Test Report issued under the responsibility of:

DEKRA

TEST REPORT
IEC 60947-4-1
Contactors and motor-starters
Electromechanical contactors and motor-starters

Report Number.....:	3310344.50
Date of issue.....:	2016-12-20
Total number of pages.....	78
Applicant's name .....:	Zhejiang CHINT Electrics Co., Ltd.
Address .....:	No.1, Chint Road, CHINT Industrial Zone, North Baixiang, Yueqing, Zhejiang, P.R. CHINA
Test specification:	
Standard.....:	IEC 60947-4-1:2009 (Third Edition) + A1:2012
Test procedure.....:	CB
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC60947_4_1B
Test Report Form(s) Originator ....:	DEKRA Certification B.V.
Master TRF .....:	Dated 2013-07

Test item description .....:	Electromagnetic contactor
Trade Mark.....:	CHINT
Manufacturer .....:	Zhejiang CHINT Electrics Co., Ltd. No.1, Chint Road, CHINT Industrial Zone, North Baixiang, Yueqing, Zhejiang, P.R. CHINA
Model/Type reference .....:	Series number: NC1-abc (see explanation of the type designation)
Ratings .....:	NC1-80: 80 A at 380/400/415 Vac (AC-3), 37 A at 380/400/415 Vac (AC-4), 49 A at 660/690 Vac (AC-3), 17,3 A at 660/690 Vac (AC-4) NC1-95: 95 A at 380/400/415 Vac (AC-3), 44 A at 380/400/415 Vac (AC-4), 49 A at 660/690 Vac (AC-3), 21,3 A at 660/690 Vac (AC-4) 50/60 Hz, Ui=690 V, Uimp=8 kV see other ratings on page 6 to 10

Testing procedure and testing location:	
☒ CB Testing Laboratory ..... :	DEKRA Testing Services (Zhejiang) Co., Ltd.
Testing location/ address..... :	No.5, Changjiang Road, Great Bridge Industrial Park, North Baixiang, Wenzhou 325603, P.R. China
☐ Associated CB Laboratory..... :	N/A
Testing location/ address..... :	N/A
Witnessed by (+ signature) ..... :	Max Ma 
Approved by (+ signature) ..... :	Eric Wang 
☐ Testing procedure: TMP	N/A
Tested by (name + signature) .... :	N/A
Approved by (+ signature) ..... :	N/A
Testing location/ address..... :	N/A
☐ Testing procedure: WMT	N/A
Tested by (name + signature) .... :	N/A
Witnessed by (+ signature) ..... :	N/A
Approved by (+ signature) ..... :	N/A
Testing location/ address..... :	N/A
☐ Testing procedure: SMT	N/A
Tested by (name + signature) .... :	N/A
Approved by (+ signature) ..... :	N/A
Supervised by (+ signature) ..... :	N/A
Testing location/ address..... :	N/A
☐ Testing procedure: RMT	N/A
Tested by (name + signature) .... :	N/A
Approved by (+ signature) ..... :	N/A
Supervised by (+ signature) ..... :	N/A
Testing location/ address..... :	N/A

Summary of testing:

The test plan is made according to IEC 60947-4-1: 2009 + A1:2010:

Type reference	Ue	Us	Test sequence			
			1		2	3
			9.3.3.2.1.2	9.3.3.2.1.3		
NC1-8004	-	24 Vac	X	X	-	-
		24 Vac	X	-	-	-
		110 Vac	X	-	-	-
		380 Vac	X	-	-	-
		380 Vac	X	X	-	-
NC1-8004	415 V	24 Vac	-	-	X	-
	690 V	380 Vac	-	-	X	-
NC1-8004	690 V	24 Vac	-	-	-	X
		380 Vac	-	-	-	X

Notes:

1. X: means the tests were conducted in this report, - : not tested in this report
2. The product is a series of contactor, with type reference of NC1-abcd, where
   a= 80, or 95, represents rated current of AC-3 at 380/400/415 Vac
   b= Number of auxiliary contacts
   11=1NO+1NC, 4P contactor has no auxiliary contact (omitted)
   c= Number of main contacts
   04=4NO, 08= 2NO+2NC, omitted for 3NO
   d= Ith, it is 110 or 125
3. This report is based on and shall be read in conjunction with test report 3301043.50 issued on 2010-08-30, it is issued due to that:
   a) Upgrade Ith from 95 A to 110 A
   b) Add new product of Ith = 125 A, it is same as Ith of 110 A except Ith=110 A is conventional product, terminal material is bare brass. Ith=125 A is the special order product, with silver plated on surface of moving contact and static contact.
   c) Upgrade Ue from 660 V to 690 V
   d) Change the material colour of cover from gray to greyish white, lock catch from gray to CHINT blue
   e) A1: 2012 of IEC 60947-4-1:2009+A1:2012 is considered
4. The requirement of auxiliary circuit refers to test report 3301043.51 issued on 2010-08-30.
5. The contactors type NC1-80 series, NC1-95 series are fully identical except that the ratings on label are different. Therefore, the test conducted on NC1-80 at the rating of NC1-95 is deemed to cover other types of NC1-80 series, NC1-95 series.
6. According to the information from manufacturer, the contactors can be equipped with different electromagnetic coils. The rated voltages of the coils are 24, 48, 110, 220, 380 Vac. The power consumption is equal for all rated coil voltages.

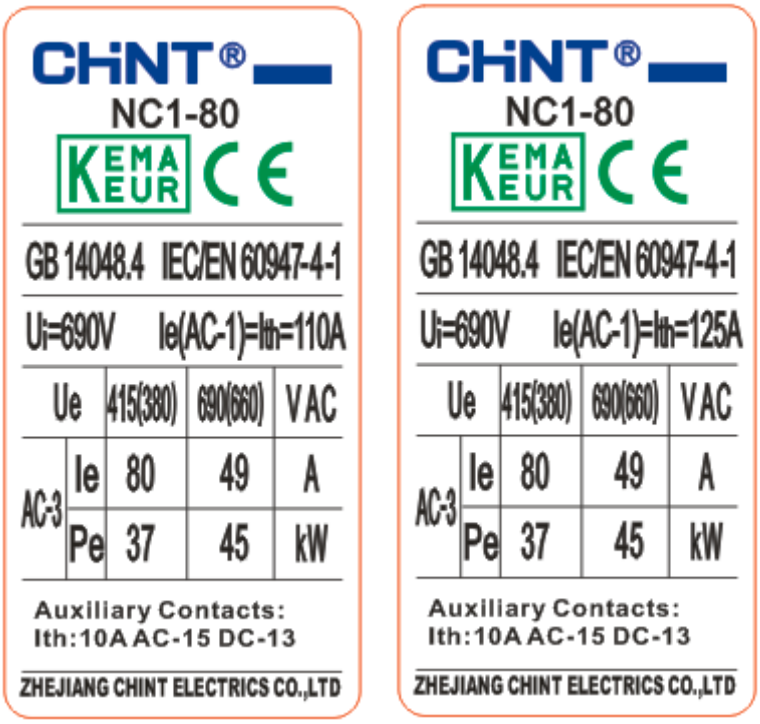
Testing location:

All tests except Iq tests were conducted in:
DEKRA Testing Services (Zhejiang) Co., Ltd.
No.5, Changjiang Road, Great Bridge Industrial Park, North Baixiang, Wenzhou 325603, P.R. China

Iq tests were conducted in:
Zhejiang Fangyuan Test Group Co., Ltd.
Guangqiong Road, Jiaxing City, Zhejiang Province, China

Summary of compliance with National Differences: N/A

Copy of marking plate



Note:
Marking of kW was not verified and tested in this report.

Test item particulars ..... :	Electromagnetic ac contactor
Classification of installation and use ..... :	Fixed
Supply Connection ..... :	3 phases or 3 phases with neutral
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 ..... :	2016-07
Date (s) of performance of tests ..... :	2016-07~2016-12

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.

Although it is not mentioned on first page, the standard EN 60947-4-1:2010+A1:2012 was also taken into consideration, No deviation was found.

Manufacturer's Declaration per Sub-clause 6.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... : N/A

When differences exist; they shall be identified in the General Product Information section.

Name and address of factory (ies) ..... :	Zhejiang CHINT Electrics Co., Ltd. No.1, Chint Road, CHINT Industrial Zone, North Baixiang, Yueqing, Zhejiang, P.R. CHINA

- kind of equipment ..... :	Electromagnetic contactor
- number of poles..... :	3, 4
- kind of current (a.c. or d.c.)..... :	a.c.
- interrupting medium ..... :	Air
- method of operation..... :	Electromagnetic
- method of control..... :	Automatic
- method of change-over for particular types of starters ..... :	N/A
- method of connecting for particular types of starters..... :	N/A
- rated frequency ..... :	50/60 Hz
- rated duties ..... :	Uninterrupted operation duty
-Utilization category ..... :	AC-3, AC-4
Rated and limiting values, main circuit	
Rated voltages	
- rated operational voltage Ue (V)..... :	380/400/415, 660/690 Vac
- rated stator operational voltage Ues (V)..... :	N/A
- rated rotor operational voltage Uer (V)..... :	N/A
- rated insulation voltage Ui (V)..... :	690 V
- rated stator insulation voltage Uis (V) ..... :	N/A
- rated rotor insulation voltage Uir (V)..... :	N/A
- rated impulse withstand voltage Uimp(kV) ..... :	8 kV
- rated starting voltage of an auto-transformer starter ..... :	N/A
Currents or powers	
- conventional free air thermal current Ith (A)..... :	NC1-80, NC1-95: 110 A or 125 A
- conventional enclosed thermal current Ithe (A)..... :	N/A
- conventional stator thermal current Iths (A) ..... :	N/A
- conventional rotor thermal current Ithr (A) ..... :	N/A
- rated operational current Ie (A) or rated operational powers ..... :	NC1-80: 80 A at 380/400/415 Vac (AC-3), 37 A at 380/400/415 Vac (AC-4), 49 A at 660/690 Vac (AC-3), 17,3 A at 660/690 Vac (AC-4) NC1-95: 95 A at 380/400/415 Vac (AC-3), 44 A at 380/400/415 Vac (AC-4), 49 A at 660/690 Vac (AC-3), 21,3 A at 660/690 Vac (AC-4)
- rated stator operational current Ies (A) or rated stator operational powers ..... :	N/A
- rated rotor operational current Ier (A) ..... :	N/A
- rated uninterrupted current Iu (A)..... :	Equal to Ie

Normal load and overload characteristics	
- ability to withstand motor switching overload currents ..... :	AC-3: 8 Ie/10 s
-rated making capacity..... :	10 Ie of AC-3, 12 Ie of AC-4
-rated breaking capacity ..... :	8 Ie of AC-3, 10 Ie of AC-4
-conventional operational performance..... :	2 Ie of AC-3, 6 Ie of AC-4
Starting and stopping characteristics of starters	
-service conditions for starters..... :	N/A
Rated conditional short-circuit current	
- rated prospective short-circuit current "r" (kA) ..... :	5 kA
- rated conditional short-circuit current Iq (kA)..... :	50 kA
-type of co-ordination..... :	type “1” co-ordination
	Fuse: RT36-1 (NT1), gG, 100 A, 50 kA at 690 V
-Pole impedance of a contactor (Z) ..... :	50 mΩ
Control circuits	
The characteristics of electronic control circuits	
- kind of current ..... :	a.c
- rated frequency if a.c. ..... :	50/60 Hz for a.c
- rated control circuit voltage Uc (nature: a.c. / d.c.) ..... :	N/A
- rated control supply voltage Us (nature: a.c. / d.c.) ..... :	24, 48, 110, 220, 380 Vac
Rated and limiting values of air supply control circuit	
- rated pressure..... :	N/A
- volumes of air..... :	N/A
Auxiliary circuits:	Refer to test report No. 3301043.51.
- rated operational voltage Ue (V)..... :	AC-15: 380 Vac, 220 Vac, 110 Vac and 36 Vac DC-13: 220 Vdc, 110 Vdc and 24 Vdc
- rated insulation voltage: Ui (V) ..... :	690 V
- rated operational current: Ie (A)..... :	AC-15: 0,95 A at 380 Vac, 1,6 A at 220 Vac, 3,3 A at 110 Vac, 10 A at 36 Vac DC-13: 0,15 A at 220 Vdc, 0,3 A at 110 Vdc, 0,92 A at 24 Vdc
- kind of current ..... :	AC or DC
- rated frequency: (Hz)..... :	50/60 Hz
- number of circuits :	2
- number and kind of contact elements..... :	1NO and 1NC
- rated uninterrupted current: Iu (A) :	Equal to Ie
- utilization category: (AC, DC, current and voltage) ..... :	AC-15: 0,95 A at 380 Vac, 1,6 A at 220 Vac, 3,3 A at 110 Vac, 10 A at 36 Vac DC-13: 0,15 A at 220 Vdc, 0,3 A at 110 Vdc, 0,92 A at 24 Vdc

