

IEC**IECEE**
CB
SCHEME

Ref. Certif. No.

SE-46496IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEMESYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC**CB TEST CERTIFICATE****CERTIFICAT D'ESSAI OC**Product
Produit

Contactor for household and similar purposes

Name and address of the applicant *
Nom et adresse du demandeurZhejiang Chint Electrics Co., Ltd., Chint High-tech Industrial Zone,
North Baixiang 325603, Wenzhou, Zhejiang, CHINAName and address of the manufacturer
Nom et adresse du fabricant

Same as applicant

Name and address of the factory
Nom et adresse de l'usine

Same as applicant

Ratings and principal characteristics
Valeurs nominales et caractéristiques principalesU_e= 400V~ (4-Pole)
I_e= I_{th}= 63A, AC-7a
U_i= 500V~, U_s= 220/230V (AC/DC), I_r= 3000A, I_q= 6000ATrademark (if any)
Marque de fabrique (si elle existe)**CHINT**Model / Type Ref.
Ref. De type

NCH8-63

Additional information (if necessary)
Les informations complémentaires (si nécessaire)A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

IEC 61095:1992 and A1


As shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue partie de ce Certificat

607780-1

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**Intertek Semko AB
Box 1103
SE-164 22 Kista, Sweden
Int +46 8 750 00 00**Intertek ETL SEMKO**

Date: 10 August 2006

Signature:



SUZ/ma

Intertek Testing Services Ltd, Shanghai, ETL SEMKO
Building No. 86
1198 Qinzhou Road (North)
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KINA

Handled by
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Reference
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Your Reference
JSH006050763 / Joyce Xu

10 August 2006

Intertek S Mark Certificate with No. 607780

We are pleased to enclose the Intertek S Mark Certificate you have applied for.

The S Mark – a marketing resource

S Mark Certification is a way of making sure that your brand's equity will not be put at risk by a safety failure of the product. The use of the S Mark in your marketing is also a way of adding value to your brand and promoting trust among your customers.

The S Mark is a European safety mark offered by Intertek ETL SEMKO. The letter 'S' tells 450 million people in Europe that your product is safe. The word for safety starts with an 'S' in most of the languages in Europe, e.g. Safety, Sicherheit, Seguridad, Sécurité, Sicurezza, and Säkerhet.

As products become increasingly interchangeable, trust counts more than ever. This is why the S Mark is a key selling point. It is a well known symbol for safety and shows that Intertek has independently tested and certified the product's compliance to applicable European safety requirements. Critical consumers and retailers look for third-party validation to complement their CE marking, as it helps retailers to meet their product liability requirements, and make the consumers' buying process simpler.



Read more about the S Mark and how other companies use it to gain competitive advantage: www.etlsemko.com/s-mark

Mandatory factory inspections

In addition to your product certification, it is mandatory for inspections to be performed at your manufacturing site/s. The inspections are carried out by our inspectors or subcontractors. For details of the technical requirements for these inspections, please contact inspection.etlsemko@intertek.com.

Yours sincerely

Intertek Semko AB
Certification

Enclosure: Intertek S Mark Certificate



Intertek Semko AB

Torshamnsgatan 43, Box 1103, SE-164 22 Kista, Sweden
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Registered in Sweden: No SE556024059901, Registered office: As address

JSSE

1(1)

Zhejiang Chint Electrics Co., Ltd.
Chint High-tech Industrial Zone
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KINA

Handled by
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Your reference

10 August 2006

CB-Application(s) SE-46496

We have the pleasure to enclose a (the) requested CB-certificate(s) and the pertaining Test Report.

We also enclose a form for Identity Declaration (ID). The ID shall be filled in by you and be used to verify that the specimen to be submitted to other Certification Bodies is absolutely identical with the one we have tested. On the basis of these documents you may apply for a licence to use the national marks of the countries whose Certification Bodies have signed the agreement. The documents together with a specimen should be submitted in the country where approval is applied for and in accordance with the relevant national procedures.

Yours sincerely

Intertek Semko AB
Product Certification

Enclosure CB certificate(s)



Intertek Semko AB

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Telephone +46 8 750 00 00, Fax +46 8 750 60 30, www.sweden.intertek-etlsemko.com
Registered in Sweden: No SE556024059901, Registered office: As address

1(1)

IDENTITY DECLARATION

To _____

To be issued by the manufacturer

Certification Body, Name and Address

We declare that the electrical product

type designation _____

for which we apply for the licence to use your mark of conformity is identical in all respects (e.g. design, construction, properties, components) to the tested specimen for which the CB Certificate

