

До:

„ЧЕЗ РАЗПРЕДЕЛЕНИЕ БЪЛГАРИЯ“ АД,  
гр. София, 1309,  
ул. „Цар Симеон“ № 330,  
Деловодство  
Мариана Бецинска



## **ПРЕДЛОЖЕНИЕ ЗА ИЗПЪЛНЕНИЕ НА ПОРЪЧКАТА**

за участие в Открита процедура за възлагане на  
обществена поръчка с предмет  
«Доставка на прекъсвачи ниско напрежение»  
реф. № PPD 15-033

**Обособена позиция 2:**

**Доставка на триполюсни товарови прекъсвач-разединители  
НН с лят корпус**

от

**СЕМО ООД**

адрес за кореспонденция:

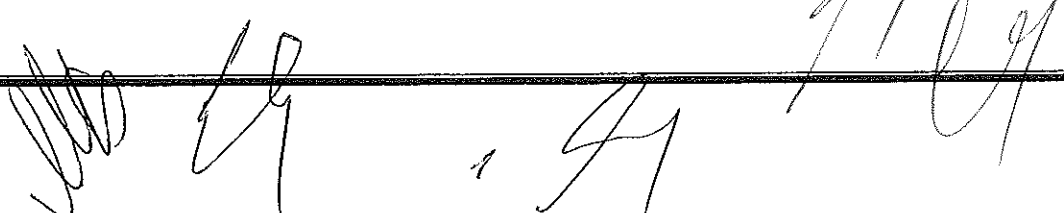
гр.София, бул. «Ботевградско шосе» No 247  
ТРАНСКАПИТАЛ, сграда 2, ет. 5, офис 2506

тел: 02 931 01 77, 02 94 24 757

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**10 Август 2015 г.**



VII. 1. За обособена позиция 2

**ТЕХНИЧЕСКО ПРЕДЛОЖЕНИЕ**

за открита процедура за възлагане на обществена поръчка с наименование:  
„Доставка на прекъсвачи ниско напрежение” и реф. № РРД 15-033.

**ДО: “ЧЕЗ РАЗПРЕДЕЛЕНИЕ БЪЛГАРИЯ” АД – гр. София, ул. „Цар Симеон” № 330**

**ОТ: СЕМО ООД – гр. София**

(участник)

Адрес на управление: гр. София ул. Ботевградско шосе, №. 247

тел.: 02 / 931 01 77 факс: 02/ 942 47 62; e-mail: engineering@semo.bg

Единен идентификационен код: 121837062,

Представявано от Андон Димитров Димитров – управител (длъжност)

Упълномощен представител за тази процедура (ако е предвидено) .....

с приложено пълномощно № ....., дата ..... Тел.: ..... / .....; факс: .....; e-mail: .....

**УВАЖАЕМИ ГОСПОДА,**

1. Запознат съм и приемам изискванията на Възложителя, като представям техническите спецификации от раздел IV на документацията с попълнени всички изисквани стойности за всички позиции от стоката по предмета на поръчката за обособена позиция 1.
2. Представям всички изисквани данни и документи, посочени в Приложение 2 от настоящото техническо предложение. Запознат съм с изискването, че представените документи трябва да бъдат на български език или с превод на български език, придружени с оригиналните документи, с изключение на каталозите и протоколите от типовите изпитвания, които могат да се представят и само на английски език.
3. Запознат съм, че представените от нас технически документи (протоколи от изпитания, каталози и др) са доказателство за декларираните от мен технически данни и параметри в техническите спецификации на стоката.
4. Потвърждавам, че представяните от нас стоки, описани в Техническото ни предложение ще отговарят на посочените от възложителя стандарти или на еквивалентни. В случай, че даден материал отговаря на стандарт, еквивалентен на посочения се задължаваме да го отразим в отделен документ и да представим доказателства за еквивалентността на двата стандарта.
5. Всички стойности, попълнени в колона „Гарантирано предложение” на приложените таблици от Технически спецификации от раздел IV от документацията за участие са точни и истински.
6. Предлагам гаранционен срок за предлаганите стоки - 24 месеца / не по-малко от 24 месеца/, от датата на приемо – предавателен протокол за получаване на стоката от Възложителя.
7. Запознат съм, че видовете стоки и ориентировъчни количества за доставка ще бъдат посочени от Възложителя при провеждане на процедура на договаряне без обявление.
8. Приемем, че в срок до .....( не повече от 10 дни) от датата на подписване на договор с възложителя, ще сключа договор с посоченият/те в офертата подизпълнител/и (попълва се, ако участникът е декларирал, че ще използва подизпълнител/и).
9. Запознат съм, че в процедурата на договаряне без обявление, изборът на изпълнител ще бъде направен по критерий “най-ниска цена”.
10. Запознат съм, че максималният срок за изпълнение на конкретен договор ще бъде определен от Възложителя в поканата за договаряне.

**Приложения:**

1. Технически изисквания и спецификации за изпълнение на поръчката – раздел IV от документацията за участие – попълнени на съответните места;
2. Изисквани документи от Технически изисквания и спецификации.

Дата 07. 08. 2015 г.

ПОДПИС и ПЕЧАТ:



Андон Димитров  
(име и фамилия)

Управител

(длъжност на представляващия участника)

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## IV.2. ТЕХНИЧЕСКИ ИЗИСКВАНИЯ И СПЕЦИФИКАЦИИ ЗА ИЗПЪЛНЕНИЕ НА ПОРЪЧКАТА ЗА ОБОСОБЕНА ПОЗИЦИЯ 2

Наименование на материала: Триполюсни товари прекъсвач-разединители НН с лят корпус от 100 А до 1250 А

Съкратено наименование на материала: Тов. прек. с лят корпус 100-1250 А

Област: Н – Електрически уредби СрН/НН

Категория: 17– Комутационни апарати  
НН за защита

Мерна единица: Брой

Аварийни запаси: Да

### Характеристика на материала:

Товарите прекъсвач-разединители представляват механични комутационни апарати, способни да провеждат и да включват/изключват ръчно електрически ток във вериги при нормални условия и да провеждат за определено време токове във вериги при условията на претоварване и късо съединение.

Тялото (корпусът) на товарите прекъсвач-разединители НН са изработени чрез формоване на устойчив на нагриване, на огън и на механични удари изолационен материал. Използваните в конструкцията изолационни материали съответстват на изискванията на т. 7 от БДС EN 60947-1:2007.

Управлението се осъществява ръчно посредством лост. Включването/изключването на контактите на трите полюса се осъществява едновременно с висока скорост, която не зависи от действията на оператора. Товарите прекъсвач-разединители изпълняват разединяваща функция, която е обозначена с предвидения от стандарта символ.

Лостът за управление при вертикално монтиране на товарите прекъсвач-разединители се движи в направление „нагоре – надолу“, при което контактите се затварят при движение „нагоре“. Товарите прекъсвач-разединители са снабдени с ясно видимо от челната страна средство за указване на затвореното и отвореното положение на контактната система. Конструкцията осигурява защита срещу проникване на твърди тела и вода до степен най-малко IP20 за клемните съединения и IP40 за челната повърхност на прекъсвача, съгласно БДС EN 60529+A1:2004

Стойностите на прегряването на частите на товарите прекъсвач-разединители при нормален работен режим при температура до 40°C не трябва да надвишават посочените в таблица 2 и таблица 3 от БДС EN 60947-1:2007 стойности.

Товарите прекъсвач-разединители са маркирани с информацията съгласно т. 5.2 от БДС EN 60947-3:2002 и СЕ маркировка за съответствие.

Товарите прекъсвач-разединители се доставят с предпазни клемови капаци, изолиращи фазови сепаратори и разширители и удължители на входа и на изхода, подходящи за свързване към шинна система, изработена с алуминиеви шини с правоъгълно сечение.

Товарите прекъсвач-разединители са пакетирани в картонени кутии, на които са залепени етикети с наименование на материала „Товари прекъсвач-разединители“, техническите данни, годината на производство, партидният номер и стандарта, в съответствие с който са произведени и изпитани - БДС EN 60947-3:2002.

### Използване:

Товарите прекъсвач-разединители са предназначени за монтиране в електромерни табла за индиректно измерване на електрическата енергия и се използват за ръчно включване и изключване на захранващите вериги.

### Съответствие на предлаганото изпълнение с нормативно-техническите документи:

Товарите прекъсвач-разединители трябва да отговарят на приложимите български и международни стандарти и нормативно-техническите документи, включително на посочените по-долу стандарти или еквиваленти и на техните валидни изменения и поправки:

- БДС EN 60947-1:2007 „Комутационни апарати за ниско напрежение. Част 1: Общи правила (IEC 60947-1:2007)“; и

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• БДС EN 60947-3:2009 „Комутационни апарати за ниско напрежение. Част 3: Товарови прекъсвачи, разединители, товаров прекъсвач-разединители и апарати, комбинирани с предпазители (IEC 60947-3:2008)”

• БДС EN 60529+A1:2004 Степени на защита, осигурени от обвивката (IP код) (IEC 60529:1989+A1:1999)

и да бъдат оценени положително по реда и при условията на Наредбата за съществените изисквания и оценяване на съответствието на електрически съоръжения, предназначени за използване в определени граници на напрежението (приета с ПМС № 182 от 6.07.2001 г., обн., ДВ, бр. 62 от 13.07.2001 г., в сила от 14.01.2003 г., изм. и доп., бр. 74 от 22.08.2003 г., бр. 24 от 21.03.2006 г., в сила от 21.03.2006 г., изм., бр. 40 от 16.05.2006 г., в сила от 5.05.2006 г., изм. и доп., бр. 37 от 8.05.2007 г., изм., бр. 50 от 17.06.2014 г.).

**Изисквания към документацията и изпитванията:**

№ по ред	Документ	Приложение № или текст
1.	Точно означение на типа, производителя и страната на производство (произход) и последно издание на каталога на производителя	<b>NM1 Switch</b> <b>Zhejiang CHINT Electrics Co., LTD, НРКитай,</b> Приложение 1.1
2.	Техническо описание и чертежи с нанесени на тях размери	Приложения 1.2
3.	ЕО декларация за съответствие	Приложение 1.3
4.	Протоколи от типови изпитвания на английски или български език, проведени от независима изпитвателна лаборатория – заверени копия, с приложен списък на отделните изпитвания на български език	Приложение 1.4
5.	Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания по т. 4 – заверено копие	Приложение 1.5
6.	Инструкции за транспортиране, складиране, монтиране, вкл. въртящия момент на затягане на клемовите съединения, обслужване и поддържане	Приложение 1.6


**Забележка:** Всички оригинални документи трябва да бъдат на български език или с превод на български език. (Каталозите и протоколите от проверките и изпитванията могат да бъдат и само на английски език.)

**Технически данни**

**1. Параметри на електрическата разпределителна мрежа**

№ по ред	Параметър	Стойност
1.1	Номинално напрежение	400 / 230 V
1.2	Максимално напрежение	440 / 253 V
1.3	Номинална честота	50 Hz
1.4	Брой проводници в разпределителната мрежа	4 проводна мрежа (L <sub>1</sub> , L <sub>2</sub> , L <sub>3</sub> , PEN)
1.5	Схема на разпределителната мрежа	TN-C

**2. Характеристики на работната среда**



№ по ред	Характеристика	Стойност
2.1	Място на монтиране	На закрито
2.2	Максимална околна температура	+ 40°C
2.3	Минимална околна температура	Минус 5°C
2.4	Максимална средна околна температура за период от 24 ч.	+ 35°C
2.5	Относителна влажност (при 20°C)	До 90 %
2.6	Степен на замърсяване	3
2.7	Надморска височина	До 2000 m

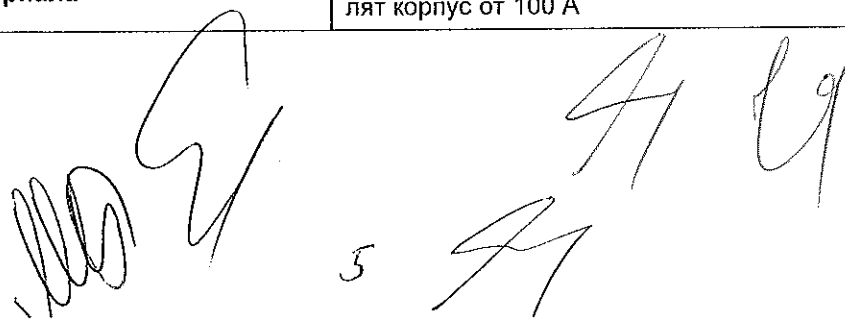
### 3. Общи технически характеристики

№ по ред	Характеристика	Изискване	Гарантирано предложение
3.1	Брой на полюсите	3	3
3.2	Обявено работно напрежение ( $U_n$ )	690 V AC	690 V AC
3.3	Обявена честота	50 Hz	50 Hz/60 Hz
3.4	Обявено импулсно напрежение ( $U_{imp}$ )	min 6 kV	8 kV
3.5	Обявено изолационно напрежение ( $U_i$ )	690 V	800 V
3.6	Категория на приложение (при 400 V AC)	AC 22 В или по-висока	AC 22 В
3.7	Степен на защита от проникване на твърди тела и вода съгласно БДС EN 60529+A1:2004	-	-
3.7.1	Клемни съединения	min IP20	IP30
3.7.2	Челна повърхност	min IP40	IP40
3.8	Акcesoари	а) Два комплекта разширители и удължител за свързване към шинна система от алуминиева шина с правоъгълно сечение	Да
		б) Два комплекта предпазни клемови капаци и изолиращи фазови сепаратори	Да
3.9	Експлоатационна дълготрайност	min 30 години	30 години

### 4. Триполюсни товари прекъсвач-разединители НН с лят корпус от 100 А до 1250 А

#### 4.1 Триполюсен товаров прекъсвач-разединител НН с лят корпус от 100 А

Номер на стандарта	Тип/референтен номер съгласно каталога на производителя
20 17 0000	NM1-125S-Switch
Наименование на материала	Триполюсен товаров прекъсвач-разединител НН с лят корпус от 100 А



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Съкратено наименование на материала		Тов. прек. с лят корпус 100 А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.1.1	Обявен ток ( $I_e$ )	100 А	100 А
4.1.2	Изпитване на включвателната и изключвателната способност съгл. т. т. 4.3.5.2 и 4.3.5.3 от БДС EN 60947-3:2002	min 300 А (1,05 $U_e \cos\phi=0,65$ )	300 А (1,05 $U_e \cos\phi=0,65$ )
4.1.3	Обявен краткотрайно издържан ток ( $I_{cw}$ ) съгл. т. 4.3.6.1 от БДС EN 60947-3:2002	min 1200 А / 1 s	1200 А / 1 s
4.1.4	Износоустойчивост	-	-
4.1.4a	Електрическа (брой к.ц.)	min 300 бр.	1500 бр.
4.1.4b	Механична (брой к.ц.)	min 1700 бр.	8500 бр.
4.1.5	Максимални размери ВхШхД (Дълбочината „Д“ не включва лоста за управление)	165x110x125 mm	155x90x68mm
4.1.6	Тегло, kg	Да се посочи	1.2

#### 4.2 Триполюсен товаров прекъсвач-разединител НН с лят корпус от 160 А

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
20 17 0001		NM1-250S-Switch	
Наименование на материала		Триполюсен товаров прекъсвач-разединител НН с лят корпус от 160 А	
Съкратено наименование на материала		Тов. прек. с лят корпус 160 А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.2.1	Обявен ток ( $I_e$ )	160 А	160 А
4.2.2	Изпитване на включвателната и изключвателната способност съгл. т. т. 4.3.5.2 и 4.3.5.3 от БДС EN 60947-3:2002	min 480 А (1,05 $U_e \cos\phi=0,65$ )	480 А (1,05 $U_e \cos\phi=0,65$ )
4.2.3	Обявен краткотрайно издържан ток ( $I_{cw}$ ) съгл. т. 4.3.6.1 от БДС EN 60947-3:2002	min 1920 А / 1 s	1920 А / 1 s
4.2.4	Износоустойчивост	-	-
4.2.4a	Електрическа (брой к.ц.)	min 200 бр.	1000 бр.
4.2.4b	Механична (брой к.ц.)	min 1400 бр.	7000 бр.
4.2.5	Максимални размери ВхШхД (Дълбочината „Д“ не включва лоста за управление)	185x140x100 mm	165x105x86 mm

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
20 17 0001		NM1-250S-Switch	
Наименование на материала		Триполюсен товаров прекъсвач-разединител НН с лят корпус от 160 А	
Съкратено наименование на материала		Тов. прек. с лят корпус 160 А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.2.6	Тегло, kg	Да се посочи	2.1

#### 4.3 Триполюсен товаров прекъсвач-разединител НН с лят корпус от 250 А

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
20 17 0002		NM1-250S-Switch	
Наименование на материала		Триполюсен товаров прекъсвач-разединител НН с лят корпус от 250 А	
Съкратено наименование на материала		Тов. прек. с лят корпус 250 А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.3.1	Обявен ток ( $I_e$ )	250 А	250 А
4.3.2	Изпитване на включвателната и изключвателната способност съгл. т. т. 4.3.5.2 и 4.3.5.3 от БДС EN 60947-3:2002	min 750 А ( $1,05 U_e \cos\phi=0,65$ )	750 А ( $1,05 U_e \cos\phi=0,65$ )
4.3.3	Обявен краткотрайно издържан ток ( $I_{cw}$ ) съгл. т. 4.3.6.1 от БДС EN 60947-3:2002	min 3000 А / 1 s	3000 А / 1 s
4.3.4	Износоустойчивост	-	-
4.3.4a	Електрическа (брой к.ц.)	min 200 бр.	1000 бр.
4.3.4b	Механична (брой к.ц.)	min 1400 бр.	7000 бр.
4.3.5	Максимални размери ВхШхД (Дълбочината „Д“ не включва лоста за управление)	225x140x130 mm	165x105x86 mm
4.3.6	Тегло, kg	Да се посочи	2.1

#### 4.4 Триполюсен товаров прекъсвач-разединител НН с лят корпус от 400 А

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
20 17 0003		NM1-400S-Switch	
Наименование на материала		Триполюсен товаров прекъсвач-разединител НН с лят корпус от 400 А	

J

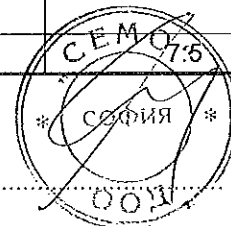
Съкратено наименование на материала		Тов. прек. с лят корпус 400 А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.4.1	Обявен ток ( $I_e$ )	400 А	400 А
4.4.2	Изпитване на включвателната и изключвателната способност съгл. т. т. 4.3.5.2 и 4.3.5.3 от БДС EN 60947-3:2002	min 1200 А (1,05 $U_e \cos\phi=0,65$ )	1200 А (1,05 $U_e \cos\phi=0,65$ )
4.4.3	Обявен краткотрайно издържан ток ( $I_{cw}$ ) съгл. т. 4.3.6.1 от БДС EN 60947-3:2002	min 4800 А / 1 s	4800 А / 1 s
4.4.4	Износоустойчивост	-	-
4.4.4a	Електрическа (брой к.ц.)	min 200 бр.	1000 бр.
4.4.4b	Механична (брой к.ц.)	min 800 бр.	4000 бр.
4.4.5	Максимални размери ВхШхД (Дълбочината „Д“ не включва лоста за управление)	300x195x160 mm	257x150x107 mm
4.4.6	Тегло, kg	Да се посочи	7.5

4.5 Триполюсен товаров прекъсвач-разединител НН с лят корпус от 630 А

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
20 17 0004		NM1-630S-Switch	
Наименование на материала		Триполюсен товаров прекъсвач-разединител НН с лят корпус от 630 А	
Съкратено наименование на материала		Тов. прек. с лят корпус 630 А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.5.1	Обявен ток ( $I_e$ )	630 А	630 А
4.5.2	Изпитване на включвателната и изключвателната способност съгл. т. т. 4.3.5.2 и 4.3.5.3 от БДС EN 60947-3:2002	min 1890 А (1,05 $U_e \cos\phi=0,65$ )	1890 А (1,05 $U_e \cos\phi=0,65$ )
4.5.3	Обявен краткотрайно издържан ток ( $I_{cw}$ ) съгл. т. 4.3.6.1 от БДС EN 60947-3:2002	min 7560 А / 1 s	7560 А / 1 s
4.5.4	Износоустойчивост	-	-
4.5.4a	Електрическа (брой к.ц.)	min 200 бр.	1000 бр.
4.5.4b	Механична (брой к.ц.)	min 800 бр.	4000 бр.
4.5.5	Максимални размери ВхШхД (Дълбочината „Д“ не включва лоста за управление)	290x215x160 mm	270x182x112mm
4.5.6	Тегло, kg	Да се посочи	7.5

София, 07.08.2015 г.

Подпис и печат.....



/Андон Димитров, Управител СЕМО ООД/

8

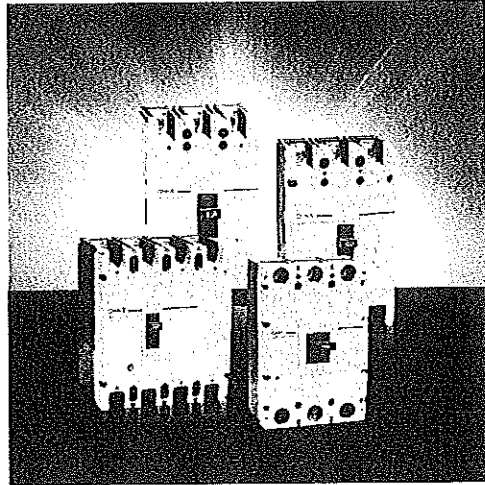
[Handwritten signatures]



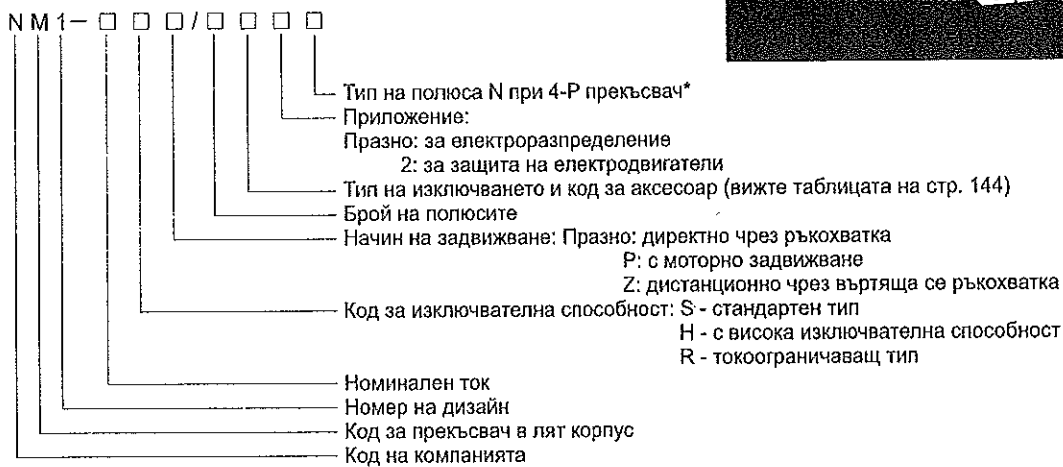
# Автоматичен прекъсвач в лят корпус NM1- фиксиран

## 1. Характеристики

- 1.1 Номинални електрически величини: ~690V, 50/60Hz, 10~1250A;
- 1.2 Начин на монтаж: вертикално и хоризонтално;
- 1.3 Стандарт: IEC/EN 60947-2;
- 1.4 Приложение: подходящ за защита на променливотокови вериги 0,4кV в сградно и индустриално строителство, при постоянни товари и др;
- 1.5 Сертификати: KEMA, RCC, PCT, ESC, UKRTEST;



## 2. Типово означение



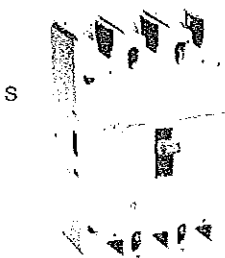
Забележки\*: Има 4 типа на полюса N при 4P прекъсвач

- A: без компоненти за токово изключване, полюсът N винаги е във включено състояние, не се включва и изключва с другите три полюса;
- B: без компоненти за токово изключване, полюсът N включва с другите три полюса (полюсът N най-напред включва, а след това изключва);
- C: с компоненти за токово изключване, полюсът N включва и изключва с другите три полюса (полюсът N най-напред включва, а след това изключва);
- D: с компоненти за токово изключване, полюсът N винаги е във включено състояние, не се включва и изключва с другите три полюса.

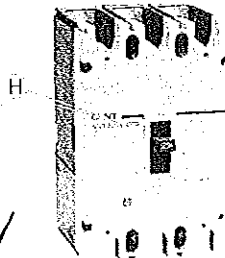
## 3. Класификация

В зависимост от изключвателната способност на прекъсвача:

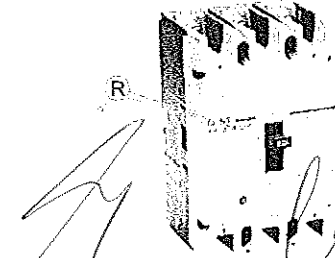
Стандартен тип (S)



С висока изключвателна  
способност (H)



Токоограничаващ  
тип (R)

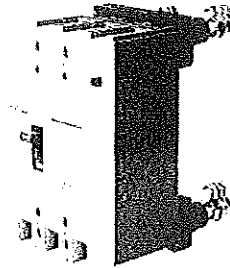


В зависимост от начина на свързване:

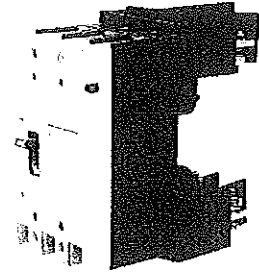
Свързване отпред



Свързване отзад

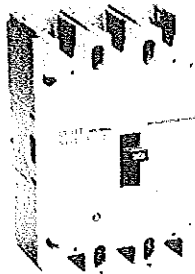


Изваждаем тип

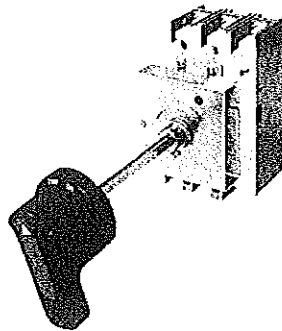


В зависимост от начина на задвижване:

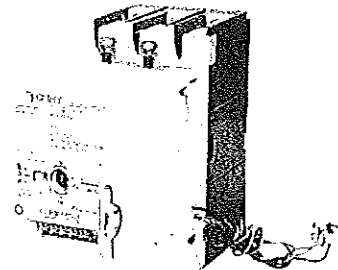
Директно чрез ръкохватка



Дистанционно чрез въртяща се ръкохватка



С моторно задвижване

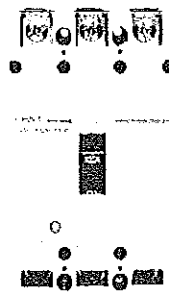


В зависимост от броя на полюсите:

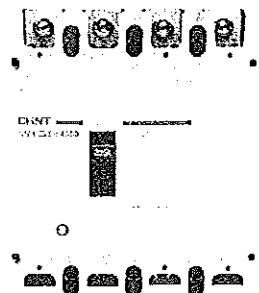
2P



3P



4P



#### 4. Работни условия

- 4.1 Околна температура:  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ ; средната температура за 24 часа не трябва да превишава  $+35^{\circ}\text{C}$  (моля свържете се с нас, ако температурата в мястото на монтажа е извън тези стойности) за прекъсвач с термомангнитно изключване,  $+40^{\circ}\text{C}$  е стандартна температура за номиналните величини. Ако температурата не е между  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ , моля свържете се с нас за корекция на температурната компенсация;
- 4.2 Надморска височина: да не превишава 2000m (моля свържете се с нас за коефициент на редуция, ако надморската височина в мястото на монтажа е над 2000m);
- 4.3 Степен на замърсяване: 3;
- 4.4 Състояние на въздуха: на мястото на монтажа, относителната влажност не трябва да превишава 50% при максимална температура от  $+40^{\circ}\text{C}$ ; по висока относителна влажност е допустима при по-ниска температура. Например относителната влажност може да бъде 90% при  $+20^{\circ}\text{C}$ , трябва да бъдат направени специални измервания за наличие на роса.



### 5. Технически данни

Ток на корпуса		63			
Номинален ток, $I_n$ (40°C) [A]		10, 16, 20, 25, 30, 32, 40, 50, 60, 63			
Номинално изолационно напрежение, $U_i$ [V]		500			
Номинално импулсно напрежение на издържане, $U_{imp}$ [kV]		6			
Номинално работно напрежение, $U_e$ AC 50Hz [V]		415			
Дъгогасително разстояние (mm)		≤50			
Код за изключвателна способност		S		H	
Брой на полюсите		2	3	3	4
Номинален ток на к. с.	AC 220/230/240V	20	20	42	42
$I_{cu}$ (kA, RMS)	AC 380/400/415V	15	15	35	35
Тестова последователност: O-t-CO	AC 660/690V	–	–	–	–
Номинален работен изключвателен ток на к. с. $I_{cs}$ (% $I_{cu}$ )		50%			
Тестова последователност: O-t-CO-t-CO					
Функция изолатор		■			
Категория на използване		A			
Предно свързване		■			
Задно свързване		■			
Изваждаем тип		■			
Включвател		■			
Минималнонапрежен изключвател		■			
Допълнителен контакт		■			
Контакт за сигнализация		■			

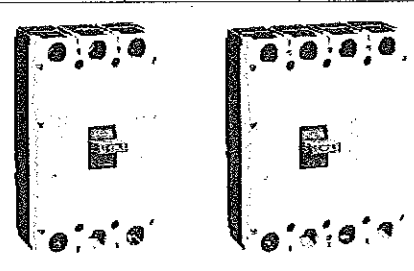
Забележки: Символите O-t-CO, O-t-CO-t-CO се използват за определяне на последователността от операции.

O: изключване (отваряне); t: времевият интервал между две последователни к. с.;

CO: включване, последвано след определено време от изключване.

	<p>125</p> <p>16, 20, 25, 30, 32, 40,</p> <p>50, 60, 63, 75, 80, 100, 125</p> <p>800</p> <p>8</p>												<p>250</p> <p>100, 125, 140, 150, 160,</p> <p>175, 180, 200, 225, 250</p> <p>800</p> <p>8</p>													
	<p>690</p> <p>≤50</p>												<p>690</p> <p>≤50</p>													
	C			S			H			R			C			S			H			R				
	2	3	4	1	2	3	4	2	3	4	2	3	4	2	3	4	1	2	3	4	2	3	4	2	3	4
	25	25	25	16	42	42	42	65	65	65	85	85	85	25	25	25	20	42	42	42	65	65	65	85	85	85
	20	20	20	-	25	25	25	50	50	50	65	65	65	20	20	20	-	25	25	25	50	50	50	65	65	65
	-	3	3	-	-	3	3	-	8	8	-	10	10	-	5	5	-	-	5	5	-	8	8	-	10	10
	<p>50%</p>												<p>50%</p>													
	<p>■</p> <p>A</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p>												<p>■</p> <p>A</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p> <p>■</p>													

*[Handwritten signatures and marks]*

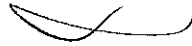
Ток на корпуса		400					
Номинален ток, $I_n$ (40°C) [A]		225, 250, 300, 315, 350, 400					
Номинално изолационно напрежение, $U_i$ [V]		800					
Номинално импулсно напрежение на издържане, $U_{imp}$ [kV]		8					
Номинално работно напрежение, $U_e$ AC 50Hz [V]		690					
Дъгогасително разстояние (mm)		≤100					
Код за изключвателна способност		S   H   R					
							
Брой на полюсите		3	4	3	4	3	4
Номинален ток на к. с.	AC 220/230/240V	50	50	85	85	100	100
$I_{cu}$ (kA, RMS)	AC 380/400/415V	35	35	50	50	70	70
Тестова последователност: O-t-CO	AC 660/690V	10	10	12	12	15	15
Номинален работен изключвателен ток на к. с. $I_{cs}$ (% $I_{cu}$ )		50%					
Тестова последователност: O-t-CO-t-CO							
Функция изолатор		<input checked="" type="checkbox"/>					
Категория на използване		A					
Предно свързване		<input checked="" type="checkbox"/>					
Задно свързване		<input checked="" type="checkbox"/>					
Изваждаем тип		<input checked="" type="checkbox"/>					
Включвател		<input checked="" type="checkbox"/>					
Минималнонапреженов изключвател		<input checked="" type="checkbox"/>					
Допълнителен контакт		<input checked="" type="checkbox"/>					
Контакт за сигнализация		<input checked="" type="checkbox"/>					

Забележки: Символите O-t-CO, O-t-CO-t-CO се използват за определяне на последователността от операции.