Short-circuit characteristic	
- Rated conditional short-circuit current (kA)..... :	1 kA
- kind of protective device ..... :	Fuse: RT36-00 (NT00), gG, 10 A 120 kA at 500 Vac
Rated and limiting values of relays and releases	N/A
- types of relay or release ..... :	☐ a) release with shunt coil (shunt trip) ☐ b) under voltage and under–current opening relay or release ☐ c) overload time-delay relay the time-lag of which is: ☐ 1) substantially independent of previous load (e.g. time-delay magnetic overload relay) ☐ 2) dependent on previous load (e.g. thermal or electronic overload relay) ☐ 3) dependent on previous load (e.g. thermal or electronic overload relay) and also sensitive to phase loss ☐ d) instantaneous over-current relay or release (e.g jam sensitive, see 3.2.29) ☐ e) other relays or releases (e.g., control relay associated with devices for the thermal protection of the motor ☐ f) Stall relay or release
characteristic values	
a) release with shunt coil, under–voltage (under–current) opening relay or release	N/A
- rated voltage (current) ..... :	N/A
- rated frequency ..... :	N/A
- operating voltage (current) ..... :	N/A
- operating time ..... :	N/A
- inhibit time ..... :	N/A
b) Overload relay	
-designation and current settings ..... :	N/A
-rated frequency, when necessary (for example in case of a current transformer operated overload relay) ..... :	N/A
- time-current characteristics (or range of characteristics), when necessary ..... :	N/A
- trip class according to classification in table 2, or the value of maximum tripping time, in seconds, under the conditions specified in 8.2.1.5.1, table 2, column D, when this time exceeds 40 s. ..... :	N/A
- number of poles ..... :	N/A
- nature of the relay: thermal, magnetic, electronic without thermal memory ..... :	N/A
c) Release with residual current sensing relay	
- rated current ..... :	N/A
- operating current ..... :	

- operating time or time-current characteristic according to Table T.1 of IEC 60947-1:2007, Amendment 1 ..... :	N/A
-inhibit time (when applicable) ..... :	N/A
-type designation (see Annex T of IEC 60947-1: 2007, Amendment 1) ..... :	N/A
Type and characteristics of automatic change-over devices and automatic acceleration control devices	N/A
Types	☐ a) time delay, e.g. time delay contactor relays (see IEC 60947-5-1) applicable to control-devices or specified-time-or nothing relays (see IEC 61810-1) ☐ b) under current devices (undercurrent relays ☐ c) other devices for automatic control - ☐ devices dependent on voltage - ☐ devices on power - ☐ devices depending on speed
Characteristics	
a) the characteristics of time-delay devices are	
- the rated time-delay or its range, if adjustable..... :	N/A
- for time-delay devices fitted with a coil, the rated voltage, when it differs from the starter line voltage..... :	N/A
b) the characteristics of the under voltage devices are	
- the rated current (thermal current and /or rated short-circuit withstand current, according to the indications given by the manufacturer)..... :	N/A
- the current setting or its range, if adjustable..... :	N/A
c) the characteristics of the other devices shall be determined by agreement between manufacturer and user	N/A
Types and characteristics of auto-transformers for two-step auto-transformer starter	
Account being taken of the starting characteristics (see 5.3.5.5.3), starting auto-transformers shall be characterized by	N/A
- rated voltage of auto-transformer ..... :	N/A
- the number of taps available for adjusting torque and current ..... :	N/A
- the starting voltage, i.e. the voltage at the tapping terminals, as a percentage of the rated voltage of auto-transformer ..... :	N/A
- the current they can carry for a specified duration..... :	N/A
-the rated duty(see 5.3.4):	
-the method of cooling:	☐ air-cooling ☐ oil-cooling
-mounting design:	☐ built-in ☐ or provide separately

Types and characteristics of starting resistors for rheostatic starters	N/A
Account being taken of the starting characteristics (see 5.3.5.5.1), the starting resistor shall be characterized by :	N/A
- the rated rotor insulation voltage (Uir).....	N/A
- their resistor value:	N/A
- the mean thermal current, defined by the value of steady current they can carry for specified duration:	N/A
- the rated duty (see 5.3.4)..... :	
- the method of cooling ..... :	☐ free air ☐ forced air ☐ foil immersion
-mounting design..... :	☐ built-in ☐ or provide separately

