rigidity	ndings		Р	
	Before tests are started, specified external dimensions are measured and results compadimensions specified in the relevant data she manufacturer or specified in subsequent parts	et of the	Part II	Р	
8.1.5	Testing of fuse-links			P	
	Fuse-links tested with the kind(s) of current fo they are rated	r which		P	
	Fuse-links tested for a.c. with frequency for withey are rated	hich		P	
8.1.5.1	Complete tests			Р	
	Internal resistance R measured by a current	€0,1 In		Р	
	Measuring current (A)	:		Р	
	Ambient air temperature in range of 20 ± 5 °C	;		Р	
	The values of resistance		(see appended table)	Р	
8.1.5.2	Testing of fuse-links of a homogeneous series	s		Р	
	Fuse-links tested like a homogeneous series	:	Yes/No	Р	
	If yes: fuse-links have identical enclosures in f and construction (except of fuse-elements and contacts)			Р	
	- the same arc-extinguishing medium and san completeness of filling	ne		Р	
	- fuse-elements of identical materials			Р	
	- their cross-section of fuse-elements not exce cross-section of fuse-links having the highest current			Р	
	- number of fuse-elements do not exceed num fuse-elements of fuse-links with the highest ra current			Р	



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	IEC 6026	· · · · · ·		3141 001 Fait1		
Clause						
Clause	Requirement + Test		Result - Remark	Verdict		
	- minimum distances between adjacent fuse- elements and between the fuse-elements an inner surface of the cartridge is not less than the fuse-link with the highest rated current	d the		P		
	- fuse-links used with a given fuse-holder, or			Р		
	fuse-links intended to be used in an arrange identical for all rated currents of the homoger series			N/A		
	- value of RI <sub>n</sub> <sup>3/2</sup> does not exceed the value fo fuse-link with largest rated current of the homogeneous series (R measured as indica 8.1.5.1)			N/A		
	the rated breaking capacity of fuse-links not of than that of the fuse-link with the largest rated within the homogeneous series			Р		
	- if not, the fuse-links with greater breaking casubjected to tests no. 1 and no. 2	pacity		N/A		
	The fuse-link having the largest rated current completely according to Table 11	tested		Р		
	The fuse-link having the smallest rated curre only according to Table 12	nt tested		Р		
	The fuse-links between the largest and small rated current tested according to Table 13	est		Р		
8.1.6	Testing of fuse-holders			Р		
	The fuse-holders are subjected to the tests according to Table 14			Р		
8.2	Verification of the insulating properties and of suitability for isolation	the		Р		
8.2.1	Arrangement of the fuse-holder			Р		
	The fuse-holder fitted with a fuse-links of the dimensions for the type of fuse-holder concerns			Р		
	The fuse-base fixed to a metal plate, unless otherwise specified			Р		
	Fuse-link is replace while live - surfaces of fu of device for replacing it or of fuse-carrier, if consulating material, are provided with metal connected during tests to the frame of the apif of metal, they are connected direct to the frame.	f overings paratus;		Р		
8.2.2	Verification of the insulating properties			Р		
	Points of application of the test voltage			Р		
	The test voltage is applied between:			Р		



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	IEC 60269-1					
Clause	Requirement + Test	Result - Remark	Verdict			
	a) live parts and the frame with the fuse-link and the device for replacing it, or		P			
	the fuse-carrier, if any, in position		N/A			
	no breakdown of insulation or flashover during 1 mir of the applying test voltage		Р			
	b) the terminals without fuse-link, device for replacin or the fuse-carrier	g	Р			
	no breakdown of insulation or flashover during 1 mir of the applying test voltage		Р			
	c) live parts of different polarity in the case of multipole fuse-holder with fuse-links, fuse-carrier(s) or device(s) for replacing the fuse-links		N/A			
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N/A			
	d) live parts which in the case of a multipole fuse- holder reach different potential after the fuse-link operates (equipped by fuse-carrier or device for replacing without fuse-link)		N/A			
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N/A			
	The r.m.s. value of test voltage (V) as specified in Table 15:	1890V	Р			
8.2.2.3.2	Fuse-holder is subjected to humid atmospheric conditions		Р			
	Relative humidity of ambient air (%):	91-95	Р			
·	Ambient air temperature (°C)	20-30	Р			
	Duration of treatment (h)	144	Р			
	Insulation resistance is measured between the point prescribed in 8.2.2.1 by applying d.c. voltage of approximately 500 V	3	Р.			
	Points of measuring:		Р			
	a) min. measured value (MΩ):	200ΜΩ	Р			
	b) min. measured value (MΩ):	200ΜΩ	Р			
	c) min. measured value (MΩ):		N/A			
	d) min. measured value (MΩ):		N/A			
	The insulation resistance not less than M $\Omega$ :	1ΜΩ	Р			
8.2.3	Verification of the suitability for isolation		N/A			



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Clause	Requirement + Test	Result - Remark	Verdict
	Clearances larger than values given in Table 9 are verified by dimensional measurement or by voltage test		N/A
	Points of application of the test voltage		N/A
	The test voltage is applied between:		N/A
	- terminals when the fuse-link and device for replacing it, are removed		N/A
,	Test voltage (kV) for verification of the rated impulse withstand voltage is given in Table 16:	kV	N/A
	The 1,2/50 µs impulse voltage applied 5 times for each polarity at intervals of 1 s minimum		N/A
	no breakdown of insulation or flashover during of the applying test voltage		N/A
	no disruptive discharge during the test		N/A
8.2.4.2	Fuse-holder is subjected to humid atmospheric conditions		N/A
	Relative humidity of ambient air (%):		N/A
<del>.</del>	Ambient air temperature (°C):		N/A
	Duration of treatment (h):		N/A
	Insulation resistance is measured between the points prescribed in 8.2.2.1 by applying d.c. voltage of approximately 500 V	3	N/A
	Points of measuring:		N/A
	a) min. measured value (MΩ):		N/A
	b) min. measured value (MΩ):		N/A
	c) min. measured value (MΩ):		N/A
	d) min. measured value (MΩ):		N/A
	The insulation resistance not less than 1 M $\Omega$ :		N/A
8.3	Verification of temperature rise and power dissipation	1	Р
8.3.1	One fuse used for test (unless otherwise stated by the manufacturer) mounted in free air		Р
	Test performed at an ambient air temperature of (20±5) °C		Р
	Ambient air temperature during the test (°C):		Р
	Cross-sectional area (see Table17) (mm² or mm x mm):	120 mm <sup>2</sup>	



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Clause	Requirement + Test	Result - Remark	Verdict		
	T:	lanu	7.00 - 7.00 - 1.		
000	Tightened by torque; torque (Nm)				
8.3.2	The temperature of the fuse measured by method measuring		Р		
8.3.3	Measurement of the power dissipation of the link		Р		
	One fuse used for test (unless otherwise stated by the manufacturer) mounted in free air	′	Р		
	Test performed at an ambient air temperature of (20±5) °C		Р		
	Ambient air temperature during the test (°C)	.: 20°C	Р		
	Cross-sectional area (see Table17)	120 mm <sup>2</sup>			
	(mm <sup>2</sup> or mm x mm)	.:			
	Tightened by torque; torque (Nm)	.: 32Nm			
8.3.4.1	Temperature rise of the fuse-holder		Р		
	Applied a.c. current (A) for test equal to the rated current of the fuse-holder	250A .:	Р		
	Test made with fuse-link (A), or	.: 250A	Р		
	with a dummy fuse-link specified in subsequent pa		Р		
	Temperature rise limits T for contacts and termina	ls (Table 5):	Р		
	spring loaded contacts; limit (K)	.: unenclosed / enclosed max. 38K<65K	Р		
	bolted contacts; limit (K)	.: unenclosed / enclosed	N/A		
	terminals; limit (K)	.: unenclosed / enclosed max. 39K<65K	Р		
8.3.4.2	Power dissipation of a fuse-link		Р		
	The test made with a.c. at the current (A) equal to the rated current of the fuse-link	250A	Р		
	The points of measuring	.: Central of blade	Р		
	Measured value of power (W) dissipation in limits (W) specified in subsequent parts	19,2W<23W	Р		
8.3.5	The acceptable power dissipation (W) of fuse-hold not less than the rated power dissipation of the corresponding fuse-links		Р		
400	After the tests prescribed in 8.3, the insulating part of the fuse-holders cooled down to ambient temperature withstood the test voltage according t 8.2	o	Р		



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Clause	Requirement + Test		Result - Remark	Verdict
	No deformation after tests of 8.3			P
8.4	Verification of operation		For 250A	P
8.4.1	The test arrangement as specified in 8.1.4			P
	Length (m) of conductors (see 8.3.1)	:	2m	P
	their cross-sectional area (mm²) as specified Table 17	in :	120	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fucurrent	sing		Р
	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		312,5A	*************************************
	the fuse-link did not operate within the conve time of (h) (Table 2)		3h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (I <sub>f</sub> ) (see Table 2)	sing	400A	
	the fuse-link operated within the conventional (minutes) (Table 2)		2054s	P
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	0 h		Р
	On-period equal to conventional time (h)	:	3h	Р
	Off-period of 0,1 of the conventional time	:	18min	Р
	Test current (A) equal to 1,05 of the rated cur	rent .:	262,5A	Р
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		312,5A	
	the fuse-link did not operate within the convertime of (h) (Table 2)		3h	Р
8.4	Verification of operation		For 224A	Р
8.4.1	The test arrangement as specified in 8.1.4			P
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17	1	95	P
8.4.2	Ambient air temperature during test within (20	)±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fu current	sing		Р



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Clause	Requirement + Test	Result - Remark	Verdict	
	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2)	280A		
	the fuse-link did not operate within the conventional time of (h) (Table 2)	3h	Р	
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):		_	
	the fuse-link operated within the conventional time of (minutes) (Table 2)		N/A	
8.4.3.2	Verification of rated current of "g" fuse-links		Р	
	One fuse-link submitted to a pulse test for 100 h		Р	
	On-period equal to conventional time (h):	3h	Р	
	Off-period of 0,1 of the conventional time:	18min	Р	
	Test current (A) equal to 1,05 of the rated current .:	235,2A	Р	
	After the test, the fuse-link not have changed its characteristics		Р	
8.4.3.1	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2):	280A	_	
	the fuse-link did not operate within the conventional time of (h) (Table 2)	3h	Р	
8.4	Verification of operation	For 200A	Р	
8.4.1	The test arrangement as specified in 8.1.4		Р	
	Length (m) of conductors (see 8.3.1):	2m	Р	
	their cross-sectional area (mm2) as specified in Table 17	95	Р	
8.4.2	Ambient air temperature during test within (20±5) °C		Р	
8.4.3.1	Verification of conventional non-fusing and fusing current		Р	
	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	250A	-	
	the fuse-link did not operate within the conventional time of (h) (Table 2):	3h	Р	
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2)		_	
	the fuse-link operated within the conventional time of (minutes) (Table 2)		N/A	
8.4.3.2	Verification of rated current of "g" fuse-links		Р	



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Clause	Requirement + Test		Result - Remark	Verdict
	One fuse-link submitted to a pulse test for 100 h			Р
	On-period equal to conventional time (h)	:	3h	Р
	Off-period of 0,1 of the conventional time	:	18min	Р
	Test current (A) equal to 1,05 of the rated current	t . :	210A	P
	After the test, the fuse-link not have changed its characteristics			Р
8.4.3.1	a) the fuse-link subjected to the conventional nor fusing current (Inf) (see Table 2)		250A	_
	the fuse-link did not operate within the convention time of (h) (Table 2)		3h	Р
8.4	Verification of operation		For 160A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified in Table 17	:	70	Р
8.4.2	Ambient air temperature during test within (20±5)	)°C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current	3		Р
	a) the fuse-link subjected to the conventional non fusing current (Inf) (see Table 2)		200A	_
	the fuse-link did not operate within the convention time of (h) (Table 2)		2h	Р
	b) the same fuse-link, after cooled down to ambie temperature, subjected to the conventional fusing current (If) (see Table 2)	3		_
	the fuse-link operated within the conventional time (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 100 h			Р
	On-period equal to conventional time (h)	:	2h	Р
	Off-period of 0,1 of the conventional time	:	12min	Р
	Test current (A) equal to 1,05 of the rated current	t . :	168A	Р
	After the test, the fuse-link not have changed its characteristics			Р
8.4.3.1	a) the fuse-link subjected to the conventional non fusing current (Inf) (see Table 2)		200A	_



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Clause	Requirement + Test	Result - Remark	Verdict
	the fuse-link did not operate within the conventional time of (h) (Table 2)	2h	Р
8.4	Verification of operation	For 125A	P
8.4.1	The test arrangement as specified in 8.1.4		Р
	Length (m) of conductors (see 8.3.1):	2m	Р
	their cross-sectional area (mm2) as specified in Table 17	50	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р
	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2):	156,3A	_
_	the fuse-link did not operate within the conventional time of (h) (Table 2):	2h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):		_
	the fuse-link operated within the conventional time of (minutes) (Table 2):		N/A
8.4.3.2	Verification of rated current of "g" fuse-links		Р
	One fuse-link submitted to a pulse test for 100 h		Р
	On-period equal to conventional time (h):	2h	Р
	Off-period of 0,1 of the conventional time:	12min	Р
	Test current (A) equal to 1,05 of the rated current .:	131,3A	Р
	After the test, the fuse-link not have changed its characteristics		Р
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	156,3A	-
	the fuse-link did not operate within the conventional time of (h) (Table 2):	2h	Р
8.4	Verification of operation	For 100A	Р
8.4.1	The test arrangement as specified in 8.1.4		Р
	Length (m) of conductors (see 8.3.1):	2m	Р
	their cross-sectional area (mm2) as specified in Table 17	35	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р



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Clause	Requirement + Test	Result - Remark	Verdict	
8.4.3.1	Verification of conventional non-fusing and fusing current		P	
	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	125A	****	
	the fuse-link did not operate within the conventional time of (h) (Table 2):	2h	Р	
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):		_	
	the fuse-link operated within the conventional time of (minutes) (Table 2):		N/A	
8.4.3.2	Verification of rated current of "g" fuse-links		Р	
	One fuse-link submitted to a pulse test for 100 h		Р	
	On-period equal to conventional time (h):	2h	Р	
	Off-period of 0,1 of the conventional time:	12min	Р	
	Test current (A) equal to 1,05 of the rated current . :	105A	Р	
	After the test, the fuse-link not have changed its characteristics		Р	
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2)	125A	_	
	the fuse-link did not operate within the conventional time of (h) (Table 2):	2h	Р	
8.4	Verification of operation	For 80A	Р	
8.4.1	The test arrangement as specified in 8.1.4		Р	
	Length (m) of conductors (see 8.3.1):	2m	Р	
	their cross-sectional area (mm2) as specified in Table 17	25	Р	
8.4.2	Ambient air temperature during test within (20±5) °C		Р	
8.4.3.1	Verification of conventional non-fusing and fusing current		Р	
	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	100A		
	the fuse-link did not operate within the conventional time of (h) (Table 2)	2h	Р	
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):	128A	-	



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Clause	Requirement + Test		Result - Remark	Verdict
	the fuse-link operated within the conventiona (minutes) (Table 2)		3916s	Р
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	00 h		Р
	On-period equal to conventional time (h)	:	2h	P
	Off-period of 0,1 of the conventional time	:	12min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent .:	84A	Р
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventiona fusing current (Inf) (see Table 2)		100A	_
	the fuse-link did not operate within the conve time of (h) (Table 2)		2h	Р
8.4.3.3	Verification of time-current characteristics an	d gates		Р
8.4.3.3.1	The time-current characteristics verified on the of the test according to 8.5	e basis		Р
	Values of pre-arcing and operating times with	in the tin	ne-current zones:	Р
	- indicated by the manufacturer			N/A
	- specified in subsequent parts	:	Part II	Р
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in case			N/A
	"g" fuse-links (except "gD", "gG" and "gM")			N/A
	Tests made in connection with verification of gates (see8.4.3.3.2)	the		N/A
	Ambient air temperature within (20±5) °C	:		N/A
	rated current In (A) of the fuse-link	:		# # # # # # # # # # # # # # # # # # #
	test performed at voltage (V)			_ :::
	test 3a) prospective current (A) equal to kIn $(10 \le k \le 20)$	:		N/A
	pre-arcing time (s)			g i Mosert Estalia
·	specified pre-arcing time (s) max./min	:		N/A
	test 4a) prospective current (A) equal to kIn $(5 \le k \le 8)$	:		N/A
	pre-arcing time (s)			
	specified pre-arcing time (s) max./min	:		N/A



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Clause	Requirement + Test		Result - Remark	Verdict
	test 5a) prospective current (A) equal to kIn $(2,5 \le k \le 4)$	:		N/A
	pre-arcing time (s)			
	specified pre-arcing time (s) max./min	:		N/A
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in case			N/A
	"a" fuse-links			N/A
	Ambient air temperature within (20±5) °C	:		N/A
	rated current In (A) of the fuse-link	:		# W W W W W W W W W W W W W W W W W W W
	test performed at voltage (V)	:		The state of the s
	test 3a) prospective current (A) equal to nk₂ I (5≤ n ≤ 8)			N/A
	pre-arcing time (s)	:		
	specified pre-arcing time (s) max./min	:		N/A
	test 4a) prospective current (A) equal to $nk_2$ (2 $\leq n \leq 3$ )			N/A
	pre-arcing time (s)	·:		_
	specified pre-arcing time (s) max./min	:		N/A
	test 5a) prospective current (A) equal to nk₂ l (1≤ n ≤ 1,5)			N/A
	pre-arcing time (s)			
	specified pre-arcing time (s) max./min	:		N/A
8.4.3.3.2	Verification of gates			Р
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A)	:	250	
	test performed at voltage (V)	:	Not specified	
	a) testing current (A); pre-arcing time (s) high 10 s		750A;72s	Р
	b) testing current (A); pre-arcing time (s) less 5 s		1650A;2,3s	Р
	c) testing current (A); pre-arcing time (s) high 0,1 s		2590A;680ms	Р
	d) testing current (A); pre-arcing time (s) less 0,1 s		4500A;8ms	Р
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)	:	10 Miles	



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
	test performed at voltage (V)			
	Cross-sectional area (see Table18)			WATER TO THE PARTY OF THE PARTY
	(mm² or mm x mm)	:		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	e) testing current (A); pre-arcing time (s) high			N/A
	f) testing current (A); pre-arcing time (s) less 60 s			N/A
	g) testing current (A); pre-arcing time (s) high			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A
8.4.3.3.2	Verification of gates			Р
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A)	:	224	_
	test performed at voltage (V)	:	Not specified	_
	a) testing current (A); pre-arcing time (s) high		610A;79s	Р
	b) testing current (A); pre-arcing time (s) less 5 s		1250A;2,8s	P
	c) testing current (A); pre-arcing time (s) high 0,1 s		1910A;810ms	P
	d) testing current (A); pre-arcing time (s) less 0,1 s		3420A;10ms	Р
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)	:		_
	test performed at voltage (V)	:		_
	Cross-sectional area (see Table18)			
	(mm2 or mm x mm)	:		·
	e) testing current (A); pre-arcing time (s) high			N/A
	f) testing current (A); pre-arcing time (s) less 60 s			N/A
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A
8.4.3.3.2	Verification of gates			Р



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Clause	Requirement + Test	Result - Remark	Verdict
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A):	200	
	test performed at voltage (V):	Not specified	
	a) testing current (A); pre-arcing time (s) higher than 10 s	610A;68s	Р
	b) testing current (A); pre-arcing time (s) less than 5 s	1250A;2,7s	Р
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	1910A;730ms	Р
	d) testing current (A); pre-arcing time (s) less than 0,1 s	3420A;8ms	Р
	"aM" fuse-links		N/A
	rated current of the fuse-link (A):		
	test performed at voltage (V):		
	Cross-sectional area (see Table18)		_
	(mm2 or mm x mm):		
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A
8.4.3.3.2	Verification of gates		Р
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A):	160	_
	test performed at voltage (V):	Not specified	_
	a) testing current (A); pre-arcing time (s) higher than 10 s	460A;70s	Р
	b) testing current (A); pre-arcing time (s) less than 5 s	950A;2,4s	Р
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	1450A;710ms	Р
	d) testing current (A); pre-arcing time (s) less than 0,1 s	2590A;9ms	Р
	"aM" fuse-links		N/A



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Clause	Requirement + Test		Result - Remark	Verdict
	rated current of the fuse-link (A)	:		<u> </u>
	test performed at voltage (V)	:		
	Cross-sectional area (see Table18)			
	(mm2 or mm x mm)	:		<del></del>
	e) testing current (A); pre-arcing time (s) high			N/A
	f) testing current (A); pre-arcing time (s) less 60 s			N/A
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A
8.4.3.3.2	Verification of gates			Р
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A)		125	_
	test performed at voltage (V)	:	Not specified	_
	a) testing current (A); pre-arcing time (s) high 10 s		355A;59s	Р
	b) testing current (A); pre-arcing time (s) less 5 s		715A;2,1s	Р
	c) testing current (A); pre-arcing time (s) high 0,1 s		1100A;690ms	Р
	d) testing current (A); pre-arcing time (s) less 0,1 s		1910A;9ms	Р
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)	:		_
	test performed at voltage (V)	:		_
	Cross-sectional area (see Table18)			_
	(mm2 or mm x mm)	:		
	e) testing current (A); pre-arcing time (s) high 60 s			N/A
	f) testing current (A); pre-arcing time (s) less 60 s			N/A
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A



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Clause	Requirement + Test		Result - Remark	Verdict
8.4.3.3.2	Verification of gates			P
	"gG" and "gM" fuse-links		"gG" / <del>-"gM"</del>	P
	rated current of the fuse-link (A)	:	100	
	test performed at voltage (V)	:	Not specified	
	a) testing current (A); pre-arcing time (s) high 10 s		290A;66s	Р
	b) testing current (A); pre-arcing time (s) less 5 s		580A;2,8s	Р
	c) testing current (A); pre-arcing time (s) high 0,1 s	1	820A;810ms	Р
	d) testing current (A); pre-arcing time (s) less 0,1 s		1450A;10ms	P
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)	:		_
	test performed at voltage (V)	:		
	Cross-sectional area (see Table18) (mm2 or mm x mm)	:		
	e) testing current (A); pre-arcing time (s) high 60 s			N/A
	f) testing current (A); pre-arcing time (s) less 60 s			N/A
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A
8.4.3.3.2	Verification of gates			P
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
,	rated current of the fuse-link (A)		.80	_
	test performed at voltage (V)		Not specified	
	a) testing current (A); pre-arcing time (s) high 10 s		215A;70s	Р
	b) testing current (A); pre-arcing time (s) less 5 s		425A;2,4s	Р
	c) testing current (A); pre-arcing time (s) high 0,1 s		610A;770ms	Р
	d) testing current (A); pre-arcing time (s) less 0,1 s		1100A;9ms	Р



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Clause	Requirement + Test	Result - Remark	Verdict	
	"aM" fuse-links		N/A	
	rated current of the fuse-link (A):			
	test performed at voltage (V):	,		
	Cross-sectional area (see Table18)			
	(mm2 or mm x mm):			
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A	
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A	
	g) testing current (A); pre-arcing time (s) higher than 0,2 s		N/A	
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A	
8.4.3.4	Overload	For 80A and 250A	Р	
	The test arrangement is same as that for the temperature rise test (see 8.3.1)		Р	
	Three fuse-links submitted to 50 pulses having the same duration and test current:		Р	
	test performed at voltage (V):	Not specified	raja <del>K</del> ala	
	"g" fuse-links:		Р	
	test current (A) equal to 0,8 times the current stated for a pre-arcing time of 5 s	208A/760A	Р	
	duration of each pulse 5 s		Р	
	time (s) interval between pulses equal to 20 % of the conventional time (s) specified in Table 2:	24min/36min	Р	
	"a" fuse-links:		N/A	
	rated current In (A) of fuse-link:		N/A	
	test current (A) equal to k <sub>1</sub> I <sub>n</sub> ± 2%:		N/A	
	the pulse duration (s) corresponds to that indicated on the overload curve for k <sub>1</sub> I <sub>n</sub> stated by manufacturer		N/A	
	time (s) intervals between pulses equal to 30 times the pulse duration		N/A	
	fuse-links having ambient air temperature subjected to a current (A) equal to current for the overload test	208A/760A	Р	



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Clause	Requirement + Test		Result - Remark	Verdict	
	pre-arcing time (s) of sample lies within the manufacturers time-current zone	:	1) 83s/64,9s 2) 100s/46,3s 3) 92s/57,2s	Р	
8.4.3.5	Conventional cable overload protection (for "fuse-links only)	gG"		Р	
	fuse-link mounted as specified in 8.4.1			Р	
	provided with PVC insulated copper conductor cross-sectional area (mm²) (see Table 19)	ors of	95	Р	
	fuse and conductor connected to it, preheate rated current (A) of fuse-link		200A	Р	
	for a time (h) equal to the conventional time	:	3h	Р	
	test current increased to 1,45 l <sub>z</sub> (A) (l <sub>z</sub> specifi Table 19)		308,9A	Р	
	the fuse-link operated in time (s) less than th conventional time (s)		2485s	Р	
8.4.3.5	Conventional cable overload protection (for "fuse-links only)	gG"		Р	
	fuse-link mounted as specified in 8.4.1			Р	
	provided with PVC insulated copper conductor cross-sectional area (mm2) (see Table 19)		70	Р	
	fuse and conductor connected to it, preheate rated current (A) of fuse-link		160A	Р	
_	for a time (h) equal to the conventional time	:	2h	Р	
	test current increased to 1,45 lz (A) (lz specificable 19)		243,6A	Р	
	the fuse-link operated in time (s) less than th conventional time (s)		2725s	Р	
8.4.3.5	Conventional cable overload protection (for "fuse-links only)	gG"		Р	
	fuse-link mounted as specified in 8.4.1			Р	
	provided with PVC insulated copper conductor cross-sectional area (mm2) (see Table 19)		25	Р	
	fuse and conductor connected to it, preheate rated current (A) of fuse-link		80A	Р	
	for a time (h) equal to the conventional time	:	2h	Р	
	test current increased to 1,45 lz (A) (lz specif Table 19)		123,3A	Р	
	the fuse-link operated in time (s) less than th conventional time (s)		3007s	Р	

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Clause	Requirement + Test	Result - Remark	Verdict	
8.4.3.6	Operation of indicating devices and strikers, if any		Р	
	Operation of indicating device verified in combinati with the verification of breaking capacity (see 8.5.5		Р	
	The verification of striker operation:		N/A	
	"g" fuse-link tested at current (A) equal to current I <sub>4</sub> (see Table 20 abd 21)	:	N/A	
	recovery voltage (V)		N/A	
	stated recovery voltage (V)	:	N/A	
	"a" fuse-link tested at current (A) equal to current 2k <sub>1</sub> l <sub>n</sub> (A) (see Figure 2)	:	N/A	
	recovery voltage (V)	:	N/A	
	stated recovery voltage (V)	:	N/A	
	Striker operate during all tests made at recovery voltage of at least 20 V		N/A	
	No failure of indicating device or striker		Р	
8.5	Verification of the breaking capacity		Р	
8.5.1	The test arrangements as specified in 8.1.4		P	
8.5.2	Characteristics of the test circuit as specified		Р	
	Scheme of test circuit (see Figure 5)		Р	
	Deviations form specified characteristics of test circuit	:	Р	
8.5.3	Measuring instruments		Р	
8.5.4	Calibration of test circuit		Р	
	Calibration oscillograms and their evaluation		Р	
8.5.6	The breaking-capacity tests made at an ambient at temperature of (20 ± 5) °C	r	Р	
	Breaking-capacity tests on a.c. fuses		Р	
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links	For 80A	Р	
	Rated breaking capacity of the fuse-links (kA), at voltage (V)	120kA,500VAC	**: <u>-</u>	
	Rated current (A) of the fuse-links	: 80A	Р	
	Prospective current I <sub>1</sub> (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%	120kA	Р	
	Power factor	: 0,20	Р	



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Clause	Requirement + Test		Result - Remark	Verdict
	Initiation of arcing after voltage zero: within 40° - for sample 1 and within 65° - 90° for sample 2 ar or	nd 3,	1) 46,0 2) 68,0 3) 77,0	Р
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°	:		N/A
	Power-frequency recovery voltage: voltage (V) i. (%) of rated voltage within 105% + 5%, - 0% of the rated voltage or 110% + 5%, - 0% of the rated voltage	he	1) 568V 2) 568V 3) 568V	Р
	Cut-off current (A)	:	1) 3,7kA 2) 3,8kA 3) 3,7kA	P
8.5.8	Acceptability of No. 1 test results		100	Р
	a) max. arc voltage (V) did not exceed stated val of 7.5 (Table 6)	lues :	918,6V<2500V	Р
	b) fuse-links operated without external effects or damage to the components of the complete fuse			Р
	c) no permanent arcing, flashover or ejection of dangerous flames			Р
	d) no damage of fuse components hindering from their further use	TI.		Р
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	or		Р
	f) fuse-link remains in one piece before its remove from the fuse- carrier	val		Р
	g) resistance (M $\Omega$ ) between contacts of fuse-link after test not less than 50 000 $\Omega$ for the rated vol of fuse-links to 250 V, 100 000 $\Omega$ in all other case	ltage	1) 15 2) 25 3) 15	Р
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links		For 250A	Р
	Rated breaking capacity of the fuse-links (kA), at voltage (V)		120kA,500VAC	_
	Rated current (A) of the fuse-links	:	250A	Р
	Prospective current I1 (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%		120kA	Р
	Power factor	:	0,20	Р
	Initiation of arcing after voltage zero: within 40° - for sample 1 and within 65° - 90° for sample 2 ar or	าd 3,	1) 50,0 2) 65,0 3) 66,0	Р