No _____ Date _____

was issued by

Place / Date



Company

Legally binding signature of the manufacturer

TEST REPORT

IEC 61095

Electromechanical contactors for household and similar purposes

Report reference No	607780-1
Tested by (printed name and signature)	Erik Lundell 
Approved by (printed name and signature)	Bo Erlandsson 
Date of issue	2006-08-10
CB/CCA Testing Laboratory	Intertek SEMKO AB
Address	Thorshamnsgatan 43 Box 1103, SE-164 22 Kista SWEDEN
Testing location/ procedure.....	TL <input type="checkbox"/> RMT <input type="checkbox"/> SMT <input type="checkbox"/> WMT <input type="checkbox"/> TMP <input checked="" type="checkbox"/>
Testing location/ address	Chint High-tech Industrial Zone, North Baixiang 325603, Wenzhou, Zhejiang, P.R.China
Applicant's name	Zhejiang Chint Electrics Co., Ltd.
Address	Chint High-tech Industrial Zone, North Baixiang 325603, Wenzhou, Zhejiang, P.R.China
Test specification	
Standard	IEC 61095:2000 / Edition 1.1 EN 61095:1993 + A11:1996 + A1:2000
Test procedure	CB / CCA
Procedure deviation	N/A
Non-standard test method	N/A
Test Report Form	
Test Report Form No.....	IEC61095A
TRF originator	EZU
Master TRF	dated 01-12
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Test item description	AC contactor
Trademark	CHNT
Model / type reference	NCH8-63
Manufacturer.....	Same as applicant
Rating(s)	U _e = 400V~, I _e = 63A

TRF No.: IEC61095A

Intertek Semko AB

TRF originator: EZU

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 Telephone +46 8 750 00 00, Fax +46 8 750 60 30, www.sweden.intertek-etlsemko.com
 Registered in Sweden: No SE556024059901, Registered office: As address



Test items particulars :

- number of poles : 4
- method of control : **Automatic** / non-automatic / semi-automatic

Rated and limiting values for main circuits :

- rated operational voltage U_e (V)..... : 400V~
- rated insulation voltage U_i (V)..... : 500V~
- rated impulse withstand voltage U_{imp} (V) ... : N/A
- conventional free air thermal current I_{th} (A) : 63A
- conventional enclosed thermal current I_{the} (A) : N/A
- rated operational currents I_e (A) or rated operational powers : 63A
- rated frequency (Hz) : 50/60Hz

Normal load and overload characteristics..... :

- ability to withstand motor switching overload currents : N/A
- rated making capacity..... : See utilization category
- rated breaking capacity..... : See utilization category
- conventional operational performance..... : See utilization category

Rated conditional short-circuit current : $I_r=3000A$, $I_q=6000A$

Utilization category : AC-7a

Control circuits:

- kind of current..... : AC
- rated frequency..... : 50/60Hz
- rated control circuit voltage U_c : N/A
- rated control supply voltage U_s : 220/230V (AC/DC)
- suitability to be connected to SELV circuits . : N/A

Auxiliary circuits : N/A

Pollution degree : Pollution degree 1 / 2 / 3 / 4

Test case verdicts

- Test case does not apply to the test object ... : N/A
- Test item does meet the requirement : P(ass)
- Test item does not meet the requirement : Testing

Testing

Date of receipt of test item : May 29, 2006

Date(s) of performance of test : From May 30, 2006 to July 10, 2006

General remarks :

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.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

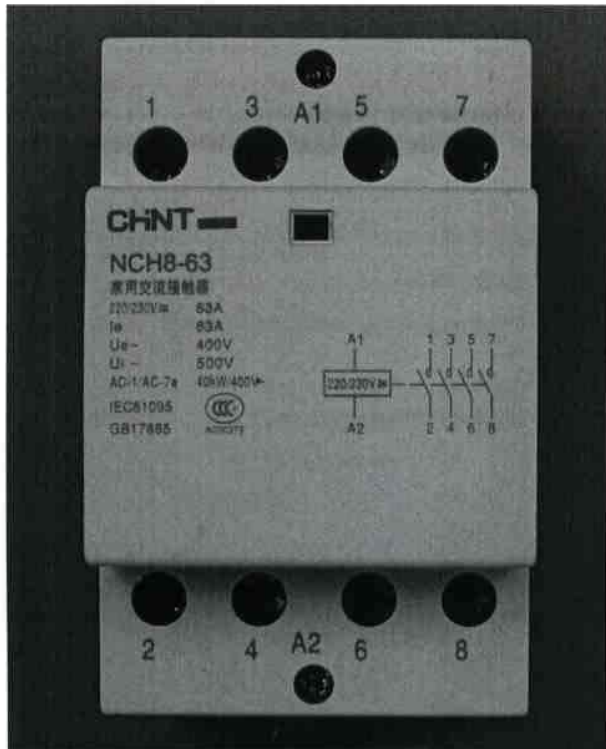
The test results presented in this report relate only to the item(s) tested.

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

"(see Annex #)" refers to an annex appended to the report.

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

Copy of marking plate and summary of testing (information/comments):



IEC 61095			
Cl.	Requirement – Test	Result	Verdict
6	PRODUCT INFORMATION		
6.1.1	Identification:		
	- a) manufacturer's name or trade mark	CHNT	P
	- b) type designation or serial number	NCH8-63	P
	- c) number of this standard (on nameplate)	IEC 61095	P
6.1.2	Characteristics, basic rated values and utilization		
	- d) rated operational voltages	400V~	P
	- e) utilization category and rated operational currents (or rated powers), at the rated operational voltage	AC-7a	P
	- f) rated frequency	50/60Hz	P
	- g) rated duty with indication of the class of intermittent duty	Continuous duty; Intermittent duty: class 30	P
	Associated values:		
	- h) rated making and breaking capacities	See item e)	P
	Safety and installation:		
	- i) rated insulation voltage	500V~	P
	- j) rated impulse withstand voltage		N/A
	- k) IP code (on enclosure)		N/A
	- l) pollution degree	2	P
	- m) rated conditional short-circuit current and type, current rating and characteristics of the associated SCPD	I _r =3000A, I _q =6000A, CBO: NB1-63, C63	P
	- n) switching overvoltages	≤1200V	P
	Control circuits: (on the coil or on the contactor)		
	- o) rated control circuit voltage (U _c), nature of current and rated frequency		N/A
	- p) nature of current, rated frequency and rated control supply voltage (U _s)	220/230V (AC/DC)	P
	For contactors with control circuit for a SELV supply:		
	- q) suitability of the control circuit to be connected to a SELV supply		N/A
	Auxiliary circuits:		
	- r) ratings of auxiliary circuits		N/A
6.2	Marking		
	Markings are indelible and easily legible		P
	Markings on contactor, preferably on nameplate:		
	- manufacturer's name or trade mark	CHNT	P
	- type designation or serial number	NCH8-63	P