O: изключване (отваряне); t: времевият интервал между две последователни к. с.;

CO: включване, последвано след определено време от изключване.

Handwritten signatures and the number 13.



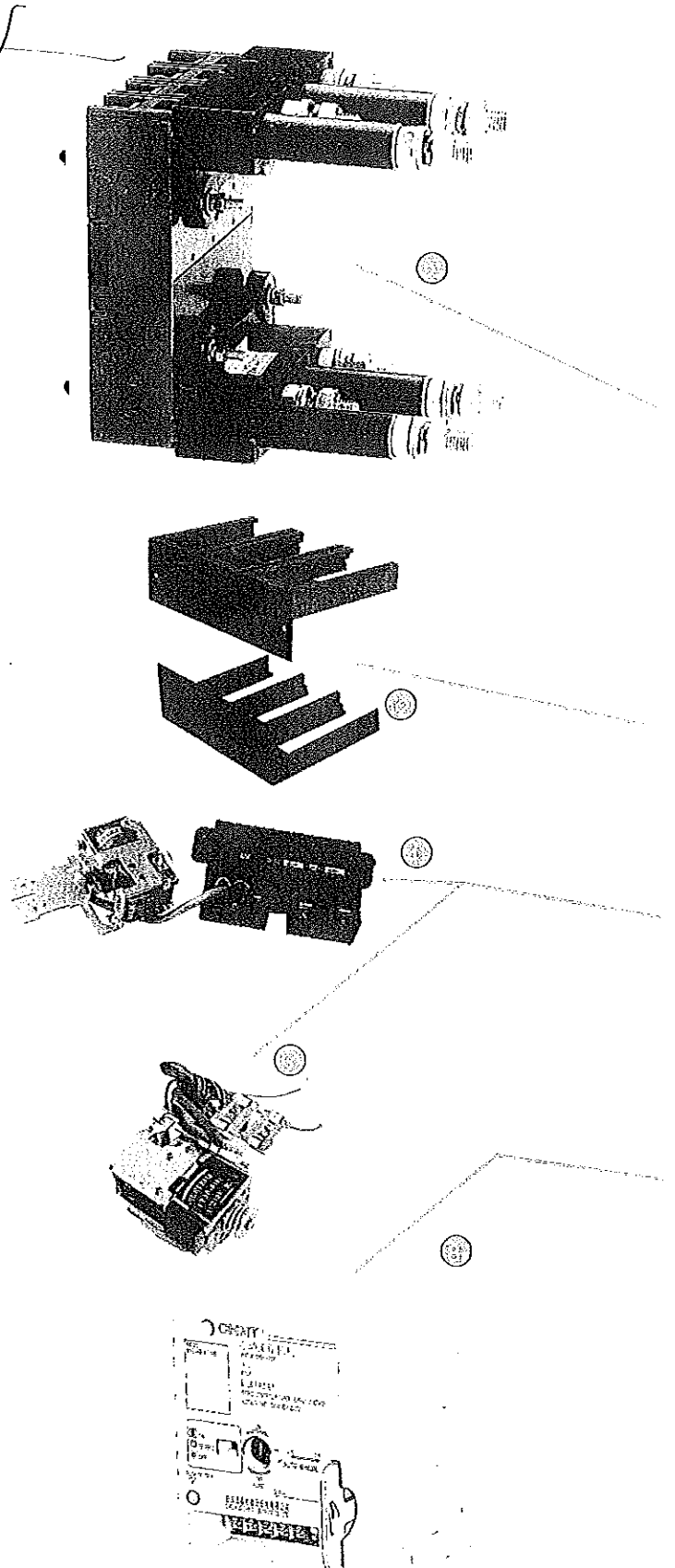
630						800				1250
400, 450, 500, 630						630, 700, 800				700, 800, 900, 1000, 1250
800						800				800
8						8				8
690						690				690
≤100						≤100				≤100
S		H		R		H		R		H
3	4	3	4	3	4	3	4	3	4	3
50	50	85	85	100	100	85	85	100	100	85
35	35	50	50	70	70	60	60	70	70	65
12	12	15	15	15	15	20	20	20	20	20
50%						50%				50%
■ A ■ ■ ■ ■ ■ ■ ■						■ A ■ ■ ■ ■ ■ ■ ■				■ A ■ ■ ■ ■

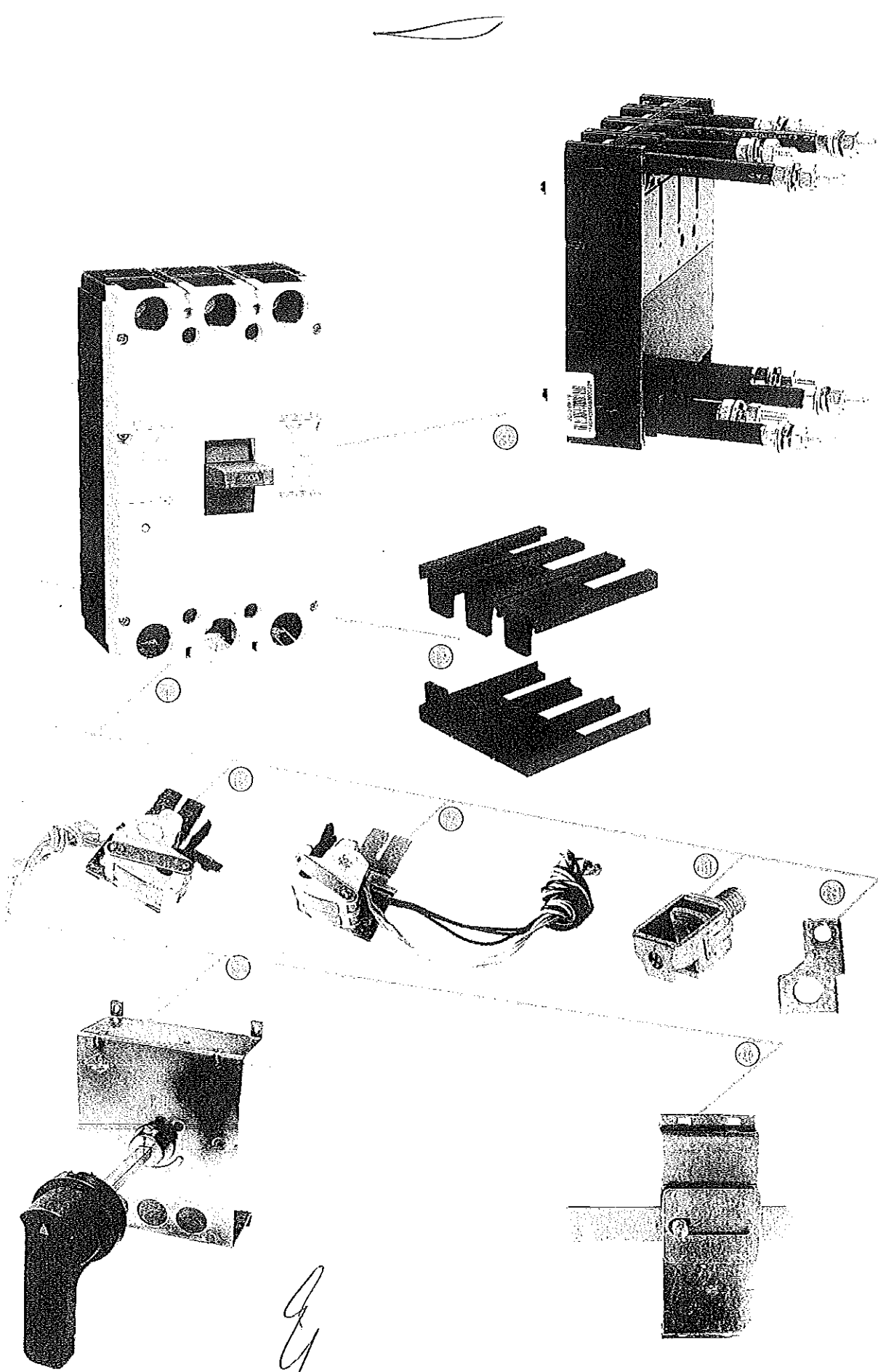
Handwritten signatures and the number 14 at the bottom of the page.

## 6. Преглед на устройството

Автоматичен прекъсвач в лят корпус NM1

- 1 Автоматичен прекъсвач, фиксиран тип
- 2 Автоматичен прекъсвач, изваждаем тип
- 3 Автоматичен прекъсвач със задно свързване
- 4 Минималнонапрежен изключвател
- 5 Изключвател за дистанционно управление
- 6 Контакт за сигнализация
- 7 Допълнителен контакт
- 8 Моторно задвижване
- 9 Ръкохватка за дистанционно ръчно включване
- 10 Механична блокировка
- 11 Арматура за затягане на кабелите
- 12 Къса предпазна изолация за изводите
- 13 Планка за предно свързване





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10 *[Handwritten signature]*



## 7. Изключване

Инверсна времетокова характеристика на изключване на прекъсвача при претоварване (за електроразпределение) в състояние, при което всички полюси са запазени едновременно.

№	Изпитвателен ток	I/In	Стандартно време	Начално състояние
1	Стандартен неизключващ ток	1.05	2 часа (In > 63A), 1 час (In ≤ 63A)	студено състояние
2	Стандартен ток на изключване	1.30	2 часа (In > 63A), 1 час (In ≤ 63A)	веднага след тест № 1

Инверсна времетокова характеристика на изключване на прекъсвача при претоварване (за защита на електродвигател) в състояние, при което всички полюси са запазени едновременно (съгласно IEC 60947-3).

№	Ток на настройка	Стандартно време	Начално състояние	Забележка
1	1.0In	> 2 часа	студено	
2	1.2In	≤ 2 часа	веднага след тест №1	
3	1.5In	≤ 4 минути	студено	10 ≤ In ≤ 250
4	7.2In	≤ 8 минути	студено	250 ≤ In ≤ 630
		4s ≤ t ≤ 10s	студено	10 ≤ In ≤ 250
		6s ≤ t ≤ 20s	студено	250 ≤ In ≤ 630

N-полюсът на 4P прекъсвача се намира от дясната му страна, а в следната таблица е даден номиналният ток на изключване при тип C и D.

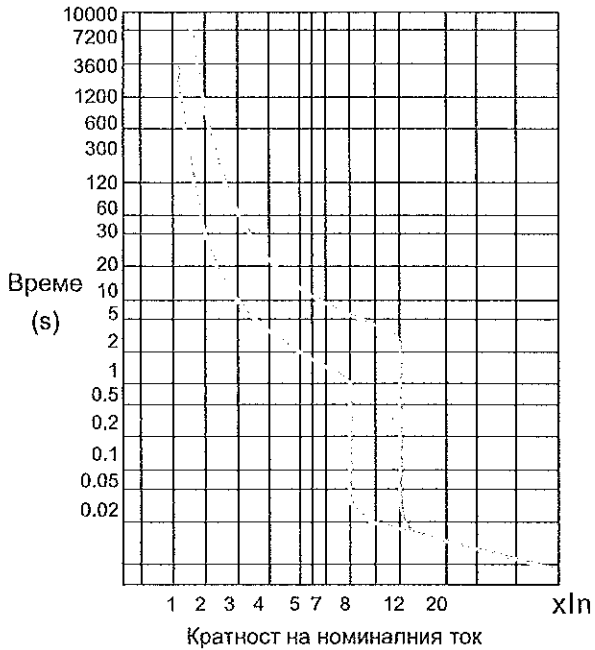
Номинален ток на корпуса (A)	Номинален ток (A)	Номинален ток на N-полюса (A)	Номинален ток на корпуса (A)	Номинален ток (A)	Номинален ток на N-полюса (A)
63	10	10	250	100	100
	16	16		125	100
	20	20		140	100
	25	25		150	100
	30	30		160	100
	32	32		175	100
	40	40		180	100
	50	50		200	100
	60	60		225	125
	63	63		250	125
125	16	16	400	225	225
	20	20		250	225
	25	25		300	225
	30	30		315	225
	32	32		350	225
	40	40		400	225
	50	50	630	400	400
	60	60		450	400
	63	63		500	400
	75	63	630	400	
	80	63	800	630	500
	100	63		700	500
125	63	800		500	

Забележка: Номиналният ток на N-полюса може да бъде направен равен на тока на другите фази.

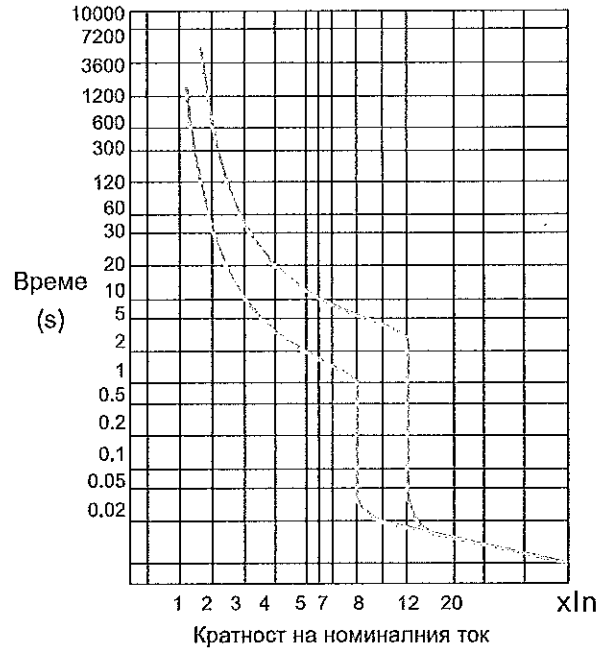
## 8. Технически характеристики за електроразпределение (калибрирани за 40°C)

### 8.1 Криви на сработване

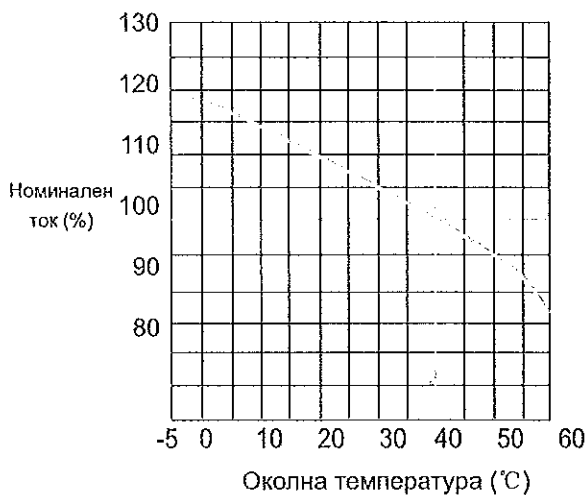
Работна характеристика на NM1-63 (10~32), NM1-125 (16~32)



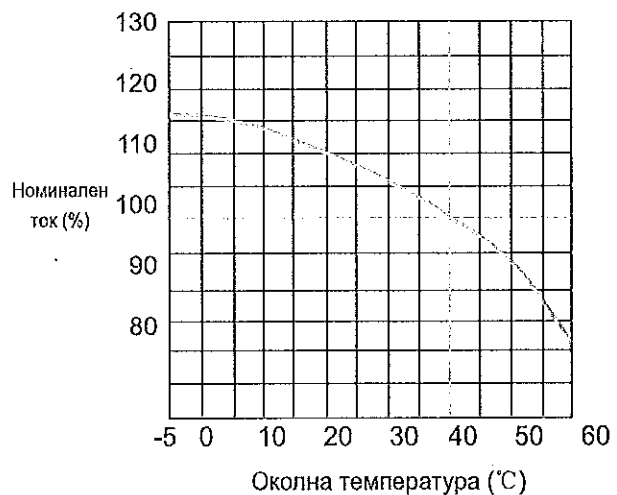
Работна характеристика на NM1-63 (40~63), NM1-125 (40~100)



Крива за компенсация на температурата на NM1-63 (10~32), NM1-125 (16~32)



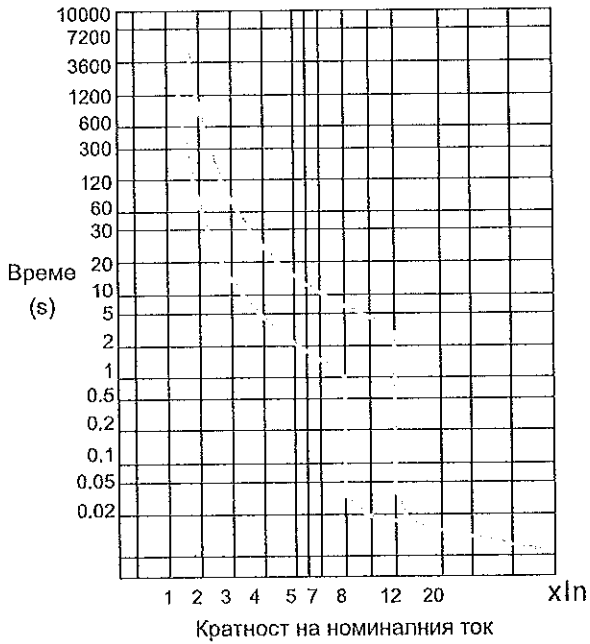
Крива за компенсация на температурата на NM1-63 (40~63), NM1-125 (40~100)



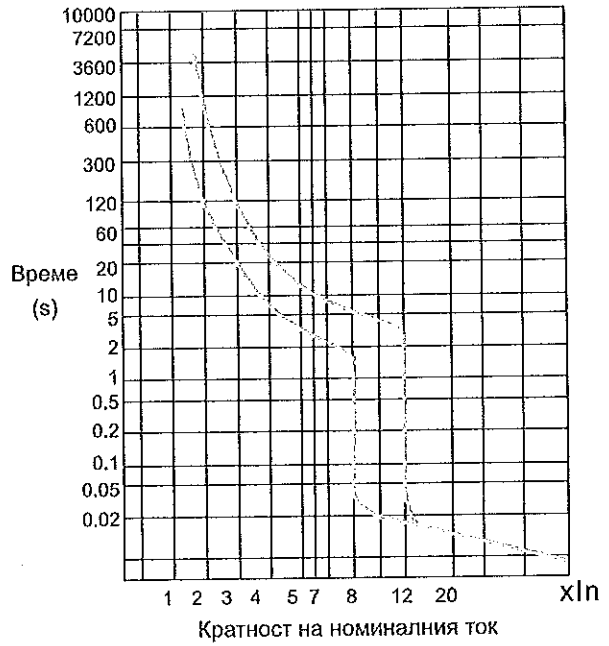
Handwritten signatures and initials at the bottom of the page.



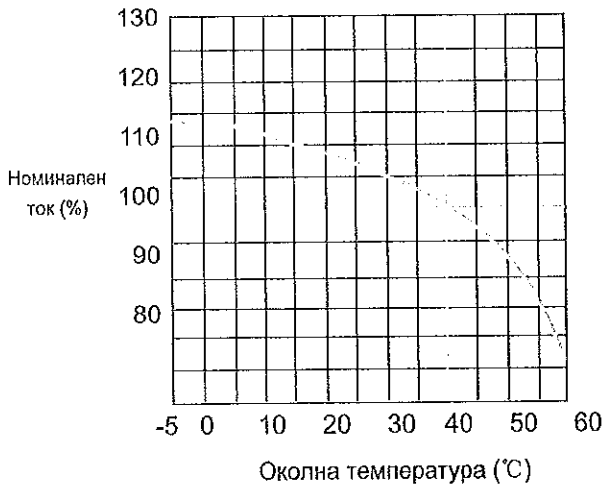
Работна характеристика на NM1-250



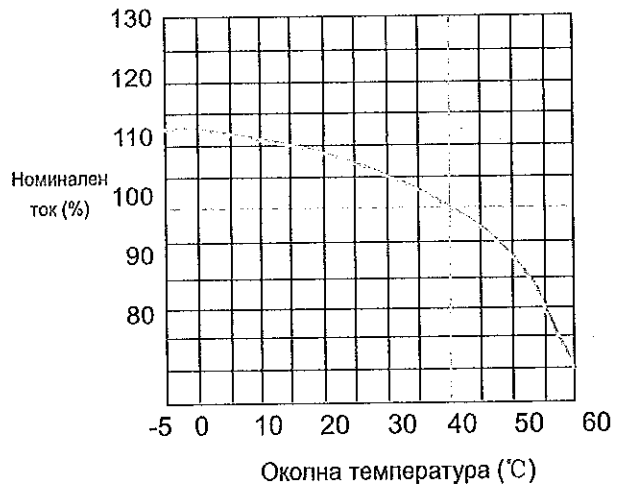
Работна характеристика на NM1-400



Крива за компенсация на температурата на NM1-250



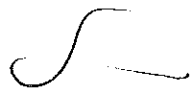
Крива за компенсация на температурата на NM1-400



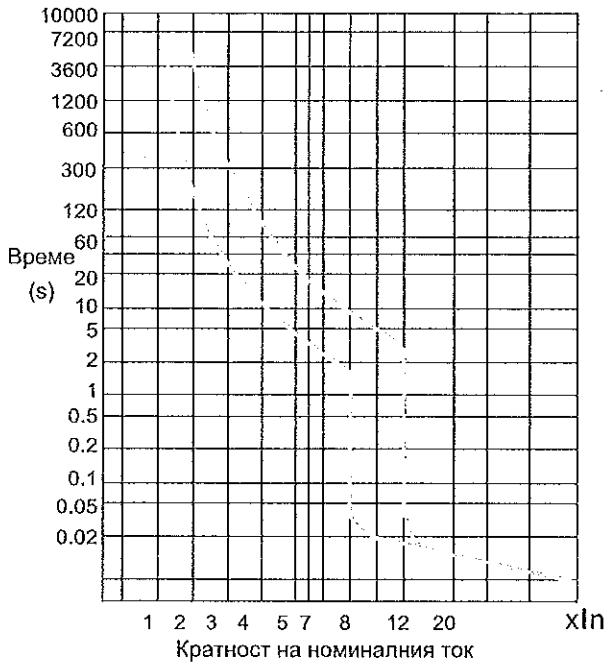
*Handwritten signature*

*Handwritten signature*

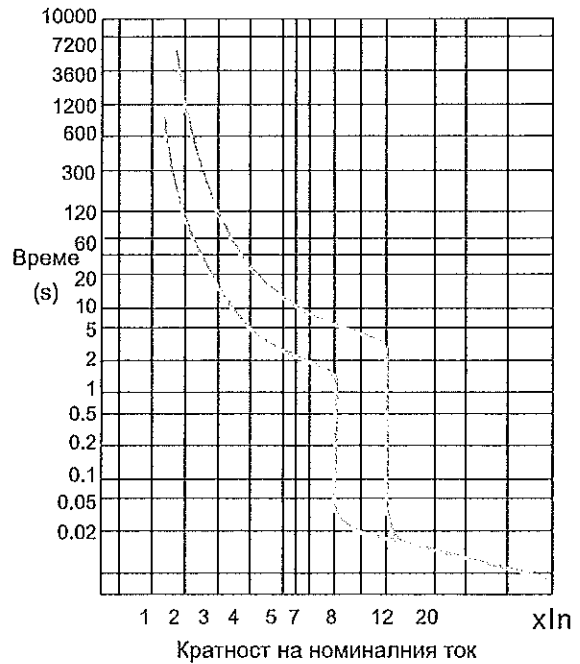
*Handwritten signature*



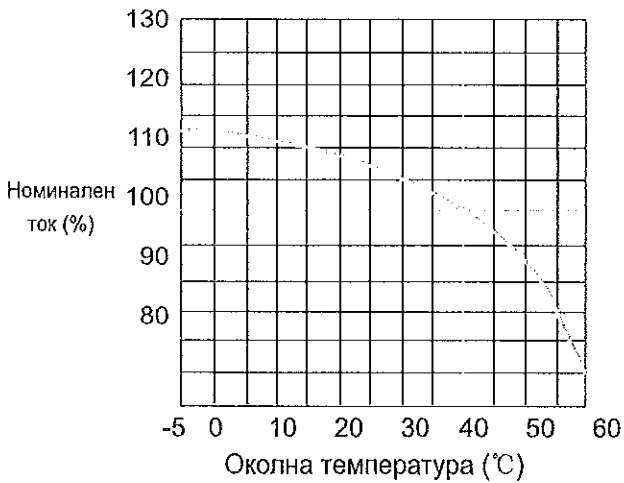
Работна характеристика на NM1-630, 800



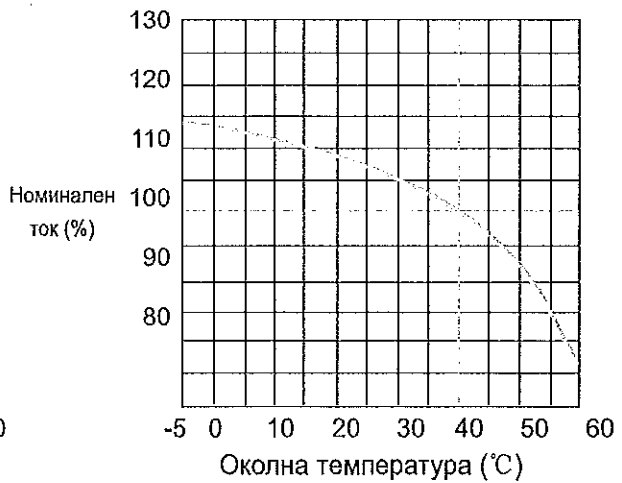
Работна характеристика на NM1-1250



Крива за компенсация на температурата на NM1-630, 800



Крива за компенсация на температурата на NM1-1250

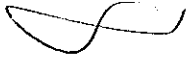


8.2 Компенсация на тока при различни температури

Таблица с коефициентите за компенсация на тока при различни работни температури на серията автоматични прекъсвачи NM1 (калибрирани за 40°C, за калибриране по други температурни стандарти, моля свържете се с нас).

Тип	Обхват на тока	Коефициент за компенсация													
		-5°C	0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
NM1-63S, H	10~32A	1.18	1.17	1.16	1.14	1.12	1.09	1.07	1.05	1.03	1	0.97	0.95	0.92	0.87
NM1-63S, H	40~63A	1.16	1.16	1.15	1.14	1.12	1.10	1.08	1.06	1.03	1	0.97	0.94	0.87	0.82
NM1-125C, S, H, R	16~32A	1.18	1.17	1.16	1.14	1.12	1.09	1.07	1.05	1.03	1	0.97	0.95	0.92	0.87
NM1-125C, S, H, R	40~125A	1.16	1.16	1.15	1.14	1.12	1.10	1.08	1.06	1.03	1	0.97	0.94	0.87	0.82
NM1-250C, S, H, R	100~250A	1.14	1.13	1.13	1.12	1.10	1.08	1.07	1.05	1.03	1	0.97	0.93	0.86	0.76
NM1-400S, H, R	225~400A	1.13	1.12	1.12	1.11	1.10	1.08	1.06	1.05	1.03	1	0.97	0.93	0.85	0.75
NM1-630S, H, R	400~630A	1.13	1.12	1.12	1.11	1.10	1.08	1.07	1.05	1.03	1	0.97	0.93	0.85	0.75
NM1-800S, H, R	630~800A	1.13	1.12	1.12	1.11	1.10	1.08	1.07	1.05	1.03	1	0.97	0.93	0.85	0.75
NM1-1250H	700~1250A	1.14	1.13	1.12	1.11	1.10	1.09	1.07	1.05	1.03	1	0.97	0.92	0.85	0.76



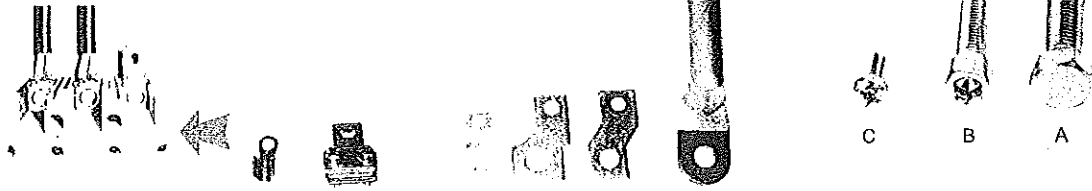


### 9. Арматура за свързване на кабелите

Предно свързване (фиксирано свързване)

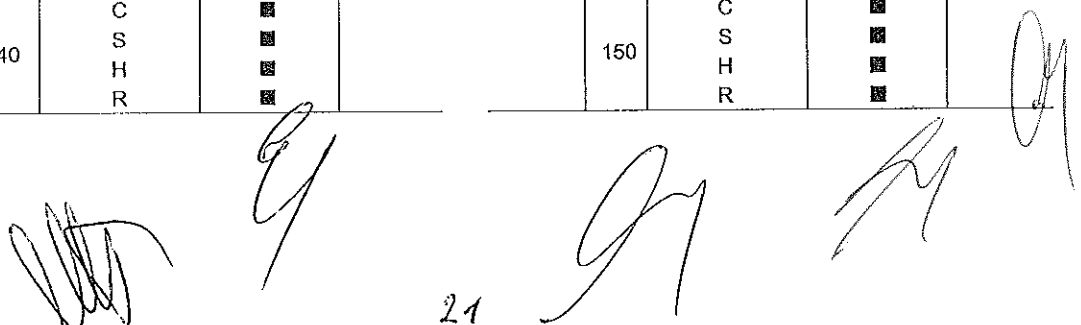
Допълнителна арматура за свързване на кабелите за устройства 10~1250A

Болтове за затягане на връзката



Ток на корпуса	Ток (A)	Код за изключвателна способност	Болтове за предно свързване	
			Болт шестограм (A)	Винт кръстат (C)
63	10	S	■	
		H	■	
	16	S	■	
		H	■	
	20	S	■	
		H	■	
	25	S	■	
		H	■	
	30	S	■	
		H	■	
	32	S	■	
H		■		
40	S	■		
	H	■		
50	S	■		
	H	■		
60	S	■		
	H	■		
63	S	■		
	H	■		
125	16	C	■	
		S	■	
		H	■	
	20	C	■	
		S	■	
		H	■	
	25	C	■	
		S	■	
		H	■	
	30	C	■	
		S	■	
		H	■	
32	C	■		
	S	■		
	H	■		
40	C	■		
	S	■		
	H	■		

Ток на корпуса	Ток (A)	Код за изключвателна способност	Болтове за предно свързване	
			Болт шестограм (A)	Винт кръстат (C)
125	50	C	■	
		S	■	
		H	■	
	60	C	■	
		S	■	
		H	■	
63	C	■		
	S	■		
	H	■		
75	C	■		
	S	■		
	H	■		
80	C	■		
	S	■		
	H	■		
250	100	C	■	
		S	■	
		H	■	
	125	C	■	
		S	■	
		H	■	
140	C	■		
	S	■		
	H	■		
150	C	■		
	S	■		
	H	■		

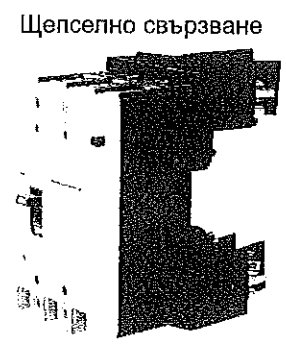
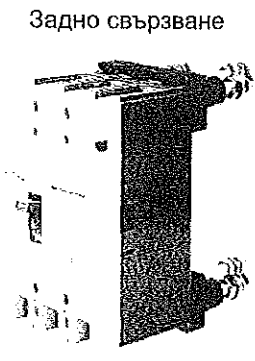
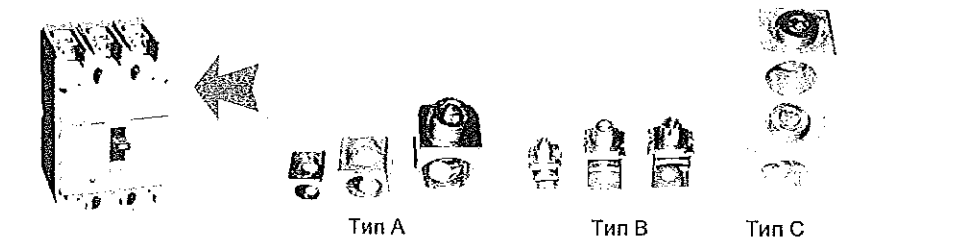