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Clause	Requirement + Test	Result - Remark	Verdict		
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°:		N/A		
	Power-frequency recovery voltage: voltage (V) i.e (%) of rated voltage within 105% + 5%, - 0% of the rated voltage or 110% + 5%, - 0% of the rated voltage	1) 568V 2) 568V 3) 568V	Р		
	Cut-off current (A):	1) 16,4kA 2) 17,8kA 3) 18,2kA	Р		
8.5.8	Acceptability of No. 1 test results		Р		
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6):	931,7V<2500V	Р		
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р		
	c) no permanent arcing, flashover or ejection of dangerous flames		Р		
	d) no damage of fuse components hindering from their further use		Р		
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р		
	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р		
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 40 2) 50 3) 35	Р		
8.5.5.1	Table 20, test No. 2 for "g" and "a" fuse-links		Р		
	Prospective current I <sub>2</sub> (kA):	15,00kA	Р		
	Test made under conditions which approximate those giving maximum arc energy		Р		
	Power factor:	0,20	Р		
	Making angle after voltage zero: within tolerance 0° + 20°, - 0°:	1) 8,0 2) 5,0 3) 10,0	P		
	Power-frequency recovery voltage: voltage (V) i.e (%) of rated voltage within 105% + 5%, - 0% of the rated voltage or 110% + 5%, - 0% of the rated voltage	1) 568 2) 568 3) 568	Р		
	Recovery voltage maintained at a value (V); duration (s) for sample (No.)		Р		



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Clause	Requirement + Test		Result - Remark	Verdict
	For other samples duration 15 s (8.5.5.2)	<u>.                                    </u>		P
8.5.8	Acceptability of No. 2 test results			P
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		912,3V<2500V	Р
	b) fuse-links operated without external effect damage to the components of the complete			Р
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р
	d) no damage of fuse components hindering their further use	from		Р
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	cult or		Р
	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		Р
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 400 2) 300 3) 400	Р
8.5.5.1	Table 20, test No. 2* for "g" and "a" fuse-links $l_2 \ge l_1$	s, for	(see appended table)	N/A
	Prospective current I <sub>2</sub> (kA) for test No. 2 greather rated breaking capacity (kA)			N/A
	Test made on six samples replacing tests of and 2. Test made with current I <sub>1</sub> (kA)			N/A
	Making angels differ approximately 30° between each test	een		N/A
•	Power factor	:		N/A
8.5.8	Acceptability of No. 2 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effects damage to the components of the complete			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	ult or		N/A
	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		N/A



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IEC 60269-1					
Clause	Requirement + Test	Result - Remark	Verdict		
8.5.5.1	Table 20, test No. 3 for "g" and "a" fuse-links		Р		
	Prospective current for "g" fuse-link I <sub>3</sub> (A) equal to 3,2 I <sub>f</sub> :	1300A	Р		
	Prospective current for "a" fuse-link I <sub>3</sub> (A) equal to 2,5 k <sub>2</sub> I <sub>n</sub>		N/A		
	Power factor:	0,45	Р		
	Tolerance on current ± 20%		Р		
	Recovery voltage (V) maintained for 15 s (8.5.5.2)		Р		
8.5.8	Acceptability of No. 3 test results		Р		
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6):	<2500V	Р		
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р		
	c) no permanent arcing, flashover or ejection of dangerous flames		Р		
	d) no damage of fuse components hindering from their further use		Р		
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р		
	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р		
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 15 2) 3)	Р		
8.5.5.1	Table 20, test No. 4 for "g" and "a" fuse-links		Р		
	Prospective current for "g" fuse-link I <sub>4</sub> (A) equal to 2,0 I <sub>f</sub> :	820A	Р		
	Prospective current for "a" fuse-link l <sub>4</sub> (A) equal to 1,6 k <sub>2</sub> l <sub>n</sub>		N/A		
	Power factor:	0,45	Р		
	Tolerance on current + 20%, - 0%		Р		
	Recovery voltage (V) maintained for 15 s (8.5.5.2) :		Р		
8.5.8	Acceptability of No. 4 test results		Р		
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6)	<2500V	Р		
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р		



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	IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict	
	c) no permanent arcing, flashover or ejection of dangerous flames			Р	
	d) no damage of fuse components hindering from their further use	n		Р	
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	or		Р	
	f) fuse-link remains in one piece before its remove from the fuse- carrier	/al		Р	
	g) resistance (M $\Omega$ ) between contacts of fuse-link after test not less than 50 000 $\Omega$ for the rated vol of fuse-links to 250 V, 100 000 $\Omega$ in all other case	tage	1) 10 2) 3)	Р	
8.5.5.1	Table 20, test No. 5 for "g" and "a" fuse-links			Р	
	Prospective current for "g" fuse-link I <sub>5</sub> (A) equal t 1,25 I <sub>f</sub>		520A	Р	
	Prospective current for "a" fuse-link I <sub>5</sub> (A) equal t			N/A	
	Power factor	:	0,45	Р	
	Tolerance on current + 20%, - 0%			Р	
	Recovery voltage (V) maintained for 15 s (8.5.5.2	2) :		Р	
8.5.8	Acceptability of No. 5 test results			Р	
	a) max. arc voltage (V) did not exceed stated val of 7.5 (Table 6)		<2500V	Р	
	b) fuse-links operated without external effects or damage to the components of the complete fuse			Р	
	c) no permanent arcing, flashover or ejection of dangerous flames			Р	
	d) no damage of fuse components hindering from their further use	n		Р	
	e) no damage of fuse-link such, that it is difficult of dangerous to replace them	or		Р	
	f) fuse-link remains in one piece before its remove from the fuse- carrier	/al		Р	
	g) resistance (M $\Omega$ ) between contacts of fuse-link after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other case	tage	1) 30 2) 3)	Р	
,	Breaking-capacity tests on d.c. fuses			N/A	
8.5.5.1	Table 21, d.c.test No. 1 for "g" and "a" fuse-links			N/A	



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IEC 60269-1					
Clause	Requirement + Test		Result - Remark	Verdict	
	Rated breaking d.c. capacity of the fuse-links voltage (V)				
	Rated current (A) of the fuse-links	:		N/A	
	Rated voltage (V) of the fuse-links	:		N/A	
	Prospective current I <sub>1</sub> (kA) equal to rated bre capacity within a tolerance of + 10%, - 0%			N/A	
	Time constant (ms) between 15 to 20 ms	:		N/A	
	Arcing commences at current (A)	:	1) 2) 3)		
	Value of recovery voltage: voltage (V) within telerances 115 + 5%, - 9% of the rated voltage		1) 2) 3)	N/A	
8.5.8	Acceptability of No. 1 test results			N/A	
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A	
	b) fuse-links operated without external effect damage to the components of the complete			N/A	
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A	
	d) no damage of fuse components hindering their further use	from		N/A	
	e) no damage of fuse-link such, that it is diffid dangerous to replace them	cult or		N/A	
	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		N/A	
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 2) 3)	N/A	
8.5.5.1	Table 21, d.c.test No. 2 for "g" and "a" fuse-li	nks		N/A	
	a) During test No. 1 arcing commences at a ≥ 0,5 I₁, test No. 2 was not performed	current		N/A	
	b) Prospective current I <sub>2</sub> (A). Test made undo conditions which approximate those giving marc energy	aximum		N/A	
	Time constant (ms) between 15 to 20 ms			N/A	



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IEC 60269-1					
Clause	Requirement + Test		Result - Remark	Verdict	
	Arcing commences at current (A)	:	1) 2) 3)		
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	je :	1) 2) 3)	N/A	
8.5.8	Acceptability of No. 2 test results			N/A	
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A	
	b) fuse-links operated without external effects damage to the components of the complete f			N/A	
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A	
	d) no damage of fuse components hindering their further use	from		N/A	
	e) no damage of fuse-link such, that it is diffic dangerous to replace them	ult or		N/A	
	f) fuse-link remains in one piece before its ref from the fuse- carrier	moval		N/A	
	g) resistance (M $\Omega$ ) between contacts of fuse-after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other 0	voltage	1) 2) 3)	N/A	
8.5.5.1	Table 21, d.c.test No. 3 for "g" and "a" fuse-lin	nks		N/A	
	Conventional fusing current (A)	:			
	Prospective current I <sub>3</sub> (A) equal to 3,2 I <sub>f</sub>	:		N/A	
	Tolerance on current (%) ± 20%	:		N/A	
	Time constant (ms) between 15 to 20 ms	:		N/A	
	Arcing commences at current (A)	:	1) 2) 3)		
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltag	e:	1) 2) 3)	N/A	
8.5.8	Acceptability of No. 3 test results			N/A	
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A	
	b) fuse-links operated without external effects damage to the components of the complete f			N/A	



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IEC 60269-1					
Clause	Requirement + Test	Result - Remark	Verdict		
	c) no permanent arcing, flashover or ejection of dangerous flames		N/A		
	d) no damage of fuse components hindering from their further use		N/A		
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N/A		
	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A		
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 2) 3)	N/A		
8.5.5.1	Table 21, d.c.test No. 4 for "g" and "a" fuse-links		N/A		
	Conventional fusing current (A):				
	Prospective current I <sub>4</sub> (A) equal to 2,0 I <sub>f</sub> :		N/A		
	Tolerance on current (%) + 20%, - 0%:		N/A		
	Time constant (ms) between 15 to 20 ms:		N/A		
	Arcing commences at current (A):	1) 2) 3)	<u>-</u>		
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage:	1) 2) 3)	N/A		
8.5.8	Acceptability of No. 4 test results		N/A		
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6)		N/A		
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N/A		
	c) no permanent arcing, flashover or ejection of dangerous flames		N/A		
	d) no damage of fuse components hindering from their further use		N/A		
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N/A		
	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A		
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 2) 3)	N/A		



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
8.5.5.1	Table 21, d.c.test No. 5 for "g" and "a" fuse-li	nks		N/A
	Conventional fusing current (A)			5:A1_1
	Prospective current I <sub>5</sub> (A) equal to 1,25 I <sub>f</sub>	:		N/A
	Tolerance on current (%) + 20%, - 0%	:		N/A
	Time constant (ms) between 15 to 20 ms			N/A
	Arcing commences at current (A)	:	1) 2) 3)	
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	e:	1) 2) 3)	N/A
8.5.8	Acceptability of No. 5 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effects damage to the components of the complete f			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is diffic dangerous to replace them	ult or		N/A
	f) fuse-link remains in one piece before its ref from the fuse- carrier	moval		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other $\Omega$	voltage	1) 2) 3)	N/A
8.6	Verification of the cut-off current characteristi	cs		Р
8.6.2	The values measured did not exceed cut-off characteristics indicated by the manufacturer 5.8.1)	(see		Р
8.7	Verification of I <sup>2</sup> t characteristics and overcurn discrimination	ent		Р
8.7.2	The operating I <sup>2</sup> t values measured not excee values indicated by the manufacturer, or	d the		Р
	those specified in subsequent parts			Р
	The pre-arcing I <sup>2</sup> t values not less than minimarcing values given by the manufacturer, or	um pre-		N/A



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	IEC 60269-	1		
Clause	Requirement + Test		Result - Remark	Verdict
	they lie within the limits indicated in Table 7			P
8.7.3	Verification of compliance for fuse-links at 0,01	s		Р
	"gG" and "gM" fuse-links at 0,01 s comply with Table 7			Р
8.7.4	Verification of overcurrent discrimination			Р
	The discrimination of the fuse-links verified by r of the time-current characteristics and the pre-and operating I <sup>2</sup> t values			Р
8.8	Verification of the degree of protection of enclose	sures		Р
	Degree of protection IP	:	IP00	Р
	Verification by test under conditions specified in IEC 60529			Р
8.9	Verification of resistance to heat			Р
	No damage impaired by heat during the previous tests (in particular with respect to 8.3, 8.4, 8.5 a 8.10)			Р
8.10	Verification of non-deterioration of contacts			Р
8.10.1	Three samples provided with standardized dum fuse-links of the highest current rating (A) intended to be used in the fuse-holder (see subsequent parts).	ded to		Р
8.10.2	Test current (A) for load period	:	312,5A	Р
	Duration (s) of load period	:	0,75h	Р
	Duration (s) of no-load period	:	0,3h	Р
	a) Test of 250 cycles, measured values not except the limits given in subsequent parts	eed		Р
	b) Test of 750 cycles, measured values not exc the limits given in subsequent parts	eed		Р
8.11	Mechanical and miscellaneous tests			Р
8.11.1	Mechanical strength			Р
	Mechanical characteristics of fuse and its parts judged in the context of normal handling and mounting as well as with results shown after breaking-capacity test (see 8.5), if not otherwise specified in the subsequent parts			Р
8.11.2	Miscellaneous tests			Р
8.11.2.1	Verification of freedom from season cracking			Ρ.



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
	Current-carrying parts made of rolled copper alloy with less than 83% copper content and with all grease removed, placed for 4 h in test cabinet having temperature of (30 ± 10) °C		P
	After this, samples placed for 8 h in test cabinet, on the bottom of which is ammonium chloride solution having pH value 10 - 11	=	Р
	After test no cracks visible to the unaided eye		Р
8.11.2.2	Verification of resistance to abnormal heat and fire		Р
8.11.2.2.1	Parts of insulating material, except ceramic, have a limited duration of burning without spreading fire by flames or burning droplets or glowing particles falling from the specimen		Р
8.11.2.2.5	Glow-wire test: (650 ± 10) °C		N/A
	Parts of insulating materials not necessary to retain current-carrying parts in position even though they are in contact with them, made the glow-wire test (650 ± 10) °C		N/A
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after removal of the glow-wire. Limit (30 ± 1) s:		N/A
	No burning of the tissue paper		N/A
	No scorching of the pinewood board		N/A
	Glow-wire test: (960 ± 10) °C	No flame	Р
	Parts of insulating materials necessary to retain current-carrying parts and parts of the earthing circuit, if any, in position , made the glow-wire test (960 ± 10) °C		Р
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after removal of the glow-wire. Limit (30 ± 1) s		Р
	No burning of the tissue paper		Р
•	No scorching of the pinewood board		Р
8.11.2.3	Verification of resistance to rusting		Р
	Tested parts after degreasing (10 min in specified solution) placed for 10 min in air saturated with moisture and after that dried 10 min in an ambient temperature (100 ± 5) °C		Р
	Surface of tested parts show no signs of rust		Р



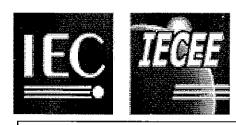
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					IEC	C 60269	<del>)</del> -1					İ
Clause	Re	quirement	+ Test					Result - I	Remark			Verdict
APPEND	IX 1											
8.1.5.1		TABLE:	Internal	resistand	e of the	fuse-lir	iks					Р
		a) rated	current (	A) of the	fuse-lin	k :		30		-		
		measurir	ng currei	nt (A)	:			3				
		ambient	air temp	erature (	°C)	:		25				
internal resistan ce							iple No.					
7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	2	3	4	5	6	7	8	9	10	11	12
$R (m\Omega)$	0,789	0,806	0,810	0,802	0,821	0,821	0,835		0,821	0,805	0,839	0,817
internal resistan ce	13 0,821					san	nple No					
R (mΩ)	0,021	b) rated	current /	(A) of the	fuce lin	<u> </u>	. 1.	 100	<u> </u>		<del></del>	<u> </u>
		measurir			·	К .		100				
		ambient			°C\			25			way a series of the series of	
internal resistan ce	The second secon	rambient	ali temp	erature (		san	nple No.					
	1		3	4	5							
$R (m\Omega)$	0,651		0,663	0,659	0,659						<u></u>	
		c) rated			fuse-linl	k :		125				
		measurir			<u>:</u>			12,5			Arr :	
		ambient	air temp	erature (	°C)	:		25				
internal resistan ce	1		3	[4	15	san	ple No.	The state of the s			٦	
R (mΩ)	0,549		0,537	0,546	0,547				•••			1
		c) rated	current (			<del>'</del> :	: 7	160	_!			<del>'</del> —
		measurir	<del></del>		:		1	16				· <u>-</u>
		ambient			°C)	:	2	25			- 1:	_
internal resistan ce	1	- 12	3		7 <b>5</b>	san 16	iple No.				7-2-22	
R (mΩ)	0,405	0,407	0,400	0,406	0,406	0,404	***************************************				~ ····································	***************************************
,		c) rated	current (		fuse-linl	Κ :	: 2	200		<u> </u>		<del>-</del> -
		measurir			:	*,		20			11.72_38	
		ambient			°C)	:	2	25				<del>- 1</del>
internal resistan ce		-15	15.		7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		ple No.					· · · · · · · · · · · · · · · · · · ·
D (~~ ^)	0.318	2	0 320	0.320	5 0,340	6 0,332					,	<del> </del>
R (mΩ)	0,318	0,322 c) rated (	0,329	0,320			<u> </u>	224	.!		1	<u> </u>
		measurir				`		22,4			<del></del>	
	_	measuill	ig cullel	11 (A)	•		4	-4,4				



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					<u> </u>		-						
					IE	C 6026	9-1			_			
Clause	Re	quirement	+ Test					F	Result - F	Remark		,	Verdict
		ambient	air temp	erature (	°C)	:		25	5			VA	
internal resistan ce			7.3.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7	4	1 <sub>2</sub>	sar	npl	e No.					
R (mΩ)	0,274	2 0,280	0,279	0,288	5 0,282								<u></u>
7 (17122)	1 - 1 - 1	c) rated o	<del></del>			nk	:	25	50	I		<u> </u>	
		measurir			:			25				- 11 A W WWW	The second secon
		ambient	air temp	erature (	°C)			25	5			A A A A A A A A A A A A A A A A A A A	AND THE RESERVE OF THE PARTY OF
internal resistan ce						san	npl	e No,		*** *** *** *** *** *** *** *** *** **		The state of the s	
7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -	1	2	3	4	5	6		7	]8	9	[10	111	[12
R (mΩ)	0,249	0,253	0,252	0,250	0,259	0,253		0,254	0,248	0,251	0,253	0,259	0,252
internal resistan ce	13		15		7	san	npl	e No.				The state of the s	
R (mΩ)	0,239	0,243	0,247						<u> </u>				
		7											
8.5.5.1		TABLE: 7	Γable 20,	test No.	2* for "	g" and "	a" 1	fuse-lini	ks, for l <sub>2</sub>	≥ l <sub>1</sub>			N/A
sample No.		ing angle a oltage zero		<b>r</b> i	ecovery	voltage			cut of	f current	resi	stance b contac	
,		(°)		(V)		(	(%)		:	(A)		(MΩ)	



#### Test Report issued under the responsibility of:



#### TEST REPORT IEC 60269-2

#### Low-voltage fuses

Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to I

Report Reference No..... 15033141 001 Part II Date of issue..... 30.07.2009 Total number of pages..... 18 pages TÜV Rheinland (Shanghai) Co., Ltd. CB Testing Laboratory..... Address ::: 10-15/F, Huatsing Building, No.88, Lane 777, Guangzhong Road West, 200072 Shanghai Zhabei District, P.R. China Wenzhou Jinlida Electrical Co., Ltd. Applicant's name ..... Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604 Address....: P.R. China Test specification: Test procedure....: CB Non-standard test method...... N/A Test Report Form No...... IEC60269\_2A Test Report Form(s) Originator ......: EZU Master TRF...... Dated 2007-12 Copyright © 2007 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

	Test item description:	Fuses(fuse link	and fuse base)
	Trade Mark	JINLIDA	
	Manufacturer:	Same as applicar	nt
	Model/Type reference:	NH1	
	Ratings:	AC 500V; 80A,10	0A,125A,160A,200A,224A,250A; 120kA; Size 1
ŀ			



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Testi	ng procedure and testing location:		
$\boxtimes$	CB Testing Laboratory:	TÜV Rheiı	nland (Shanghai) Co., Ltd.
Testi	ng location/ address:		trical Apparatus Testing Institute Road, Changsha, Hunan, P.R. China
	Associated CB Test Laboratory:		
Testi	ng location/ address:		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Testing procedure: TMP		
	Tested by (name + signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: WMT		
	Tested by (name + signature):		
	Witnessed by (+ signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: SMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		
	T C 1 DMT		
Ш	Testing procedure: RMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		



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Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
For homogeneous series of NH1, type tests are listed in table 11, 12, 13 and 14 in EN 60269-1:2006	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
Summary of compliance with National Differences	:
N/A	



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Copy of marking plate:		
Refer to 15033141 001 Part I.		



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See part I
See part I
A /B/C/D/E/F/G/H/I
·
N/A
P (Pass)
F (Fail)
06.2009
06.2009-07.2009
e object tested.  ut the written approval of the Issuing testing laboratory.  pended to the report.  e report.  decimal separator.
€ 1



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IEC 60269-2						
Clause	Requirement + Test	Result - Remark	Verdict			
- MAN A CONTROL OF THE CONTROL OF TH	Requirements IEC 60269-1	The second of th				
FUSE SY	STEM A – FUSES WITH FUSE-LINKS WITH BLADE C	ONTACTS (NH FUSE SYSTEM)	11   10000   11   17   17   17   10000   111			
5	CHARACTERISTICS OF FUSES					
5.2	Rated voltage (V) as specified	500VAC	Р			
5.3.1	Rated current (A) of the fuse-link in accordance with specified values		Р			
5.3.2	Rated current (A) of the fuse-holder and the size of the fuse-link	Size 1	Р			
5.5	Rated power (W) dissipation of fuse-link see Figure 101	<23W	Р			
	Rated acceptable power (VA) dissipation of fuse- bases given in Figure 102	32W	Р			
5.6	Limits of time-current characteristics		Р			
5.6.1	Time-current characteristics, time-current zones and overload curves		Р			
5.6.2	Conventional times and current see Table 101:		Р			
5.6.3	Gates		Р			
5.7.2	Rated breaking capacity (A)	120kA	Р			
6	MARKING	The state of the	1 and 1 a month of the control of th			
	Markings are legible		Р			
6.1	Fuse-holders marked by:		Р			
	- IEC 60269-2:		Р			
	- size:	1	Р			
	Marking of rated current and rated voltage are discernible from the front		Р			
6.2	Fuse-links marked by:		Р			
	- IEC 60269-2:		Р			
	- size or reference:	1	Р			
	- rated breaking capacity:	120kA	Р			
	Marking of rated current and rated voltage are discernible from the front		Р			
	Fuse-links are marked as described in Table 104:		Р			



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	IEC 60269	<del>}</del> -2		
Clause	Requirement + Test		Result - Remark	Verdict
7	STANDARD CONDITIONS FOR CONSTRU	CTION	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The second secon
7.1	Mechanical design			Р
	The dimensions of the fuse-links given in Fig.	ure 101		Р
	Dimensions:			Р
	dimension marking a1: prescribed (mm); mea		135±2,5;	Р
	dimension marking a2: prescribed (mm); mea		75-10;	Р
	dimension marking a3: prescribed (mm); mea		62±1,5;	Р
	dimension marking a4: prescribed (mm); mea		68±1,5;	Р
	dimension marking b1min: prescribed (mm); measured (mm)	:	20;	Р
	dimension marking b2min: prescribed (mm); measured (mm)	:	5;	Р
	dimension marking b3max: prescribed (mm); measured (mm)		6;	Р
	dimension marking b4min: prescribed (mm); measured (mm)	:	17;	Р
	dimension marking c1: prescribed (mm); mea		40;	Р
	dimension marking c2: prescribed (mm); mea		11-2;	Р
	dimension marking d: prescribed (mm); meas (mm)		2,5+1,5/-0,5	Р
	dimension marking e1max: prescribed (mm); measured (mm)		53;	Р
	dimension marking e2max: prescribed (mm); measured (mm)		52;	Р
	dimension marking e3: prescribed (mm); mea	asured	20+5/-2;	Р
	dimension marking e4: prescribed (mm); mea		6;	Р
	dimension marking f: prescribed (mm); meas (mm)	ured	15;	Р
	dimension marking z: prescribed (mm); meas		5	Р



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IEC 60269-2				
Clause	Requirement + Test	Result - Remark	Verdict	
<del></del>	The dimensions of the fuse-base given in Figure 102		Р	
	Dimensions:	P	Р	
	dimension marking g: prescribed (mm); measured (mm):	53±1;	Р	
	dimension marking h: prescribed (mm); measured (mm):	175±1,5;	Р	
	dimension marking n1max: prescribed (mm); measured (mm)	52;	Р	
	dimension marking n2max: prescribed (mm); measured (mm):	60;	Р	
	dimension marking p1max: prescribed (mm); measured (mm):	55;	Р	
	dimension marking p2: prescribed (mm); measured (mm):	35;	Р	
	dimension marking r min: prescribed (mm); measured (mm):	17;	Р	
	dimension marking s max: prescribed (mm); measured (mm)	38;	Р	
	dimension marking t min: prescribed (mm); measured (mm):	21;	Р	
	dimension marking v: prescribed (mm); measured (mm):	80+3;	Р	
·	dimension marking w1: prescribed (mm); measured (mm):	30±0,7;	Р	
	dimension marking w2: prescribed (mm); measured (mm):	25±0,7;	Р	
	dimension marking x min: prescribed (mm); measured (mm):	20;	Р	
	dimension marking y: prescribed (mm); measured (mm)	10,5±0,5;	Р	
	dimension marking z max: prescribed (mm); measured (mm):	5	Р	
7.1.2	Connections, including terminals		Р	
	cross-sectional ranges (Table 105)			
	torques to be applied (Table 111) (lug terminal):			
7.1.3	Contact surfaces should be silver plated:	<del>Yes</del> / No	Р	



## Page 9 of 18

	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	If no test according to 8.10 are passed with dumm described in 8.10.1	nies	P
7.1.5	Dynamic short-circuit withstand shall meet cut-off currents (Table 112)	:	Р
7.1.7	Construction of fuse-link		Р
	Blade contacts made of solid material	:	Р
	If any other construction, manufacturer demonstrathat construction adequate		N/A
	Endplates not permitted to protrude radially from insulation body	:	Р
	preferable to insulate the gripping lugs from live pa	arts	Р
	Fuse-links has an indicator		Р
	Electrically conductive parts of indicator not ejecte from the fuse-link during operation		Р
7.2	Insulating properties		Р
	Creepage distances and clearances of fuses and fuse-accessories meet requirements of IEC 60664 for overvoltage category III and pollution degree 3		Р
7.7	I <sup>2</sup> t characteristics		Р
	maximum pre-arcing I <sup>2</sup> t		Р
	(Table 7 of IEC 60269-1)	:	
	rated currents lower than 16 A (Table 106)		N/A
	maximum operating I <sup>2</sup> t for "aM" fuse-links		N/A
	(Table 107)		
	test No. 2 of the largest rated current of each homogeneous series (Table 20 of IEC 60269-1) .	:	
7.8	Overcurrent discrimination of "gG" fuse-links		Р
	(see 8.7.4, Table 108)	:	
7.9	Protection against electric shock		Р
	increased by means of partition walls and covers of fuse-contacts	<b>I</b>	Р
	operation by authorized persons, instructed in electrical matters, using replacement handles according to this fuse system	:	Р



## Page 10 of 18

IEC 60269-2				
Clause	Requirement + Test	Result - Remark	Verdict	
8	TESTS		The second secon	
	IEC 60269-1 applies with the following supplementary requirements	A STATE OF THE STA	Р	
8.1.4	Arrangement of fuse and dimensions		Р	
	Requirements of 7.2 verified on fuse-bases:		Р	
	Creepage distances and clearances of fuse-links according to 7.2 are verified:		Р	
	Clearances verified on fuse-link inserted into model fuse-base according to Figure 111:		Р	
8.1.6	Testing of fuse-holders		Р	
	In addition to test given in IEC 60269-1 tested according to Table 109:		Р	
8.2.2.1	Points of application of test voltage		Р	
	In addition to IEC 60269-1	1890V	P	
	e) between isolated metal gripping-lugs and terminals of test fuse-bases:			
8.2.3.2	Value of test voltage	Not applicable	N/A	
	rated impulse withstand voltage in Table 110:		N/A	
8.2.3.3	Test method		N/A	
	5 impulses of both polarities and of shape 1,2/50 $\mu$ s and rated withstand voltage level according to		N/A	
	Table 110:			
	minimum period between impulses are 1 s:			
8.2.4	Acceptability of test results		Р	
8.2.4.3	No flash-over or puncture shall occur during test :		Р	
8.2.5	Resistance to tracking		Р	
	plastic parts of fuse-links and fuse-bases tested and shall pass at PTI level stated by manufacturer:	500M	Р	
8.3	Verification of temperature rise and power dissipation		Р	
8.3.1	Arrangement of the fuse		Р	
•	Tightened by torque (Nm):	32	The state of the s	
8.3.2	Measurement of the temperature rise		Р	
	Protective covers and fuse-carriers as provided by manufacturer mounted:		Р	
8.3.4.1	Temperature rise of the fuse-holder	See part I	Р	



