

Technical Construction File EN 60269-1:2007+A2:2014 Low-voltage fuses - Part 1: General requirements	
Report reference No.....	TLZJ23120553204
Compiled by (+ signature).....	Stephen Zhang / Test Engineer
Approved by (+ signature).....	Kosco Vent / Project Manager
Date of issue.....	December 08, 2023
Reviewing laboratory.....	Shanghai Global Testing Services Co., Ltd.
Reviewing location.....	Floor 3rd, Building D-1, No. 128, Shenfu Road, Minhang District, Shanghai, China.
Applicant.....	Zhejiang Changcheng Trading Co., Ltd.
Address.....	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China
Manufacturer.....	CNC Electric Group Zhejiang Technology Co., Ltd.
Address.....	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China
Factory.....	The same as applicant
Address.....	
Standard.....	<input checked="" type="checkbox"/> EN 60269-1:2007+A2:2014
Review Report Form No.....	60269-1
TRF originator.....	GTS
Master TRF.....	Reference No. EN 60269-1:2007+A2:2014
Review procedure	GTS
Type of Review object.....	Fuse base
Trademark.....	/
Model/type reference.....	NT00C(SIST),NT00,NT0,NT1,NT2,NT3,NT4
Rating.....	690V 630A



Possible review case verdicts:

- review case does not apply to the test object..... : N(.A.)
- review object does meet the requirement..... : P(ass)
- review object does not meet the requirement..... : F(ail)

General remarks:

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

The review results presented in this report relate only to the object reviewed.

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Testing:

Date of receipt of review item:

December 05, 2023

Date(s) of performance of review:

December 05, 2023 to December 08, 2023

General product information:

Fuse base

Summary of reviewing:

This review report includes:

Annex I: 2 page(s) of photo documentation.

Copy of marking plate

Fuse base,

Model

NT00C(SIST),NT00,NT0,NT1,NT2,NT3,NT4

CNC Electric Group Zhejiang Technology Co., Ltd.

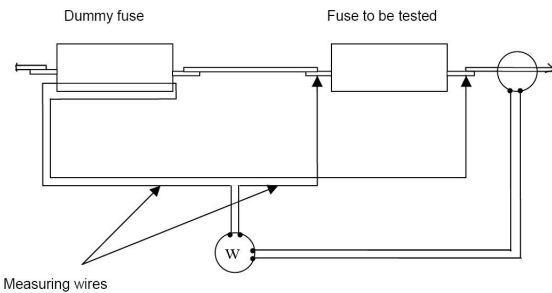
Marking

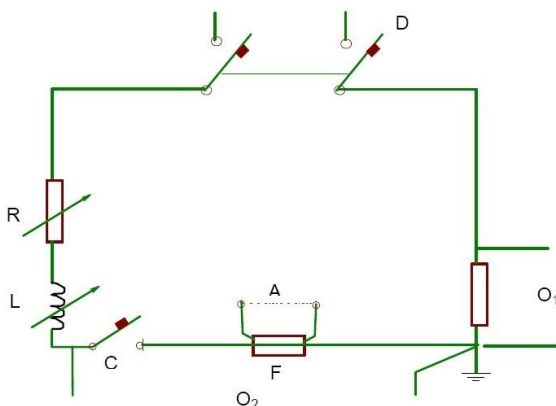


EN 60269-1			
Clause	Requirement- Test	Result - Remark	Verdict
1	General		-
1.1	Scope and object		-
1.2	Normative references		-
2	Terms and definitions		-
2.1	Fuses and their component parts		P
2.2	General terms		P
2.3	Characteristic quantities		P
3	Conditions for operation in service		P
3.1	Ambient air temperature (Ta)		P
3.2	Altitude		P
3.3	Atmospheric conditions		P
3.4	Voltage		P
3.5	Current.		P
3.6	Frequency, power factor and time constant		P
3.7	Conditions of installation		P
3.8	Utilization category		P
3.9	Discrimination of fuse-links		P
4	Classification		P
5	Characteristics of fuses		P
5.1	Summary of characteristics		P
5.2	Rated voltage		P
5.3	Rated current		P
5.4	Rated frequency (see 6.1 and 6.2)		P
5.5	Rated power dissipation of a fuse-link and rated acceptable power dissipation of a fuse-holder		P
5.6	Limits of time-current characteristics		P
5.7	Breaking range and breaking capacity		P
5.8	Cut-off current and I^2t characteristics		P
6	Markings		P
6.1	Markings of fuse-holders		P
6.2	Markings of fuse-links		P
6.3	Marking symbols		P
7	Standard conditions for construction		P
7.1	Mechanical design		P
7.2	Insulating properties and suitability for isolation		P
7.3	Temperature rise, power dissipation of the fuse-link and acceptable power dissipation of a fuse-holder		P
7.4	Operation		P
7.5	Breaking capacity		P
7.6	Cut-off current characteristic		P

