Наименование на материала: Вертикален предпазител-разединител НН 400 А, с триполюсно управление

Съкратено наименование на материала: ВПР НН, 400 А, 3-полюсно управление

Област: Н – Трансформаторни постове

Категория: 16 - Предпазители, основи за предпазители и предпазител-разединители

Мерна единица: Брой

Аварийни запаси: Да

Характеристика на материала:

Триполюсен предпазител-разединител с вертикална конструкция, с обявен работен ток 400 А, с общо управление на полюсите, за директен монтаж върху събирателни шини с междуосово разстояние 185 mm, за високомощни предпазители със стопяема вложка НН, система А (NH система), с характеристика gG, размер 2, съответстващи на БДС EN 60269-1:2007 и БДС HD 60269-2:2007.

Използване:

Вертикалният предпазител-разединител е предназначен за включване, изключване, разединяване и защита на кабелни линии НН.

Съответствие на предлаганото изпълнение с нормативно-техническите документи:

Триполюсният вертикален предпазител-разединител за 400 А, с общо управление на полюсите трябва да отговаря на приложимите български и международни 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
- БДС EN 60947-3:2002 „Комутационни апарати за ниско напрежение. Част 3: Товарови прекъсвачи, разединители, товаров прекъсвач-разединители и апарати, комбинирани с предпазители (IEC 60947-3:1999 + поправка юли 1999)"

и

да бъде оценен 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. .....

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	ZLBM, ABB, България: приложение 9.6.1
2.	Техническо описание и чертежи с нанесени на тях размери	приложение 9.6.2
3.	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 9.6.3
4.	Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания по т. 3 – заверено копие	приложение 9.6.4

№ по ред	Документ	Приложение № или текст
5.	ЕО декларация за съответствие	приложение 9.6.5
6.	Декларация за съответствие на предлаганото изпълнение с изискванията на техническата спецификация на този стандарт за материал, вкл. на параграфи „Характеристика на материала" и „Съответствие на предложеното изпълнение с нормативно-техническите документи" по-горе	приложение 9.6.6
7.	Инструкции за транспортиране, складиране, монтиране, поддържане и експлоатация	приложение 9.6.7
8.	Описание на потенциалната заплаха за увеличаване опасността и рисковете от замърсяване на околната среда и класификация на отпадъците съгласно Наредба №3/2004 г. за класификация на отпадъците, издадена от министъра на околната среда и водите и министъра на здравеопазването, обн. ДВ, бр. 44 от 25.05.2004 г.	приложение 9.6.8
9.	Декларация за възможността за рециклиране на използваните материали или за начина на ликвидацията им	приложение 9.6.9

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.)

Технически данни:

1. Характеристики на работната среда

№ по ред	Наименование	Стойност
1.1	Място на монтиране	На закрито
1.2	Максимална температура на въздуха в околната среда	+ 40°C
1.3	Минимална температура на въздуха в околната среда	Минус 5°C
1.4	Максимална средна температура на въздуха в околната среда за период от 24 ч.	+ 35°C
1.5	Относителна влажност (при 20°C)	До 90 %
1.6	Степен на замърсяване	3
1.7	Надморска височина	До 2000 m

2. Параметри на електроразпределителната мрежата НН

№ по ред	Наименование	Стойност
2.1	Номинално напрежение	400 / 230 V
2.2	Максимално напрежение	440 / 253 V
2.3	Номинална честота	50 Hz
2.4	Електроразпределителна мрежа	4 проводна мрежа (L_1, L_2, L_3, PEN)
2.5	Схема на електроразпределителната мрежа	TN-C

3. Технически параметри и други данни

№ по ред	Технически характеристики	Изискване	Гарантирано предложение
3.1	Обявено работно напрежение, U_e	min 690 (500) V AC	690 V AC
3.2	Брой на полюсите	3	3
3.3	Обявена честота	50 Hz	50 / 60 Hz
3.4	Категория по пренапрежение съгласно БДС EN 60664-1:2007	IV	IV
3.5	Обявено издържано импулсно напрежение, U_{imp}	8 kV	8 kV
3.6	Обявено напрежение на изолацията, U_i AC	min 800 V	1000 V
3.7	Обявен работен ток, I_e	400 A	400 A
3.8	Термичен ток със стопяема вложка, I_{th}	400 A	400 A
3.9	Условен ток на късо съединение (ефективна стойност) при 400 V AC	min 50 kA	50 kA
3.10	Размер на стопяемите вложки (съгласно серията БДС EN 60269)	2	2
3.11	Максимален обявен ток на стопяемите вложки, I_n	400 A	400 A
3.12	Категория на приложение (при 400 V AC)	AC 22 B или по висока	AC 23 B
3.13	Механична износоустойчивост, брой на комутационните цикли	min 800	800
3.14	Електрическа износоустойчивост, брой на комутационните цикли	min 200	200
3.15	Управление	Триполюсно (едновременно включване и изключване на трите полюса)	да
3.16	Основни размери:	-	-
3.16a	широчина	max 100 mm	99 mm
3.16b	височина (измерена от края на клемните съединения)	680 mm - информативно	662 mm
3.17	Разстояние между осите на събирателните шини	185 mm	185 mm
3.18	Присъединяване към събирателните шини	Клеми за свързване без необходимост от пробиване на шините	да
3.19	Степен на защита срещу проникване на твърди тела и вода във вътрешността и допир до части под напрежение от лицевата страна съгласно БДС EN 60529+A1:2004 или еквивалентно.	min IP20	IP20

№ по ред	Технически характеристики	Изискване	Гарантирано предложение
3.20	Клемови съединения за токопроводимите жила на присъединяваните кабелни линии	Вертикалните предпазител-разединители трябва да бъдат съоръжени с V-съединителна арматура за свързване на токопроводими кабелни жила в диапазона наи малко от 35 mm^2 ге до 185mm^2 sm.	да
3.21	Маркировка	Вертикалните предпазител-разединители трябва да бъдат маркирани с информацията съгласно т. 5.2 от БДС EN 60947-3:2002 или еквивалентно и инициалите „CE".	Да, Вертикалните предпазител-разединители трябва да бъдат маркирани с информацията съгласно т. 5.2 от БДС EN 60947-3:2002
3.22	Тегло, kg	Да се посочи	4.8 кг

Метикс
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e-mail:sales@metix.bg

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ПРИЛОЖЕНИЕ 9.6.1

Точно означение на типа, производителя и страната на производство (произход) и последно издание на каталога на производителя

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ / НН / "

РЕФ. № PPD 15-101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД
БЪЛГАРИЯ
ПЕТРИЧ

Catalogue | March 2015

InLine II - ZLBM/ZHBM

Fuse Switch Disconnector

ВЯРНО С ОРИГИНАЛА

Power and productivity
for a better world™

Contents

Introduction
Fuse protection

1

Fuse protection - Easy and reliable

The fuse is a superior short circuit protection element regarding the maximum allowed cut-off current (peak let through current) and energy value.
This is more important the higher the voltage and prospective fault levels are. The InLine fuse switch disconnector fulfils the highest requirements for modern switch fuses with a total safety concept. The fuse switches are tested according to the EN/IEC 60947-3 standard with more stringent requirements for isolation, making, performance and safety.

The melting curves and current limiting diagrams for NH fuse links are given in the EN/IEC 60269-2 standard. The standardised fuse characteristics and high degree of current limitation ensure that there is a simple and effective co-ordination with fuse links and other devices.

Fuse links utilise a simple procedure for selecting the right fuse type for your installation, without complicated calculations or calculation tools. Fuses prevent "blackouts". Only the fuse nearest a fault trips without upstream fuses (feeders or mins) being affected. Fuses thus provide selective coordination.

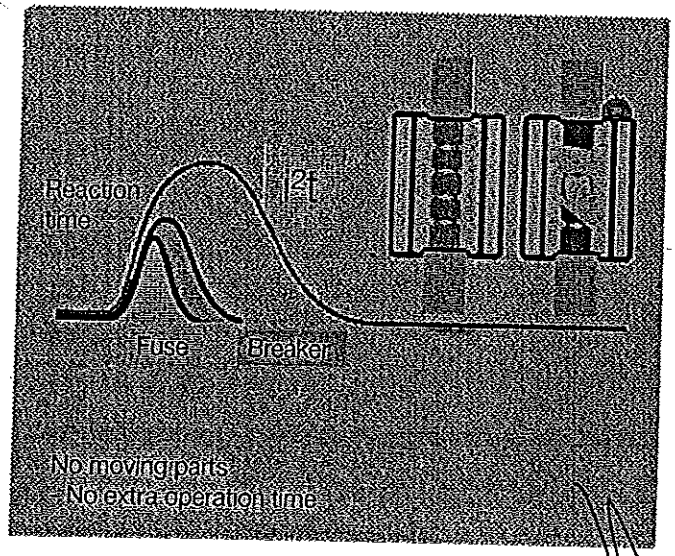
When more power is needed in an installation, more feeders can be added without changing the present structure or any new selectivity calculations. Fuse links will assure selectivity in the installation by 1,6:1 difference in the rated current.

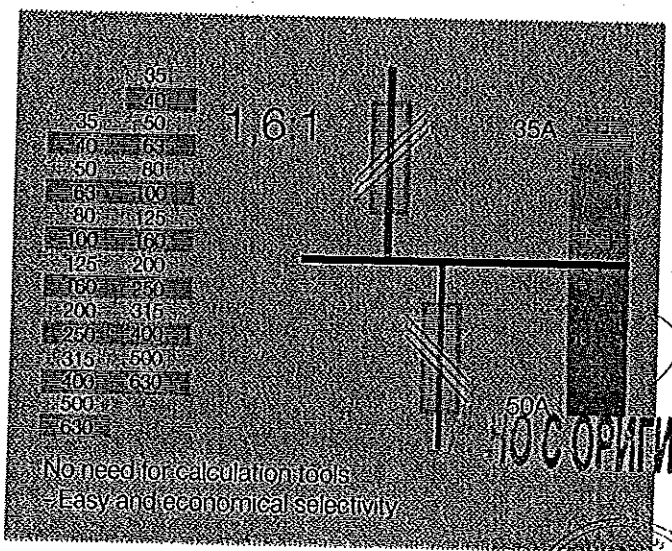
Economical installation

Lifetime costs of fuse systems are low. Fuse links which can withstand a high fault level and a fault current, are available at economical prices.
After fuse operation, only the fuse link has to be changed. Because the fuse links can be rapidly and easily replaced, plant down time and maintenance are substantially reduced with a fuse link system.

Because the fusing elements operate in a cylinder, they are not affected by their surroundings. Thus their protecting characteristics remain stable year after year. The dynamic stress on the network and its equipment is dependent of the let through energy (i^2t) at a short circuit. The fuse link provides the best protection compared to other solutions, at high short circuit currents.
As the fuse link body is filled with quartz sand, there will be no emission of gases or arcs when a short circuit occurs. This again leads to less stress on the network and a higher degree of personal safety.

- Economical installation
- Easy and economical selectivity
- No need for calculation tools
- No need to change the present structure when power is needed
- No moving parts
- No extra operation time
- No arc space
- No emission of gases at short circuits



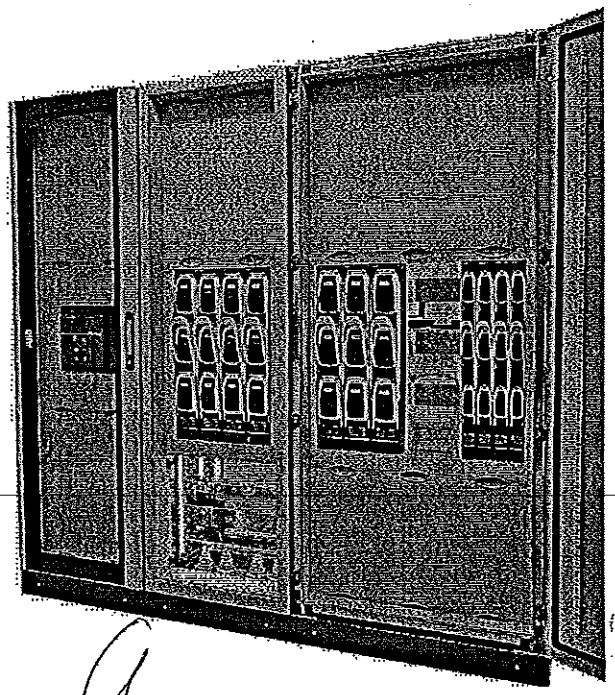


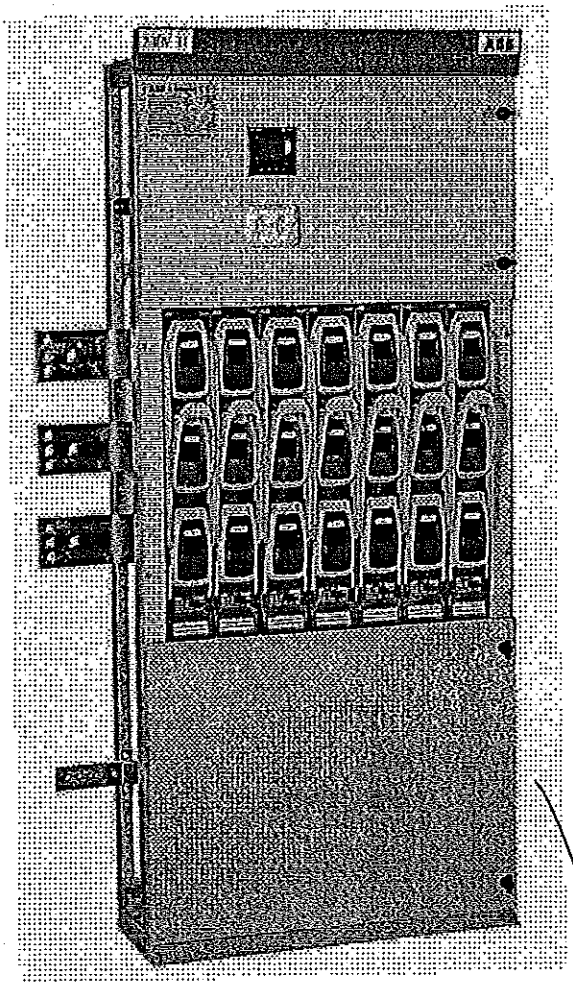
Introduction
General

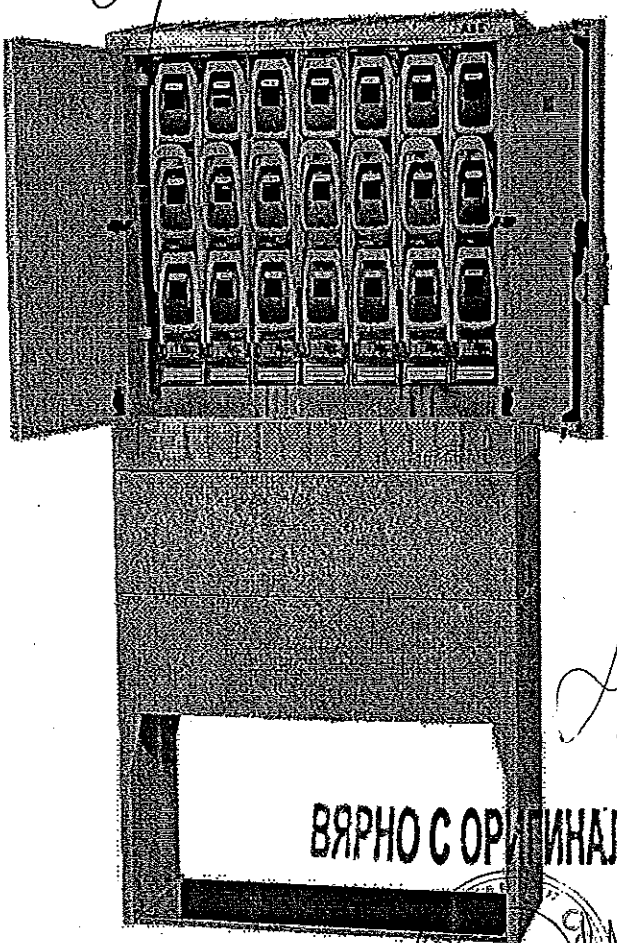
Designed for the future

Family presentation
InLine is the new generation of vertical fuse switch disconnectors, fuse rails and disconnectors from ABB.
ABB has a long tradition in producing these types of devices, and the first generation was introduced already in 1967.
The new InLine family consists of single pole and triple pole operated fuse switch disconnectors.