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	Dummy (Figure 105) Point at which temperature rise is measured (Figure 106)		Р
8.3.4.2	Power dissipation of a fuse-link (Figure 106)	19,2W	Р
8.4.3.1	Verification of conventional non-fusing and fusing current	See part I	Р
	non-fusing current test – second test specimen are used for b)	See part I	Р
8.4.3.5	Conventional cable overload protection test (for "gG" fuse-links only)	See part I	Р
	Details of special test are given in Annex A	Not required	N/A
Annex A	Special test for cable overload protection		N/A
	For fuses with $l_n > 16$ A of the sizes 00, 0, 1 and 2.:		N/A
A.1	Arrangement of the fuse		N/A
	Three fuse-links in fuse-bases mounted in a box:		N/A
	Ambient air temperature outside the fuse box shall be (30 <sup>+5</sup> <sub>0</sub> °C):	°C	N/A
A.2	Test method and acceptability of test results		N/A
-	1,13 I <sub>n</sub> flowed through the fuse-links for conventional time (see Table 2 of IEC 60269-1):	A for s	N/A
	Non of fuse-links operated:		N/A
	Test current raised without interruption within 5 s to 1,45 I <sub>n</sub> :	A	N/A
	One fuse-link operated within conventional time:		N/A
8.5.5.1	Verification of the peak withstand current of a fuse- base	Not applicable	N/A
	not be carried out , if this has already been verified during the breaking capacity test of fuse-links with the highest rating of the size:		N/A
8.5.5.1.1	Arrangement of the fuse		N/A
	single-phase type, 8.5.1 of IEC 60269-1		N/A
	peak values of the test currents (Table 112):		
	maximumum values (see 8.5.5.1.3):		
	dummy fuse-link (Figure 101):		
8.5.5.1.2	Test method		N/A



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IEC 60269-2				
Clause	Requirement + Test		Result - Remark	Verdict
	fuse-base 1 (Figure107) resilient spring travel is limited to elastic range contacts opened up three times			N/A
	fuse-base 2 (see 8.11.1.2)  F <sub>max</sub> according to Table 118			N/A
8.5.5.1.3	Acceptability of test results			N/A
	fuse-links not be ejected			N/A
	no signs of arcing or welding or other damage			N/A
8.5.8	Acceptability of test results			N/A
	Fuse or circuit-breaker not operate during this	test		N/A
8.7.4	Verification of overcurrent discrimination		,	Р
	verified by I <sup>2</sup> t values evaluated from the record results	led test		Р
	Arrangement of the samples as for the breakir capacity test	ng		Р
	two samples tested at the r.m.s. prospective to current I, corresponding to minimum pre-arcin		1) 2)	P
	the other samples tested at the r.m.s. prospec test current I, corresponding to operrating I2t	tive	3) 4)	Р
	test voltage (V)	:		1 = mercy property of the control of
	The values of I²t lie within corresponding limits specified in Table 113			Р
8.9	Verification of resistance to heat			Р
	Tests apply to fuse-link and fuse-base			Р
	Fuse-holder with fuse-links having maximum produced dissipation are cyclically loaded as pre-treatment.			Р
	After cooling to normal temperature			Р
	breaking capacity tested at I <sub>1</sub> (see 8.5)	:	l <sub>1</sub> = 120kA	
·	Fuse-links with organic material			N/A
	Fuse-holder with fuse-links having maximum processing dissipation are cyclically loaded as pre-treatment.			
	After cooling to normal temperature		1 <sub>1</sub> =	N/A
	breaking capacity tested at $I_1$ and $I_5$ (see 8.5)	:	l <sub>5</sub> =	
8.9.1	Fuse-base			Р



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	IEC 60269	-2		
Clause	Requirement + Test		Result - Remark	Verdict
	test below apply if it is not obvious that compo are not affected adverselly by given temperat withdrawal forces			Р
8.9.1.1	Test arrangement			Р
	Figure 105 and 108			Р
	Test se-up in heating chamber			Р
8.9.1.2	Test method			Р
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h			Р
	160% rated current for 2 h	:	160% I <sub>n</sub> =400A	Р
	Test voltage	:	50 V	THE
	3 min after switching off			Р
	tensile force F <sub>max</sub> (see Table 118) exerted for	15 s	F <sub>max</sub> =	
8.9.1.3	Acceptability of test results			Р
	Contact pieces not have moved to affect the use	further		Р
	Dimensions of Figure 102 are considered		/	Р
	Insulating mounting part no broken and no sh signs of cracks	iow any		Р
8.9.2	Fuse-links with gripping lugs of moulded mate of metal fixed in moulded material	erial or	No such part	N/A
8.9.2.1	Test arrangement			N/A
	Figure 108			N/A
8.9.2.2	Test method			N/A
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h			N/A
	150% rated current for conventional time		A for h	N/A
	Test voltage	:	V	
	3 min after fuse-link operated or conventiona expired	l time	F <sub>max</sub> =	N/A
	tensile force F <sub>max</sub> (see Table 118) exerted for	15 s	max —	
8.9.2.3	Acceptability of test results			N/A
	Gripping lugs remain fully operational			N/A
	Dimensions of Figure 101 (d and c <sub>2</sub> ) not be exceeded by more than 2 mm			N/A
8.10	Verification of non-deterioration of contacts direct terminal clamps	and		Р



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	IEC 6026	9-2		
Clause	Requirement + Test		Result - Remark	Verdict
8.10.1	Arrangement of the fuse			Р
	Figure 105			Р
	for lug terminals, torgue in Table 111	:	32 Nm	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Insulation of conductors removed over the wl			P
8.10.1.2	Direct terminal clamps			Р
	Test performed on 10 direct terminal clamps fuse-bases	of five		Р
	Distance between fuse-base centres of at leatimes e <sub>2</sub> (see Figure 101)	st three		Р
	Torque of tightened of screws	:	Nm	When the same of t
	Conductor cross-section	:	mm <sup>2</sup>	A common of the
8.10.2	Test method			Р
	Test current (A) for load period	:	312,5A	Р
	Duration (s) of load period	:	0,75h	Р
	Duration (s) of no-load period	:	0,3h	Р
	Test voltage (V)	:	50V	
	a) Test of 50 cycles, measured values did n exceed the limits given in subsequent parts IEC 60269		(see appended table)	Р
	b) Test of 250 cycles, measured values did exceed the limits given in subsequent parts IEC 60269		(see appended table)	Р
	c) Test of 500 cycles, measured values did exceed the limits given in subsequent parts IEC 60269		(see appended table)	Р
	d) Test of 750 cycles, measured values did exceed the limits given in subsequent parts IEC 60269		(see appended table)	Р
8.10.2.1	Contacts			Р
	Points between voltage drop is measured			Р
	(A and B in Figure 106)			
	Withdrawal force (Table 118); measured force		1)	Р
	250 cycles (N)		2)	
			3)	



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	Withdrawal force (Table 118); measured force after 750 cycles (N)		Р
	If measured values too low, test of 8.5.5.1	-	N/A
8.10.2.2	Direct terminal clamps		Р
	Points between voltage drop is measured (Figure 110)		Р
	Test sequence for all types conductors (see Table 116)		Р
	Verification of temperature rise (see 8.3.4.1) (see figure 110)	.:	Р
8.10.3	Acceptability of test results		Р
8.10.3.1	Contacts		Р
	Limit value after 250 <sup>th</sup> cycle ≤ 15%		Р
	Limit value after 500 <sup>th</sup> cycle ≤ 30%		Р
	Limit value after 750 <sup>th</sup> cycle ≤ 40%		Р
	Difference between last and first measurement of temperature rise less than 20 K		Р
8.10.3.2	Direct terminal clamps		Р
	Permissible tolerance for resistance $R_{ci0}$ for Al conductors : $R_{ci0 max} \le 2 R_{ci0 min}$	.:	Р
	Permissible changes of the resistance from R of to R of 750: see Table 117		Р
	Copper or cleaned aluminium conductors	:	Р
	Uncleaned aluminium conductors	:	N/A
	Change from 50 <sup>th</sup> to 250 <sup>th</sup> cycle		Р
	Change after 250 <sup>th</sup> to 500 <sup>th</sup> cycle		Р
	Change after 500 <sup>th</sup> to 750 <sup>th</sup> cycle		Р
	Change between 50 <sup>th</sup> to 750 <sup>th</sup> cycle		Р
	Temperature rise at test spot F < 75K		Р
8.11	Mechanical and miscellaneous tests		Р
8.11.1.1	Mechanical strength of fuse-holders		Р
	Test set-up subjected to temperature rise test at rated current	250A .:	Р



## Page 16 of 18

	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	fuse-link or fuse-carrier are withdrawn and inserted into fuse-base 100 times	100 times	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	All parts are intact and function normally		Р
	Test set-up subjected to further temperature rise test at rated current (values obtained are not more than 5 K or 15 % above the values from temperature-rise test prior)	Max. 43K	Р
8.11.1.2	Mechanical strength of the fuse-base		Р
	Test-link inserted three times in the fuse-base:		Р
	(Dimensions of blade contacts see Figure 101)		
	(Withdrawal force F lied within limits in Table 118)		
	Steel screws are fastened three times at the terminals, torque of 1,2 times value specified by manufacturer or value of Table 111:		Р
	Contact pieces not have moved to affect the further use		Р
	Insulating mounting part no broken and no show any signs of cracks		Р
8.11.1.8	Impact resistance of gripping-lugs of moulded material or of metal fixed in moulded material		N/A
8.11.1.8.1	Test arrangement	,	N/A
8.11.1.8.2	Facility is given in Figure 109:		N/A
	One fuse-link(150±5)°C for 168 h		ADMINISTRATION OF THE PROPERTY
	Another one15°C for 72 h		The second secon
	One impact on each of gripping-lugs		N/A
8.11.1.8.3	Acceptability of test results	·	N/A
	No damage capable of hindering their further use		N/A
	No bent out by more than 3 mm		N/A
	Coupling with a handle (Figure 103) not are hindered		N/A
8.11.2.3	Verification of resistance to rusting		N/A
8.11.2.3.1	According to ISO 6988		N/A
	cyclic moist atmosphere containing 0,2% SO2		
	(SFW 0,2 S) for 1 cycle		
8.11.2.3.2	Optional test (severe environmental conditions)		N/A



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IEC 60269-2				
Clause	Requirement + Test		Result - Remark	Verdict
	Fuse-links and fuse-bases for used in environment of pollution degree ≥3 tested with SFW 2,0 S	ent		N/A
	for 5 cycles	:		
	They marked accordingly	:		N/A
8.11.2.4	Non-deterioration of insulating parts of fuse-link fuse-base	and		Р
8.11.2.4.1	Test method			Р
	Period 168 h	:	168	Accommoding a service of the control
	for equipment comprising moulded elements to support live parts (150±5)°C		150	
	for covers (100±5)°C			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Period greater than 1 h	:	1h	A contract of the contract of
	for sealing compounds; stability of marking(150±5)°C			The state of the s
	After cooling to ambient temperature the following are tested.	ng		Р
	Fuse-links: breaking capacity with I <sub>1</sub> and I <sub>2</sub>	:		Р
	Fuse-base: mechanical strength in accordance 8.11.1.2	with		Р
8.11.1.2	Mechanical strength of the fuse-base		-	Р
	Test-link inserted three times in the fuse-base	:		Р
	(Dimensions of blade contacts see Figure 101)			
	(Withdrawal force F lied within limits in Table 118	3)		
	Steel screws are fastened three times at the terminals, torque of 1,2 times value specified by manufacturer or value of Table 111			Р
	Contact pieces not have moved to affect the furt use	her		Р
	Insulating mounting part no broken and no show signs of cracks	any		Р
8.11.2.4.2	Acceptability of test results			Р
	Not have changed of positions of fuse-base cont to correct functioning	tacts		Р
	No fracture nor any signs of fracture on insulating body with terminals	g		Р
	Mechanical strength of cemented joints not impa	aired		Р



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	IEC 60269-2		
Clause	Verdict		
	Sealing compounds not shifted to extent permitting live parts to exposed		Р
Fuse-links operate correctly		Р	
	Marking are durable and easily legible		Р

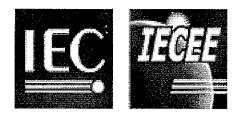


**Produkte Products** 

Seite 1 von 1 Prüfbericht - Nr.: 15033142 001 Page 1 of 1 Test Report No.: Auftraggeber: Wenzhou Jinlida Electrical Co., Ltd. Client: Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604, P.R. China Gegenstand der Prüfung: Low-voltage Fuse Test item: Bezeichnung: NH2 Serien-Nr.: Engineering sample Identification: Serial No.: Wareneingangs-Nr.: 153123295 Eingangsdatum: 22.06.2009 Receipt No.: Date of receipt: Hunan Electrical Apparatus Testing Institute Prüfort: 4 Xinzhong Road, Changsha, Hunan, P.R. China Testing location: Prüfgrundlage: IEC 60269-1:2006 Test specification: IEC 60269-2:2006 Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). Prüfergebnis: Test Result: The test item passed the test specification(s). TÜV Rheinland (Shanghai) Co., Ltd. Prüflaboratorium: Testing Laboratory: kontrolliert/ reviewed by: geprüft/ tested by: Bo Xia/Reviewer Kenny Shi/PE Unterschrift Name/Stellung Unterschrift Name/Stellung Name/Position Signature Date Name/Position Signature Sonstiges/ Other Aspects: This report consists of two parts: Part I for IEC 60269-1:2006. Part II for IEC 60269-2:2006. Abkürzungen: P(ass) entspricht Prüfgrundlage Abbreviations: P(ass) passed entspricht nicht Prüfgrundlage F(ail) failed F(ail) not applicable ÑΑ nicht anwendbar N/T nicht getestet not tested Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht

auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

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Test Report issued under the responsibility of:



#### TEST REPORT IEC 60269-1

### Low-voltage fuses

Part 1: General requirements

Report Reference No.....: 15033142 001 Part I

Date of issue .....: 30.07.2009

Total number of pages ...... 50 pages

Testing Laboratory...... TÜV Rheinland (Shanghai) Co., Ltd.

Address ......: 10-15/F, Huatsing Building, No.88, Lane 777, Guangzhong Road

West, 200072 Shanghai Zhabei District, P.R. China

Applicant's name...... Wenzhou Jinlida Electrical Co., Ltd.

Address ...... Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604

P.R. China

Test specification:

Standard ...... IEC 60269-1:2006 (Fourth edition)

Test procedure ...... CB

Non-standard test method ...... N/A

Test Report Form No. ..... IEC60269\_1A

Test Report Form(s) Originator .....: EZU

Master TRF ...... Dated 2009-04

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description ...... Fuses (fuse-link and fuse-base)

Trade Mark ...... JINLIDA

Manufacturer ...... Same as applicant

Model/Type reference .....: NH2

Ratings ...... AC 500V; 160A,200A,250A,300A,400A; 120kA; Size 2

Page 2 of 42

Test	ing procedure and testing location:		
$\boxtimes$	Testing Laboratory:	TÜV Rhein	land (Shanghai) Co., Ltd.
Testi	ng location/ address:	Hunan Elec	trical Apparatus Testing Institute
		4 Xinzhong	Road, Changsha, Hunan, P.R. China
	Associated CB Test Laboratory:		
Testi	ng location/ address:		
	To all discourses a sign of social		
	Tested by (name + signature):		
	Approved by (+ signature)		
	Testing procedure: TMP		
	Tested by (name + signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: WMT		
	Tested by (name + signature):		
	Witnessed by (+ signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: SMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: RMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		



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Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
For homogeneous series of NH2, type tests are listed in table 11, 12, 13 and 14 in EN 60269-1:2006	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
Summary of compliance with National Difference	s:
N/A	

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Report No. 15033142 001 Part I

Copy of marking plate:

JINLIDA

NH2

500V∼ 120kA

690V~ 50kA

gG 400A

IEC 60269 (€ EEE (CO)

Marking plate of fuse-link

JINLIDA

NH2

500V~ 400A 690V~ 315A

IEC 60269

Marking plate of fuse-base



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Test item particulars	
Fuse-holder 2	es/No
Fuse-base	es/No
Fuse-carrier 2	<del>/es</del> /No
Fuse-link	es/No
Fuse for use by authorized persons	es/No
Fuse for use by unskilled persons	es/No
:	
Possible test case verdicts:	
- test case does not apply to the test object:	VA
- test object does meet the requirement: F	P(Pass)
- test object does not meet the requirement F	(Fail)
Testing:	
Date of receipt of test item:	6.2009
Date (s) of performance of tests:	6.2009-07.2009
The test results presented in this report relate only to the of This report shall not be reproduced, except in full, without "(see Enclosure #)" refers to additional information appe "(see appended table)" refers to a table appended to the refers to a table appended to a table	the written approval of the Issuing testing laboratory, nded to the report. eport.



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
5	CHARACTERISTICS OF FUSES		- 1-12-2: - 2-2-2: - 2-2-2: - 2-2-2:	
5.2	Rated voltage (V) as specified:	AC 500V	Р	
5.3.1	Rated current (A) of the fuse-link in accordance with specified values	160A,200A,250A,300A,315A,4 00A	Р	
5.3.2	Rated current (A) of the fuse-holder:	400A	Р	
5.4	Rated frequency (Hz):	50Hz	Р	
5.5	Max. rated power dissipation (VA) of fuse-link:	<=34W	Р	
	Rated acceptable power dissipation (VA) of fuse-holder:	45W	Р	
5.6	Limits of time-current characteristics based on reference ambient air temperature Ta of +20°C		Р	
5.6.1	Time-current zones deviated from standardized, or available in manufacturers documentation (with tolerances)		Р	
5.6.2	Conventional times and currents see Table 2 :		Р	
5.6.3	Gates		Р	
5.7	Breaking range and breaking capacity	120kA	Р	
5.7.1	Breaking range and utilization category:	gG	Р	
5.7.2	Rated breaking capacity (A) of fuse-link corresponds to the rated voltage (V), and is equal or higher than given minimum (A) in subsequent part of this standard	120kA	Р	
5.8	Cut-off current and l <sup>2</sup> t characteristics are referred to the values of voltage, frequency and power factor		Р	
5.8.1	Cut-off current characteristics, if required, given by the manufacturer according to Figure 4:		Р	
5.8.2	Pre-arcing I <sup>2</sup> t characteristics for pre-arcing times of less than 0,1 s down to a time corresponding to the rated breaking capacity given by the manufacturer:		Р	
	The operating l <sup>2</sup> t characteristics with specified voltages as parameter for pre-arcing times less than 0,1 s given by the manufacturer:		Р	



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,	IEC 60269-1	Report No. 15033142 00	
Clause	Requirement + Test	Result - Remark	Verdict
6	MARKINGS		
	Markings are durable and easily legible		Р
6.1	Fuse-holders marked by:		Р
	- name of manufacturer or trade mark which enable identification of fuse-holder:	JINLIDA	Р
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.1:	NH2	Р
	- rated voltage (V):	500V	Р
	- rated current (A):		Р
	- kind of current and rated frequency (Hz):	AC and 50Hz	Р
6.2	Fuse-link(s) except small fuse-link(s) marked by:		Р
	- name of manufacturer or trade mark which enable identification of fuse-links:	JINLIDA	Р
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.2:	NH2	Р
	- rated voltage (V):	500V	Р
	- rated current (A):	160~400A	Р
	- breaking range and utilization category (if applicable) (5.7.1):	gG	Р
	- kind of current:	AC	Р
	- rated frequency (Hz), if applicable (5.4)	50Hz	Р
	Small fuse-links marked by:		N/A
	- trademark:		N/A
	- list reference of manufacturer:		N/A
	- rated voltage (V):		N/A
	- rated current (A):		N/A
6.3	Symbols for the kind of current and frequency in accordance with IEC 60417		P



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
7	STANDARD CONDITIONS FOR CONSTRU	CTION		The second secon
7.1	Mechanical design	. , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Р
7.1.1	Replacement of fuse-links easily and safely			Р
7.1.2	Connections, including terminals			Р
	Contact force is not transmitted through insu material other than ceramic or other material characteristics not less suitable, unless			Р
	there is sufficient resilience in the metallic pa compensate any possible shrinkage or other deformation of the insulating material			Р
	Terminals cannot turn or be displaced when connecting screws are tightened	the		Р
	Terminals shall be such, that the conductors be displaced	cannot		Р
	Parts gripping the conductors are of metal			Р
	Gripping parts cannot unduly damage condu	ctors		Р
	Terminals readily accessible under the intendent conditions of installation	ded		Р
7.1.3	Fuse-contacts			Р
	Fuse-contacts are such that necessary conta is maintained under the conditions of service operation			Р
	Contact is such that electromagnetic forces occurring during operation under conditions i accordance with 7.5 not impair electrical conbetween			Р
	a) fuse-base and fuse-carrier			N/A
	b) fuse-carrier and fuse-link	!		N/A
	c) fuse-link and fuse-base			Р
	Fuse contacts are so constructed and of suc material that, when fuse is properly installed service conditions are normal, adequate con maintained	and		Р
	a) after repeated engagement and disengage	ment		Р
	b) after being left undisturbed in service for loperiod	ng		Р
7.1.4	Construction of a gauge-piece			P
	Gauge-piece is so designed that it withstands stresses occurring during use	s normal		Р
				· · · · <del></del>



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
7.1.5	Mechanical strength of fuse-link	:		Р
	Fuse-link have adequate mechanical strengt contacts are securely fixed	h and its		Р
7.2	Insulating properties and suitability for isolation	on		Р
	Fuses are such that they do not lose insulating properties at voltages to which they are subjection normal service			Р
	Fuse passes the tests for verification of insul properties and suitability for isolation in account with 8.2			Р
7.3	Temperature rise, power dissipation of the fu and acceptable power dissipation of the fuse			Р
	See Table 5	:		Р
	Requirements are verified by tests according	to 8.3		Р
7.4	Operation			Р
	Fuse-link is so designed and proportioned the tested in its appropriate test arrangement at frequency and ambient air temperature of (20)	rated		Р
	- is able to carry continuously any current not exceeding its rated current			Р
	- is able to withstand overload conditions as f may occur in normal service (see 8.4.3.4)	hey		Р
	Fuse-link satisfy these conditions if it passes tests prescribed in 8.4	the		Р
7.5	Breaking capacity			Р
	Fuse is capable of breaking, at rated frequent at voltage not exceeding the recovery voltage specified in 8.5, any circuit having prospective current between			Р
	- current I <sub>f</sub> (for "g" fuse-links)	·:		Р
*	- current k <sub>2</sub> l <sub>n</sub> (for "a" fuse-links)	:		N/A
	- for a.c., rated breaking capacity at power fa not lower than those in Table 20			Р
	- for d.c., rated breaking capacity at time con not greater than those limits in Table 21			N/A
	Arc voltage not exceed values given in Table	6 :		Р
	Fuse satisfy these conditions if it passes the prescribed in 8.5	tests		Р
7.6	Cut-off current characteristic			Р



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
	Values of cut-off current measured as specified in 8.6 are less than, or equal to, the values corresponding to cut-off current characteristics assigned by the manufacturer		Р	
7.7	I <sup>2</sup> t characteristics		Р	
	Pre-arcing l <sup>2</sup> t values verified according to 8.7 (Table 7):		Р	
	Operating I <sup>2</sup> t values verified according to 8.7:		P	
7.8	Overcurrent discrimination of fuse-links:		Р	
7.9	Protection against electric shock	11	Р	
	The degree of protection when the fuse is under normal service conditions:	IP00	Р	
	The degree of protection when replacing the fuse-link:	IP00	Р	
	The degree of protection when the fuse-link and fuse-carrier is removed:	IP	N/A	
7.9.1	Clearances and creepage distances		Р	
	Clearances are not less than the values given in Table 9		Р	
	Creepage distances correspond to material group, as defined in 2.7.1.3 of IEC 60664-1, corresponding with rated voltage given in Table 10:	500V	Р	
7.9.2	Leakage currents of equipment suitable for isolation		N/A	
	Value of leakage current (mA) not exceed		N/A	
	- 0,5 mA per pole for fuses in new conditions:		N/A	
	- 2 mA per pole for fuses having been submitted to test according to 8.5		N/A	
7.9.3	Additional constructional requirements for fuses with non-separable fuse-carriers, suitable for isolation		N/A	
	Fuse-holder are marked with the symbol IEC 60617-S00369		N/A	
	When fuse is in open position, with fuse-link remaining inside the fuse-carrier, isolating distance between the fuse contacts in accordance with the isolating function are provided		N/A	
	Indication of this position is provided by the position of the fuse-carrier		N/A	



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
	There exists a locking means in order to lock the fuses in the isolated position, locking is possible only in this position		N/A
	Fuses are designed so that the fuse-carrier remains attached to the fuse-base giving correct indication of the open position, and of locking		N/A
7.10	Resistance to heat		Р
	All components are sufficiently resistant to heat which may occur in normal use (see 8.9 and 8.10)		Р
7.11	Mechanical strength		Р
	All components of fuse are sufficiently resistant to mechanical stresses which may occur in normal use (see 8.3 to 8.5 and 8.11.1)		Р
7.12	Resistance to corrosion	***	Р
	All metallic components of fuse are resistant to corrosive influences which may occur in normal use		Р
7.12.1	Resistance to rusting		Р
	Ferrous components are so protected that they meet relevant tests (see 8.2.4.2 and 8.11.2.3)		Р
7.12.2	Resistance to season cracking		Р
	Current-carrying parts are sufficiently resistant to season cracking (see 8.2.4.2 and 8.11.2.1)		Р
7.13	Resistance to abnormal heat and fire		Р
	All components of fuse are sufficiently resistant to abnormal heat and fire (see 8.11.2.2)		Р
7.14	Electromagnetic compatibility		N/A
	Fuses within the scope of this standard are not sensitive to normal electromagnetic disturbances		N/A
	No immunity tests are required		N/A



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
8	TESTS	The second secon	
8.1.2	At the beginning of each test, the fuse is approximately at the ambient temperature		Р
8.1.3	Tests made on fuses in clean and dry condition		Р
8.1.4	Arrangement of the fuse and dimensions		Р
	Except for degree of protection test (see 8.8), fus are mounted in free air in draught-free surroundir in the normal operation position and on insulating material of sufficient rigidity	igs	Р
	Before tests are started, specified external dimensions are measured and results compared dimensions specified in the relevant data sheet o manufacturer or specified in subsequent parts		Р
8.1.5	Testing of fuse-links	***	Р
	Fuse-links tested with the kind(s) of current for w they are rated	nich	Р
	Fuse-links tested for a.c. with frequency for which they are rated	1	Р
8.1.5.1	Complete tests		Р
	Internal resistance R measured by a current ≤ 0,	l In	Р
	Measuring current (A)	:	Р
	Ambient air temperature in range of 20 ± 5 °C		Р
	The values of resistance	(see appended table)	Р
8.1.5.2	Testing of fuse-links of a homogeneous series		Р
	Fuse-links tested like a homogeneous series	: Yes/No	Р
	If yes: fuse-links have identical enclosures in form and construction (except of fuse-elements and contacts)		Р
	- the same arc-extinguishing medium and same completeness of filling		Р
	- fuse-elements of identical materials		Р
	- their cross-section of fuse-elements not exceed cross-section of fuse-links having the highest rate current	I	Р
	- number of fuse-elements do not exceed number fuse-elements of fuse-links with the highest rated current		Р



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	IEC 6026	-	Report No. 19033	712 0011 011
Clause	Requirement + Test		Result - Remark	Verdict
	- minimum distances between adjacent fuse elements and between the fuse-elements ar inner surface of the cartridge is not less than the fuse-link with the highest rated current	d the	. 1	P
	- fuse-links used with a given fuse-holder, or			Р
	- fuse-links intended to be used in an arrang- identical for all rated currents of the homoge- series			N/A
	- value of RI <sub>n</sub> <sup>3/2</sup> does not exceed the value for fuse-link with largest rated current of the homogeneous series (R measured as indica 8.1.5.1)			N/A
	the rated breaking capacity of fuse-links not than that of the fuse-link with the largest rate within the homogeneous series			Р
	- if not, the fuse-links with greater breaking c subjected to tests no. 1 and no. 2	apacity		N/A
	The fuse-link having the largest rated curren completely according to Table 11	tested		Р
	The fuse-link having the smallest rated curre only according to Table 12	nt tested		Р
	The fuse-links between the largest and smal rated current tested according to Table 13	est		Р
8.1.6	Testing of fuse-holders			Р
	The fuse-holders are subjected to the tests according to Table 14			Р
8.2	Verification of the insulating properties and o suitability for isolation	f the		Р
8.2.1	Arrangement of the fuse-holder			Р
	The fuse-holder fitted with a fuse-links of the dimensions for the type of fuse-holder conce			Р
	The fuse-base fixed to a metal plate, unless otherwise specified			Р
	Fuse-link is replace while live - surfaces of fu of device for replacing it or of fuse-carrier, if of insulating material, are provided with metal of connected during tests to the frame of the ap- if of metal, they are connected direct to the frame	of overings paratus;		Р
8.2.2	Verification of the insulating properties			P
	Points of application of the test voltage			Р
	The test voltage is applied between:			Р