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Ток на корпуса	Ток (A)	Код за изключвателна способност	Болтове за предно свързване		
			Болт шестограм (A)	Винт кръстат (C)	
250	160	C	■		
		S	■		
		H	■		
		R	■		
	175		C	■	
			S	■	
			H	■	
			R	■	
	180		C	■	
			S	■	
			H	■	
			R	■	
200		C	■		
		S	■		
		H	■		
		R	■		
225		C	■		
		S	■		
		H	■		
		R	■		
250		C	■		
		S	■		
		H	■		
		R	■		
400	225	S	■	■	
		H	■	■	
		R	■	■	
		R	■	■	
	250	S	■	■	
		H	■	■	
		R	■	■	
		R	■	■	

Ток на корпуса	Ток (A)	Код за изключвателна способност	Болтове за предно свързване		
			Болт шестограм (A)	Винт кръстат (C)	
400	300	S	■	■	
		H	■	■	
		R	■	■	
	315		S	■	■
			H	■	■
			R	■	■
630	350	S	■	■	
		H	■	■	
		R	■	■	
	400		S	■	■
			H	■	■
			R	■	■
800	400	S	■	■	
		H	■	■	
		R	■	■	
	450		S	■	■
			H	■	■
			R	■	■
500		S	■	■	
		H	■	■	
		R	■	■	
630		S	■	■	
		H	■	■	
		R	■	■	
		R	■	■	
800		H	■	■	
		R	■	■	
		H	■	■	
		R	■	■	

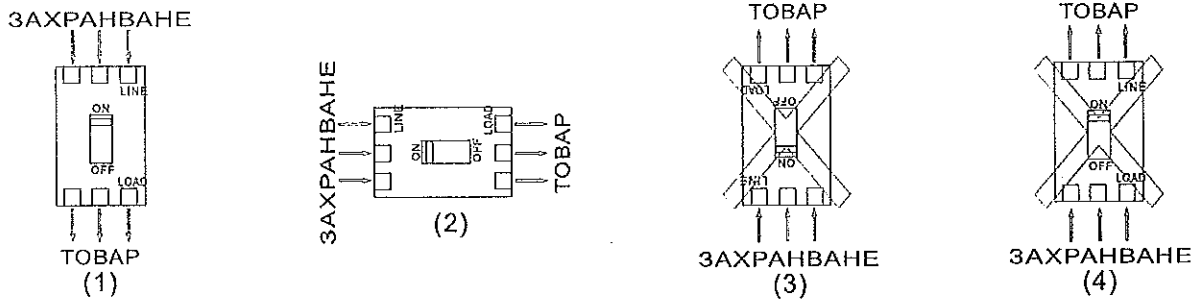
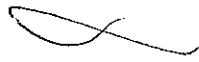
На разположение са затворени стягащи изводи за прекъсвачи с номинален ток 16~630A



Задното свързване на кабелите е приложимо при 3P и 4P прекъсвачите NM1-63~NM1-800

Щепселното свързване е приложимо при 3P и 4P прекъсвачите NM1-63~NM1-800

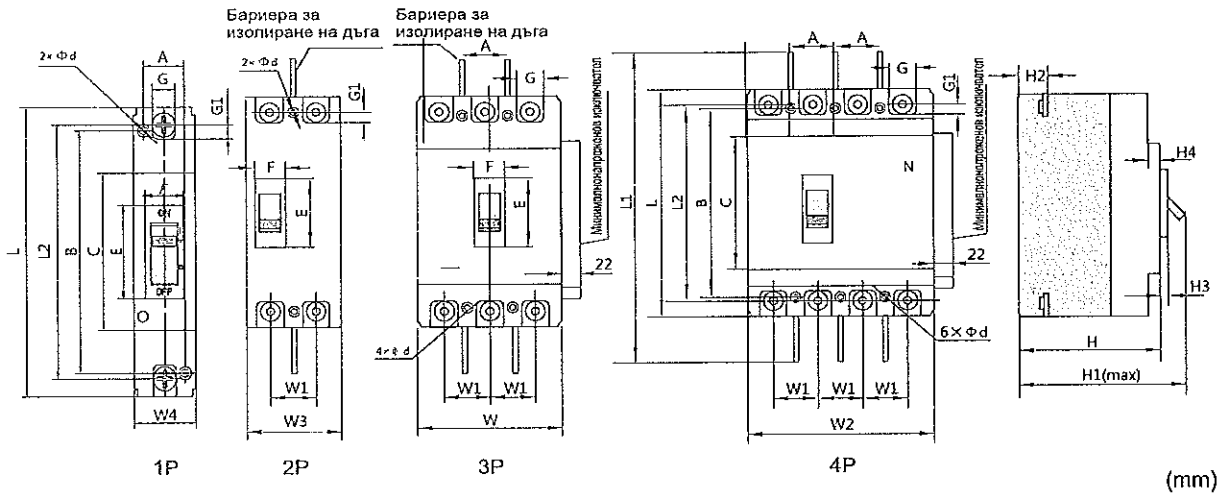
*Handwritten signatures and marks*



Възможните начини на свързване са илюстрирани на фигура (1) и (2). Поради възможност от нарушаване на изключвателната способност, схемата на фигура (3) не се препоръчва преди приемането и от лице, упълномощено от производителя; начинът на свързване, даден на фигура (4) е забранен за използване.

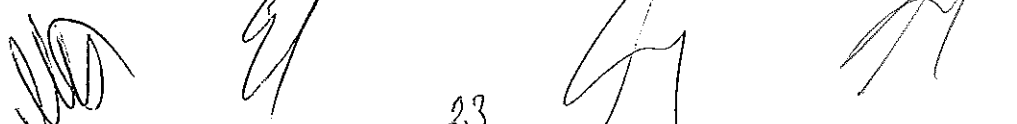
### 10. Габаритни и монтажни размери

Габаритни и монтажни размери на NM1-63, 125, 250 (фиксиран тип)

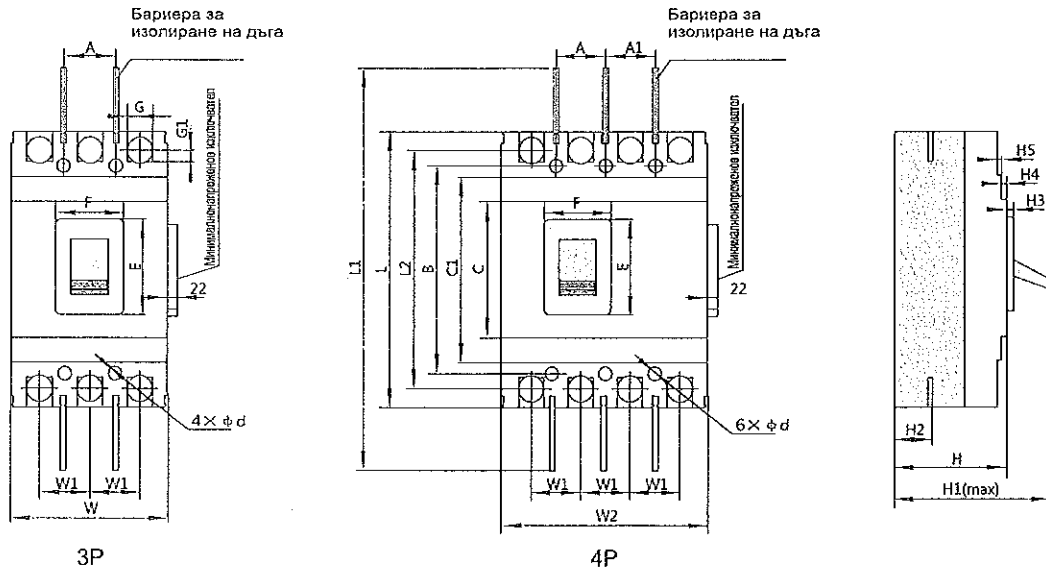


(mm)

Размери	NM1-63S	NM1-63H	NM1-125C NM1-125S	NM1-125S/1P	NM1-125H NM1-125R	NM1-250S/1P	NM1-250C NM1-250S	NM1-250H NM1-250R
C	85	85	84	84	84	102	102	102
E	48	48	50.5	51	50.5	51	50	50
F	22	22	22	23	22	22	22	22
G	14	14	17.5	13	17.5	17.5	23	23
G1	6.5	6.5	7.5	7.5	7.5	9	11.5	11.5
H	72	82	68	68	86	85	86	103
H1	90	100	86	86	104	109	110	127
H2	18	28	24	24	24	23	24	24
H3	4	4	4	4.5	4	4.5	4	4
H4	6	6	7	7	7	6	5	5
L	135	135	155	155	155	165	165	165
L1	235	235	255	-	255	-	360	360
L2	117	117	136	136	136	144	144	144
W	76	76	90	-	90	-	105	105
W1	25	25	30	-	30	-	35	35
W2	-	102.5	-	-	120	-	-	140
W3	53	-	-	-	65	-	-	75
W4	-	-	-	35	-	35	-	-
Монтажни размери								
A	25	25	30	23	30	28	35	35
B	117	117	130.5	130.5	130.5	109	126	126
φd	4.5	4.5	4.5×6	4	4.5×6	5	5	5



Габаритни и монтажни размери на NM1-400, 630, 800, 1250 (фиксиран тип)



(mm)

Размери		NM1-400S NM1-400H NM1-400R	NM1-630S NM1-630H NM1-630R	NM1-800H/R	NM1-1250H
Габаритни размери	C	127.5	134.5	136	265.5
	C1	173.5	184.5	204	345.5
	E	88.5	89	81	97
	F	65	65.5	66	78
	G	30.5	44	45	-
	G1	11	13.5	12.5	-
	H	107	112	116	141
	H1	162	164.5	168	202
	H2	40	42	41.5	58
	H3	6.5	7	4.5	16.5
	H4	5	3.5	5	2
	H5	5	4.5	8	4.5
	L	257	270.5	280	406*
	L1	457	470	485	715
	L2	224	234	243	-
W	150	182	210	210	
W1	48	58	70	70	
W2	197.5	240	280	-	
Монтажни размери	A	44	58	70	70
	A1	50	-	-	-
	B	194	200	243	375
	$\phi d$	7	7	7	10

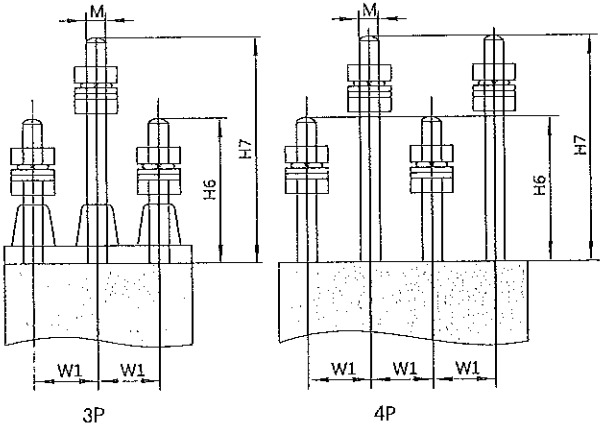
\*Забележка: Дължината на прекъсвача NM1-1250H с присъединителни клеми е 545mm.

Handwritten signatures and the number 24.

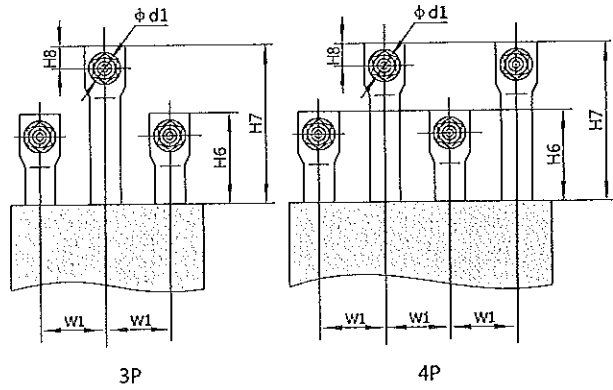


*Handwritten mark*

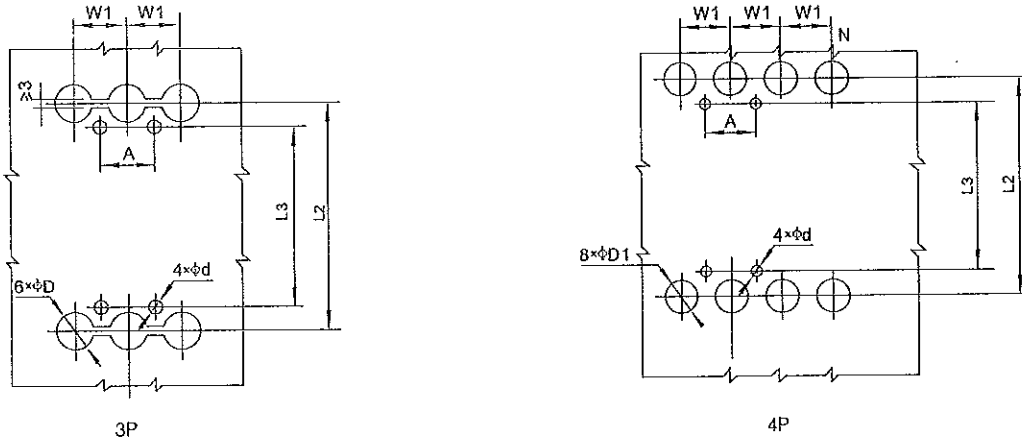
Габаритни и монтажни размери на NM1-63, 125, 250 (задно свързване)



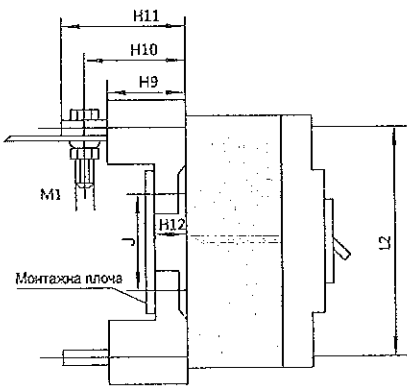
Габаритни и монтажни размери на NM1-400, 630, 800 (задно свързване)



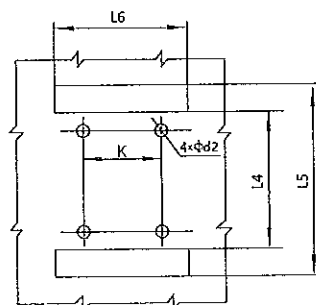
Шаблон за пробиване при задно свързване



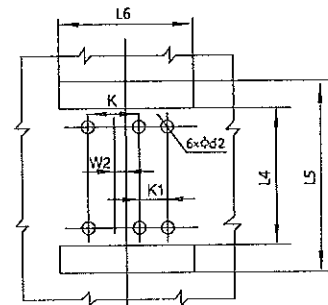
Изваждаем тип прекъсвач



Монтажни размери 3P



Шаблон за пробиване 3P



Шаблон за пробиване 4P

*Handwritten signatures and marks*

(mm)

Размери		NM1-63S NM1-63H	NM1-125S NM1-125H NM1-125R	NM1-250S NM1-250H NM1-250R	NM1-400S NM1-400H NM1-400R	NM1-630S NM1-630H NM1-630R	NM1-800H NM1-800R
Размери на на прекъсвач със задно свързване и изваждаем тип	A	25	30	35	44	58	70
	φd	4.5	4.5×6	5.5	7	7	7
	φd1	-	-	-	φ12	φ16	φ16
	φd2	6	8	8	9	9	12
	φD	8	10	12	33	37	37
	φD1	8	10	12	33	37	37
	H6	S:32 / H:23	63.5	67.5	39	45	64
	H7	S:47 / H:38	96.5	118.5	74	79	64
	H8	-	-	-	18	20	20
	H9	28	50	50	60	60	87
	H10	38	67.5	71.5	88	92	143.7
	H11	44.5	81	84.5	111	110	158.7
	H12	10	18	18	21.5	21	27
	L2	117	136	144	224	234	243
	L3	117	130.5	126	194	200	243
	L4	97	93	93	163	165	173
	L5	138	180	190	285	302	305
	L6	80/105*	95/125*	110/140*	150/198*	180/238*	215/285*
	M	M6	M8	M10	-	-	-
	K	50	60	70	60	100	90
K1	25	30	35	66	66	95	
J	60	58	54	130.4	124	146	
M1	M5	M8	M8	M10	M12	M12	
W1	25	30	35	48	58	70	
W2	12.5	15	17.5	24	29	35	

Забележка: С "\*" са означени размерите на 4P прекъсвач.

*Handwritten signatures and marks:*  
 A large signature on the left, a smaller one above it, and another signature on the right.  
 The number "26" is written at the bottom center.

# 11. Аксесоари

Вътрешни аксесоари

Допълнителен контакт

Допълнителен контакт за сигнализация

Дистанционен изключвател

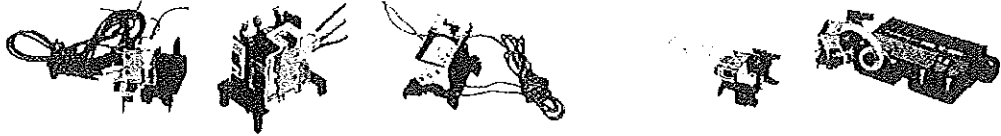
Контакт за сигнализация

Минимално-напреженов изключвател

Ляво Дясно



Ръкохватка



Аксесоари	Код на аксесоара		Начин на монтаж и свързване				
	Само магнитно изключване	Комбинирано изключване	NM1-63S	NM1-63S,H	NM1-630S, H, R	NM1-800H, R	NM1-1250H
			NM1-125C,S,H,R NM1-250C,S,H,R	NM1-125C,S,H,R NM1-250C,S,H,R NM1-400S,H,R			
Без аксесоари	200	300					
Контакт за сигнализация	208	308					
Дистанционен изключвател	210	310					
Допълнителен контакт	220	320					
Минималнонапреженов изключвател	230	330					
Дистанционен изключвател Допълнителен контакт	240	340					
Дистанционен изключвател Минималнонапреженов изключвател	250	350					
Две групи допълнителни контакти	260	360					
Допълнителен контакт Минималнонапреженов изключвател	270	370					
Дистанционен изключвател Контакт за сигнализация	218	318					
Допълнителен контакт за сигнализация	228	328					
Минималнонапреженов изключвател Контакт за сигнализация	238	338					
Дистанционен изключвател Допълнителен контакт за сигнализация	248	348					
Две групи допълнителни контакти, допълнителен контакт за сигнализация	268	368					
Минималнонапреженов изключвател, допълнителен контакт за сигнализация	278	378					

*Handwritten signatures and numbers: 27, 21, 21, 21*

11.1 Минималнонапрежен изключвател

- а) При  $U_n=70\sim 35\% U_s$ , изключване на прекъсвача;
- б) При  $U_n \leq 35\% U_s$ , предпазва прекъсвача от включване;
- в) При  $U_n \geq 85\% U_s$ , прекъсвачът работи нормално;
- г) Номиналното напрежение на минималнонапреженовия изключвател е 230V и 400V, 50Hz;
- д) Кодове за минималнонапреженовия изключвател

Код	A2	A4	D1	D2
Напрежение	AC 230V	AC 400V	DC 110V	DC 230V
Номинална честота	50Hz	50Hz	-	-

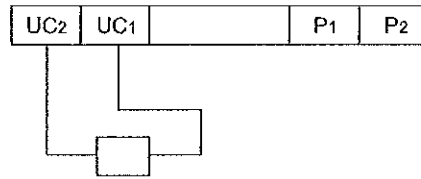
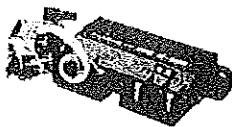


Схема на свързване на минималнонапреженовия изключвател

11.2 Дистанционен изключвател

- а) Номиналното управляващо напрежение на дистанционния изключвател е 230V и 400V, 50Hz;
- б) При  $U_n=70\% \sim 110\% U_s$ , нормална работа;
- в) Кодове на дистанционния изключвател

Код	A1	A2	A4	D1	D2	D3
Напрежение	AC 110/127V	AC 230V	AC 400V	DC 110V	DC 230V	DC 24V
Номинална честота	50Hz	50Hz/60Hz	50Hz/60Hz	-	-	-

Забележка: Когато напрежението е 24VDC, номиналният ток може да достигне до  $5A \pm 10\%$ .

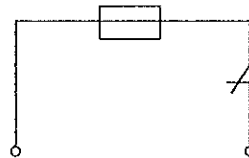


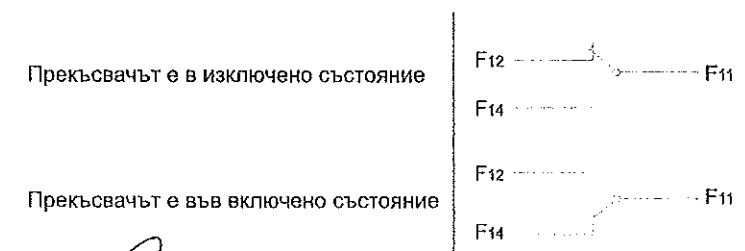
Схема на свързване на дистанционния изключвател

11.3 Допълнителен контакт и контакт за сигнализация

- а) Номинални параметри на допълнителния контакт

Ток на корпуса	Стандартен термичен ток $I_{th}$ (A)	Номинален ток $I_e$ (A) при 400VAC	Номинален ток $I_e$ (A) при 230VDC
$I_{nm} \leq 225A$	3	0.26	0.14
$I_{nm} \geq 400A$	6	3	0.2

- б) Конфигурация на допълнителния контакт



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в) Контакт за сигнализация  
Когато прекъсвачът включва и изключва нормално, контактът за сигнализация не работи. След ръчно изключване (или изключване поради повреда) контактът за сигнализация сработва. След като прекъсвачът се включи отново, контактът за сигнализация се връща в първоначално състояние.

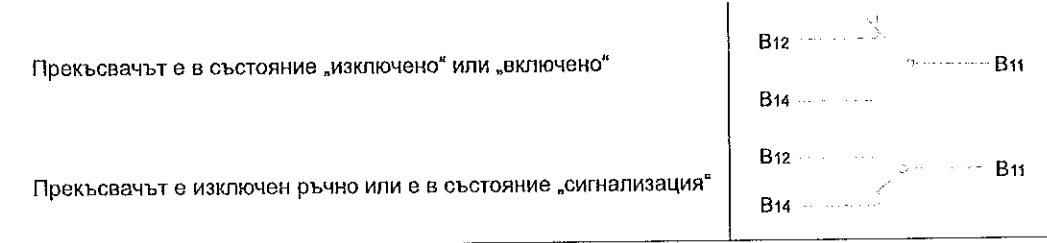
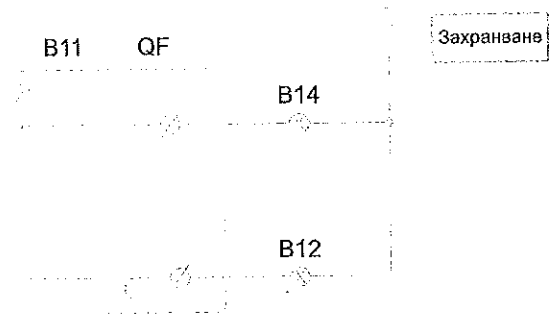
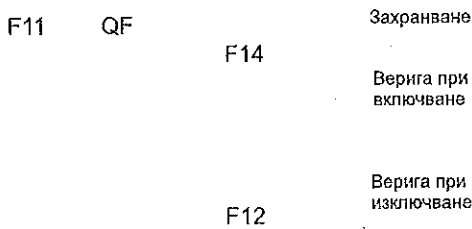


Схема на свързване на допълнителен контакт на NM1

Схема на свързване на контакт за сигнализация на NM1



Външни аксесоари

11.4 Моторен задвижващ механизъм

а) Номинални параметри

Елементи	Модел	NM1-63 NM1-125, NM1-250	NM1-400, NM1-630, NM1-800, NM1-1250
Принцип на действие		електромагнит	електродвигател
Код за променливо напрежение		A2, A4	A2, A4
Код за постоянно напрежение		D1, D2	D1, D2

Забележка: A2: 220V/230V/240V, A4: 380V/400V/415V; D1: DC24V, D2: DC110V.

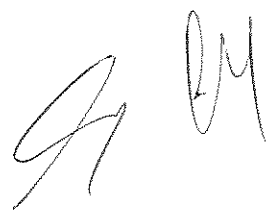
б) Схема на свързване на моторния механизъм за включване и изключване за NM1-400, 630, 800, 1250 (AC)



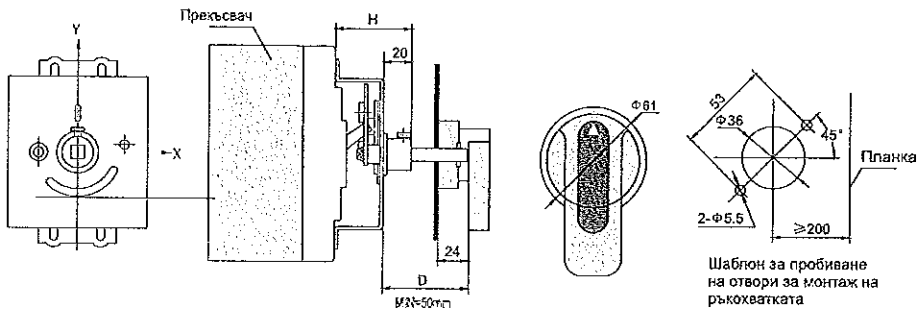
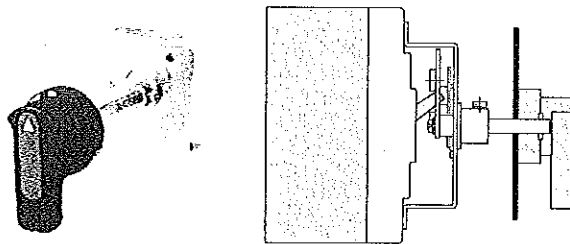
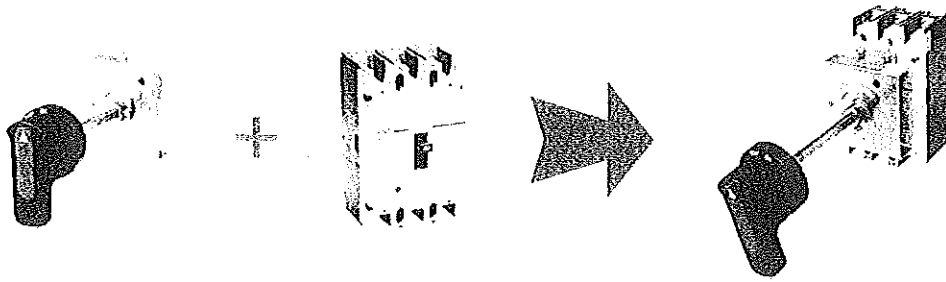
Захранващ източник  
Uc

Включване на прекъсвача  
Изключване на прекъсвача

Спецификация 230VAC или 400VAC, 50Hz



11.5 Монтажни размери на ръкохватката за изнесено ръчно включване

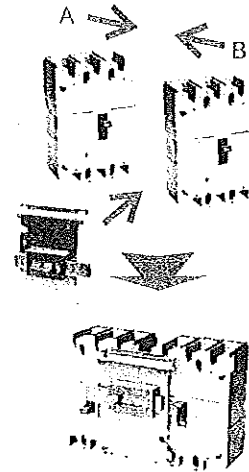
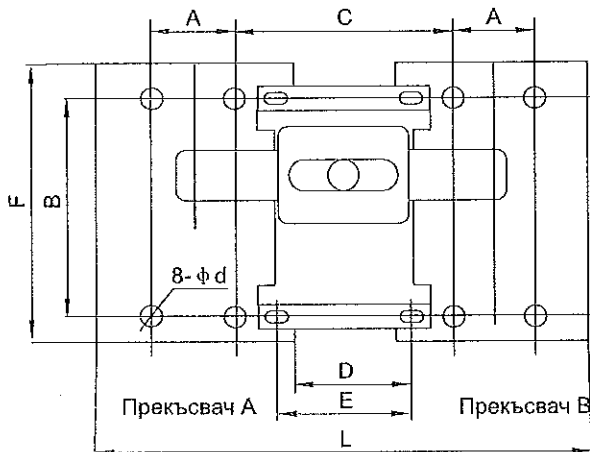


	(mm)					
Модел	NM1-63	NM1-125	NM1-250	NM1-400	NM1-630	NM1-800H NM1-800R
Монтажен размер	49	51	54	88	89	76
Ъгъл на завъртане на ръкохватката спрямо центъра на прекъсвача (Y)	0	0	0	0	0	0

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11.6 Монтажни размери и шаблон за отвори на механичната блокировка



Модел	A	B	C	D	E	F	L	Φd
NM1-63	25	117	80	30	80	135	182	4.5
NM1-125	30	130.5	90	30	90	155	210	4.5×6*
NM1-250	35	126	100	30	100	165	240	5.5
NM1-400	44	194	136	30	40	257	330	7
NM1-630	58	200	172	48	62	270	412	7
NM1-800	70	243	167	28	40	280	448	7

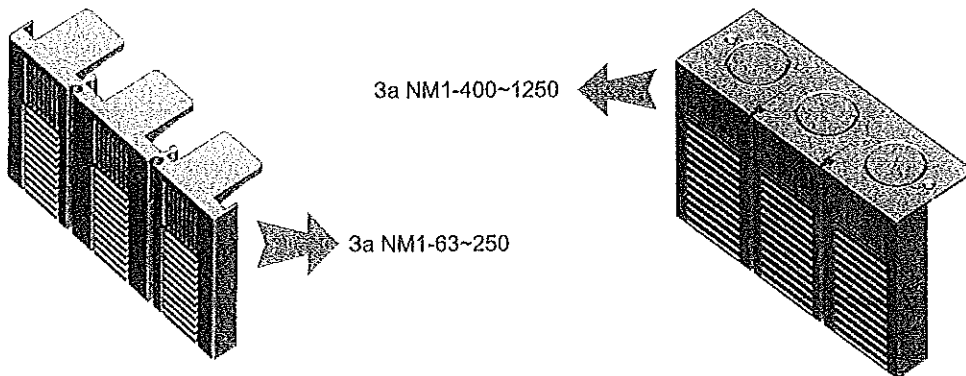
Забележки: 1. \* означава дълбочина на отвора.

2. Първо инсталирайте прекъсвачите в таблото, а след това поставете механичната блокировка.

12. Допълнителна техническа информация

12.1 Прекъсвачите NM1-1250 се продават оборудвани с шина за свързване с болтове. Ако вие имате нужда от свързваща шина за устройства от друг модел, тя се поръчва отделно;

12.2 Налични са капаци за изолация на изводите за устройства от цялата серия NM1, а класът на защита може да бъде до IP40, след оборудването на прекъсвача с изолационен капак.