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Cl.	Requirement – Test	Result	Verdict
	Following information (marked and visible after mounting):		
	- direction of movement of the actuator.....:		N/A
	- indication of the position of the actuator.....:		N/A
	- approval or certification mark (on nameplate) ..:		P
	- symbol, colour code or letter code: (for miniaturized contactors)		N/A
	- terminal identification and marking	A wiring diagram is provided on the product surface and marked with "1/2/3/4/5/6/7/8 A1/A2"	P
	- IP code and class of protection against electric shock.....:		N/A
	Markings not on screw or removable parts		P
	Data under d) to j) and l) to r) on nameplate, or on contactor, or in manufacture's published literature		P
	Marking of terminals in accordance with annex A of this standard		P

8	CONSTRUCTIONAL AND PERFORMANCE REQUIREMENTS		
8.1.1	Materials		
8.1.2	Strength of screws or nuts other than those on terminals which are intended to be operated during installation or maintenance		P
8.1.3	Clearances and creepage distances		
	a) Uimp is declared		
	Rated impulse withstand voltage Uimp (V)	Not declared	
	minimum clearances (mm).....:		
	measured clearances (mm)		N/A
	minimum creepage distances (mm).....:		
	measured creepage distances (mm)		N/A
	b) Uimp is not declared (see table 2)		
	1. clearances (mm)	3mm <i>Between live parts of difference polarity</i>	
	measured clearances (mm)	8,0mm	P
	2. minimum clearances (mm).....:	3(6)mm <i>Between live parts and exposed conductive parts</i>	
	measured clearances (mm)	No exposed conductive parts	N/A
	1. minimum creepage distances (mm).....:	3mm <i>between live parts which are separated when the contactor is in the open position</i>	
	measured creepage distances (mm)	>8,0mm	P

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Cl.	Requirement – Test	Result	Verdict
	2. minimum creepage distances (mm).....:	4mm <i>between live parts of different polarity</i>	
	measured creepage distances (mm)	>8,0mm	P
	3. minimum creepage distances (mm).....:	3(6)mm <i>Between live parts and exposed conductive parts</i>	
	measured creepage distances (mm)	No exposed conductive parts	N/A
8.1.4	Actuator (for manually operated actuator)		
	Insulation		N/A
	Direction of movement (comply with IEC 60447:74)		N/A
	Mounting		N/A
8.1.5	Indication of the OFF and ON positions		
	Indicating means	By a mechanical indicator	P
	if symbols are used, comply with IEC 60417.....:		N/A
	Only push-button to open circuit is red or marked "O"		N/A
	Colours push-buttons, illuminated push-buttons and indicator lights comply with IEC 73		N/A
	Indication by the actuator		N/A
8.1.6	Terminals		
	All parts of terminals which maintain contact and carry current shall be of metal having adequate mechanical strength		P
	Terminal connections shall be such that necessary contact pressure is maintained		P
	Terminals shall be so constructed that the conductor is clamped between suitable surfaces without damage to the conductor and terminal		P
	Terminals shall not allow the conductors to be displaced, or be displaced themselves in a manner detrimental to the operation of the contactor and the insulation voltage shall not be reduced below the rated values		P
	Connecting capacity		
	type of conductors	Rigid-solid or rigid-stranded	
	minimum cross-sections of conductors (mm ²).....:	1,5 mm ²	
	maximum cross-sections of conductors (mm ²).....:	16 mm ²	
	number of conductors simultaneously connectable to the terminal	1 for 16 mm ² and 2 for 1,5 mm ²	
	Connection		

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Cl.	Requirement – Test	Result	Verdict
	Terminals for connection to external conductors shall be readily accessible during installation		P
	Clamping screws and nuts shall not serve to fix any other component		P
	Terminal identification and marking		
	terminals clearly and permanently identified (comply with IEC 60445)	1/2/3/4/5/6/7/8 A1/A2	P
	terminal intended exclusively for the neutral conductor: N.....		N/A
	protective earth terminal: symbol.....		N/A
8.1.7	Additional requirements for contactors provided with a neutral pole		
	pole intended only for connecting the neutral terminal: N.....		N/A
	the switched neutral pole not break before and not make after the other poles		N/A
	conventional thermal current.....		N/A
8.1.8	Provisions for earthing		
	Constructional requirements		N/A
	the exposed conductive parts shall be electrically intrerconnected and connected to a protective earth terminal		N/A
	Protective earth terminal		N/A
	the protective earth terminal shall be readily accessible		N/A
	the protective earth terminal shall be suitably protected against corrosion		N/A
	the protective earth terminal have no other function (except PEN)		N/A
	Protective earth terminal marking and identification		
	protective earth terminal is clearly and permanently identified		N/A
8.1.9	Enclosures		
	Design		
	the enclosure, when it is opened: all parts requiring access for installation and maintenance are readily accessible		N/A
	sufficient space shall be provided inside the enclosure		N/A
	the fixed parts of a metal enclosure are electrically connected to the other exposed conductive parts and connected to a terminal which enables them to be earthed		N/A