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	IEC 60269-1	, , , , , , , , , , , , , , , , , , , ,	
Clause	Requirement + Test	Result - Remark	Verdict
	a) live parts and the frame with the fuse-link and the device for replacing it, or	е	Р
	the fuse-carrier, if any, in position		N/A
	no breakdown of insulation or flashover during 1 m of the applying test voltage	in	Р
	b) the terminals without fuse-link, device for replaci or the fuse-carrier	ng	Р
	no breakdown of insulation or flashover during 1 m of the applying test voltage	in	Р
	c) live parts of different polarity in the case of multipole fuse-holder with fuse-links, fuse-carrier(s) or device(s) for replacing the fuse-links	)	N/A
	no breakdown of insulation or flashover during 1 million of the applying test voltage	in	N/A
	d) live parts which in the case of a multipole fuse- holder reach different potential after the fuse-link operates (equipped by fuse-carrier or device for replacing without fuse-link)		N/A
	no breakdown of insulation or flashover during 1 mi of the applying test voltage	ín	N/A
	The r.m.s. value of test voltage (V) as specified in Table 15	1890V	Р
8.2.2.3.2	Fuse-holder is subjected to humid atmospheric conditions		Р
	Relative humidity of ambient air (%)	: 91-95	P
	Ambient air temperature (°C)	: 20-30	Р
	Duration of treatment (h)	: 144	P
	Insulation resistance is measured between the poir prescribed in 8.2.2.1 by applying d.c. voltage of approximately 500 V	nts	Р
	Points of measuring:	· · · · · · · · · · · · · · · · · · ·	Р
	a) min. measured value (MΩ)	: 200ΜΩ	Р
	b) min. measured value (MΩ)	: 200MΩ	Р
	c) min. measured value (MΩ)	:	N/A
	d) min. measured value (MΩ)	:	N/A
	The insulation resistance not less than MΩ	: 1MΩ	Р
8.2.3	Verification of the suitability for isolation		N/A



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	IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict	
	Clearances larger than values given in Table verified by dimensional measurement or by verified by dimensional mea			N/A	
	Points of application of the test voltage			N/A	
	The test voltage is applied between:			N/A	
	- terminals when the fuse-link and device for replacing it, are removed			N/A	
	Test voltage (kV) for verification of the rated withstand voltage is given in Table 16	mpulse :	kV	N/A	
	The 1,2/50 µs impulse voltage applied 5 time each polarity at intervals of 1 s minimum	s for		N/A	
	no breakdown of insulation or flashover durin applying test voltage	g of the		N/A	
	no disruptive discharge during the test			N/A	
8.2.4.2	Fuse-holder is subjected to humid atmosphe conditions	ric		N/A	
	Relative humidity of ambient air (%)	:		N/A	
	Ambient air temperature (°C)	:		N/A	
	Duration of treatment (h)	:	-	N/A	
	Insulation resistance is measured between the prescribed in 8.2.2.1 by applying d.c. voltage approximately 500 V			N/A	
	Points of measuring:		•	N/A	
	a) min. measured value (MΩ)	:		N/A	
	b) min. measured value (MΩ)	:		N/A	
	c) min. measured value (MΩ)	:		N/A	
	d) min. measured value (MΩ)	:		N/A	
	The insulation resistance not less than 1 MΩ	:		N/A	
8.3	Verification of temperature rise and power dis	sipation		Р	
8.3.1	One fuse used for test (unless otherwise stat the manufacturer) mounted in free air	ed by		Р	
	Test performed at an ambient air temperature (20±5) °C	e of		Р	
	Ambient air temperature during the test (°C)	:		Р	
	Cross-sectional area (see Table17)		240 mm²	<b></b>	
	(mm <sup>2</sup> or mm x mm)	:			



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
	Tightened by torque; torque (Nm):	32Nm		
8.3.2	The temperature of the fuse measured by method of measuring	Thermocouple	P	
8.3.3	Measurement of the power dissipation of the fuse-		Р	
	One fuse used for test (unless otherwise stated by the manufacturer) mounted in free air		Р	
	Test performed at an ambient air temperature of (20±5) °C		Р	
	Ambient air temperature during the test (°C):	20°C	Р	
	Cross-sectional area (see Table17) (mm² or mm x mm)	240 mm <sup>2</sup>	- 12 - 12 - 12 - 12 - 12 - 12 - 12 - 12	
	Tightened by torque; torque (Nm):	32Nm		
8.3.4.1	Temperature rise of the fuse-holder		Р	
	Applied a.c. current (A) for test equal to the rated current of the fuse-holder	400A	Р	
	Test made with fuse-link (A), or:	400A	P	
	with a dummy fuse-link specified in subsequent parts	Part II	Р	
	Temperature rise limits T for contacts and terminals (	Table 5):	Р	
	spring loaded contacts; limit (K):	unenclosed / enclosed max. 43K<65K	Р	
	bolted contacts; limit (K)	unenclosed / enclosed	N/A	
	terminals; limit (K):	unenclosed / enclosed max. 44K<65K	Р	
8.3.4.2	Power dissipation of a fuse-link		Р	
	The test made with a.c. at the current (A) equal to the rated current of the fuse-link:	400A	Р	
	The points of measuring:	Central of blade	Р	
	Measured value of power (W) dissipation in limits (W) specified in subsequent parts:	30,6W<34W	Р	
8.3.5	The acceptable power dissipation (W) of fuse-holder not less than the rated power dissipation of the corresponding fuse-links:		Р	
	After the tests prescribed in 8.3, the insulating parts of the fuse-holders cooled down to ambient temperature withstood the test voltage according to 8.2	1890V	Р	



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	IEC 60269-1	, <del>.</del>	
Clause	Requirement + Test	Result - Remark	Verdict
	No deformation after tests of 8.3		ТР
8.4	Verification of operation	For 400A	P
8.4.1	The test arrangement as specified in 8.1.4		P
	Length (m) of conductors (see 8.3.1):	2m	P
	their cross-sectional area (mm²) as specified in Table 17	240	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р
	a) the fuse-link subjected to the conventional non- fusing current (I <sub>nf</sub> ) (see Table 2):	500A	
	the fuse-link did not operate within the conventional time of (h) (Table 2):	3h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (I <sub>f</sub> ) (see Table 2):	640A	
	the fuse-link operated within the conventional time of (minutes) (Table 2):	2352s	Р
8.4.3.2	Verification of rated current of "g" fuse-links		P
	One fuse-link submitted to a pulse test for 100 h		Р
	On-period equal to conventional time (h):	3h	Р
	Off-period of 0,1 of the conventional time:	18min	P
	Test current (A) equal to 1,05 of the rated current . :	420A	Р
	After the test, the fuse-link not have changed its characteristics		Р
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	500A	
	the fuse-link did not operate within the conventional time of (h) (Table 2):	3h	Р
8.4	Verification of operation	For 315A	Р
8.4.1	The test arrangement as specified in 8.1.4		Р
	Length (m) of conductors (see 8.3.1):	2m	Р
	their cross-sectional area (mm2) as specified in Table 17	185	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р



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Clause	Requirement + Test		Result - Remark	Verdict
	a) the fuse-link subjected to the conventional n fusing current (Inf) (see Table 2)		393,8A	
	the fuse-link did not operate within the convent time of (h) (Table 2)		3h	Р
	b) the same fuse-link, after cooled down to am temperature, subjected to the conventional fus current (If) (see Table 2)	ing		_
	the fuse-link operated within the conventional t (minutes) (Table 2)	ime of		N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 100	h		Р
	On-period equal to conventional time (h)	:	3h	Р
	Off-period of 0,1 of the conventional time	:	18min	Р
	Test current (A) equal to 1,05 of the rated curre	ent . :	330,8A	Р
	After the test, the fuse-link not have changed it characteristics	ts		Р
8.4.3.1	a) the fuse-link subjected to the conventional n fusing current (Inf) (see Table 2)	ion- :	393,8A	_
	the fuse-link did not operate within the convent time of (h) (Table 2)		3h	Р
8.4	Verification of operation		For 300A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified in Table 17		185	Р
8.4.2	Ambient air temperature during test within (20±	±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusi current	ing		Р
	a) the fuse-link subjected to the conventional n fusing current (Inf) (see Table 2)		375A	_
	the fuse-link did not operate within the convent time of (h) (Table 2)		3h	Р
	b) the same fuse-link, after cooled down to am temperature, subjected to the conventional fus current (If) (see Table 2)	ing		_
•	the fuse-link operated within the conventional to (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
	One fuse-link submitted to a pulse test for 10	00 h		P
	On-period equal to conventional time (h)	:	3h	Р
	Off-period of 0,1 of the conventional time	:	18min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent .:	315A	P
	After the test, the fuse-link not have changed characteristics	its		Р
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		375A	_
	the fuse-link did not operate within the conve time of (h) (Table 2)		3h	Р
8.4	Verification of operation		For 250A	Р
8.4.1	The test arrangement as specified in 8.1.4			Р
	Length (m) of conductors (see 8.3.1)	:	2m	Р
	their cross-sectional area (mm2) as specified Table 17		120	Р
8.4.2	Ambient air temperature during test within (2	0±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fucurrent	sing		Р
	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		312,5A	
	the fuse-link did not operate within the conve time of (h) (Table 2)	ntional	2h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (If) (see Table 2)	ısing		_
	the fuse-link operated within the conventiona (minutes) (Table 2)			N/A
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	0 h		Р
	On-period equal to conventional time (h)		3h	Р
	Off-period of 0,1 of the conventional time	:	18min	Р
	Test current (A) equal to 1,05 of the rated cu	rrent .:	262,5A	P
	After the test, the fuse-link not have changed characteristics	its		P
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		312,5A	_



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Clause	Requirement + Test	Result - Remark	Verdict		
	the fuse-link did not operate within the conventional time of (h) (Table 2):	3h	Р		
8.4	Verification of operation	For 200A	Р		
8.4.1	The test arrangement as specified in 8.1.4		Р		
	Length (m) of conductors (see 8.3.1):	2m	Р		
	their cross-sectional area (mm2) as specified in Table 17	95	Р		
8.4.2	Ambient air temperature during test within (20±5) °C		Р		
8.4.3.1	Verification of conventional non-fusing and fusing current		Р		
	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2):	250A	-		
	the fuse-link did not operate within the conventional time of (h) (Table 2)	3h	Р		
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):				
	the fuse-link operated within the conventional time of (minutes) (Table 2):		N/A		
8.4.3.2	Verification of rated current of "g" fuse-links		Р		
	One fuse-link submitted to a pulse test for 100 h		Р		
	On-period equal to conventional time (h):	3h	Р		
	Off-period of 0,1 of the conventional time:	18min	Р		
	Test current (A) equal to 1,05 of the rated current .:	210A	Р		
	After the test, the fuse-link not have changed its characteristics		Р		
8.4.3.1	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2):	250A	_		
	the fuse-link did not operate within the conventional time of (h) (Table 2)	3h	Р		
8.4	Verification of operation	For 160A	Р		
8.4.1	The test arrangement as specified in 8.1.4		Р		
	Length (m) of conductors (see 8.3.1):	2m	Р		
	their cross-sectional area (mm2) as specified in Table 17	70	Р		
8.4.2	Ambient air temperature during test within (20±5) °C		Р		



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Clause	Requirement + Test		Result - Remark	Verdict
8.4.3.1	Verification of conventional non-fusing and fu	ısing		P
	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)	non- :	200A	-
	the fuse-link did not operate within the convertime of (h) (Table 2)		2h	Р
	b) the same fuse-link, after cooled down to a temperature, subjected to the conventional fucurrent (If) (see Table 2)	ısing	256	_
	the fuse-link operated within the conventional (minutes) (Table 2)		1056s	Р
8.4.3.2	Verification of rated current of "g" fuse-links			Р
	One fuse-link submitted to a pulse test for 10	0 h		Р
	On-period equal to conventional time (h)	:	2h	Р
	Off-period of 0,1 of the conventional time	:	12min	Р
	Test current (A) equal to 1,05 of the rated cur	rent .:	168A	Р
	After the test, the fuse-link not have changed characteristics	its		P
8.4.3.1	a) the fuse-link subjected to the conventional fusing current (Inf) (see Table 2)		200A	_
	the fuse-link did not operate within the convertime of (h) (Table 2)	ntional :	2h	Р
8.4.3.3	Verification of time-current characteristics and	d gates		P
8.4.3.3.1	The time-current characteristics verified on the of the test according to 8.5	ne basis		Р
	Values of pre-arcing and operating times with	nin the tin	ne-current zones:	Р
	- indicated by the manufacturer			N/A
	- specified in subsequent parts	:	Part II	Р
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in case			N/A
	"g" fuse-links (except "gD", "gG" and "gM")			N/A
	Tests made in connection with verification of gates (see8.4.3.3.2)	the		N/A
	Ambient air temperature within (20±5) °C	:		N/A
	rated current In (A) of the fuse-link	:		
	test performed at voltage (V)	:		#



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	IEC 6026	9-1	, <u>, , , , , , , , , , , , , , , , , , </u>	
Clause	Requirement + Test		Result - Remark	Verdict
	test 3a) prospective current (A) equal to kIn $(10 \le k \le 20)$	:		N/A
	pre-arcing time (s)			
	specified pre-arcing time (s) max./min	:		N/A
_	test 4a) prospective current (A) equal to kin $(5 \le k \le 8)$	:		N/A
	pre-arcing time (s)			100   100
	specified pre-arcing time (s) max./min	:		N/A
	test 5a) prospective current (A) equal to kln $(2,5 \le k \le 4)$	:		N/A
	pre-arcing time (s)	:		
	specified pre-arcing time (s) max./min	:		N/A
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in case			N/A
	"a" fuse-links			N/A
	Ambient air temperature within (20±5) °C	:		N/A
	rated current In (A) of the fuse-link	:		
	test performed at voltage (V)	:		-
	test 3a) prospective current (A) equal to nk₂ (5≤ n ≤ 8)			N/A
	pre-arcing time (s)			
	specified pre-arcing time (s) max./min	:		N/A
	test 4a) prospective current (A) equal to $nk_2$ (2≤ n ≤ 3)			N/A
	pre-arcing time (s)	:		
	specified pre-arcing time (s) max./min	:		N/A
	test 5a) prospective current (A) equal to $nk_2$ (1 $\leq$ $n$ $\leq$ 1,5)			N/A
	pre-arcing time (s)			2 00 0 1 N incompany
	specified pre-arcing time (s) max./min	:		N/A
8.4.3.3.2	Verification of gates			Р
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A)	:	400	_
	test performed at voltage (V)	:	Not specified	



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Clause	Requirement + Test		Result - Remark	Verdict
	a) testing current (A); pre-arcing time (s) high		1420A;68s	P
	b) testing current (A); pre-arcing time (s) less 5 s		2840A;2,3s	Р
	c) testing current (A); pre-arcing time (s) high 0,1 s		4500A;690ms	Р
	d) testing current (A); pre-arcing time (s) less 0,1 s		8060A;8ms	Р
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)			1 A 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	test performed at voltage (V)	:		
	Cross-sectional area (see Table18) (mm² or mm x mm)			magnetic management of the control o
	e) testing current (A); pre-arcing time (s) high 60 s			N/A
	f) testing current (A); pre-arcing time (s) less 60 s			N/A
	g) testing current (A); pre-arcing time (s) high 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less 0,10 s			N/A
8.4.3.3.2	Verification of gates			Р
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A)		315	_
	test performed at voltage (V)	:	Not specified	_
	a) testing current (A); pre-arcing time (s) high 10 s		1050A;74s	Р
	b) testing current (A); pre-arcing time (s) less 5 s		2200A;2,5s	Р
	c) testing current (A); pre-arcing time (s) high 0,1 s		3420A;780ms	Р
	d) testing current (A); pre-arcing time (s) less 0,1 s		6000A;9ms	Р
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)	:		
	test performed at voltage (V)	:		



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Clause	Requirement + Test	Result - Remark	Verdict	
• • • • • • • • • • • • • • • • • • • •	Cross-sectional area (see Table18) (mm2 or mm x mm):			
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A	
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A	
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A	
	h) testing current (A); pre-arcing time (s) less than 0,10 s:		N/A	
8.4.3.3.2	Verification of gates		Р	
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	Р	
	rated current of the fuse-link (A):	300	_	
	test performed at voltage (V):	Not specified		
	a) testing current (A); pre-arcing time (s) higher than 10 s:	1050A;83s	Р	
	b) testing current (A); pre-arcing time (s) less than 5 s	2200A;2,9s	Р	
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	3420A;810ms	Р	
	d) testing current (A); pre-arcing time (s) less than 0,1 s	6000A;10ms	Р	
	"aM" fuse-links		N/A	
	rated current of the fuse-link (A):		_	
	test performed at voltage (V):		_	
	Cross-sectional area (see Table18) (mm2 or mm x mm)		-	
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A	
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A	
	g) testing current (A); pre-arcing time (s) higher than 0,2 s		N/A	
	h) testing current (A); pre-arcing time (s) less than 0,10 s:		N/A	
3.4.3.3.2	Verification of gates		Р	
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	P	



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Clause	Requirement + Test	Result - Remark	Verdict	
	rated current of the fuse-link (A):	250		
	test performed at voltage (V):	Not specified		
	a) testing current (A); pre-arcing time (s) higher than 10 s	750A;71s	Р	
	b) testing current (A); pre-arcing time (s) less than 5 s	1650A;2,5s	Р	
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	2590A;760ms	Р	
	d) testing current (A); pre-arcing time (s) less than 0,1 s	4500A;9ms	P	
	"aM" fuse-links		N/A	
	rated current of the fuse-link (A):			
	test performed at voltage (V):		-	
	Cross-sectional area (see Table18)		-	
	(mm2 or mm x mm):			
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A	
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A	
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A	
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A	
8.4.3.3.2	Verification of gates		Р	
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	Р	
	rated current of the fuse-link (A):	200	_	
	test performed at voltage (V):	Not specified	_	
	a) testing current (A); pre-arcing time (s) higher than 10 s	610A;78s	Р	
	b) testing current (A); pre-arcing time (s) less than 5 s	1250A;2,4s	Р	
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	1910A;730ms	Р	
	d) testing current (A); pre-arcing time (s) less than 0,1 s:	3420A;10ms	Р	
	"aM" fuse-links		N/A	
	rated current of the fuse-link (A):			



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Clause	Requirement + Test	Result - Remark	Verdict
	test performed at voltage (V):		
	Cross-sectional area (see Table18)		
	(mm2 or mm x mm)		_
180	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A
	h) testing current (A); pre-arcing time (s) less than 0,10 s:		N/A
8.4.3.3.2	Verification of gates		Р
	"gG" and "gM" fuse-links	"gG" / <del>-"gM"</del>	Р
	rated current of the fuse-link (A):	160	_
	test performed at voltage (V):	Not specified	_
	a) testing current (A); pre-arcing time (s) higher than 10 s:	460A;77s	Р
	b) testing current (A); pre-arcing time (s) less than 5 s	950A;2,7s	Р
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	1450A;690ms	Р
	d) testing current (A); pre-arcing time (s) less than 0,1 s	2590A;9ms	Р
	"aM" fuse-links		N/A
	rated current of the fuse-link (A):		_
	test performed at voltage (V):		_
	Cross-sectional area (see Table18)		_
	(mm2 or mm x mm):		
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A
8.4.3.4	Overload	For 160A and 400A	Р



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Clause	Requirement + Test	Result - Remark	Verdict	
	The test arrangement is same as that for the temperature rise test (see 8.3.1)		Р	
	Three fuse-links submitted to 50 pulses having the same duration and test current:		Р	
	test performed at voltage (V):	Not specified	2 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
	"g" fuse-links:		Р	
	test current (A) equal to 0,8 times the current stated for a pre-arcing time of 5 s	464A/1280A	Р	
	duration of each pulse 5 s		Р	
	time (s) interval between pulses equal to 20 % of the conventional time (s) specified in Table 2:	24min/36min	Р	
	"a" fuse-links:		N/A	
	rated current In (A) of fuse-link:		N/A	
	test current (A) equal to k <sub>1</sub> l <sub>n</sub> ± 2%:		N/A	
	the pulse duration (s) corresponds to that indicated on the overload curve for $k_1 l_n$ stated by manufacturer		N/A	
	time (s) intervals between pulses equal to 30 times the pulse duration		N/A	
	fuse-links having ambient air temperature subjected to a current (A) equal to current for the overload test	464 <b>A</b> /1280A	Р	
	pre-arcing time (s) of sample lies within the manufacturers time-current zone:	1) 54s/64,9s 2) 58s/46,3s 3) 62s/57,2s	Р	
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links only)		Р	
	fuse-link mounted as specified in 8.4.1		Р	
	provided with PVC insulated copper conductors of cross-sectional area (mm²) (see Table 19)	95	Р	
	fuse and conductor connected to it, preheated with rated current (A) of fuse-link	200A	Р	
	for a time (h) equal to the conventional time:	3h	Р	
	test current increased to 1,45 l <sub>z</sub> (A) (l <sub>z</sub> specified in Table 19)	308,9A	Р	
	the fuse-link operated in time (s) less than the conventional time (s):	2925s	Р	
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links only)		Р	



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Clause	Requirement + Test	Result - Remark	Verdict	
	fuse-link mounted as specified in 8.4.1		P	
	provided with PVC insulated copper conductors of cross-sectional area (mm2) (see Table 19):	70	Р	
	fuse and conductor connected to it, preheated with rated current (A) of fuse-link:	160A	Р	
	for a time (h) equal to the conventional time:	2h	Р	
	test current increased to 1,45 lz (A) (lz specified in Table 19)	243,6A	Р	
	the fuse-link operated in time (s) less than the conventional time (s)	3205s	Р	
8.4.3.6	Operation of indicating devices and strikers, if any		Р	
	Operation of indicating device verified in combination with the verification of breaking capacity (see 8.5.5)		Р	
	The verification of striker operation:		N/A	
	"g" fuse-link tested at current (A) equal to current   4 (see Table 20 abd 21):		N/A	
	recovery voltage (V):		N/A	
	stated recovery voltage (V):		N/A	
	"a" fuse-link tested at current (A) equal to current 2k <sub>1</sub> l <sub>n</sub> (A) (see Figure 2):		N/A	
	recovery voltage (V):		N/A	
	stated recovery voltage (V):		N/A	
	Striker operate during all tests made at recovery voltage of at least 20 V		N/A	
	No failure of indicating device or striker		Р	
8.5	Verification of the breaking capacity		Р	
8.5.1	The test arrangements as specified in 8.1.4		Р	
8.5.2	Characteristics of the test circuit as specified		Р	
	Scheme of test circuit (see Figure 5)		Р	
	Deviations form specified characteristics of test circuit:		Р	
8.5.3	Measuring instruments		Р	
8.5.4	Calibration of test circuit		Р	
	Calibration oscillograms and their evaluation		Р	
8.5.6	The breaking-capacity tests made at an ambient air temperature of (20 ± 5) °C		Р	



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Clause	Requirement + Test	Result - Remark	Verdict
	Breaking-capacity tests on a.c. fuses		P
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links	For 160A	P
	Rated breaking capacity of the fuse-links (kA), at voltage (V)	120kA,500VAC	
	Rated current (A) of the fuse-links:	160A	Р
	Prospective current I <sub>1</sub> (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%:	120kA	Р
	Power factor:	0,20	Р
·	Initiation of arcing after voltage zero: within 40° - 65° for sample 1 and within 65° - 90° for sample 2 and 3, or:	1) 58,0 2) 76,0 3) 80,0	Р
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°:		N/A
	Power-frequency recovery voltage: voltage (V) i.e (%) of rated voltage within 105% + 5%, - 0% of the rated voltage or 110% + 5%, - 0% of the rated voltage	1) 568V 2) 568V 3) 568V	Р
	Cut-off current (A):	1) 23,0kA 2) 22,0kA 3) 24,0kA	Р
8.5.8	Acceptability of No. 1 test results		Р
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6):	900,0V<2500V	Р
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р
	c) no permanent arcing, flashover or ejection of dangerous flames		P
	d) no damage of fuse components hindering from their further use		Р
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р
	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 50 2) 60 3) 50	Р
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links	For 400A	Р
	Rated breaking capacity of the fuse-links (kA), at voltage (V):	120kA,500VAC	_



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Clause	Requirement + Test	Result - Remark	Verdict	
	Rated current (A) of the fuse-links	: 400A	P	
	Prospective current I1 (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%		Р	
	Power factor	: 0,20	Р	
	Initiation of arcing after voltage zero: within 40° - 65 for sample 1 and within 65° - 90° for sample 2 and or	3, 2) 88.0	Р	
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°	:	N/A	
	Power-frequency recovery voltage: voltage (V) i.e (%) of rated voltage within 105% + 5%, - 0% of the rated voltage or 110% + 5%, - 0% of the rated voltage	1) 568V 2) 568V 3) 568V	Р	
	Cut-off current (A)	1) 47kA 2) 48kA 3) 49kA	Р	
8.5.8	Acceptability of No. 1 test results		Р	
	a) max. arc voltage (V) did not exceed stated value of 7.5 (Table 6)		Р	
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р	
	c) no permanent arcing, flashover or ejection of dangerous flames		Р	
	d) no damage of fuse components hindering from their further use		Р	
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р	
	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р	
	g) resistance (M $\Omega$ ) between contacts of fuse links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases		Р	
8.5.5.1	Table 20, test No. 2 for "g" and "a" fuse-links		Р	
	Prospective current I <sub>2</sub> (kA)	: 25,00kA	Р	
	Test made under conditions which approximate those giving maximum arc energy		Р	
	Power factor	0,18	Р	



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Clause	Requirement + Test	Result - Remark	Verdict
	Making angle after voltage zero: within tolerance 0° + 20°, - 0°	1) 3,0 2) 6,0 3) 8,0	Р
	Power-frequency recovery voltage: voltage (V) i.e (%) of rated voltage within 105% + 5%, - 0% of the rated voltage or 110% + 5%, - 0% of the rated voltage	1) 568 2) 568 3) 568	Р
	Recovery voltage maintained at a value (V); duratio (s) for sample (No.)		Р
	For other samples duration 15 s (8.5.5.2)		Р
8.5.8	Acceptability of No. 2 test results		Р
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6)	900,0V<2500V	Р
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р
	c) no permanent arcing, flashover or ejection of dangerous flames		Р
	d) no damage of fuse components hindering from their further use		Р
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		P
	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltag of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :		Р
8.5.5.1	Table 20, test No. 2* for "g" and "a" fuse-links, for $I_2 \ge I_1$	(see appended table)	N/A
	Prospective current I <sub>2</sub> (kA) for test No. 2 greater that the rated breaking capacity (kA)		N/A
	Test made on six samples replacing tests of Nos. 1 and 2. Test made with current I <sub>1</sub> (kA):		N/A
	Making angels differ approximately 30° between each test		N/A
	Power factor:		N/A
8.5.8	Acceptability of No. 2 test results		N/A
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6)		N/A



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Clause	Requirement + Test		Result - Remark	Verdict
	b) fuse-links operated without external effect damage to the components of the complete			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is diffidangerous to replace them	cult or		N/A
	f) fuse-link remains in one piece before its refrom the fuse- carrier	moval		N/A
8.5.5.1	Table 20, test No. 3 for "g" and "a" fuse-links	·		Р
	Prospective current for "g" fuse-link I <sub>3</sub> (A) eq 3,2 I <sub>f</sub>		2100A	Р
	Prospective current for "a" fuse-link I <sub>3</sub> (A) eq 2,5 k <sub>2</sub> I <sub>n</sub>			N/A
	Power factor	:	0,45	Р
	Tolerance on current ± 20%			Р
	Recovery voltage (V) maintained for 15 s (8.	5.5.2)		Р
8.5.8	Acceptability of No. 3 test results			Р
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		<2500V	Р
	b) fuse-links operated without external effect damage to the components of the complete			Р
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р
	d) no damage of fuse components hindering their further use	from		Р
	e) no damage of fuse-link such, that it is diffid dangerous to replace them	cult or		Р
	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		Р
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 15 2) 3)	Р
8.5.5.1	Table 20, test No. 4 for "g" and "a" fuse-links			Р
	Prospective current for "g" fuse-link I <sub>4</sub> (A) equal 2,0 I <sub>f</sub>		1300A	Р



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
	Prospective current for "a" fuse-link I <sub>4</sub> (A) eq			N/A
	Power factor		0,45	Р
	Tolerance on current + 20%, - 0%			P ·
	Recovery voltage (V) maintained for 15 s (8.	5.5.2) :		Р
8.5.8	Acceptability of No. 4 test results			Р
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		<2500V	Р
	b) fuse-links operated without external effect damage to the components of the complete			Р
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р
	d) no damage of fuse components hindering their further use	from		Р
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	cult or	.,,,,	Р
	f) fuse-link remains in one piece before its re from the fuse- carrier	moval		Р
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 20 2) 3)	Р
8.5.5.1	Table 20, test No. 5 for "g" and "a" fuse-links			Р
	Prospective current for "g" fuse-link I <sub>5</sub> (A) equ 1,25 I <sub>f</sub>		820A	Р
	Prospective current for "a" fuse-link $I_5$ (A) equivalent $I_5$ (A) equivalent $I_5$ (B) eq			N/A
	Power factor	:	0,45	Р
	Tolerance on current + 20%, - 0%			Р
'	Recovery voltage (V) maintained for 15 s (8.	5.5.2) :		Р
8.5.8	Acceptability of No. 5 test results			Р
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		<2500V	Р
	b) fuse-links operated without external effect damage to the components of the complete			Р
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р
	d) no damage of fuse components hindering their further use	from		Р