12.3 Безопасно разстояние до други електрически апарати при монтаж

Разстояние (min) / Тип	NM1-63	NM1-125	NM1-250	NM1-400	NM1-630	NM1-800	NM1-1250
От страна на захранването	50	50	50	100	100	100	100
От страна на товара	20	20	20	20	20	20	20
Отдясно	25	25	25	25	25	25	25
Отляво	25	25	25	25	25	25	25

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12.4 Момент на затягане

Размер на проводника (мед)		Номинален ток (A)	Момент на затягане (N · m)	
AWG/MCM	mm <sup>2</sup>		предно свързване	затворени стягащи изводи
16-6	1.5-16	10 ≤ In ≤ 63	5	3
4-3	25-35	63 < In ≤ 100	10	8
2-4/0	50-95	100 < In ≤ 225	14	10
300-500	120-240	225 < In ≤ 400	18	16
250 × 2	150 × 2	400 < In ≤ 500	22	18
350 × 2	185 × 2	500 < In ≤ 630	26	20
500 × 2	240 × 2	630 < In ≤ 800	28	-
350 × 4	185 × 4	800 < In ≤ 1250	30	-

12.5 Технически данни на серията NM1 (параметрите в черно са само за справка)

Ток според корпуса (A)	Модел	Брой на полюсите	Ui (V)	Icu/Ics (kA)			Icu/Icm (kA)		
				220V 230V 240V	380V 400V 415V	660V 690V	380V 400V 415V		
63	NM1-63S	2	500	20/10	15/7.5	-	15/30		
		3	500	20/10	15/7.5	-	15/30		
		3/4	500	42/21	35/17.5	-	35/73.5		
125	NM1-125C	2	800	25/12.5	20/10	-	20/40		
		3/4	800	25/12.5	20/10	3/1.5	20/40		
	NM1-125S	1	800	16/8	-	-	-		
		2	800	42/21	25/12.5	-	25/52.5		
		3/4	800	42/21	25/12.5	3/1.5	25/52.5		
	NM1-125H	2	800	65/32.5	50/25	-	50/105		
		3/4	800	65/32.5	50/25	8/4	50/105		
		2	800	85/42.5	65/32.5	-	65/143		
		3/4	800	85/42.5	65/32.5	10/5	65/143		
250	NM1-250C	2	800	25/12.5	20/10	-	20/40		
		3/4	800	25/12.5	20/10	5/2.5	20/40		
		1	800	20/10	-	-	-		
	NM1-250S	2	800	42/21	25/12.5	-	25/52.5		
		3/4	800	42/21	25/12.5	5/2.5	25/52.5		
	NM1-250H	2	800	65/32.5	50/25	-	50/105		
		3/4	800	65/32.5	50/25	8/4	50/105		
		2	800	85/42.5	65/32.5	-	65/143		
		3/4	800	85/42.5	65/32.5	10/5	65/143		
400	NM1-400S	3/4	800	50/25	35/17.5	10/5	35/73.5		
	NM1-400H	3/4	800	85/42.5	50/25	12/6	50/105		
	NM1-400R	3/4	800	100/50	70/35	15/7.5	70/154		
630	NM1-630S	3/4	800	50/25	35/17.5	12/6	35/73.5		
	NM1-630H	3/4	800	85/42.5	50/25	15/7.5	50/105		
	NM1-630R	3	800	100/50	70/35	20/10	70/154		
		4	800	100/50	70/35	15/7.5	70/154		
800	NM1-800H	3/4	800	85/42.5	60/30	20/10	60/132		
	NM1-800R	3/4	800	100/50	70/35	20/10	70/154		
1250	NM1-1250H	3	800	85/42.5	65/32.5	20/10	65/143		



12.6 Каскадиране

12.6.1 Каскадиране (220/230/240V)

Отгоре: NM1-63~1250

Отдолу: UB, DZ158, DZ267, NB1, NBH8, NM1-63~1250

Отгоре Изключвателна способност (kA RMS)	Изключвателна способност (kA RMS)						
	NM1-63S 20	NM1-63H 42	NM1-125S 25	NM1-125H 50	NM1-125R 65	NM1-250S 25	NM1-250H 50
Отдолу	Изключвателна способност (kA RMS)						
DZ267	20	40	20	35	50	20	25
UB	20	40	20	35	50	20	25
NBH8	20	40	20	35	50	20	25
NB1(I <sub>cn</sub> =6000A)	20	42	25	35	50	25	35
NB1(I <sub>cn</sub> =10 000A)	20	42	25	40	50	25	35
DZ158			25	40	50	25	40
NM1-63S		42	25	50	65	25	50
NM1-63H					65		
NM1-125S				50	65		50
NM1-125H					65		
NM1-250S							50
NM1-250H							
NM1-400S							
NM1-400H							
NM1-630S							
NM1-630H							
NM1-800H							
NM1-1250H							

12.8.2 Каскадиране (380/400/415V)

Отгоре: NM1-63~1250

Отдолу: UB, DZ158, DZ267, NB1, NBH8, NM1-63~1250

Отгоре Изключвателна способност (kA RMS)	Изключвателна способност (kA RMS)						
	NM1-63S 15	NM1-63H 35	NM1-125S 25	NM1-125H 50	NM1-125R 65	NM1-250S 25	NM1-250H 50
Отдолу	Изключвателна способност (kA RMS)						
UB	10	15	10	15	15	10	15
NB1(I <sub>cn</sub> =6000A)	15	20	15	20	20	15	20
NB1(I <sub>cn</sub> =10000A)	15	20	20	25	25	20	25
DZ158			20	25	35	20	25
NM1-63S		35	25	50	65	25	50
NM1-63H					85		
NM1-125S				50	65		50
NM1-125H					65		
NM1-250S							50
NM1-250H							
NM1-400S							
NM1-400H							
NM1-630S							
NM1-630H							
NM1-800H							
NM1-1250H							

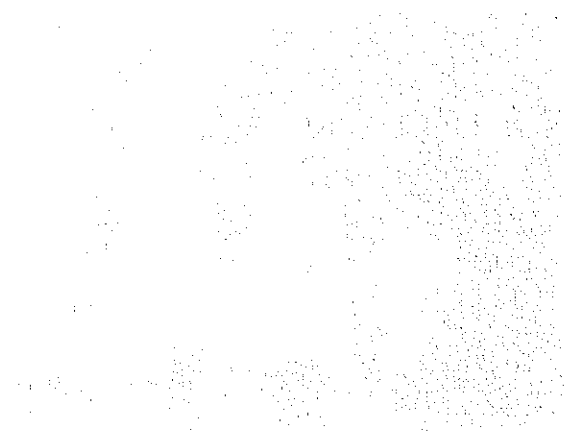


NM1-250R	NM1-400S	NM1-400H	NM1-400R	NM1-630S	NM1-630H	NM1-630R	NM1-800H	NM1-800R	NM1-1250H
65	35	50	70	35	50	70	60	70	65
30									
30									
30									
35									
40									
50	30	40	50						
65									
65									
65		50	70		50	70	60	70	65
65			70			70		70	
65		50	70		50	70	60	70	65
65			70			70		70	
		50	70		50	70	60	70	65
			70			70		70	
					50	70			
						70			
								70	

NM1-250R	NM1-400S	NM1-400H	NM1-400R	NM1-630S	NM1-630H	NM1-630R	NM1-800H	NM1-800R	NM1-1250H
65	35	50	70	35	50	70	60	70	65
15									
20									
25									
35	20	25	35						
65									
65									
65		50	70		50	70	60	70	65
65			70			70		70	
65		50	70		50	70	60	70	65
65			70			70		70	
		50	70		50	70	60	70	65
			70			70		70	
					50	70			
						70			
								70	

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Серия NM1

Прекъсвачи и  
разединители в лят корпус

Техническо Описание



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35

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## 1. Приложение

Серията прекъсвачи в лят корпус NM1 (наричани по-долу прекъсвач) е нов тип прекъсвач, разработен от компанията ни с международни високи технологии. Неговото изолационно напрежение е до 800V. Автоматичният прекъсвач се използва главно в разпределителната мрежа на AC 50Hz/60Hz, с номинално напрежение до 690V, номинален работен ток до 1250A за разпределение на електрическа енергия и за защита на линиите и оборудването от повреди поради претоварване, късо съединение и понижено напрежение. Той може да се използва също за пускане/спиране на двигател и за защита на двигателя от претоварване, късо съединение и понижено напрежение.

Прекъсвачите, в зависимост от различната им изключвателна способност при късо съединение, се разделят на три вида: S тип (стандартен), H тип (с голяма изключвателна способност), R тип (токоограничаващ тип).

Продуктът се характеризира с малък обем, голяма изключвателна способност и късо дъгогасително разстояние, така че, той е идеален продукт за потребителите.

Продуктът е в съответствие със стандарта IEC60947-2.

## 2. Работни условия

### 2.1. Околна температура

2.1.1. Горната граница на температурата на околната среда е +40°C (Ако температурата надвишава 40°C, моля свържете се с нас).

2.1.2. Средната температура за 24 часа не трябва да надвишава +35°C.

2.1.3. Долната граница на температурата на околната среда е -5°C.

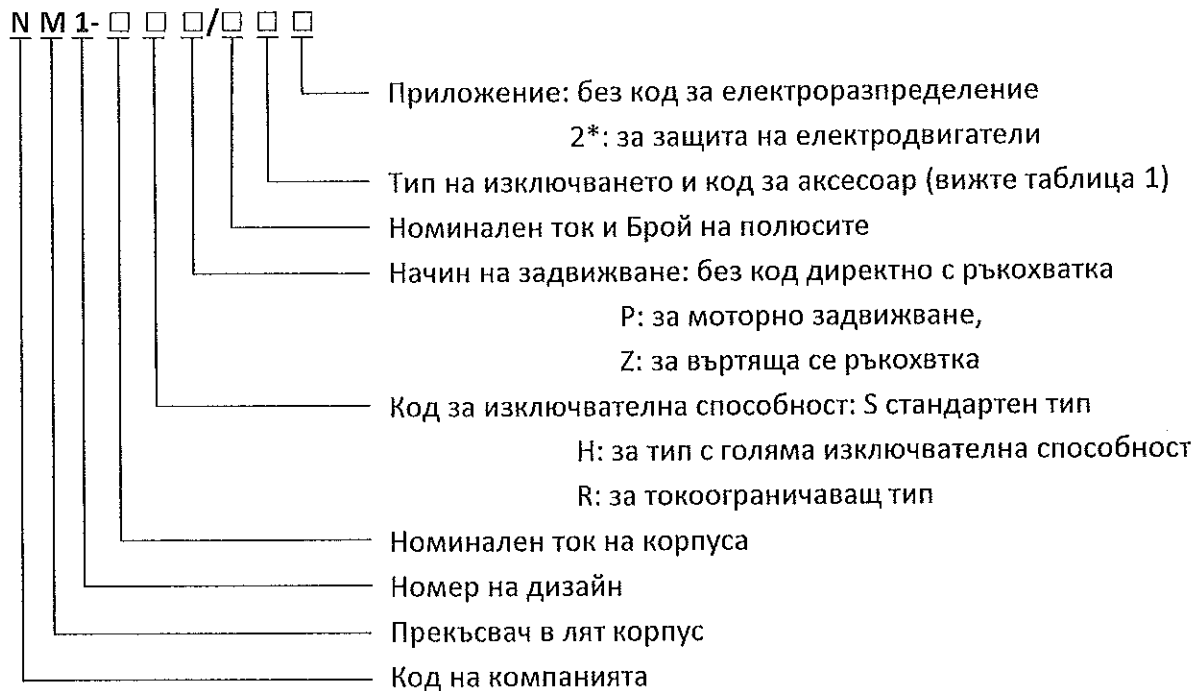
2.2. Надморска височина: надморската височина в мястото на инсталацията не трябва да надвишава 2000m.

2.3. Атмосферни условия: относителната влажност на въздуха да не надвишава 50%, когато външната температура е 40°C. Относителната влажност на въздуха може да бъде по-висока при по-ниска температура. Максималната средно-месечна относителна влажност на въздуха е 90% в най-влажните месеци, с минимална средно-месечна температура от 25°C. Трябва да се вземе под внимание фактора, че може да се появи роса на повърхността на продукта в резултат на температурните промени.

2.4. Степен на замърсяване: клас III

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### 3. Типово означение и класификация



Забележка: \* След кода за приложение, А означава четириполюсен прекъсвач, неутралата е със защита от претоварване; В - без защита от претоварване.

Таблица 1 Режим на изключване и кодове за аксесоари

Наименование на аксесоар	Режим на изключване	Моментално изключване	Комбинирано изключване
Без аксесоар		200	300
Контакт за сигнализация		208	308
Дистанционен изключвател		210	310
Допълнителен контакт		220	320
Минимално напреженов изключвател		230	330
Дистанционен изключвател, допълнителен контакт		240	340
Дистанционен изключвател, минимално напреженов изключвател		250	350
Две групи допълнителни контакти		260	360
Допълнителен контакт, минимално напреженов изключвател		270	370
Дистанционен изключвател, контакт за сигнализация		218	318
Допълнителен контакт, контакт за сигнализация		228	328
Минимално напреженов изключвател, контакт за сигнализация		238	338
Дистанционен изключвател, допълнителен контакт, контакт за сигнализация		248	348
Дистанционен изключвател, минимално напреженов изключвател, контакт за сигнализация		258	358
Две групи допълнителни контакти, контакт за сигнализация		268	368
Допълнителен контакт, минимално напреженов изключвател, контакт за сигнализация		278	378

Забележка: сега няма прекъсвач тип 258 и 358.



#### 4. Основни технически параметри

4.1. Настройката на магнитната защита на прекъсвача (за електроразпределение) е зададена на  $10I_n$ , за защита на двигател на  $12I_n$ .

4.2. Номиналните величини на прекъсвача са дадени в таблица 2.

4.3. Работните характеристики на прекъсвача (за електроразпределение) са показани в таблица 3, а характеристиките за защита на двигател в таблица 4.

Таблица 2. Номинални величини на прекъсвача

Модел	Номинален ток на корпуса $I_{nm}$ (A)	Номинален ток $I_n$ (A)	Номинално напрежение $U_e$ (V)	Номинално изолационно напрежение $U_i$ (V)	Номинална изключвателна способност $I_{cu}$ (kA) 415V/690V	Номинална работна изключвателна способност $I_{cs}$ kA 415V/690V	Номинален ток на N полюса
NM1-63S/3P	63	10, 16, 20, 25, 32, 40, 50, 63	380/ 400/ 415	500	15	7.5	$I_n$
NM1-63H/3P							
NM1-63H/4P							
NM1-100S/3P	100	10, 16, 20, 25, 32, 40, 50, 63, 80, 100	380/ 400/ 415/ 690	800	25/3	12.5/1.5	$=I_n$ (ако $I_n \leq 63A$ ) $=63A$ (ако $I_n \geq 63A$ )
NM1-100H/2P							
NM1-100H/3P							
NM1-100H/4P							
NM1-100R/3P							
NM1-225S/3P	225	100, 125, 160, 180, 200, 225	380/ 400/ 415/ 690	800	25/5	12.5/2.5	$=63A$ (ако $I_n \leq 125A$ ) $=I_n/2$ (ако $I_n \geq 125A$ )
NM1-225H/2P							
NM1-225H/3P							
NM1-225H/4P							
NM1-225R/3P							
NM1-400S/3P	400	225, 250, 315, 350, 400	380/ 400/ 415	500	35/10	17.5/5	$=I_n/2$
NM1-400S/4P							
NM1-400H/3P							
NM1-400R/3P							
NM1-630S/3P	630	400, 500, 630	380/ 400/ 415	500	50/12	25/6	$=I_n/2$
NM1-630S/4P							
NM1-630H/3P							
NM1-630R/3P	800	630, 700, 800	380/ 400/ 415	500	70/15	35/7.5	
NM1-800H/3P							
NM1-800R/3P	1250	700, 800, 900, 1000, 1250	380/ 400/ 415	500	70	35	
NM1-1250H/3P							



Таблица 3 Работни характеристики на изключване на прекъсвача при претоварване (за електроразпределение)

No.	Изпитвателен ток	I/In	Стандартно време	Начално състояние
1	Стандартен неизключващ ток	1.05	2 часа (In>63A), 1 час (In<63A)	Студено състояние
2	Стандартен ток на изключване	1.30	2 часа (In>63A), 1 час (In<63A)	Веднага след тест № 1

Таблица 4 Работни характеристики на изключване на прекъсвача при претоварване (за защита на двигател)

No.	Изпитвателен ток	Номинален ток	Стандартно време	Начално състояние
1	Стандартен неизключващ ток	1.0	2 часа	Студено състояние
2	Стандартен ток на изключване	1.2	2 часа	Веднага след тест № 1

## 5. Вътрешни и външни аксесоари на прекъсвача

(Вътрешните и външните аксесоари на прекъсвача се инсталират в съответствие с нуждите на потребителите).

### 5.1 Вътрешни аксесоари на прекъсвача

#### 5.1.1 Дистанционен изключвател

Номиналното управляващо напрежение на дистанционния изключвател е AC50Hz, 230V и 400V, и DC24V, 110V, 240V. Автоматичният прекъсвач трябва да бъде изключен надеждно при 70% - 110% от номиналното напрежение.

**Забележка: когато напрежението е DC24V, тока на дистанционния изключвател трябва да бъде 5A ± 10%A**

#### 5.1.2 Минимално напреженов изключвател.

Минимално напреженовият изключвател трябва да действа за да изключи прекъсвача, когато захранващото напрежение намалява (дори ако бавно намалява) до 70% - 35% от номиналното напрежение. Той трябва да предотврати повторното затваряне на прекъсвача, ако захранващото напрежение намалява до по-малко от 35% от номиналното напрежение. Той трябва да гарантира, че прекъсвача ще се затвори, ако захранващото напрежение е равно или по-голямо от 85% от номиналното напрежение.

Номиналното напрежение на минимално напреженовия изключвател е 50Hz, 230V и 400V.

**Забележка: само когато на минимално напреженовия изключвател се подаде номинално напрежение, прекъсвача може да бъде затворен, в противен случай прекъсвача ще се повреди.**

#### 5.1.3 Допълнителен контакт

Допълнителният контакт на прекъсвача е разделен на две части. Електрически всяка част не се разделя. (виж таблица 5)

#### 5.1.4 Контакт за сигнализация

Номиналното напрежение на контакта за сигнализация и свързаните с него параметри са посочени в таблица 5. Първоначалното положение на контакта за сигнализация не се променя само когато прекъсвача е в свободна позиция или изключил повреда.

Таблица 5 Параметри на спомагателните вериги

Тип		Номинално изолационно напрежение (V)	Стандартен термичен ток (A)	AC-15			DC-13	
				Номинално напрежение (V)	Номинална честота (Hz)	Номинален ток (A)	Номинално напрежение (V)	Номинален ток (A)
Допълнителен контакт	Inm ≤ 225A	400	3	380	50	0.26	220	0.14
	Inm ≥ 400A		6			3		0.2
Контакт за сигнализация				3	/		/	/

#### 5.2 Външни аксесоари

5.2.1 В таблица 6 са посочени характеристиките на моторния механизъм, а в таблица 7 са показани максималните размери на дълбочината.

Таблица 6

Тип	NM1-63, NM1-100, NM 1-225	NM1-400, NM1-630, NM1-800
Модел		
Принцип на действие	Електромагнит	Електродвигател
Номинални напрежения	50Hz, 220V; 50Hz, 380V, DC110V; DC220V	

Таблица 7

Тип	NM1-63S	NM1-63H	NM1-100S	NM1-100H NM1-100R	NM1-225S	NM1-225H NM1-225R	NM1-400S	NM1-400H NM1-400R	NM1-630S NM1-630H	NM1-630R NM1-800H NM1-800R	NM1-1250H
Дълбочина											
H	167	175	164	182	195	212	227	230	234	232	290

**Забележка:** когато прекъсвач с моторен механизъм изключи, потребителите трябва да поставят прекъсвача в начално положение чрез моторния механизъм преди да затворят прекъсвача.

## 6. Габаритни и инсталационни размери

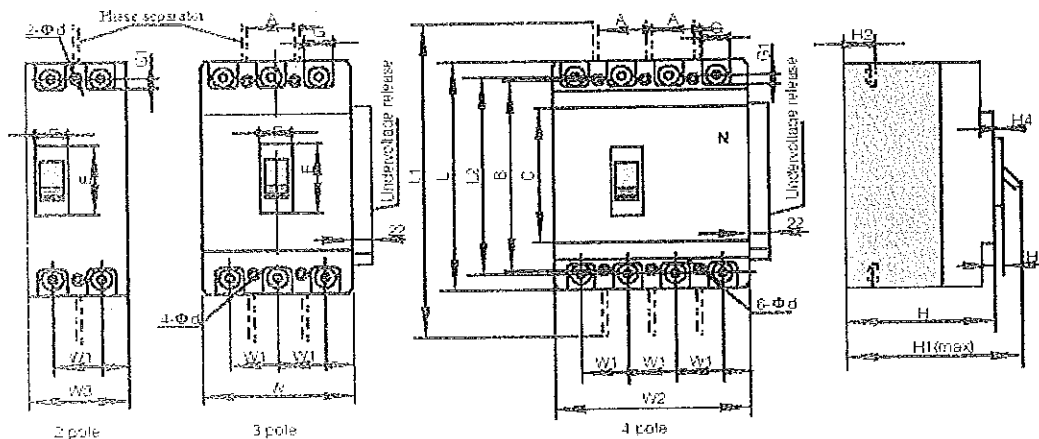
6.1. Габаритните и инсталационните размери на прекъсвач NM1-63, 100, 225 с фиксирано свързване са дадени на фиг. 15а и в таблица 10.

6.2. Габаритните и инсталационните размери на прекъсвач NM1-400, 630, 800, 1250 с фиксирано свързване са дадени на фиг. 15b и в таблица 11.

-6-  
40



6.3. Габаритните и инсталационните размери на прекъсвач NM1 със задно свързване и щепселно свързване са дадени на фиг. 16а, фиг. 16b, фиг. 17а, фиг.17b и в таблица 12.

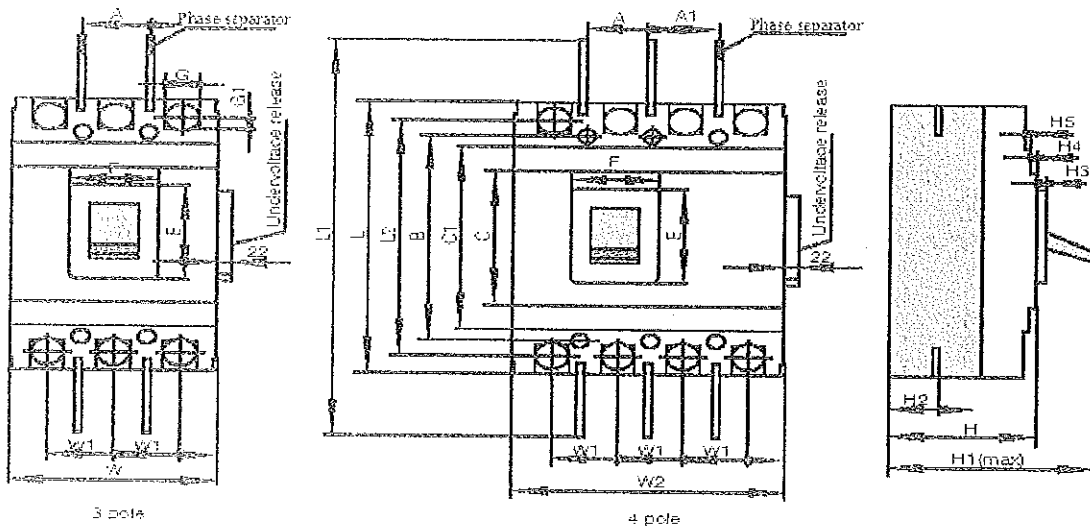


Фиг. 15а NM1-63, 100, 225 с фиксирано свързване

Таблица 10

Вид	Код	Тип					
		NM1-63S	NM1-63H	NM1-100S	NM1-100H NM1-100R	NM1-225S	NM1-225H NM1-225R
Габаритни размери	c	85	85	84	84	102	102
	E	48	48	50	50	50	50
	F	22	22	22	22	22	22
	G	14	14	17.5	17.5	17	17
	G1	8.5	6.5	7.5	7.5	11.5	11.5
	H	73	81	68	86	86	103
	H1	90	98.5	86	102	110	127
	H2	20	27	24	24	24	24
	H3	4	4	4	4	4	4
	H4	6	6	7	7	5	5
	L	135	135	155	155	165	165
	L1	170	173	255	255	360	360
	L2	117	117	136	136	144	144
	W	76	76	90	90	105	105
	W1	25	25	30	30	35	35
	W2	-	101	-	120	-	140
W3	-	-	-	64.5	-	74.5	
Инсталационни размери	A	25	25	30	30	35	35
	B	117	117	129	129	126	126
	φd	3.5	3.5	4.5X6	4.5X6	5.5	5.5

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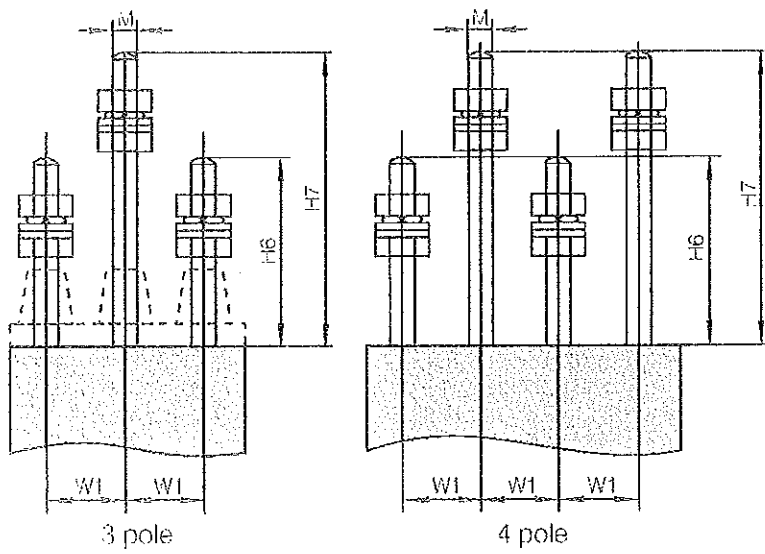
Фиг. 15b NM1-400, 630, 800, 1250 с фиксирано свързване

Таблица 11

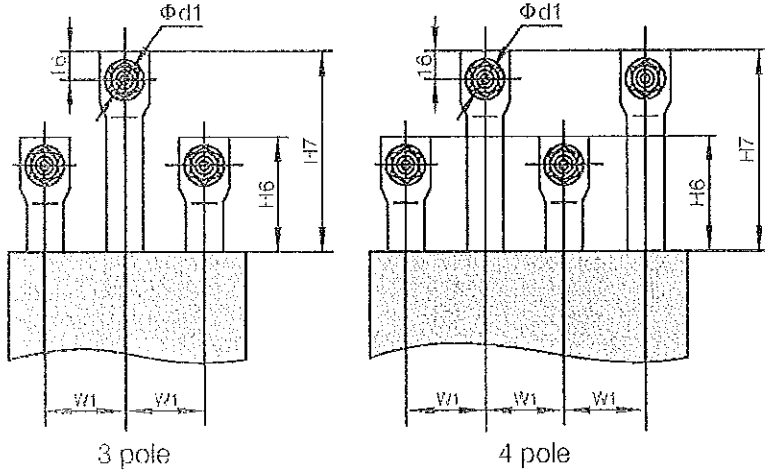
Вид	Код	Тип						
		NM1-400S	NM1-400H NM1-400R	NM1-630S	NH1-630H	NM1-630R NM1-800H/R	NM1-800H/4P	NH1-1250H
Габаритни размери	c	102	129	134	134	154	135.5	265.5
	C1	179	175	184	184	204	206.5	345.5
	E	90	89	89	89	106	91	97
	F	62	65	65	65	66	52	78
	G	28	30.5	40	44	44	45	
	G1	13	10.5	13.5	13.5	12.5	12	
	H	104	107	111	111	107	109	141
	H1	155	150	160	160	143	156	202
	HZ	38	39	44	44	33	36.5	58
	H3	6	6	6	6	4.5	5	16.5
	H4	6	4.5	3.5	3.5	4.5	6	2
	H5	2.5	4.5	4.5	4.5	8	7	4.5
	L	257	257	270	270	280	276	406
	L1	457	457	470	470	470	485	706
	L2	225	225	234	234	243	243	375
	W	140	150	182	182	210		210
	W1	44	44	58	58	70	70	70
W2	198	-	240	-	-	280	-	
Инсталационни размери	A	44	44	58	58	70	70	70
	A1	50	-	58	-	-	-	-
	B	194	194	200	200	243	243	299
	Φd	7	7	7	7	7	7	10

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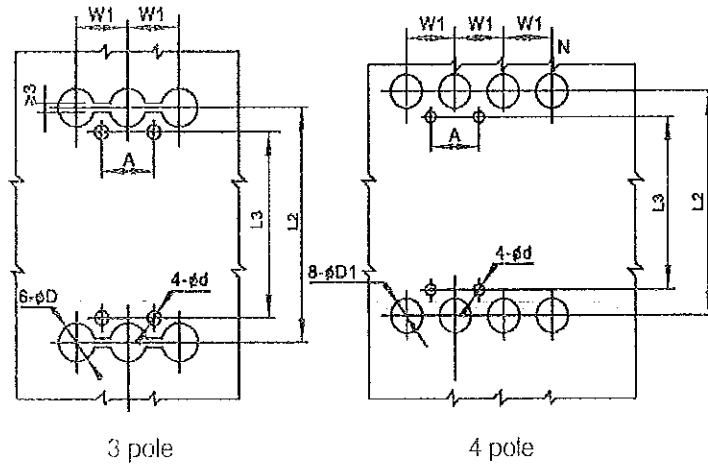
42



Фиг.16а NM1-63, 100, 225 със задно свързване

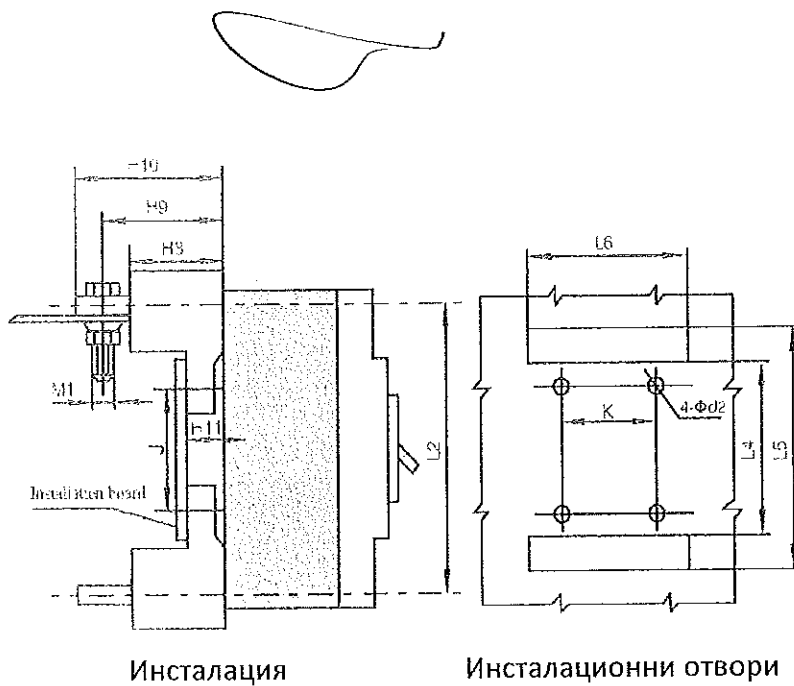


Фиг. 16б NM1-400, 630, 800 със задно свързване



Фиг.17а Инсталационни отвори за прекъсвачите NM1 със задно свързване

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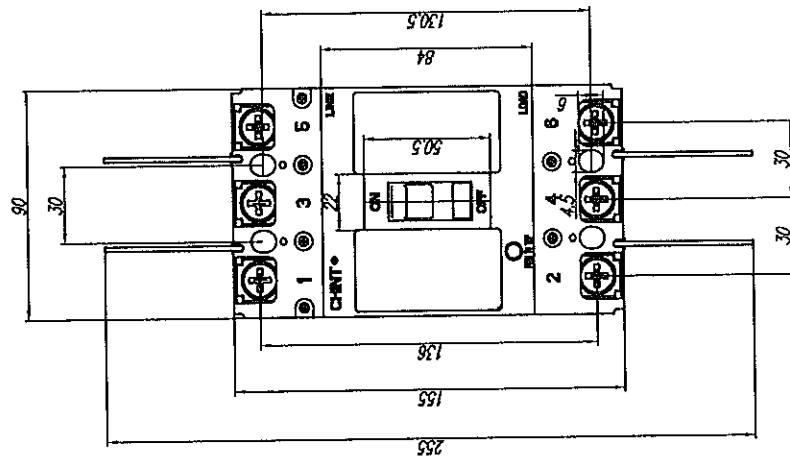
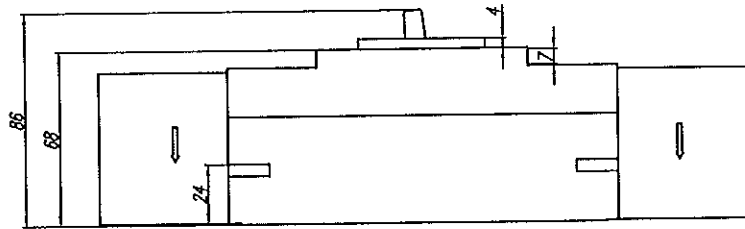