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.2	MARKING	1#: NC1-8004 (Us=24 Vac)	P
	Data shall be marked on the equipment (mandatory):		P
	a – manufacturer's name or trade mark	CHINT	P
	b – type designation or serial number	NC1-8004	P
	Data preferably marked on the equipment:		P
	c - number of this standard, if the manufacturer claims compliance	IEC/EN 60947-4-1	P
	k - IP code, in case of an enclosed equipment		N/A
	S2) Overload relays and releases: Characteristic values		N/A
	S2) Overload relays and releases: Designation and current settings of overload relays		N/A
	aa) - polarity of terminals, if applicable		N/A
	Data shall be included on the nameplate, or on the equipment, or in the manufacturer's published literature:		P
	d - rated operational voltages	380/415 V, 660/690 V	P
	e - utilization category and rated operational currents (or rated powers), at the rated operational voltages of the equipment	NC1-80: 80 A at 415 (380) Vac 49 A at 690 (660) Vac	P
	f - either the value of the rated frequency/ies, or the indication d.c. (or symbol) ..... :	50/60 Hz (on the published literature)	P
	g - rated duty with the indication of the class of intermittent duty, if any		P
	Associated values:		P
	h - rated marking and breaking capacities (these indications may be replaced, where applicable, by the indication of the utilization category, see table 7)	AC-3 (on the label) AC-4 (on the published literature)	P
	Safety an installation:		P
	i – rated insulation voltage	690 V	P
	j – rated impulse withstand voltage (see 5.3.1.3)	8 kV	P
	l – pollution degree	3	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	m – rated conditional short-circuit current (see 5.3.6) and type of co-ordination of the contactor or starter (see 8.2.5.1) and the type, current rating and characteristics of the associated SCPD; rated conditional short-circuit current (see 5.3.6) of the combination starter, the combination switching device, the protected starter or the protected switching device and type of co-ordination (see 8.2.5.1)	Ir=5 kA Iq=50 kA type of co-ordination: 1 Fuse: RT36-1 (NT1), gG, 100 A, 50 kA at 690 Vac	P
	n - Void		N/A
	Control circuits		
	The following information concerning control circuits shall be placed either on the coil or on the equipment:		P
	o – rated control circuit voltage (Uc), nature of current and rated frequency		N/A
	p - if necessary, nature of current, rated frequency and rated control supply voltages (Us)	24 Vac, 50/60 Hz	P
	Air supply systems for starter or contactors operated by compressed air		N/A
	Q – rated supply systems of the compressed air and limits of variation of this pressure, if they are different from those specified in 8.2.1.2		N/A
	Auxiliary circuits:		P
	r – ratings of auxiliary circuits	AC-15: 0,95 A at 380 Vac, 1,6 A at 220 Vac, 3,3 A at 110 Vac, 10 A at 36 Vac DC-13: 0,15 A at 220 Vdc, 0,3 A at 110 Vdc, 0,92 A at 24 Vdc	P
	Overload relays and releases:		N/A
	s – characteristics according to 5.7, specifying the electronic overload relay does not contain thermal memory		N/A
	Additional information for certain types of contactor and starter:		N/A
	Rheostatic starters:		N/A
	t – circuit diagram		N/A
	u – severity of start, see 5.3.5.5.1		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	v – starting time, see 5.3.5.5.1		N/A
	Auto-transformer starters:		N/A
	w – rated starting voltage(s), i.e. voltage(s) at the tapping terminals		N/A
	Vacuum contactors and starters:		N/A
	x – maximum permissible altitude of the site of installation, if less than 2000 m		N/A
	EMC		N/A
	y – environment A and/or B: see 7.3.1 of part 1	☒ A ☒ B	P
	z – special requirements, if applicable, for example shielded or twisted conductors		N/A
	Sub clause 5.2 of part 1 applies to contactors, starters and overload relays with the following additions:		P
	Data under items d) to x in 6.1.2 shall be included on the nameplate or on the equipment or in the manufacturer's published literature:		P
	Data under items c) and k) in 6.1.2 shall preferably be marked on the equipment		P
	In case of electronically controlled electromagnets, information other than given in o) and p) of 6.1.2 may also be necessary: see 5.5 and annex E		N/A
	If the manufacturer declares an electronic overload relay without thermal memory, this shall be marked on the device.		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.3	Instruction for installation, operation and maintenance	Refer to test report no. 3301043.50	P
8.1	Constructional requirements	Refer to test report no. 3301043.50	P
8.1.2	Materials		P
7.1.2.1 Part 1	Parts of insulating materials which might be exposed to thermal stresses due to electrical effects, and the deterioration of which might impair the safety of the equipment, shall not be adversely affected by abnormal heat and by fire.		P
	Alternatively, the manufacturer may provide data from the insulating material supplier to demonstrate compliance with the requirements		P
7.1.2.2 Part 1	Glow wire testing	(See 8.2.1.1.1 part 1 below)	P
	When tests on the equipment or on sections taken from the equipment are used, parts of insulating materials necessary to retain current-carrying parts in position shall conform to the glow-wire tests of 8.2.1.1.1 of IEC 60947-1 at a test temperature of 850 °C		P
7.1.2.3 Part 1	Test based on flammability category	(See 8.2.1.1.2 part 1 below)	N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.1.3	Current-carrying parts and their connection	Refer to test report no. 3301043.50	P
8.1.4	Clearances and creepage distances	Refer to test report no. 3301043.50	P
8.1.5	Actuator		N/A
8.1.6	Indication of contact position		N/A
8.1.7	Additional safety requirements for equipment suitable for isolation		N/A
8.1.8	Terminals	Refer to test report no. 3301043.50	P
8.1.9	Additional requirements for equipment provided with a neutral pole		N/A
8.1.10	Provisions for earthing		N/A
8.1.11	Enclosure for equipment		N/A
8.1.12	Degree of protection of enclosed equipment		N/A
8.1.13	Conduit pull-out, torque and bending with metallic conduits		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.2	Performance requirements		P
A	Starters shall be so constructed that they:		N/A
	a) are trip free;		N/A
	b) can be caused to open their contacts by the means provided when running and at any time during the starting sequence;		N/A
	c) will not function in other than the correct starting sequence.		N/A
B	Starters employing contactors shall not trip due to the shocks caused by operation of the contactors when tested according to 9.3.3.1, after the starter has carried its rated full load current at the reference ambient temperature (i.e. +20 °C) and has reached thermal equilibrium at both minimum and maximum settings of the overload relay, if adjustable	(see 9.3.3.1 below)	N/A
C	For rheostatic starters, the overload relay shall be connected in the stator circuit.		N/A
	Special arrangements may be made to protect the rotor contactors and resistors against overheating, if requested by the user		N/A
D	When starters are used in conditions in which the overheating of the starting resistors or transformers would represent an exceptional hazard, it is recommended that a suitable device be fitted to switch off the starter automatically before a dangerous temperature is reached.		N/A
E	The moving contacts of multipole equipment intended to make and break together shall be so coupled that all poles make and break substantially together, whether operated manually or automatically		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.2.1.2	Limits of operation of contactors and power-operated starters	(see 9.3.3.2 below)	P
8.2.1.3	Limits of operation of under-voltage relays and releases	(see 9.3.3.2 below)	N/A
8.2.1.4	Limits of operation of shunt-coil operated releases (shunt trip)	(see 9.3.3.2 below)	N/A
8.2.1.5	Limits of operation of current sensing relays and releases	(see 9.3.3.2 below)	N/A
8.2.2	Temperature rise	(see 9.3.3.3 below)	P
8.2.3	Dielectric properties	(see 9.3.3.4 below)	P
8.2.4	Normal load and overload performance requirements		P
8.2.4.1	Making and breaking capacities	(see 9.3.3.5 below)	P
8.2.4.2	Conventional operational performance	(see 9.3.3.6 below)	P
8.2.4.3	Durability	(see annex B below)	N/A
8.2.4.4	Overload current withstand capability of contactors	(see 9.3.5 below)	P
8.2.4.5	Coil power consumption	(see 9.3.3.2.1.2 below)	P
8.2.4.6	Pole impedance	(see 9.3.3.2.1.3 below)	P
8.2.5	Co-ordination with short-circuit protective devices	(see 9.3.4 below)	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.3	Electromagnetic compatibility (EMC)		P
	Environment A	No electronic circuit	P
	Environment B	No electronic circuit	P
	Power frequency magnetic field tests are not required because the devices are naturally submitted to such fields. Immunity is demonstrated by the successful completion of the operational performance capability tests (see 9.3.3.5 and 9.3.3.6)		N/A
	This equipment is inherently sensitive to voltage dips and short time interruptions on the control supply; it shall react within the limits of 8.2.1.2 and this is verified by the operating limits tests given in 9.3.3.2		N/A
8.3.2	Immunity	(see 9.4 below)	P
8.3.3	Emission	(see 9. 4 below)	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.2	Compliance with constructional requirements		P
8.2.1 Part 1	Materials		P
8.2.1.1.1 part 1	**Glow wire test (on equipment)**		P
	The suitability of materials used is verified by making tests: a) on the equipment; or b) on sections taken from the equipment; or c) on samples of identical material	identical material	P
	The suitability shall determined with respect to resistance to abnormal heat and fire		P
	The manufacturer shall indicate which tests, amongst a), b) and c), shall be used	☐ a) ☐ b) ☒ c)	P
	As described in IEC 60695-2-10 and –2-11		P
	parts retaining current-carrying parts..... Remark : a protective conductor is not considered as a current-carrying part	☒ 850 ± 15°C or ☐ 960 ± 15°C _____ s	P
	all other parts	☐ 650 ± 10°C _____ s	N/A
	No visible flame, no sustained glowing or flames and glowing extinguish within 30 s		P
	For the purpose of this test, a protective conductor is not considered as a current-carrying part.		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.2.3 part 1	Enclosure for equipments		N/A
8.2.4 part 1	Mechanical properties of terminals	Refer to test report no. 3301043.50	P
9.2.2	Electrical performance of screwless-type clamping units	Test according to subclause 9.8 of IEC 60999-1 and 9.8 of IEC 60999-2 See report _____	N/A
9.2.3	Ageing test for screwless-type clamping units	Test according to subclause 9.10 of IEC 60999-1 and 9.10 of IEC 60999-2 See report _____	N/A
8.2.5 part 1	Verification of the effectiveness of indication of the main contact position of equipment suitable for isolation		N/A
8.2.7 part 1	Conduit pull-out test, torque test and bending test with metallic conduits		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.1	Compliance with performance requirements		P
a)	TEST SEQUENCE 1		P
	- Verification of temperature rise (Clause 9.3.3.3.)		P
	- verification of operation and operating limits (Clause 9.3.3.1 and 9.3.3.2)		P
	- verification of dielectric properties (Clause 9.3.3.4)		P
9.3.3.3	Temperature rise		P
	Sub clause 8.3.3.3. of part 1 applies	Type of contactor: 25#: NC1-8004 (Us=24 Vac) Ith=110 A	P
	ambient temperature 10-40 °C ..... :	25,5 °C	P
	Contactor		P
	test enclosure W x H x D (mm x mm x mm) ..... :	Unenclosed equipment	N/A
	material of enclosure ..... :	Unenclosed equipment	N/A
9.3.3.3.4	Main circuits, test conditions:		P
	Sub clause 8.3.3.3.4 of part 1 applies with following addition		P
	loaded as stated in 8.2.2.4		N/A
	- setting of the maximum current setting ..... :		N/A
	- setting overload relay ..... :		N/A
	- conventional thermal current Ith (A) ..... :	110 A	P
	- conventional enclosed thermal current Ithe (A) :		N/A
	- for equipment intended for utilization category AC-6b, the test current for the temperature rise test shall be equal to 1,35 times Ie (the rated capacitive current).		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :	35 mm² / 2 m	P
	- temperature rise of main circuit terminals (K) ... :	see table 1	P
9.3.3.3.5	Control circuit, test conditions:		P
9.3.3.3.6	Coils and electromagnets circuit, test conditions:		P
	The coil with the highest power consumption, for a given frequency a.c. or d.c., according to 9.3.3.2.1.2.2 is deemed to be representative for all coils, for the same contactor, and shall be used for the temperature rise test.	Us= 24 Vac	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Uninterrupted and eight-hour duty windings (8.2.2.6.1)		P
	The temperature rise shall be measures during the test of 9.3.3.3.4		P
	- rated control supply voltage Us (V) ..... :	Us= 24 Vac	P
	- class of insulating material ..... :	B	P
	- uninterrupted or eight-hour duty windings	uninterrupted	P
	- temperature rise of control circuit terminals (K) :	see table 1	P
	b) Intermittent duty windings (8.2.2.6.2)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- intermittent duty class..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load factor ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
	c) temporary or periodic duty (8.2.2.6.3)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load time ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
9.3.3.3.7	Auxiliary circuit, test conditions:		N/A
	Normally loaded with their maximum rated operational current at any convenient voltage		N/A
	The temperature rise shall be measures during the test of 9.3.3.3.4		N/A
	- conventional thermal current Ith (A)..... :		N/A
	- conventional enclosed thermal current Ithe (A) :		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :		N/A
	- cable cross-section (mm²) ..... :		N/A
	- temperature rise of auxiliary circuit terminals (K) :		N/A
9.3.3.3.8	Starting resistors for rheostatic rotor starters test conditions:		N/A
9.3.3.3.9	Auto-transformers for two-step auto-transformers starters		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3.3	Temperature rise		P
	Sub clause 8.3.3.3. of part 1 applies	Type of contactor: 26#: NC1-8004 (Us=380 Vac) Ith=110 A	P
	ambient temperature 10-40 °C ..... :	25,5 °C	P
	Contactor		P
	test enclosure W x H x D (mm x mm x mm) ..... :	Unenclosed equipment	N/A
	material of enclosure ..... :	Unenclosed equipment	N/A
9.3.3.3.4	Main circuits, test conditions:		P
	Sub clause 8.3.3.3.4 of part 1 applies with following addition		P
	loaded as stated in 8.2.2.4		N/A
	- setting of the maximum current setting ..... :		N/A
	- setting overload relay ..... :		N/A
	- conventional thermal current Ith (A) ..... :	110 A	P
	- conventional enclosed thermal current Ithe (A) :		N/A
	- for equipment intended for utilization category AC-6b, the test current for the temperature rise test shall be equal to 1,35 times Ie (the rated capacitive current).		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :	35 mm² / 2 m	P
	- temperature rise of main circuit terminals (K) ... :	see table 2	P
9.3.3.3.5	Control circuit, test conditions:		P
9.3.3.3.6	Coils and electromagnets circuit, test conditions:		P
	The coil with the highest power consumption, for a given frequency a.c. or d.c., according to 9.3.3.2.1.2.2 is deemed to be representative for all coils, for the same contactor, and shall be used for the temperature rise test.	Us= 380 Vac	P
	a) Uninterrupted and eight-hour duty windings (8.2.2.6.1)		P
	The temperature rise shall be measures during the test of 9.3.3.3.4		P
	- rated control supply voltage Us (V) ..... :	Us= 380 Vac	P
	- class of insulating material ..... :	B	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- uninterrupted or eight-hour duty windings	uninterrupted	P
	- temperature rise of control circuit terminals (K) :	see table 2	P
	b) Intermittent duty windings (8.2.2.6.2)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- intermittent duty class..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load factor ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
	c) temporary or periodic duty (8.2.2.6.3)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load time ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
9.3.3.3.7	Auxiliary circuit, test conditions:		N/A
	Normally loaded with their maximum rated operational current at any convenient voltage		N/A
	The temperature rise shall be measures during the test of 9.3.3.3.4		N/A
	- conventional thermal current Ith (A)..... :		N/A
	- conventional enclosed thermal current Ithe (A) :		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :		N/A
	- cable cross-section (mm²) ..... :		N/A
	- temperature rise of auxiliary circuit terminals (K) :		N/A
9.3.3.3.8	Starting resistors for rheostatic rotor starters test conditions:		N/A
9.3.3.3.9	Auto-transformers for two-step auto-transformers starters		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3.3	Temperature rise		P
	Sub clause 8.3.3.3. of part 1 applies	Type of contactor: 27#: NC1-8004 (Us=24 Vac) Ith=125 A	P
	ambient temperature 10-40 °C ..... :	27,0 °C	P
	Contactor		P
	test enclosure W x H x D (mm x mm x mm) ..... :	Unenclosed equipment	N/A
	material of enclosure ..... :	Unenclosed equipment	N/A
9.3.3.3.4	Main circuits, test conditions:		P
	Sub clause 8.3.3.3.4 of part 1 applies with following addition		P
	loaded as stated in 8.2.2.4		N/A
	- setting of the maximum current setting ..... :		N/A
	- setting overload relay ..... :		N/A
	- conventional thermal current Ith (A) ..... :	125 A	P
	- conventional enclosed thermal current Ithe (A) :		N/A
	- for equipment intended for utilization category AC-6b, the test current for the temperature rise test shall be equal to 1,35 times Ie (the rated capacitive current).		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :	50 mm² / 2 m	P
	- temperature rise of main circuit terminals (K) ... :	see table 3	P
9.3.3.3.5	Control circuit, test conditions:		P
9.3.3.3.6	Coils and electromagnets circuit, test conditions:		P
	The coil with the highest power consumption, for a given frequency a.c. or d.c., according to 9.3.3.2.1.2.2 is deemed to be representative for all coils, for the same contactor, and shall be used for the temperature rise test.	Us= 24 Vac	P
	a) Uninterrupted and eight-hour duty windings (8.2.2.6.1)		P
	The temperature rise shall be measures during the test of 9.3.3.3.4		P
	- rated control supply voltage Us (V) ..... :	Us= 24 Vac	P
	- class of insulating material ..... :	B	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- uninterrupted or eight-hour duty windings	uninterrupted	P
	- temperature rise of control circuit terminals (K) :	see table 3	P
	b) Intermittent duty windings (8.2.2.6.2)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- intermittent duty class..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load factor ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
	c) temporary or periodic duty (8.2.2.6.3)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load time ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
9.3.3.3.7	Auxiliary circuit, test conditions:		N/A
	Normally loaded with their maximum rated operational current at any convenient voltage		N/A
	The temperature rise shall be measures during the test of 9.3.3.3.4		N/A
	- conventional thermal current Ith (A)..... :		N/A
	- conventional enclosed thermal current Ithe (A) :		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :		N/A
	- cable cross-section (mm²) ..... :		N/A
	- temperature rise of auxiliary circuit terminals (K) :		N/A
9.3.3.3.8	Starting resistors for rheostatic rotor starters test conditions:		N/A
9.3.3.3.9	Auto-transformers for two-step auto-transformers starters		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3.3	Temperature rise		P
	Sub clause 8.3.3.3. of part 1 applies	Type of contactor: 28#: NC1-8004 (Us=380 Vac) Ith=125 A	P
	ambient temperature 10-40 °C ..... :	27,0 °C	P
	Contactor		P
	test enclosure W x H x D (mm x mm x mm) ..... :	Unenclosed equipment	N/A
	material of enclosure ..... :	Unenclosed equipment	N/A
9.3.3.3.4	Main circuits, test conditions:		P
	Sub clause 8.3.3.3.4 of part 1 applies with following addition		P
	loaded as stated in 8.2.2.4		N/A
	- setting of the maximum current setting ..... :		N/A
	- setting overload relay ..... :		N/A
	- conventional thermal current Ith (A) ..... :	125 A	P
	- conventional enclosed thermal current Ithe (A) :		N/A
	- for equipment intended for utilization category AC-6b, the test current for the temperature rise test shall be equal to 1,35 times Ie (the rated capacitive current).		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :	50 mm² / 2 m	P
	- temperature rise of main circuit terminals (K) ... :	see table 2	P
9.3.3.3.5	Control circuit, test conditions:		P
9.3.3.3.6	Coils and electromagnets circuit, test conditions:		P
	The coil with the highest power consumption, for a given frequency a.c. or d.c., according to 9.3.3.2.1.2.2 is deemed to be representative for all coils, for the same contactor, and shall be used for the temperature rise test.	Us= 380 Vac	P
	a) Uninterrupted and eight-hour duty windings (8.2.2.6.1)		P
	The temperature rise shall be measures during the test of 9.3.3.3.4		P
	- rated control supply voltage Us (V) ..... :	Us= 380 Vac	P
	- class of insulating material ..... :	B	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- uninterrupted or eight-hour duty windings	uninterrupted	P
	- temperature rise of control circuit terminals (K) :	see table 4	P
	b) Intermittent duty windings (8.2.2.6.2)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- intermittent duty class..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load factor ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
	c) temporary or periodic duty (8.2.2.6.3)		N/A
	- no current flowing though the main circuit		N/A
	- rated control supply voltage Us (V) ..... :		N/A
	- class of insulating material ..... :		N/A
	- close open operating cycle ..... :		N/A
	- on-load time ..... :		N/A
	- temperature rise of control circuit terminals (K) :		N/A
9.3.3.3.7	Auxiliary circuit, test conditions:		N/A
	Normally loaded with their maximum rated operational current at any convenient voltage		N/A
	The temperature rise shall be measures during the test of 9.3.3.3.4		N/A
	- conventional thermal current Ith (A)..... :		N/A
	- conventional enclosed thermal current Ithe (A) :		N/A
	- cable/busbar cross-section (mm²) / (mm) ..... :		N/A
	- cable cross-section (mm²) ..... :		N/A
	- temperature rise of auxiliary circuit terminals (K) :		N/A
9.3.3.3.8	Starting resistors for rheostatic rotor starters test conditions:		N/A
9.3.3.3.9	Auto-transformers for two-step auto-transformers starters		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3	Performance under no load, normal load and overload conditions		P
9.3.3.1	Operation		N/A
9.3.3.2	Operating limits		P
9.3.3.2.1	Power-operated equipment:		P
8.2.1.2.1	Electromagnetic contactors and starters	NC1-8004 Ith=110 A	P
	rated control supply voltage Us (V) ..... :	24, 48, 110, 220, 380 Vac	P
	frequency (Hz) ..... :	50/60 Hz	P
	declared ambient temperature(>40 °C) for 100% Us :		P
	limits of close satisfactorily at any value between 85% and 110% of rated control supply voltage Us ..... :	Refer to test report no. 3301043.50	P
	ambient temperature(-5 °C) for 100% Us		P
	Drop out test method		P
	Limits of drop out and open fully are: 75% to 20% for a.c. and 75% to 10% for d.c. ..... :	Refer to test report no. 3301043.50	P
8.2.1.2.2	Contactors and starters with electronically controlled electromagnet		N/A
8.2.1.2.3	Electro-pneumatic contactors and starters		N/A
8.2.1.2.4	Capacitive drop out test		N/A
	A capacitor shall be inserted in series in the supply circuit U_s, the total length of the connecting conductors being ≤ 3 m.		N/A
	The capacitor is short-circuit by a switch of negligible impedance.		N/A
	The supply voltage shall then be adjusted to 110 % U_s..... :		N/A
	The value of the capacitor shall be calculated: C (nF) = 30 + 200000 / (f x U_s) ..... :		N/A
	Verification of the drop out of the contactor when the switch is operated to the open position..... :		N/A
9.3.3.2.1.2	Coil power consumption		P
	A contactor coil is evaluated for both holding power and pick-up power		P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	In the case where different coils cover a range of voltages, 5 coils shall be tested		P
	The coil with the lowest rated control supply voltage Us, the coil with the highest rated control supply voltage Us, plus 3 coils deemed to be representative of the coils with the highest calculated hold power at the discretion of the manufacturer		P
	The test shall be performed at ambient temperature +23 °C ± 3 °C	25,4 °C	P
	The test shall be made without any load in the main and auxiliary circuits		P
	The coil shall be supplied with the rated control supply voltage Us and at the rated frequency		P
	For a given coil, where a voltage range is declared, the test shall be made at the highest voltage at the respective frequency		P
	The measured values shall be obtained with a r.m.s. measurement method covering at least a bandwidth from 0 Hz to 10 kHz and the resulting power values shall be given within a measurement uncertainty better than 5 %		P
9.3.3.2.1.2 .2	Holding power for conventional and electronically controlled electromagnet		P
	The current measurement I(i) of the coil shall be performed after the coil has been energized and has reached a stable temperature		P
	The holding power consumption is defined as follows		P
	Sh(i) = Us(i) × I(i) [VA] for a.c. controlled contactor		P
	Pc(i) = Us(i) × I(i) [W] for d.c. controlled contactor		N/A
	The published value shall be equal to the average value of the 5 tested coils		P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Sh = Σ (Us(i) × I(i)) / 5 [VA] respectively	1#: 24 Vac: 31,25 VA 2#: 24 Vac: 30,27 VA 3#: 48 Vac: 28,01 VA 4#: 380 Vac: 25,86 VA 5#: 380 Vac: 26,14 VA	P
9.3.3.2.1.2.3	Pick-up power for a.c. controlled contactor or d.c. controlled contactor with separate pick-up and hold-on windings		P
	The pick-up measurement shall be performed directly after the measurement of the hold current (see 9.3.3.2.1.2.2)		P
	The current measurement I(i) of the coil shall be performed immediately after the coil has been de-energized, the contactor has been held in the Off position and re-energized		P
	The pick-up power consumption is defined as follows		P
	Sp(i) = Us × I(i) [VA] for a.c. controlled contactor		P
	Pp(i) = Us × I(i) [W] for d.c. controlled contactor with separate pick-up and hold windings		N/A
	The published value shall be equal to the average value of the 5 tested coils		P
	Sp = Σ (Us(i) × I(i)) / 5 [VA] respectively	1#: 24 Vac: 77,50 VA 2#: 24 Vac: 77,32 VA 3#: 48 Vac: 105,8 VA 4#: 380 Vac: 238,6 VA 5#: 380 Vac: 237,7 VA	P
9.3.3.2.1.3	Pole impedance		P
	The pole impedance shall be determined during the test and with the conditions given in 9.3.3.3.4.		P
	The test in an enclosure is not deemed necessary even if the contactor can be used in an individual enclosure		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The voltage drop Ud shall be measured between the line and load terminals (terminals included) of the contactor preferably at the same time the temperature rise is measured		P
	The impedance per pole is defined as follows		P
	Z = Ud / Ith [Ω]	0,73~0,81 mΩ	P
	Care should be taken that voltage drop measurement does not significantly affect the temperature rise nor affect significantly the impedance		P
9.3.3.2.2	Relays and releases		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3	Performance under no load, normal load and overload conditions		P
9.3.3.1	Operation		N/A
9.3.3.2	Operating limits		P
9.3.3.2.1	Power-operated equipment:		P
8.2.1.2.1	Electromagnetic contactors and starters	NC1-8004 Ith=125 A	P
	rated control supply voltage Us (V) ..... :	24, 48, 110, 220 380 Vac	P
	frequency (Hz) ..... :	50/60 Hz	P
	declared ambient temperature(>40 °C) for 100% Us :		P
	limits of close satisfactorily at any value between 85% and 110% of rated control supply voltage Us ..... :	Refer to test report no. 3301043.50	P
	ambient temperature(-5 °C) for 100% Us		P
	Drop out test method		P
	Limits of drop out and open fully are: 75% to 20% for a.c. and 75% to 10% for d.c. ..... :	Refer to test report no. 3301043.50	P
8.2.1.2.2	Contactors and starters with electronically controlled electromagnet		N/A
8.2.1.2.3	Electro-pneumatic contactors and starters		N/A
8.2.1.2.4	Capacitive drop out test		N/A
	A capacitor shall be inserted in series in the supply circuit U_s, the total length of the connecting conductors being ≤ 3 m.		N/A
	The capacitor is short-circuit by a switch of negligible impedance.		N/A
	The supply voltage shall then be adjusted to 110 % U_s. ..... :		N/A
	The value of the capacitor shall be calculated: C (nF) = 30 + 200000 / (f x U_s) ..... :		N/A
	Verification of the drop out of the contactor when the switch is operated to the open position..... :		N/A
9.3.3.2.1.2	Coil power consumption		P
	A contactor coil is evaluated for both holding power and pick-up power		P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	In the case where different coils cover a range of voltages, 5 coils shall be tested		P
	The coil with the lowest rated control supply voltage Us, the coil with the highest rated control supply voltage Us, plus 3 coils deemed to be representative of the coils with the highest calculated hold power at the discretion of the manufacturer		P
	The test shall be performed at ambient temperature +23 °C ± 3 °C	25,7 °C	P
	The test shall be made without any load in the main and auxiliary circuits		P
	The coil shall be supplied with the rated control supply voltage Us and at the rated frequency		P
	For a given coil, where a voltage range is declared, the test shall be made at the highest voltage at the respective frequency		P
	The measured values shall be obtained with a r.m.s. measurement method covering at least a bandwidth from 0 Hz to 10 kHz and the resulting power values shall be given within a measurement uncertainty better than 5 %		P
9.3.3.2.1.2 .2	Holding power for conventional and electronically controlled electromagnet		P
	The current measurement I(i) of the coil shall be performed after the coil has been energized and has reached a stable temperature		P
	The holding power consumption is defined as follows		P
	Sh(i) = Us(i) × I(i) [VA] for a.c. controlled contactor		P
	Pc(i) = Us(i) × I(i) [W] for d.c. controlled contactor		N/A
	The published value shall be equal to the average value of the 5 tested coils		P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Sh = Σ (Us(i) × I(i)) / 5 [VA] respectively	6#: 24 Vac: 26,64 VA 7#: 24 Vac: 27,54 VA 8#: 110 Vac: 28,65 VA 9#: 380 Vac: 26,18 VA 10#: 380 Vac: 25,82 VA	P
9.3.3.2.1.2.3	Pick-up power for a.c. controlled contactor or d.c. controlled contactor with separate pick-up and hold-on windings		P
	The pick-up measurement shall be performed directly after the measurement of the hold current (see 9.3.3.2.1.2.2)		P
	The current measurement I(i) of the coil shall be performed immediately after the coil has been de-energized, the contactor has been held in the Off position and re-energized		P
	The pick-up power consumption is defined as follows		P
	Sp(i) = Us × I(i) [VA] for a.c. controlled contactor		P
	Pp(i) = Us × I(i) [W] for d.c. controlled contactor with separate pick-up and hold windings		N/A
	The published value shall be equal to the average value of the 5 tested coils		P
	Sp = Σ (Us(i) × I(i)) / 5 [VA] respectively	6#: 24 Vac: 77,32 VA 7#: 24 Vac: 77,32 VA 8#: 110 Vac: 238,2 VA 9#: 380 Vac: 240,0 VA 10#: 380 Vac: 237,1 VA	P
9.3.3.2.1.3	Pole impedance		P
	The pole impedance shall be determined during the test and with the conditions given in 9.3.3.3.4.		P
	The test in an enclosure is not deemed necessary even if the contactor can be used in an individual enclosure		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The voltage drop Ud shall be measured between the line and load terminals (terminals included) of the contactor preferably at the same time the temperature rise is measured		P
	The impedance per pole is defined as follows		P
	Z = Ud / Ith [Ω]	0,67~0,78 mΩ	P
	Care should be taken that voltage drop measurement does not significantly affect the temperature rise nor affect significantly the impedance		P
9.3.3.2.2	Relays and releases		N/A
9.3.3.4	Test of dielectric properties	Refer to test report no. 3301043.50	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.1 b)	Compliance with performance requirements		P
	TEST SEQUENCE 2		P
	Verification of rated making and breaking capacities, change-over ability and reversibility, where applicable (Clause 9.3.3.5.)		P
	- verification of conventional operational performance (Clause 9.3.3.6)		P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3.5	Making and breaking capacity		P
	Conditions, make operations only ..... :	Test at AC-3	P
	Type of product ..... :	11#: NC1-8004 (Us=24 Vac) Ith=110 A	P
	utilization category ..... :	AC-3, AC-4	P
	Control voltage 25 times at 110% and 25 times at 85% for AC-3 and AC-4	20,4 V, 25 times 26,4 V, 25 times	P
	rated operational voltage Ue (V) :	415 V	P
	rated operational current Ie (A) or power (kW) ... :	95 A at AC-3 (rating of NC1-95)	P
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 437,5 V L2-L3: 437,5 V L3-L1: 437,5 V	P
	- test current (A) I/Ie = 10..... :	L1: 953,54 A L2: 954,71 A L3: 969,02 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	61,3 ms	P
	- off-time (s) ..... :	10 s	P
	- number of make operations ..... :	50	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
	Conditions, make/break operations only ..... :	Test at AC-3	P
	Type of product ..... :	11#: NC1-8004 (Us=24 Vac) Ith=110 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	415 V	P
	rated operational current Ie (A) or power (kW) ... :	95 A at AC-3 (rating of NC1-95)	P
	For starters incorporated two contactors, 2 contactor shall be used with the following sequence: Close A – open A – close B – open B- off period		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 437,3 V L2-L3: 437,3 V L3-L1: 437,3 V	P
	- test current (A)I/Ie = 8..... :	L1: 768,75 A L2: 765,49 A L3: 773,63 A	P
	- power factor/time constant ..... :	0,45	P
	- on-time (ms) ..... :	52,5 ms	P
	- off-time (s) ..... :	80 s	P
	- number of operations	☒ 50 make/ break	P
	Number of operation energized simultaneously	N/A	N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	60,64 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	60,60 kHz	P
	Factor y ..... :	1,11	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
9.3.3.6	Operational performance capability:		P
	Type of product ..... :	11#: NC1-8004 (Us=24 Vac) Ith=110 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	415 V	P
	rated operational current Ie (A) or power (kW) ... :	44 A at AC-4 (rating of NC1-95)	P
	Conditions, make/break operations:	test at AC-4	P
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 437,1 V L2-L3: 437,1 V L3-L1: 437,1 V	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- test current (A) I/Ie = 6..... :	L1: 265,03 A L2: 264,04 A L3: 269,39 A	P
	- power factor/time constant ..... :	0,46	P
	- on-time (ms) ..... :	50,5 ms	P
	- off-time (s) ..... :	30 s	P
	- number of operations	☒ 6000 make/ break	P
	Number of operation energized simultaneously		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	49,08 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	49,10 kHz	P
	Factor y ..... :	1,10	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
8.3.3.4	Dielectric verification		P
	test voltage (2 Ui), min 1000 V for 5 s. (V) ..... :	1000 V, 60 s	P
	No flashover or breakdown		P
8.3.3.5	Leakage current equipment suitable for isolation		N/A
	test voltage (1,1 Ue) (V) ..... :		N/A
	Leakage current: ≤ 2 mA /pole ..... :		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3.5	Making and breaking capacity		P
	Conditions, make operations only ..... :	Test at AC-3	P
	Type of product ..... :	13#: NC1-8004 (Us=24 Vac) Ith=125 A	P
	utilization category ..... :	AC-3, AC-4	P
	Control voltage 25 times at 110% and 25 times at 85% for AC-3 and AC-4	20,4 V, 25 times 26,4 V, 25 times	P
	rated operational voltage Ue (V) :	415 V	P
	rated operational current Ie (A) or power (kW) ... :	95 A at AC-3 (rating of NC1-95)	P
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 437,5 V L2-L3: 437,5 V L3-L1: 437,5 V	P
	- test current (A) I/Ie = 10..... :	L1: 953,54 A L2: 954,71 A L3: 969,02 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	62,3 ms	P
	- off-time (s) ..... :	10 s	P
	- number of make operations ..... :	50	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
	Conditions, make/break operations only ..... :	Test at AC-3	P
	Type of product ..... :	13#: NC1-8004 (Us=24 Vac) Ith=125 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	415 V	P
	rated operational current Ie (A) or power (kW) ... :	95 A at AC-3 (rating of NC1-95)	P
	For starters incorporated two contactors, 2 contactor shall be used with the following sequence: Close A – open A – close B – open B- off period		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 437,3 V L2-L3: 437,3 V L3-L1: 437,3 V	P
	- test current (A)I/Ie = 8..... :	L1: 768,75 A L2: 765,49 A L3: 773,63 A	P
	- power factor/time constant ..... :	0,45	P
	- on-time (ms) ..... :	50,8 ms	P
	- off-time (s) ..... :	80 s	P
	- number of operations	☒ 50 make/ break	P
	Number of operation energized simultaneously	N/A	N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	60,64 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	60,60 kHz	P
	Factor y ..... :	1,11	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
9.3.3.6	Operational performance capability:		P
	Type of product ..... :	13#: NC1-8004 (Us=24 Vac) Ith=125 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	415 V	P
	rated operational current Ie (A) or power (kW) ... :	44 A at AC-4 (rating of NC1-95)	P
	Conditions, make/break operations:	test at AC-4	P
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 437,1 V L2-L3: 437,1 V L3-L1: 437,1 V	P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- test current (A) I/Ie = 6..... :	L1: 265,03 A L2: 264,04 A L3: 269,39 A	P
	- power factor/time constant ..... :	0,46	P
	- on-time (ms) ..... :	60,5 ms	P
	- off-time (s) ..... :	30 s	P
	- number of operations	☒ 6000 make/ break	P
	Number of operation energized simultaneously		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	49,08 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	49,10 kHz	P
	Factor y ..... :	1,10	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
8.3.3.4	Dielectric verification		P
	test voltage (2 Ui), min 1000 V for 5 s. (V) ..... :	1000 V, 60 s	P
	No flashover or breakdown		P
8.3.3.5	Leakage current equipment suitable for isolation		N/A
	test voltage (1,1 Ue) (V) ..... :		N/A
	Leakage current: ≤ 2 mA /pole ..... :		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3.5	Making and breaking capacity		P
	Conditions, make operations only ..... :	Test at AC-3	P
	Type of product..... :	12#: NC1-8004 (Us=380 Vac) Ith=110 A	P
	utilization category ..... :	AC-3, AC-4	P
	Control voltage 25 times at 110% and 25 times at 85% for AC-3 and AC-4	323 V, 25 times 418 V, 25 times	P
	rated operational voltage Ue (V) :	690 V	P
	rated operational current Ie (A) or power (kW) ..... :	49 A at AC-3	P
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 726,3 V L2-L3: 726,3 V L3-L1: 726,3 V	P
	- test current (A) I/Ie = 10..... :	L1: 490,52 A L2: 490,23 A L3: 495,59 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	68,4 ms	P
	- off-time (s) ..... :	10 s	P
	- number of make operations ..... :	50	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
	Conditions, make/break operations only..... :	Test at AC-3	P
	Type of product..... :	12#: NC1-8004 (Us=380 Vac) Ith=110 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	690 V	P
	rated operational current Ie (A) or power (kW) ..... :	49 A at AC-3	P
	For starters incorporated two contactors, 2 contactor shall be used with the following sequence: Close A – open A – close B – open B- off period		P