Areas of applications
- Cable distribution cabinets (CDC)
- Low voltage distribution panel in compact secondary substations (CSS)
- Distribution boards for industry, housing and office buildings
- Installations







Introduction
General

1

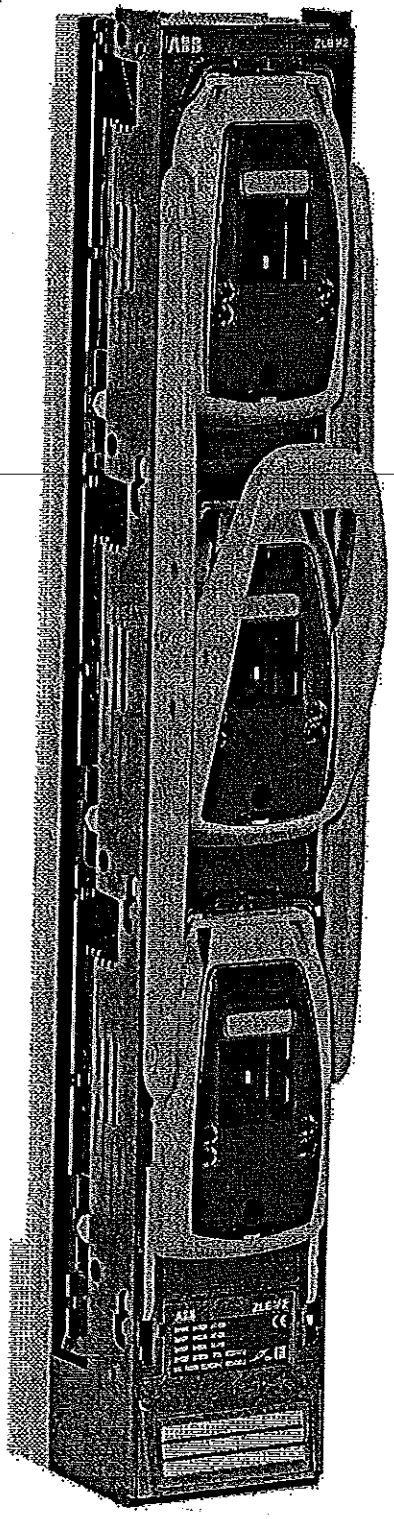


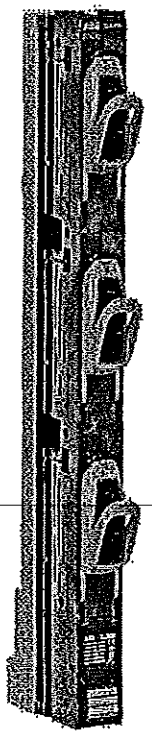
ABB is proud to introduce the latest technology of Fuse Switch Disconnectors to ensure the best stability and highest safety in the power distribution network. The new generation InLine II offers the highest level of personal safety during operation and service.

Advantages:
- High level of personal safety by:
  - Safe and reliable operaion ON/OFF
  - Safe and easy replacement of the NH fuse links
- Universal terminal bolts offering standing bolt or fixed nut for high flexibility of cable connections
- Variants with integrated V-clamps
- Available in two alternative depths: ZLBM and ZHBM
  ZLBM - version will save space in Cable Distribution Cabinets by offering reduced depth.
  ZHBM - version +32,5mm for easy integration of current transformers at the rear side. Identical dimensions to the main actors in the market.
- Variants with non corrosive steel materials (stainless steel)
- Designed for intelligent communication to support a high level of stability in the electrical distribution network

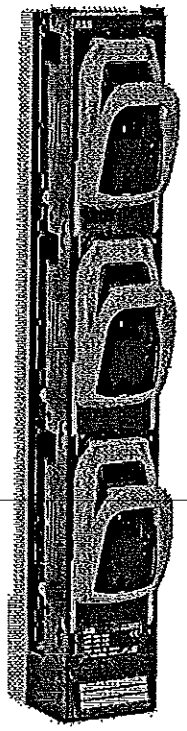
Properties:
- Available as 160A, 250A, 400A and 630A types in combination with NH/DIN HRC Fuse Links acc. to EN/IEC 60269
- Type tested in accordance to EN/IEC 60947-3
- 1 - pole and 3 - pole variants
- For vertical and horizontal installations
- Designed for 185mm busbar distance
- IP30 degree of protection from the front
  - Padlocking in open and closed position at the 3 - pole version
  - Padlocking in closed position at the 1 - pole version
- Park position with possible padlocking at the 1 - pole type
- Sealing solutions
- Wide range of accessories and cable terminal connections
- Compatible dimensions to equivalent products in the market

Apparatus
Variants size NH00-3 / 160-630A

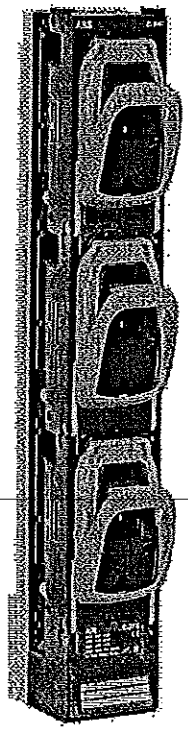
1-pole operated



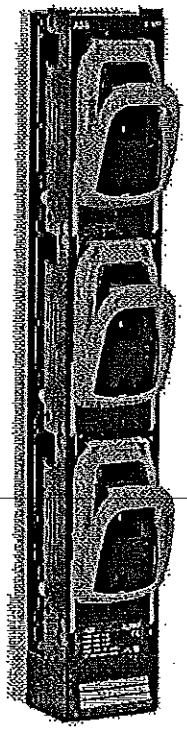
ZLBM 00
160A



ZLBM 1
250A

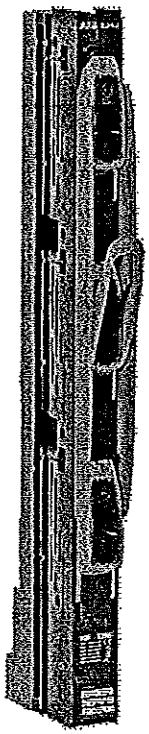


ZLBM 2
400A

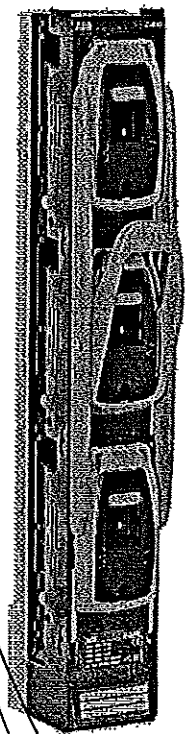


ZLBM 3
630A

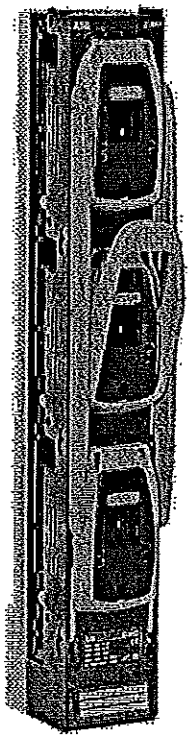
3-pole operated



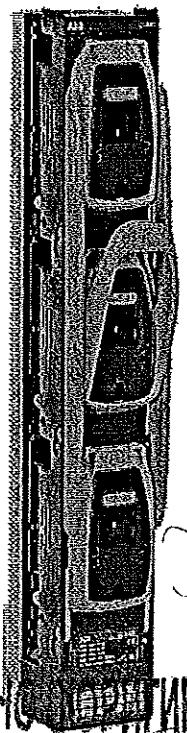
ZLBM 00
160A



ZLBM 1
250A



ZLBM 2
400A

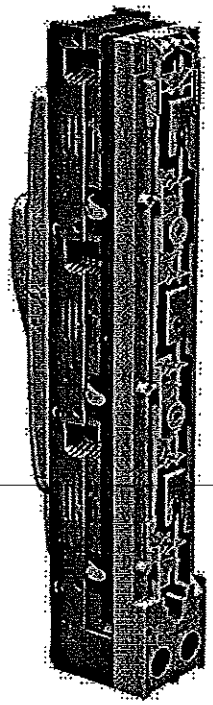


ZLBM 3
630A

Apparatus
Two alternative depths ZLBM - ZHBM

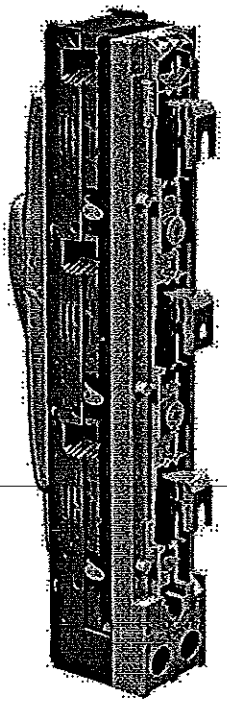
2

ZLBM

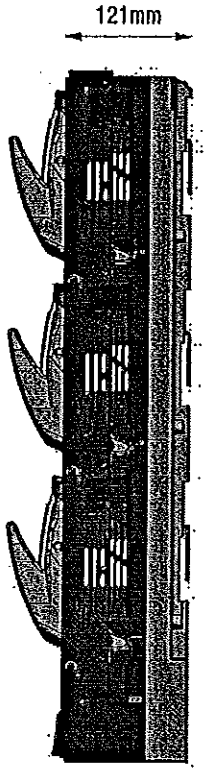


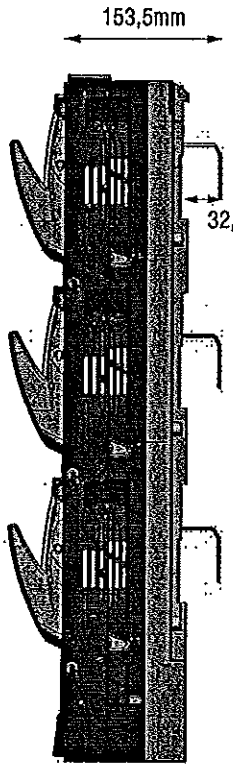
ZLBM with reduced depth.

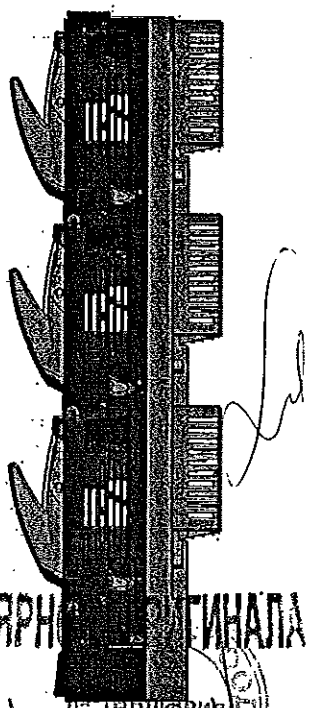
ZHBM



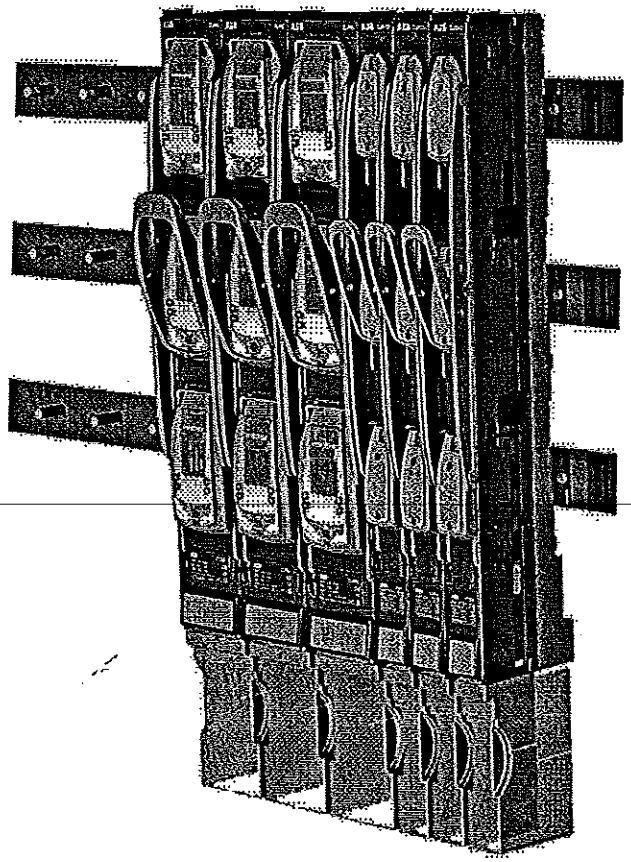
ZHBM depth, +32,5mm, for integration of current transformers at the rear side. The ZHBM has compatible dimensions to equivalent products in the market.