IEC 61095			
Cl.	Requirement – Test	Result	Verdict
	removable metal parts of the enclosure are not insulated from the part carrying the earth terminal		N/A
	removable parts of the enclosure are firmly secured to the fixed parts by a device		N/A
	for enclosures having a degree of protection IP 1X up to and including IP 4X, sufficient space be provided for establishing a drain-hole (comply with IEC 60947-1)		N/A
	Enclosures have adequate mechanical strength		N/A
	no possible to remove any cover of the enclosure without the use of a tool		N/A
	if the enclosure is used for mounting push-buttons, it shall not be possible to remove the buttons from the outside of the enclosure		N/A
	Insulation		N/A
	if the enclosure is partly or completely lined with insulating material, then this lining is securely fixed to the enclosure		N/A
8.1.10	Degrees of protection of enclosed contactors		
	degree of protection : IP20 to front parts		P
8.3	Electromagnetic compatibility		
	Immunity: no tests are required		P
	Emission: no tests are required		P

TEST SEQUENCE A:				
3 samples: $I_{th} = 63A$, $I_e = 63A$, AC-7a				
		A1	A2	A3
9.3.3.3	Temperature-rise limits			
	ambient air temperature 10-40°C : 23°C			
	test enclosure W x H x D (mm x mm x mm) : Not applied			
	material of enclosure : Not applied			
	Main circuit, test conditions:			
	conventional free air thermal current I_{th} (A) : 63A			
	conventional enclosed thermal current I_{the} (A) .. : Not applied			
	cross-section of conductors (mm^2) : 16 mm^2			
	temperature-rise:	[K]	[K]	[K]
	Terminal (65K) : 47	45	49	P
	Parts intended to be touched but not hand-held: non-metallic (40K) : 15	14	11	P
	Control circuits:			
	temperature-rise:	[K]	[K]	[K]
	Terminal (65K) : 17	15	14	P

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Cl.	Requirement – Test	Result			Verdict
	Coils of electromagnets (Class B: $\leq 110K$)				
	temperature rise	[K]	[K]	[K]	
	-eight-hour duty (continuous duty) windings	52	45	46	P
	-intermittent duty windings	45	44	42	P
	Auxiliary circuits				
	temperature rise	Not applied			N/A
9.3.3.2	Operation and operating limits				
	rated control supply voltage U_s (V)	220/230V			
	limits of close satisfactorily at any value between 85% and 110% of rated control supply voltage U_s :	187V~253V			P
	limits of drop out and open fully are: 75% to 20% of rated control supply voltage U_s ...:	56V	57V	59V	P
	Limits for closing are applicable with the coil circuit resistance at +40°C				P
	Limits for drop-out are applicable with the coil circuit resistance at -5°C				P
9.3.3.5	Rated making and breaking capacities				
	utilization category	AC-7a			
	rated operational voltage U_e (V)	400V			
	rated operational current I_e (A) or power (kW) ...:	63A			
	Conditions, make/break operations:				
	- test voltage $U/U_e = 1,05$ (V)	L1: 421V L2: 421V L3: 421V			P
	- test current $I/I_e = 1,5$ (A)	L1: 94,6A L2: 94,6A L3: 94,6A			P
	- power factor	L1: 0,78 L2: 0,78 L3: 0,78			P
	- on-time (ms)	50ms			P
	- off-time (s)	10s			P
	- number of make/break cycles	50			P
	Behaviour and condition during and after the test:				
	- no permanent arcing				P
	- no flash-over between poles				P
	- no blowing of the fusible element in the earth circuit				P
	- no welding of the contacts				P

IEC 61095			
Cl.	Requirement – Test	Result	Verdict
	Dielectric test:		
	test voltage (2 U _e , minimum of 1000 V) for 1 min:	1000V~	
	No flashover or breakdown		P
	Characteristics of transient recovery voltage		
	only for category AC-7b		N/A
	Switching overvoltages		N/A

TEST SEQUENCE B				
3 samples: I _{th} = 63A, I _e = 63A, AC-7a		B1	B2	B3
9.3.3.4	Dielectric properties			
	a) Test of dielectric properties, rated impulse withstand voltage (U _{imp}) declared:			N/A
9.3.3.4.1	- rated impulse withstand voltage (V)			
	- test U _{imp} (V) (table 16)	4 kV		P
	b) Test of dielectric properties, rated impulse withstand voltage (U _{imp}) not declared			P
9.3.3.4.2	- rated insulation voltage U _i (V)	500V		
	value of test voltage:			
	- a) for the main circuit and for control and auxiliary circuits (are not covered by paragraph b)	1000 / 2000 / 2500 V a.c.		P
	- b) for control circuits and auxiliary circuits (unsuitable for connection to the main circuit).....	4000V / 2U _i +1000 V (2000V)		P
	- c) for contactors to be used in SELV (between live parts of safety extra-low voltage circuits and any other circuit).....	4000-V		N/A
	no disruptive discharge			P
9.3.3.6	Conventional operational performance			
	utilization category	AC-7a		
	rated operational voltage U _e (V)	400V		
	rated operational current I _e (A) or power (kW) ...:	63A		
	Conditions, make/break operations or make operation AC-7a:			
	- test voltage U/U _e = 1,05 (V).....	L1: 425V L2: 425V L3: 425V		P
	- test current I/I _e = 1,0 (A)	L1: 63,5A L2: 63,5A L3: 63,5A		P