Фиг.Изваждаем тип

Таблица 12 Размери на прекъсвачи със задно и щепселно свързване

Вид	Код	Type							
		NM1-63S NM1-63H	NM1-100S NM1-100H NM1-100R	NM1-225S NM1-225H NM1-225R	NM1-400S	NM1-400H NM1-400R	NM1-630S NM1-630H	NM1-630R NM1-800H NM1-800R	
Размери на прекъсвачи със задно и щепселно свързване	A	25	30	35	44	44	58	70	
	φd	3.5	4.5X6	5.5	7	7	7	7	
	φd1				12.5	12.5	16.5	16.5	
	φd2	6	8	8	8.5	9	8.5	12	
	φD	8	24	26	31	33	37	37	
	φD1	8	16	20	33	37	37	37	
	H6	44	68	66	60	65	65	48	
	H7	66	108	110	120	120	125	125	
	H8	28	51	51	61	60	60	87	
	H9	38	65.5	72		83.5	93	—	
	H10	44	78	91	99	106.5	112	106	
	H11	8.5	17.5	17.5	22	21	21	26.5	
	L2	117	136	144	225	225	234	243	
	L3	117	108	124	194	194	200	243	
	L4	97	95	90	165	163	165	173	
	L5	138	180	190	285	285	302	305	
	L6	80	95	110	145	155	185	215	
	M	M6	M8	M10					
	K	50.2	60	70	60	60	100	90	
	J	60.7	62	54	129	130	123	143	
M1	M5	M8	M8	M10	M10	M12	M14		
W1	25	30	35	44	44	58	70		

NM1-125S-Switch



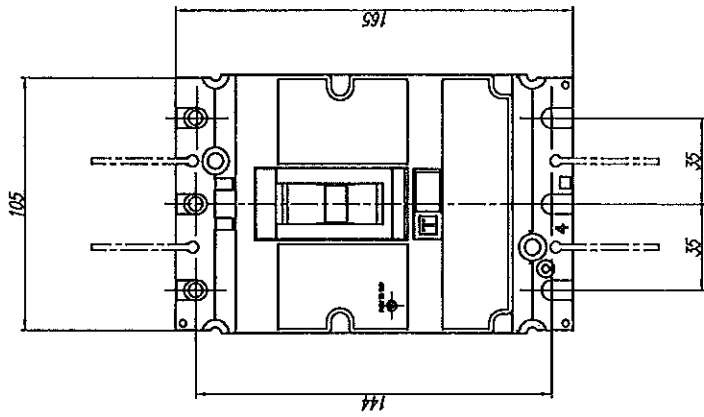
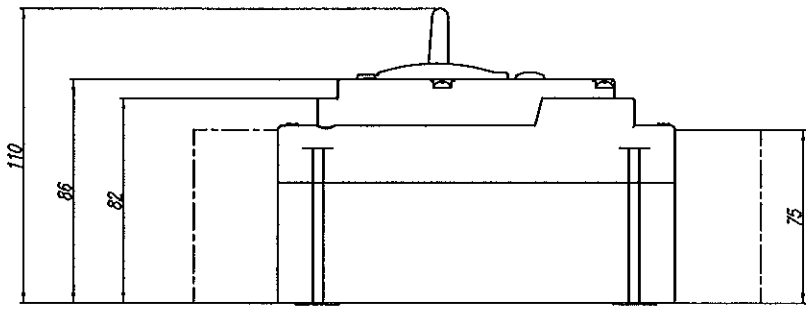
2

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СЭНТ		Таблиця параметрів		NM1-125S-Switch	
		параметрів			
С	А	В	Г	Д	Е
				12	
Габаритні розміри					

NM1-250S-Switch

8

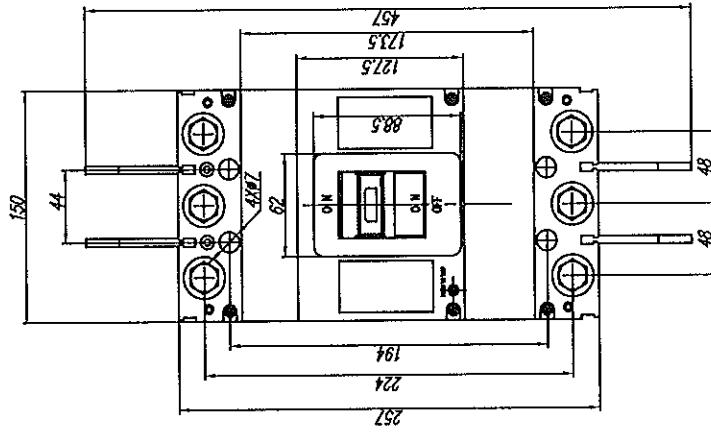
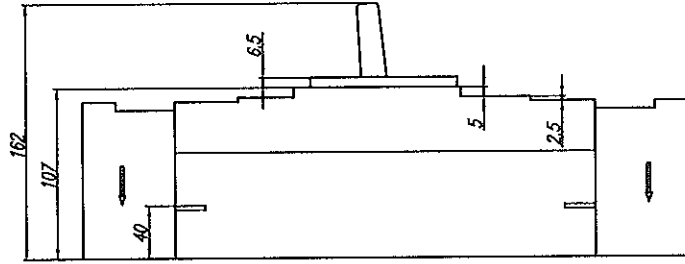


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СНТ		Товарная марка		NM1-250S-Switch	
Товарный знак		разработчик		1:2	
S		A		B	
Технический рисунок					

NM1-400S-Switch

D



СЭНТ		Таблица размеров различных		NM1-400S-Switch	
С	А	В	В	В	В
12	12	12	12	12	12

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*[Handwritten signatures and scribbles]*





**CHINT**



浙江正泰电器股份有限公司  
ZHEJIANG CHINT ELECTRICS CO., LTD.

**EC Declaration of Conformity**

Issuer's name and address:

**Zhejiang Chint Electrics CO., Ltd. ;  
No.1 CHINT Road, CHINT Industrial Zone, North Baixiang,  
Yueqing, Zhejiang Province, P.R. China 325603**

Products:

**MCCB: NM1 series, with function of circuit breaker and switch  
disconnecter**

The designated product satisfies the provision for CE marking according to the  
European Low Voltage Directive:

**73/23/EEC and 93/68/EEC**

**Comply with the standards: EN 60947-2:1996; IEC 60947-2:1995**


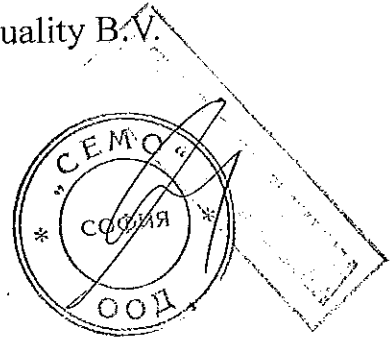
Full compliance with the standards tested by KEMA Quality B.V.


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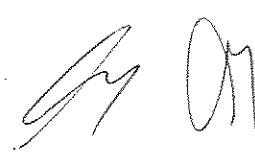
**2026608.01**

April.19<sup>th</sup>, 2011

**Zhejiang Chint Electrics CO., Ltd.**



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Превод от английски език

ЧИНТ

ЕО Декларация за съответствие

Име и адрес на клиента  
„Джеджанг ЧИНТ Електрик Ко., ООД

ЧИНТ Хай-Тек Индустириална зона, Северен Бейксианг,

Провинция Джеджанг, Н.Р. Китай 325603

Продукт:

Серия автоматични прекъсвачи и товарови прекъсвачи – разединители в лят корпус NM1

Обозначения продукт е в съответствие с изискванията за обезпечаването на СЕ маркировката Европейската Директива за ниско напрежение.

**73/23/ЕЕС и 93/68/ЕЕС**

Отговаря на стандарт: EN/IEC 60947 – 2: 1996; EN/IEC 60947 – 2: 1995

В пълно съответствие със стандартите тествани от KEMA Quality B. V.

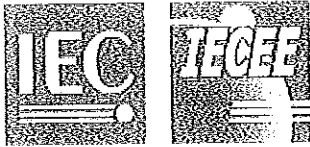
Лиценз № 2026608.01

19 Април 2011

печат: (не се чете)

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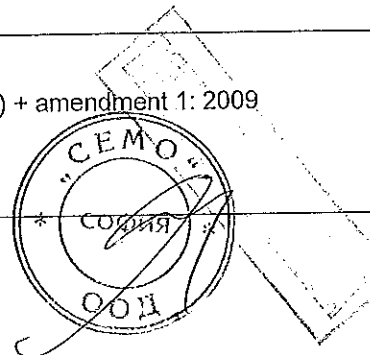
Чинт Хай-тех Индустириал Зоун, Норд Байксианг, Провинция Джеджанг, Н.Р. Китай 325603  
тел/факс: 86-577-6287777/ 62775769, е-мейл: [gmb@chint.com](mailto:gmb@chint.com)



Test Report issued under the responsibility of:

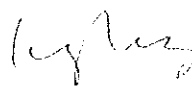
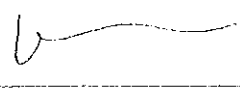
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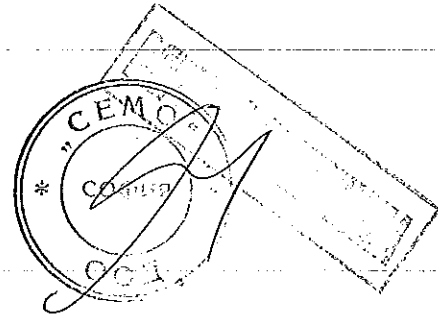
<b>TEST REPORT</b> <b>IEC 60947-2</b> <b>Low-voltage switchgear and controlgear - Part 2: Circuit-breakers</b>	
Report Reference No. ....	W0808102.53
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Address .....	No.5 Changjiang Road Great Bridge Industrial Park North Baixiang Wenzhou, Zhejiang, 325603, P. R. China
<b>Applicant's name</b> .....	Zhejiang CHINT Electrics Co., Ltd.
Address .....	No.1, Chint Road,Chint Industrial Zone, North Baixiang, Yueqing, Zhejiang, P.R. China
<b>Test specification:</b>	
Standard .....	IEC 60947-2:2006 (4 <sup>th</sup> Edition) + amendment 1: 2009
Test procedure .....	CB
Non-standard test method .....	N/A
<b>Test Report Form No.</b> .....	IEC60947_2F
Test Report Form(s) Originator .....	KEMA Quality BV
Master TRF .....	Dated 2010-01
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If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.	
<b>This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.</b>	
<b>Test item description</b> .....	Moulded-case circuit-breaker
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 .....	NM1-125S/4300, NM1-125S/3300, NM1-125C/4300, NM1-125C/3300
Ratings .....	See Page 5, 6, 7, 8





Testing procedure and testing location:

<input checked="" type="checkbox"/> CB Testing Laboratory:	KEMA Quality Testing Services (Zhejiang)Co.,Ltd
Testing location/ address .....	No 5, Changjiang Road Great Bridge Industrial Park North Baixiang Wenzhou, Zhejiang, 325603, P.R.China
<input type="checkbox"/> Associated CB Laboratory:	N/A
Testing location/ address .....	N/A
Tested by (name + signature).....	King Wang 
Approved by (+ signature).....	Fred Fu <i>i.e. Eric Wang</i> 
<input type="checkbox"/> Testing procedure: TMP	N/A
Tested by (name + signature).....	N/A
Approved by (+ signature).....	N/A
Testing location/ address .....	N/A
<input type="checkbox"/> 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
<input type="checkbox"/> 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
<input type="checkbox"/> 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



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**Summary of testing:**

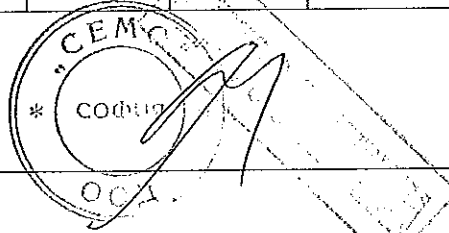
The circuit breakers of NM1-125S and NM1-125C are fully identical except the short circuit capacities and type references marked on the labels. Therefore, the tests conducted on NM1-125S (with maximum short-circuit breaking capacity) are deemed to cover the tests on NM1-125C.

**Tests performed (name of test and test clause):**

Model	Rated current	Test voltage	Number of poles	Seq I	Seq II	Seq III 3 phases test	Seq III 1 phase + N test
NM1-125S/3300	125 A	690 Vac	3P	X	X	X	N/A
	125 A	415 Vac		N/A	X	X	N/A
	125 A	240 Vac		N/A	X	X	N/A
	16 A			N/A	X	X	N/A
NM1-125S/4300	125 A	690 Vac	3P + N	X	N/A	X	X
	125 A	415 Vac		N/A	N/A	X	X
	125 A	240 Vac		N/A	N/A	X	X
	16 A			N/A	N/A	X	X

**Note:**

X means the test was conducted  
N/A means the test is not applicable



**Testing location:**

All tests except test of rated service short-circuit breaking capacity at 240 Vac, 415 Vac and seq III were conducted in:

KEMA Quality Testing Services (Zhejiang) Co., Ltd.

No.5 Changjiang Road Great Bridge Industrial Park North Baixiang Wenzhou, Zhejiang, 325603, P. R. China.

Tests of rated service short-circuit breaking capacity at 240 Vac, 415 Vac and seq III were conducted in:

TILVA - 505 Wu Ning Road, Shanghai, P.R. China

**Summary of compliance with National Differences:**

The MCCBs comply with EN Group Differences.

53:

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Copy of marking plate:

**NM1-125S/4300**

IEC60947-2  
EN60947-2 **In=125A**

Ui: 800V (IT)

Ue: 690V 50Hz/60Hz

 +40°C  
Cat. A

**Ic=10In CE**

Ue(V)	Icu(kA)
380	25
400	25
415	25
690	3
Ics=50%Icu	
220	42
230	42
240	42
690	3
Ics=50%Icu	

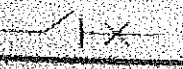
ZHEJIANG CHINT ELECTRICS CO., LTD

**NM1-125S/3300**

IEC60947-2  
EN60947-2 **In=125A**

Ui: 800V (IT)

Ue: 690V 50Hz/60Hz

 +40°C  
Cat. A

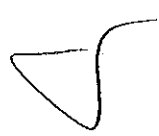
**Ic=10In CE**

Ue(V)	Icu(kA)
380	25
400	25
415	25
690	3
Ics=50%Icu	
220	42
230	42
240	42
690	3
Ics=50%Icu	

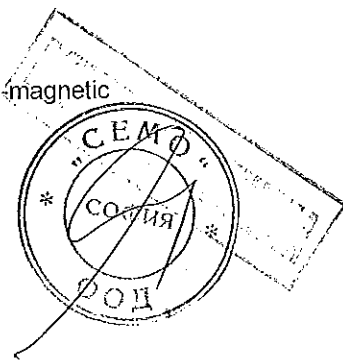
ZHEJIANG CHINT ELECTRICS CO., LTD

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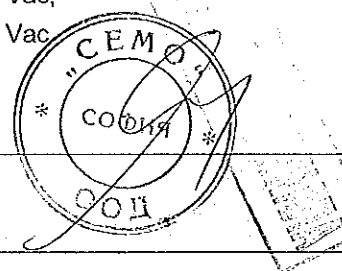


Test item particulars: test item vs. test requirements	
<b>3. Classification</b>	
3.1. Utilization category: (A or B).....	A
3.2. Interruption medium: (air, vacuum, gas Break) .....	Air
3.3. Design: (open construction, moulded case) .....	Moulded case
3.4. Method of controlling the operation mechanism: (dependent manual, independent manual, dependent power, independent power).....	Independent manual
3.5. Suitability for isolation: (suitable, not -suitable) .....	Suitable isolation
3.6. Provision for maintenance: (maintainable, non maintainable).....	Non-maintainable
3.7. Method of installation: (fixed, plug in, withdrawable).....	Fixed
3.8. Degree of protection: (IP code) .....	N/A
4.7. Type of release (thermo-magnetic / electronic).....	Thermo-magnetic
4.8. Integral fuses (integrally fused circuit-breakers) Type and characteristics of SCPD .....	N/A
7.3 Electromagnetic compatibility (EMC) Environment A or B.....	A
Circuit-breaker for use on phase-earthed systems .....	N/A
Circuit-breaker for use in IT systems .....	N/A
Rated and limiting values, main circuit:	
- rated operational voltage: Ue (V).....	220 / 230 / 240 / 380 / 400 / 415 / 660 / 690 Vac
- rated insulation voltage: Ui (V).....	800 V
- rated impulse withstand voltage: Uimp (kV) .....	8 kV
- rated operational current: Ie (A) .....	16 A, 20 A, 25 A, 30 A, 32 A, 40 A, 50 A, 60 A, 63 A, 75 A, 80 A, 100 A, 125 A
- kind of current .....	AC
- conventional free air thermal current: Ith (A) .....	16 A, 20 A, 25 A, 30 A, 32 A, 40 A, 50 A, 60 A, 63 A, 75 A, 80 A, 100 A, 125 A
- conventional enclosed thermal current: Ithe (A).....	N/A
- current rating for four-pole circuit-breakers: (A).....	16 A, 20 A, 25 A, 30 A, 32 A, 40 A, 50 A, 60 A, 63 A, 75 A, 80 A, 100 A, 125 A
- number of poles .....	3P and 3P + N (N pole do not have protection)
- rated frequency: (Hz).....	50 / 60 Hz
- integral fuses (rated values).....	N/A





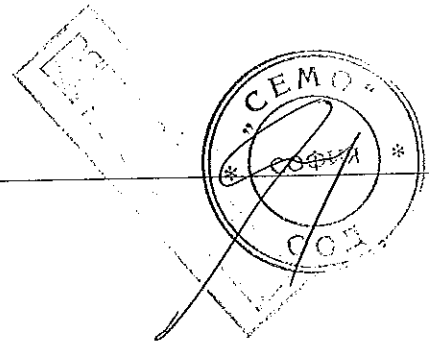
<b>Rated duty :</b>	
- eight-hour duty .....	N/A
- uninterrupted duty: I <sub>u</sub> (A).....	16 A, 20 A, 25 A, 30 A, 32 A, 40 A, 50 A, 60 A, 63 A, 75 A, 80 A, 100 A, 125 A
<b>Short-circuit characteristic :</b>	
rated short-time making capacity: I <sub>cm</sub> (kA) .....	NM1-125S: 4,24 kA up to 690 Vac, 52,5 kA up to 415 Vac, 88,2 kA up to 240 Vac  NM1-125C: 4,24 kA up to 690 Vac, 40 kA up to 415 Vac, 52,5 kA up to 240 Vac
rated ultimate short-circuit breaking capacity: I <sub>cu</sub> (kA) .....	NM1-125S: 3 kA up to 690 Vac, 25 kA up to 415 Vac, 42 kA up to 240 Vac  NM1-125C: 3 kA up to 690 Vac, 20 kA up to 415 Vac, 25 kA up to 240 Vac
rated service short-circuit breaking capacity: I <sub>cs</sub> (kA) .....	I <sub>cs</sub> = 50%I <sub>cu</sub>
rated short-time withstand current: I <sub>cw</sub> (kA/s) .....	N/A
<b>Control circuits :</b>	
<b>Electrical control circuits :</b>	
- kind of current: (AC, DC) .....	N/A
- rated frequency: (Hz).....	N/A
- rated control circuit voltage: U <sub>c</sub> ( nature, frequency, V) ..	N/A
- rated control supply voltage: U <sub>s</sub> (nature, frequency V) ..	N/A
<b>Air supply control circuits: (pneumatic or electro-pneumatic) :</b>	
- rated pressure and its limit .....	N/A
- volumes of air, at atmospheric pressure, required for each closing and each opening operation .....	N/A





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Auxiliary circuits :	
Rated and limiting values, auxiliary circuits:	
- rated operational voltage $U_e$ (V).....	N/A
- rated insulation voltage: $U_i$ (V).....	N/A
- rated operational current: $I_e$ (A).....	N/A
- kind of current.....	N/A
- rated frequency: (Hz).....	N/A
- number of circuits.....	N/A
- number and kind of contact elements.....	N/A
- rated uninterrupted current: $I_u$ (A).....	N/A
- utilization category: (AC, DC, current and voltage).....	N/A
Short-circuit characteristic :	
- Rated conditional short-circuit current (kA).....	N/A
- kind of protective device.....	N/A



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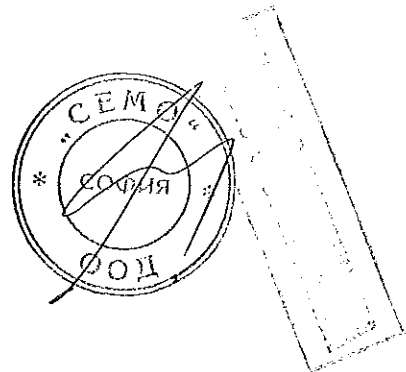
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2

Releases :	
1) shunt release .....	N/A
2) Over-current release .....	Yes
a) instantaneous .....	Yes
b) definite time delay .....	N/A
c) inverse time delay .....	Yes
- independent of previous load .....	N/A
- dependent on previous load; (for example thermal type release) .....	Yes
3) Undervoltage release (for opening) .....	N/A
4) Other releases .....	N/A
Characteristics :	
1) Shunt release and undervoltage release (for opening) .....	N/A
- rated control circuit voltage: $U_c$ ( nature, frequency, V) .....	N/A
- kind of current .....	N/A
- rated frequency: (if AC) .....	N/A
2) Over-current release .....	Yes
- rated current .....	16 A, 20 A, 25 A, 30 A, 32 A, 40 A, 50 A, 60 A, 63 A, 75 A, 80 A, 100 A, 125 A
- kind of current .....	AC
- rated frequency: (if AC) .....	50 / 60 Hz
- current setting (or range of settings) .....	Inverse time delay release setting: 1,05 $I_n$ , 1,3 $I_n$ Instantaneous release setting: 10 $I_n$
- time settings (or range of settings) .....	Tripping time $\geq 2$ h (1,05 $I_n$ ) Tripping time $< 2$ h (1,3 $I_n$ ) 10 $I_n$ : Instantaneous

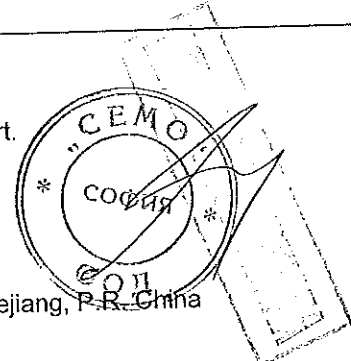


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Classification of installation and use.....	Fixed
Supply Connection .....	Prepared copper conductors (cable with lug)
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement.....	P (Pass)
- test object does not meet the requirement.....	F (Fail)
<b>Testing .....</b>	
Date of receipt of test item .....	2008-12
Date (s) of performance of tests .....	2009-02 ~ 2010-03
<b>General remarks:</b>	
<p>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 is used as the decimal separator.</p> <p>Although it is not mentioned on first page, the following standards were also taken into consideration, no deviation was found:</p> <ul style="list-style-type: none"> <li>- EN 60947-2: 2006 +A1: 2009</li> </ul>	
<b>General product information:</b>	
The technical data of the MCCB are listed on page 5 to 8 of this report.	
The factory name and address:	
Zhejiang CHINT Electrics Co., Ltd. No.1, Chint Road, Chint Industrial Zone, North Baixiang, Yueqing, Zhejiang, P.R. China	



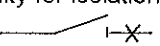

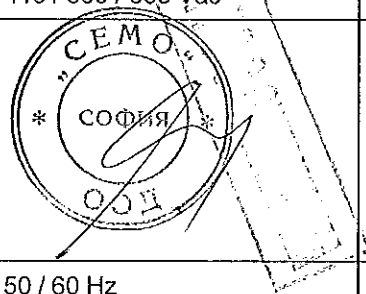
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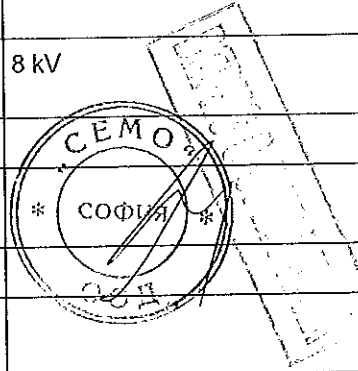
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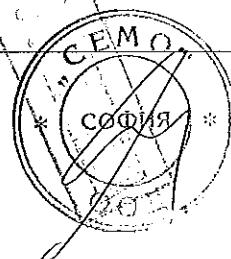
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict

5.2	MARKING		
a)	The following data shall be marked on the circuit-breaker itself or on a name plate or nameplates attached to the circuit-breaker, and located in a place such that they are visible and legible when the circuit-breaker is installed.		
	- rated current:	125 A	P
	- suitability for isolation, if applicable, with the symbol 	Suitability for isolation	P
	- indication of the open and closed position: with O and I respectively, if symbols are used		P
b)	Marking on equipment not needed to be visible after mounting:		
	- manufacturer's name or trademark	CHINT	P
	- type designation or serial number	NM1-125S	P
	- IEC 60947-2 if the manufacturer claims compliance with this standard.		P
	- utilization category	A	P
	- rated operational voltage(s) Ue	220 / 230 / 240 / 380 / 400 / 415 / 660 / 690 Vac	P
	- Circuit-breaker for use in IT systems: Circuit-breaker for which all values of rated voltage have not been tested according to annex H or are not covered by such testing, shall be identified by the symbol  which shall be marked on the circuit-breaker immediately following these values of rated voltage		P
	- value (or range) of the rated frequency and/or the indication DC (or symbol)	50 / 60 Hz	P
	- rated service short-circuit breaking capacity. Ics	Ics = 50%Icu	P
	- rated ultimate short-circuit breaking capacity. Icu	3 kA up to 690 Vac, 25 kA up to 415 Vac, 42 kA up to 240 Vac	P
	- rated short-time withstand current, (Icw) and associated short-time delay, for utilization category B		N/A

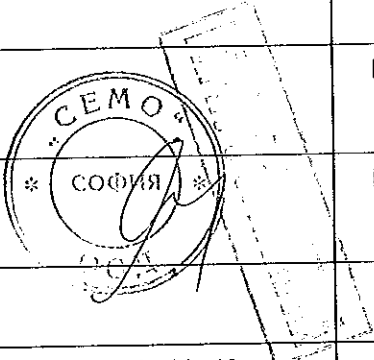
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- line and load terminals, unless their connection is immaterial	LINE / LOAD marked	P
	- neutral pole terminals, if applicable, by the letter N	N marked	P
	- protective earth terminal, where applicable, by the symbol acc. 7.1.9.3 of part 1		N/A
	- ref. temperature for non-compensated thermal releases, if different from 30°C	40 °C	P
c)	Marked on the circuit-breaker as specified in item b), or shall be made available in the manufacturer's published information:		
	- rated short-circuit making capacity (I <sub>cm</sub> ) (if higher than specified in 4.3.5.1)		N/A
	- rated insulation voltage. (U <sub>i</sub> ) if higher than the maximum rated operational voltage)	800 V	P
	- rated impulse withstand voltage (U <sub>imp</sub> ), when declared.	8 kV	P
	- pollution degree if other than 3		N/A
	- conventional enclosed thermal current (I <sub>the</sub> ) if different from the rated current:		N/A
	- IP Code, where applicable:		N/A
	- minimum enclosure size and ventilation data (if any) to which marked ratings apply:		N/A
	- details of minimum distance between circuit-breaker and earthed metal parts for circuit-breaker intended for use without enclosure:	Front / Back: 0 mm, Left / Right : 50 mm, Top / Bottom: 50 mm	P
	- r.m.s sensing if applicable, according to F.4.1.1		N/A
	- suitability for environment A or B	A	P
d)	The following data concerning the opening and closing devices of the circuit-breaker shall be placed either on their own nameplates or on the nameplate of the circuit-breaker:		
	- rated control circuit voltage of the closing device, and rated frequency for AC:		N/A
	- rated control circuit voltage of the shunt release and/or of the under-voltage release, and rated frequency:		N/A
	- rated current of indirect over-current releases:		N/A



IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- number and type of auxiliary contacts and kind of current, rated frequency (if AC) and rated voltages of the auxiliary switches, if different from those of the main circuit.		N/A
e)	Terminal shall be clearly and permanently identified in acc. with IEC 60445 and annex L:		
	- line terminal	LINE is marked	P
	- load terminal	LOAD is marked	P
	- neutral pole terminal "N"	N is marked	P
	- protective earth terminal 		N/A
	- terminal of coils (A/B)		N/A
	- terminal of shunt release ( B )		N/A
	- terminals of under-voltage release (D)		N/A
	- terminals of interlocking electromagnets (E)		N/A
	- terminals of indicated light devices (X)		N/A
	- terminals of contact elements for switching devices (no)		N/A



IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict

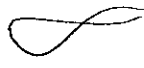
7.1	CONSTRUCTION		
7.1.1	Withdrawable circuit-breaker		N/A
	In the disconnected position (main- and auxiliary circuits)		
	Isolating distances for circuit-breaker suitable for isolating warranted:		N/A
	Mechanism fitted with a reliable indicating device with indicates the position of the isolating contacts.		N/A
	Mechanism fitted with interlocks which only permit the isolating contacts to be separate or re-closed when main contacts are open		N/A
	Mechanism fitted with interlock, which only permit the main contacts to be closed when the isolating contacts are fully closed.		N/A
	Mechanism fitted with interlock, which only permit the main contacts to be closed when in disconnected position.		N/A
	The isolating distances between the isolating contacts cannot be inadvertently reduced.		N/A
7.1.2.1 part 1	Resistance to abnormal heat and fire	See appended table 12	P
7.1.3 part 1	Current-carrying parts and their connection		P
7.1.4	Clearances and creepage distances:		
	For circuit-breakers for which the manufacturer has declared a value of rated impulse withstand voltage. (Uimp.)		
	Clearances distances:		
	- Uimp is given as:	8 kV	
	- max. value of rated operational voltage to earth	600 V	
	- nominal voltage of supply system:	220 / 230 / 240 / 380 / 400 / 415 / 660 / 690 Vac	
	- overvoltage category:	III	
	- pollution degree:	3	
	- field-in or homogeneous:	Inhomogeneous field	
	- minimum clearances (mm):	8 mm	





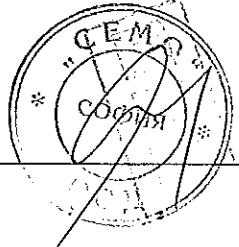
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- measured clearances (mm):	13,2 mm	P
	Creepage distances:		
	- rated insulation voltage $U_i$ (V)	800 V	
	- pollution degree	3	
	- comparative tracking index (V)	175 V	
	- material group	III a	
	- minimum creepage distances (mm)	12,5 mm	
	- measured creepage distances (mm)	13,2 mm	P
7.1.5 part 1	Actuator		
7.1.5.1 part 1	Insulation		
	The actuator of the equipment shall be insulated from the live parts for the rated insulation voltage and, if applicable, the rated impulse withstand voltage		P
	If it is made of metal, it shall be capable of being satisfactorily connected to a protective conductor unless it is provided with additional reliable insulation		N/A
	If it is made of or covered by insulating material, any internal metal part, which might become accessible in the event of insulation failure, shall also be insulated from live parts for the rated insulation voltage		P
7.1.5.2	Direction of movement		
	The direction of operation for actuators of devices shall normally conform to IEC 60447.		N/A
	Where devices cannot conform to these requirements, e.g. due to special applications or alternative mounting positions, they shall be clearly marked such that there is no doubt as to the "I" and "O" positions and the direction of operation		P
7.1.6 part 1	Indication of contact position		
7.1.6.1 part 1	Indicating means		
	When an equipment is provided with means for indicating the closed and open positions, these positions shall be unambiguous and clearly indicated		N/A