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р
	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltag of fuse-links to 250 V, 100 000 $\Omega$ in all other cases		Р
	Breaking-capacity tests on d.c. fuses		N/A
8.5.5.1	Table 21, d.c.test No. 1 for "g" and "a" fuse-links		N/A
	Rated breaking d.c. capacity of the fuse-links (kA), voltage (V)		Application of the second of t
	Rated current (A) of the fuse-links	:	N/A
	Rated voltage (V) of the fuse-links	:	N/A
	Prospective current I <sub>1</sub> (kA) equal to rated breaking capacity within a tolerance of + 10%, - 0%	;	N/A
	Time constant (ms) between 15 to 20 ms	:	N/A
	Arcing commences at current (A)	: 1) 2) 3)	
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	1) 2) 3)	N/A
8.5.8	Acceptability of No. 1 test results		N/A
	a) max. arc voltage (V) did not exceed stated value of 7.5 (Table 6)		N/A
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N/A
	c) no permanent arcing, flashover or ejection of dangerous flames		N/A
	d) no damage of fuse components hindering from their further use		N/A
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N/A
	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases		N/A



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
8.5.5.1	Table 21, d.c.test No. 2 for "g" and "a" fuse-lin	nks		N/A
	a) During test No. 1 arcing commences at a c ≥ 0,5 I₁, test No. 2 was not performed	current		N/A
	b) Prospective current I <sub>2</sub> (A). Test made unde conditions which approximate those giving made arc energy	aximum		N/A
	Time constant (ms) between 15 to 20 ms	:		N/A
	Arcing commences at current (A)	:	1) 2) 3)	And the second s
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	e :	1) 2) 3)	N/A
8.5.8	Acceptability of No. 2 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effects damage to the components of the complete fu			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A
	d) no damage of fuse components hindering f their further use	from		N/A
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	ult or		N/A
	f) fuse-link remains in one piece before its rem from the fuse- carrier	noval		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-liater test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other calculates.	voltage	1) 2) 3)	N/A
8.5.5.1	Table 21, d.c.test No. 3 for "g" and "a" fuse-lin	ıks		N/A
	Conventional fusing current (A)	:		- W. W. 1980 - W. W. 1980 - W. 1980
	Prospective current I <sub>3</sub> (A) equal to 3,2 I <sub>f</sub>	:	***	N/A
	Tolerance on current (%) ± 20%	:		N/A
	Time constant (ms) between 15 to 20 ms	:		N/A
	Arcing commences at current (A)	:	1) 2) 3)	<del>-</del>



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage		1) 2) 3)	N/A
8.5.8	Acceptability of No. 3 test results			N/A
• • • • • • • • • • • • • • • • • • • •	a) max. arc voltage (V) did not exceed state of 7.5 (Table 6)	d values		N/A
	b) fuse-links operated without external effect damage to the components of the complete			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	n of		N/A
	d) no damage of fuse components hindering their further use	from		N/A
	e) no damage of fuse-link such, that it is diffidangerous to replace them	cult or		N/A
	f) fuse-link remains in one piece before its refrom the fuse- carrier	moval		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rate of fuse-links to 250 V, 100 000 $\Omega$ in all other	d voltage	1) 2) 3)	N/A
8.5.5.1	Table 21, d.c.test No. 4 for "g" and "a" fuse-l	nks		N/A
	Conventional fusing current (A)	:		
	Prospective current I <sub>4</sub> (A) equal to 2,0 I <sub>f</sub>	:		N/A
	Tolerance on current (%) + 20%, - 0%	:		N/A
	Time constant (ms) between 15 to 20 ms	:		N/A
	Arcing commences at current (A)	:	1) 2)	
			3)	- 41424
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated volta		1) 2) 3)	N/A
8.5.8	Acceptability of No. 4 test results			N/A
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)			N/A
	b) fuse-links operated without external effect damage to the components of the complete			N/A
	c) no permanent arcing, flashover or ejection dangerous flames	of		N/A



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
	d) no damage of fuse components hindering from their further use		N/A
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N/A
	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 2) 3)	N/A
8.5.5.1	Table 21, d.c.test No. 5 for "g" and "a" fuse-links		N/A
	Conventional fusing current (A):		
	Prospective current I <sub>5</sub> (A) equal to 1,25 I <sub>f</sub> :		N/A
	Tolerance on current (%) + 20%, - 0%:		N/A
	Time constant (ms) between 15 to 20 ms:		N/A
*****	Arcing commences at current (A):	1) 2) 3)	
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage:	1) 2) 3)	N/A
8.5.8	Acceptability of No. 5 test results	·	N/A
,	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6):		N/A
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N/A
	c) no permanent arcing, flashover or ejection of dangerous flames		N/A
	d) no damage of fuse components hindering from their further use		N/A
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N/A
·	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 2) 3)	N/A
8.6	Verification of the cut-off current characteristics		Р



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	IEC 60269	-1		•
Clause	Requirement + Test		Result - Remark	Verdict
8.6.2	The values measured did not exceed cut-off characteristics indicated by the manufacturer (5.8.1)	(see		Р
8.7	Verification of I <sup>2</sup> t characteristics and overcurre discrimination	ent		Р
8.7.2	The operating I <sup>2</sup> t values measured not exceed values indicated by the manufacturer, or	the		Р
-	those specified in subsequent parts	_		Р
	The pre-arcing I <sup>2</sup> t values not less than minimu arcing values given by the manufacturer, or	m pre-		N/A
	they lie within the limits indicated in Table 7			Р
8.7.3	Verification of compliance for fuse-links at 0,07	1 s		Р
	"gG" and "gM" fuse-links at 0,01 s comply with Table 7	I		Р
8.7.4	Verification of overcurrent discrimination			Р
	The discrimination of the fuse-links verified by of the time-current characteristics and the preand operating I <sup>2</sup> t values			Р
8.8	Verification of the degree of protection of enclo	sures		Р
	Degree of protection IP	:	IP00	Р
	Verification by test under conditions specified i IEC 60529			Р
8.9	Verification of resistance to heat			Р
	No damage impaired by heat during the previous tests (in particular with respect to 8.3, 8.4, 8.5 a 8.10)			Р
8.10	Verification of non-deterioration of contacts	-		Р
8.10.1	Three samples provided with standardized dur fuse-links of the highest current rating (A) interbe used in the fuse-holder (see subsequent page 1).	nded to		Р
8.10.2	Test current (A) for load period	:	500A	P
	Duration (s) of load period	:	0,75h	P
	Duration (s) of no-load period	:	0,3h	Р
	a) Test of 250 cycles, measured values not extend the limits given in subsequent parts	ceed		Р
	b) Test of 750 cycles, measured values not extend the limits given in subsequent parts	ceed		Р
8.11	Mechanical and miscellaneous tests			Р



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***	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
8.11.1	Mechanical strength		P
	Mechanical characteristics of fuse and its parts judged in the context of normal handling and mounting as well as with results shown after breaking-capacity test (see 8.5), if not otherwise specified in the subsequent parts		Р
3.11.2	Miscellaneous tests		Р
3.11.2.1	Verification of freedom from season cracking		Р
	Current-carrying parts made of rolled copper allowith less than 83% copper content and with all grease removed, placed for 4 h in test cabinet h temperature of (30 ± 10) °C		Р
	After this, samples placed for 8 h in test cabinet, the bottom of which is ammonium chloride solut having pH value 10 - 11		Р
	After test no cracks visible to the unaided eye		Р
3.11.2.2	Verification of resistance to abnormal heat and f	ire	Р
8.11.2.2.1	Parts of insulating material, except ceramic, hav limited duration of burning without spreading fire flames or burning droplets or glowing particles far from the specimen	by	Р
8.11.2.2.5	Glow-wire test: (650 ± 10) °C		N/A
	Parts of insulating materials not necessary to reform current-carrying parts in position even though the are in contact with them, made the glow-wire (650 ± 10) °C	ey	N/A
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after remov the glow-wire. Limit (30 ± 1) s		N/A
	No burning of the tissue paper		N/A
	No scorching of the pinewood board		N/A
	Glow-wire test: (960 ± 10) °C	No flame	Р
	Parts of insulating materials necessary to retain current-carrying parts and parts of the earthing circuit, if any, in position , made the glow-wire term (960 $\pm$ 10) °C	st	P
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after remove the glow-wire. Limit (30 ± 1) s		Р
	No burning of the tissue paper		Р



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	1 490 10 01 12	1 toport 10.1000	01-12 0011 ait1			
IEC 60269-1						
Clause	Requirement + Test	Result - Remark	Verdict			
	No scorching of the pinewood board		Р			
8.11.2.3	Verification of resistance to rusting		' P			
	Tested parts after degreasing (10 min in specified solution) placed for 10 min in air saturated with moisture and after that dried 10 min in an ambient temperature (100 ± 5) °C		Р			
	Surface of tested parts show no signs of rust		Р			



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	-				IE(	C 60269	<del>)</del> -1		<u>:</u>	10.10000		
Clause Requirement + Test								Result -	Remark			Verdict
APPEND	IX 1											
8.1.5.1		TABLE:	Internal	resistand	e of the	fuse-lir	nks				1	<u>-</u> Р
	a) rated current (A) of the fuse-link							60				75.
		measurir			:			6				
	ambient air temperature (°C) :						2	5				
internal resistan	The second secon	Part of the second of the seco		100 100 100 100 100 100 100 100 100 100		san	ıple No.	A STATE OF THE STA		1	The second secon	
CO	1	12	13	Γ4	5	6	-[7 <u>-</u>	]8	10	10	111	12
R (mΩ)	0,377		3 0,384	0 386			0,393		9 0,394		0,389	******
internal resistan ce					0,3000		ple No.	0,303	0,094	0,300	U,309	0,391
	13		1		]					I		
R (mΩ)	0,383											
		b) rated o			fuse-lin	k		00				
		measurir			_ :			0				- 400
		ambient	air temp	<u>erature (</u>	°C)	:		5				
internal resistan ce		The control of the co			1   1   1   1   1   1   1   1   1   1	san	iple No					
	1	2			5	6					]	
R (mΩ)	0,310	0,318									<u> </u>	
		c) rated o			fuse-lin	k		50			433	
		measurir			:		2					<del> –</del>
	The work was	ambient	air temp	<u>erature (</u>	°C)	:	2	5				
internal resistan ce	American Company	12	3	[4	]5	.san	iple No.	, ,			man h	
D /m(1)	1 0,234				0,235							
R (mΩ)	10,204	c) rated of				<u> </u>	<u>।</u>	l 00			***************************************	
		measurin			1030-1111		3					
		ambient			°C)		2	5			7,700 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
internal resistan ce						sam	ple No					
	1	2	3	4	5							
R (mΩ)	0,192	0,197	0,193	0,201	0,200			15		<u> </u>	1	
		c) rated o			tuse-lini	K :		15			1.0 Ta	<u>.41 <del>1 -</del></u>
		measurin			· · · · · · · · · · · · · · · · · · ·		2	1,5 5			1 2	<u> —                                    </u>
internal resistan ce R (mΩ)	1 0,172	[2	3   0,169	[4 [0,174	5 0,171	sam	ple No.					
LLZ (11175)			0,100	, ,	Louis for							
K (11152)	<u> </u>	c) rated c		<u> </u>	<u> </u>	<u> </u>	: 4	00				



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					IE	C 6026	§9-1					
Clause	Re	quirement	+ Test					Result -	Remark		Τ,	verdict
		ambient	air temp	erature (	(°C)	:	2	:5			7 - 100 - 10	le <del>n</del> sler
internal resistan ce		The state of the s	The second secon			sa	mple No.			2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	** A *** *** *** *** *** *** *** *** **	The second of th
	1	2	3	4	5	6	7	8	9	10	]11	12
$R (m\Omega)$	0,139	0,137	0,138	0,138	0,134	0,14	0 0,138	0,141	0,132	0,138	0,136	0,137
internal resistan ce		A CONTRACTOR OF THE CONTRACTOR	as an angest to			sa	mple No.	The second secon				1000 1000 1000 1000 1000 1000 1000 100
W. 2017	13	14	15	[	7					T		ſ <b></b>
R (mΩ)	0,137	0,136	0,138		***************************************					***************************************		

· · · · · · · · · · · · · · · · · · ·	20, test No. 2* for	rigii and lii	a" fuse-link	is, for $l_2 \ge l_1$	N/A
ng angle after oltage zero			The second secon	cut off current	resistance betweer contacts
O O O O O O O O O O O O O O O O O O O	(V) = 0	**************************************	%) ************************************	(A)	(ΜΩ)
					1
	oltage zero	ng angle after recove  litage zero  (**)  (V)	ng angle after recovery voltage bltage zero (V)	ng angle after recovery voltage oltage zero  (*2*)  (V)  (%)	ng angle after recovery voltage cut off current oltage zero  (V) (%) (A)





#### Test Report issued under the responsibility of:



#### TEST REPORT IEC 60269-2

#### Low-voltage fuses

Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to I

Report Reference No..... 15033142 001 Part II Date of issue .....: 30.07.2009 Total number of pages..... 18 pages CB Testing Laboratory ..... TÜV Rheinland (Shanghai) Co., Ltd. Address..... 10-15/F, Huatsing Building, No.88, Lane 777, Guangzhong Road West, 200072 Shanghai Zhabei District, P.R. China Wenzhou Jinlida Electrical Co., Ltd. Applicant's name ..... Address..... Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604 P.R. China Test specification: IEC 60269 - 2 : 2006 (third edition) (see also IEC 60269 - 1:1998) Standard .....: Test procedure..... CB Non-standard test method..... N/A Test Report Form No..... IEC60269\_2A Test Report Form(s) Originator .....: EZU Master TRF...... Dated 2007-12

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description:	Fuses(fuse link	and fuse base)
Trade Mark	JINLIDA	
Manufacturer	Same as applica	nt
Model/Type reference	NH2	
Ratings	AC 500V; 160A,2	00A,250A,300A,315A,400A; 120kA; Size 2



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Test	ing procedure and testing location:	
	Testing Laboratory:	TÜV Rheinland (Shanghai) Co., Ltd.
Test	ing location/ address:	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
	Associated CB Test Laboratory:	
Testi	ing location/ address:	
	Tested by (name + signature):	
	Approved by (+ signature):	
	Testing procedure: TMP	
	Tested by (name + signature):	
	Approved by (+ signature):	
Testi	ng location/ address:	
	Testing procedure: WMT	
	Tested by (name + signature):	
	Witnessed by (+ signature):	
	Approved by (+ signature):	
Testi	ng location/ address:	
	Testing procedure: SMT	
	Tested by (name + signature):	
	Approved by (+ signature):	
	Supervised by (+ signature):	
Testi	ng location/ address:	
	Testing procedure: RMT	
	Tested by (name + signature):	
	Approved by (+ signature):	
	Supervised by (+ signature):	
Testi	ng location/ address::	



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Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
For homogeneous series of NH2, type tests are listed in table 11, 12, 13 and 14 in EN 60269-1:2006	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
Summary of compliance with National Difference	s:
N/A	



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Copy of marking plate:	
Refer to 15033142 001 Part I.	



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Test item particulars	
Classification of installation and use See part I	
Supply Connection See part I	
Fuse system A /B/C/D/E/F/G/H/I	
Possible test case verdicts:	<del></del>
- test case does not apply to the test object: N/A	
- test object does meet the requirement P (Pass)	
- test object does not meet the requirement F (Fail)	
Testing:	
Date of receipt of test item: 06.2009	
Date (s) of performance of tests: 06.2009-07.2009	
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing tes "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report.	sting laboratory.
Throughout this report a comma (point) is used as the decimal separator.	
General product information: N/A	



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	IEC 6026	9-2					
Clause	Requirement + Test		Result - Remark				Verdict
egi est i de est est est est est est est est est est	Requirements IEC 60269-1		The state of the s	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		The state of the s	
FUSE SY	STEM A – FUSES WITH FUSE-LINKS WITH B	ADE C	ONTACT	S (NH F	USE S	YSTEM)	Law and A
5.	CHARACTERISTICS OF FUSES				1 11 11 11 11 11 11 11 11 11 11 11 11 1	# 10000 00 00 00 00 00 00 00 00 00 00 00	100 mm m
5.2	Rated voltage (V) as specified	:	500VAC	,			Р
5.3.1	Rated current (A) of the fuse-link in accordan specified values					<u> </u>	Р
5.3.2	Rated current (A) of the fuse-holder and the sthe fuse-link		Size 2				Р
5.5	Rated power (W) dissipation of fuse-link see Figure 101	:	<34W				Р
	Rated acceptable power (VA) dissipation of fundamental bases given in Figure 102	use-	45W	-			Р
5.6	Limits of time-current characteristics						Р
5.6.1	Time-current characteristics, time-current zor overload curves						Р
5.6.2	Conventional times and current see Table	101:				-,	Р
5.6.3	Gates						Р
5.7.2	Rated breaking capacity (A)	:	120kA				Р
<b>6</b>	MARKING			A CAMPONE OF THE STREET	TOTAL	Total Control	113011 A V 11300 11301 A V 11300 11300
	Markings are legible						Р
6.1	Fuse-holders marked by:						Р
	- IEC 60269-2	:					Р
	- size	:	2				Р
	Marking of rated current and rated voltage are discernible from the front	9					Р
6.2	Fuse-links marked by:		•				Р
	- IEC 60269-2	:					Р
	- size or reference	:	2				P
	- rated breaking capacity	:	120kA				Р
	Marking of rated current and rated voltage are discernible from the front	9					Р
	Fuse-links are marked as described in Table	104:					Р



#### Page 7 of 18

IEC 60269-2			
Clause	Requirement + Test	Result - Remark	Verdict
10 9 10 10 10 10 10 10 10 10 10 10 10 10 10	STANDARD CONDITIONS FOR CONSTRUCTION		100 mm
7.1	Mechanical design		P
	The dimensions of the fuse-links given in Figure 101		. P
	Dimensions:		P
	dimension marking a1: prescribed (mm); measured (mm)	150±2,5;	Р
	dimension marking a2: prescribed (mm); measured (mm)	75-10;	P
	dimension marking a3: prescribed (mm); measured (mm):	62±2,5;	Р
	dimension marking a4: prescribed (mm); measured (mm):	68±2,5;	Р
	dimension marking b1min: prescribed (mm); measured (mm)	25;	Р
	dimension marking b2min: prescribed (mm); measured (mm)	8;	Р
	dimension marking b3max: prescribed (mm); measured (mm):	6;	Р
	dimension marking b4min: prescribed (mm); measured (mm)	22;	Р
-	dimension marking c1: prescribed (mm); measured (mm)	48;	Р
	dimension marking c2: prescribed (mm); measured (mm)	11-2;	Р
	dimension marking d: prescribed (mm); measured (mm):	2,5+1,5/-0,5	Р
	dimension marking e1max: prescribed (mm); measured (mm)	61;	Р
	dimension marking e2max: prescribed (mm); measured (mm):	60;	Р
	dimension marking e3: prescribed (mm); measured (mm):	20+5/-2;	Р
	dimension marking e4: prescribed (mm); measured (mm)	6;	P
	dimension marking f: prescribed (mm); measured (mm):	15;	Р
	dimension marking z: prescribed (mm); measured (mm):	5;	Р



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
<del></del>	The dimensions of the fuse-base given in Figure 102		Р
	Dimensions:		Р
	dimension marking g: prescribed (mm); measured (mm)	61±1;	Р
	dimension marking h: prescribed (mm); measured (mm)	200±1,5;	Р
	dimension marking n1max: prescribed (mm); measured (mm)	60;	Р
	dimension marking n2max: prescribed (mrn); measured (mm)	68;	Р
	dimension marking p1max: prescribed (mm); measured (mm)	60;	Р
	dimension marking p2: prescribed (mm); measured (mm)	35;	Р
	dimension marking r min: prescribed (mm); measured (mm):	17;	Р
	dimension marking s max: prescribed (mm); measured (mm):	46;	Р
	dimension marking t min: prescribed (mm); measured (mm):	27;	Р
	dimension marking v: prescribed (mm); measured (mm):	80+3;	Р
	dimension marking w1: prescribed (mm); measured (mm):	30±0,7;	Р
	dimension marking w2: prescribed (mm); measured (mm):	25±0,7;	Р
	dimension marking x min: prescribed (mm); measured (mm):	20	Р
	dimension marking y: prescribed (mm); measured (mm):	10,5±0,5;	Р
	dimension marking z max: prescribed (mm); measured (mm):	5	Р
7.1.2	Connections, including terminals		Р
	cross-sectional ranges (Table 105)		
	torques to be applied (Table 111) (lug terminal):		
7.1.3	Contact surfaces should be silver plated	Yes / No	P



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	IEC 60269	-2		
Clause	Requirement + Test		Result - Remark	Verdict
	If no test according to 8.10 are passed with didescribed in 8.10.1	ummies		Р
7.1.5	Dynamic short-circuit withstand shall meet cu currents (Table 112)	t-off		Р
7.1.7	Construction of fuse-link			Р
	Blade contacts made of solid material	:		Р
	If any other construction, manufacturer demoi that construction adequate	nstrate		N/A
	Endplates not permitted to protrude radially froinsulation body			Р
	preferable to insulate the gripping lugs from liv	e parts		Р
	Fuse-links has an indicator	:		Р
	Electrically conductive parts of indicator not ej from the fuse-link during operation			Р
7.2	Insulating properties			Р
	Creepage distances and clearances of fuses fuse-accessories meet requirements of IEC 6 for overvoltage category III and pollution degree	0664-1		P
7.7	I <sup>2</sup> t characteristics			Р
<u></u>	maximum pre-arcing I <sup>2</sup> t			Р
	(Table 7 of IEC 60269-1)	:		
	rated currents lower than 16 A (Table 106)	:	, 5,,==-1;	N/A
	maximum operating I <sup>2</sup> t for "aM" fuse-links			N/A
	(Table 107)			
	test No. 2 of the largest rated current of each homogeneous series (Table 20 of IEC 60269-			
7.8	Overcurrent discrimination of "gG" fuse-links			P
	(see 8.7.4, Table 108)	:		
7.9	Protection against electric shock			P
	increased by means of partition walls and cover fuse-contacts			Р
	operation by authorized persons, instructed in electrical matters, using replacement handles according to this fuse system			Р



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IEC 60269-2					
Clause	Requirement + Test		Result - Remark	Verdict	
8	TESTS	Company Comments		1 pp 1 pp 2 pp 2 pp 2 pp 2 pp 2 pp 2 pp	
	IEC 60269-1 applies with the following supplementary requirements			Р	
8.1.4	Arrangement of fuse and dimensions			Р	
	Requirements of 7.2 verified on fuse-bases	:		Р	
	Creepage distances and clearances of fuse-lir according to 7.2 are verified	nks :		Р	
	Clearances verified on fuse-link inserted into n fuse-base according to Figure 111	nodel		Р	
8.1.6	Testing of fuse-holders			Р	
	In addition to test given in IEC 60269-1 tested according to Table 109	:		Р	
8.2.2.1	Points of application of test voltage			P	
	In addition to IEC 60269-1		1890V	P	
	e) between isolated metal gripping-lugs and terminals of test fuse-bases	:			
8.2.3.2	Value of test voltage		Not applicable	N/A	
	rated impulse withstand voltage in Table 110	:		N/A	
8.2.3.3	Test method			N/A	
	5 impulses of both polarities and of shape 1,2/5 and rated withstand voltage level according to	50 μs		N/A	
	Table 110	:			
	minimum period between impulses are 1 s	:			
8.2.4	Acceptability of test results			P	
8.2.4.3	No flash-over or puncture shall occur during tes	st :		P	
8.2.5	Resistance to tracking			P	
	plastic parts of fuse-links and fuse-bases tester shall pass at PTI level stated by manufacturer.	d and	500M	Р	
8.3	Verification of temperature rise and power dissi	ipation		P	
8.3.1	Arrangement of the fuse			<del> </del> P	
	Tightened by torque (Nm)	:	32	The second secon	
8.3.2	Measurement of the temperature rise	: !		P	
	Protective covers and fuse-carriers as provided manufacturer mounted			P	
3.3 <i>.</i> 4.1	Temperature rise of the fuse-holder		See part I	<del> </del> Р	



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	IEC 60269-	-2		
Clause	Requirement + Test		Result - Remark	Verdict
	Dummy (Figure 105) Point at which temperature rise is measured (Figure 106)			Р
8.3.4.2	Power dissipation of a fuse-link (Figure 106)		30,6W	P
8.4.3.1	Verification of conventional non-fusing and fus current	ing	See part I	P
	non-fusing current test – second test specimer used for b)	n are	See part I	Р
8.4.3.5	Conventional cable overload protection test (fo fuse-links only)	or "gG"	See part I	Р
-	Details of special test are given in Annex A		Not required	N/A
Annex A	Special test for cable overload protection			N/A
	For fuses with I <sub>n</sub> > 16 A of the sizes 00, 0, 1 an	nd 2. :		N/A
A.1	Arrangement of the fuse			N/A
	Three fuse-links in fuse-bases mounted in a bo	ox:		N/A
	Ambient air temperature outside the fuse box s be (30 <sup>+5</sup> <sub>0</sub> °C)	shall :	°C	N/A
A.2	Test method and acceptability of test results			N/A
	1,13 I <sub>n</sub> flowed through the fuse-links for convertime (see Table 2 of IEC 60269-1)	ntional	A for s	N/A
	Non of fuse-links operated	:		N/A
	Test current raised without interruption within 5 1,45 l <sub>n</sub>		A	N/A
	One fuse-link operated within conventional time	e :		N/A
8.5.5.1	Verification of the peak withstand current of a fi	use-	Not applicable	N/A
	not be carried out , if this has already been veri during the breaking capacity test of fuse-links v the highest rating of the size	vith		N/A
8.5.5.1.1	Arrangement of the fuse			N/A
	single-phase type, 8.5.1 of IEC 60269-1			N/A
	peak values of the test currents (Table 112)	:		
	maximumum values (see 8.5.5.1.3)	:		
	dummy fuse-link (Figure 101)	:		
8.5.5.1.2	Test method			N/A



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
14	fuse-base 1 (Figure107) resilient spring travel is limited to elastic range:		N/A
	fuse-base 2 (see 8.11.1.2)  F <sub>max</sub> according to Table 118		N/A
8.5.5.1.3	Acceptability of test results		N/A
	fuse-links not be ejected		N/A
<u> </u>	no signs of arcing or welding or other damage		N/A
8.5.8	Acceptability of test results		N/A
	Fuse or circuit-breaker not operate during this test		N/A
8.7.4	Verification of overcurrent discrimination		P
	verified by I <sup>2</sup> t values evaluated from the recorded terresults	st	Р
	Arrangement of the samples as for the breaking capacity test		P
	two samples tested at the r.m.s. prospective test current I, corresponding to minimum pre-arcing $I^2t$	1) 2)	Р
	the other samples tested at the r.m.s. prospective test current I, corresponding to operrating I <sup>2</sup> t	3) 4)	P
	test voltage (V):		and a second sec
	The values of I²t lie within corresponding limits specified in Table 113:		P
8.9	Verification of resistance to heat		Р
	Tests apply to fuse-link and fuse-base		P
-	Fuse-holder with fuse-links having maximum power dissipation are cyclically loaded as pre-treatment:		Р
	After cooling to normal temperature		Р
	breaking capacity tested at I <sub>1</sub> (see 8.5):	I <sub>1</sub> = 120kA	
	Fuse-links with organic material		N/A
	Fuse-holder with fuse-links having maximum power dissipation are cyclically loaded as pre-treatment		
	After cooling to normal temperature	I <sub>1</sub> =	N/A
	breaking capacity tested at $I_1$ and $I_5$ (see 8.5):	l <sub>5</sub> =	
8.9.1	Fuse-base		Р



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	IEC 60269-2	2		
Clause	Requirement + Test		Result - Remark	Verdic
	test below apply if it is not obvious that compon are not affected adverselly by given temperatur withdrawal forces	ents e and		Р
8.9.1.1	Test arrangement	-		— <del> </del>
	Figure 105 and 108	_		Р
	Test se-up in heating chamber	-		P
8.9.1.2	Test method			P
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h			P
	160% rated current for 2 h	:	160% I <sub>n</sub> =640A	P
	Test voltage	:	50 V	7 10 10 10 10 10 10 10 10 10 10 10 10 10
	3 min after switching off			P
	tensile force F <sub>max</sub> (see Table 118) exerted for 15	วีธ	F <sub>max</sub> =	
8.9.1.3	Acceptability of test results			— <del> </del> Р
	Contact pieces not have moved to affect the fur use	ther		Р
	Dimensions of Figure 102 are considered			P
	Insulating mounting part no broken and no show signs of cracks	v any		Р
8.9.2	Fuse-links with gripping lugs of moulded material	al or	No such part	N/A
3.9.2.1	Test arrangement			N/A
	Figure 108			N/A
3.9.2.2	Test method			N/A
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h			N/A
	150% rated current for conventional time	:	A for h	N/A
	Test voltage	:	V	(a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c
	3 min after fuse-link operated or conventional time expired	ne	F -	N/A
	tensile force F <sub>max</sub> (see Table 118) exerted for 15	s	F <sub>max</sub> =	
3.9.2.3	Acceptability of test results			N/A
	Gripping lugs remain fully operational			N/A
	Dimensions of Figure 101 (d and c <sub>2</sub> ) not be exceeded by more than 2 mm	_		N/A
3.10	Verification of non-deterioration of contacts and direct terminal clamps	1		Р