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- test voltage (V) U/Ue = 1,05 ..... :	L1: 726,5 V L2: 726,5 V L3: 726,5 V	P
	- test current (A)I/Ie = 8..... :	L1: 391,01 A L2: 391,33 A L3: 398,69 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	67,9 ms	P
	- off-time (s) ..... :	30 s	P
	- number of operations	☒ 50 make/ break	P
	Number of operation energized simultaneously	N/A	N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	35,37 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	35,50 kHz	P
	Factor y ..... :	1,10	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
9.3.3.6	Operational performance capability:		P
	Type of product..... :	12#: NC1-8004 (Us=380 Vac) Ith=110 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	690 V	P
	rated operational current Ie (A) or power (kW) ..... :	21,3 A at AC-4(Rating of NC1-95)	P
	Conditions, make/break operations:	test at AC-4	P
	- test voltage (V) U/Ue = 1,05 :	L1-L2: 726,3 V L2-L3: 726,3 V L3-L1: 726,3 V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- test current (A) I/Ie = 6..... :	L1: 128,13 A L2: 128,73 A L3: 128,28 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	61,8 ms	P
	- off-time (s) ..... :	20 s	P
	- number of operations	☒ 6000 make/ break	P
	Number of operation energized simultaneously		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	28,26 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	28,25 kHz	P
	Factor y ..... :	1,11	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
8.3.3.4	Dielectric verification		P
	test voltage (2 Ui), min 1000 V for 5 s. (V) ..... :	1380 V, 60 s	P
	No flashover or breakdown		P
8.3.3.5	Leakage current equipment suitable for isolation		N/A
	test voltage (1,1 Ue) (V) ..... :		N/A
	Leakage current: ≤ 2 mA /pole ..... :		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.3.5	Making and breaking capacity		P
	Conditions, make operations only ..... :	Test at AC-3	P
	Type of product..... :	14#: NC1-8004 (Us=380 Vac) Ith=125 A	P
	utilization category ..... :	AC-3, AC-4	P
	Control voltage 25 times at 110% and 25 times at 85% for AC-3 and AC-4	323 V, 25 times 418 V, 25 times	P
	rated operational voltage Ue (V) :	690 V	P
	rated operational current Ie (A) or power (kW) ..... :	49 A at AC-3	P
	- test voltage (V) U/Ue = 1,05 ..... :	L1-L2: 726,3 V L2-L3: 726,3 V L3-L1: 726,3 V	P
	- test current (A) I/Ie = 10..... :	L1: 490,52 A L2: 490,23 A L3: 495,59 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	61,8 ms	P
	- off-time (s) ..... :	10 s	P
	- number of make operations ..... :	50	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
	Conditions, make/break operations only..... :	Test at AC-3	P
	Type of product..... :	14#: NC1-8004 (Us=380 Vac) Ith=125 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	690 V	P
	rated operational current Ie (A) or power (kW) ..... :	49 A at AC-3	P
	For starters incorporated two contactors, 2 contactor shall be used with the following sequence: Close A – open A – close B – open B- off period		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- test voltage (V) U/Ue = 1,05 ..... :	L1: 726,5 V L2: 726,5 V L3: 726,5 V	P
	- test current (A)I/Ie = 8..... :	L1: 391,01 A L2: 391,33 A L3: 398,69 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	61,3 ms	P
	- off-time (s) ..... :	30 s	P
	- number of operations	☒ 50 make/ break	P
	Number of operation energized simultaneously	N/A	N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	35,37 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	35,50 kHz	P
	Factor y ..... :	1,10	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
9.3.3.6	Operational performance capability:		P
	Type of product..... :	14#: NC1-8004 (Us=380 Vac) Ith=125 A	P
	utilization category ..... :	AC-3, AC-4	P
	rated operational voltage Ue (V) ..... :	690 V	P
	rated operational current Ie (A) or power (kW) ..... :	21,3 A at AC-4(Rating of NC1-95)	P
	Conditions, make/break operations:	test at AC-4	P
	- test voltage (V) U/Ue = 1,05 :	L1-L2: 726,3 V L2-L3: 726,3 V L3-L1: 726,3 V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- test current (A) I/Ie = 6..... :	L1: 128,13 A L2: 128,73 A L3: 128,28 A	P
	- power factor/time constant ..... :	0,44	P
	- on-time (ms) ..... :	62,5 ms	P
	- off-time (s) ..... :	20 s	P
	- number of operations	☒ 6000 make/ break	P
	Number of operation energized simultaneously		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		P
	oscillatory frequency (kHz) ..... :	28,26 kHz ±10%	P
	Measured oscillatory frequency (kHz) ..... :	28,25 kHz	P
	Factor y ..... :	1,11	P
	Behaviour and condition during and after the test:		P
	- 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
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		P
8.3.3.4	Dielectric verification		P
	test voltage (2 Ui), min 1000 V for 5 s. (V) ..... :	1380 V, 60 s	P
	No flashover or breakdown		P
8.3.3.5	Leakage current equipment suitable for isolation		N/A
	test voltage (1,1 Ue) (V) ..... :		N/A
	Leakage current: ≤ 2 mA /pole ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.3.1 c)	Compliance with performance requirements		P
	TEST SEQUENCE 3		P
	- Performance under short-circuit conditions (Clause 9.3.4)		P
9.3.4	Performance under short-circuit conditions		P
	If devices tested in free air may also be used in an individual enclosure, they shall be additionally tested in the smallest of such enclosures stated by the manufacturer.		N/A
	For devices tested only in free air, information shall be provided to indicate that the device has not been evaluated for use in an individual enclosure.		P
	The individual enclosure shall be in accordance with the manufacturer specifications. In case of multiple enclosure options are provided, the individual enclosure with the smallest volume shall be taken		N/A
	Maximum Ie and maximum Ue for AC-3 are covered		P
	Sub clause 8.3.4.1.2 of part 1 applies except that, for type “1” co-ordination, the fusible element F and resistor are replaced by a solid 6 mm^2 wire of 1,2 m to 1,8 m length connected to the neutral, or with the agreement of the manufacturer, to one of the phases	☒ neutral ☐ phase ____	P
	Rated control supply voltage..... :	24 Vac	P
9.3.4.2.1	Test at the prospective current "r":		P
	type of product ..... :	15#: NC1-8004 (Us=24 Vac) Ith=110 A	P
	test circuit, figure 9, 10, 11, 12..... :	figure 11	P
	type of SCPD ..... :	RT36-1 (NT1), gG, 100 A	P
	ratings of SCPD, co-ordination type 1 ..... :	100 A, 50 kA at 690 V Manufactured by CHINT	P
	ratings of SCPD, co-ordination type 2 ..... :		N/A
	rated operational current Ie (A) AC-3 ..... :	49 A	P
	rated operational voltage (V)..... :	690 Vac	P
	prospective current "r" (kA) (table 13) ..... :	5 kA	P
	Wire size (mm^2) type 1	10 mm^2	P
	Wire size (mm^2) type 2		N/A
	test voltage (V) ..... :	L1-L2: 736,9 V L2-L3: 736,9 V L3-L1: 736,9 V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	r.m.s. test current (A) ..... :	L1: 5072 A L2: 5017 A L3: 5122 A	P
	peak current (A) ..... :	L1: 7734 A L2: 7229 A L3: 7836 A	P
	power factor	0,69	P
	1. one breaking operation of SCPD with all the switching devices closed prior to the test I²dt and Ip (A²s / A) ..... :	L1: 69,00 kA²s / 4956 A L2: 60,56 kA²s / 4340 A L3: 81,51 kA²s / 4141 A	P
	2. one breaking operation of SCPD by closing the contactor or starter on to the short-circuit I²dt and Ip (A²s / A)	L1: 57,44 kA²s / 4979 A L2: 42,09 kA²s / 3951 A L3: 83,68 kA²s / 4339 A	P
9.3.4.2.3	Behaviour of the equipment during the test		P
	Both types of co-ordination (all devices):		P
	A - the fault current has been successfully interrupted by the SCPD, the combination starter or the combination switching device and the fuse or fusible element, or solid connection between the enclosure and supply shall not have melted		P
	B - the door or cover of the enclosure has not been blown open and it is possible to open the door or cover. Degree of protection by the enclosure is not less than IP2X		P
	C - there is no damage to the conductors or terminals and the conductors have not been separated from the terminals		P
	D – there is no cracking or breaking of an insulating base to the extent that the integrity of mounting of a live part is impaired		P
	Both types of co-ordination (combination starters and protected starters only):		N/A
	E – the circuit breaker or switch is capable of being opened manually by its operating means		N/A
	F - neither end of the SCPD is completely separated from its mounting means to an exposed conductive part		N/A
	G - if a circuit breaker with rated ultimate short-circuit breaking capacity less than the rated conditional short-circuit current assigned to the combination starter, the combination switching device, the protected starter or the protected switching device is employed, the circuit breaker shall be tested to trip as follows:		N/A
	a) circuit breaker with instantaneous trip relays or releases, at 120% of the trip current		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) circuit breaker with overload relays or releases, at 250% of the rated current of the circuit breaker		N/A
	Type 1 co-ordination (all devices):		P
	H – There has been no discharge of parts beyond the enclosure. Damage to the contactor and the overload relay is acceptable. The starter may be inoperative after each operation. The starter shall there fore be inspected and the contactor and/or the overload relay and the release of the circuit-breaker shall be reset if necessary and, in the case of fuse protection, all fuse-links shall be replaced.		P
	Type 1 co-ordination (combination and protected starters only):		N/A
	I - The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 is verified after each operation (at currents “r” and “Iq” by a dielectric test on the complete unit under test (SCPD plus contctor/starter but before replacement of parts). The test voltage shall be applied to the incoming supply terminals, with the switch or circuit-breaker in open position, as follows:		N/A
	I - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V ..... :		N/A
	- between each pole and all other poles connected to the frame of the starter		N/A
	- between all live parts of all poles connected together and the frame of the starter		N/A
	- between the terminals of the line side connected together and terminals of the other side connected together		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in open position, at test voltage of 1,1 Ue and shall not exceed 6 mA		N/A
	Type 2 co-ordination (all devices)		N/A
	J - no damage to the overload relay or other parts has occurred, except that welding of contactor or starter contacts is permitted, if they are easily separated (e.g. by a screwdriver) without significant deformation, but no replacement of parts is permitted during the test, except that , in case of fuse protection, all fuse shall be replaced.		N/A
	In the case of welded contact as described above, the functionally of the device shall be verified by carrying out 10 operations under the conditions of table 8 for the applicable utilization category.		N/A
	Operational performance capability (9.3.3.6):		N/A
	Type of product :		N/A
	utilization category :		N/A
	rated operational voltage Ue (V) :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	rated operational current Ie (A) or power (kW) :		N/A
	Conditions, make/break operations:		N/A
	- test voltage U/Ue = 1,05 (V) :		N/A
	- test current (A) I/Ie = 6 :		N/A
	- power factor/time constant :		N/A
	- on-time (ms) :		N/A
	- off-time (s) :		N/A
	- number of make/break operations :		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		N/A
	oscillatory frequency (kHz) :		N/A
	Measured oscillatory frequency (kHz) :		N/A
	Factor y :		N/A
	Behaviour and condition during and after the test:		N/A
	- no permanent arcing		N/A
	- no flash-over between poles		N/A
	- no blowing of the fusible element in the earth circuit		N/A
	- no welding of the contacts		N/A
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		N/A
9.3.4.2.3	K The tripping of the overload relay shall be verified at a multiple of the current setting and shall conform to the published tripping characteristics, according to 5.7.5, both before and after the short-circuit test.		N/A
	L The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 shall be verified by a dielectric test on the contactor , starter, the combination starter, the combination switching device , the protected starter or protected switching device as follows:		N/A
	L - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V :		N/A
	- between all the terminals of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation		N/A
	- between each pole of the main circuit and the other poles connected together and to the enclosure ore mounting plate with the contacts in all normal positions of operation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- between each control and auxiliary circuit not normally connected to the main circuit and: - the main circuit - the other circuits - the exposed conductive parts - the enclosure or mounting plate		N/A
	In case of combination starters, combination switching devices, protected starters and protecting switching devices, additional tests according to 8.3.3.4.1, item 3) of part 1 shall be made as follows:		N/A
	Dielectric verification test voltage according table 12A of part 1) for 5 s (V)		N/A
	across the main poles of the device with the contacts of the switch or of the circuit- breaker open and the contacts of the starter closed		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in the open position, at a test voltage of 1,1 Ue and shall not exceed 2 mA		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.3.4	Performance under short-circuit conditions		P
	If devices tested in free air may also be used in an individual enclosure, they shall be additionally tested in the smallest of such enclosures stated by the manufacturer.		N/A
	For devices tested only in free air, information shall be provided to indicate that the device has not been evaluated for use in an individual enclosure.		P
	The individual enclosure shall be in accordance with the manufacturer specifications. In case of multiple enclosure options are provided, the individual enclosure with the smallest volume shall be taken		N/A
	Maximum Ie and maximum Ue for AC-3 are covered		P
	Sub clause 8.3.4.1.2 of part 1 applies except that, for type “1” co-ordination, the fusible element F and resistor are replaced by a solid 6 mm^2 wire of 1,2 m to 1,8 m length connected to the neutral, or with the agreement of the manufacturer, to one of the phases	☒ neutral ☐ phase ____	P
	Rated control supply voltage..... :	380 Vac	P
9.3.4.2.1	Test at the prospective current "r":		P
	type of product ..... :	16#+22#: NC1-8004 (Us=380 Vac) Ith=125 A	P
	test circuit, figure 9, 10, 11, 12..... :	figure 11	P
	type of SCPD ..... :	RT36-1 (NT1), gG, 100 A	P
	ratings of SCPD, co-ordination type 1 ..... :	100 A, 50 kA at 690 V Manufactured by CHINT	P
	ratings of SCPD, co-ordination type 2 ..... :		N/A
	rated operational current Ie (A) AC-3 ..... :	49 A	P
	rated operational voltage (V)..... :	690 Vac	P
	prospective current "r" (kA) (table 13) ..... :	5 kA	P
	Wire size (mm^2) type 1	10 mm^2	P
	Wire size (mm^2) type 2		N/A
	test voltage (V) ..... :	L1-L2: 736,9 V L2-L3: 736,9 V L3-L1: 736,9 V	P
	r.m.s. test current (A) ..... :	L1: 5072 A L2: 5017 A L3: 5122 A	P