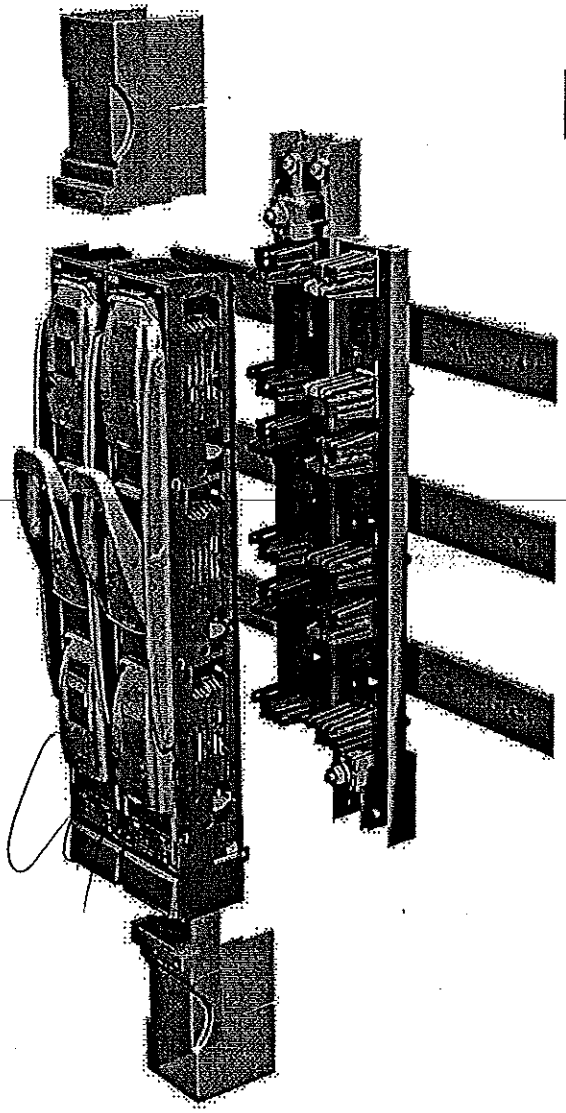




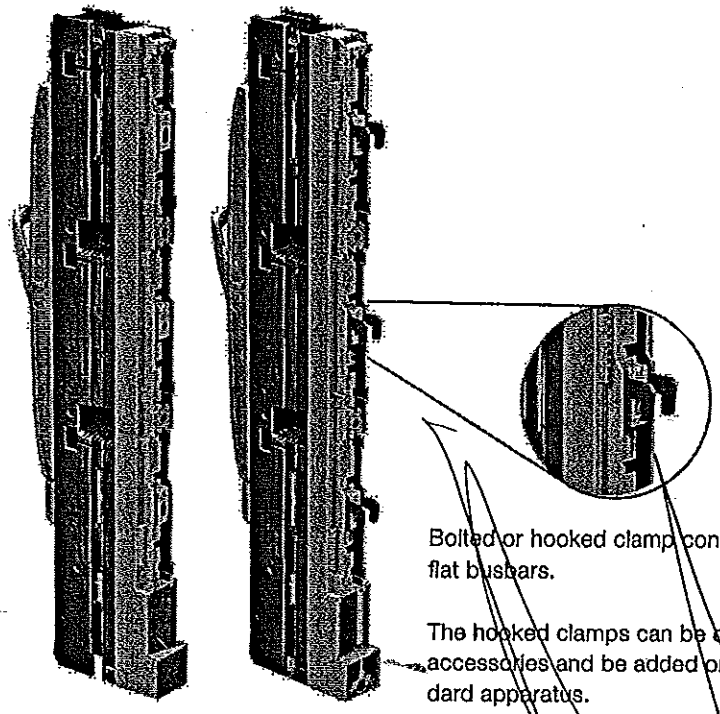
Apparatus
Installation



Installation at busbars with 185mm centre distance between the phases



Symmetric front position independent of the cable terminations are UP or DOWN



Bolted or hooked clamp connection to the flat busbars.

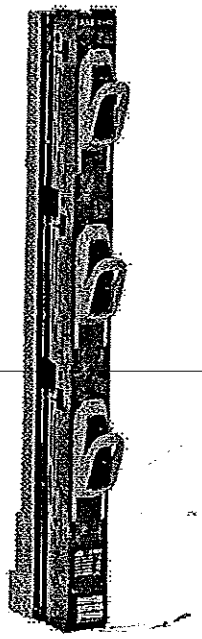
The hooked clamps can be ordered as accessories and be added on the standard apparatus.

Apparatus
Operation

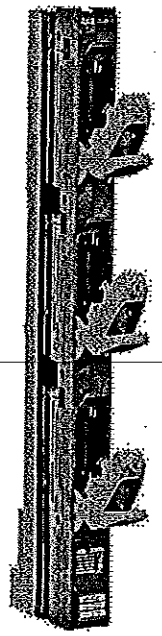
ZLBM - ZHBM 1-pole

2

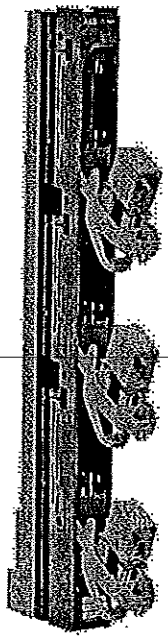
ON - Closed position



OFF - Open position

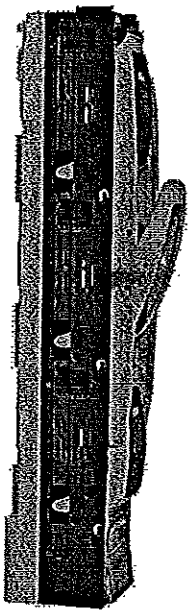


Replacement of fuses position

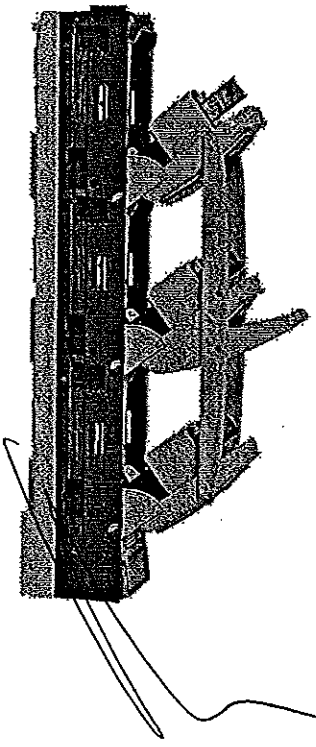


ZLBM - ZHBM 3-pole

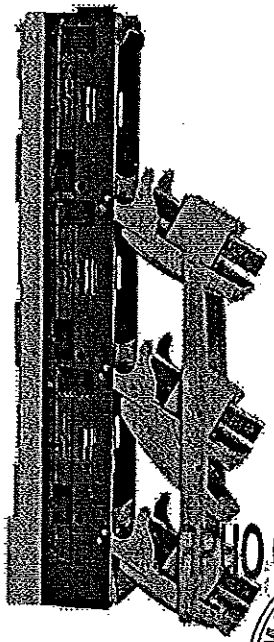
ON - Closed position



OFF - Open position



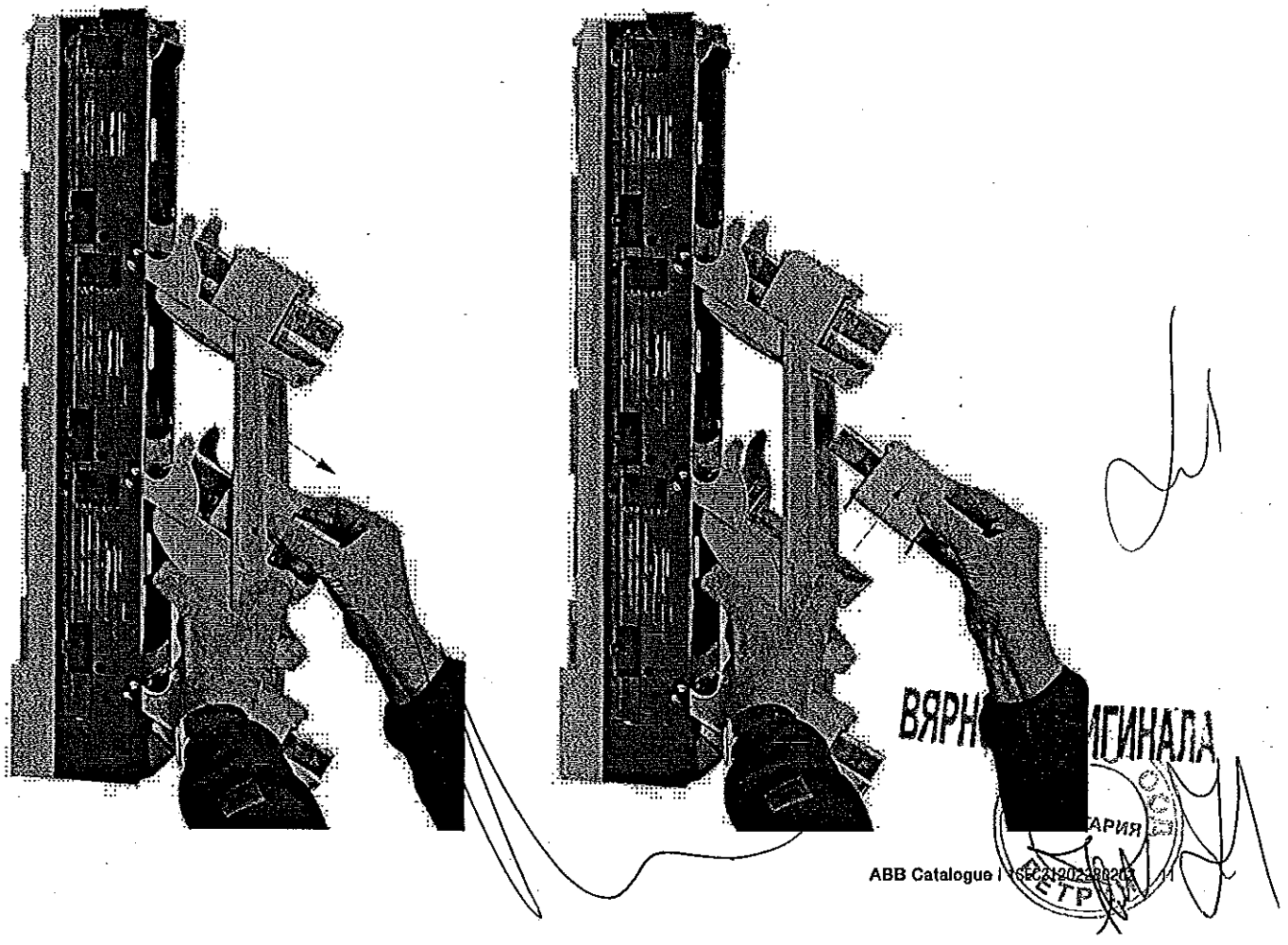
Replacement of fuses position



Apparatus
Replacement of the NH Fuse links

Safe and easy replacement of the NH Fuse links by using the integrated yellow release button

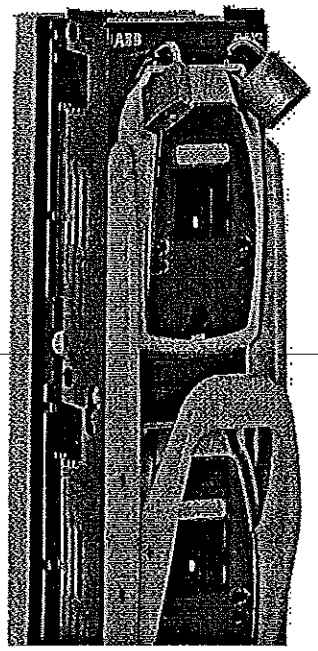
Release button

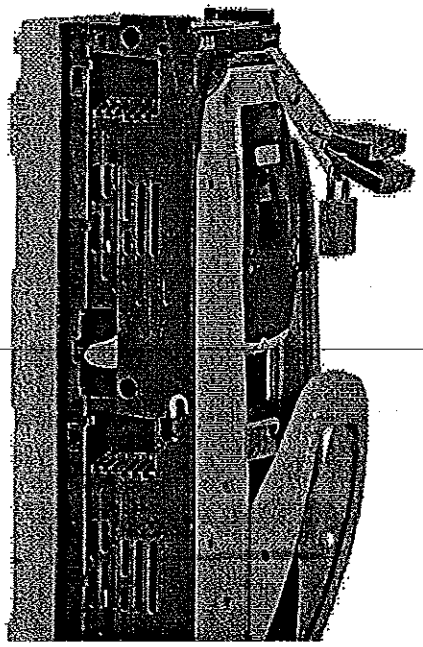


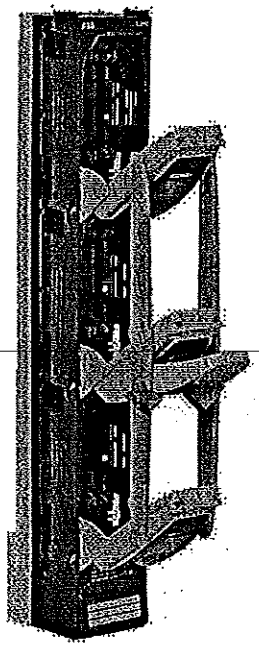
Apparatus
Padlocking and sealing

Each front cover can be padlocked with up to 2 padlocks pr phase, or up to 3 padlocks pr phase by using the padlock hasp. The ZLBM/ZHBM 3–pole, can also be padlocked with up to 2 padlocks in open position. Sealing can be done in the same way as done with the padlocks.

2

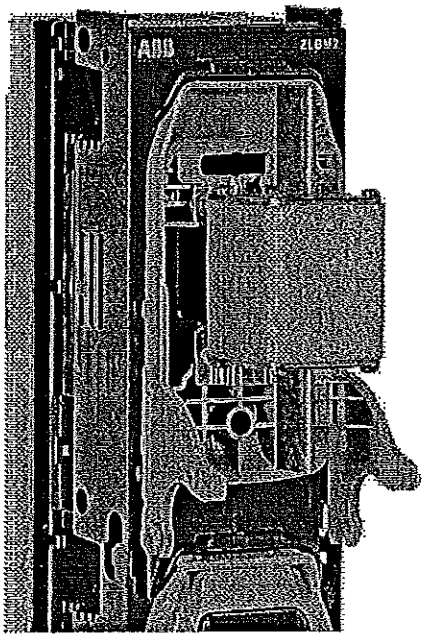


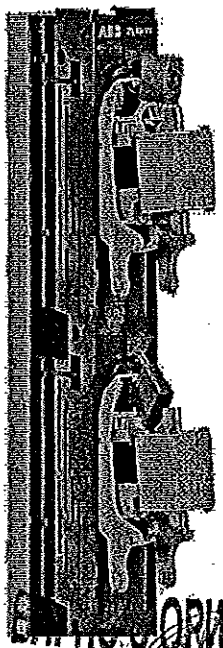




Park position
The front covers of the ZLBM/ZHBM 1-pole variants can be placed in park position with the possibility to be padlocked.

The padlock hasp can also be used in this position when up to 3 padlocks pr phase is requested.





Accessories
Electronic Fuse Monitoring (EFM)

Electronic Fuse Monitoring (EFM)
The ZLBM/ZHBM electronic fuse monitoring (EFM) gives an alarm if any fault conditions i.e. if 1, 2, and/or 3 fuses are blown.

An internal output relay (1NC + 1NO) will ensure a signal for a remote fuse blown alarm.

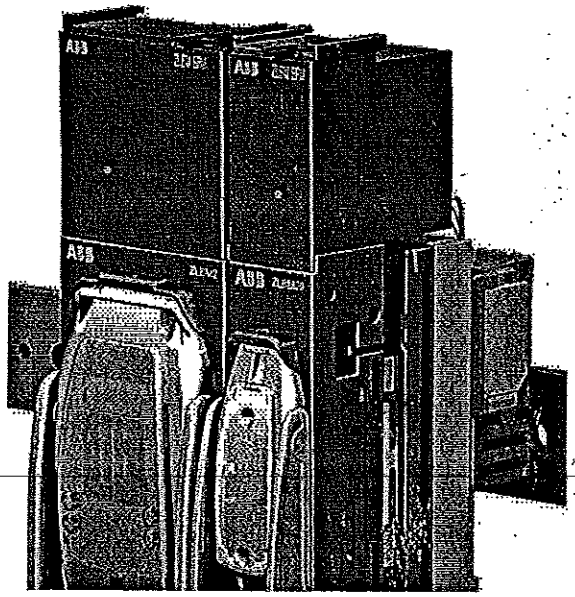
The EFM unit is self supplied, which means no additional power supply is required.

The EFM unit can be completely disconnected from the live fuse contacts by pulling the unit out from the EFM house. This is an advantage when doing a dielectric insulation test of the whole installation in a switchboard.

The green LED in the front panel indicates all fuses are OK. The red LED will turn on in the case of one or more fuses are blown.

The EFM will automatically be reset after the blown fuse has been replaced and the ZLBM/ZHBM is switched into ON position again.