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
8.10.1	Arrangement of the fuse		Р
	Figure 105		' - P
	for lug terminals, torgue in Table 111:	32 Nm	12 13 To
	Insulation of conductors removed over the whole length		P
8.10.1.2	Direct terminal clamps	<del>-</del>	P
	Test performed on 10 direct terminal clamps of five fuse-bases		P
	Distance between fuse-base centres of at least three times e <sub>2</sub> (see Figure 101)	9	Р
	Torque of tightened of screws:	Nm	We will a super
	Conductor cross-section:	mm <sup>2</sup>	
8.10.2	Test method		P
	Test current (A) for load period:	500A	P
	Duration (s) of load period:	0,75h	P
	Duration (s) of no-load period:	0,3h	-   - P
	Test voltage (V)	50V	
	a) Test of 50 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
	b) Test of 250 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
	c) Test of 500 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
	d) Test of 750 cycles, measured values did not exceed the limits given in subsequent parts of IEC 60269	(see appended table)	Р
3.10.2.1	Contacts		P
	Points between voltage drop is measured		Р
	(A and B in Figure 106)		
	Withdrawal force (Table 118); measured force after	1)	P
	250 cycles (N)	2)	
		(3)	



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	IEC 60269-2	1 toport 10. 100.	33142 001 Part II
Clause	Requirement + Test	Result - Remark	Verdict
	Withdrawal force (Table 118); measured force after 750 cycles (N)	1) 2) 3)	Р
	If measured values too low, test of 8.5.5.1:	_ <u>   </u>	N/A
8.10.2.2	Direct terminal clamps	<del> </del>	P
	Points between voltage drop is measured		'
	(Figure 110)		. '
	Test sequence for all types conductors (see Table 116)		Р
	Verification of temperature rise (see 8.3.4.1) (see figure 110)		Р
8.10.3	Acceptability of test results		Р
8.10.3.1	Contacts		Р
	Limit value after 250 <sup>th</sup> cycle ≤ 15%		Р
	Limit value after 500 <sup>th</sup> cycle ≤ 30%		Р
<u>,                                     </u>	Limit value after 750 <sup>th</sup> cycle ≤ 40%		Р
<u> </u>	Difference between last and first measurement of temperature rise less than 20 K:		Р
8.10.3.2	Direct terminal clamps		Р
	Permissible tolerance for resistance $R_{cl0}$ for Al conductors : $R_{cl0max} \le 2~R_{cl0min}$		Р
	Permissible changes of the resistance from R $_{cl.50}$ to R $_{cl.750}$ : see Table 117		Р
<u>_</u>	Copper or cleaned aluminium conductors:		Р
	Uncleaned aluminium conductors:		N/A
<del></del> .	Change from 50 <sup>th</sup> to 250 <sup>th</sup> cycle		P
	Change after 250 <sup>th</sup> to 500 <sup>th</sup> cycle		P
	Change after 500 <sup>th</sup> to 750 <sup>th</sup> cycle		P
	Change between 50 <sup>th</sup> to 750 <sup>th</sup> cycle		Р
	Temperature rise at test spot F < 75K		P
3.11	Mechanical and miscellaneous tests		Р
3.11.1.1	Mechanical strength of fuse-holders		P
	Test set-up subjected to temperature rise test at rated current	400A	Р



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	fuse-link or fuse-carrier are withdrawn and inserted into fuse-base 100 times	100 times	
	All parts are intact and function normally		P
	Test set-up subjected to further temperature rise test at rated current (values obtained are not more than 5 K or 15 % above the values from temperature-rise test prior)	Max. 48K	Р
8.11.1.2	Mechanical strength of the fuse-base		P
	Test-link inserted three times in the fuse-base: (Dimensions of blade contacts see Figure 101)		Р
	(Withdrawal force F lied within limits in Table 118)  Steel screws are fastened three times at the terminals, torque of 1,2 times value specified by manufacturer or value of Table 111		P
	Contact pieces not have moved to affect the further use		Р
	Insulating mounting part no broken and no show any signs of cracks		Р
8.11.1.8	Impact resistance of gripping-lugs of moulded material or of metal fixed in moulded material		N/A
8.11.1.8.1	Test arrangement		N/A
8.11.1.8.2	Facility is given in Figure 109:		N/A
	One fuse-link(150±5)°C for 168 h		
	Another one15°C for 72 h		The state of the s
	One impact on each of gripping-lugs		N/A
8.11.1.8.3	Acceptability of test results	<u> </u>	N/A
<u> </u>	No damage capable of hindering their further use		· N/A
	No bent out by more than 3 mm		N/A
	Coupling with a handle (Figure 103) not are hindered		N/A
3.11.2.3	Verification of resistance to rusting		N/A
3.11.2.3.1	According to ISO 6988 cyclic moist atmosphere containing 0,2% SO2 (SFW 0,2 S) for 1 cycle		N/A
3.11.2.3.2	Optional test (severe environmental conditions)		N/A



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<del>_</del>	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	Fuse-links and fuse-bases for used in environment of pollution degree ≥3 tested with SFW 2,0 S		N/A
	for 5 cycles		
	They marked accordingly		N/A
8.11.2.4	Non-deterioration of insulating parts of fuse-link and fuse-base		Р
8.11.2.4.1	Test method		Р
	Period 168 h:	168	
	for equipment comprising moulded elements to support live parts (150±5)°C	150	Appendix for the control of the cont
	for covers (100±5)°C		2000 110 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Period greater than 1 h:	1h	The state of the s
	for sealing compounds; stability of marking(150±5)°C		Secretary of the secret
	After cooling to ambient temperature the following are tested.		P
	Fuse-links: breaking capacity with I <sub>1</sub> and I <sub>2</sub> :		P
	Fuse-base: mechanical strength in accordance with 8.11.1.2	1	Р
8.11.1.2	Mechanical strength of the fuse-base		
	Test-link inserted three times in the fuse-base:		Р
	(Dimensions of blade contacts see Figure 101)		
	(Withdrawal force F lied within limits in Table1 18)		
	Steel screws are fastened three times at the terminals, torque of 1,2 times value specified by manufacturer or value of Table 111		Р
	Contact pieces not have moved to affect the further use		Р
	Insulating mounting part no broken and no show any signs of cracks		P
3.11.2.4.2	Acceptability of test results		P
	Not have changed of positions of fuse-base contacts to correct functioning		Р
	No fracture nor any signs of fracture on insulating body with terminals		Р
	Mechanical strength of cemented joints not impaired		Р



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Report No.15033142 001 I	Part II
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		1.0port.10.1000	DIAZ OUT Patt II			
	IEC 60269-2					
Clause	Requirement + Test	Result - Remark	Verdict			
	Sealing compounds not shifted to extent permitting live parts to exposed		Р			
	Fuse-links operate correctly		P			
	Marking are durable and easily legible		P			



**Produkte** Products

Prüfbericht - Nr.: Test Report No.:	15033143 001		Seite 1 von 1 Page 1 of 1
Auftraggeber: Client:	Wenzhou Jinlida Electrical C Xirendang Industrial Zone, Liu		g 325604, P.R. China
Gegenstand der Prüfung: Test item:	Low-voltage Fuse		
Bezeichnung: Identification:	NH3	Serien-Nr.: Serial No.:	Engineering sample
Wareneingangs-Nr.: Receipt No.:	153123295	Eingangsdatum: Date of receipt:	22.06.2009
Prüfort: Testing location:	Hunan Electrical Apparatus 4 Xinzhong Road, Changsha,		
Prüfgrundlage: Test specification:	IEC 60269-1:2006 IEC 60269-2:2006		·.
Prüfergebnis: Test Result:	Der Prüfgegenstand entsprie The test item passed the test		rüfgrundlage(n).
Prüflaboratorium: Testing Laboratory:	TÜV Rheinland (Shanghai) C	o., Ltd.	
geprüft/ tested by:	kontrol	liert/ reviewed by:	
Datum Name/Stellur Date Name/Positio	ing Unterschrift Dat	um Name/Stellui	ng Unterschrift
Sonstiges/ Other Aspects:			
This report consists of two parts: Part I for IEC 60269-1:2006. Part II for IEC 60269-2:2006.			
F(ail) = entsp N/A = nicht N/T = nicht	pricht Prüfgrundlage pricht nicht Prüfgrundlage t anwendbar t getestet	F(ail) : N/A : N/T :	= passed = failed = not applicable = not tested
Dieser Prüfbericht bezieht	sich nur auf das o.g. Prüfmuste	und darf ohne Genehm	igung der Prüfstelle nicht

auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

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#### Test Report issued under the responsibility of:



#### TEST REPORT IEC 60269-1

#### Low-voltage fuses

#### Part 1: General requirements

Report Reference No...... 15033143 001 Part I

Date of issue ...... 30.07.2009

Total number of pages ...... 50 pages

Testing Laboratory...... TÜV Rheinland (Shanghai) Co., Ltd.

Address ...... 10-15/F, Huatsing Building, No.88, Lane 777, Guangzhong Road

West, 200072 Shanghai Zhabei District, P.R. China

Applicant's name...... Wenzhou Jinlida Electrical Co., Ltd.

Address ...... : Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604

P.R. China

Test specification:

Standard.....: IEC 60269-1:2006 (Fourth edition)

Test procedure ...... CB

Non-standard test method.....: N/A

Test Report Form No. ..... IEC60269\_1A

Test Report Form(s) Originator .....: EZU

Master TRF ...... Dated 2009-04

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description ...... Fuses (fuse-link and fuse-base)

Trade Mark ..... JINLIDA

Manufacturer .....: Same as applicant

Model/Type reference .....: NH3

Ratings ...... AC 500V; 315A,400A,500A,630A; 120kA; Size 3



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Testi	ng procedure and testing location:					
$\boxtimes$	Testing Laboratory:	TÜV Rhei	nland (Shanghai) Co., Ltd.			
Testi	ng location/ address:	Hunan Ele	ctrical Apparatus Testing Institute			
		4 Xinzhong	4 Xinzhong Road, Changsha, Hunan, P.R. China			
	Associated CB Test Laboratory:					
Testi	ng location/ address:					
	Tested by (name + signature):					
	Approved by (+ signature):					
	Testing procedure: TMP					
	Tested by (name + signature):					
	Approved by (+ signature):					
Testi	ng location/ address:					
	Testing procedure: WMT					
	Tested by (name + signature):					
	Witnessed by (+ signature):					
	Approved by (+ signature):					
Testi	ng location/ address:					
	Testing procedure: SMT					
	Tested by (name + signature):					
	Approved by (+ signature):					
	Supervised by (+ signature):					
Testi	ng location/ address:					
	Testing procedure: RMT					
	Tested by (name + signature):					
	Approved by (+ signature):					
	Supervised by (+ signature):					
Testi	ng location/ address:					



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Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
For homogeneous series of NH3, type tests are listed in table 11, 12, 13 and 14 in EN 60269-1:2006	Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
Summary of compliance with National Differences	
N/A	



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Report No. 15033143 001 Part I

UNLIDA
NH3
500V~ 120kA
690V~ 50kA

gG 630A
IEC 60269

( € 恥財 ( )

Marking plate of fuse-link

JINLIDA

NH3
500V~ 630A
690V~ 500A

IEC 60269

Marking plate of fuse-base



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Test item particulars:	
Fuse-holder	es/No
Fuse-base	es/No
Fuse-carrier	<del>'es</del> /No
Fuse-link	'es/No
Fuse for use by authorized persons	es/No
Fuse for use by unskilled persons ¥	'es/No
Possible test case verdicts:	
- test case does not apply to the test object: N	I/A
- test object does meet the requirement:	(Pass)
- test object does not meet the requirement:	(Fail)
Testing:	
Date of receipt of test item: 0	6.2009
Date (s) of performance of tests:	6.2009-07.2009
General remarks:	1
The test results presented in this report relate only to the of This report shall not be reproduced, except in full, without the "(see Enclosure #)" refers to additional information appear (see appended table)" refers to a table appended to the reference.	the written approval of the Issuing testing laboratory. Inded to the report.
Throughout this report a comma (point) is used as the de	ecimal separator.
Throughout this report a comma (point) is used as the de General product information:  N/A	ecimal separator.



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
The second secon	CHARACTERISTICS OF FUSES			
5.2	Rated voltage (V) as specified		AC 500V	Р
5.3.1	Rated current (A) of the fuse-link in accordan		315A,400A,500A,630A	Р
5.3.2	Rated current (A) of the fuse-holder	:	400A	P
5.4	Rated frequency (Hz)	:	50Hz	P
5.5	Max. rated power dissipation (VA) of fuse-lin	·:	<=48W	Р
	Rated acceptable power dissipation (VA) of holder		60W	Р
5.6	Limits of time-current characteristics based or reference ambient air temperature Ta of +20			Р
5.6.1	Time-current zones deviated from standardiz available in manufacturers documentation (w tolerances)	rith		Р
5.6.2	Conventional times and currents see Table	2 :		Р
5.6.3	Gates	:		P
5.7	Breaking range and breaking capacity		120kA	Р
5.7.1	Breaking range and utilization category	:	gG	Р
5.7.2	Rated breaking capacity (A) of fuse-link corre to the rated voltage (V), and is equal or higher given minimum (A) in subsequent part of this standard	r than	120kA	Р
5.8	Cut-off current and I <sup>2</sup> t characteristics are refethe values of voltage, frequency and power fa			Р
5.8.1	Cut-off current characteristics, if required, give the manufacturer according to Figure 4			Р
5.8.2	Pre-arcing I <sup>2</sup> t characteristics for pre-arcing tin less than 0,1 s down to a time corresponding rated breaking capacity given by the manufac	to the		Р
	The operating I <sup>2</sup> t characteristics with specified voltages as parameter for pre-arcing times le 0,1 s given by the manufacturer	ss than		Р



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
6	MARKINGS		
	Markings are durable and easily legible		Р
6.1	Fuse-holders marked by:		P
	- name of manufacturer or trade mark which enable identification of fuse-holder:	JINLIDA	Р
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.1:	NH3	Р
	- rated voltage (V):	500V	Р
	- rated current (A):	630A	Р
	- kind of current and rated frequency (Hz)::	AC and 50Hz	Р
6.2	Fuse-link(s) except small fuse-link(s) marked by:		Р
	- name of manufacturer or trade mark which enable identification of fuse-links:	JINLIDA	Р
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.2:	NH3	Р
	- rated voltage (V):	500V	Р
	- rated current (A):	315~630A	Р
	- breaking range and utilization category (if applicable) (5.7.1):	gG	Р
	- kind of current:	AC	Р
	- rated frequency (Hz), if applicable (5.4)	50Hz	Р
	Small fuse-links marked by:	-	N/A
	- trademark:		N/A
	- list reference of manufacturer:		N/A
	- rated voltage (V):		N/A
	- rated current (A):		N/A
6.3	Symbols for the kind of current and frequency in accordance with IEC 60417		Р



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
7	STANDARD CONDITIONS FOR CONSTRU	JCTION		No. 1 The Comment of
7.1	Mechanical design	<u> </u>	Approximation of the control of the	P
7.1.1	Replacement of fuse-links easily and safely	<u></u>		Р
7.1.2	Connections, including terminals			P
	Contact force is not transmitted through insumaterial other than ceramic or other material characteristics not less suitable, unless			Р
	there is sufficient resilience in the metallic pa compensate any possible shrinkage or other deformation of the insulating material			Р
	Terminals cannot turn or be displaced when connecting screws are tightened	the		Р
	Terminals shall be such, that the conductors be displaced	cannot		Р
	Parts gripping the conductors are of metal			P
	Gripping parts cannot unduly damage condu	ctors		Р
	Terminals readily accessible under the inten conditions of installation	ded		Р
7.1.3	Fuse-contacts			Р
	Fuse-contacts are such that necessary contains maintained under the conditions of service operation			Р
	Contact is such that electromagnetic forces occurring during operation under conditions accordance with 7.5 not impair electrical conbetween			Р
	a) fuse-base and fuse-carrier			N/A
	b) fuse-carrier and fuse-link			N/A
	c) fuse-link and fuse-base			Р
	Fuse contacts are so constructed and of suc material that, when fuse is properly installed service conditions are normal, adequate con maintained	and		Р
	a) after repeated engagement and disengag	ement		Р
	b) after being left undisturbed in service for loperiod	ng		Р
7.1.4	Construction of a gauge-piece			Р
	Gauge-piece is so designed that it withstand stresses occurring during use	s normal		Р



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
7.1.5	Mechanical strength of fuse-link			P
	Fuse-link have adequate mechanical streng contacts are securely fixed	h and its		Р
7.2	Insulating properties and suitability for isolati	on		P
	Fuses are such that they do not lose insulati properties at voltages to which they are subj normal service	ng ected in		Р
	Fuse passes the tests for verification of insu properties and suitability for isolation in accowith 8.2			Р
7.3	Temperature rise, power dissipation of the fu and acceptable power dissipation of the fuse	ise-link -holder		Р
	See Table 5	:	-	Р
	Requirements are verified by tests according	to 8.3		Р
7.4	Operation			Р
	Fuse-link is so designed and proportioned the tested in its appropriate test arrangement at frequency and ambient air temperature of (2)	rated		Р
,	- is able to carry continuously any current no exceeding its rated current			Р
	- is able to withstand overload conditions as may occur in normal service (see 8.4.3.4)	they		Р
	Fuse-link satisfy these conditions if it passes tests prescribed in 8.4	the		Р
7.5	Breaking capacity			Р
	Fuse is capable of breaking, at rated frequer at voltage not exceeding the recovery voltage specified in 8.5, any circuit having prospective current between	<b>•</b>		Р
	- current I <sub>f</sub> (for "g" fuse-links)	<u></u> :		Р
	- current k <sub>2</sub> l <sub>n</sub> (for "a" fuse-links)	:		N/A
	- for a.c., rated breaking capacity at power fa not lower than those in Table 20			Р
	- for d.c., rated breaking capacity at time con not greater than those limits in Table 21			N/A
	Arc voltage not exceed values given in Table	6 :		Р
	Fuse satisfy these conditions if it passes the prescribed in 8.5	tests		Р
7.6	Cut-off current characteristic			Р



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
	Values of cut-off current measured as specified in 8.6 are less than, or equal to, the values corresponding to cut-off current characteristics assigned by the manufacturer		Р
7.7	I <sup>2</sup> t characteristics		Р
	Pre-arcing I <sup>2</sup> t values verified according to 8.7 (Table 7):		Р
	Operating I <sup>2</sup> t values verified according to 8.7:		Р
7.8	Overcurrent discrimination of fuse-links:		Р
7.9	Protection against electric shock		Р
	The degree of protection when the fuse is under normal service conditions:	IP00	Р
	The degree of protection when replacing the fuse-link:	IP00	Р
	The degree of protection when the fuse-link and fuse-carrier is removed::	IP	N/A
7.9.1	Clearances and creepage distances		Р
	Clearances are not less than the values given in Table 9		Р
	Creepage distances correspond to material group, as defined in 2.7.1.3 of IEC 60664-1, corresponding with rated voltage given in Table 10:	500V	Р
7.9.2	Leakage currents of equipment suitable for isolation		N/A
	Value of leakage current (mA) not exceed		N/A
	- 0,5 mA per pole for fuses in new conditions:		N/A
	- 2 mA per pole for fuses having been submitted to test according to 8.5:		N/A
7.9.3	Additional constructional requirements for fuses with non-separable fuse-carriers, suitable for isolation		N/A
	Fuse-holder are marked with the symbol IEC 60617-S00369		N/A
	When fuse is in open position, with fuse-link remaining inside the fuse-carrier, isolating distance between the fuse contacts in accordance with the isolating function are provided		N/A
	Indication of this position is provided by the position of the fuse-carrier		N/A



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	IEC 60269	-1		
Clause	Requirement + Test		Result - Remark	Verdict
	There exists a locking means in order to lock fuses in the isolated position, locking is possionly in this position			N/A
	Fuses are designed so that the fuse-carrier remains attached to the fuse-base giving con indication of the open position, and of locking			N/A
7.10	Resistance to heat			Р
	All components are sufficiently resistant to he which may occur in normal use (see 8.9 and			Р
7.11	Mechanical strength			Р
	All components of fuse are sufficiently resistant mechanical stresses which may occur in norruse (see 8.3 to 8.5 and 8.11.1)			Р
7.12	Resistance to corrosion			Р
	All metallic components of fuse are resistant corrosive influences which may occur in norm			Р
7.12.1	Resistance to rusting			Р
	Ferrous components are so protected that the meet relevant tests (see 8.2.4.2 and 8.11.2.3			Р
7.12.2	Resistance to season cracking			Р
	Current-carrying parts are sufficiently resistar season cracking (see 8.2.4.2 and 8.11.2.1)	nt to		Р
7.13	Resistance to abnormal heat and fire			Р
	All components of fuse are sufficiently resistation abnormal heat and fire (see 8.11,2.2)	ant to		Р
7.14	Electromagnetic compatibility			N/A
	Fuses within the scope of this standard are no sensitive to normal electromagnetic disturbant			N/A
	No immunity tests are required			N/A



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	IEC 60269-	1		
Clause	Requirement + Test		Result - Remark	Verdict
8	TESTS TESTS TO THE TABLE OF THE	The second secon	The second secon	### A PART
8.1.2	At the beginning of each test, the fuse is approximately at the ambient temperature			Р
8.1.3	Tests made on fuses in clean and dry condition	n		Р
8.1.4	Arrangement of the fuse and dimensions			Р
	Except for degree of protection test (see 8.8), f are mounted in free air in draught-free surround in the normal operation position and on insulation material of sufficient rigidity	dings		Р
	Before tests are started, specified external dimensions are measured and results compare dimensions specified in the relevant data sheet manufacturer or specified in subsequent parts		Part II	Р
8.1.5	Testing of fuse-links			Р
	Fuse-links tested with the kind(s) of current for they are rated	which		Р
	Fuse-links tested for a.c. with frequency for whithey are rated	ich		Р
8.1.5.1	Complete tests			Р
-	Internal resistance R measured by a current <	0,1 ln		Р
	Measuring current (A)	:		Р
	Ambient air temperature in range of 20 ± 5 °C			Р
	The values of resistance		(see appended table)	Р
8.1.5.2	Testing of fuse-links of a homogeneous series			Р
	Fuse-links tested like a homogeneous series	:	Yes/ <del>No</del>	Р
	If yes: fuse-links have identical enclosures in for and construction (except of fuse-elements and contacts)			Р
	the same arc-extinguishing medium and same completeness of filling	е		Р
	- fuse-elements of identical materials			Р
	- their cross-section of fuse-elements not exceed cross-section of fuse-links having the highest recurrent			Р
	- number of fuse-elements do not exceed number of fuse-elements of fuse-links with the highest raticular current			Р



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IEC 60269-1				
Clause	Requirement + Test		Result - Remark	Verdict
	- minimum distances between adjacent fuse- elements and between the fuse-elements and inner surface of the cartridge is not less than the fuse-link with the highest rated current	d the		Р
	- fuse-links used with a given fuse-holder, or			P
	<ul> <li>fuse-links intended to be used in an arrange identical for all rated currents of the homogen series</li> </ul>			N/A
	- value of RI <sub>n</sub> <sup>3/2</sup> does not exceed the value for fuse-link with largest rated current of the homogeneous series (R measured as indicat 8.1.5.1)			N/A
	the rated breaking capacity of fuse-links not g than that of the fuse-link with the largest rated within the homogeneous series			Р
	- if not, the fuse-links with greater breaking ca subjected to tests no. 1 and no. 2	apacity		N/A
	The fuse-link having the largest rated current completely according to Table 11	tested		Р
	The fuse-link having the smallest rated currer only according to Table 12	nt tested		Р
	The fuse-links between the largest and small rated current tested according to Table 13	est		Р
8.1.6	Testing of fuse-holders			Р
	The fuse-holders are subjected to the tests according to Table 14			Р
8.2	Verification of the insulating properties and of suitability for isolation	the		Р
8.2.1	Arrangement of the fuse-holder			P
:	The fuse-holder fitted with a fuse-links of the l dimensions for the type of fuse-holder concer			Р
	The fuse-base fixed to a metal plate, unless otherwise specified			Р
	Fuse-link is replace while live - surfaces of fus of device for replacing it or of fuse-carrier, if or insulating material, are provided with metal connected during tests to the frame of the applif of metal, they are connected direct to the frame.	f overings paratus;		Р
8.2.2	Verification of the insulating properties			Р
	Points of application of the test voltage			Р
	The test voltage is applied between:			Р



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
	a) live parts and the frame with the fuse-link and the device for replacing it, or		Р	
	the fuse-carrier, if any, in position		N/A	
	no breakdown of insulation or flashover during 1 min of the applying test voltage		Р	
	b) the terminals without fuse-link, device for replacing or the fuse-carrier	3	Р	
	no breakdown of insulation or flashover during 1 min of the applying test voltage		Р	
	c) live parts of different polarity in the case of multipole fuse-holder with fuse-links, fuse-carrier(s) or device(s) for replacing the fuse-links		N/A	
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N/A	
	d) live parts which in the case of a multipole fuse- holder reach different potential after the fuse-link operates (equipped by fuse-carrier or device for replacing without fuse-link)		N/A	
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N/A	
	The r.m.s. value of test voltage (V) as specified in Table 15:	1890V	Р	
8.2.2.3.2	Fuse-holder is subjected to humid atmospheric conditions		Р	
	Relative humidity of ambient air (%):	91-95	Р	
	Ambient air temperature (°C):	20-30	P	
	Duration of treatment (h):	144	Р	
	Insulation resistance is measured between the points prescribed in 8.2.2.1 by applying d.c. voltage of approximately 500 V		Р	
	Points of measuring:		Р	
	a) min. measured value (MΩ):	200ΜΩ	Р	
	b) min. measured value (MΩ):	200ΜΩ	Р	
	c) min. measured value (MΩ):		N/A	
	d) min. measured value (MΩ):		N/A	
	The insulation resistance not less than M $\Omega$ :	1ΜΩ	Р	
8.2.3	Verification of the suitability for isolation		N/A	



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	IEC 60269-1		
Clause	Requirement + Test	Result - Remark	Verdict
	Clearances larger than values given in Table 9 are verified by dimensional measurement or by voltage test		N/A
	Points of application of the test voltage		N/A
	The test voltage is applied between:	- <del></del>	N/A
	- terminals when the fuse-link and device for replacing it, are removed		N/A
	Test voltage (kV) for verification of the rated impulse withstand voltage is given in Table 16:	kV	N/A
	The 1,2/50 µs impulse voltage applied 5 times for each polarity at intervals of 1 s minimum		N/A
	no breakdown of insulation or flashover during of the applying test voltage		N/A
	no disruptive discharge during the test		N/A
8.2.4.2	Fuse-holder is subjected to humid atmospheric conditions		N/A
	Relative humidity of ambient air (%):		N/A
	Ambient air temperature (°C):		N/A
	Duration of treatment (h):		N/A
	Insulation resistance is measured between the points prescribed in 8.2.2.1 by applying d.c. voltage of approximately 500 V		N/A
	Points of measuring:		N/A
	a) min. measured value (MΩ):		N/A
	b) min. measured value (MΩ):		N/A
	c) min. measured value (MΩ):		N/A
	d) min. measured value (MΩ):		N/A
	The insulation resistance not less than 1 MΩ:		N/A
8.3	Verification of temperature rise and power dissipation		P
8.3.1	One fuse used for test (unless otherwise stated by the manufacturer) mounted in free air		Р
	Test performed at an ambient air temperature of (20±5) °C		Р
	Ambient air temperature during the test (°C):		Р
	Cross-sectional area (see Table17) (mm² or mm x mm):	2×(40×5) mm <sup>2</sup>	2 (2 ) (2 ) (3 ) (3 ) (4 ) (4 ) (4 ) (4 ) (4 ) (4



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
	Tightened by torque; torque (Nm):	32Nm	Selection of the select	
8.3.2	The temperature of the fuse measured by method or measuring	f Thermocouple	P	
8.3.3	Measurement of the power dissipation of the fuse-link		Р	
	One fuse used for test (unless otherwise stated by the manufacturer) mounted in free air		Р	
	Test performed at an ambient air temperature of (20±5) °C		Р	
	Ambient air temperature during the test (°C):	25°C	Р	
	Cross-sectional area (see Table17) (mm² or mm x mm)	2×(40×5) mm <sup>2</sup>	The second secon	
	Tightened by torque; torque (Nm):	32Nm		
8.3.4.1	Temperature rise of the fuse-holder		Р	
	Applied a.c. current (A) for test equal to the rated current of the fuse-holder:	630A	Р	
	Test made with fuse-link (A), or	630A	Р	
	with a dummy fuse-link specified in subsequent parts	Part II	Р	
	Temperature rise limits T for contacts and terminals	(Table 5):		
	spring loaded contacts; limit (K):	unenclosed / enclosed max. 47K<65K	Р	
	bolted contacts; limit (K):	unenclosed / enclosed	N/A	
	terminals; limit (K):	unenclosed / enclosed max. 48K<65K	Р	
8.3.4.2	Power dissipation of a fuse-link		Р	
	The test made with a.c. at the current (A) equal to the rated current of the fuse-link	630A	Р	
	The points of measuring:	Central of blade	Р	
	Measured value of power (W) dissipation in limits (W) specified in subsequent parts:	41,3W<48W	Р	
8.3.5	The acceptable power dissipation (W) of fuse-holder not less than the rated power dissipation of the corresponding fuse-links		Р	
	After the tests prescribed in 8.3, the insulating parts of the fuse-holders cooled down to ambient temperature withstood the test voltage according to 8.2	1890V	Р	