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Cl.	Requirement – Test	Result	Verdict
	- power factor	L1: 0,79 L2: 0,79 L3: 0,79	P
	Conditions, break operation AC-7a:		
	- test voltage $U/U_e = 1,05$ (V).....	L1: 425V L2: 425V L3: 425V	P
	- test current I/I_e (A) = 1,0 (A)	L1: 63,5A L2: 63,5A L3: 63,5A	P
	- power factor	L1: 0,79 L2: 0,79 L3: 0,79	P
	- on-time (ms).....	50ms	P
	- off-time (s).....	10s	P
	- number of make/break cycles	30000	P
	Behaviour and condition during and after the test:		
	- no permanent arcing		P
	- no flash-over between poles		P
	- no blowing of the fusible element in the earth circuit		P
	- no welding of the contacts		P
	Dielectric test:		
	test voltage (2 U_e , minimum of 1000 V) for 1 min:	1000V~	
	No flashover or breakdown		P

	TEST SEQUENCE C		
	1 sample: $I_{th} = 63A$, $I_e = 63A$, AC-7a	C1	
9.2.1.2	Resistance to humidity		
	test Ca: damp heat (IEC 60068-2-3).....	4 days	P
	test voltage (2 U_e , minimum of 1000 V) for 1 min:		
	No flashover or breakdown		P
9.3.5	Ability to withstand overload currents (only for utilization category AC-7b)		
	test current (8 x I_e max) (A)		
	duration of test.....		
	After test contactor in the same condition		N/A
9.2.1.5	Resistance to rusting		

IEC 61095			
Cl.	Requirement – Test	Result	Verdict
	10 min in a 10% solution of ammonium chloride; 10 min in humid ambient; 10 min in heating cabinet at a temperature of 100°C		
	No signs of rust		P
	TEST SEQUENCE D 1 sample: $I_{th} = 63A$, $I_e = 63A$, AC-7a	D1	
9.2.6	Durability of marking		
	Marking durable and easily legible: 15 s water; 15 s petroleum spirit	Marking made by printing	P
9.2.5	Resistance to impact		
9.2.5.2.1	Pendulum hammer test (unenclosed contactors, exposed parts and partially enclosed contactors, covers and cover plates)		P
	10 blows with a shock energy of 0,5 J		P
	After the test, no damage; live parts not accessible		P
9.2.5.2.2	Sphere test (enclosures for contactors)		
	10 blows with a shock energy of 2 J (figure 9)		N/A
	After the test , no damage; live parts not accessible		N/A
9.3.3.4	Verification of clearances when necessary and verification of creepage distances		
	rated impulse withstand voltage U_{imp} (V).....:	Not declare but tested acc. to 4kV	
	1. minimum clearances (mm) (table 17)	3mm <i>Between live parts of difference polarity</i>	
	measured clearances (mm)	8,0mm	P
	2. minimum clearances (mm) (table 17)	3mm <i>Between live parts and exposed conductive parts</i>	
	measured clearances (mm)	No exposed conductive parts	N/A
	rated insulation voltage U_i (V)	500V	
	1. minimum creepage distances (mm) (table 18):	5mm <i>between live parts which are separated when the contactor is in the open position</i>	
	measured creepage distances (mm)	>8,0mm	P
	2. minimum creepage distances (mm) (table 18):	5mm <i>between live parts of different polarity</i>	
	measured creepage distances (mm)	>8,0mm	P
	3. minimum creepage distances (mm) (table 18):	3(6)mm <i>Between live parts and exposed conductive parts</i>	

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Cl.	Requirement – Test	Result	Verdict
	measured creepage distances (mm)	No exposed conductive parts	N/A
	TEST SEQUENCE E 1 sample: $I_{th} = 63A$, $I_e = 63A$, AC-7a		E1
9.2.4	Mechanical properties of terminals (not apply to Al terminals or to terminals for connection of Al conductors)		
9.2.4.2	Tests of mechanical strength of terminals		
	maximum cross-sectional area of conductor (mm^2).....	16 mm^2	
	diameter of thread (mm)	4,9 mm	
	torque (Nm)	2,0 Nm	
	5 times on 2 separate clamping units		P
9.2.4.3	Test for damage to and accidental loosening of conductors (flexing test)		
	conductor of the smallest cross-sectional area (mm^2).....	1,5 mm^2	
	number of conductors of the smallest cross section	2	
	diameter of bushing hole (mm)	6,4mm	
	height between the equipment and the platen	260mm	
	mass at the conductor(s) (kg)	0,4kg	
	135 continuous revolutions: the conductor shall neither slip out of the terminal nor break near the clamping unit		P
9.2.4.4	Pull-out test		
	force (N)	40N	
	1 min, the conductor shall neither slip out of the terminal nor break near the clamping unit		P
9.2.4.3	conductor of the largest cross-sectional area (mm^2).....	16 mm^2	
	number of conductors of the largest cross section	1	
	diameter of bushing hole (mm)	12,7mm	
	height between the equipment and the platen	298mm	
	mass at the conductor(s) (kg)	2,9kg	
	135 continuous revolutions: the conductor shall neither slip out of the terminal nor break near the clamping unit		P
9.2.4.4	Pull-out test		
	force (N)	100N	