NOTE: The EFM require voltage from the busbar side to be active.
EFM is expected available beginning of 2015



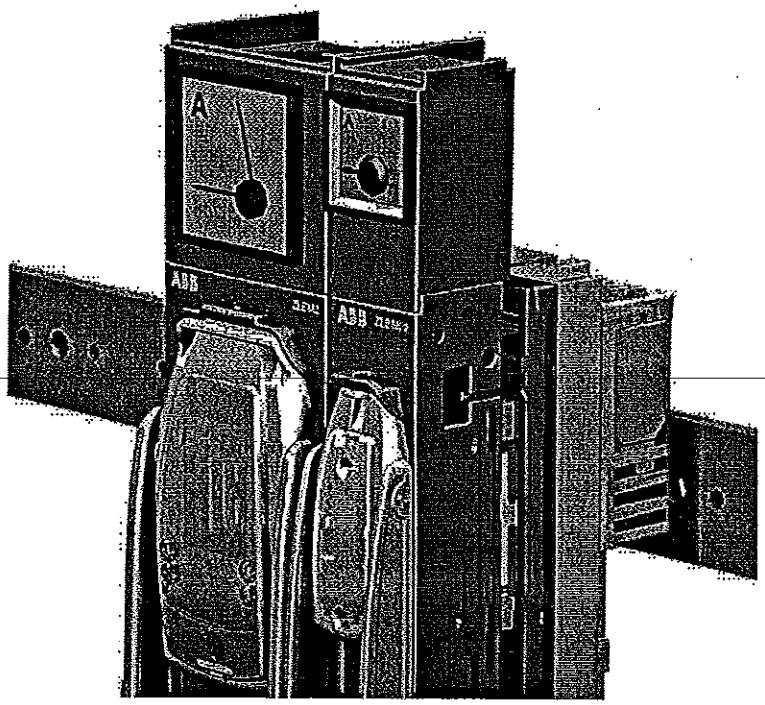
EFM Technical data:	
Operational voltage	340 - 770VAC from the busbar side
Uimp. over a blown fuse	12,3kV
Uimp. between phases	9,8kV
Uimp. between main circuit / relay contacts	9,8kV
Dielectric test voltage input / output	1,9kV
Electrostatic Discharge	EN 61000-4-2 ± 4kV
Electrical Fast Transient	EN 61000-4-4 ± 2kV
Conducted Fast Transient	EN 61000-4-6 10Vrms / 150kHz - 80MHz
MTBF	1,103,137 hours at 80°C
Wire size	AWG 22-12 / 0,2-2,5mm²
EFM Relay:	
Nominal current	8A
Nominal switching capacity	2000VA, AC1
Maximum switching voltage	440VAC, 250VDC
Switching voltage at 8A	250VAC, AC1
Reset time of the relay after a lost voltage supply	Appr. 5 seconds

Accessories

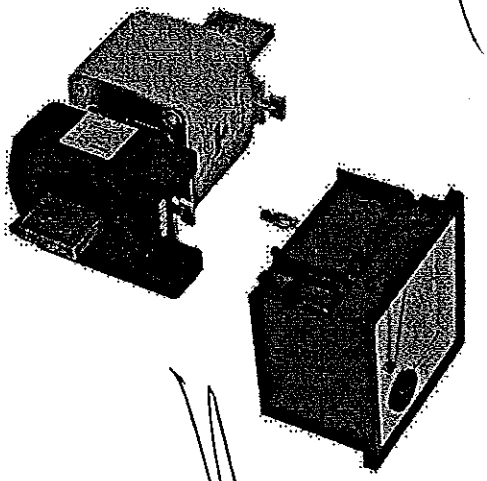
Ammeters
Ammeter can be installed into the ammeter house which can be clicked into position at the top of the ZLBM/ZHBM or at the bottom side if the cable terminals are upwards.

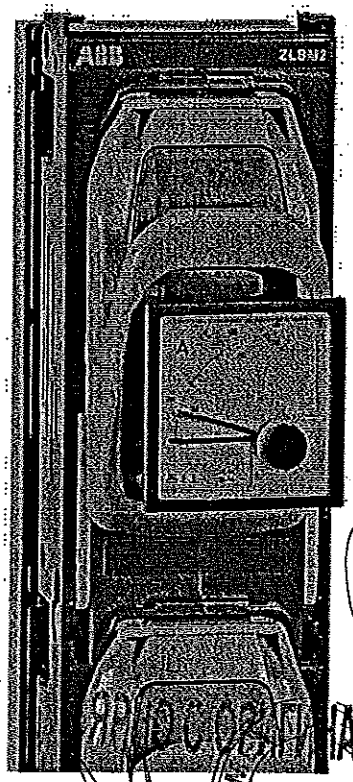
3

- 48x48 mm ammeter at ZLBM / ZHBM 00
- 72x72 mm ammeter at ZLBM / ZHBM 1/2/3



Plug In Ammeters
Plug In Ammeter through the front window by using a special NH2 fuse link together with a slide in CT.





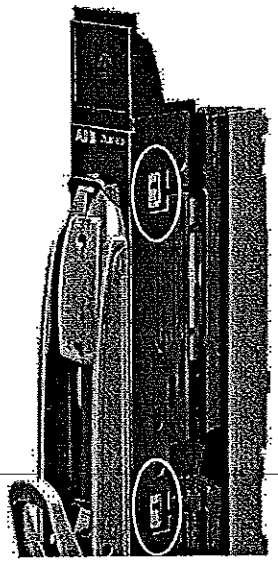
Accessories

Auxiliary switches

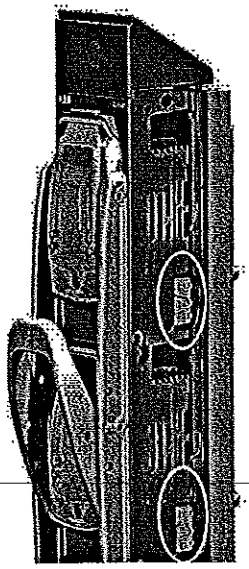
In the ZLBM / ZHBM the auxiliary switches 1 NO or 1 NC can be clicked into position at the side of the apparatus.

The body of the apparatus have integrated cable channels for easy connection down or up to a possible multi plug for external connection.

ZLBM/ZHBM 00: 1 Aux. Switch pr phase
ZLBM/ZHBM 123: 2 Aux. Switches pr phase



ZLBM/ZHBM 00

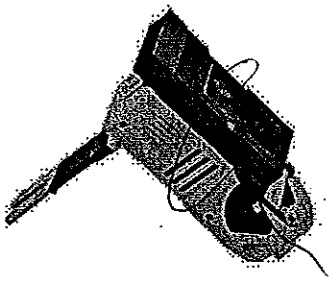


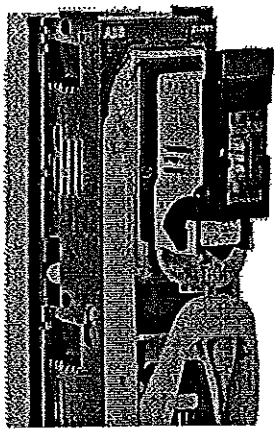
ZLBM/ZHBM 123

Huckepack

A plug in Huckepack for temporary additional output can be plugged through the front window into the incoming fuse contact in the apparatus.

The huckepack is prepared for a NH 00 fuse link inside, and is equipped with its own cable terminal at the bottom side.

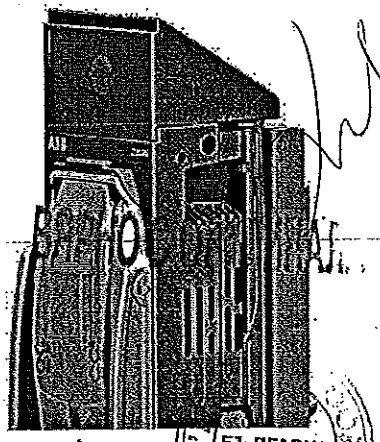




Label holder

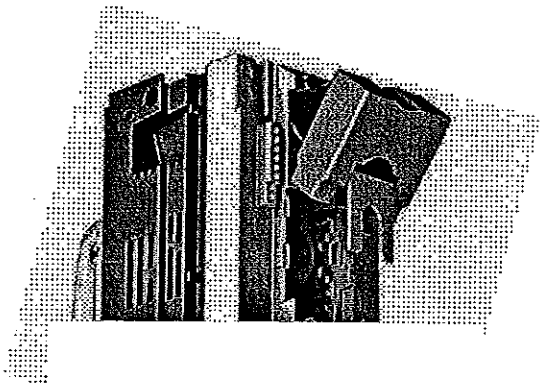
A label holder is available for both ZLBM/ZHBM00 and ZLBM/ZHBM123.

The label holder is prepared with a hole to be used with a selection switch in case it is needed together with an A-meter/CT solution.

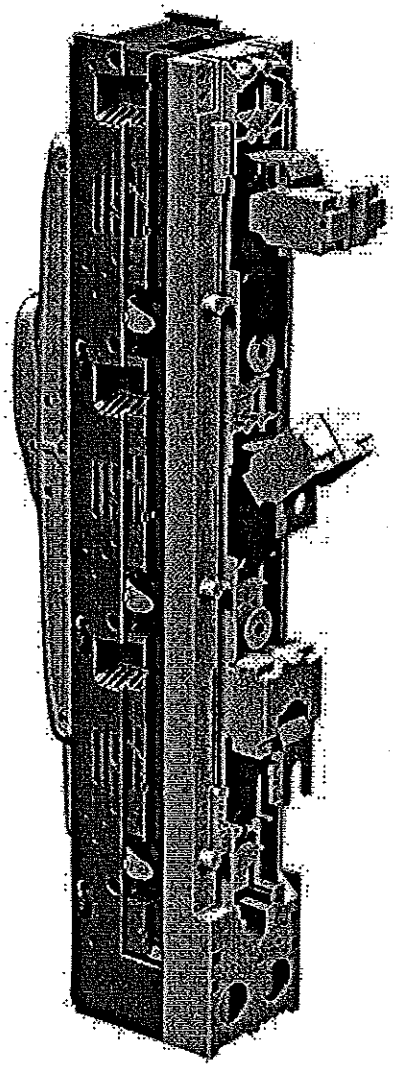


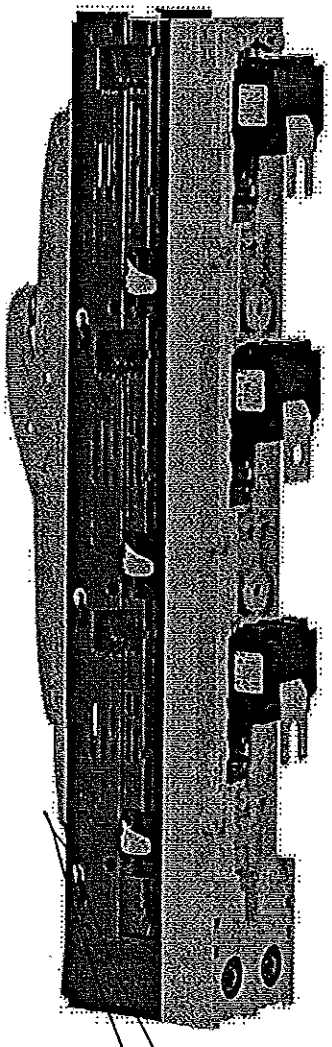
Accessories
Current Transformers in ZHBM

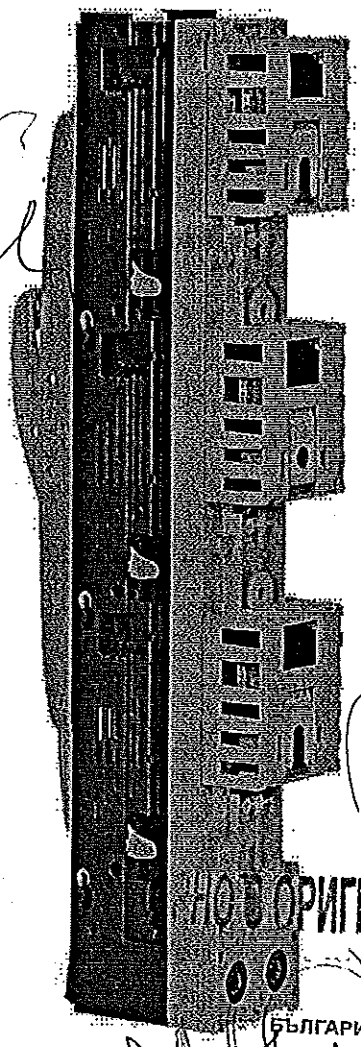
The ZHBM 00/123 variants (with the additional depth +32,5mm) makes it possible to slide on one current transformer (CT) at the rear side pr phase.



3 The CT shrouds have integrated cable channels for easy cabel supply up to a multi plug for external connection.

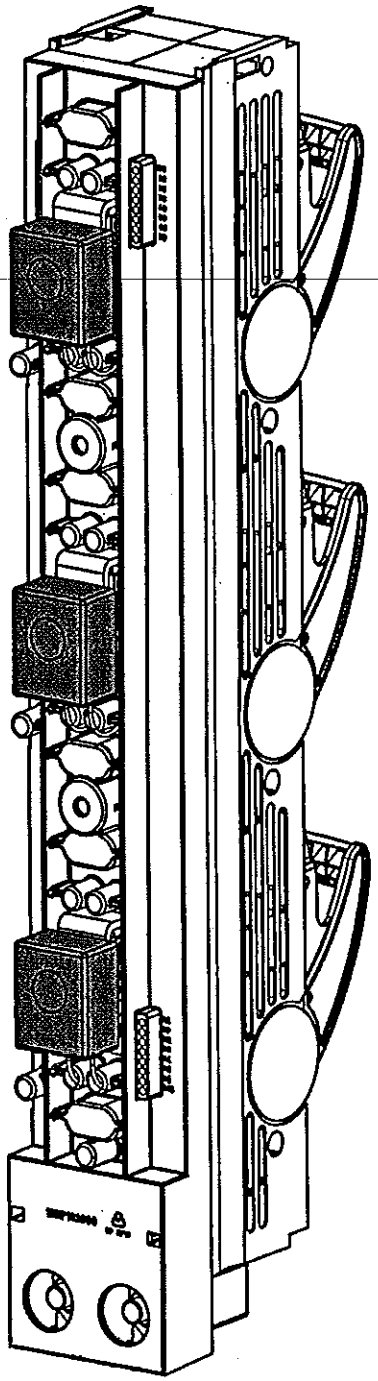






Accessories
Current Transformers in ZLBM

Current transformers can also be installed at the rear side of the ZLBM 00 and ZLBM 1,2,3 , by using the CT busbar kits, which is a complete kit of 3 CT's and 3 Cu Tubes of 32 mm.