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Clause	Requirement- Test	Result - Remark	Verdict
7.7	I ² t characteristics		P
7.8	Overcurrent discrimination of fuse-links		P
7.9	Protection against electric shock		P
7.10	Resistance to heat		P
7.11	Mechanical strength		P
7.12	Resistance to corrosion		P
7.13	Resistance to abnormal heat and fire		P
7.14	Electromagnetic compatibility		P
8	Tests		P
8.1	General		P
8.1.5	Testing of fuse-links		P
	This requirement is applicable for all tests which have to be performed at rated voltage.		P
	However, tests which are allowed to be performed at any convenient low voltage are allowed to be conducted, by the agreement of the manufacturer, at d.c. or a.c. 50 or 60 Hz for fuselinks rated dc and/or 50 Hz and/or 60 Hz, providing that the kind of current or frequency does not influence the test results.		P
	The test results are deemed to cover the relevant requirements if it is verified that the temperature rises according to 8.3. for the highest rated current do not differ by more than 2.5 % when tested with dc 50/60 Hz a.c.		P
	Pre-arcing and operating times less than 2 s shall be determined from oscillograms, or other methods meeting the requirements of LTI G2.		P
	The instruments for the measurement of current voltage and internal resistance of the fuselinks shall be at least of Class 0.5 or according to LTI G2 and shall show (or permit to determine) the true r.m.s. value.		P
8.1.5.1	Complete tests		P
	Type of current for the internal resistance measurement: dc.		P
	For some fuses, the maximal allowed measuring current 0.1 I _n stated in the standard may lead to a temperature rise.		P
	A lower test current value shall then be used, but not lower than 0.05 I _n for accuracy reason.		P
8.1.5.2	Testing of fuse-links of a homogenous series.		P

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	If the applicant requests testings of fuse-links of a homogenous series, he must supply to the test station all technical details required by IEC 60269-1, § 8.1.5.2.		P
	The homogenous series is established by the test station under examination of these details.		P
	The arc-extinguishing medium is deemed to be the same if the quality is the same e.g. when using sand of same purity and same grain size.		P
	When the fuse-link contacts differ in a range of ratings and if it is not possible to determine the least favourable contact, the range shall be parted in several series, each corresponding to the same contact.		P
	The Certificate and the TRF shall include the list(s) of the fuses of the homogenous series.		P
8.2	Verification of the insulating properties and of the suitability for isolation		P
8.2.1	Arrangement of the fuse-holder.		P
	If the manufacturer asks the certification of a fuse intended to be replaceable while live, he shall supply the device for replacing, or the fuse carrier		P
	. This is for guarantee of the user's safety.		P
8.2.2.3	Test method		P
8.2.2.3.2	Immediately after the humidity treatment the measurement should be carried out as soon as possible but not more than 15 minutes.		P
8.3	Verification of temperature rise and power dissipation.		P
8.3.1	Arrangement of the fuse		P
	When testing rated currents according to R 20 of ISO standard 3 (not mentioned in table 17) the applicable cross-section of the next smaller rated current shall be selected.		P
8.3.2	For ac fuses with Ferro magnetic parts, the test current shall be in a.c.		P
8.3.3	Measurement of the power dissipation of the fuse-link		P
	gives the following test conditions for ac fuse with Ferro magnetic parts:		P
	In ≤ 200 A measurements with :		P