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	1 min, the conductor shall neither slip out of the terminal nor break near the clamping unit		P
9.2.4.3	conductor of the largest and smallest cross-sectional area (mm ²)	16 mm ² / 1,5 mm ²	
	number of conductors of the smallest cross section, number of conductors of the largest cross section	1 / 1	
	diameter of bushing hole (mm)	12,7mm / 6,4 mm	
	height between the equipment and the platen	298mm / 260 mm	
	mass at the conductor(s) (kg)	2,9kg / 0,4 kg	
	135 continuous revolutions: the conductor shall neither slip out of the terminal nor break near the clamping unit		P
9.2.4.4	Pull-out test		
	force (N)	100N / 40N	
	1 min, the conductor shall neither slip out of the terminal nor break near the clamping unit		P
9.2.4.5	Test for insertability of unprepared round copper conductors having the maximum specified cross-section		
	form and marking of gauge (table 13).....	B6	P
9.2.2	Test on screws or nuts other than those on terminals which are intended to be operated during installation or maintenance		
	Torque test:		
	- 10 times for thread of insulating material		N/A
	- 5 times for other		P
	- diameter (mm); torque (Nm)	3,4mm / 0,8Nm 4,9mm / 2,0Nm	P
	- diameter (mm); torque (Nm)		N/A
	- diameter (mm); torque (Nm)		N/A
	- diameter (mm); torque (Nm)		N/A
9.2.1.3	Resistance to heat		
	Test on contactor		
	a) ball pressure test: test temperature 125°C for 1 h; diameter of impression ≤ 2 mm (mm)	1,1mm <i>Enclosure and the frame of coil</i>	P
	b) ball pressure test: test temperature °C for 1 h; diameter of impression ≤ 2 mm (mm)		N/A
	c) test temperature 100°C to reach thermal equilibrium (not less than 1 h):		P
	- no damage, no live parts accessible (test finger 5 N)		P
	- marking still legible		P

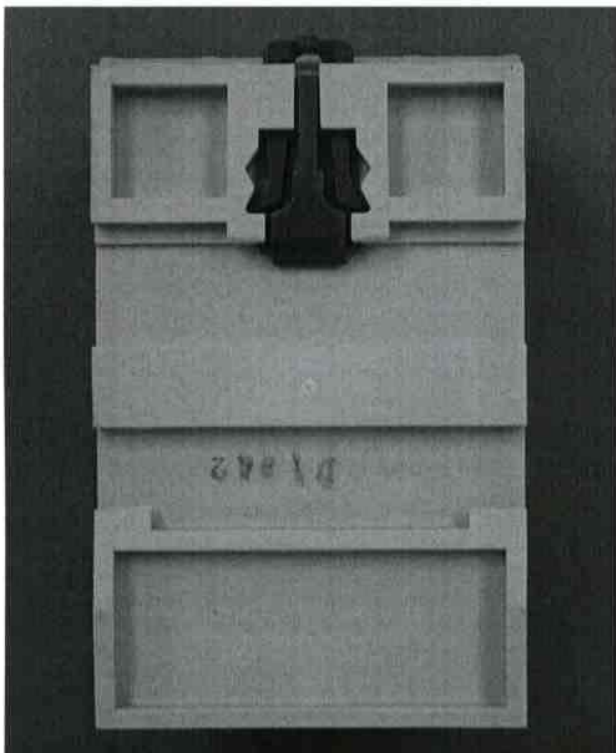
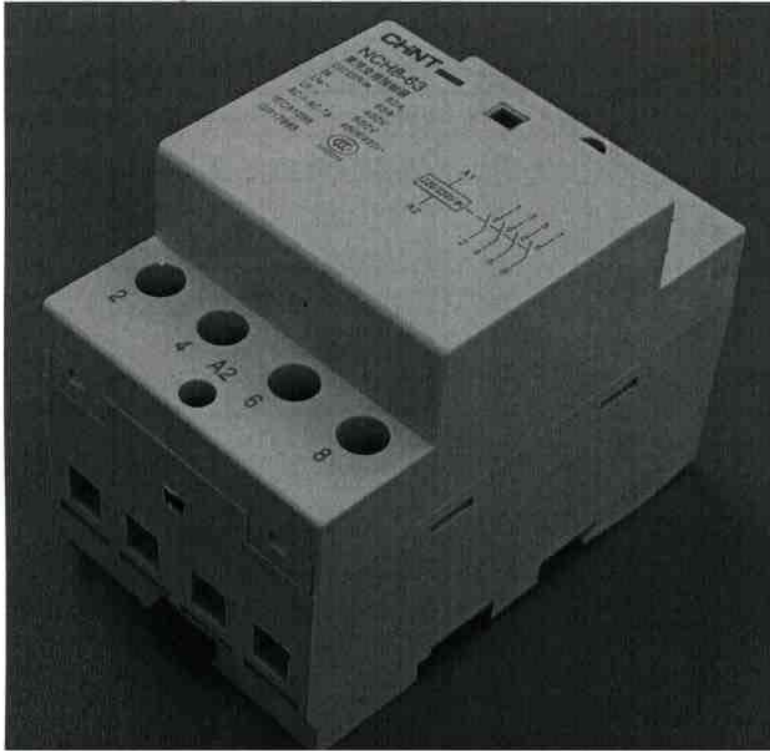
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Cl.	Requirement – Test	Result	Verdict
	Tests on materials (material of at least 2 mm)		
	a) ball pressure test: test temperature 125°C for 1 h; diameter of impression ≤ 2 mm (mm)..... :	1,1mm <i>fixed and movable contactor block</i>	P
	b) ball pressure test: test temperature °C for 1 h; diameter of impression ≤ 2 mm (mm)..... :		N/A
9.2.1.4	Resistance to abnormal heat and fire		
	Test on parts of the contactors		
	Glow-wire test at (850 °C):	850°C <i>Enclosure and the frame of coil</i>	P
	No visible flames and no sustained glowing, or if flame and glowing, extinguish within 30 s	No visible flames	P
	No ignition of the tissue paper or scorching of the board		P
	Glow-wire test at (650 °C):	650°C <i>the red indicator and the epoxy board</i>	P
	No visible flames and no sustained glowing, or if flame and glowing, extinguish within 30 s	No visible flames	P
	No ignition of the tissue paper or scorching of the board		P
	Tests on materials		
	a) flammability classification test, in accordance with IEC 60707	850°C <i>fixed and movable contactor block</i>	P
	b) hot wire ignition (HWI) test, as described in annex G		N/A
9.2.1.6	Resistance to tracking		
	50 drop, solution A, test voltage (V)	225V	P
	No flashover or breakdown		P