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	IEC 60269-1	1 (epoit 140, 15055 145	
Clause	Requirement + Test	Result - Remark	Verdict
	No deformation after tests of 8.3		P
8.4	Verification of operation	For 630A	P
8.4.1	The test arrangement as specified in 8.1.4		P
	Length (m) of conductors (see 8.3.1):	2m	Р
	their cross-sectional area (mm²) as specified in Table 17	2×(40×5) mm <sup>2</sup>	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р
	a) the fuse-link subjected to the conventional non-fusing current (Inf) (see Table 2):	787,5A	### 1
	the fuse-link did not operate within the conventional time of (h) (Table 2):	4h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (I <sub>f</sub> ) (see Table 2)	1008A	
	the fuse-link operated within the conventional time of (minutes) (Table 2):	2275s	Р
8.4.3.2	Verification of rated current of "g" fuse-links		Р
	One fuse-link submitted to a pulse test for 100 h		P
	On-period equal to conventional time (h):	4h	Р
	Off-period of 0,1 of the conventional time:	24min	Р
	Test current (A) equal to 1,05 of the rated current .:	661,5A	Р
	After the test, the fuse-link not have changed its characteristics		Р
8.4.3.1	a) the fuse-link subjected to the conventional nonfusing current ( $I_{nf}$ ) (see Table 2)	787,5A	
	the fuse-link did not operate within the conventional time of (h) (Table 2):	4h	Р
8.4	Verification of operation	For 500A	Р
8.4.1	The test arrangement as specified in 8.1.4		Р
	Length (m) of conductors (see 8.3.1):	2m	Р
	their cross-sectional area (mm2) as specified in Table 17	2×(30×5) mm²	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р



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	Page 18 0138	Report No.150331	40 0011 alt1
Clause	Requirement + Test	Result - Remark	Verdict
	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2)	625A	-
	the fuse-link did not operate within the conventional time of (h) (Table 2)	4h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):		-
	the fuse-link operated within the conventional time of (minutes) (Table 2):		N/A
8.4.3.2	Verification of rated current of "g" fuse-links		Р
	One fuse-link submitted to a pulse test for 100 h		Р
	On-period equal to conventional time (h):	4h	Р
	Off-period of 0,1 of the conventional time:	24min	Р
	Test current (A) equal to 1,05 of the rated current .:	525A	Р
	After the test, the fuse-link not have changed its characteristics		Р
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2)	625A	_
	the fuse-link did not operate within the conventional time of (h) (Table 2)	4h	Р
8.4	Verification of operation	For 400A	Р
8.4.1	The test arrangement as specified in 8.1.4		Р
	Length (m) of conductors (see 8.3.1)	2m	Р
,	their cross-sectional area (mm2) as specified in Table 17	240	Р
8.4.2	Ambient air temperature during test within (20±5) °C		Р
8.4.3.1	Verification of conventional non-fusing and fusing current		Р
	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	500A	_
	the fuse-link did not operate within the conventional time of (h) (Table 2):	3h	Р
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):		_
	the fuse-link operated within the conventional time of (minutes) (Table 2):		N/A
8.4.3.2	Verification of rated current of "g" fuse-links		Р



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IEC 60269-1				
Clause	Requirement + Test	Result - Remark	Verdict	
	One fuse-link submitted to a pulse test for 100 h		P	
	On-period equal to conventional time (h):	3h	P	
***	Off-period of 0,1 of the conventional time:	18min	P	
	Test current (A) equal to 1,05 of the rated current . :	420A	P	
	After the test, the fuse-link not have changed its characteristics		Р	
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	500A	_	
	the fuse-link did not operate within the conventional time of (h) (Table 2):	3h	Р	
8.4	Verification of operation	For 315A	Р	
8.4.1	The test arrangement as specified in 8.1.4		Р	
	Length (m) of conductors (see 8.3.1):	2m	Р	
	their cross-sectional area (mm2) as specified in Table 17	185	Р	
8.4.2	Ambient air temperature during test within (20±5) °C		Р	
8.4.3.1	Verification of conventional non-fusing and fusing current		Р	
	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	393,6A	_	
	the fuse-link did not operate within the conventional time of (h) (Table 2)	3h	Р	
	b) the same fuse-link, after cooled down to ambient temperature, subjected to the conventional fusing current (If) (see Table 2):	504	_	
	the fuse-link operated within the conventional time of (minutes) (Table 2):	7102s	Р	
8.4.3.2	Verification of rated current of "g" fuse-links		Р	
	One fuse-link submitted to a pulse test for 100 h		Р	
	On-period equal to conventional time (h):	3h	P	
	Off-period of 0,1 of the conventional time:	18min	Р	
	Test current (A) equal to 1,05 of the rated current .:	330,8A	Р	
	After the test, the fuse-link not have changed its characteristics		Р	
8.4.3.1	a) the fuse-link subjected to the conventional non- fusing current (Inf) (see Table 2):	393,8A		



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	roddioment - rost		Tresuit - Remark	Verdict		
	the fuse-link did not operate within the conve time of (h) (Table 2)		3h	P		
8.4.3.3	Verification of time-current characteristics a	nd gates		Р		
8.4.3.3.1	The time-current characteristics verified on to fine test according to 8.5	he basis		Р		
	Values of pre-arcing and operating times with	hin the tin	ne-current zones:	Р		
	- indicated by the manufacturer			N/A		
-	- specified in subsequent parts	:	Part II	Р		
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in case	one large e of home	est rated current fuse-link is ogeneous series):	N/A		
	"g" fuse-links (except "gD", "gG" and "gM")			N/A		
	Tests made in connection with verification or gates (see8.4.3.3.2)	the		N/A		
	Ambient air temperature within (20±5) °C	:		N/A		
	rated current In (A) of the fuse-link	:		- ::::		
	test performed at voltage (V)	:		(a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c		
	test 3a) prospective current (A) equal to kln $(10 \le k \le 20)$			N/A		
	pre-arcing time (s)			- V		
	specified pre-arcing time (s) max./min	:		N/A		
	test 4a) prospective current (A) equal to kIn $(5 \le k \le 8)$			N/A		
	pre-arcing time (s)	:		The state of the s		
	specified pre-arcing time (s) max./min	:		N/A		
	test 5a) prospective current (A) equal to kln $(2,5 \le k \le 4)$	:		N/A		
	pre-arcing time (s)	:		8 V - 4		
	specified pre-arcing time (s) max./min	:		N/A		
	Verification for smaller current ratings, if only subjected to the test according to 8.5 (in cas			N/A		
	"a" fuse-links			N/A		
	Ambient air temperature within (20±5) °C	:		N/A		
	rated current In (A) of the fuse-link	:				
	test performed at voltage (V)	:				
	test 3a) prospective current (A) equal to nk₂ (5≤ n ≤ 8)	1		N/A		
· · · · · · · · · · · · · · · · · · ·						



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Clause	Requirement + Test		Result - Remark	Verdict
	pre-arcing time (s)	:		and the control of th
	specified pre-arcing time (s) max./min	:		N/A
	test 4a) prospective current (A) equal to $nk_2$ In $(2 \le n \le 3)$	:		N/A
	pre-arcing time (s)	:		The second of the control of the second of t
	specified pre-arcing time (s) max./min	:		N/A
	test 5a) prospective current (A) equal to nk₂ In (1≤ n ≤ 1,5)	:		N/A
	pre-arcing time (s)			
	specified pre-arcing time (s) max./min	:		N/A
8.4.3.3.2	Verification of gates			Р
	"gG" and "gM" fuse-links		"gG" / <del>"gM"</del>	Р
	rated current of the fuse-link (A)	:	630	
	test performed at voltage (V)	:	Not specified	THE CONTROL OF THE CO
	a) testing current (A); pre-arcing time (s) higher 10 s		2200A;70s	Р
	b) testing current (A); pre-arcing time (s) less the 5 s		5100A;2,2s	Р
	c) testing current (A); pre-arcing time (s) higher 0,1 s		8060A;670ms	Р
	d) testing current (A); pre-arcing time (s) less th		14140A;9ms	Р
	"aM" fuse-links			N/A
	rated current of the fuse-link (A)	:	***	
	test performed at voltage (V)	:		
	Cross-sectional area (see Table18)  (mm² or mm x mm)	:		
	e) testing current (A); pre-arcing time (s) higher 60 s			N/A
	f) testing current (A); pre-arcing time (s) less that 60 s			N/A
	g) testing current (A); pre-arcing time (s) higher 0,2 s			N/A
	h) testing current (A); pre-arcing time (s) less th 0,10 s			N/A
8.4.3.3.2	Verification of gates			Р



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Clause	Requirement + Test	Result - Remark	Verdict		
-	"gG" and "gM" fuse-links	"gG" / <del>"gM</del> "	P		
	rated current of the fuse-link (A):	500			
	test performed at voltage (V):	Not specified			
	a) testing current (A); pre-arcing time (s) higher than 10 s:	1780A;67s	P		
	b) testing current (A); pre-arcing time (s) less than 5 s	3800A;2,2s	Р		
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	6000A;650ms	Р		
	d) testing current (A); pre-arcing time (s) less than 0,1 s	10600A;8ms	Р		
	"aM" fuse-links		N/A		
	rated current of the fuse-link (A)				
	test performed at voltage (V):		_		
	Cross-sectional area (see Table18)		_		
	(mm2 or mm x mm):	:			
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A		
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A		
	g) testing current (A); pre-arcing time (s) higher than 0,2 s		N/A		
·	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A		
8.4.3.3.2	Verification of gates		Р		
	"gG" and "gM" fuse-links	"gG" / <u>"gM"</u>	Р		
	rated current of the fuse-link (A)	400			
	test performed at voltage (V):	Not specified			
	a) testing current (A); pre-arcing time (s) higher than 10 s	1420A;72s	Р		
	b) testing current (A); pre-arcing time (s) less than 5 s	2840A;2,6s	Р		
	c) testing current (A); pre-arcing time (s) higher than 0,1 s	4500A;790ms	Р		
	d) testing current (A); pre-arcing time (s) less than 0,1 s	8060A;9ms	Р		
	"aM" fuse-links		N/A		



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Clause	Requirement + Test	Result - Remark	Verdict		
	rated current of the fuse-link (A)		<del></del>		
	test performed at voltage (V)				
	Cross-sectional area (see Table18)		<del>-   -</del>		
	(mm2 or mm x mm):		_		
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A		
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A		
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A		
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A		
3.4.3.3.2	Verification of gates		Р		
	"gG" and "gM" fuse-links	"gG" / <del>"gM"</del>	Р		
	rated current of the fuse-link (A):	315			
	test performed at voltage (V):	Not specified	_		
	a) testing current (A); pre-arcing time (s) higher than 10 s	1050A;73s	Р		
	b) testing current (A); pre-arcing time (s) less than 5 s	2200A;2,7s	Р		
	c) testing current (A); pre-arcing time (s) higher than 0,1 s:	3420A;800ms	Р		
	d) testing current (A); pre-arcing time (s) less than 0,1 s	6000A;9ms	Р		
	"aM" fuse-links		N/A		
	rated current of the fuse-link (A):		_		
	test performed at voltage (V):		_		
	Cross-sectional area (see Table18)		_		
	(mm2 or mm x mm):				
	e) testing current (A); pre-arcing time (s) higher than 60 s		N/A		
	f) testing current (A); pre-arcing time (s) less than 60 s		N/A		
	g) testing current (A); pre-arcing time (s) higher than 0,2 s:		N/A		
	h) testing current (A); pre-arcing time (s) less than 0,10 s		N/A		



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Clause	Requirement + Test	Result - Remark	Verdict	
8.4.3.4	Overload	For 315A and 630A	Р	
	The test arrangement is same as that for the temperature rise test (see 8.3.1)		Р	
	Three fuse-links submitted to 50 pulses having the same duration and test current		Р	
	test performed at voltage (V):	Not specified	The second secon	
	"g" fuse-links:		Р	
	test current (A) equal to 0,8 times the current stated for a pre-arcing time of 5 s	1072A/2240A	Р	
	duration of each pulse 5 s		Р	
	time (s) interval between pulses equal to 20 % of the conventional time (s) specified in Table 2:	36min/48min	Р	
	"a" fuse-links:		N/A	
	rated current In (A) of fuse-link		N/A	
i :	test current (A) equal to k <sub>1</sub> I <sub>n</sub> ± 2%		N/A	
	the pulse duration (s) corresponds to that indicated on the overload curve for k <sub>1</sub> I <sub>n</sub> stated by manufacturer:		N/A	
	time (s) intervals between pulses equal to 30 times the pulse duration:		N/A	
	fuse-links having ambient air temperature subjected to a current (A) equal to current for the overload test	1072A/2240A	Р	
	pre-arcing time (s) of sample lies within the manufacturers time-current zone:	1) 74s/64,9s 2) 82s/46,3s 3)101s/57,2s	Р	
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links only)		N/A	
	fuse-link mounted as specified in 8.4.1		N/A	
	provided with PVC insulated copper conductors of cross-sectional area (mm²) (see Table 19):		N/A	
	fuse and conductor connected to it, preheated with rated current (A) of fuse-link		N/A	
	for a time (h) equal to the conventional time:		N/A	
	test current increased to 1,45 I <sub>z</sub> (A) (I <sub>z</sub> specified in Table 19)		N/A	
	the fuse-link operated in time (s) less than the conventional time (s)		N/A	
8.4.3.6	Operation of indicating devices and strikers, if any		Р	



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Clause	Requirement + Test		Result - Remark	Verdict	
	Operation of indicating device verified in combi with the verification of breaking capacity (see 8			Р	
	The verification of striker operation:			N/A	
	"g" fuse-link tested at current (A) equal to curre I <sub>4</sub> (see Table 20 abd 21)	ent :		N/A	
	recovery voltage (V)	:		N/A	
	stated recovery voltage (V)	:		N/A	
	"a" fuse-link tested at current (A) equal to curre $2k_1I_n$ (A) (see Figure 2)	nt :		N/A	
	recovery voltage (V)			N/A	
	stated recovery voltage (V)	:		N/A	
	Striker operate during all tests made at recover voltage of at least 20 V	ту		N/A	
	No failure of indicating device or striker			Р	
8.5	Verification of the breaking capacity			Р	
8.5.1	The test arrangements as specified in 8.1.4			Р	
8.5.2	Characteristics of the test circuit as specified			Р	
	Scheme of test circuit (see Figure 5)			Р	
	Deviations form specified characteristics of test circuit			Р	
8.5.3	Measuring instruments			Р	
8.5.4	Calibration of test circuit			Р	
	Calibration oscillograms and their evaluation			Р	
8.5.6	The breaking-capacity tests made at an ambier temperature of (20 ± 5) °C	nt air		Р	
	Breaking-capacity tests on a.c. fuses			Р	
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links		For 315A	Р	
	Rated breaking capacity of the fuse-links (kA), a voltage (V)		120kA,500VAC		
	Rated current (A) of the fuse-links	:	315A	Р	
	Prospective current I <sub>1</sub> (kA) equal to rated break capacity within a tolerance of + 10%, - 0%		120kA	Р	
	Power factor	:	0,20	Р	
	Initiation of arcing after voltage zero: within 40° for sample 1 and within 65° - 90° for sample 2 a or	and 3,	1) 46,0 2) 77,0 3) 69,0	Р	



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Clause	Requirement + Test	-	Result - Remark	Verdict
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°	:		N/A
	Power-frequency recovery voltage: voltage (V (%) of rated voltage within 105% + 5%, - 0% of rated voltage or 110% + 5%, - 0% of the rated voltage	of the	1) 568V 2) 568V 3) 568V	Р
	Cut-off current (A)	:	1) 28,7kA 2) 31,0kA 3) 30,6kA	Р
8.5.8	Acceptability of No. 1 test results			P
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)	values :	990,0V<2500V	Р
	b) fuse-links operated without external effects damage to the components of the complete fu			Р
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р
	d) no damage of fuse components hindering fitheir further use	rom		Р
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	ult or		Р
	f) fuse-link remains in one piece before its rem from the fuse- carrier	noval		Р
	g) resistance (M $\Omega$ ) between contacts of fuse-li after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other cases.	voltage	1) 20 2) 20 3) 50	Р
8.5.5.1	Table 20, test No. 1 for "g" and "a" fuse-links		For 630A	Р
	Rated breaking capacity of the fuse-links (kA), voltage (V)		120kA,500VAC	_
	Rated current (A) of the fuse-links		630A	Р
	Prospective current I1 (kA) equal to rated brea capacity within a tolerance of + 10%, - 0%		120kA	Р
	Power factor	:	0,20	Р
	Initiation of arcing after voltage zero: within 40° for sample 1 and within 65° - 90° for sample 2 or	and 3,	1) 49,0 2) 84,0 3) 81,0	Р
	for sample 1) arcing after voltage zero within 0° + 10°, - 0°	:	,	N/A



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Clause	Requirement + Test		Result - Remark	Verdict
	Power-frequency recovery voltage: voltage (\( \)(\( \)) of rated voltage within 105\( \) + 5\( \), - 0\( \) rated voltage or 110\( \) + 5\( \), - 0\( \) of the rate voltage	of the d	1) 568V 2) 568V 3) 568V	Р
	Cut-off current (A)	:	1) 59,4kA 2) 57,7kA 3) 54,1kA	Р
8.5.8	Acceptability of No. 1 test results			Р
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		1021,0V<2500V	Р
	b) fuse-links operated without external effect damage to the components of the complete			Р
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р
	d) no damage of fuse components hindering their further use	from		Р
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	cult or		Р
	f) fuse-link remains in one piece before its refrom the fuse- carrier	moval		Р
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rated of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 20 2) 50 3) 10	Р
8.5.5.1	Table 20, test No. 2 for "g" and "a" fuse-links			Р
	Prospective current I <sub>2</sub> (kA)	:	41,80kA	Р
	Test made under conditions which approximathose giving maximum arc energy	ate		Р
	Power factor	:	0,15	Р
	Making angle after voltage zero: within tolera		1) 5,0 2) 3,0 3) 4,0	Р
	Power-frequency recovery voltage: voltage (\( (%)\) of rated voltage within 105% + 5%, - 0% rated voltage or 110% + 5%, - 0% of the rate voltage	of the d	1) 568 2) 568 3) 568	Р
	Recovery voltage maintained at a value (V); (s) for sample (No.)			Р
	For other samples duration 15 s (8.5.5.2)			Р
8.5.8	Acceptability of No. 2 test results	·		Р



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Clause	Requirement + Test	Result - Remark Verdict
	a) max. arc voltage (V) did not exceed stated value of 7.5 (Table 6)	
	b) fuse-links operated without external effects or damage to the components of the complete fuse	Р
	c) no permanent arcing, flashover or ejection of dangerous flames	Р
	d) no damage of fuse components hindering from their further use	Р
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them	Р
	f) fuse-link remains in one piece before its removal from the fuse- carrier	Р
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated volta of fuse-links to 250 V, 100 000 $\Omega$ in all other cases	
8.5.5.1	Table 20, test No. 2* for "g" and "a" fuse-links, for $I_2 \ge I_1$	(see appended table) N/A
	Prospective current I <sub>2</sub> (kA) for test No. 2 greater the the rated breaking capacity (kA)	
	Test made on six samples replacing tests of Nos. and 2. Test made with current I <sub>1</sub> (kA)	
	Making angels differ approximately 30° between each test	N/A
	Power factor	: N/A
8.5.8	Acceptability of No. 2 test results	N/A
	a) max. arc voltage (V) did not exceed stated value of 7.5 (Table 6)	
	b) fuse-links operated without external effects or damage to the components of the complete fuse	N/A
	c) no permanent arcing, flashover or ejection of dangerous flames	N/A
	d) no damage of fuse components hindering from their further use	N/A
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them	N/A
	f) fuse-link remains in one piece before its removal from the fuse- carrier	N/A
8.5.5.1	Table 20, test No. 3 for "g" and "a" fuse-links	P



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Clause	Requirement + Test		Result - Remark	Verdict	
	Prospective current for "g" fuse-link I <sub>3</sub> (A) eq 3,2 I <sub>f</sub>		3300A	Р	
	Prospective current for "a" fuse-link I <sub>3</sub> (A) eq 2,5 k <sub>2</sub> I <sub>n</sub>			N/A	
	Power factor		0,45	P	
	Tolerance on current ± 20%			Р	
	Recovery voltage (V) maintained for 15 s (8.	5.5.2)		P	
8.5.8	Acceptability of No. 3 test results			Р	
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		<2500V	Р	
	b) fuse-links operated without external effect damage to the components of the complete			Р	
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р	
	d) no damage of fuse components hindering their further use	from		Р	
	e) no damage of fuse-link such, that it is diffi dangerous to replace them	cult or		P	
	f) fuse-link remains in one piece before its refrom the fuse- carrier	moval		Р	
	g) resistance (M $\Omega$ ) between contacts of fuse after test not less than 50 000 $\Omega$ for the rate of fuse-links to 250 V, 100 000 $\Omega$ in all other	voltage	1) 25 2) 3)	Р	
8.5.5.1	Table 20, test No. 4 for "g" and "a" fuse-links			Р	
	Prospective current for "g" fuse-link I <sub>4</sub> (A) eq 2,0 I <sub>f</sub>		2100A	Р	
	Prospective current for "a" fuse-link I <sub>4</sub> (A) eq 1,6 k <sub>2</sub> I <sub>n</sub>			N/A	
	Power factor		0,45	Р	
	Tolerance on current + 20%, - 0%			Р	
	Recovery voltage (V) maintained for 15 s (8.	5.5.2) :		Р	
8.5.8	Acceptability of No. 4 test results			Р	
	a) max. arc voltage (V) did not exceed stated of 7.5 (Table 6)		<2500V	Р	
<u> </u>	b) fuse-links operated without external effect damage to the components of the complete			Р	
	c) no permanent arcing, flashover or ejection dangerous flames	of		Р	



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Clause	Requirement + Test	Result - Remark	Verdict
	d) no damage of fuse components hindering from their further use		P
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р
	f) fuse-link remains in one piece before its removal from the fuse- carrier		P
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 50 2) 3)	Р
8.5.5.1	Table 20, test No. 5 for "g" and "a" fuse-links		Р
	Prospective current for "g" fuse-link I <sub>5</sub> (A) equal to 1,25 I <sub>f</sub> :	1300A	Р
	Prospective current for "a" fuse-link I <sub>5</sub> (A) equal to k <sub>2</sub> I <sub>n</sub>		N/A
	Power factor:	0,45	Р
	Tolerance on current + 20%, - 0%	No.	Р
	Recovery voltage (V) maintained for 15 s (8.5.5.2):		Р
8.5.8	Acceptability of No. 5 test results		Р
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6)	<2500V	Р
	b) fuse-links operated without external effects or damage to the components of the complete fuse		Р
	c) no permanent arcing, flashover or ejection of dangerous flames		Р
	d) no damage of fuse components hindering from their further use		Р
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		Р
-	f) fuse-link remains in one piece before its removal from the fuse- carrier		Р
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 34 2) 3)	Р
	Breaking-capacity tests on d.c. fuses		N/A
8.5.5.1	Table 21, d.c.test No. 1 for "g" and "a" fuse-links		N/A
	Rated breaking d.c. capacity of the fuse-links (kA), at voltage (V):		
	Rated current (A) of the fuse-links:		N/A



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Clause	Requirement + Test	Result - Remark	Verdict		
	Rated voltage (V) of the fuse-links	:	N/A		
	Prospective current l <sub>1</sub> (kA) equal to rated breaki capacity within a tolerance of + 10%, - 0%		N/A		
	Time constant (ms) between 15 to 20 ms	:	N/A		
	Arcing commences at current (A)	: 1) 2) 3)			
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	: 1) 2) 3)	N/A		
8.5.8	Acceptability of No. 1 test results		N/A		
	a) max. arc voltage (V) did not exceed stated va of 7.5 (Table 6)		N/A		
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N/A		
	c) no permanent arcing, flashover or ejection of dangerous flames		N/A		
	d) no damage of fuse components hindering fro their further use	m	N/A		
	e) no damage of fuse-link such, that it is difficult dangerous to replace them	or	N/A		
	f) fuse-link remains in one piece before its remo from the fuse- carrier	val	N/A		
	g) resistance (M $\Omega$ ) between contacts of fuse-link after test not less than 50 000 $\Omega$ for the rated vo of fuse-links to 250 V, 100 000 $\Omega$ in all other cas	ltage 2)	N/A		
8.5.5.1	Table 21, d.c.test No. 2 for "g" and "a" fuse-links		N/A		
	a) During test No. 1 arcing commences at a curr ≥ 0,5 I₁, test No. 2 was not performed	rent	N/A		
	b) Prospective current I <sub>2</sub> (A). Test made under conditions which approximate those giving maxi arc energy		N/A		
	Time constant (ms) between 15 to 20 ms		N/A		
	Arcing commences at current (A)	: 1)	_ :		
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage.	: 1) 2) 3)	N/A		



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Clause	Requirement + Test		Result - Remark	Verdict	
8.5.8	Acceptability of No. 2 test results			N/A	
	a) max. arc voltage (V) did not exceed stated vof 7.5 (Table 6)	values	,	N/A	
	b) fuse-links operated without external effects damage to the components of the complete fu			N/A	
	c) no permanent arcing, flashover or ejection of dangerous flames	of		N/A	
	d) no damage of fuse components hindering fr their further use	rom		N/A	
	e) no damage of fuse-link such, that it is difficu dangerous to replace them	ılt or		N/A	
	f) fuse-link remains in one piece before its rem from the fuse- carrier	ioval		N/A	
	g) resistance (M $\Omega$ ) between contacts of fuse-line after test not less than 50 000 $\Omega$ for the rated v of fuse-links to 250 V, 100 000 $\Omega$ in all other can	/oltage	1) 2) 3)	N/A	
8.5.5.1	Table 21, d.c.test No. 3 for "g" and "a" fuse-link	ks		N/A	
	Conventional fusing current (A)	:			
	Prospective current I <sub>3</sub> (A) equal to 3,2 I <sub>f</sub>	:		N/A	
	Tolerance on current (%) ± 20%	:		N/A	
	Time constant (ms) between 15 to 20 ms	:		N/A	
	Arcing commences at current (A)	:	1) 2) 3)		
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage	·:	1) 2) 3)	N/A	
8.5.8	Acceptability of No. 3 test results			N/A	
	a) max. arc voltage (V) did not exceed stated v of 7.5 (Table 6)			N/A	
	b) fuse-links operated without external effects of damage to the components of the complete fusions.			N/A	
	c) no permanent arcing, flashover or ejection of dangerous flames	of		N/A	
	d) no damage of fuse components hindering fr their further use	rom		N/A	
	e) no damage of fuse-link such, that it is difficu dangerous to replace them	ılt or		N/A	



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IEC 60269-1					
Clause	Requirement + Test	Result - Remark	Verdict		
	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A		
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 2) 3)	N/A		
8.5.5.1	Table 21, d.c.test No. 4 for "g" and "a" fuse-links		N/A		
	Conventional fusing current (A):		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	Prospective current I <sub>4</sub> (A) equal to 2,0 I <sub>f</sub> :		N/A		
	Tolerance on current (%) + 20%, - 0%:		N/A		
	Time constant (ms) between 15 to 20 ms:		N/A		
	Arcing commences at current (A):	1) 2) 3)			
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage:	1) 2) 3)	N/A		
8.5.8	Acceptability of No. 4 test results		N/A		
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6):		N/A		
-	b) fuse-links operated without external effects or damage to the components of the complete fuse		N/A		
	c) no permanent arcing, flashover or ejection of dangerous flames		N/A		
	d) no damage of fuse components hindering from their further use		N/A		
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N/A		
	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A		
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 2) 3)	N/A		
8.5.5.1	Table 21, d.c.test No. 5 for "g" and "a" fuse-links		N/A		
	Conventional fusing current (A):				
	Prospective current I <sub>5</sub> (A) equal to 1,25 I <sub>f</sub> :		N/A		
	Tolerance on current (%) + 20%, - 0%:		N/A		
	Time constant (ms) between 15 to 20 ms:		N/A		



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IEC 60269-1					
Clause	Requirement + Test	Result - Remark	Verdict		
	Arcing commences at current (A):	1) 2) 3)			
	Value of recovery voltage: voltage (V) within tolerances 115 + 5%, - 9% of the rated voltage:	1) 2) 3)	N/A		
8.5.8	Acceptability of No. 5 test results		N/A		
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table 6):		N/A		
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N/A		
	c) no permanent arcing, flashover or ejection of dangerous flames		N/A		
	d) no damage of fuse components hindering from their further use		N/A		
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N/A		
11 - 1 - 1	f) fuse-link remains in one piece before its removal from the fuse- carrier		N/A		
	g) resistance (M $\Omega$ ) between contacts of fuse-links after test not less than 50 000 $\Omega$ for the rated voltage of fuse-links to 250 V, 100 000 $\Omega$ in all other cases :	1) 2) 3)	N/A		
8.6	Verification of the cut-off current characteristics		Р		
8.6.2	The values measured did not exceed cut-off characteristics indicated by the manufacturer (see 5.8.1)		Р		
8.7	Verification of I <sup>2</sup> t characteristics and overcurrent discrimination		Р		
8.7.2	The operating I <sup>2</sup> t values measured not exceed the values indicated by the manufacturer, or		Р		
	those specified in subsequent parts		Р		
,	The pre-arcing I <sup>2</sup> t values not less than minimum pre- arcing values given by the manufacturer, or		N/A		
	they lie within the limits indicated in Table 7		Р		
8.7.3	Verification of compliance for fuse-links at 0,01 s		Р		
	"gG" and "gM" fuse-links at 0,01 s comply with Table 7		Р		
8.7.4	Verification of overcurrent discrimination		Р		