For ZLBM 00:	
CT busbar 160/5A 2,5VA cl.1 (kit incl. 3pcs CT's)	1SEP408149R0001
For ZLBM 1,2,3:	
CT busbar 200/5A 3,75VA cl.1 (kit incl. 3pcs CT's)	1SEP408149R0002
CT busbar 400/5A 5VA cl.1 (kit incl. 3pcs CT's)	1SEP408149R0003
CT busbar 600/5A 5VA cl.1 (kit incl. 3pcs CT's)	1SEP408149R0004
CT busbar 600/5A 5VA cl.0,5 (kit incl. 3pcs CT's)	1SEP408149R0005

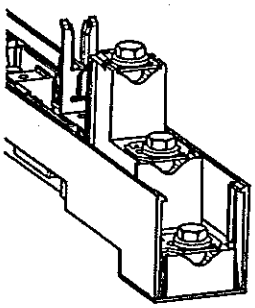
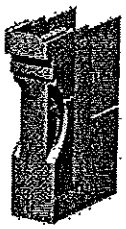
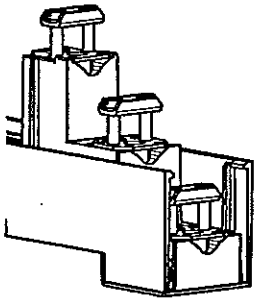
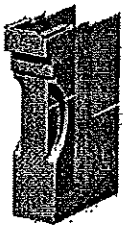
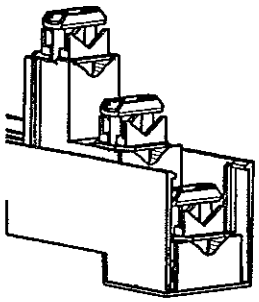
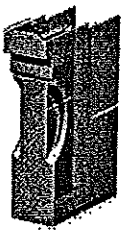
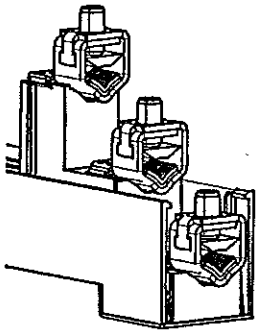
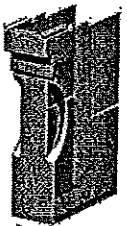
Technical data
ZLBM/ZHBM

ZLBM/ZHBM Fuse Switch Disconnector

		ZLBM/ZHBM 00	ZLBM/ZHBM 1	ZLBM/ZHBM 2	ZLBM/ZHBM 3
Rated operational voltage Ue	(V)	400/500/690	400/500/690	400/500/690	400/500/690
Rated operational current Ie	(A)	160/160/125	250	400	630
Rated insulation voltage Ui	(V)	1000	1000	1000	1000
Rated impulse withstand voltage Uimp	(kV)	8	8	8	8
Fuse protected short circuit withstand current	(kArms)	100	100	100	100
Fuse protected short circuit making	(kArms)	100	100	100	100
Rated making and breaking capacity		AC23B/AC22B/AC21B	AC23B/AC22B/AC21B	AC23B/AC22B/AC21B	AC23B/AC22B/AC21B
Rated frequency	(Hz)	50/60	50/60	50/60	50/60
Electrical durability		200	200	200	200
Mechanical durability		1400	1400	800	800
Degree of protection from the front	Open	IP20	IP20	IP20	IP20
	Closed	IP30	IP30	IP30	IP30

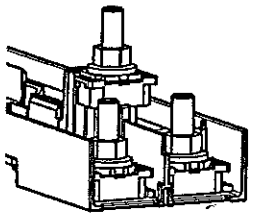
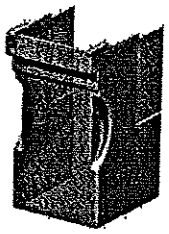
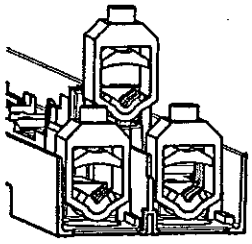
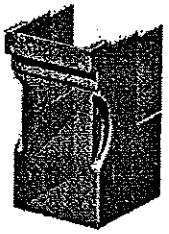
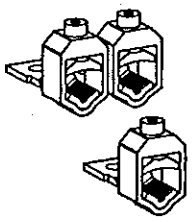
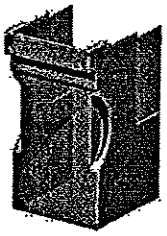
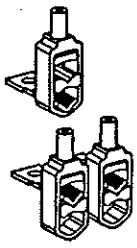
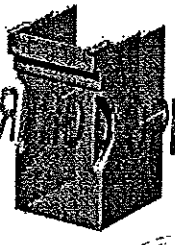
Type tested according to EN/IEC 60947-3

Cable terminations and cable shrouds
ZLBM00/ZHBM00

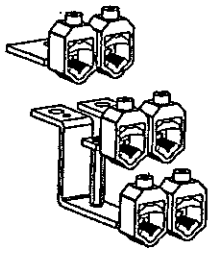
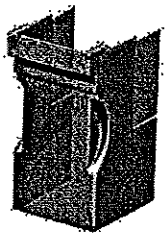
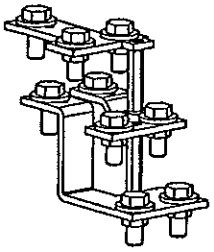
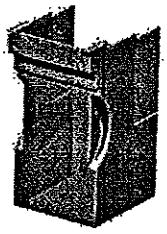
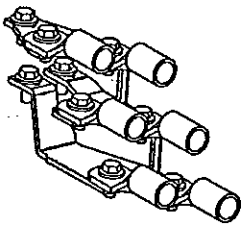
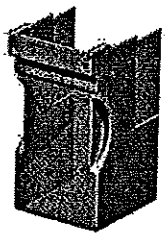
	Type of clamp/bolt with order code	Conductor cross section min-max Rm/Sm (mm^2)	Conductor cross section min-max Re/Se (mm^2)	Torque (Nm)	Type of cable shroud (up/down)
 1SEB000340	Bolt M8x16 (Standard)	Max 95	Max 95	10	 1SEP619207R0001
 1SEB000347	Bridge clamp (3 x BC) 1SEP407733R0001	1,5 - 50	1,5 - 50	3,5	 1SEP619207R0001
 1SEB000348	**Single Prism clamp (3 x SPC) 1SEP407732R0005**	**1,5 - 95**	**1,5 - 95**	**3,5**	 1SEP619207R0001
 1SEB000341	V-clamp (Integrated)	1,5 - 95	1,5 - 95	3,5	 1SEP619207R0001

5

Cable terminations and cable shrouds
ZLBM123/ZHBM123

	Type of clamp/bolt with order code	Conductor cross section min-max		Torque (Nm)	Type of cable shroud (up/down)
		Rm/Sm (mm²)	Re/Se (mm²)		
 1SEB000336	Bolt M12x40 (Standard)	Max 240	Max 240	25	 1SEP619210R0001
 1SEB000337	V-clamp (Integrated)	Rm: 16-35 / 50-185 Sm: 35-50 / 70-240	Re: 16-70 / 70-150 Se: 35-70 / 95-300	25	 1SEP619210R0001
 1SEB000149	V-clamp kit	Rm: 16-35 / 50-185 Sm: 35-50 / 70-240	Re: 16-70 / 70-150 Se: 35-70 / 95-300	25	 1SEP619210R0001
 1SEB000145	Double V-clamp kit for CDC	Rm: 2 x 50-185 Sm: 2 x 95-240	Re: 2 x 70-240 Se: 2 x 120-300	22	 1SEP619210R0001

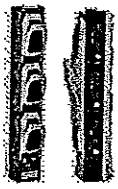
Cable terminations and cable shrouds
ZLBM123/ZHBM123

	Type of clamp/bolt with order code	Conductor cross section min-max Rm/Sm (mm²)	Conductor cross section min-max Re/Se (mm²)	Torque (Nm)	Type of cable shroud (up/down)
 1SEB000146	Double V-clamp kit for switchboards	Rm: 2 x 16-35 2 x 50-185 Sm: 2 x 35-50 2 x 70-240	Re: 2 x 16-70 2 x 70-150 Se: 2 x 35-70 2 x 95-300	25	 1SEP619210R0001
 1SEB000147	Double cable lug kit	2 x Max 240	2 x Max 240	25	 1SEP619210R0001
 1SEB000283	Bolt kit	2 x Max 300	2 x Max 300	25	 1SEP619210R0001

5

Ordering tables
ZLBM/ZHBM


ZLBM00-1P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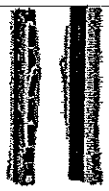

ZLBM00-3P


ZLBM123-3P


ZHBM00-1P


ZHBM123-1P

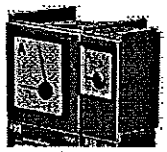

ZHBM00-3P


ZHBM123-3P

Type	Ie (A)	Description	Ident No.	Weight (kg)
ZLBM 1 pole		ZLBM Depth 121 mm		
ZLBM00-1P-M8	160	3 x M8 Bolt	1SEP620010R1000	2,2
ZLBM00-1P-V	160	3 x V-Clamps	1SEP620010R1020	2,2
ZLBM1-1P-M12	250	3 x M12 Universal Bolt	1SEP620011R1000	4,2
ZLBM1-1P-V	250	3 x V-Clamps	1SEP620011R1020	4,2
ZLBM2-1P-M12	400	3 x M12 Universal Bolt	1SEP620012R1000	4,7
ZLBM2-1P-V	400	3 x V-Clamps	1SEP620012R1020	4,7
ZLBM3-1P-M12	630	3 x M12 Universal Bolt	1SEP620013R1000	5,2
ZLBM3-1P-V	630	3 x V-Clamps	1SEP620013R1020	5,2
ZLBM 3 pole		ZLBM Depth 121 mm		
ZLBM00-3P-M12	160	3 x M8 Bolt	1SEP620010R3000	2,3
ZLBM00-3P-V	160	3 x V-Clamps	1SEP620010R3020	2,3
ZLBM1-3P-M12	250	3 x M12 Universal Bolt	1SEP620011R3000	4,3
ZLBM1-3P-V	250	3 x V-Clamps	1SEP620011R3020	4,3
ZLBM2-3P-M12	400	3 x M12 Universal Bolt	1SEP620012R3000	4,8
ZLBM2-3P-V	400	3 x V-Clamps	1SEP620012R3020	4,8
ZLBM3-3P-M12	630	3 x M12 Universal Bolt	1SEP620013R3000	5,3
ZLBM3-3P-V	630	3 x V-Clamps	1SEP620013R3020	5,3
ZHBM 1 pole		ZHBM Depth 153,5 mm		
ZHBM00-1P-M8	160	3 x M8 Bolt	1SEP620020R1000	2,4
ZHBM00-1P-V	160	3 x V-Clamps	1SEP620020R1020	2,4
ZHBM1-1P-M12	250	3 x M12 Universal Bolt	1SEP620021R1000	4,4
ZHBM1-1P-V	250	3 x V-Clamps	1SEP620021R1020	4,4
ZHBM2-1P-M12	400	3 x M12 Universal Bolt	1SEP620022R1000	4,9
ZHBM2-1P-V	400	3 x V-Clamps	1SEP620022R1020	4,9
ZHBM3-1P-M12	630	3 x M12 Universal Bolt	1SEP620023R1000	5,4
ZHBM3-1P-V	630	3 x V-Clamps	1SEP620023R1020	5,4
ZHBM 3 pole		ZHBM Depth 153,5 mm		
ZHBM00-3P-M12	160	3 x M8 Bolt	1SEP620020R3000	2,5
ZHBM00-3P-V	160	3 x V-Clamps	1SEP620020R3020	2,5
ZHBM1-3P-M12	250	3 x M12 Universal Bolt	1SEP620021R3000	4,5
ZHBM1-3P-V	250	3 x V-Clamps	1SEP620021R3020	4,5
ZHBM2-3P-M12	400	3 x M12 Universal Bolt	1SEP620022R3000	5,0
ZHBM2-3P-V	400	3 x V-Clamps	1SEP620022R3020	5,0
ZHBM3-3P-M12	630	3 x M12 Universal Bolt	1SEP620023R3000	5,5
ZHBM3-3P-V	630	3 x V-Clamps	1SEP620023R3020	5,5

Ordering tables
Accessories


00 Cable shroud


A-meter housing


123 Cable shroud

Type	Ident No.	Weight (kg)
ZLBM/ZHBM 00 Accessories		
ZLBM00 Cable shroud	1SEP619207R0001	0,2
ZLBM00 Label holder	1SEP619208R0001	0,1
ZLBM00 A-meter house for A-meter 48x48 mm	1SEP619209R0001	0,1
00 Bridge clamp 1,5-50mm2 (3pcs)	1SEP407733R0001	0,1
CT busbar 160/5A 2,5VA cl.1 (3pcs)	1SEP408149R0001	0,6
ZHBM 00 CT Slide on rear side 100/5A 1,5VA Cl.1	1SEP619510P0001	0,15
ZHBM 00 CT Slide on rear side 150/5A 2,5VA Cl.1	1SEP619511P0001	0,15
CT terminal 160A/5A 5VA cl.0,5	1SEP408149R0006	0,6
00 Single prism clamp 1,5-95mm2 (3pcs)	1SEP407732R0005	0,1
00 Single adapter M12 to M8 for 185mm busbar dist.	1SEP304072R0001	0,4
00 Double adapter M12 to M8 for 185mm busbar dist.	1SEP304071R0001	0,7
00 Spare way cover	1SEP304069R0001	0,2
ZLBM/ZHBM 1/2/3 Accessories		
ZLBM123 Cable shroud	1SEP619210R0001	0,2
ZLBM123 Label holder	1SEP619214R0001	0,1
ZLBM123 Label holder (250 pcs in a package)	1SEP619214R0250	NA
ZLBM123 A-meter housing for A-meter 72x72 mm	1SEP619215R0001	0,1
Max A-meter QB72, 0-150-180/5A	NHSN714004P2206	0,2
Max A-meter QB72, 0-200-300/5A	NHSN714004P2208	0,2
Max A-meter QB72, 0-400-480/5A	NHSN714004P2210	0,2
Max A-meter QB72, 0-600-720/5A	NHSN714004P2212	0,2
ZLBM/XLBM CT rear side with Cu Tube 200A/5A 3,75VA cl.1	1SEP408149R0002	1,3
ZLBM/XLBM CT rear side with Cu Tube 400A/5A 5VA cl.1	1SEP408149R0003	1,3
ZLBM/XLBM CT rear side with Cu Tube 600A/5A 5VA cl.1	1SEP408149R0004	1,3
ZLBM/XLBM CT rear side with Cu Tube 600A/5A 5VA cl.0,5	1SEP408149R0005	1,3
ZHBM CT Slide on rear side 250/5A 5VA Cl.1	1SEP619512P0001	0,15
ZHBM CT Slide on rear side 400/5A 5VA Cl.1	1SEP619513P0001	0,15
ZHBM CT Slide on rear side 600/5A 5VA Cl.1	1SEP619514P0001	0,15
CT terminal 200/5A 3,75VA cl.1	1SEP408149R0007	0,6
CT terminal 400/5A 5VA cl.1	1SEP408149R0008	0,6
CT terminal 600/5A 5VA cl.1	1SEP408149R0009	0,6
CT terminal 600/5A 5VA cl.0,5	1SEP408149R0010	0,6