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	- either ac wattmeter - or pre-heating in a.c., measurements in d.c. - or the following circuit diagram		P
	$I_n > 200 \text{ A}$: - either pre-heating in a.c., measurements in d.c. - or the following circuit diagram		P
	For d.c. fuses the test current shall be d.c.		P
	Circuit diagram 		P
8.4	Verification of operation		P
8.3.4	Test method		P
8.3.4.1	Temperature rise of fuse-holder		P
	Tolerance of the power loss of the fuse-link or dummy fuse-link: +5/-0 % of the rated acceptance value.		P
8.4.3	Test method and acceptability of test results		P
8.4.3.1	Fuse-links or dummy fuse-links having the specified power loss shall be supplied by the manufacturer		P
	a) The tolerance of the r.m.s. equivalent value of the test current over the test shall be +3/-0%.		P
	b) The tolerance of the r.m.s. equivalent value of the test current over the test shall be +3/-0%.		P
	This is to avoid discrepancies because the standard does not prescribe tolerances.		P
8.4.3.2	Verification of rated current of "g" fuse-links.		P
	Same requirement as 8.4.3.1.a).		P
8.4.3.4	Overload		P
	The tolerance on the r.m.s. value of the test current measured over the period of 5 s shall not exceed $\pm 2 \%$, however momentarily the test current may have a tolerance of $\pm 5 \%$.		P
8.5	Verification of the breaking capacity		P
	Test method		P
8.5.5.1	Tests Nos. 1 and 2		P

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	For a.c., if during test No. 1 the requirements of test No. 2 are met during one or more tests, then these tests need not be repeated as part of test No. 2.		P
	For d.c., if during test No. 1 arcing commences at a current equal to or greater than $0.5 I_1$, test No. 2 need not be performed.		P
	For a.c., if the prospective current necessary to comply with the requirements of test No. 2 is greater than the rated breaking capacity, tests Nos. 1 and 2 shall be replaced by a test made with the current I_1 , on six samples at six making angles which differ approximately 30° between each test.		P
	The detailed results shall be mentioned in the Test Report.		P
8.5.5.2	For one of the three tests No. 2 and test No. 4, the voltage shall be maintained:		P
	- 30 s after operation of fuse-links not containing organic materials, in their body or filler ;		P
	- 5 min. after operation of the fuse-links in all other cases, switching over to another source of supply being permitted after 15 s if the switching time (interval without voltage) does not exceed 0.1 s.		P
	For all other tests, the recovery voltage shall be maintained at the same value for 15 s after operation of the fuse.		P
			P
	<p>O₁ = measurement of current (A₁ , A₂ of figure 6)</p> <p>O₂ = measurement of voltage (B₀₀, B₀, B₁ or B₂ of figure 6)</p>		P
8.5.3	Measuring instruments		P

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	The frequency response of the measuring circuit shall be minimum 20 kHz in order to measure the breaking overvoltage.		P
8.5.4	Calibration of test circuit		P
	For test stations supplied by a generator, it is acceptable for calibration to be carried out at a voltage less than the test voltage.		P
	This proposal allows prospective current tests to be made repeatedly without undue stress to the generator supply.		P
	However, as some short-circuit generators do not exhibit a linear relationship, care should be exercised in application of this procedure to ensure that the rated prospective current is available for the test.		P
	In any case, the prospective test current shall not be made at value less than 75 % of the test voltage relative to the rated value, the linearity characteristic having been predetermined by test at periodic intervals.		P
8.5.8	Acceptability of test results		P
	The statement that the fuse link shall remain in one piece before its removal from the fuse carrier or test rig shall be interpreted as follows: the performance shall be judged unsatisfactory if fragments of the barrel or filler material become detached from the fuse-link prior to its removal from the fuse carrier or test rig.		P
	If there is no doubt regarding the ability of the fuse-link to remain intact during or after removal, the insulation resistance shall be measured in the fuse carrier or test rig.		P
8.6	Verification of the cut-off current characteristics		P
8.7	Verification of I_{2t} characteristics and overcurrent discrimination		P
8.7	Verification of I^2t characteristic and overcurrent discrimination		P
8.7.3	Verification of compliance for gG and gM fuse-links at 0.01 s		P
	The values of prearcing I^2t at 0.01 s to be considered are those announced by the manufacturer (see time-current characteristic).		P

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Clause	Requirement- Test	Result - Remark	Verdict
8.11.2.1	Verification of freedom from season cracking		P
	The test station decides to make the test from information provided by the manufacturer on the copper rate of current-carrying parts (copper content).		P
8.8	Verification of the degree of protection of enclosures		P
8.9	Verification of resistance to heat		P
8.10	Verification of non-deterioration of contacts		P
8.11	Mechanical and miscellaneous tests		P