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Clause	Requirement + Test	Result - Remark	Verdict
	peak current (A) ..... :	L1: 7734 A L2: 7229 A L3: 7836 A	P
	power factor	0,69	P
	1. one breaking operation of SCPD with all the switching devices closed prior to the test I²dt and Ip (A²s / A) ..... :	16# L1: 51,99 kA²s / 4485 A L2: 30,09 kA²s / 3410 A L3: 91,08 kA²s / 4977 A	P
	2. one breaking operation of SCPD by closing the contactor or starter on to the short-circuit I²dt and Ip (A²s / A)	22# L1: 72,93 kA²s / 3925 A L2: 71,50 kA²s / 3699 A L3: 62,21 kA²s / 4974 A	P
9.3.4.2.3	Behaviour of the equipment during the test		P
	Both types of co-ordination (all devices):		P
	A - the fault current has been successfully interrupted by the SCPD, the combination starter or the combination switching device and the fuse or fusible element, or solid connection between the enclosure and supply shall not have melted		P
	B - the door or cover of the enclosure has not been blown open and it is possible to open the door or cover. Degree of protection by the enclosure is not less than IP2X		P
	C - there is no damage to the conductors or terminals and the conductors have not been separated from the terminals		P
	D – there is no cracking or breaking of an insulating base to the extent that the integrity of mounting of a live part is impaired		P
	Both types of co-ordination (combination starters and protected starters only):		N/A
	E – the circuit breaker or switch is capable of being opened manually by its operating means		N/A
	F - neither end of the SCPD is completely separated from its mounting means to an exposed conductive part		N/A
	G - if a circuit breaker with rated ultimate short-circuit breaking capacity less than the rated conditional short-circuit current assigned to the combination starter, the combination switching device, the protected starter or the protected switching device is employed, the circuit breaker shall be tested to trip as follows:		N/A
	a) circuit breaker with instantaneous trip relays or releases, at 120% of the trip current		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) circuit breaker with overload relays or releases, at 250% of the rated current of the circuit breaker		N/A
	Type 1 co-ordination (all devices):		P
	H – There has been no discharge of parts beyond the enclosure. Damage to the contactor and the overload relay is acceptable. The starter may be inoperative after each operation. The starter shall there fore be inspected and the contactor and/or the overload relay and the release of the circuit-breaker shall be reset if necessary and, in the case of fuse protection, all fuse-links shall be replaced.	16# tested O, the sample was welding, so tested CO on the new sample 22#	P
	Type 1 co-ordination (combination and protected starters only):		N/A
	I - The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 is verified after each operation (at currents “r” and “Iq” by a dielectric test on the complete unit under test (SCPD plus contctor/starter but before replacement of parts). The test voltage shall be applied to the incoming supply terminals, with the switch or circuit-breaker in open position, as follows:		N/A
	I - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V ..... :		N/A
	- between each pole and all other poles connected to the frame of the starter		N/A
	- between all live parts of all poles connected together and the frame of the starter		N/A
	- between the terminals of the line side connected together and terminals of the other side connected together		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in open position, at test voltage of 1,1 Ue and shall not exceed 6 mA		N/A
	Type 2 co-ordination (all devices)		N/A
	J - no damage to the overload relay or other parts has occurred, except that welding of contactor or starter contacts is permitted, if they are easily separated (e.g. by a screwdriver) without significant deformation, but no replacement of parts is permitted during the test, except that , in case of fuse protection, all fuse shall be replaced.		N/A
	In the case of welded contact as described above, the functionally of the device shall be verified by carrying out 10 operations under the conditions of table 8 for the applicable utilization category.		N/A
	Operational performance capability (9.3.3.6):		N/A
	Type of product :		N/A
	utilization category :		N/A
	rated operational voltage Ue (V) :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	rated operational current Ie (A) or power (kW) :		N/A
	Conditions, make/break operations:		N/A
	- test voltage U/Ue = 1,05 (V) :		N/A
	- test current (A) I/Ie = 6 :		N/A
	- power factor/time constant :		N/A
	- on-time (ms) :		N/A
	- off-time (s) :		N/A
	- number of make/break operations :		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		N/A
	oscillatory frequency (kHz) :		N/A
	Measured oscillatory frequency (kHz) :		N/A
	Factor y :		N/A
	Behaviour and condition during and after the test:		N/A
	- no permanent arcing		N/A
	- no flash-over between poles		N/A
	- no blowing of the fusible element in the earth circuit		N/A
	- no welding of the contacts		N/A
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		N/A
9.3.4.2.3	K The tripping of the overload relay shall be verified at a multiple of the current setting and shall conform to the published tripping characteristics, according to 5.7.5, both before and after the short-circuit test.		N/A
	L The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 shall be verified by a dielectric test on the contactor , starter, the combination starter, the combination switching device , the protected starter or protected switching device as follows:		N/A
	L - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V :		N/A
	- between all the terminals of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation		N/A
	- between each pole of the main circuit and the other poles connected together and to the enclosure ore mounting plate with the contacts in all normal positions of operation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- between each control and auxiliary circuit not normally connected to the main circuit and: - the main circuit - the other circuits - the exposed conductive parts - the enclosure or mounting plate		N/A
	In case of combination starters, combination switching devices, protected starters and protecting switching devices, additional tests according to 8.3.3.4.1, item 3) of part 1 shall be made as follows:		N/A
	Dielectric verification test voltage according table 12A of part 1) for 5 s (V)		N/A
	across the main poles of the device with the contacts of the switch or of the circuit- breaker open and the contacts of the starter closed		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in the open position, at a test voltage of 1,1 Ue and shall not exceed 2 mA		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.3.4	Performance under short-circuit conditions		P
	If devices tested in free air may also be used in an individual enclosure, they shall be additionally tested in the smallest of such enclosures stated by the manufacturer.		N/A
	For devices tested only in free air, information shall be provided to indicate that the device has not been evaluated for use in an individual enclosure.		P
	The individual enclosure shall be in accordance with the manufacturer specifications. In case of multiple enclosure options are provided, the individual enclosure with the smallest volume shall be taken		N/A
	Maximum Ie and maximum Ue for AC-3 are covered		P
	Sub clause 8.3.4.1.2 of part 1 applies except that, for type “1” co-ordination, the fusible element F and resistor are replaced by a solid 6 mm^2 wire of 1,2 m to 1,8 m length connected to the neutral, or with the agreement of the manufacturer, to one of the phases	☒ neutral ☐ phase ____	P
	Rated control supply voltage..... :	380 Vac	P
9.3.4.2.2	Test at the rated conditional short-circuit current "Iq"		P
	Type of product ..... :	17#: NC1-8004 (Us=380 Vac) Ith=110 A	P
	Test circuit, figure 9, 10, 11, 12..... :	figure 11	P
	type of SCPD ..... :	RT36-1 (NT1) gG 100 A	P
	ratings of SCPD, co-ordination type 1 ..... :	100 A, 50 kA at 690 V Manufacturer by CHINT	P
	ratings of SCPD, co-ordination type 2 ..... :		N/A
	rated operational current Ie (A) AC-3 ..... :	49 A	P
	rated operational voltage (V)	690 Vac	P
	prospective current "Iq" (kA) ..... :	50 kA	P
	Wire size (mm^2) type 1	10 mm^2	P
	Wire size (mm^2) type 2		N/A
	test voltage (V) ..... :	L1-L2: 728 V L2-L3: 728 V L3-L1: 728 V	P
	r.m.s. test current (A) ..... :	L1: 50,7 kA L2: 50,7 kA L3: 50,2 kA	P