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Ordering tables
Accessories

Huckepack

Plug in A-meter and CT at NH2 fuse link

Type	Ident No.	Weight (kg)
ZLBM/ZHBM 1/2/3 Accessories		
ZLBM/XLBM123 Huckepack	NHSN722068P0002	0,3
ZLBM/XLBM123 V-clamp kit	1SEP304446R0001	0,5
ZLBM123 Double V-clamp kit for CDC	1SEP696219R0001	0,5
ZLBM123 V-clamp kit double for CDC (2x240)	1SEP619274R0001	
ZLBM123 Double V-clamp kit for switchboards	1SEP696220R0001	0,5
ZLBM123 V-clamp kit double f/SWB (2x240)	1SEP619275R0001	
ZLBM123 Double cable lug kit for switchboards	1SEP696221R0001	0,5
ZLBM123 Cable lug kit double f/SWB (2x240)	1SEP619276R0001	
ZLBM123 Cable lug kit 2x300 mm2	1SEP696222R0001	0,5
ZLBM123 Cable lug terminal kit (2x300)	1SEP619277R0001	
Plug in A-meter, front cover inst. 200-400/5A	NHPL046270R0001	0,2
Plug in CT for front cover inst. A-meter 200/5A 3,5VA cl.3	NHSN718050P2525	0,1
Plug in CT for front cover inst. A-meter 400/5A 5VA cl.3	NHSN718050P2540	0,1
NH2 Fuse link 400V/100A for plug in CT	NHPL046265R0001	0,5
NH2 Fuse link 400V/125A for plug in CT	NHPL046266R0001	0,5
NH2 Fuse link 400V/160A for plug in CT	NHPL046267R0001	0,5
NH2 Fuse link 400V/200A for plug in CT	NHPL046268R0001	0,5
NH2 Fuse link 400V/224A for plug in CT	NHPL046269R0001	0,5
NH2 Fuse link 400V/250A for plug in CT	NHPL046272R0001	0,5
NH2 Fuse link 400V/315A for plug in CT	NHPL046273R0001	0,5
NH2 Fuse link 400V/400A for plug in CT	NHPL046275R0001	0,5
ZLBM/ZHBM Common Accessories		
ZLBM Aux switch NC	1SEP619554R0001	0,02
ZLBM Aux switch NO	1SEP619555R0001	0,02
Padlock extention (up to 3 padlocks)	1SEP408753R0001	0,1

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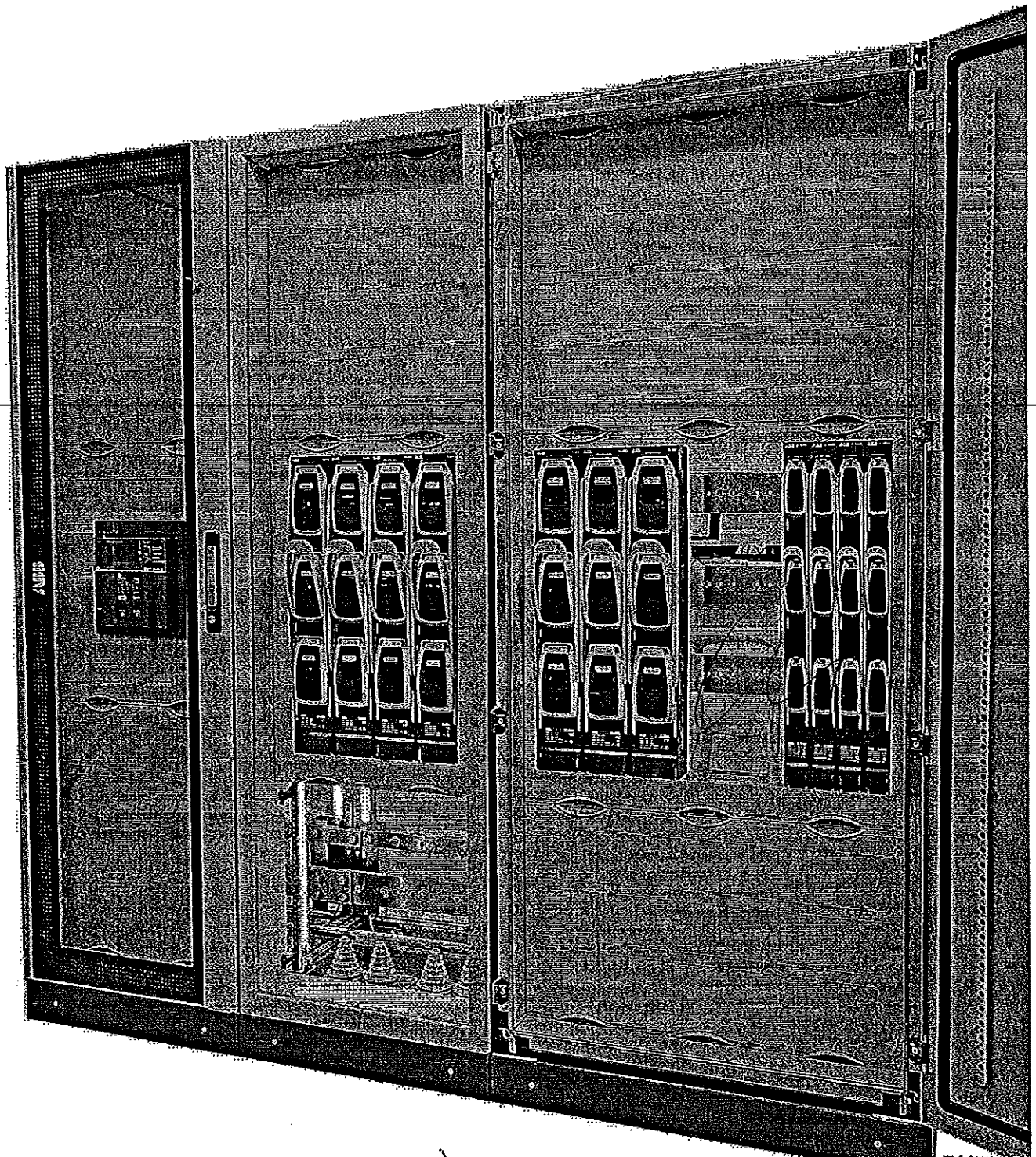

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П Р И Л О Ж Е Н И Е 9.6.2

Техническо описание и чертежи с нанесени на тях размери

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ / НН / "

РЕФ. № PPD 15-101

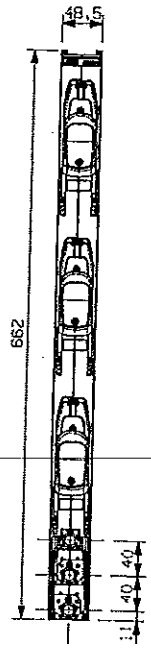
организиран от "ЧЕЗ Разпределение България" АД

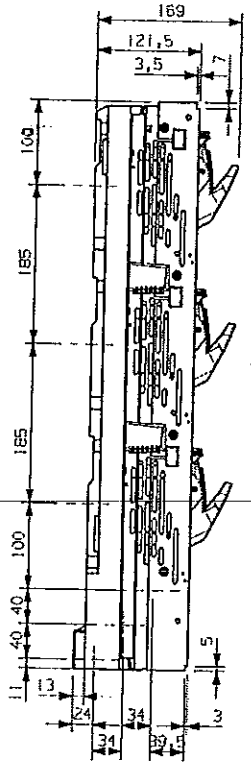
"МИКС" ООД
БЪЛГАРИЯ
ПЕТРИЧ

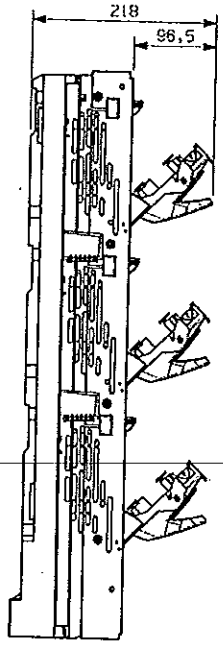
Dimension drawings
ZLBM00

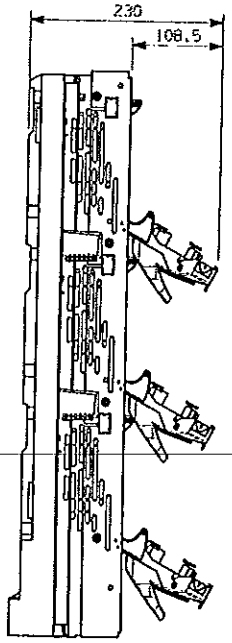
ZLBM00-1P

(1SEB000326)









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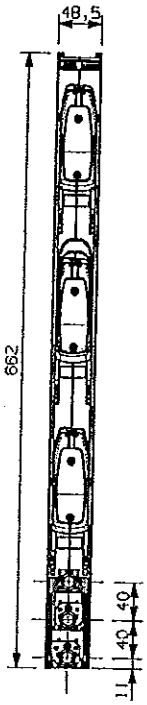
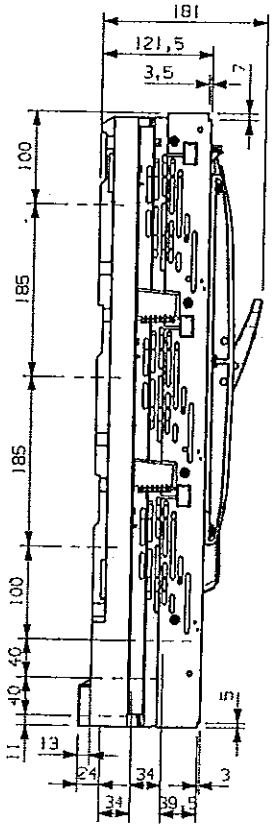
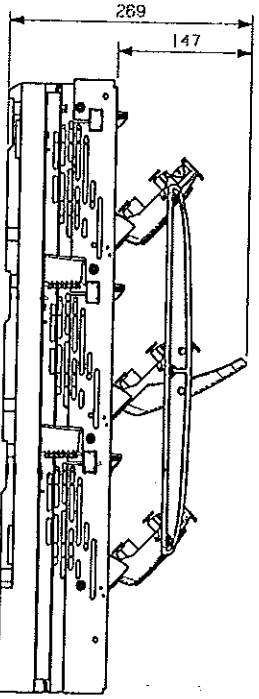
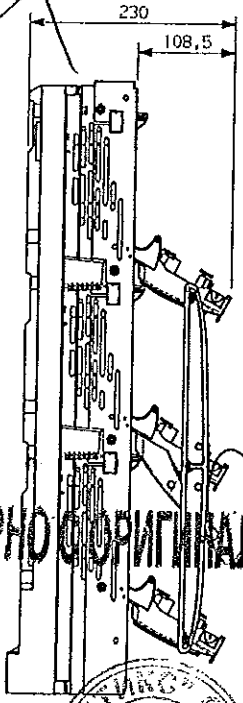




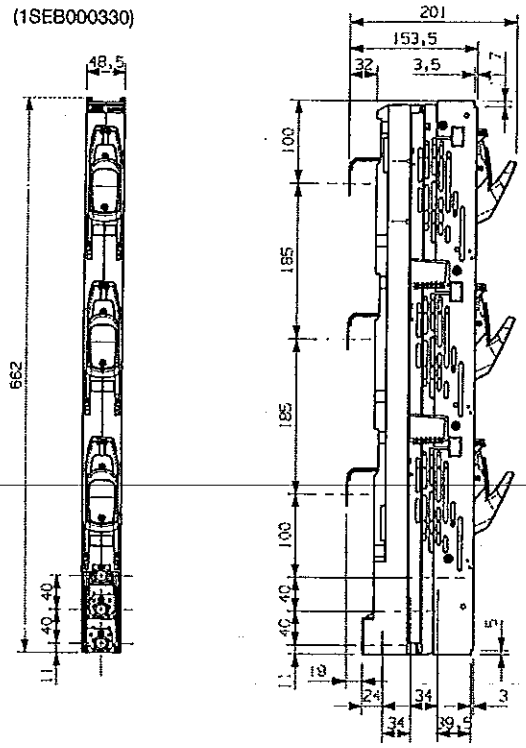


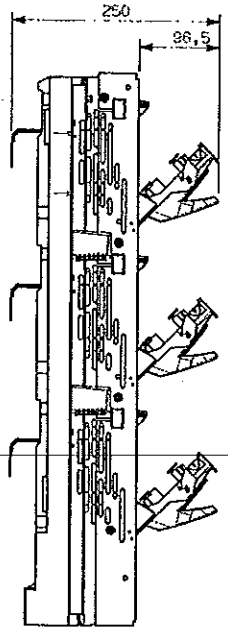


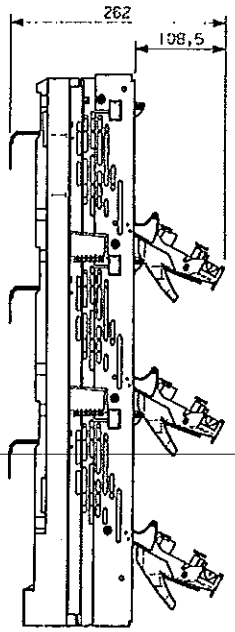
Dimension drawings
ZHBM00

ZHBM00-1P

(1SEB000330)







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ZHBM00-3P

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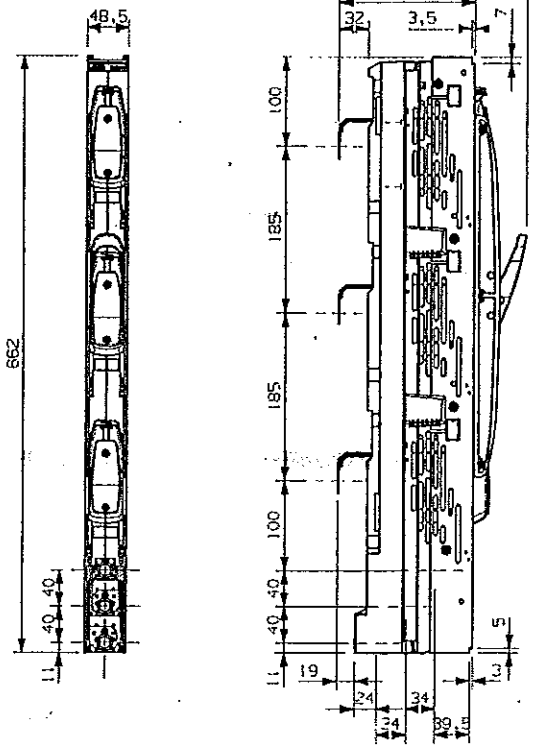
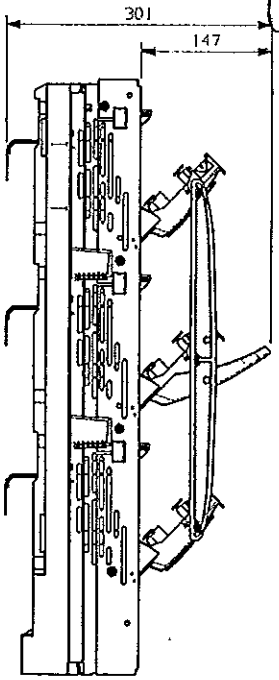
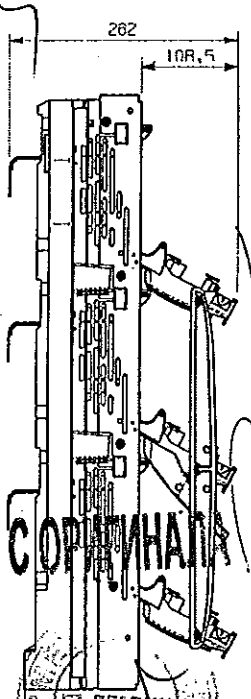
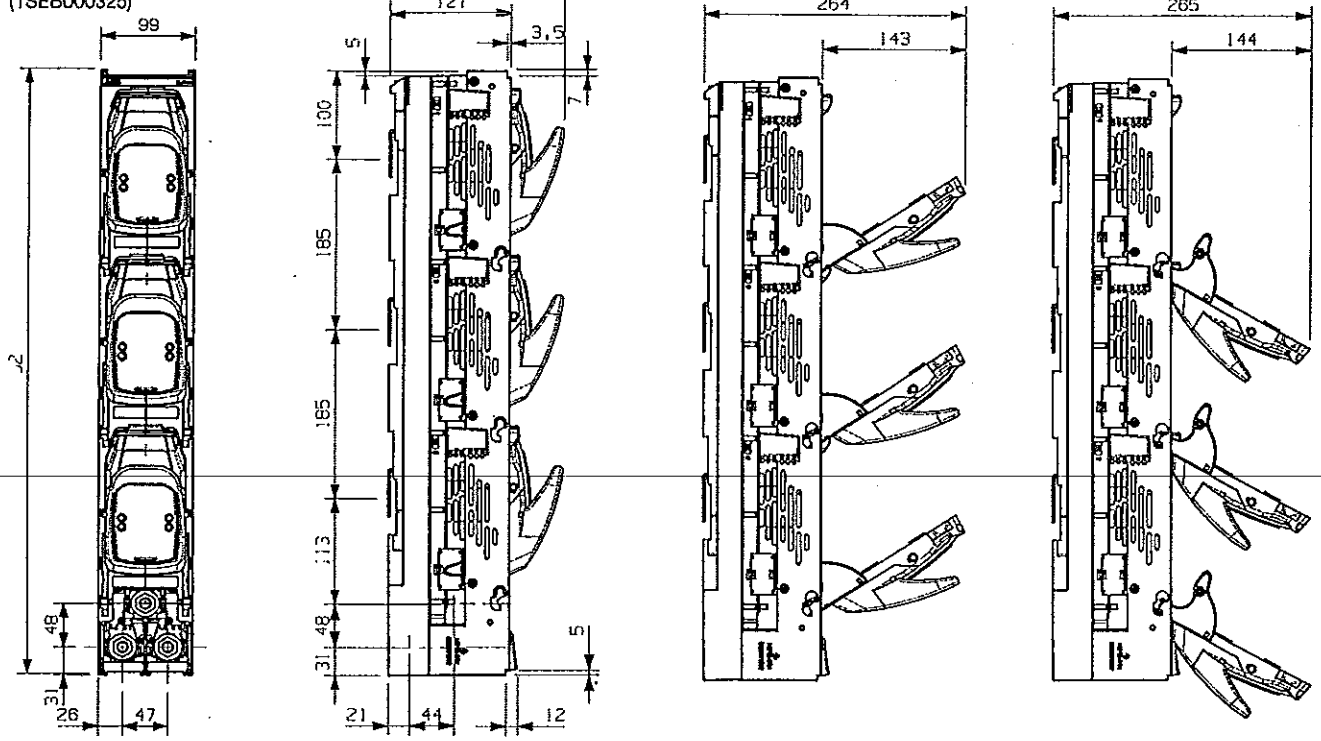