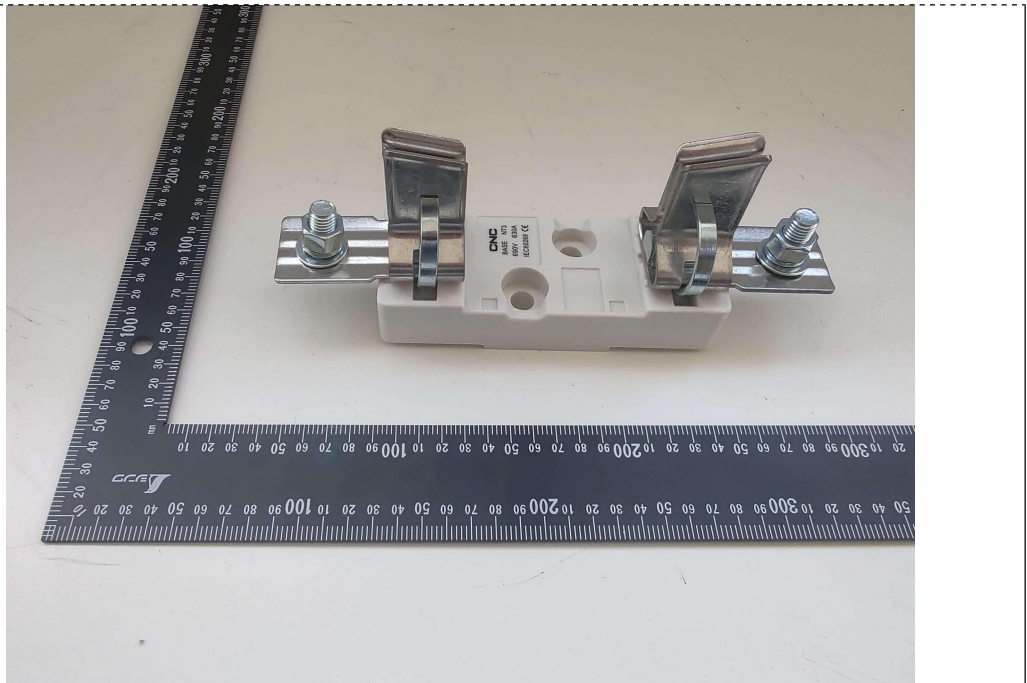
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Type of equipment, model: Fuse base, NT00C(SIST),NT00,NT0,NT1,NT2,NT3,NT4

Details of:

View:

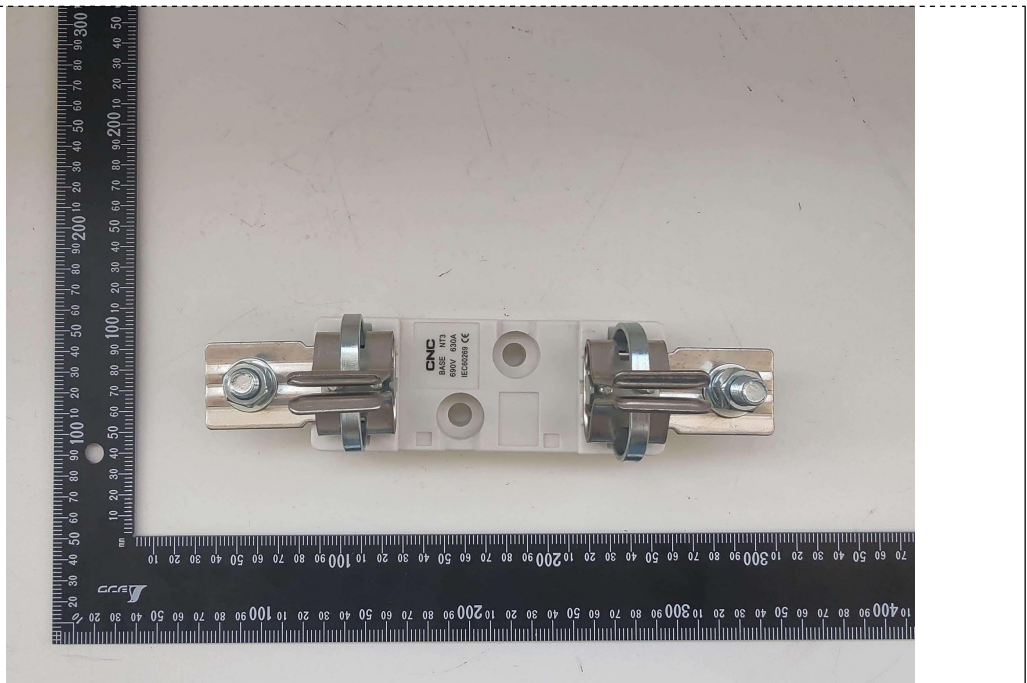
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Details of:

View:

general

front

rear

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left

top

bottom



- End of Annex I -