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Clause	Requirement + Test	Result - Remark	Verdict
	peak current (A) ..... :	L1: 105 kA L2: 88,8 kA L3: 87,5 kA	P
	power factor	0,25	P
	1. one breaking operation of SCPD with all the switching devices closed prior to the test I²t and Ip (A²s / A) ..... :	L1: 60,3 kA^2s / 8,01 kA L2: 105 kA^2s / 12,3 kA L3: 27,7 kA^2s / 5,26 kA	P
	2. one breaking operation of SCPD by closing the contactor or starter on to the short-circuit I²t and Ip (A²s / A) ..... :	L1: 102 kA^2s / 13,0 kA L2: 37,6 kA^2s / 4,60 kA L3: 79,2 kA^2s / 8,50 kA	P
9.3.4.2.3	Behaviour of the equipment during the test		P
	Both types of co-ordination (all devices):		P
	A - the fault current has been successfully interrupted by the SCPD, the combination starter or the combination switching device and the fuse or fusible element, or solid connection between the enclosure and supply shall not have melted		P
	B - the door or cover of the enclosure has not been blown open and it is possible to open the door or cover. Degree of protection by the enclosure is not less than IP2X		P
	C - there is no damage to the conductors or terminals and the conductors have not been separated from the terminals		P
	D – there is no cracking or breaking of an insulating base to the extent that the integrity of mounting of a live part is impaired		P
	Both types of co-ordination (combination starters and protected starters only):		N/A
	E – the circuit breaker or switch is capable of being opened manually by its operating means		N/A
	F - neither end of the SCPD is completely separated from its mounting means to an exposed conductive part		N/A
	G - if a circuit breaker with rated ultimate short-circuit breaking capacity less than the rated conditional short-circuit current assigned to the combination starter, the combination switching device, the protected starter or the protected switching device is employed, the circuit breaker shall be tested to trip as follows:		N/A
	a) circuit breaker with instantaneous trip relays or releases, at 120% of the trip current		N/A
	b) circuit breaker with overload relays or releases, at 250% of the rated current of the circuit breaker		N/A
	Type 1 co-ordination (all devices):		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	H – There has been no discharge of parts beyond the enclosure. Damage to the contactor and the overload relay is acceptable. The starter may be inoperative after each operation. The starter shall there fore be inspected and the contactor and/or the overload relay and the release of the circuit-breaker shall be reset if necessary and, in the case of fuse protection, all fuse-links shall be replaced.		N/A
	Type 1 co-ordination (combination and protected starters only):		N/A
	I - The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 is verified after each operation (at currents “r” and “Iq” by a dielectric test on the complete unit under test (SCPD plus contctor/starter but before replacement of parts). The test voltage shall be applied to the incoming supply terminals, with the switch or circuit-breaker in open position, as follows:		N/A
	I - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V ..... :		N/A
	- between each pole and all other poles connected to the frame of the starter		N/A
	- between all live parts of all poles connected together and the frame of the starter		N/A
	- between the terminals of the line side connected together and terminals of the other side connected together		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in open position, at test voltage of 1,1 Ue and shall not exceed 6 mA		N/A
	Type 2 co-ordination (all devices)		N/A
	J - no damage to the overload relay or other parts has occurred, except that welding of contactor or starter contacts is permitted, if they are easily separated (e.g. by a screwdriver) without significant deformation, but no replacement of parts is permitted during the test, except that , in case of fuse protection, all fuse shall be replaced.		N/A
	In the case of welded contact as described above, the functionally of the device shall be verified by carrying out 10 operations under the conditions of table 8 for the applicable utilization category.		N/A
	Operational performance capability (9.3.3.6):		N/A
	Type of product :		N/A
	utilization category :		N/A
	rated operational voltage Ue (V) :		N/A
	rated operational current Ie (A) or power (kW) :		N/A
	Conditions, make/break operations:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- test voltage U/Ue = 1,05 (V) :		N/A
	- test current (A) I/Ie = 6 :		N/A
	- power factor/time constant :		N/A
	- on-time (ms) :		N/A
	- off-time (s) :		N/A
	- number of make/break operations :		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		N/A
	oscillatory frequency (kHz) :		N/A
	Measured oscillatory frequency (kHz) :		N/A
	Factor y :		N/A
	Behaviour and condition during and after the test:		N/A
	- no permanent arcing		N/A
	- no flash-over between poles		N/A
	- no blowing of the fusible element in the earth circuit		N/A
	- no welding of the contacts		N/A
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		N/A
9.3.4.2.3	K The tripping of the overload relay shall be verified at a multiple of the current setting and shall conform to the published tripping characteristics, according to 5.7.5, both before and after the short-circuit test.		N/A
	L The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 shall be verified by a dielectric test on the contactor , starter, the combination starter, the combination switching device , the protected starter or protected switching device as follows:		N/A
	L - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V :		N/A
	- between all the terminals of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation		N/A
	- between each pole of the main circuit and the other poles connected together and to the enclosure ore mounting plate with the contacts in all normal positions of operation		N/A
	- between each control and auxiliary circuit not normally connected to the main circuit and: - the main circuit - the other circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- the exposed conductive parts - the enclosure or mounting plate		
	In case of combination starters, combination switching devices, protected starters and protecting switching devices, additional tests according to 8.3.3.4.1, item 3) of part 1 shall be made as follows:		N/A
	Dielectric verification test voltage according table 12A of part 1) for 5 s (V)		N/A
	across the main poles of the device with the contacts of the switch or of the circuit- breaker open and the contacts of the starter closed		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in the open position, at a test voltage of 1,1 Ue and shall not exceed 2 mA		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.3.4	Performance under short-circuit conditions		P
	If devices tested in free air may also be used in an individual enclosure, they shall be additionally tested in the smallest of such enclosures stated by the manufacturer.		N/A
	For devices tested only in free air, information shall be provided to indicate that the device has not been evaluated for use in an individual enclosure.		P
	The individual enclosure shall be in accordance with the manufacturer specifications. In case of multiple enclosure options are provided, the individual enclosure with the smallest volume shall be taken		N/A
	Maximum Ie and maximum Ue for AC-3 are covered		P
	Sub clause 8.3.4.1.2 of part 1 applies except that, for type “1” co-ordination, the fusible element F and resistor are replaced by a solid 6 mm^2 wire of 1,2 m to 1,8 m length connected to the neutral, or with the agreement of the manufacturer, to one of the phases	☒ neutral ☐ phase ____	P
	Rated control supply voltage..... :	24 Vac	P
9.3.4.2.2	Test at the rated conditional short-circuit current "Iq"		P
	Type of product ..... :	18#: NC1-8004 (Us=24 Vac) Ith=125 A	P
	Test circuit, figure 9, 10, 11, 12..... :	figure 11	P
	type of SCPD ..... :	RT36-1 (NT1) gG 100 A	P
	ratings of SCPD, co-ordination type 1 ..... :	100 A, 50 kA at 690 V Manufacturer by CHINT	P
	ratings of SCPD, co-ordination type 2 ..... :		N/A
	rated operational current Ie (A) AC-3 ..... :	49 A	P
	rated operational voltage (V)	690 Vac	P
	prospective current "Iq" (kA) ..... :	50 kA	P
	Wire size (mm^2) type 1	10 mm^2	P
	Wire size (mm^2) type 2		N/A
	test voltage (V) ..... :	L1-L2: 728 V L2-L3: 728 V L3-L1: 728 V	P
	r.m.s. test current (A) ..... :	L1: 50,7 kA L2: 50,7 kA L3: 50,2 kA	P