Dimension drawings
ZLBM123

ZLBM123-1P
(1SEB000325)



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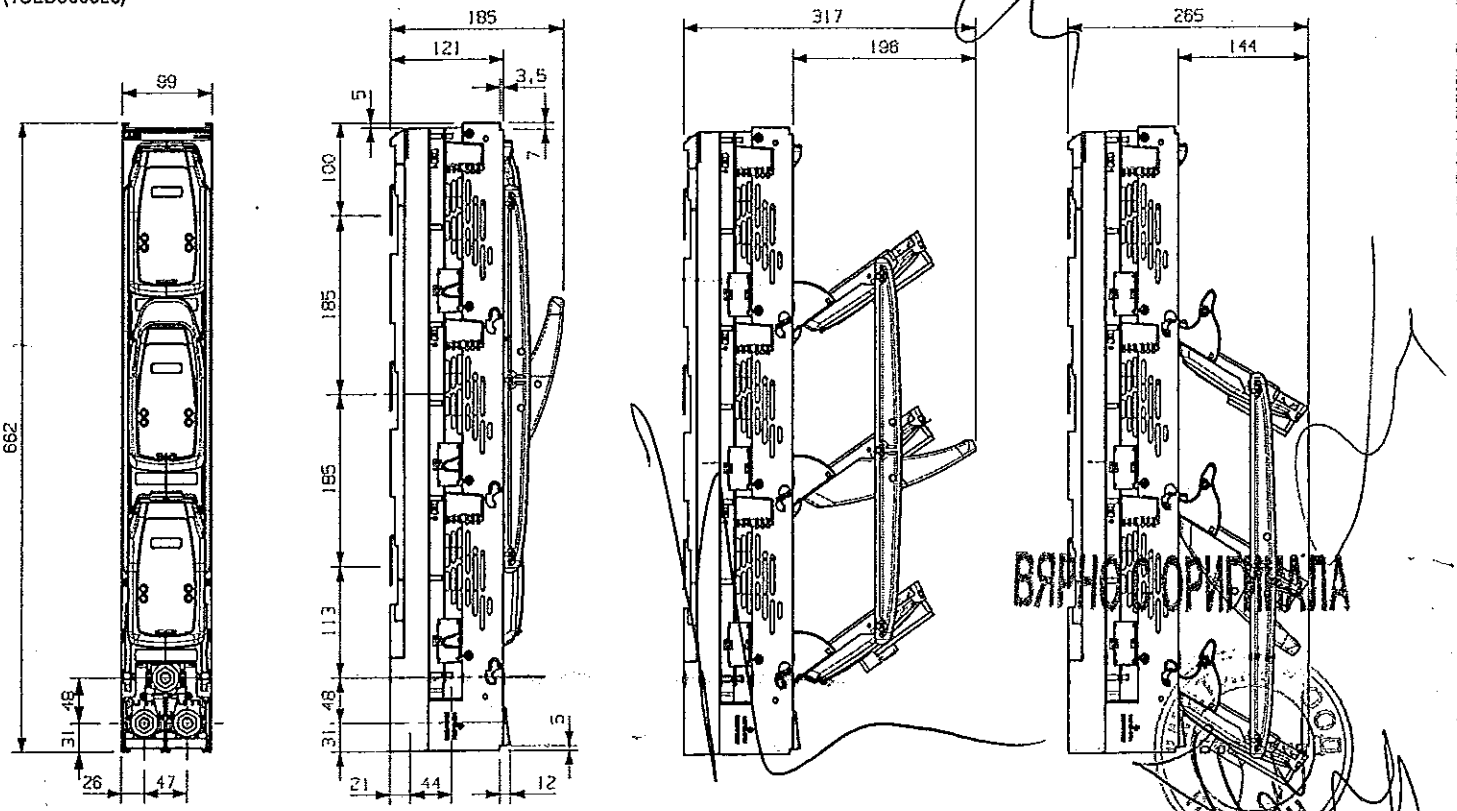
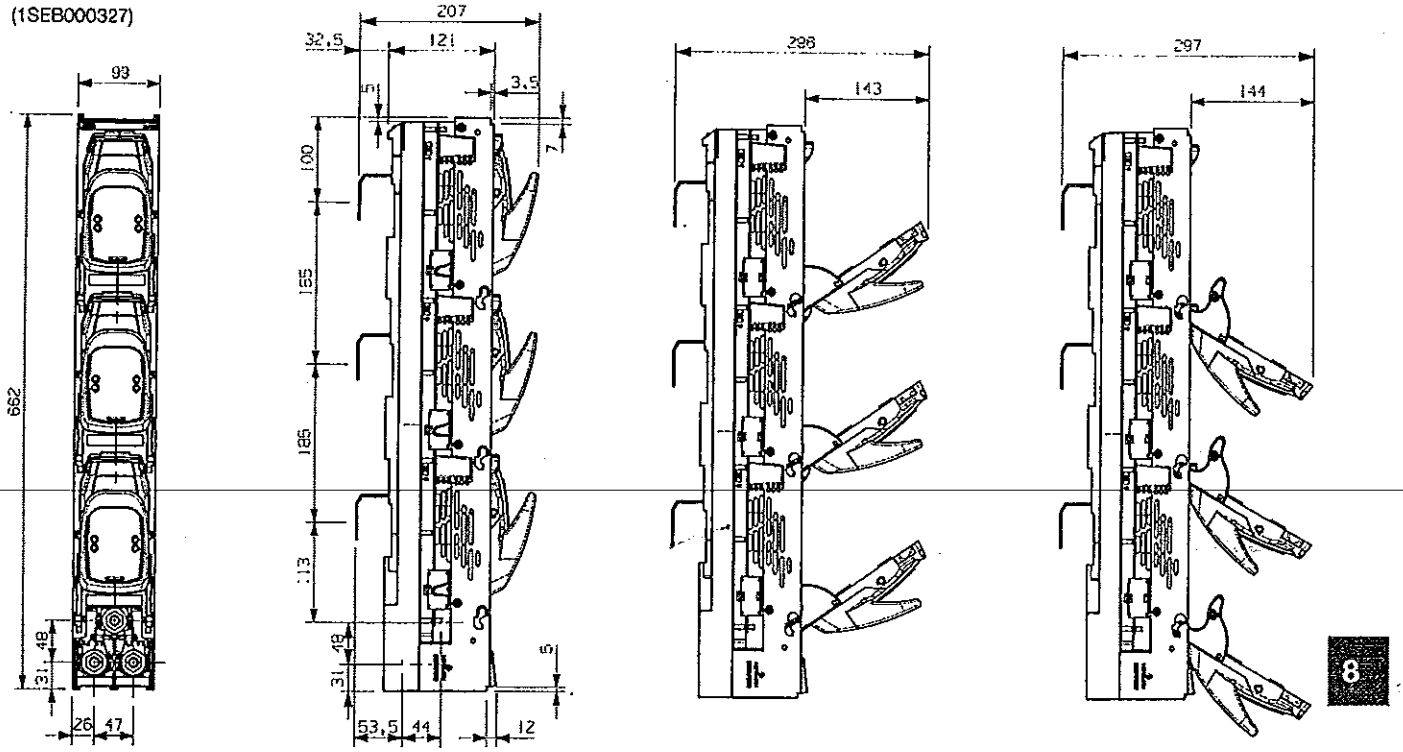
(1SEB000328)

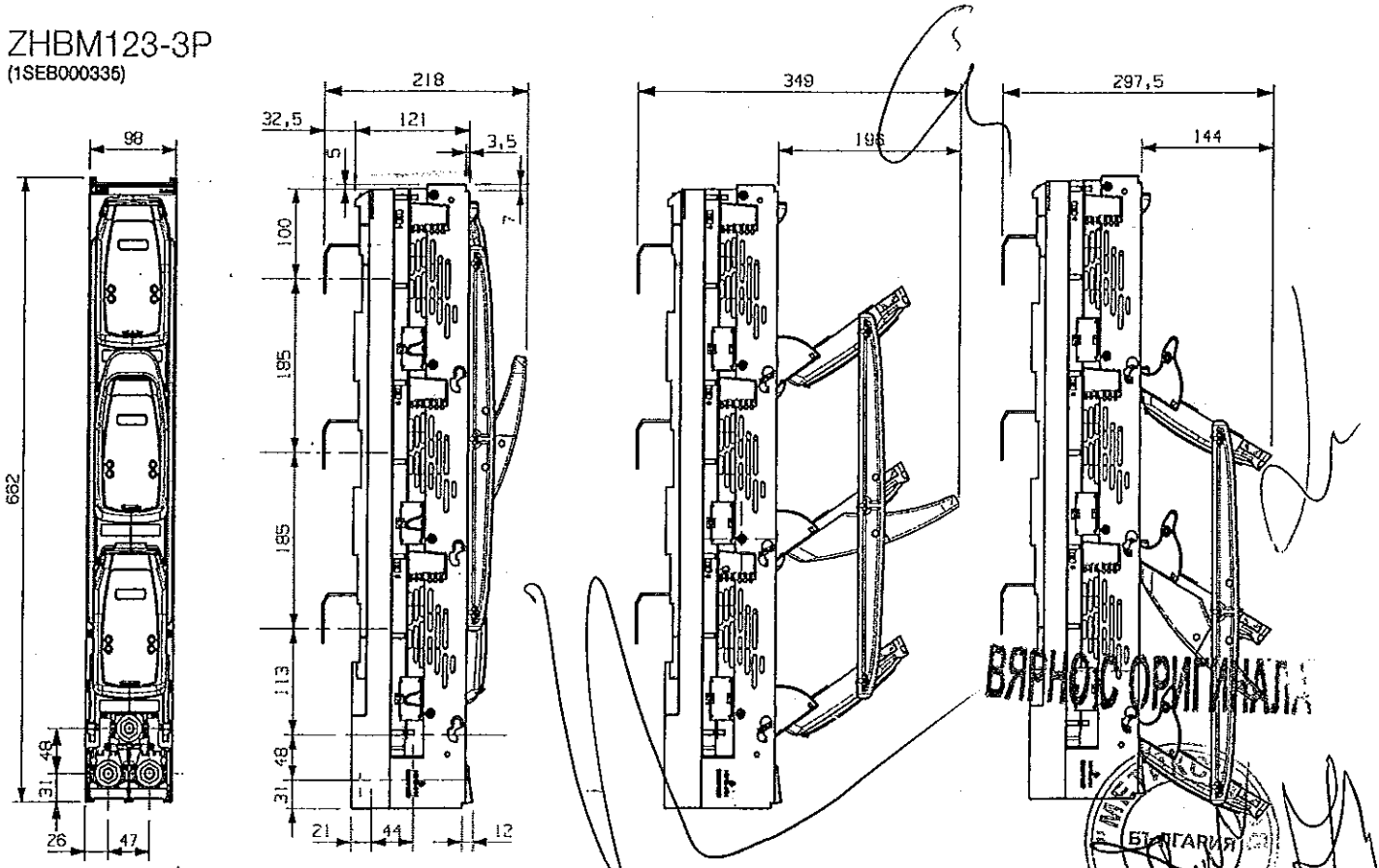


Dimension drawings
ZHBM123

ZHBM123-1P
(1SEB000327)

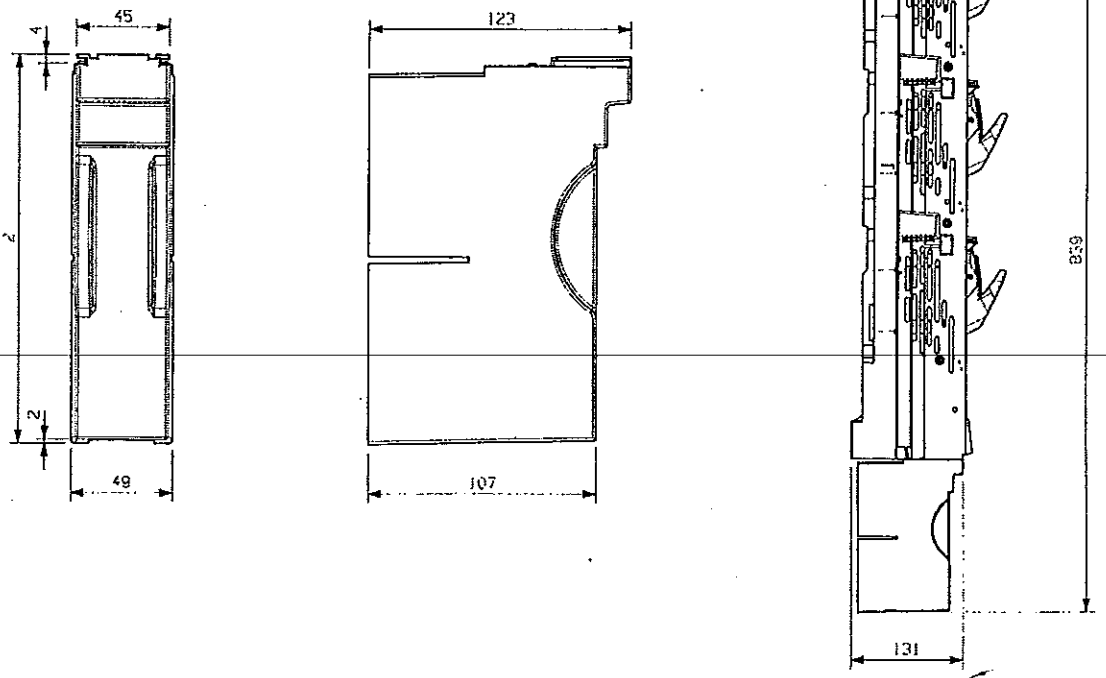


ZHBM123-3P
(1SEB000335)