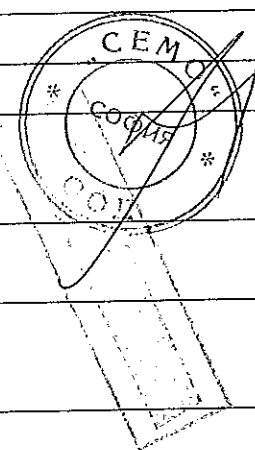


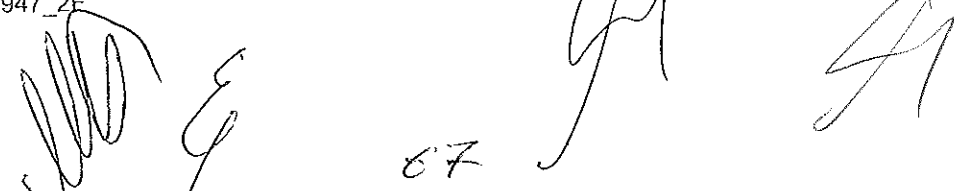


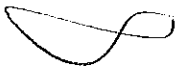
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	This is done by means of a position indicating device (see 2.3.18)		N/A
	If symbols are used, they shall indicate the closed and open position respectively, in accordance with IEC 60417-2:		
	- 60417-2-IEC-5007    I    On (power)		P
	- 60417-2-IEC-5007    O    Off (power)		P
	For equipment operated by means of two push-buttons, only the push-button designated for the opening operation shall be red or marked with the symbol "O"		N/A
	Red colour shall not be used for any other push-button		P
	The colours of other push-buttons, illuminated push-buttons and indicator lights shall be in accordance with IEC 60073		N/A
7.1.6.2 part 1	Indication by the actuator		
	When the actuator is used to indicate the position of the contacts, it shall automatically take up or stay, when released, in the position corresponding to that of the moving contacts; in this case, the actuator shall have two distinct rest positions corresponding to those of the moving contacts, but for automatic opening a third distinct position of the actuator may be provided		P
7.1.7	Additional safety requirements for equipment suitable for isolation		
7.1.7.1	Additional constructional requirements for equipment suitable for isolation (Ue > 50 V):		
	Equipment suitable for isolation shall provide in the open position an isolation distance in acc. with the requirements necessary to satisfy the isolating function. Indication of the main contacts shall be provide by one or more of the following means:		
	- the position of the actuator		P
	- a separate mechanical indicator		N/A
	- visibility of the moving contacts		N/A
	When means are provided or to lock the equipment in the open position, locking only be possible when contacts are in the open position		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Actuator front-plate fitted to the equipment in a manner which ensures correct contact position indication and locking		P
	The indicated open position is the only position in which the specified isolation distances between the contacts is ensured.		P
	- minimum clearances across open contacts (see Table XIII, Part 1) (mm) :	8 mm	
	- measured clearances (mm) :	16,7 mm	P
	- test Uimp across gap (kV) :	12,3 kV	P
7.1.7.2	Supplementary requirements for equipment with provision for electrical interlocking with contactors or circuit-breakers:		
	auxiliary switch shall be rated according to IEC 60 947-5-1		N/A
	If equipment suitable for isolation is provided with an auxiliary switch for the purpose of electrical interlocking with contactor (s) or circuit-breaker(s) and intended to be used in motor circuits, the following requirements shall apply unless the equipment is rated for AC-23 utilization category		N/A
	The time interval between the opening of the contacts of the auxiliary switch and the contacts of the main poles shall be sufficient to ensure that the associated contactor or circuit-breaker interrupts the current before the main poles of the equipment open		N/A
	Unless otherwise stated in the manufacturer's technical literature, the time interval shall be not less than 20 ms when the equipment is operated according to the manufacturer instructions		N/A
	Compliance shall be verified by measuring the time interval between the instant of opening of the auxiliary switch and the instant of opening of the main poles under no-load conditions when the equipment is operated according to the manufacturer's instructions		N/A
	During the closing operation the contacts of the auxiliary switch shall close after or simultaneously with the contacts of the main poles		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	A suitable opening time interval may also be provided by an intermediate position (between the ON and OFF position) at which the interlocking contact(s) is (are) open and the main poles remain closed		N/A
7.1.7.3	Supplementary requirements for equipment provided with means for padlocking the open position:		
	the locking means shall be designed in such a way that it cannot be removed with the appropriate padlock(s) installed		N/A
	Alternatively, the design may provide padlockable means to prevent access to the actuator		N/A
	test force F applied to the actuator in an attempt to operate to the closed position (N) :		N/A
	rated impulse withstand voltage (kV) :		N/A
	test Uimp on open main contacts at the test force		N/A
7.1.8	Terminals		
7.1.8.1	All parts of terminals which maintain contact and carry current shall be of metal having adequate mechanical strength		P
	Terminal connections shall be such that necessary contact pressure is maintained		P
	Terminals shall be so constructed that the conductor is clamped between suitable surfaces without damage to the conductor and terminal		P
	Terminal shall not allow the conductor to be displaced or to be displaced themselves in a manner detrimental to the operator of equipment and the insulation voltage shall not be reduced below the rated value		P
7.1.8.2	Connection capacity		
	type of conductors :	Prepared cable (with cable lug)	P
	minimum cross-sectional area of conductor (mm <sup>2</sup> ) :	1,0 mm <sup>2</sup>	P
	maximum cross-sectional area of conductor (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	P
	number of conductors simultaneously connectable to the terminal :	1	P



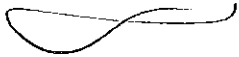


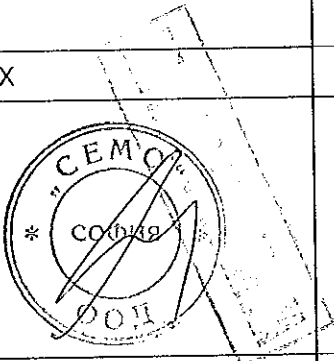
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
7.1.8.3	Connection		
	terminals for connection to external conductors shall be readily accessible during installation		P
	clamping screws and nuts shall not serve to fix any other component		P
7.1.8.4	Terminal identification and marking		
	terminal intended exclusively for the neutral conductor	N is marked	P
	protective earth terminal		N/A
	other terminals		N/A
7.1.9 part 1	Additional requirements for equipment provided with a neutral pole		
	When equipment is provided with a pole intended only for connecting the neutral, this pole shall be clearly identified to that effect by the letter N (see 7.1.7.4.).	N is marked.	P
	A switched neutral pole shall break not before and shall make not after the other poles		P
	For equipment having a value of conventional thermal current (free air or enclosed, see 4.3.2.1 and 4.3.2.2) not exceeding 63 A, this value shall be identical for all poles		N/A
	For higher conventional thermal current values, the neutral pole may have a value of conventional thermal current different from that of the other poles, but not less than half that value or 63 A, whichever is the higher		The value of conventional thermal current is identical for all poles
	if a pole with an appropriate making and breaking capacity is used as a neutral pole, then all poles, incl. the neutral pole, shall operate substantially together.		N/A
7.1.10	Provisions for protective earthing		
7.1.10.1	The exposed conductive parts (e.g. chassis, framework and fixed parts of metal enclosures) other than those which cannot constitute a danger shall be electrically interconnected and connected to a protective earth terminal for connection to an earth electrode or to an external protective conductor		N/A

IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
part 1	This requirement can be met by the normal structural parts providing adequate electrical continuity and applies whether the equipment is used on its own or incorporated in an assembly		N/A
	Exposed conductive parts are considered not to constitute a danger if they cannot be touched on large areas or grasped with the hand or if they are of small size (approximately 50 mm x 50 mm) or are so located as to exclude any contact with live parts		N/A
7.1.10.2 part 1	Protective earth terminal		
	The protective earth terminal shall be readily accessible and so placed that the connection of the equipment to the earth electrode or to the protective conductor is maintained when the cover or any other removable part is removed		N/A
	The protective earth terminal shall be suitably protected against corrosion		N/A
	In the case of equipment with conductive structures, enclosures, etc., means shall be provided, if necessary, to ensure electrical continuity between the exposed conductive parts the equipment and the metal sheathing of connecting conductors		N/A
	The protective earth terminal shall have no other function, except when it is intended to be connected to a PEN conductor (see 2.1.1.5 – Note). In this case, it shall also have the function of a neutral terminal in addition to meeting the requirements applicable to the protective earth terminal		N/A
7.1.10.3	Protective earth terminal marking and identification		
	The protective earth terminal shall be clearly and permanently identified by its marking		N/A
	The identification shall be achieved by colour (green-yellow mark) or by the notation PE, or PEN, as applicable, in accordance with IEC 60445, subclause 5.3, or, in the case of PEN, by a graphical symbol for use on equipment		N/A
	Graphical symbol to be used: 60417-2-IEC-5019  Protective earth (ground) in accordance with IEC 60417-2		N/A

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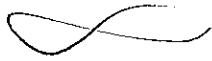
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
7.1.11	Enclosure for equipment		
7.1.11.1	Design		
	The enclosure, when it is opened: all parts requiring access for installation and maintenance are readily accessible		N/A
	Sufficient space shall be provided inside the enclosure		N/A
	The fixed parts of a metal enclosure shall be electrically connected to the other exposed conductive parts of the equipment and connected to a terminal which enables them to be earthed or connected to a protective conductor		N/A
	Under no circumstances shall a removable metal part of the enclosure be insulated from the part carrying the earth terminal when the removable part is in place		N/A
	The removable parts of the enclosure shall be firmly secured to the fixed parts by a device such that they cannot be accidentally loosened or detached owing to the effects of operation of the equipment or vibrations		N/A
	When an enclosure is so designed as to allow the covers to be opened without the use of tools, means shall be provided to prevent loss of the fastening devices		N/A
	If the enclosure is used for mounting push-buttons, it shall not be possible to remove the buttons from the outside of the enclosure		N/A
7.1.11.2	Insulation		
	If, in order to prevent accidental contact between a metallic enclosure and live parts, the enclosure is partly or completely lined with insulating material, then this lining shall be securely fixed to the enclosure		N/A
7.1.12	Degree of protection of enclosed equipment		
	Degree of protection.	IPXX	
	Test for first characteristic.	IPXX	



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Clause	Requirement + Test	Result - Remark	Verdict
	Test for first numeral .....	1 2 3 4 5 6	N/A
	Test for second characteristic	IPXX	
	Test for second numeral .....	1 2 3 4 5 6 7 8	N/A
7.1.13 part 1	Conduit pull-out, torque and bending with metallic conduits		
	Polymeric enclosures of equipment, whether integral or not, provided with threaded conduit entries, intended for the connection of extra heavy duty, rigid threaded metal conduits complying with IEC 60981, shall withstand the stresses occurring during its installation such as pull-out, torque, bending		N/A

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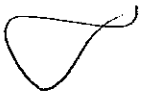
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
7.2	Performance requirements		
7.2.1	Operating condition		
7.2.1.1	Closing		
	For a circuit-breaker to be closed safely on to the making current corresponding to its rated short-circuit making capacity, it is essential that it should be operated with the same speed and the same firmness as during the type test for proving the short-circuit making capacity		P
7.2.1.1.1	Dependent manual closing		
	For a circuit-breaker having a dependent manual closing mechanism, it is not possible to assign a short-circuit making capacity rating irrespective of the conditions of mechanical operation		N/A
	Such a circuit-breaker should not be used in circuits having a prospective peak making current exceeding 10 kA		N/A
	However, this does not apply in the case of a circuit-breaker having a dependent manual closing mechanism and incorporating an integral fast-acting opening release which causes the circuit-breaker to break safely, irrespective of the speed and firmness with which it is closed on to prospective peak currents exceeding 10 kA; in this case, a rated short-circuit making capacity can be assigned		N/A
7.2.1.1.2	Independent manual closing		
	A circuit-breaker having an independent manual closing mechanism can be assigned a short-circuit making capacity rating irrespective of the conditions of mechanical operation		P
7.2.1.1.3	Dependent power closing		
	At 110% of the rated control supply voltage, the closing operation performed on no-load shall not cause any damage to the circuit-breaker.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	At 85% of the rated control supply voltage, the closing operation shall be performed when the current established by the circuit-breaker is equal to its rated making capacity within the limits allowed by the operation of its relays or releases and, if a maximum time is stated for the closing operation, in a time not exceeding this maximum time limit.		N/A
7.2.1.1.4	Independent power closing		
	A circuit-breaker having an independent power closing operation can be assigned a rated short-circuit making capacity irrespective of the conditions of power closing		N/A
	Means for charging the operating mechanism, as well as the closing control components, shall be capable of operating in accordance with the manufacturer's specification		N/A
7.2.1.1.5	Stored energy closing		
	Capable ensuring closing of the circuit-breaker in any condition between no-load and its rated making capacity		N/A
	- when the stored energy is retained within the circuit-breaker, a device is provided which indicates when the storing mechanism is fully charged.		N/A
	- means for charging the operating mechanism and closing control components operates when auxiliary supply voltage is between 85% and 110% of the rated control supply voltage.		N/A
	- not possible for the moving contacts to move from the open position, unless the charge is sufficient for satisfactory completion of the closing operation.		N/A
	- by manually operated circuit-breaker is the direction of operation indicated. (not for circuit-breaker with an independent manual closing operation.)		N/A
	- For trip free circuit-breaker it shall not be possible to maintain the contacts in the touching or closed position when the release is in the position to trip the circuit-breaker.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.2.1.2	Opening		
7.2.1.2.1	Circuit-breakers which open automatically shall be trip-free and, unless otherwise agreed between manufacturer and user, shall have their energy for the tripping operation stored prior to the completion of the closing operation		
7.2.1.2.2	Opening by undervoltage releases		
7.2.1.3. a part 1	Operating voltage		
	An under-voltage relay or release, when associated with a switching device, shall operate to open the equipment even on a slowly falling voltage within the range between 70% and 35% of its rated voltage		N/A
	An under-voltage relay or release shall prevent the closing of the equipment when the supply voltage is below 35% of the rated voltage of the relay or release; it shall permit closing of the equipment at supply voltages equal to or above 85% of its rated value		N/A
	Unless otherwise stated in the relevant product standard, the upper limit of the supply voltage shall be 110% of its rated value		N/A
7.2.1.3. b part 1	Operating time		
	For a time-delay under-voltage relay or release, the time-lag shall be measured from the instant when the voltage reaches the operating value until the instant when the relay or release actuates the tripping device of the equipment		N/A
7.2.1.2.3	Opening by shunt releases		N/A
7.2.1.4 part 1	Limits of operation of shunt releases		
	A shunt release for opening shall cause tripping under all operating conditions of an equipment when the supply voltage of the shunt release measured during the tripping operation remains between 70% and 110% of the rated control supply voltage and, if a.c., at the rated frequency		N/A

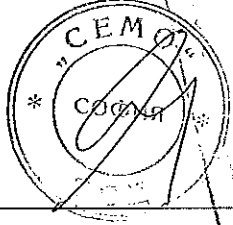


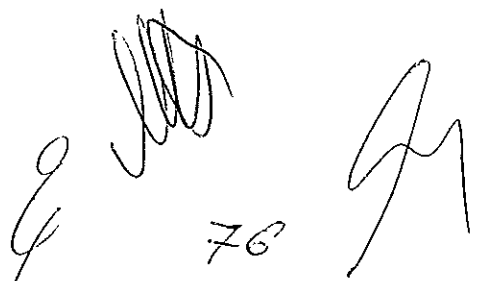
  
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
7.2.1.5 part 1	Limits of operation of current operated relays and released		
	Limits of operation of current operated relays and releases shall be stated in the relevant product standard		P
7.2.1.2.4	Opening by over-current releases		
a)	Opening under short-circuit conditions		
	The short-circuit release shall cause tripping of the circuit-breaker with an accuracy of 20% of the tripping current value of the current setting for all values of the current setting of the short-circuit current release		P
	Where necessary for over-current co-ordination the manufacturer shall provide information (usually curves) showing		N/A
	- maximum cut-off (let-through) peak current as a function of prospective current (r.m.s. symmetrical)		N/A
	- $I^2t$ characteristics for circuit-breakers of utilization category A and, if applicable, B for circuit-breakers with instantaneous override (see note to 8.3.5)		N/A
b)	Opening under overload conditions		
1)	Instantaneous or definite time-delay operation		N/A
	The release shall cause tripping of the circuit-breaker with an accuracy of $\pm 10\%$ of the tripping current value of the current setting for all values of current setting of the overload release		N/A
2)	Inverse time-delay operation		
	At the reference temperature and at 1,05 times the current setting with the conventional non-tripping current, the opening release being energized on all poles, tripping shall not occur in less than the conventional time from the cold state, i.e. with the circuit-breaker at the reference temperature		P
	Moreover, when at the end of the conventional time the value of current is immediately raised to 1,30 times the current setting, i.e. with the conventional tripping current, tripping shall then occur in less than the conventional time later		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If a release is declared by the manufacturer as substantially independent of ambient temperature, the current values of table 6 shall apply within the temperature band declared by the manufacturer, within a tolerance of 0,3%/K		N/A
	The width of the temperature band shall be at least 10 K on either side of the reference temperature		N/A
7.2.4.2	Operational performance capability		
7.2.4.2 part 1	The operational performance off-load for which the tests are made with the control circuits energized and the main circuit not energized, in order to demonstrate that the equipment meets the operating conditions specified at the upper and lower limits of supply voltage and/or pressure specified for the control circuit during closing and opening operations		P
	The operational performance on-load during which the equipment shall make and break the specified current corresponding, where relevant, to its utilization category for the number of operations stated in the relevant product standard		P

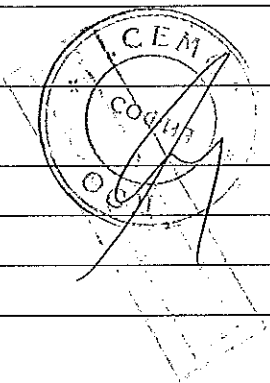




IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict

8	TESTS		
8.2.4	Mechanical properties of terminals		
	Mechanical strength of terminals		
	maximum cross-sectional area of conductor (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	
	diameter of thread (mm) :	8 mm	
	torque (Nm) :	3,5 Nm	
	5 times on 2 separate clamping units		P
	Testing for damage to and accidental loosening of conductor (flexion test)		
	conductor of the smallest cross-sectional area (mm <sup>2</sup> ) :		
	number of conductors of the smallest cross section :		
	diameter of bushing hole (mm) :		
	height between the equipment and the platen :		
	mass at the conductor(s) (kg) :		
	135 continuous revolutions: the conductor shall neither slip out of the terminal nor break near the clamping unit		N/A
	Pull-out test		
	force (N) :		
	1 min, the conductor shall neither slip out of the terminal nor break near the clamping unit		N/A
	conductor of the largest cross-sectional area (mm <sup>2</sup> ) :		
	number of conductors of the largest cross section :		
	diameter of bushing hole (mm) :		
	height between the equipment and the platen :		
	mass at the conductor(s) (kg) :		
	135 continuous revolutions: the conductor shall neither slip out of the terminal nor break near the clamping unit		N/A
	Pull-out test		
	force (N) :		

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Clause	Requirement + Test	Result - Remark	Verdict
	1 min, the conductor shall neither slip out of the terminal nor break near the clamping unit		N/A
	conductor of the largest and smallest cross-sectional area (mm <sup>2</sup> ) :		
	number of conductors of the smallest cross section, number of conductors of the largest cross section :		
	diameter of bushing hole (mm) :		
	height between the equipment and the platen :		
	mass at the conductor(s) (kg) :		
	135 continuous revolutions: the conductor shall neither slip out of the terminal nor break near the clamping unit		
	Pull-out test		
	force (N) :		
	1 min, the conductor shall neither slip out of the terminal nor break near the clamping unit		N/A

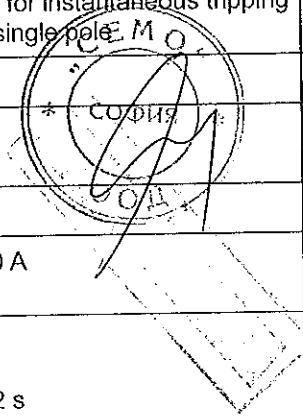




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Clause	Requirement + Test	Result - Remark	Verdict

8.3.3	TEST SEQUENCE I: GENERAL PERFORMANCE CHARACTERISTICS		
8.3.3.1	Tripping limits and characteristic		
8.3.3.1.2	Opening under short-circuit conditions		
	Manufacturer's name or trademark	CHINT	
	Type designation or serial number	NM1-125S/3300	
	Sample no:	151#	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated current: In (A)	125 A	
	Ambient temperature 10-40 °C :	25,3 °C	P
	Value of the tripping current declared by the manufacturer for a single pole, at which value they shall operate.	10 In for instantaneous tripping 12 In for instantaneous tripping of a single pole	P
	Range of adjustable setting current. (A)		N/A
	Time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	<b>Electromagnetic overcurrent releases</b>		
	Test current: 80% of the rated, or minimum adjustable setting current: (A)	1000 A	P
	Operating time: >0,2s in case of instantaneous releases: L1-L2: > 0,2 s L1-L3: > 0,2 s L2-L3: > 0,2 s N-Lx:		P
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Test current: 120% of the rated, or minimum adjustable setting current: (A)	1500 A	P

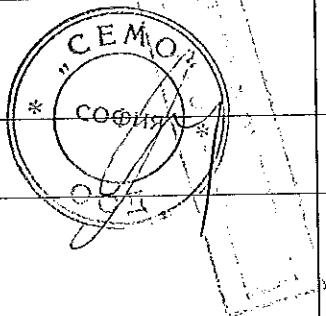


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Clause	Requirement + Test	Result - Remark	Verdict
	Operating time: <0,2s in case of instantaneous releases: L1-L2: 5 ms L1-L3: 5 ms L2-L3: 5 ms N-Lx:		P
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Test current: 80% of the maximum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Test current: 120% of the maximum adjustable setting current: (A)		N/A
	Operating time: <0,2s in case of instantaneous releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Test current: tripping current declared for single pole operation (A)	1500 A	P
	Operating time: < 0,2 s in case of instantaneous release: L1: 7 ms L2: 6 ms L3: 6 ms N:		P
	Operating time: < twice time delay stated by manufacturer in case of definite time delay releases L1: L2: L3: N:		N/A
	<b>Electronic overcurrent releases</b>		
	For circuit-breakers with an electronic overcurrent release, the operation of the short-circuit releases shall be verified by one test only on each pole individually.		N/A
	Test current: 80% of the rated, or minimum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
	Test current: 120% of the rated, or minimum adjustable setting current: (A)		N/A
	Operating time: <0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A

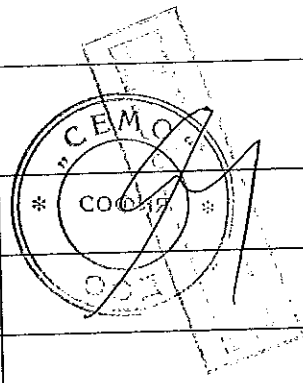


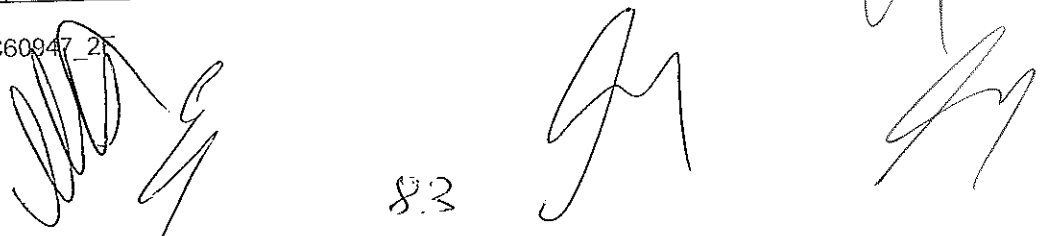


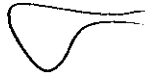
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Clause	Requirement + Test	Result - Remark	Verdict
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
	Test current: 80% of the maximum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
	Test current: 120% of the maximum adjustable setting current: (A)		N/A
	Operating time: <0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
8.3.3.1.3	Opening under overload conditions		
a)	Instantaneous or definite time-delay releases		
	Manufacturer's name or trademark		
	Type designation or serial number		

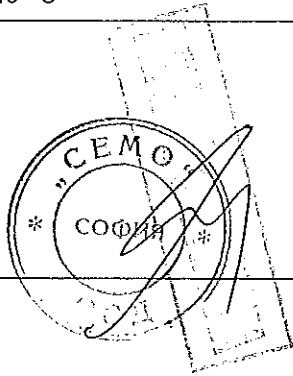
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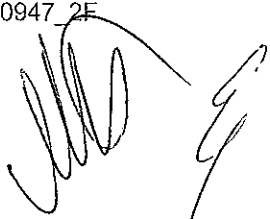

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Clause	Requirement + Test	Result - Remark	Verdict
	Sample no:		
	Rated operational voltage: Ue (V)		
	Rated current: In (A)		
	Ambient temperature 10-40 °C :		N/A
	Value of the tripping current declared by the manufacturer for a single pole, at which value they shall operate.		N/A
	Range of adjustable setting current. (A)		N/A
	Time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 90% of the rated, or minimum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 90% of the maximum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 110% of the rated, or minimum adjustable setting current: (A) circuit-breaker with neutral pole: 1,2x110% (A)		N/A
	Operating time: <0,2s in case of instantaneous releases:		N/A
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 110% of the maximum adjustable setting current: (A) circuit-breaker with neutral pole: 1,2x110% (A)		N/A
	Operating time: <0,2s in case of instantaneous releases		N/A

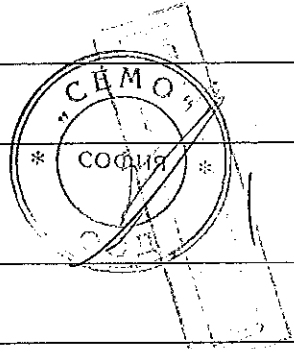






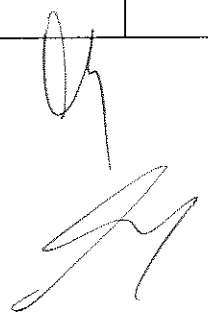


IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
b)	Inverse time delay releases		
	Manufacturer's name or trademark	CHINT	
	Type designation or serial number	NM1-125S/3300	
	Sample no:	151#	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated current: In (A)	125 A	
	For releases dependent of ambient air temperature: Reference temperature	40 °C	P
	Test ambient temperature (°C )	40 °C	P
	For releases dependent on ambient air temperature, the operating characteristics shall be verified at the reference temperature, the release being energized on all phase poles. If the test made at a different ambient temperature, a correction shall be made in accordance with the manufacturer's correction temperature/current data		P
	For thermal-magnetic releases independent of ambient temperature: Tests shall be made at 30°C and 20°C or 40°C, the release being energized on all phase poles		N/A
	For electronic releases, the operating characteristic shall be verified at the ambient temperature of the test room (see 6.1.1 of IEC 60947-1), the release being energised on all phase poles.		N/A
	Test ambient air temperature:		N/A
	Range of adjustable setting current: (A)		N/A
	Releases, dependent of ambient air temperature: Reference temperature (°C)	40 °C	P
	Thermal Magnetic releases, independent of ambient air temperature: at 30°C		N/A
	Test current: 105% of the rated, or minimum adjustable setting current: (A)	131,3 A	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$	2 h non-tripping	P
	Test current: 130% of the rated, or <b>minimum</b> adjustable setting current: (A)	162,5 A	P
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$	5 min 18 s	P
	Test current: 105% of the <b>maximum</b> adjustable setting current: (A)		N/A
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$		N/A
	Test current: 130% of the <b>maximum</b> adjustable setting current: (A)		N/A
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$		N/A
	Thermal Magnetic releases, independent of ambient air temperature: at 20°C or 40°C		
	Test ambient air temperature:		N/A
	Test current: 105% of the rated, or <b>minimum</b> adjustable setting current: (A)		N/A
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$		N/A
	Test current: 130% of the rated, or <b>minimum</b> adjustable setting current: (A)		N/A
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$		N/A
	Test current: 105% of the <b>maximum</b> adjustable setting current: (A)		N/A



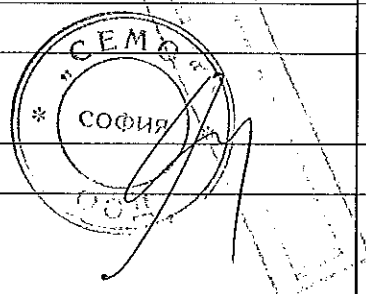
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$		N/A
	Test current: 130% of the <b>maximum</b> adjustable setting current: (A)		N/A
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$		N/A
	An additional test, at a current specified by the manufacturer to verify the time/current characteristic of the releases conform to the curves provided by the manufacturer		
	Releases, dependent of ambient air temperature: Reference temperature (°C)	40 °C	P
	Releases, independent of ambient air temperature: at 30°C		N/A
	Test ambient air temperature:	40 °C	P
	Test current: at current specified by the manufacturer to verify the time/current characteristic of the releases conform to the curves provided by the manufacturer. % at the rated, or minimum adjustable setting current: (% or A)	250 A (200% $I_n$ ) Specified tripping time by the manufacturer: $30 s \leq t \leq 540 s$	P
	Tripping time acc. time/current characteristic of the releases conform to the curves provided by the manufacturer. (within the stated tolerances)	2 min 41 s	P
	Releases, independent of ambient air temperature: at 20°C or 40°C		
	Test ambient air temperature:		N/A
	Test current: at current specified by the manufacturer to verify the time/current characteristic of the releases conform to the curves provided by the manufacturer. % at the rated, or minimum adjustable setting current: (% or A)		N/A
	Tripping time acc. time/current characteristic of the releases conform to the curves provided by the manufacturer. (within the stated tolerances)		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.1.4	Additional test for definite time-delay releases		
a)	Time delay		
	Test is made at a current equal to 1,5 times the current setting. If the test current overlaps with another tripping characteristic (e.g. an instantaneous tripping characteristic), the trip setting and the test current shall be reduced as necessary to prevent premature tripping.		
	<u>overload releases</u> : (all phase poles loaded)		N/A
	for circuit-breakers having an identified neutral pole provided with an overload release, the test current for this release shall be 1,5 times the current setting;		N/A
	<u>short-circuit releases</u>		N/A
	Electromagnetic release: two poles in series carrying the test current, using successively all possible combinations of poles having a short-circuit release.		N/A
	Electronic releases: on one pole chosen at random.		N/A
	Test current: 1,5 times of the rated, or <b>minimum</b> adjustable setting current: (A)		N/A
	Operating time, <u>overload releases</u> : (s)		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electromagnetic)</u> : (s) L1-L2: L1-L3: L2-L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electronic)</u> : (s) L2: L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Test current: 1,5 times of the <b>maximum</b> adjustable setting current: (A)		N/A

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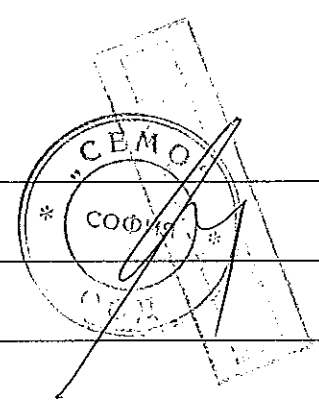
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Operating time, <u>overload releases</u> : (s)		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electromagnetic)</u> : (s) L1-L2: L1-L3: L2-L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electronic)</u> : (s) L2: L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
b)	Non-tripping duration		
	Firstly, the test current equal to 1,5 times the current setting is maintained for a time interval equal to the non-tripping duration stated by the manufacturer.		
	Then, the current is reduced to the rated current and maintained at this value for twice the time-delay stated by the manufacturer. The circuit-breaker shall not trip.		
	<u>overload releases</u> : (all phase poles loaded)		N/A
	for circuit-breakers having an identified neutral pole provided with an overload release, the test current for this release shall be 1,5 times the current setting;		N/A
	<u>short-circuit releases</u>		N/A
	Electromagnetic release: two poles in series carrying the test current, using successively all possible combinations of poles having a short-circuit release.		N/A
	Electronic releases: on one pole chosen at random.		N/A
	Test current: 1,5 times of the <b>minimum</b> adjustable setting current: (A)		N/A
	non-tripping duration stated by the manufacturer for overload release: (s)		N/A