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Clause	Requirement + Test	Result - Remark	Verdict
	peak current (A) ..... :	L1: 105 kA L2: 88,8 kA L3: 87,5 kA	P
	power factor	0,25	P
	1. one breaking operation of SCPD with all the switching devices closed prior to the test I²t and Ip (A²s / A) ..... :	L1: 31,8 kA^2s / 4,90 kA L2: 124 kA^2s / 11,7 kA L3: 51,2 kA^2s / 7,73 kA	P
	2. one breaking operation of SCPD by closing the contactor or starter on to the short-circuit I²t and Ip (A²s / A) ..... :	L1: 88,9 kA^2s / 11,1 kA L2: 80,0 kA^2s / 12,1 kA L3: 26,9 kA^2s / 2,78 kA	P
9.3.4.2.3	Behaviour of the equipment during the test		P
	Both types of co-ordination (all devices):		P
	A - the fault current has been successfully interrupted by the SCPD, the combination starter or the combination switching device and the fuse or fusible element, or solid connection between the enclosure and supply shall not have melted		P
	B - the door or cover of the enclosure has not been blown open and it is possible to open the door or cover. Degree of protection by the enclosure is not less than IP2X		P
	C - there is no damage to the conductors or terminals and the conductors have not been separated from the terminals		P
	D – there is no cracking or breaking of an insulating base to the extent that the integrity of mounting of a live part is impaired		P
	Both types of co-ordination (combination starters and protected starters only):		N/A
	E – the circuit breaker or switch is capable of being opened manually by its operating means		N/A
	F - neither end of the SCPD is completely separated from its mounting means to an exposed conductive part		N/A
	G - if a circuit breaker with rated ultimate short-circuit breaking capacity less than the rated conditional short-circuit current assigned to the combination starter, the combination switching device, the protected starter or the protected switching device is employed, the circuit breaker shall be tested to trip as follows:		N/A
	a) circuit breaker with instantaneous trip relays or releases, at 120% of the trip current		N/A
	b) circuit breaker with overload relays or releases, at 250% of the rated current of the circuit breaker		N/A
	Type 1 co-ordination (all devices):		N/A