	TEST SEQUENCE F		
	1 sample: $I_{th} = 63A$, $I_e = 63A$, AC-7a	F1	
9.2.1.1	Resistance to ageing		
	resistance to ageing at temperature 70 °C for 7 days (168 h)		P
	After the test, no crack visible, and no traces of cloth and not stick to the cloth		P
9.2.3	Degrees of protection		
	Test procedure is under consideration	IP20 <i>to front parts</i>	P

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Cl.	Requirement – Test	Result	Verdict
	TEST SEQUENCE G 2 samples: $I_{th} = 63A$, $I_e = 63A$, AC-7a	G1	
9.3.4	Performance under short-circuit conditions		
	Conditional short-circuit current		
	type of SCPD	CBO: NB1-63	
	ratings of SCPD	400V, C63, $I_{cs} = I_{cn} = 6000A$	
9.3.4.2.1	prospective current I_r (kA)	3kA	
	test voltage (V)	L1: 444V L2: 444V L3: 444V	
	r.m.s. test current (A)	L1: 3080A L2: 3080A L3: 3080V	
	power factor	0,90	
	1) one breaking operation of the SCPD shall be performed with SCPD and the contactor closed prior to the test		P
	2) one breaking operation of the SCPD shall be performed by closing the contactor on to the short-circuit		P
9.3.4.2.2	rated conditional short-circuit I_q (kA)	6kA	
	test voltage (V)	L1: 444V L2: 444V L3: 444V	P
	r.m.s. test current (A)	L1: 6280A L2: 6280A L3: 6280V	P
	power factor	0,69	
	1) one breaking operation of the SCPD shall be performed with SCPD and the contactor closed prior to the test		P
	2) one breaking operation of the SCPD shall be performed by closing the contactor on to the short-circuit		P
	Result to be obtained:		
	A Fault current successfully interrupted by SCPD; fuse or solid connection between the enclosure and supply not melted		P
	B Door or cover of the enclosure not blown open and it is possible to open door or cover		P