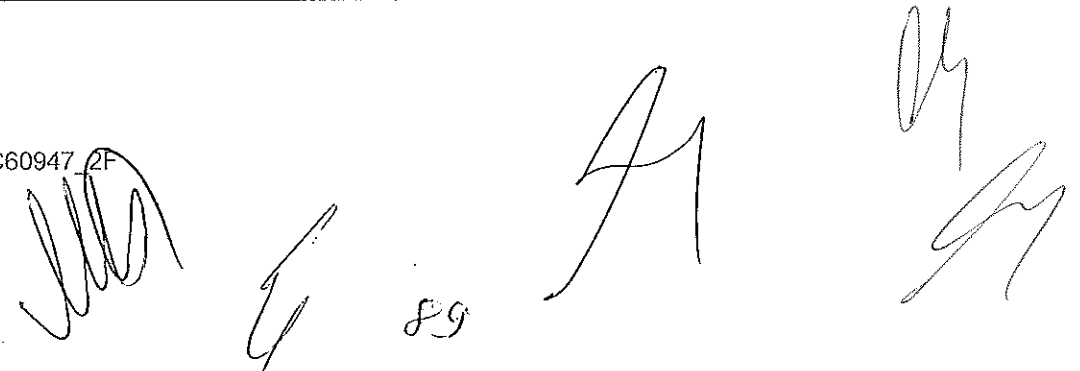


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Clause	Requirement + Test	Result - Remark	Verdict
	non-tripping duration stated by the manufacturer for short-circuit release thermal magnetic: (s)		N/A
	non-tripping duration stated by the manufacturer for short-circuit release electronic: (s)		N/A
	Time duration of current when reduced to the rated current: shall be twice the delay-time stated by the manufacturer: (s)		N/A
	Rated current		N/A
	Operating time, <u>overload releases</u> : the circuit-breaker does not trip:		N/A
	Operating time, <u>short-circuit releases</u> (electromagnetic), shall not trip: (s) L1-L2: L1-L3: L2-L3:		N/A
	Operating time, <u>short-circuit releases (electronic)</u> , shall not trip: (s) L1: L2: L3:		N/A
	Test current: 1,5 times of <b>maximum</b> adjustable setting current: (A)		N/A
	non-tripping duration stated by the manufacturer for overload release: (s)		N/A
	non-tripping duration stated by the manufacturer for short-circuit release thermal magnetic: (s)		N/A
	non-tripping duration stated by the manufacturer for short-circuit release electronic: (s)		N/A
	Time duration of current when reduced to the rated current: shall be twice the delay-time stated by the manufacturer: (s)		N/A
	Rated current		N/A
	Operating time, <u>overload releases</u> : the circuit-breaker does not trip:		N/A

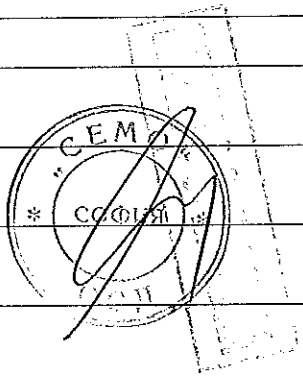


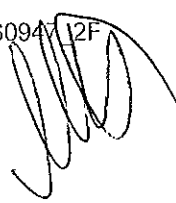


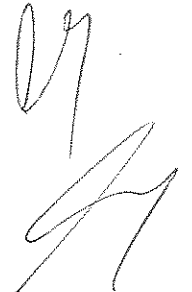


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Clause	Requirement + Test	Result - Remark	Verdict
	Operating time, <u>short-circuit releases (electromagnetic), shall not trip:</u> (s) L1-L2: L1-L3: L2-L3:		N/A
	Operating time, <u>short-circuit releases (electronic), shall not trip:</u> (s) L1: L2: L3:		N/A
8.3.3.2	Test of dielectric properties, impulse withstand voltage (Uimp indicated):		
8.3.3.4 part1	The 1,2/50µs impulse voltage shall be applied five times for each polarity at intervals of 1s minimum		
	- rated impulse withstand voltage (kV) :	8 kV	P
	- sea level of the laboratory:	Sea level	P
	- test Uimp main circuits (kV) :	9,8 kV	P
	- test Uimp auxiliary circuits (kV) :		N/A
	- test Uimp control circuits (kV) :		N/A
	- test Uimp on open main contacts (equipment suitable for isolating) (kV) :	12,3 kV	P
a)	Application of test voltage		P
	i) Between all terminals of the main circuit connected together (incl. control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation.		P
	ii) Between each pole of the main circuit and the other poles connected together and to the enclosure or mounting plate, with the contacts in all normal positions of operation.		P
	iii) Between each control and auxiliary circuit not normally connected to the main circuit and: - the main circuit		N/A
	- other circuits		N/A
	- exposed conductive parts		N/A
	- enclosure of mounting plate		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	iv) equipment suitable for isolation		P
	equipment not suitable for isolation		N/A
	- no unintentional disruptive discharge during the test's		P
	Test of dielectric properties, dielectric withstand voltage (Uimp not indicated):		
	- rated insulation voltage (V) :	800 V	P
	- main circuits, test voltage for 1 min (V)	2000 V, 5 s	P
	- auxiliary circuits, test voltage for 1 min (V)		N/A
	- control circuits, test voltage for 1 min (V)		N/A
8.3.3.2.2	Application of test voltage		
1)	with circuit-breaker in the closed position		
	- between all live parts of all poles connected together and the frame of the circuit-breaker .		P
	- between each pole and all the other poles connected to the frame of the circuit-breaker		P
2)	with the circuit-breaker in the open position and, additionally, in the tripped position, if any.		P
	- between all live parts of all poles connected together and the frame of the circuit-breaker.		P
	- between the terminals of one side connected together and the terminals of the other side connected together.		P
b)	Control and auxiliary circuits		
1)	- between all the control and auxiliary circuits which are not normally connected to the main circuit, connected together, and the frame of the circuit-breaker.		N/A
2)	- where appropriate, between each part of the control an auxiliary circuits which may be isolated from the other parts during normal operation and all the other parts connected together.		N/A
	No unintentional disruptive discharge during the tests		P

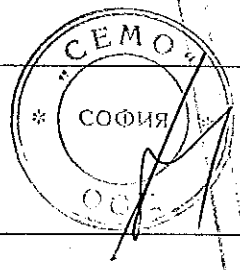







IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.2	For circuit-breaker suitable for isolation, the leakage current shall be measured through each pole with the contacts in the open position, at a test voltage of 1,1 Ue, and shall not exceed 0,5mA.	L1: < 0,1 mA L2: < 0,1 mA L3: < 0,1 mA	P
8.3.3.3	Mechanical operation and operational performance capability		
8.3.3.3.2	Construction and mechanical operation		
a)	Construction		
	A withdrawable circuit-breaker shall be checked for the requirements stated in 7.1.1		N/A
	A circuit-breaker with stored energy operation shall be checked for compliance with 7.2.1.1.5, regarding the charge indicator and the direction of operation of manual energy storing		N/A
b)	Mechanical operation		
	A circuit-breaker with dependent power operation shall comply with the requirements stated in 7.2.1.1.3		N/A
	A circuit-breaker with dependent power operation shall operate with the operating mechanism charged to the minimum and maximum limits stated by the manufacturer		N/A
	A circuit-breaker with stored energy operation shall comply with the requirements stated in 7.2.1.5 with the auxiliary supply voltage at 85% and 110% of the rated control supply voltage.		N/A
	It shall also be verified that the moving contacts cannot be moved from the open position when the operating mechanism is charged to slightly below the full charge as evidenced by the indicating device		N/A
	For a trip-free circuit-breaker it shall not be possible to maintain the contacts in the touching or closed position when the tripping release is in the position to trip the circuit-breaker		P
	If the closing and opening times of a circuit-breaker are stated by the manufacturer, such times shall comply with the stated values		N/A



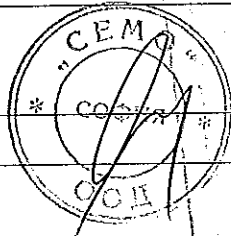
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
c)	Undervoltage releases		
	Undervoltage releases shall comply with the requirements of 7.2.1.3 of Part 1. For this purpose, the release shall be fitted to a circuit-breaker having the maximum current rating for which the release is suitable		N/A
i)	Drop out voltage		
	It shall be verified that the release operates to open the circuit-breaker between the voltage limits specified		N/A
	The voltage shall be reduced from rated voltage at a rate to reach 0 V in approximately 30 s		N/A
	The test for the lower limit is made without current in the main circuit and without previous heating of the release coil		N/A
	In the case of a release with a range of rated voltages, this test applies to the maximum voltage of the range		N/A
	The test for the upper limit is made starting from a constant temperature corresponding to the application of rated control supply voltage to the release and rated current in the main poles of the circuit-breaker		N/A
	This test may be combined with the temperature-rise test of 8.3.3.6		N/A
	In the case of a release with a range of rated voltages, this test is made at both the minimum and maximum rated control supply voltages		N/A
ii)	Test for limits of operation		
	Starting with the circuit-breaker open, at the temperature of the test room, and with the supply voltage at 30% rated maximum control supply voltage, it shall be verified that the circuit-breaker cannot be closed by the operation of the actuator		N/A
	When the supply voltage is raised to 85% of the minimum control supply voltage, it shall be verified that the circuit-breaker can be closed by the operation of the actuator		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
iii)	Performance under overvoltage conditions		
	With the circuit-breaker closed and without current in the main circuit, it shall be verified that the undervoltage release will withstand the application of 110% rated control supply voltage for 4 h without impairing its functions		N/A
d)	Shunt releases		
	Shunt releases shall comply with the requirements of 7.2.1.4 of Part 1. For this purpose, the release shall be fitted to a circuit-breaker having the maximum rated current for which the release is suitable		N/A
	It shall be verified that the release will operate to open the circuit-breaker at 70% rated control supply voltage when tested at an ambient temperature of $+55\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ without current in the main poles of the circuit-breaker		N/A
	In the case of a release having a range of rated control supply voltages, the test voltage shall be 70% of the minimum rated control supply voltage		N/A
8.3.3.3.3	Operational performance capability without current.		
	Type designation or serial number	NM1-125S/3300	
	Sample no:	151#	
	Rated current $I_n$ (A)	125 A	
	Rated operational voltage: $U_e$ (V)	690 Vac	
	Rated control supply voltage of closing mechanism: $U_c$ (V)	No electric closing mechanism	
	Rated control supply voltage of shunt releases: $U_c$ (V)	No shunt releases	
	Rated control supply voltage undervoltage releases: $U_c$ (V)	No undervoltage releases	
	Ambient temperature 10-40 $^{\circ}\text{C}$ :	21,1 $^{\circ}\text{C}$	P
	Number of operating cycles per hour	120 cycles per hour	P
	Number of cycles without current (total) (closing mechanism energized at the rated $U_c$ )	7000 cycles	P
	Number of cycles without current (without releases)	7000 cycles	P
	Applied voltage: closing mechanism (V)		N/A



  
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Clause	Requirement + Test	Result - Remark	Verdict
	10% of total cycles for circuit-breaker with fitted shunt release: (50% at the beginning- and 50% at the end of the test.) Energized at the rated $U_c$		N/A
	Applied voltage: shunt releases (V)		N/A
	10% of total cycles for circuit-breaker with undervoltage releases: (50% at the beginning- and 50% at the end of the test.) Energized at the minimum rated $U_c$		N/A
	10 cycles without applied voltage at the undervoltage releases. (Shall not possible to close the circuit-breaker.)		N/A
	Applied voltage: undervoltage releases (V)		N/A
	Electrical components do not exceed the value indicated in tab. 7.		N/A
8.3.3.3.4	Operational performance capability with current.		
	Rated current: $I_n$ (A)	125A	
	Maximum rated operational voltage: $U_e$ (V)	690 Vac	
	Conductor cross-sectional area ( $mm^2$ ) :	50 $mm^2$	P
	Number of operating cycles per hour	120 cycles per hour	P
	Number of cycles with current (total) (closing mechanism energized at the rated $U_c$ )	1000 cycles (no electric closing mechanism)	P
	Applied voltage: closing mechanism (V)		N/A
	For circuit-breaker fitted with adjustable releases, test shall be made with the overload setting at maximum and short-circuit setting at minimum.		N/A
	Conditions, make/break operations:		P
	- test voltage $U/U_e = 1,0$ (V) .....	L1-L2: 695,6 Vac L2-L3: 693,1 Vac L3-L1: 692,7 Vac	P
	- test current $I/I_e = 1,0$ (A) .....	L1: 127,8 A L2: 125,9 A L3: 126,7 A	P
	- power factor/time constant:	0,84	P

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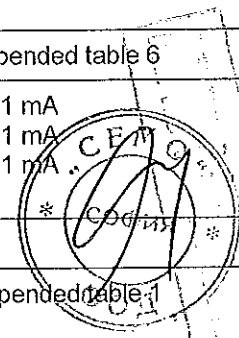
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- frequency: (Hz)	50 Hz	P
	- on-time (ms):	531,1 ms	P
	- off-time (s):	29,5 s	P
	Electrical components do not exceed the value indicated in tab. 7.		N/A
8.3.3.3.5	Additional test of operational performance capability without current for withdrawable circuit-breaker.		
	Number of operations cycles : 100		N/A
	After test, the isolating contacts, withdrawable mechanism and interlocks shall be suitable for further service.		N/A
8.3.3.4	Overload performance		
	this test applies to circuit-breaker of rated current up to and including 630A		
	Type designation or serial number	NM1-125S/3300	
	Sample no:	151#	
	Rated current In (A)	125 A	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated control supply voltage of closing mechanism: Uc (V)	No electric closing mechanism	
	Rated control supply voltage of shunt releases: Uc (V)	No shunt releases	
	Rated control supply voltage undervoltage releases: Uc (V)	No undervoltage releases	
	Ambient temperature 10-40 °C :	21,3 °C	P
	Number of operating cycles per hour	120 cycles per hour	P
	Maximum rated operational voltage: Ue (V)	690 Vac	P
	Number of operating cycles per hour	120 cycles per hour	P
	Number of cycles with current (total) (closing mechanism energized at the rated Uc)	15 cycles (no electric closing mechanism)	P
	Applied voltage: closing mechanism (V)		N/A
	For circuit-breaker fitted with adjustable releases, test shall be made with the overload/short-circuit settings at maximum.		N/A



  
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Clause	Requirement + Test	Result - Remark	Verdict
	Conditions, overload operations:		P
	- test voltage $U/U_e = 1,05$ (V) ..... L1: ..... L2: ..... L3:	735,1 Vac 735,6 Vac 733,4 Vac	P
	- test current AC/DC: $I/I_e = 6,0/2,5$ (A) ..... L1: ..... L2: ..... L3:	765,4 A 782,9 A 773,4 A	P
	- power factor/time constant:	0,52	P
	- Number of cycles manually opened: 9	12 manual operations	P
	- Number of cycles automatically opened by an overload release: 3	3 (at convenient voltage )	P
	- frequency: (Hz)	50 Hz	P
	- on-time max 2s:	542,7 ms	P
8.3.3.5	Verification of dielectric withstand		
	- equal to twice the rated operational voltage with a minimum of 1000 V for 5 seconds	1380 V, 5 s	P
	- no breakdown or flashover	See appended table 6	P
	For circuit-breaker suitable for isolation, the leakage current shall be measured through each pole with the contacts in the open position, at a test voltage of $1,1 U_e$ , and shall not exceed 2 mA.	L1: < 0,1 mA L2: < 0,1 mA L3: < 0,1 mA	P
8.3.3.6	Verification of temperature-rise		
	- the values of temperature-rise do not exceed those specified in tab. 7.	See appended table 1	P
	Temperature rise of main circuit terminals $\leq 80$ K (K) :	Max: 49,4 K	P
	conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	P
	test current $I_e$ (A) :	125 A	P
8.3.3.7	Verification of overload releases		
	Test current: 1.45 times the value of their current setting at the reference temperature: (A)	181,3 A (1,45 x 1,0I <sub>n</sub> )	P
	Conventional tripping time: <1h when $I_n < 63$ A, <2h when $I_n > 63$ A	4 min 02 s	P



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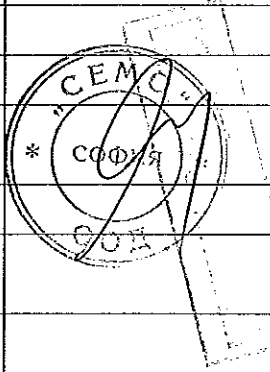
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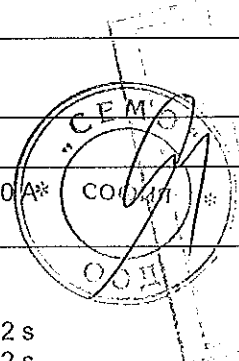
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.8	Verification of undervoltage and shunt releases		
	Circuit-breaker fitted with undervoltage releases. The release shall not operate at 70% of the minimum control supply voltage -		N/A
	and shall operate at 35% of the maximum control supply voltage.		N/A
	Circuit-breaker fitted with shunt releases. The release shall operate at 70% of the minimum rated control supply voltage. Test made at room temperature.		N/A
8.3.3.9	Verification of the main contact position for circuit-breakers for isolation		P
	actuating force for opening (N) .....	45 N	—
	test force with blocked main contacts for 10 s (N) :	135 N for 10 s	—
	Dependent power operation		N/A
	Supply voltage of 110% of rated voltage (V).....:		N/A
	Three attempts of 5 s to operate the equipment at intervals of 5 min.		N/A
	Independent power operation		N/A
	Three attempts to operate the equipment by the stored energy.		N/A
	Lock ability of driving mechanism in OFF-position at test force and blocked main contacts .....		N/A
	Position indicator does not show OFF-position after capture of test force at blocked main contacts		P

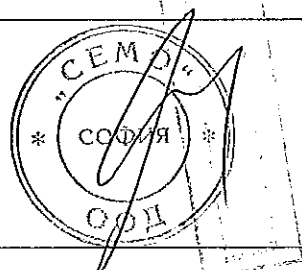


IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.3	TEST SEQUENCE I: GENERAL PERFORMANCE CHARACTERISTICS		
8.3.3.1	Tripping limits and characteristic		
8.3.3.1.2	Opening under short-circuit conditions		
	Manufacturer's name or trademark	CHINT	
	Type designation or serial number	NM1-125S/4300	
	Sample no:	51#	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated current: In (A)	125 A	
	Ambient temperature 10-40 °C :	20,1 °C	P
	Value of the tripping current declared by the manufacturer for a single pole, at which value they shall operate.	10 In for instantaneous tripping 12 In for instantaneous tripping of a single pole	P
	Range of adjustable setting current. (A)		N/A
	Time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	<b>Electromagnetic overcurrent releases</b>		
	Test current: 80% of the rated, or minimum adjustable setting current: (A)	1000 A*	P
	Operating time: >0,2s in case of instantaneous releases: L1-L2: > 0,2 s L1-L3: > 0,2 s L2-L3: > 0,2 s N-Lx:		P
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Test current: 120% of the rated, or minimum adjustable setting current: (A)	1500 A	P



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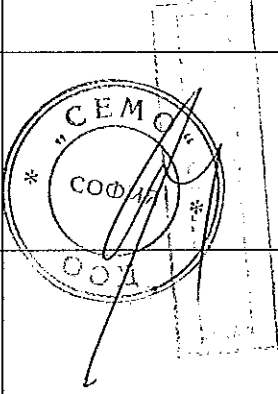
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Operating time: <0,2s in case of instantaneous releases: L1-L2: 5 ms L1-L3: 5 ms L2-L3: 5 ms N-Lx:		P
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Test current: 80% of the maximum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Test current: 120% of the maximum adjustable setting current: (A)		N/A
	Operating time: <0,2s in case of instantaneous releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1-L2: L1-L3: L2-L3: N-Lx:		N/A

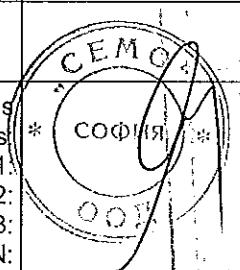
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Test current: tripping current declared for single pole operation (A)	1500 A	P
	Operating time: < 0,2 s in case of instantaneous release: L1: L2: L3: N:	69 ms 25 ms 29 ms	P
	Operating time: < twice time delay stated by manufacturer in case of definite time delay releases L1: L2: L3: N:		N/A
	<b>Electronic overcurrent releases</b>		
	For circuit-breakers with an electronic overcurrent release, the operation of the short-circuit releases shall be verified by one test only on each pole individually.		N/A
	Test current: 80% of the rated, or minimum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
	Test current: 120% of the rated, or minimum adjustable setting current: (A)		N/A
	Operating time: <0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A

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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
	Test current: 80% of the maximum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
	Test current: 120% of the maximum adjustable setting current: (A)		N/A
	Operating time: <0,2s in case of instantaneous releases: L1: L2: L3: N:		N/A
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases: L1: L2: L3: N:		N/A
8.3.3.1.3	Opening under overload conditions		
a)	Instantaneous or definite time-delay releases		
	Manufacturer's name or trademark		
	Type designation or serial number		

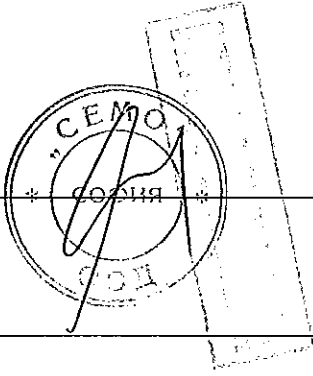
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Sample no:		
	Rated operational voltage: Ue (V)		
	Rated current: In (A)		
	Ambient temperature 10-40 °C :		N/A
	Value of the tripping current declared by the manufacturer for a single pole, at which value they shall operate.		N/A
	Range of adjustable setting current. (A)		N/A
	Time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 90% of the rated, or minimum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases:		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 90% of the maximum adjustable setting current: (A)		N/A
	Operating time: >0,2s in case of instantaneous releases		N/A
	Operating time: > twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 110% of the rated, or minimum adjustable setting current: (A) circuit-breaker with neutral pole: 1,2x110% (A)		N/A
	Operating time: <0,2s in case of instantaneous releases:		N/A
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
	Test current: 110% of the maximum adjustable setting current: (A) circuit-breaker with neutral pole: 1,2x110% (A)		N/A
	Operating time: <0,2s in case of instantaneous releases		N/A

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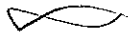
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Operating time: < twice time delay stated by the manufacturer, in the case of definite time delay releases.		N/A
b)	Inverse time delay releases		
	Manufacturer's name or trademark	CHINT	
	Type designation or serial number	NM1-125S/4300	
	Sample no:	51#	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated current: In (A)	125 A	
	For releases dependent of ambient air temperature: Reference temperature	40 °C	P
	Test ambient temperature (°C )	40 °C	P
	For releases dependent on ambient air temperature, the operating characteristics shall be verified at the reference temperature, the release being energized on all phase poles. If the test made at a different ambient temperature, a correction shall be made in accordance with the manufacturer's correction temperature/current data		P
	For thermal-magnetic releases independent of ambient temperature: Tests shall be made at 30°C and 20°C or 40°C, the release being energized on all phase poles		N/A
	For electronic releases, the operating characteristic shall be verified at the ambient temperature of the test room (see 6.1.1 of IEC 60947-1), the release being energised on all phase poles.		N/A
	Test ambient air temperature:		N/A
	Range of adjustable setting current: (A)		N/A
	Releases, dependent of ambient air temperature: Reference temperature (°C)	40 °C	P
	Thermal Magnetic releases, independent of ambient air temperature: at 30°C		N/A
	Test current: 105% of the rated, or minimum adjustable setting current: (A)	131,3 A	P




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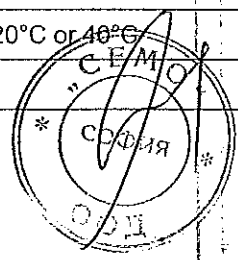




IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$	2 h non-tripping	P
	Test current: 130% of the rated, or minimum adjustable setting current: (A)	162,5 A	P
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$	22 min 43 s	P
	Test current: 105% of the maximum adjustable setting current: (A)		N/A
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$		N/A
	Test current: 130% of the maximum adjustable setting current: (A)		N/A
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$		N/A
	Thermal Magnetic releases, independent of ambient air temperature: at 20°C or 40°C		
	Test ambient air temperature:		N/A
	Test current: 105% of the rated, or minimum adjustable setting current: (A)		N/A
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$		N/A
	Test current: 130% of the rated, or minimum adjustable setting current: (A)		N/A
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$		N/A
	Test current: 105% of the maximum adjustable setting current: (A)		N/A

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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Conventional non-tripping time: 1h when $I_n < 63A$ , 2h when $I_n > 63 A$		N/A
	Test current: 130% of the maximum adjustable setting current: (A)		N/A
	For circuit-breakers having an identified neutral pole provided with an overload release (see 8.3.3.1.1), the test current at the conventional tripping current shall be multiplied by the factor 1,2.		N/A
	Conventional tripping time: <1h when $I_n < 63A$ , <2h when $I_n > 63 A$		N/A
	An additional test, at a current specified by the manufacturer to verify the time/current characteristic of the releases conform to the curves provided by the manufacturer		
	Releases, dependent of ambient air temperature: Reference temperature (°C)	40 °C	P
	Releases, independent of ambient air temperature: at 30°C		N/A
	Test ambient air temperature:	40 °C	P
	Test current: at current specified by the manufacturer to verify the time/current characteristic of the releases conform to the curves provided by the manufacturer. % at the rated, or minimum adjustable setting current: (% or A)	250 A (200% $I_n$ ) Specified tripping time by the manufacturer: $30 s \leq t \leq 540 s$	P
	Tripping time acc. time/current characteristic of the releases conform to the curves provided by the manufacturer. (within the stated tolerances)	5 min 17 s	P
	Releases, independent of ambient air temperature: at 20°C or 40°C		
	Test ambient air temperature:		N/A
	Test current: at current specified by the manufacturer to verify the time/current characteristic of the releases conform to the curves provided by the manufacturer. % at the rated, or minimum adjustable setting current: (% or A)		N/A
	Tripping time acc. time/current characteristic of the releases conform to the curves provided by the manufacturer. (within the stated tolerances)		N/A

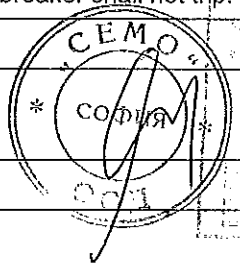


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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.1.4	Additional test for definite time-delay releases		
a)	Time delay		
	Test is made at a current equal to 1,5 times the current setting. If the test current overlaps with another tripping characteristic (e.g. an instantaneous tripping characteristic), the trip setting and the test current shall be reduced as necessary to prevent premature tripping.		
	<u>overload releases: (all phase poles loaded)</u>		N/A
	for circuit-breakers having an identified neutral pole provided with an overload release, the test current for this release shall be 1,5 times the current setting;		N/A
	<u>short-circuit releases</u>		N/A
	Electromagnetic release: two poles in series carrying the test current, using successively all possible combinations of poles having a short-circuit release.		N/A
	Electronic releases: on one pole chosen at random.		N/A
	Test current: 1,5 times of the rated, or <b>minimum</b> adjustable setting current: (A)		N/A
	Operating time, <u>overload releases</u> : (s)		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electromagnetic)</u> : (s) L1-L2: L1-L3: L2-L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electronic)</u> : (s) L2: L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A

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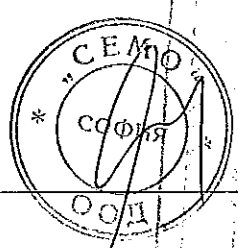
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Test current: 1,5 times of the <b>maximum</b> adjustable setting current: (A)		N/A
	Operating time, <u>overload releases</u> : (s)		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electromagnetic)</u> : (s) L1-L2: L1-L3: L2-L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
	Operating time, <u>short-circuit releases (electronic)</u> : (s) L2: L3:		N/A
	Time-delay: between the limits stated by the manufacturer:		N/A
b)	Non-tripping duration		
	Firstly, the test current equal to 1,5 times the current setting is maintained for a time interval equal to the non-tripping duration stated by the manufacturer.		
	Then, the current is reduced to the rated current and maintained at this value for twice the time-delay stated by the manufacturer. The circuit-breaker shall not trip.		
	<u>overload releases</u> : (all phase poles loaded)		N/A
	for circuit-breakers having an identified neutral pole provided with an overload release, the test current for this release shall be 1,5 times the current setting;		N/A
	<u>short-circuit releases</u>		N/A
	Electromagnetic release: two poles in series carrying the test current, using successively all possible combinations of poles having a short-circuit release.		N/A
	Electronic releases: on one pole chosen at random.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test current: 1,5 times of the <b>minimum</b> adjustable setting current: (A)		N/A
	non-tripping duration stated by the manufacturer for overload release: (s)		N/A
	non-tripping duration stated by the manufacturer for short-circuit release thermal magnetic: (s)		N/A
	non-tripping duration stated by the manufacturer for short-circuit release electronic: (s)		N/A
	Time duration of current when reduced to the rated current: shall be twice the delay-time stated by the manufacturer: (s)		N/A
	Rated current		N/A
	Operating time, <u>overload releases</u> : the circuit-breaker does not trip:		N/A
	Operating time, <u>short-circuit releases (electromagnetic), shall not trip</u> : (s) L1-L2: L1-L3: L2-L3:		N/A
	Operating time, <u>short-circuit releases (electronic), shall not trip</u> : (s) L1: L2: L3:		N/A
	Test current: 1,5 times of <b>maximum</b> adjustable setting current: (A)		N/A
	non-tripping duration stated by the manufacturer for overload release: (s)		N/A
	non-tripping duration stated by the manufacturer for short-circuit release thermal magnetic: (s)		N/A
	non-tripping duration stated by the manufacturer for short-circuit release electronic: (s)		N/A
	Time duration of current when reduced to the rated current: shall be twice the delay-time stated by the manufacturer: (s)		N/A
	Rated current		N/A

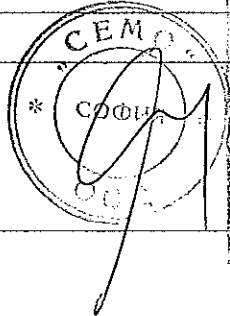
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Operating time, <u>overload releases</u> : the circuit-breaker does not trip:		N/A
	Operating time, <u>short-circuit releases</u> (electromagnetic), shall not trip: (s) L1-L2: L1-L3: L2-L3:		N/A
	Operating time, <u>short-circuit releases (electronic)</u> , shall not trip: (s) L1: L2: L3:		N/A
8.3.3.2	Test of dielectric properties, impulse withstand voltage (Uimp indicated):		
8.3.3.4 part1	The 1,2/50µs impulse voltage shall be applied five times for each polarity at intervals of 1s minimum		
	- rated impulse withstand voltage (kV) :	8 kV	P
	- sea level of the laboratory:	Sea level	P
	- test Uimp main circuits (kV) :	9,8 kV	P
	- test Uimp auxiliary circuits (kV) :		N/A
	- test Uimp control circuits (kV) :		N/A
	- test Uimp on open main contacts (equipment suitable for isolating) (kV) :	12,3 kV	P
a)	Application of test voltage		P
	i) Between all terminals of the main circuit connected together (incl. control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation.		P
	ii) Between each pole of the main circuit and the other poles connected together and to the enclosure or mounting plate, with the contacts in all normal positions of operation.		P
	iii) Between each control and auxiliary circuit not normally connected to the main circuit and:		N/A
	- the main circuit - other circuits		N/A