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	H – There has been no discharge of parts beyond the enclosure. Damage to the contactor and the overload relay is acceptable. The starter may be inoperative after each operation. The starter shall there fore be inspected and the contactor and/or the overload relay and the release of the circuit-breaker shall be reset if necessary and, in the case of fuse protection, all fuse-links shall be replaced.		N/A
	Type 1 co-ordination (combination and protected starters only):		N/A
	I - The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 is verified after each operation (at currents “r” and “Iq” by a dielectric test on the complete unit under test (SCPD plus contctor/starter but before replacement of parts). The test voltage shall be applied to the incoming supply terminals, with the switch or circuit-breaker in open position, as follows:		N/A
	I - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V ..... :		N/A
	- between each pole and all other poles connected to the frame of the starter		N/A
	- between all live parts of all poles connected together and the frame of the starter		N/A
	- between the terminals of the line side connected together and terminals of the other side connected together		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in open position, at test voltage of 1,1 Ue and shall not exceed 6 mA		N/A
	Type 2 co-ordination (all devices)		N/A
	J - no damage to the overload relay or other parts has occurred, except that welding of contactor or starter contacts is permitted, if they are easily separated (e.g. by a screwdriver) without significant deformation, but no replacement of parts is permitted during the test, except that , in case of fuse protection, all fuse shall be replaced.		N/A
	In the case of welded contact as described above, the functionally of the device shall be verified by carrying out 10 operations under the conditions of table 8 for the applicable utilization category.		N/A
	Operational performance capability (9.3.3.6):		N/A
	Type of product :		N/A
	utilization category :		N/A
	rated operational voltage Ue (V) :		N/A
	rated operational current Ie (A) or power (kW) :		N/A
	Conditions, make/break operations:		N/A

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	- test voltage U/Ue = 1,05 (V) :		N/A
	- test current (A) I/Ie = 6 :		N/A
	- power factor/time constant :		N/A
	- on-time (ms) :		N/A
	- off-time (s) :		N/A
	- number of make/break operations :		N/A
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		N/A
	oscillatory frequency (kHz) :		N/A
	Measured oscillatory frequency (kHz) :		N/A
	Factor y :		N/A
	Behaviour and condition during and after the test:		N/A
	- no permanent arcing		N/A
	- no flash-over between poles		N/A
	- no blowing of the fusible element in the earth circuit		N/A
	- no welding of the contacts		N/A
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		N/A
9.3.4.2.3	K The tripping of the overload relay shall be verified at a multiple of the current setting and shall conform to the published tripping characteristics, according to 5.7.5, both before and after the short-circuit test.		N/A
	L The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 shall be verified by a dielectric test on the contactor , starter, the combination starter, the combination switching device , the protected starter or protected switching device as follows:		N/A
	L - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V :		N/A
	- between all the terminals of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation		N/A
	- between each pole of the main circuit and the other poles connected together and to the enclosure ore mounting plate with the contacts in all normal positions of operation		N/A
	- between each control and auxiliary circuit not normally connected to the main circuit and: - the main circuit - the other circuits		N/A

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	- the exposed conductive parts - the enclosure or mounting plate		
	In case of combination starters, combination switching devices, protected starters and protecting switching devices, additional tests according to 8.3.3.4.1, item 3) of part 1 shall be made as follows:		N/A
	Dielectric verification test voltage according table 12A of part 1) for 5 s (V)		N/A
	across the main poles of the device with the contacts of the switch or of the circuit- breaker open and the contacts of the starter closed		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in the open position, at a test voltage of 1,1 Ue and shall not exceed 2 mA		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.3.1 d)	Compliance with performance requirements		P
	TEST SEQUENCE 4	Refer to test report no. 3301043.50	P
	- Verification of ability to withstand overload currents: Clause 9.3.5 (applicable for contactors only)		P
9.3.1	Compliance with performance requirements		P
e)	TEST SEQUENCE 5		P
	- Verification of mechanical properties of terminals: Clause 8.2.4 of IEC 6947-1:2007, 9.2.1 and 9.2.2 - Verification of degrees of protection of enclosed contactors and starters (see annex C of part 1)		P
8.2.4 part 1	Verification of mechanical properties of terminals	(see 8.2.4 part 1 above)	P
Annex C Part 1	Verification of degrees of protection of enclosed contactors and starters	(see 8.2.3 part 1 above)	N/A
	EMC tests		P
	Sub. Clause 8.3.2.1, 8.3.2.3 and 8.3.2.4 of part 1 apply	No electronic circuit included, no test is required.	P
	TEST SEQUENCE Annex B		N/A
	TEST SEQUENCE Annex F		N/A
	TEST SEQUENCE Annex H		N/A
	TEST SEQUENCE Annex K		N/A
	TEST SEQUENCE Annex M (part 1)		N/A
9.1.5.2	TEST SEQUENCE Special tests – damp heat, salt mist, vibration and shock		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

7.1.2.2	**TABLE: Resistance to fire (Glow wire test)**						P
No.	Description	Colour	Temp. (°C)	Burning after T(s)	drops	Support burning	P
1	Cover	greyish white	850 °C	0	No	No	P
2	lock catch	CHINT blue	850 °C	0	No	No	P

9.3.3.3	**TABLE 1 : temperature rise measurements**	**25#: NC1-8004 (Us=24 Vac) Ith=110 A**		P
temperature rise dT of part:		phase	dT (K)	required dT (K)
Incoming terminal		1/L1	62	65
Outgoing terminal		2/T1	50	65
Incoming terminal		3/L2	59	65
Outgoing terminal		4/T2	53	65
Incoming terminal		5/L3	64	65
Outgoing terminal		6/T3	58	65
Incoming terminal		7/L4	63	65
Outgoing terminal		8/T4	55	65
Coil terminal		A1	38	65
Coil terminal		A2	33	65
Exteriors of enclosures adjacent to cable entries			34	50
Coil			75	110
Supplementary information: Class of coil insulating material is B Terminal material is bare brass.				

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Clause	Requirement + Test	Result - Remark	Verdict

9.3.3.3	**TABLE 2 : temperature rise measurements**	**26#: NC1-8004 (Us=380 Vac) Ith=110 A**	P

temperature rise dT of part:	phase	dT (K)	required dT (K)
Incoming terminal	1/L1	61	65
Outgoing terminal	2/T1	53	65
Incoming terminal	3/L2	63	65
Outgoing terminal	4/T2	58	65
Incoming terminal	5/L3	62	65
Outgoing terminal	6/T3	57	65
Incoming terminal	7/L4	59	65
Outgoing terminal	8/T4	59	65
Coil terminal	A1	33	65
Coil terminal	A2	31	65
Exteriors of enclosures adjacent to cable entries		42	50
Coil		75	110

Supplementary information:
Class of coil insulating material is B
Terminal material is bare brass.

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Clause	Requirement + Test	Result - Remark	Verdict

9.3.3.3	**TABLE 3 : temperature rise measurements**	**27#: NC1-8004 (Us=24 Vac) Ith=125 A**	P

temperature rise dT of part:	phase	dT (K)	required dT (K)
Incoming terminal	1/L1	53	70
Outgoing terminal	2/T1	49	70
Incoming terminal	3/L2	59	70
Outgoing terminal	4/T2	56	70
Incoming terminal	5/L3	63	70
Outgoing terminal	6/T3	61	70
Incoming terminal	7/L4	64	70
Outgoing terminal	8/T4	57	70
Coil terminal	A1	29	65
Coil terminal	A2	29	65
Exteriors of enclosures adjacent to cable entries		36	50
Coil		63	110

Supplementary information:
Class of coil insulating material is B
The main circuit terminal material is silver plated.

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Clause	Requirement + Test	Result - Remark	Verdict

9.3.3.3	**TABLE 4 : temperature rise measurements**	**28#: NC1-8004 (Us=380 Vac) Ith=125 A**	P

temperature rise dT of part:	phase	dT (K)	required dT (K)
Incoming terminal	1/L1	51	70
Outgoing terminal	2/T1	46	70
Incoming terminal	3/L2	60	70
Outgoing terminal	4/T2	52	70
Incoming terminal	5/L3	61	70
Outgoing terminal	6/T3	50	70
Incoming terminal	7/L4	52	70
Outgoing terminal	8/T4	46	70
Coil terminal	A1	27	65
Coil terminal	A2	29	65
Exteriors of enclosures adjacent to cable entries		31	50
Coil		68	110

Supplementary information:
Class of coil insulating material is B
The main circuit terminal material is silver plated.

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Clause	Requirement + Test	Result - Remark	Verdict

Photographs:

NC1-8004 Front view

NC1-8004 Ith=110 A line terminal view

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Clause	Requirement + Test	Result - Remark	Verdict

NC1-8004 Ith=110 A load terminal view

NC1-8004 Ith=110 A internal view

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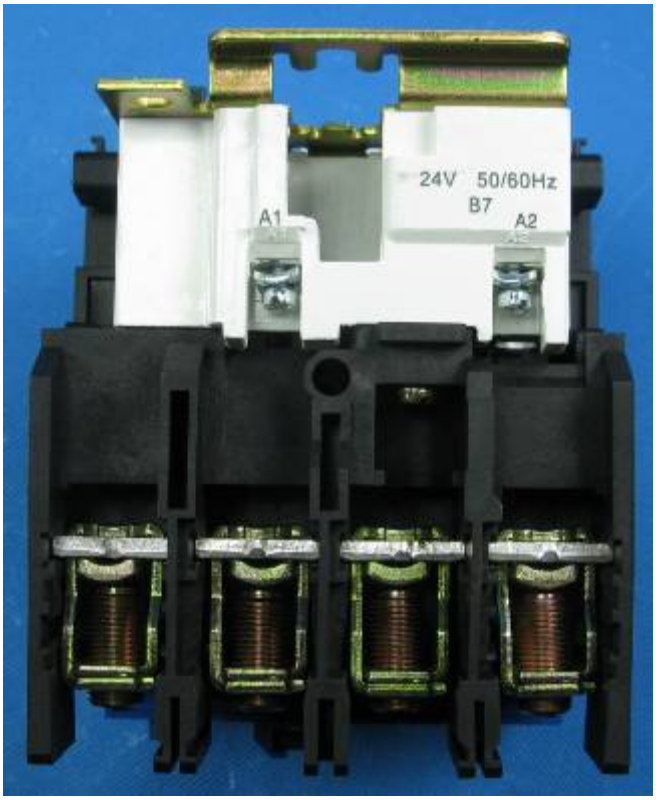

NC1-8004 Ith=125 A line terminal view

NC1-8004 Ith=125 A load terminal view

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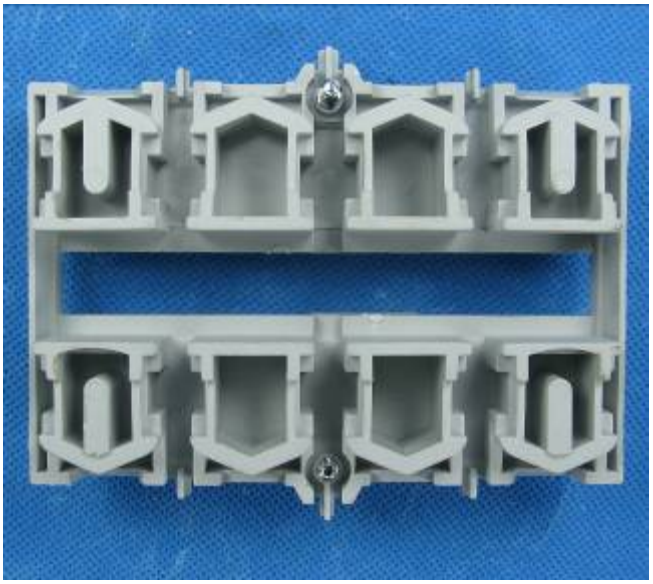
Clause	Requirement + Test	Result - Remark	Verdict

NC1-8004 Ith=125 A internal view



Cover