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IEC 60269-1					
Clause	Requirement + Test		Result - Remark	Verdict	
	The discrimination of the fuse-links verified to of the time-current characteristics and the prand operating I <sup>2</sup> t values			Р	
8.8	Verification of the degree of protection of en	closures		Р	
	Degree of protection IP	:	IP00	Р	
	Verification by test under conditions specified IEC 60529	d in :		Р	
8.9	Verification of resistance to heat			Р	
	No damage impaired by heat during the preventests (in particular with respect to 8.3, 8.4, 8.8.10)			Р	
8.10	Verification of non-deterioration of contacts			Р	
8.10.1	Three samples provided with standardized of fuse-links of the highest current rating (A) into be used in the fuse-holder (see subsequent	ended to		Р	
8.10.2	Test current (A) for load period	:	787,5A	P	
	Duration (s) of load period	:	1h	Р	
	Duration (s) of no-load period	:	0,4h	Р	
	a) Test of 250 cycles, measured values not of the limits given in subsequent parts	exceed		Р	
	b) Test of 750 cycles, measured values not of the limits given in subsequent parts	exceed		Р	
8.11	Mechanical and miscellaneous tests			Р	
8.11.1	Mechanical strength			Р	
	Mechanical characteristics of fuse and its pa judged in the context of normal handling and mounting as well as with results shown after breaking-capacity test (see 8.5), if not otherw specified in the subsequent parts			P	
8.11.2	Miscellaneous tests			Р	
8.11.2.1	Verification of freedom from season cracking	3		Р	
	Current-carrying parts made of rolled copper with less than 83% copper content and with a grease removed, placed for 4 h in test cabine temperature of (30 ± 10) °C	all		Р	
	After this, samples placed for 8 h in test cabi the bottom of which is ammonium chloride so having pH value 10 - 11			Р	
	After test no cracks visible to the unaided ey			Р	



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	IEC 6026	9-1		
Clause	Requirement + Test		Result - Remark	Verdict
8.11.2.2	Verification of resistance to abnormal heat a	nd fire		Р
8.11.2.2.1	Parts of insulating material, except ceramic, limited duration of burning without spreading flames or burning droplets or glowing particle from the specimen	fire by		Р
8.11.2.2.5	Glow-wire test: (650 ± 10) °C			N/A
	Parts of insulating materials not necessary to current-carrying parts in position even though are in contact with them, made the glow-wire (650 ± 10) °C	they		N/A
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after ren the glow-wire. Limit (30 ± 1) s	noval of		N/A
	No burning of the tissue paper			N/A
	No scorching of the pinewood board			N/A
	Glow-wire test: (960 ± 10) °C		No flame	Р
	Parts of insulating materials necessary to ret current-carrying parts and parts of the earthir circuit, if any, in position , made the glow-wire (960 ± 10) °C	ng		Р
	No visible flame, or burning or glowing of the specimen extinguish within max. (s) after ren the glow-wire. Limit (30 ± 1) s	noval of		Р
	No burning of the tissue paper			Р
	No scorching of the pinewood board			Р
8.11.2.3	Verification of resistance to rusting			Р
	Tested parts after degreasing (10 min in specsolution) placed for 10 min in air saturated wi moisture and after that dried 10 min in an am temperature (100 ± 5) °C	th		Р
	Surface of tested parts show no signs of rust			Р



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					IEC	C 60269	-1					1
Clause	Red	quiremen	t + Test				_	Result - I	Remark			Verdict
APPEND	IX 1											
8.1.5.1		TABLE:	Internal r	esistano	e of the	fuse-linl	KS					P
		a) rated						15			<del> </del> ···	
	measuring current (A) :					1,5						
		ambient			°C)		2				A CONTRACTOR OF THE CONTRACTOR	
internal resistan ce	### 1 ### 1					sam	ple No.	A Study of a second sec	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		A CONTROL OF THE PARTY OF THE P	
	1	2	3	4	]5	6	7	8	9	10	777	12
$R (m\Omega)$	0,182	0,190	0,188	0,191	0,191	0,189	0,191	0,192	0,187	0,184	0,185	0,191
	' · · · ·	b) rated	current (	A) of the	fuse-lin	k :	40				A WARRING WA	
		measurii			:		4(					
		ambient			°C)	:	25	5			20077 - 1	
internal resistan ce	## 1964 000 000 000 000 000 000 000 000 000 0			A STATE OF THE PROPERTY OF THE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	samı	ole No.			<b>,</b>		### Company of the Co
	1	2	3	4	5							
$R (m\Omega)$	0,160	0,158	0,157	0,161	0,157	<u> </u>	<u> </u>					
		c) rated			tuse-lini	k :	50				1000 0 00 00 00 00 00 00 00 00 00 00 00	77.
		measurir			<u>:</u>		50				ar contains	<u> </u>
- Sa - Jank Am - Tanaka (Janaka		ambient	air tempe	erature (	°C)	:	25	)			1	— .:: <u></u>
internal resistan ce	And the second s			partee to the control of	1	sam	ole No.				The state of the s	
	1	2	3	4	5					<u> </u>		
$R (m\Omega)$	0,114	0,116	0,115	0,115	0,117	<u> </u>					1	
		c) rated			fuse-linl	<b>·</b> :	63				1	X
		measurir			:		63				14, 24, 44, 15, 14, 14, 14, 14, 14, 14, 14, 14, 14, 14	
		ambient	air tempe	erature (	°C)	:	25	5			**************************************	
internal resistan ce	1						ole No.				1	
	1	2	3	4	5	6	7	8	9	10	11	12
	0,082	0,086	0,085	0,087	0,083	0,085	0,086	0,088	0,084	0,085	0,087	0,083
internal resistan ce						samı	ole No.		· ·	T	The state of the s	1
	13	14	15		ļ	.					.	<u> </u>
$R (m\Omega)$	0,088	0,087	0,086								1.	



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	IE	C 60269-1		
Clause	Requirement + Test		Result - Remark	Verdict

8.5.5.1	TABLE: Ta	able 20, test No. 2* fo	r "g" and "a" fuse	e-links, for $I_2 \ge I_1$	N/A
sample No.	making angle aft voltage zero	ter recove	ery voltage	cut off current	
	(2)	(V)		(A)	$(\overline{M}\Omega)^{2} = (\overline{M}\Omega)^{2} = $
2					
3					
5					
6					





Test Report issued under the responsibility of:



### TEST REPORT IEC 60269-2

#### Low-voltage fuses

Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to I

Report Reference No..... 15033143 001 Part II Date of issue .....: 30.07.2009 Total number of pages..... 18 pages TÜV Rheinland (Shanghai) Co., Ltd. Testing Laboratory ..... Address..... 10-15/F. Huatsing Building, No.88, Lane 777, Guangzhong Road West, 200072 Shanghai Zhabei District, P.R. China Applicant's name ..... Wenzhou Jinlida Electrical Co., Ltd. Address.....: Xirendang Industrial Zone, Liushi, Wenzhou, Zhejiang 325604 P.R. China Test specification: IEC 60269 - 2: 2006 (third edition) (see also IEC 60269 - 1:1998) Standard .....: Test procedure..... CB Non-standard test method.....: N/A Test Report Form No..... IEC60269 2A Test Report Form(s) Originator ......: EZU Master TRF...... Dated 2007-12

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description : Fuses(fuse link and fuse base)

Trade Mark :: JINLIDA

Manufacturer :: Same as applicant

Model/Type reference :: NH3

Ratings :: AC 500V; 315A,400A,500A,630A; 120kA; Size 3



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Testi	ng procedure and testing location:		
$\boxtimes$	Testing Laboratory:	TÜV Rheir	land (Shanghai) Co., Ltd.
Testi	ng location/ address:		trical Apparatus Testing Institute Road, Changsha, Hunan, P.R. China
	Associated CB Test Laboratory:		
Testi	ng location/ address:		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Testing procedure: TMP		
	Tested by (name + signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: WMT		
	Tested by (name + signature):		
	Witnessed by (+ signature):		
	Approved by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: SMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		
	Testing procedure: RMT		
	Tested by (name + signature):		
	Approved by (+ signature):		
	Supervised by (+ signature):		
Testi	ng location/ address:		



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Testing location:
Hunan Electrical Apparatus Testing Institute 4 Xinzhong Road, Changsha, Hunan, P.R. China
5:



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Copy of marking plate:	
Refer to 15033143 001 Part I.	



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Test item particulars	·
Classification of installation and use	See part I
Supply Connection:	See part I
Fuse system:	A <del>/B/C/D/E/F</del> /G/H/I
·	
Possible test case verdicts:	
- test case does not apply to the test object:	N/A
- test object does meet the requirement:	P (Pass)
- test object does not meet the requirement:	F (Fail)
Testing:	
Date of receipt of test item:	06.2009
Date (s) of performance of tests:	06.2009-07.2009
General remarks:	
The test results presented in this report relate only to the This report shall not be reproduced, except in full, withou "(see Enclosure #)" refers to additional information apper "(see appended table)" refers to a table appended to the Throughout this report a comma (point) is used as the	t the written approval of the Issuing testing laboratory. ended to the report. report.
(, , ,	
General product information: N/A	



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
The second secon	Requirements IEC 60269-1		A CANADA AND A CAN
FUSE SYS	STEM A - FUSES WITH FUSE-LINKS WITH BLADE	CONTACTS (NH FUSE SYSTEM)	
5	CHARACTERISTICS OF FUSES		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
5.2	Rated voltage (V) as specified	500VAC	Р
5.3.1	Rated current (A) of the fuse-link in accordance with specified values		Р
5.3.2	Rated current (A) of the fuse-holder and the size of the fuse-link	Size 3	Р
5.5	Rated power (W) dissipation of fuse-link see Figure 101	<48W	Р
	Rated acceptable power (VA) dissipation of fuse- bases given in Figure 102	60W	Р
5.6	Limits of time-current characteristics		Р
5.6.1	Time-current characteristics, time-current zones and overload curves		Р
5.6.2	Conventional times and current see Table 101:		Р
5.6.3	Gates		Р
5.7.2	Rated breaking capacity (A)	120kA	Р
6	MARKING	TOTAL STATE OF THE	er 
·	Markings are legible		Р
6.1	Fuse-holders marked by:		Р
	- IEC 60269-2:		Р
	- size:	3	Р
	Marking of rated current and rated voltage are discernible from the front		Р
6.2	Fuse-links marked by:		Р
	- IEC 60269-2		Р
	- size or reference	3	Р
	- rated breaking capacity:	120kA	Р
	Marking of rated current and rated voltage are discernible from the front		Р
	Fuse-links are marked as described in Table 104:		P
7	Fuse-links are marked as described in Table 104:  STANDARD CONDITIONS FOR CONSTRUCTION		



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
7.1	Mechanical design		Р
	The dimensions of the fuse-links given in Figure 101		P
	Dimensions:		P
· ·	dimension marking a1: prescribed (mm); measured (mm)	150±2,5;	Р
	dimension marking a2: prescribed (mm); measured (mm):	75-10;	Р
	dimension marking a3: prescribed (mm); measured (mm):	62±2,5;	Р
	dimension marking a4: prescribed (mm); measured (mm):	68±2,5;	Р
	dimension marking b1min: prescribed (mm); measured (mm):	32;	Р
	dimension marking b2min: prescribed (mm); measured (mm):	11;	Р
	dimension marking b3max: prescribed (mrn); measured (mm):	6;	Р
	dimension marking b4min: prescribed (mm); measured (mm):	29;	Р
	dimension marking c1: prescribed (mm); measured (mm):	60;	Р
	dimension marking c2: prescribed (mm); measured (mm)	11-2;	Р
	dimension marking d: prescribed (mm); measured (mm):	2,5+1,5/-0,5	Р
	dimension marking e1max: prescribed (mm); measured (mm):	76;	Р
	dimension marking e2max: prescribed (mm); measured (mm)	75;	Р
	dimension marking e3: prescribed (mm); measured (mm):	20+5/-2;	Р
	dimension marking e4: prescribed (mm); measured (mm):	6;	Р
	dimension marking f: prescribed (mm); measured (mm):	18;	Р
	dimension marking z: prescribed (mm); measured (mm):	5	Р
	The dimensions of the fuse-base given in Figure 102		Р



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	IEC 60269-2		
Clause	Requirement + Test	Result - Remark	Verdict
	Dimensions:	<u></u>	P
	dimension marking g: prescribed (mm); measure (mm)		Р
	dimension marking h: prescribed (mm); measure (mm):	ed 210±1,5;	P
	dimension marking n1max: prescribed (mm); measured (mm):	75;	Р
	dimension marking n2max: prescribed (mm); measured (mm)	83;	Р
	dimension marking p1max: prescribed (mm); measured (mm):	68;	Р
	dimension marking p2: prescribed (mm); measu (mm)		Р
	dimension marking r min: prescribed (mm); measured (mm):	20;	Р
	dimension marking s max: prescribed (mm); measured (mm):	58;	Р
	dimension marking t min: prescribed (mm); measured (mm):	33;	Р
	dimension marking v: prescribed (mm); measure (mm):		Р
	dimension marking w1: prescribed (mm); measu (mm)		Р
	dimension marking w2: prescribed (mm); measu (mm)	red 25±0,7;	Р
	dimension marking x min: prescribed (mm); measured (mm):	20;	Р
	dimension marking y: prescribed (mm); measure (mm)	I	P
	dimension marking z max: prescribed (mm); measured (mm):	5	Р
7.1.2	Connections, including terminals cross-sectional ranges (Table 105) torques to be applied (Table 111) (lug terminal) .		Р
7.1.3	Contact surfaces should be silver plated	: Yes / No	Р
	If no test according to 8.10 are passed with dumi described in 8.10.1	mies	Р



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	IEC 6026	9-2		
Clause	Requirement + Test		Result - Remark	Verdict
7.1.5	Dynamic short-circuit withstand shall meet currents (Table 112)	ut-off	_	Р
7.1.7	Construction of fuse-link			Р
	Blade contacts made of solid material	:		Р
	If any other construction, manufacturer demo			N/A
	Endplates not permitted to protrude radially finsulation body			Р
	preferable to insulate the gripping lugs from I	ive parts		Р
	Fuse-links has an indicator	:		Р
	Electrically conductive parts of indicator not e from the fuse-link during operation			Р
7.2	Insulating properties			Р
	Creepage distances and clearances of fuses fuse-accessories meet requirements of IEC for overvoltage category III and pollution degrees.	60664-1		Р
7.7	I <sup>2</sup> t characteristics			P
	maximum pre-arcing I <sup>2</sup> t			Р
	(Table 7 of IEC 60269-1)	:	:	
	rated currents lower than 16 A (Table 106)	:		N/A
	maximum operating I <sup>2</sup> t for "aM" fuse-links			N/A
	(Table 107)			
	test No. 2 of the largest rated current of each homogeneous series (Table 20 of IEC 60269			
7.8	Overcurrent discrimination of "gG" fuse-links			Р
	(see 8.7.4, Table 108)	:		
7.9	Protection against electric shock			Р
	increased by means of partition walls and cov fuse-contacts			Р
	operation by authorized persons, instructed in electrical matters, using replacement handles according to this fuse system	5		Р



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IEC 60269-2				
Clause	Requirement + Test	Result - Remark	Verdict	
8	TESTS		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
	IEC 60269-1 applies with the following supplementary requirements		Р	
8.1.4	Arrangement of fuse and dimensions		Р	
	Requirements of 7.2 verified on fuse-bases:		Р	
	Creepage distances and clearances of fuse-links according to 7.2 are verified:		Р	
	Clearances verified on fuse-link inserted into model fuse-base according to Figure 111		Р	
8.1.6	Testing of fuse-holders		Р	
	In addition to test given in IEC 60269-1 tested according to Table 109:		Р	
8.2.2.1	Points of application of test voltage		Р	
	In addition to IEC 60269-1	1890V	Р	
	e) between isolated metal gripping-lugs and terminals of test fuse-bases:			
8.2.3.2	Value of test voltage	Not applicable	N/A	
	rated impulse withstand voltage in Table 110:		N/A	
8.2.3.3	Test method		N/A	
	5 impulses of both polarities and of shape 1,2/50 μs and rated withstand voltage level according to		N/A	
	Table 110:			
	minimum period between impulses are 1 s:			
8.2.4	Acceptability of test results		Р	
8.2.4.3	No flash-over or puncture shall occur during test :		Р	
8.2.5	Resistance to tracking		Р	
	plastic parts of fuse-links and fuse-bases tested and shall pass at PTI level stated by manufacturer:	500M	Р	
8.3	Verification of temperature rise and power dissipation		Р	
8.3.1	Arrangement of the fuse		Р	
	Tightened by torque (Nm):	32		
8.3.2	Measurement of the temperature rise		Р	
	Protective covers and fuse-carriers as provided by manufacturer mounted:		Р	
8.3.4.1	Temperature rise of the fuse-holder	See part I	Р	



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IEC 60269-2					
Clause	Requirement + Test	Result - Remark	Verdict		
	Dummy (Figure 105) Point at which temperature rise is measured (Figure 106)		Р		
8.3.4.2	Power dissipation of a fuse-link (Figure 106)	41,3W	P		
8.4.3.1	Verification of conventional non-fusing and fusing current	See part I	P		
	non-fusing current test – second test specimen are used for b)	See part I	Р		
8.4.3.5	Conventional cable overload protection test (for "gG" fuse-links only)	See part I	Р		
	Details of special test are given in Annex A	Not required	N/A		
Annex A	Special test for cable overload protection		N/A		
	For fuses with I <sub>n</sub> > 16 A of the sizes 00, 0, 1 and 2.:		N/A		
A.1	Arrangement of the fuse		N/A		
	Three fuse-links in fuse-bases mounted in a box:		N/A		
	Ambient air temperature outside the fuse box shall be (30 <sup>+5</sup> <sub>0</sub> °C)	°C	N/A		
A.2	Test method and acceptability of test results		N/A		
	1,13 I <sub>n</sub> flowed through the fuse-links for conventional time (see Table 2 of IEC 60269-1):	A for s	N/A		
	Non of fuse-links operated:		N/A		
	Test current raised without interruption within 5 s to 1,45 I <sub>n</sub>	А	N/A		
	One fuse-link operated within conventional time:		N/A		
8.5.5.1	Verification of the peak withstand current of a fuse- base	Not applicable	N/A		
	not be carried out , if this has already been verified during the breaking capacity test of fuse-links with the highest rating of the size		N/A		
8.5.5.1.1	Arrangement of the fuse		N/A		
-	single-phase type, 8.5.1 of IEC 60269-1		N/A		
	peak values of the test currents (Table 112):				
	maximumum values (see 8.5.5.1.3)				
	dummy fuse-link (Figure 101):				
8.5.5.1.2	Test method		N/A		



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Clause	Requirement + Test		Result - Remark	Verdict	
	fuse-base 1 (Figure107) resilient spring travel is limited to elastic range. contacts opened up three times			N/A	
	fuse-base 2 (see 8.11.1.2)  F <sub>max</sub> according to Table 118			N/A	
8.5.5.1.3	Acceptability of test results			N/A	
	fuse-links not be ejected			N/A	
	no signs of arcing or welding or other damage			N/A	
8.5.8	Acceptability of test results			N/A	
	Fuse or circuit-breaker not operate during this t	test		N/A	
8.7.4	Verification of overcurrent discrimination			Р	
	verified by I <sup>2</sup> t values evaluated from the recorderesults	ed test		Р	
	Arrangement of the samples as for the breaking capacity test	ıg		Р	
	two samples tested at the r.m.s. prospective te- current I, corresponding to minimum pre-arcing		1) 2)	Р	
	the other samples tested at the r.m.s. prospect test current I, corresponding to operrating I <sup>2</sup> t	tive	3) 4)	Р	
	test voltage (V)	:		April 1982	
	The values of I²t lie within corresponding limits specified in Table 113		***	P	
8.9	Verification of resistance to heat			Р	
	Tests apply to fuse-link and fuse-base			Р	
	Fuse-holder with fuse-links having maximum predissipation are cyclically loaded as pre-treatment			Р	
	After cooling to normal temperature			P	
	breaking capacity tested at I <sub>1</sub> (see 8.5)	:	I₁ = 120kA		
	Fuse-links with organic material			N/A	
	Fuse-holder with fuse-links having maximum pedissipation are cyclically loaded as pre-treatment				
	After cooling to normal temperature	· · · · · · · · · · · · · · · · · · ·	I <sub>1</sub> =	N/A	
	breaking capacity tested at I <sub>1</sub> and I <sub>5</sub> (see 8.5)	:	l <sub>5</sub> =		
8.9.1	Fuse-base			Р	



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Clause	Requirement + Test	Result - Remark	Verdict		
	test below apply if it is not obvious that components are not affected adverselly by given temperature and withdrawal forces		P		
8.9.1.1	Test arrangement		P		
	Figure 105 and 108		P		
	Test se-up in heating chamber		Р		
8.9.1.2	Test method		P		
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h		Р		
	160% rated current for 2 h:	160% I <sub>n</sub> =1008A	Р		
	Test voltage	50 V	7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
	3 min after switching off		P		
	tensile force F <sub>max</sub> (see Table 118) exerted for 15 s	F <sub>max</sub> =			
8.9.1.3	Acceptability of test results		P		
	Contact pieces not have moved to affect the further use		Р		
	Dimensions of Figure 102 are considered		Р		
	Insulating mounting part no broken and no show any signs of cracks		Р		
8.9.2	Fuse-links with gripping lugs of moulded material or of metal fixed in moulded material	No such part	N/A		
8.9.2.1	Test arrangement		N/A		
	Figure 108		N/A		
8.9.2.2	Test method		N/A		
	Temperature of (80 <sup>+5</sup> <sub>0</sub> )°C for 2 h		N/A		
	150% rated current for conventional time:	A for h	N/A		
	Test voltage:	V	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	3 min after fuse-link operated or conventional time expired	E -	N/A		
	tensile force F <sub>max</sub> (see Table 118) exerted for 15 s	F <sub>max</sub> =			
3.9.2.3	Acceptability of test results		N/A		
	Gripping lugs remain fully operational		N/A		
	Dimensions of Figure 101 (d and c <sub>2</sub> ) not be exceeded by more than 2 mm		N/A		
8.10	Verification of non-deterioration of contacts and direct terminal clamps		Р		



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Clause	Requirement + Test		Result - Remark	Verdict
8.10.1	Arrangement of the fuse			P
	Figure 105			Р
	for lug terminals, torgue in Table 111	:	32 Nm	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Insulation of conductors removed over the water length			P
8.10.1.2	Direct terminal clamps			Р
	Test performed on 10 direct terminal clamps fuse-bases	of five		Р
	Distance between fuse-base centres of at let times e <sub>2</sub> (see Figure 101)	ast three		Р
	Torque of tightened of screws	:	Nm	We object year 1 (1997) 1 (199
	Conductor cross-section	:	mm <sup>2</sup>	Total And The Company of the Company
8.10.2	Test method			P
	Test current (A) for load period	:	787,5A	Р
	Duration (s) of load period	:	1h	P
	Duration (s) of no-load period	:	0,4h	Р
	Test voltage (V)	:	50V	
	a) Test of 50 cycles, measured values did n exceed the limits given in subsequent parts IEC 60269		(see appended table)	P
	b) Test of 250 cycles, measured values did exceed the limits given in subsequent parts IEC 60269		(see appended table)	Р
	c) Test of 500 cycles, measured values did exceed the limits given in subsequent parts IEC 60269		(see appended table)	Р
	d) Test of 750 cycles, measured values did exceed the limits given in subsequent parts IEC 60269		(see appended table)	Р
8.10.2.1	Contacts			Р
	Points between voltage drop is measured			Р
	(A and B in Figure 106)			
	Withdrawal force (Table 118); measured forc 250 cycles (N)		1) 2)	Р
			3)	



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Clause	Requirement + Test	Result - Remark	Verdic	
	Withdrawal force (Table 118); measured force after 750 cycles (N)	1) 2)	Р	
		3)		
	If measured values too low, test of 8.5.5.1:		N/A	
8.10.2.2	Direct terminal clamps		P	
	Points between voltage drop is measured (Figure 110)		Р	
	Test sequence for all types conductors (see Table 116)		Р	
	Verification of temperature rise (see 8.3.4.1) (see figure 110)		Р	
8.10.3 	Acceptability of test results		Р	
3.10.3.1	Contacts		Р	
	Limit value after 250 <sup>th</sup> cycle ≤ 15%		P	
	Limit value after 500 <sup>th</sup> cycle ≤ 30%		P	
	Limit value after 750 <sup>th</sup> cycle ≤ 40%		P	
	Difference between last and first measurement of temperature rise less than 20 K		Р	
3.10.3.2	Direct terminal clamps		P	
	Permissible tolerance for resistance $R_{cl0}$ for Al conductors : $R_{cl 0 max} \le 2 R_{cl 0 min}$		Р	
	Permissible changes of the resistance from R <sub>cl 50</sub> to R <sub>cl 750</sub> : see Table 117		Р	
	Copper or cleaned aluminium conductors:		Р	
	Uncleaned aluminium conductors:		N/A	
	Change from 50 <sup>th</sup> to 250 <sup>th</sup> cycle		Р	
	Change after 250 <sup>th</sup> to 500 <sup>th</sup> cycle		Р	
	Change after 500 <sup>th</sup> to 750 <sup>th</sup> cycle		P	
<u> </u>	Change between 50 <sup>th</sup> to 750 <sup>th</sup> cycle		P	
	Temperature rise at test spot F < 75K		P	
11	Mechanical and miscellaneous tests		Р	
11.1.1	Mechanical strength of fuse-holders		P	
	Test set-up subjected to temperature rise test at rated current	630A	Р	



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Clause	Requirement + Test	Result - Remark	Verdict		
	fuse-link or fuse-carrier are withdrawn and inserted into fuse-base 100 times	100 times	Francisco Pagas de la Companya de la		
	All parts are intact and function normally		P		
	Test set-up subjected to further temperature rise test at rated current (values obtained are not more than 5 K or 15 % above the values from temperature-rise test prior)	Max. 53K	Р		
8.11.1.2	Mechanical strength of the fuse-base				
	Test-link inserted three times in the fuse-base: (Dimensions of blade contacts see Figure 101) (Withdrawal force F lied within limits in Table 118)		Р		
	Steel screws are fastened three times at the terminals, torque of 1,2 times value specified by manufacturer or value of Table 111		Р		
	Contact pieces not have moved to affect the further use		Р		
	Insulating mounting part no broken and no show any signs of cracks		Р		
8.11.1.8	Impact resistance of gripping-lugs of moulded material or of metal fixed in moulded material		N/A		
8.11.1.8.1	Test arrangement		N/A		
B.11.1.8.2	Facility is given in Figure 109		N/A		
	One fuse-link(150±5)°C for 168 h		We design the second se		
	Another one15°C for 72 h		The state of the s		
<u> </u>	One impact on each of gripping-lugs		N/A		
3.11.1.8.3	Acceptability of test results		N/A		
	No damage capable of hindering their further use		N/A		
	No bent out by more than 3 mm		N/A		
	Coupling with a handle (Figure 103) not are hindered		N/A		
3.11.2.3	Verification of resistance to rusting		N/A		
3.11.2.3.1	According to ISO 6988 cyclic moist atmosphere containing 0,2% SO2 (SFW 0,2 S) for 1 cycle		N/A		
3.11.2.3.2	Optional test (severe environmental conditions)		N/A		



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Clause	Requirement + Test		Result - Remark	Verdi
	Fuse-links and fuse-bases for used in environg of pollution degree ≥3 tested with SFW 2,0 s	3		N/A
	for 5 cycles			
	They marked accordingly	:		N/A
8.11.2.4 ———	Non-deterioration of insulating parts of fuse- fuse-base	link and		Р
8.11.2.4.1	Test method			
	Period 168 h	:	168	Amount A section of the section of t
	for equipment comprising moulded elements support live parts (150±5)°C	to	150	The state of the s
	for covers (100±5)°C			2 1000 C 4 1 1000 C 4
	Period greater than 1 h	:	1h	**************************************
	for sealing compounds; stability of marking(150±5)°C			The state of the s
	After cooling to ambient temperature the folloare tested.	wing		P
	Fuse-links: breaking capacity with $I_1$ and $I_2$ .	:		P
	Fuse-base: mechanical strength in accordar 8.11.1.2	nce with		Р
.11.1.2	Mechanical strength of the fuse-base			P
	Test-link inserted three times in the fuse-base	·:		P
	(Dimensions of blade contacts see Figure 10	1)		
	(Withdrawal force F lied within limits in Table1	18)		
	Steel screws are fastened three times at the terminals, torque of 1,2 times value specified manufacturer or value of Table 111	by :		Р
	Contact pieces not have moved to affect the fuse	urther		Р
	Insulating mounting part no broken and no sho signs of cracks	ow any		Р
11.2.4.2	Acceptability of test results	_		P
_	Not have changed of positions of fuse-base co to correct functioning	ontacts		Р
	No fracture nor any signs of fracture on insulat body with terminals	ing		Р
	Mechanical strength of cemented joints not im	paired		P



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			7143 001 Fatt II			
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Clause	Requirement + Test	Result - Remark	Verdict			
	Sealing compounds not shifted to extent permitting live parts to exposed		Р			
	Fuse-links operate correctly		P			
	Marking are durable and easily legible		P			