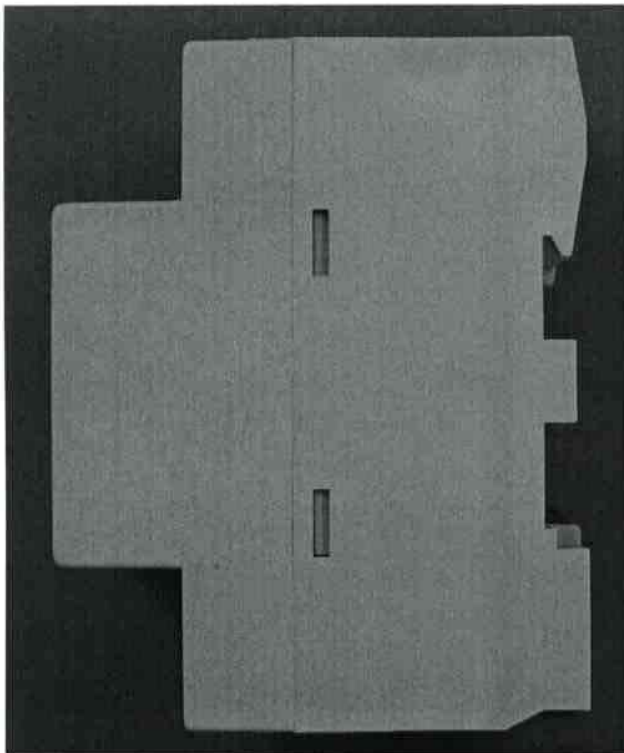
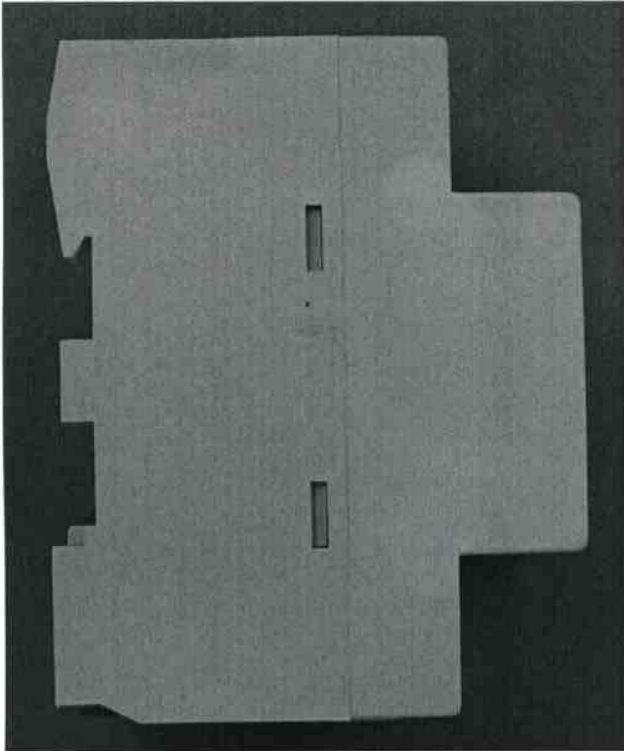
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Cl.	Requirement – Test	Result	Verdict
	C No damage to the conductor or terminals ; no conductor separated from the terminals		P
	D No cracking or breaking of insulating base		P
	E No discharge of parts beyond the enclosure		P

Photos of sample:



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Photos of sample:

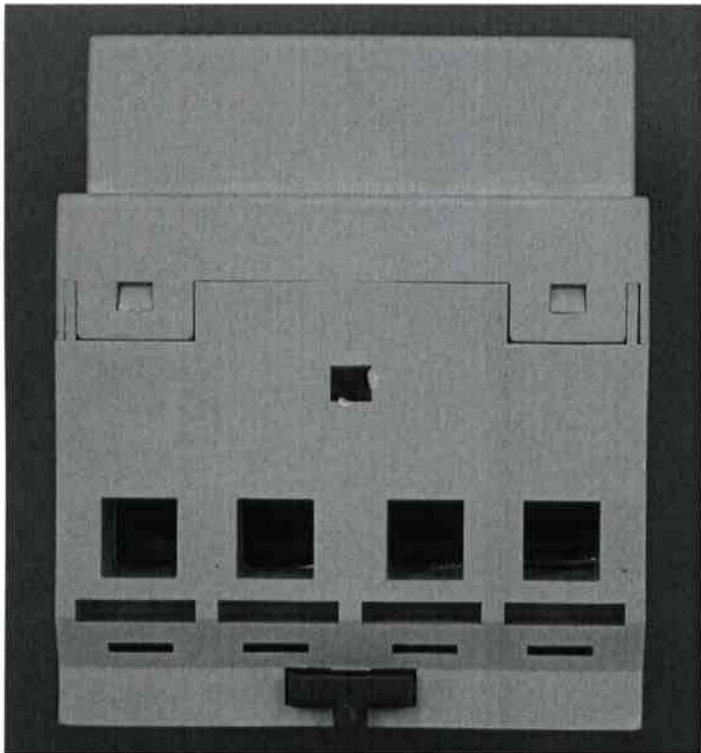
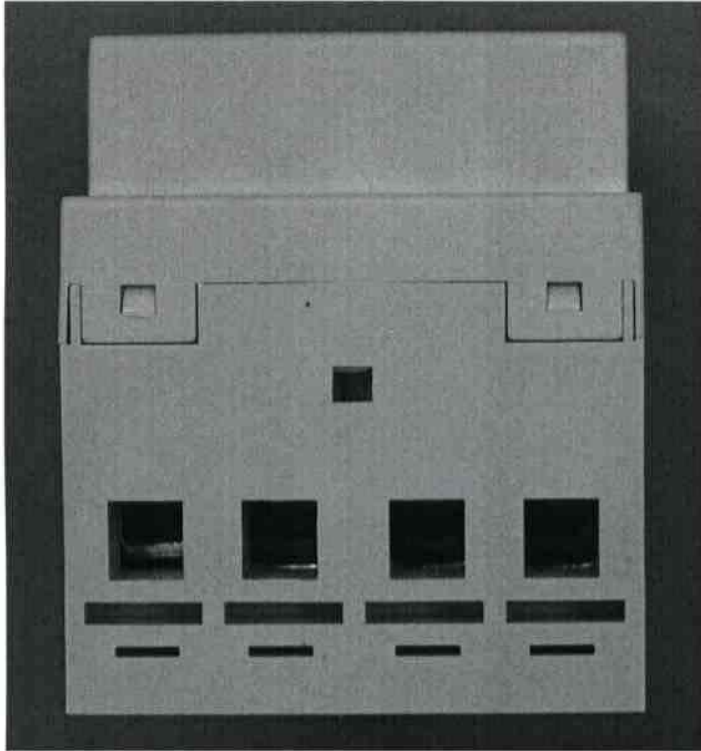


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