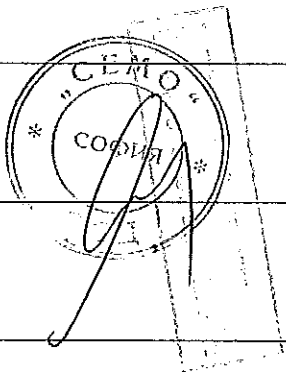
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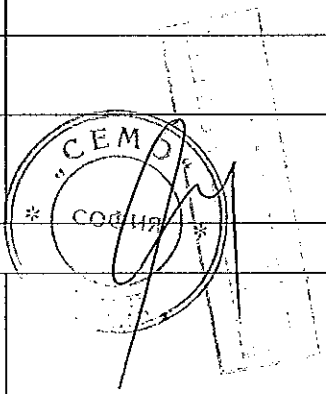
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- exposed conductive parts		N/A
	- enclosure of mounting plate		N/A
	iv) equipment suitable for isolation		P
	equipment not suitable for isolation		N/A
	- no unintentional disruptive discharge during the test's		P
	Test of dielectric properties, dielectric withstand voltage (Uimp not indicated):		
	- rated insulation voltage (V) :	800 V	P
	- main circuits, test voltage for 1 min (V)	2000 V, 5 s	P
	- auxiliary circuits, test voltage for 1 min (V)		N/A
	- control circuits, test voltage for 1 min (V)		N/A
8.3.3.2.2	Application of test voltage		
1)	with circuit-breaker in the closed position		
	- between all live parts of all poles connected together and the frame of the circuit-breaker .		P
	- between each pole and all the other poles connected to the frame of the circuit-breaker		P
2)	with the circuit-breaker in the open position and, additionally, in the tripped position, if any.		
	- between all live parts of all poles connected together and the frame of the circuit-breaker.		P
	- between the terminals of one side connected together and the terminals of the other side connected together.		P
b)	Control and auxiliary circuits		
1)	- between all the control and auxiliary circuits which are not normally connected to the main circuit, connected together, and the frame of the circuit-breaker.		N/A
2)	- where appropriate, between each part of the control an auxiliary circuits which may be isolated from the other parts during normal operation and all the other parts connected together.		N/A
	No unintentional disruptive discharge during the tests		P

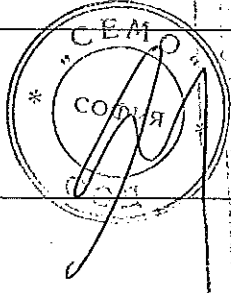
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.2	For circuit-breaker suitable for isolation, the leakage current shall be measured through each pole with the contacts in the open position, at a test voltage of 1,1 U <sub>e</sub> , and shall not exceed 0,5mA.	L1: < 0,1 mA L2: < 0,1 mA L3: < 0,1 mA N: < 0,1 mA	P
8.3.3.3	Mechanical operation and operational performance capability		
8.3.3.3.2	Construction and mechanical operation		
a)	Construction		
	A withdrawable circuit-breaker shall be checked for the requirements stated in 7.1.1		N/A
	A circuit-breaker with stored energy operation shall be checked for compliance with 7.2.1.1.5, regarding the charge indicator and the direction of operation of manual energy storing		N/A
b)	Mechanical operation		
	A circuit-breaker with dependent power operation shall comply with the requirements stated in 7.2.1.1.3		N/A
	A circuit-breaker with dependent power operation shall operate with the operating mechanism charged to the minimum and maximum limits stated by the manufacturer		N/A
	A circuit-breaker with stored energy operation shall comply with the requirements stated in 7.2.1.5 with the auxiliary supply voltage at 85% and 110% of the rated control supply voltage.		N/A
	It shall also be verified that the moving contacts cannot be moved from the open position when the operating mechanism is charged to slightly below the full charge as evidenced by the indicating device		N/A
	For a trip-free circuit-breaker it shall not be possible to maintain the contacts in the touching or closed position when the tripping release is in the position to trip the circuit-breaker		P
	If the closing and opening times of a circuit-breaker are stated by the manufacturer, such times shall comply with the stated values		N/A

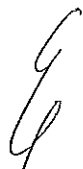


IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
c)	Undervoltage releases		
	Undervoltage releases shall comply with the requirements of 7.2.1.3 of Part 1. For this purpose, the release shall be fitted to a circuit-breaker having the maximum current rating for which the release is suitable		N/A
i)	Drop out voltage		
	It shall be verified that the release operates to open the circuit-breaker between the voltage limits specified		N/A
	The voltage shall be reduced from rated voltage at a rate to reach 0 V in approximately 30 s		N/A
	The test for the lower limit is made without current in the main circuit and without previous heating of the release coil		N/A
	In the case of a release with a range of rated voltages, this test applies to the maximum voltage of the range		N/A
	The test for the upper limit is made starting from a constant temperature corresponding to the application of rated control supply voltage to the release and rated current in the main poles of the circuit-breaker		N/A
	This test may be combined with the temperature-rise test of 8.3.3.6		N/A
	In the case of a release with a range of rated voltages, this test is made at both the minimum and maximum rated control supply voltages		N/A
ii)	Test for limits of operation		
	Starting with the circuit-breaker open, at the temperature of the test room, and with the supply voltage at 30% rated maximum control supply voltage, it shall be verified that the circuit-breaker cannot be closed by the operation of the actuator		N/A
	When the supply voltage is raised to 85% of the minimum control supply voltage, it shall be verified that the circuit-breaker can be closed by the operation of the actuator		N/A



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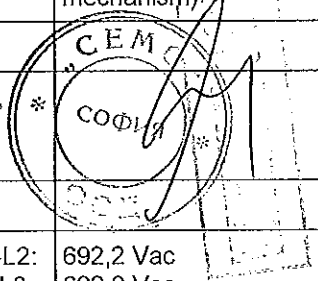
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
iii)	Performance under overvoltage conditions		
	With the circuit-breaker closed and without current in the main circuit, it shall be verified that the undervoltage release will withstand the application of 110% rated control supply voltage for 4 h without impairing its functions		N/A
d)	Shunt releases		
	Shunt releases shall comply with the requirements of 7.2.1.4 of Part 1. For this purpose, the release shall be fitted to a circuit-breaker having the maximum rated current for which the release is suitable		N/A
	It shall be verified that the release will operate to open the circuit-breaker at 70% rated control supply voltage when tested at an ambient temperature of + 55 °C ± 2 °C without current in the main poles of the circuit-breaker		N/A
	In the case of a release having a range of rated control supply voltages, the test voltage shall be 70% of the minimum rated control supply voltage		N/A
8.3.3.3.3	Operational performance capability without current.		
	Type designation or serial number	NM1-125S/4300	
	Sample no:	51#	
	Rated current In (A)	125 A	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated control supply voltage of closing mechanism: Uc (V)	No electric closing mechanism	
	Rated control supply voltage of shunt releases: Uc (V)	No shunt releases	
	Rated control supply voltage undervoltage releases: Uc (V)	No undervoltage releases	
	Ambient temperature 10-40 °C :	20,4 °C	P
	Number of operating cycles per hour	120 cycles per hour	P
	Number of cycles without current (total) (closing mechanism energized at the rated Uc)	7000 cycles	P
	Number of cycles without current (without releases)	7000 cycles	P



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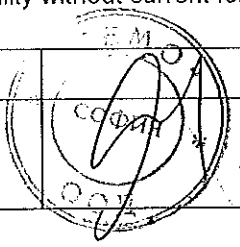


IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Applied voltage: closing mechanism (V)		N/A
	10% of total cycles for circuit-breaker with fitted shunt release: (50% at the beginning- and 50% at the end of the test.) Energized at the rated U <sub>c</sub>		N/A
	Applied voltage: shunt releases (V)		N/A
	10% of total cycles for circuit-breaker with undervoltage releases: (50% at the beginning- and 50% at the end of the test.) Energized at the minimum rated U <sub>c</sub>		N/A
	10 cycles without applied voltage at the undervoltage releases. (Shall not possible to close the circuit-breaker.)		N/A
	Applied voltage: undervoltage releases (V)		N/A
	Electrical components do not exceed the value indicated in tab. 7.		N/A
8.3.3.3.4	Operational performance capability with current.		
	Rated current: I <sub>n</sub> (A)	125A	
	Maximum rated operational voltage: U <sub>e</sub> (V)	690 Vac	
	Conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	P
	Number of operating cycles per hour	120 cycles per hour	P
	Number of cycles with current (total) (closing mechanism energized at the rated U <sub>c</sub> )	1000 cycles (no electric closing mechanism)	P
	Applied voltage: closing mechanism (V)		N/A
	For circuit-breaker fitted with adjustable releases, test shall be made with the overload setting at maximum and short-circuit setting at minimum.		N/A
	Conditions, make/break operations:		P
	- test voltage U/U <sub>e</sub> = 1,0 (V) .....	L1-L2: 692,2 Vac L2-L3: 692,9 Vac L3-L1: 693,3 Vac	P
	- test current I/I <sub>e</sub> = 1,0 (A) .....	L1: 129,6 A L2: 128,7 A L3: 128,7 A	P



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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- power factor/time constant:	0,84	P
	- frequency: (Hz)	50 Hz	P
	- on-time (ms):	607,5 ms	P
	- off-time (s):	29,4 s	P
	Electrical components do not exceed the value indicated in tab. 7.		N/A
8.3.3.3.5	Additional test of operational performance capability without current for withdrawable circuit-breaker.		
	Number of operations cycles : 100		N/A
	After test, the isolating contacts, withdrawable mechanism and interlocks shall be suitable for further service.		N/A
8.3.3.4	Overload performance		
	this test applies to circuit-breaker of rated current up to and including 630 A.		
	Type designation or serial number	NM1-125S/4300	
	Sample no:	51#	
	Rated current In (A)	125 A	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated control supply voltage of closing mechanism: Uc (V)	No electric closing mechanism	
	Rated control supply voltage of shunt releases: Uc (V)	No shunt releases	
	Rated control supply voltage undervoltage releases: Uc (V)	No undervoltage releases	
	Ambient temperature 10-40 °C :	20,9 °C	P
	Number of operating cycles per hour	120 cycles per hour	P
	Maximum rated operational voltage: Ue (V)	690 Vac	P
	Number of operating cycles per hour	120 cycles per hour	P
	Number of cycles with current (total) (closing mechanism energized at the rated Uc)	15 cycles (no electric closing mechanism)	P
	Applied voltage: closing mechanism (V)		N/A

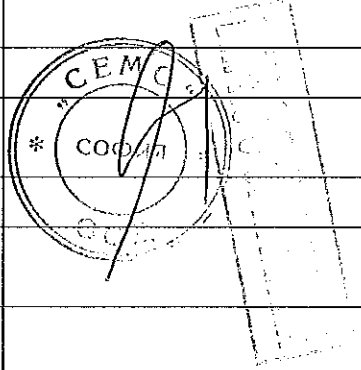


IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	For circuit-breaker fitted with adjustable releases, test shall be made with the overload/short-circuit settings at maximum.		N/A
	Conditions, overload operations:		P
	- test voltage $U/U_e = 1,05$ (V) .....	L1: 733,9 Vac L2: 734,8 Vac L3: 734,5 Vac	P
	- test current AC/DC: $I/I_e = 6,0/2,5$ (A) .....	L1: 754,8 A L2: 756,0 A L3: 757,2 A	P
	- power factor/time constant:	0,47	P
	- Number of cycles manually opened: 9	12 manual operations	P
	- Number of cycles automatically opened by an overload release: 3	3 (at convenient voltage )	P
	- frequency: (Hz)	50 Hz	P
	- on-time max 2s:	602,6 ms	P
8.3.3.5	Verification of dielectric withstand		
	- equal to twice the rated operational voltage with a minimum of 1000 V for 5 seconds	1380 V, 5 s	P
	- no breakdown or flashover	See appended table 6	P
	For circuit-breaker suitable for isolation, the leakage current shall be measured through each pole with the contacts in the open position, at a test voltage of $1,1 U_e$ , and shall not exceed 2 mA.	L1: < 0,1 mA L2: < 0,1 mA L3: < 0,1 mA N: < 0,1 mA	P
8.3.3.6	Verification of temperature-rise		
	- the values of temperature-rise do not exceed those specified in tab. 7.	See appended table 2	P
	Temperature rise of main circuit terminals $\leq 80$ K (K) :	Max: 47,2 K	P
	conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	P
	test current $I_e$ (A) :	125 A	P
8.3.3.7	Verification of overload releases		
	Test current: 1.45 times the value of their current setting at the reference temperature: (A)	181,3 A (1,45 x 1,0I <sub>n</sub> )	P

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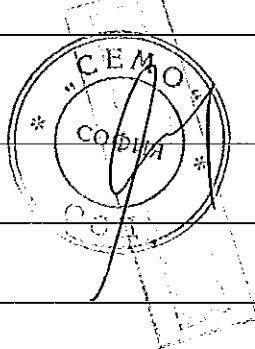
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Conventional tripping time: <1h when In < 63A, <2h when In > 63 A	4 min 26 s	P
8.3.3.8	Verification of undervoltage and shunt releases		
	Circuit-breaker fitted with undervoltage releases. The release shall not operate at 70% of the minimum control supply voltage -		N/A
	and shall operate at 35% of the maximum control supply voltage.		N/A
	Circuit-breaker fitted with shunt releases. The release shall operate at 70% of the minimum rated control supply voltage. Test made at room temperature.		N/A
8.3.3.9	Verification of the main contact position for circuit-breakers for isolation		P
	actuating force for opening (N) .....	51N	—
	test force with blocked main contacts for 10 s (N) :	150 N for 10 s	—
	Dependent power operation		N/A
	Supply voltage of 110% of rated voltage (V).....:		N/A
	Three attempts of 5 s to operate the equipment at intervals of 5 min.		N/A
	Independent power operation		N/A
	Three attempts to operate the equipment by the stored energy.		N/A
	Lock ability of driving mechanism in OFF-position at test force and blocked main contacts .....		N/A
	Position indicator does not show OFF-position after capture of test force at blocked main contacts		P



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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.4	TEST SEQUENCE II (Ics):		
8.3.4.1	Test of rated service short-circuit breaking capacity		
	Test sequence of operation: O – t – CO – t – CO		
	Type designation or serial number	NM1-125S/3300	
	Sample no:	52#	
	Rated current: In (A)	125 A	
	Rated operational voltage: Ue (V)	240 Vac	
	Rated service short-circuit breaking capacity: (kA)	21 kA	
	Rated control supply voltage of closing mechanism: Uc (V)	No electric closing mechanism	
	Rated control supply voltage of shunt release: Uc (V)	No shunt releases	
	For circuit-breaker fitted with adjustable releases, test shall be made with the current and time settings at maximum.		N/A
	closing mechanism energized with 85% at the rated Uc (V)		N/A
	The circuit-breaker is mounted complete on its own support or an equivalent support.		P
	Test made in free air:		P
	Distances of the metallic screen's: (all sides)	Front / Back: 0 mm, Left / Right : 50 mm, Up / Down: 50 mm	P
	The characteristics of the metallic screen:		
	- woven wire mesh		N/A
	- perforated metal		P
	- expanded metal		N/A
	- ratio hole area/total area: 0,45-0,65		P
	- size of hole: <30mm <sup>2</sup>		P
	- finish: bare or conductive plating		P

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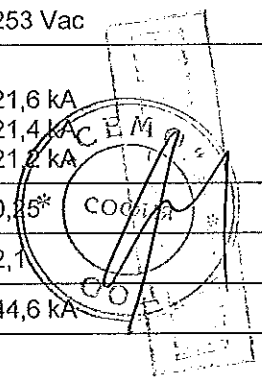
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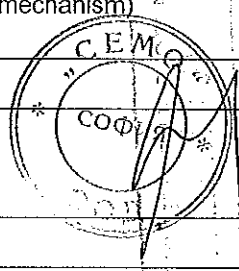
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Test made in specified individual enclosure: Details of these tests, including the dimensions of the enclosure:		N/A
	Fuse "F": copper wire: diameter 0,8 mm, 50 mm long		P
	Circuit is earthed at: (load-star- or supply-star point)	Load-star point	P
	Conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	P
	If terminals unmarked: line connected at: (underside/upside)	LINE and LOAD are marked	P
	Tightening torques: (Nm)	3,5 Nm	P
	Test sequence of operation: O – t – CO – t – CO		P
	- test voltage U/Ue = 1,05 (V)..... L1-L2: ..... L2-L3: ..... L3-L1:	252 Vac 253 Vac 253 Vac	P
	- r.m.s. test current AC/DC: (A) ..... L1: ..... L2: ..... L3:	21,6 kA 21,4 kA 21,2 kA	P
	power factor/time constant :	0,25*	P
	- Factor "n"	2,1	P
	- peak test current (A) :	44,6 kA	P
	Test sequence "O"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	10,2 kA 13,4 kA 9,90 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	282 kA <sup>2</sup> s 624 kA <sup>2</sup> s 218 kA <sup>2</sup> s	P
	Pause, t: (min)	3 min	P
	Test sequence "CO"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	13,7 kA 9,51 kA 10,7 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	675 kA <sup>2</sup> s 201 kA <sup>2</sup> s 323 kA <sup>2</sup> s	P



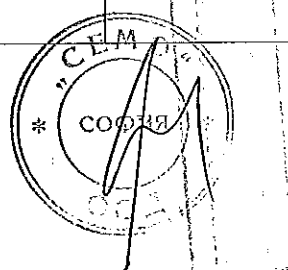
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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Pause, t: (min)	3 min	P
	Test sequence "CO"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	13,2 kA 10,1 kA 9,96 kA	P
	- Joule integral I <sup>2</sup> dt (MA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	626 kA <sup>2</sup> s 237 kA <sup>2</sup> s 269 kA <sup>2</sup> s	P
	Melting of the fusible element	No melting of the fusible element	P
	Holes in the PE-sheet for test sequence "O"	No holes observed	P
	Cracks observed	No cracks observed	P
8.3.4.2	Operational performance capability with current.		
	Rated current: I <sub>n</sub> (A)	125 A	
	Maximum rated operational voltage: U <sub>e</sub> (V)	240 Vac	
	Conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	
	Number of operating cycles per hour	120 cycles per hour	P
	Number (5% of the number given in column 4, tab. 8) of cycles with current (total) (closing mechanism energized at the rated U <sub>c</sub> )	50 cycles (no electric closing mechanism)	P
	Applied voltage: closing mechanism (V)		N/A
	For circuit-breaker fitted with adjustable releases, test shall be made with the overload setting at maximum and short-circuit setting at minimum.		N/A
	Conditions, make/break operations:		
	- test voltage U/U <sub>e</sub> = 1,0 (V) ..... L1-L2: ..... L2-L3: ..... L3-L1:	241,6 Vac 240,9 Vac 241,7 Vac	P
	- test current I/I <sub>e</sub> = 1,0 (A) ..... L1: ..... L2: ..... L3:	130,4 A 129,3 A 130,0 A	P
	- power factor/time constant:	0,77	P
	- frequency: (Hz)	50 Hz	P
	- on-time (ms):	575,5 ms	P

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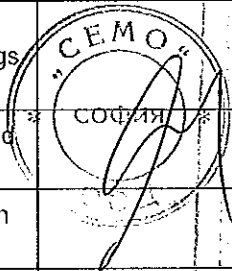
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- off-time (s):	29,4 s	P
8.3.4.3	Verification of dielectric withstand		
	- equal to twice the rated operational voltage with a minimum of 1000 V	1000 V, 5 s	P
	- no breakdown or flashover	See appended table 7	P
	- the leaking current for circuit-breaker suitable for isolation: (<2mA / 1.1 Ue)	L1: < 0,1 mA L2: < 0,1 mA L3: < 0,1 mA	P
8.3.4.4	Verification of temperature-rise		
	- the values of temperature-rise do not exceed those specified in tab. 7.	See appended table 3	P
	Temperature rise of main circuit terminals. ≤80 K (K) :	Max: 50,6 K	P
	conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	P
	test current I <sub>e</sub> (A) :	125 A	P
8.3.4.5	Verification of overload releases		
	Test current: 1.45 times the value of their current setting at the reference temperature: (A)	181,3 A (1,45 x 1,0I <sub>n</sub> )	P
	Conventional tripping time: <1h when I <sub>n</sub> < 63A, <2h when I <sub>n</sub> > 63 A	5 min 16 s	P



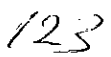




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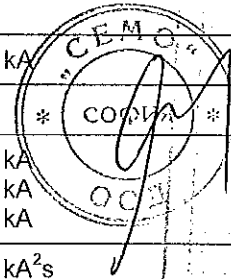
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict

8.3.4	TEST SEQUENCE II (Ics):		
8.3.4.1	Test of rated service short-circuit breaking capacity		
	Test sequence of operation: O – t – CO – t – CO		
	Type designation or serial number	NM1-125R/3300	
	Sample no:	53#	
	Rated current: In (A)	125 A	
	Rated operational voltage: Ue (V)	690 Vac	
	Rated service short-circuit breaking capacity: (kA)	1,5 kA	
	Rated control supply voltage of closing mechanism: Uc (V)	No electric closing mechanism	
	Rated control supply voltage of shunt release: Uc (V)	No shunt releases	
	For circuit-breaker fitted with adjustable releases, test shall be made with the current and time settings at maximum.		N/A
	closing mechanism energized with 85% at the rated Uc: (V)		N/A
	The circuit-breaker is mounted complete on its own support or an equivalent support.		P
	Test made in free air:		P
	Distances of the metallic screen's: (all sides)	Front / Back: 0 mm, Left / Right : 50 mm, Up / Down: 50 mm	P
	The characteristics of the metallic screen:		
	- woven wire mesh		N/A
	- perforated metal		P
	- expanded metal		N/A
	- ratio hole area/total area: 0,45-0,65		P
	- size of hole: <30mm <sup>2</sup>		P
	- finish: bare or conductive plating		P

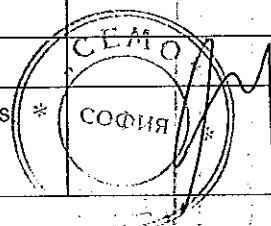


IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Test made in specified individual enclosure: Details of these tests, including the dimensions of the enclosure:		N/A
	Fuse "F": copper wire: diameter 0,8 mm, 50 mm long		P
	Circuit is earthed at: (load-star- or supply-star point)	Load-star point	P
	Conductor cross-sectional area (mm <sup>2</sup> ):	50 mm <sup>2</sup>	P
	If terminals unmarked: line connected at: (underside/upside)	LINE and LOAD are marked	P
	Tightening torques: (Nm)	3,5 Nm	P
	Test sequence of operation: O – t – CO – t – CO		P
	- test voltage U/U <sub>e</sub> = 1,05 (V)..... L1-L2: ..... L2-L3: ..... L3-L1:	733,7 Vac 734,9 Vac 734,9 Vac	P
	- r.m.s. test current AC/DC: (A) ..... L1: ..... L2: ..... L3:	1,54 kA 1,52 kA 1,55 kA	P
	power factor/time constant :	0,90	P
	- Factor "n"	1,41	P
	- peak test current (A) :	2,23 kA	P
	Test sequence "O"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	2,11 kA 2,02 kA 2,25 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	23,4 kA <sup>2</sup> s 25,1 kA <sup>2</sup> s 26,6 kA <sup>2</sup> s	P
	Pause, t: (min)	3 min	P
	Test sequence "CO"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	1,97 kA 2,01 kA 1,99 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	17,9 kA <sup>2</sup> s 25,4 kA <sup>2</sup> s 23,2 kA <sup>2</sup> s	P

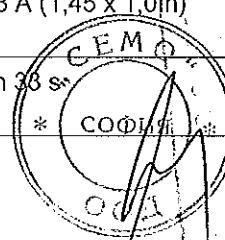


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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Pause, t: (min)	3 min	P
	Test sequence "CO"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	2,10 kA 2,08 kA 1,91 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	18,3 kA <sup>2</sup> s 25,4 kA <sup>2</sup> s 24,8 kA <sup>2</sup> s	P
	Melting of the fusible element	No melting of the fusible element	P
	Holes in the PE-sheet for test sequence "O"	No holes observed	P
	Cracks observed	No cracks observed	P
8.3.4.2	Operational performance capability with current.		
	Rated current: I <sub>n</sub> (A)	125 A	
	Maximum rated operational voltage: U <sub>e</sub> (V)	690 Vac	
	Conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	
	Number of operating cycles per hour	120 cycles per hour	P
	Number (5% of the number given in column 4, tab. 8) of cycles with current (total) (closing mechanism energized at the rated U <sub>c</sub> )	50 cycles (no electric closing mechanism)	P
	Applied voltage: closing mechanism (V)		N/A
	For circuit-breaker fitted with adjustable releases test shall be made with the overload setting at maximum and short-circuit setting at minimum.		N/A
	Conditions, make/break operations:		
	- test voltage U/U <sub>e</sub> = 1,0 (V) ..... L1-L2: ..... L2-L3: ..... L3-L1:	692,2 Vac 692,9 Vac 693,3 Vac	P
	- test current I/I <sub>e</sub> = 1,0 (A) ..... L1: ..... L2: ..... L3:	129,6 A 128,7 A 128,7 A	P
	- power factor/time constant:	0,84	P
	- frequency: (Hz)	50 Hz	P
	- on-time (ms):	632,0 ms	P



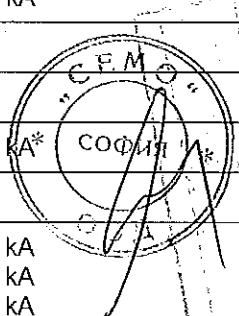
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- off-time (s):	29,4 s	P
8.3.4.3	Verification of dielectric withstand		
	- equal to twice the rated operational voltage with a minimum of 1000 V	1380 V, 5 s	P
	- no breakdown or flashover	See appended table 8	P
	- the leaking current for circuit-breaker suitable for isolation: (<2mA / 1.1 Ue)	L1: < 0,1 mA L2: < 0,1 mA L3: < 0,1 mA	P
8.3.4.4	Verification of temperature-rise		
	- the values of temperature-rise do not exceed those specified in tab. 7.	See appended table 4	P
	Temperature rise of main circuit terminals. ≤80 K (K) :	Max: 56,8 K	P
	conductor cross-sectional area (mm <sup>2</sup> ) :	50 mm <sup>2</sup>	P
	test current I <sub>e</sub> (A) :	125 A	P
8.3.4.5	Verification of overload releases		
	Test current: 1.45 times the value of their current setting at the reference temperature: (A)	181,3 A (1,45 x 1,0I <sub>n</sub> )	P
	Conventional tripping time: <1h when I <sub>n</sub> < 63A, <2h when I <sub>n</sub> > 63 A	2 min 33 s	P



IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.4	TEST SEQUENCE II (Ics):		
8.3.4.1	Test of rated service short-circuit breaking capacity		
	Test sequence of operation: O – t – CO – t – CO		
	Type designation or serial number	NM1-125S/3300	
	Sample no:	54#	
	Rated current: In (A)	16 A	
	Rated operational voltage: Ue (V)	240 Vac	
	Rated service short-circuit breaking capacity: (kA)	21 kA	
	Rated control supply voltage of closing mechanism: Uc (V)	No electric closing mechanism	
	Rated control supply voltage of shunt release: Uc (V)	No shunt releases	
	For circuit-breaker fitted with adjustable releases, test shall be made with the current and time settings at maximum.		N/A
	closing mechanism energized with 85% at the rated Uc: (V)		N/A
	The circuit-breaker is mounted complete on its own support or an equivalent support.		P
	Test made in free air:		P
	Distances of the metallic screen's: (all sides)	Front / Back: 0 mm, Left / Right : 50 mm, Up / Down: 50 mm	P
	The characteristics of the metallic screen:		
	- woven wire mesh		N/A
	- perforated metal		P
	- expanded metal		N/A
	- ratio hole area/total area: 0,45-0,65		P
	- size of hole: <math><30\text{mm}^2</math>		P
	- finish: bare or conductive plating		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test made in specified individual enclosure: Details of these tests, including the dimensions of the enclosure:		N/A
	Fuse "F": copper wire: diameter 0,8 mm, 50 mm long		P
	Circuit is earthed at: (load-star- or supply-star point)	Load-star point	P
	Conductor cross-sectional area (mm <sup>2</sup> ) :	2,5 mm <sup>2</sup>	P
	If terminals unmarked: line connected at: (underside/upside)	LINE and LOAD are marked	P
	Tightening torques: (Nm)	3,5 Nm	P
	Test sequence of operation: O – t – CO – t – CO		P
	- test voltage U/U <sub>e</sub> = 1,05 (V)..... L1-L2: ..... L2-L3: ..... L3-L1:	252 Vac 253 Vac 253 Vac	P
	- r.m.s. test current AC/DC: (A) ..... L1: ..... L2: ..... L3:	21,6 kA 21,4 kA 21,2 kA	P
	power factor/time constant :	0,25	P
	- Factor "n"	2,1	P
	- peak test current (A) :	44,6 kA*	P
	Test sequence "O"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	3,04 kA 7,31 kA 5,93 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	20,0 kA <sup>2</sup> s 132 kA <sup>2</sup> s 77,8 kA <sup>2</sup> s	P
	Pause, t: (min)	3 min	P
	Test sequence "CO"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	6,93 kA 2,13 kA 6,38 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	133 kA <sup>2</sup> s 5,58 kA <sup>2</sup> s 100 kA <sup>2</sup> s	P



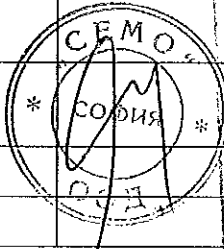
Handwritten signatures and the number 128.

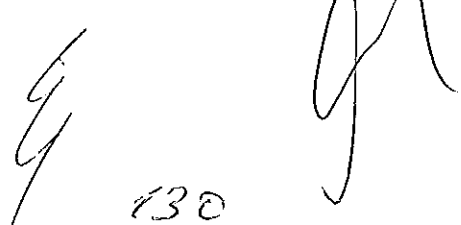


IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Pause, t: (min)	3 min	P
	Test sequence "CO"		
	- max. let-through current: (kA <sub>peak</sub> ) ..... L1: ..... L2: ..... L3:	2,23 kA 6,47 kA 7,03 kA	P
	- Joule integral I <sup>2</sup> dt (kA <sup>2</sup> s) ..... L1: ..... L2: ..... L3:	8,70 kA <sup>2</sup> s 111 kA <sup>2</sup> s 130 kA <sup>2</sup> s	P
	Melting of the fusible element	No melting of the fusible element	P
	Holes in the PE-sheet for test sequence "O"	No holes observed	P
	Cracks observed	No cracks observed	P
8.3.4.2	Operational performance capability with current.		
	Rated current: I <sub>n</sub> (A)		
	Maximum rated operational voltage: U <sub>e</sub> (V)		
	Conductor cross-sectional area (mm <sup>2</sup> ) :		
	Number of operating cycles per hour		N/A
	Number (5% of the number given in column 4, tab. 8) of cycles with current (total) (closing mechanism energized at the rated U <sub>c</sub> )		N/A
	Applied voltage: closing mechanism (V)		N/A
	For circuit-breaker fitted with adjustable releases, test shall be made with the overload setting at maximum and short-circuit setting at minimum.		N/A
	Conditions, make/break operations:		
	- test voltage U/U <sub>e</sub> = 1,0 (V) ..... L1-L2: ..... L2-L3: ..... L3-L1:		N/A
	- test current I/I <sub>e</sub> = 1,0 (A) ..... L1: ..... L2: ..... L3:		N/A
	- power factor/time constant:		N/A
	- frequency: (Hz)		N/A
	- on-time (ms):		N/A

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IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- off-time (s):		N/A
8.3.4.3	Verification of dielectric withstand		
	- equal to twice the rated operational voltage with a minimum of 1000 V	1000 V, 5 s	P
	- no breakdown or flashover	See appended table 7	P
	- the leaking current for circuit-breaker suitable for isolation: (<2mA / 1.1 Ue)	L1: < 0,1 mA L2: < 0,1 mA L3: < 0,1 mA	P
8.3.4.4	Verification of temperature-rise		
	- the values of temperature-rise do not exceed those specified in tab. 7.		N/A
	Temperature rise of main circuit terminals. ≤80 K (K):		N/A
	conductor cross-sectional area (mm <sup>2</sup> ):		N/A
	test current Ie (A):		N/A
8.3.4.5	Verification of overload releases		
	Test current: 1.45 times the value of their current setting at the reference temperature: (A)	23,2 A (1,45 x 1,0In)	P
	Conventional tripping time: <1h when In < 63A, <2h when In > 63 A	19 min 16 s	P

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