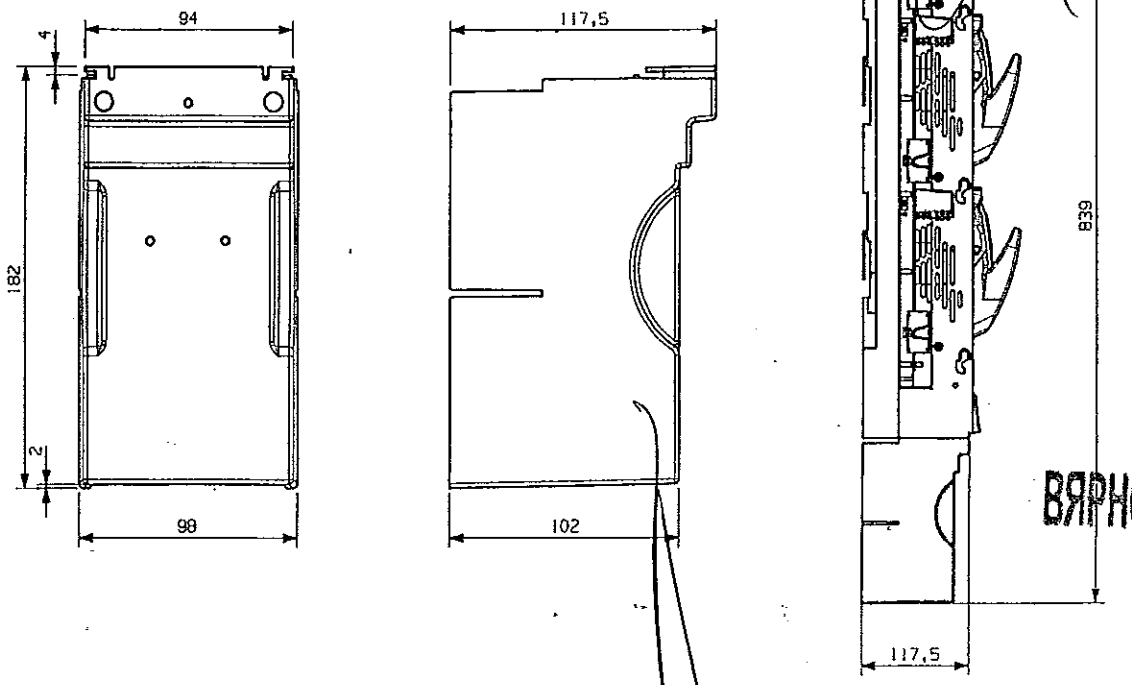


Dimension drawings
Cable shroud

ZLBM00
(1SEB000345)



ZLBM123
(1SEB000329)



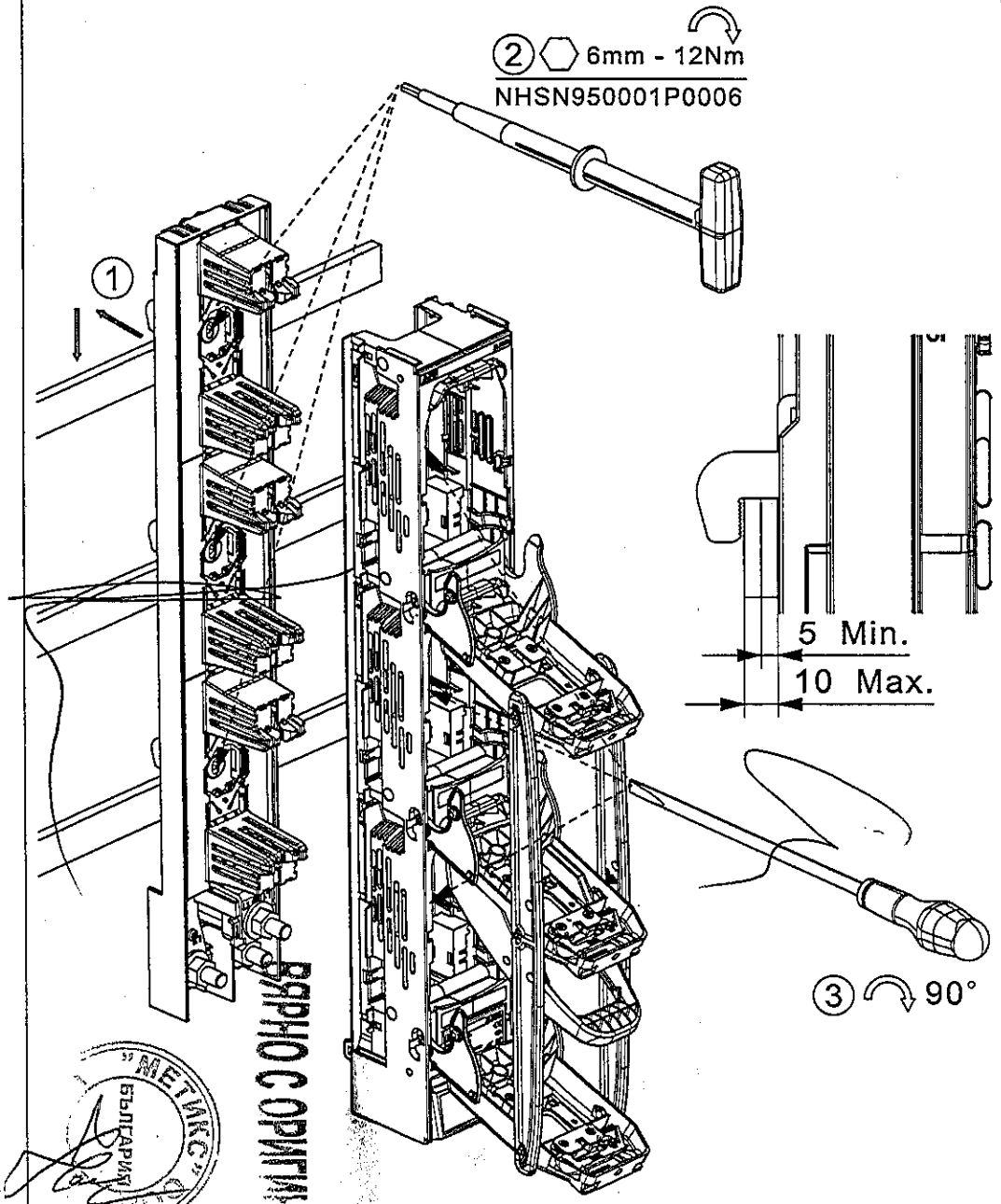
ВЯРНО С ОРИГИНАЛ.

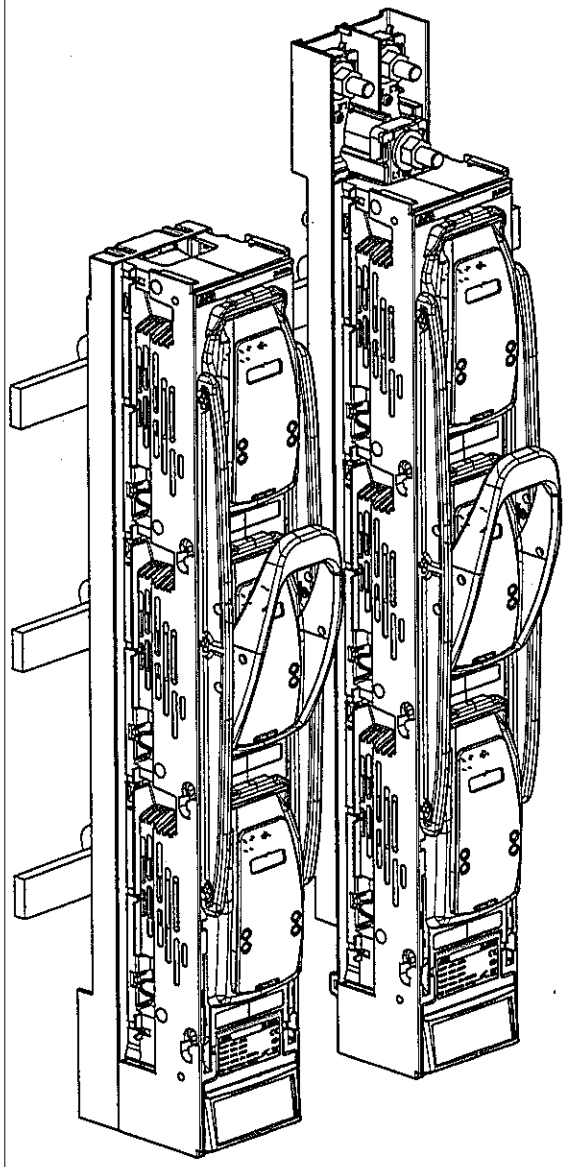
3

Montasjeveile ing
Installation struction
Montageanleitung

Title	ZLBM123 hook clamp installation instruction
Document number	1SEP619521P0001
Revision	A

ABB AS Division Low Voltage Products
Skien Norway





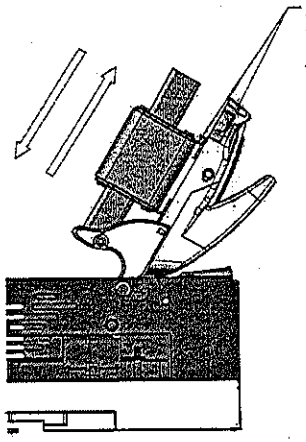
2

1

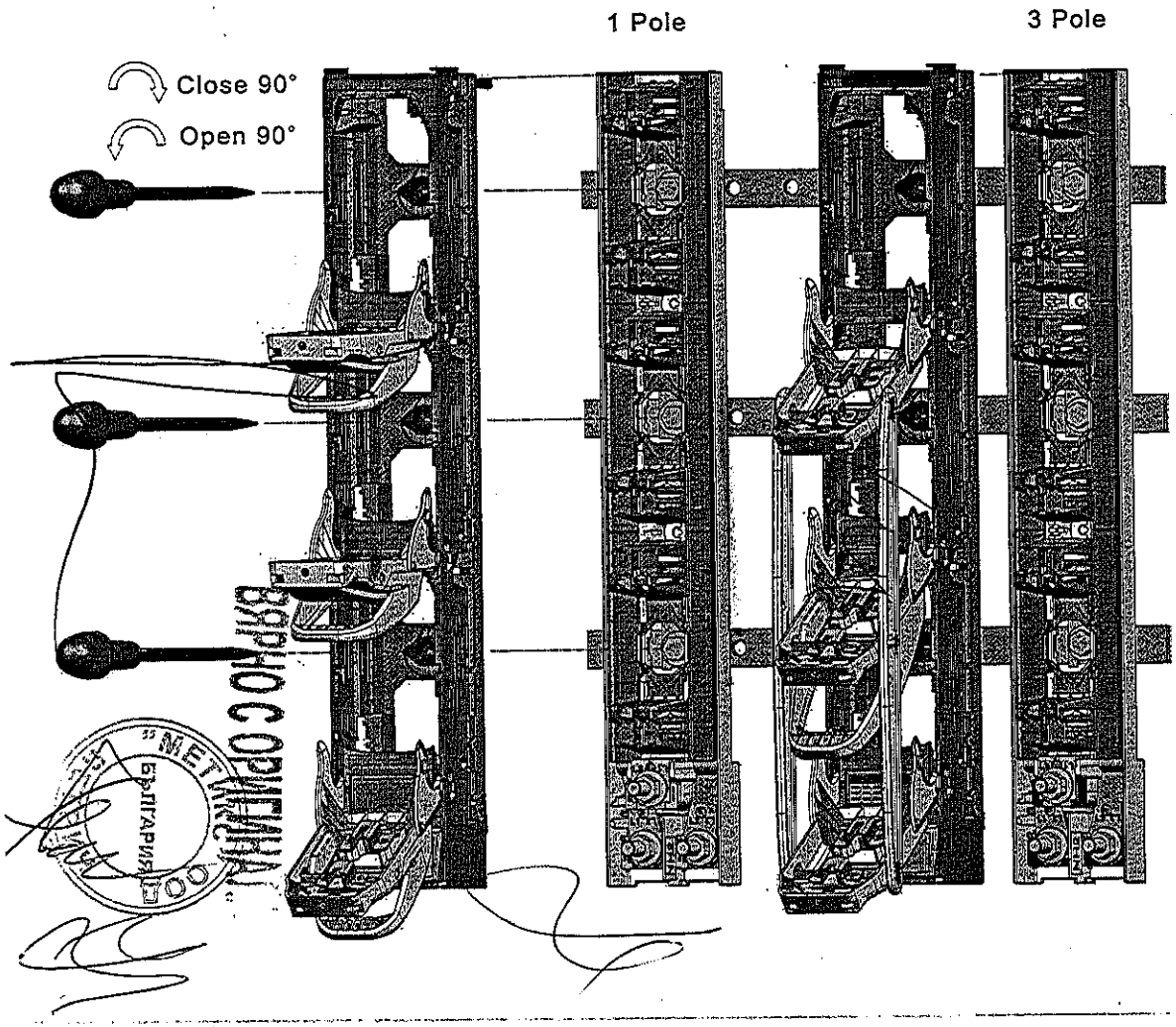
ВЯРНО С ОРИГИНАЛ

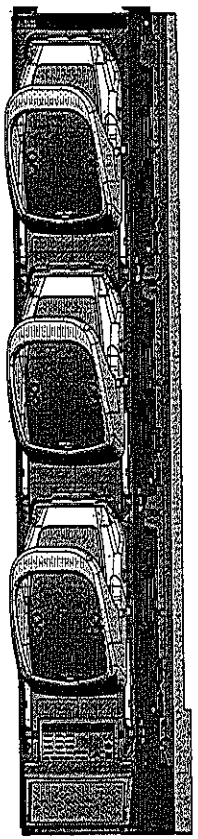
"МЕТИКС" ООД
БЪЛГАРИЯ

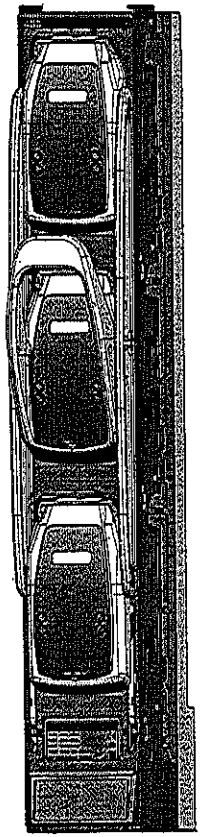
Montasjeveiledning	Title: ZLBM123 Installation instruction
Installation instruct	Document number: 1SEP619302P0001
Montageanleitung	Revision A
ABB AS Division Low Voltage Products Skien Norway	



Sikrings-lastskillebryter 1P/3P
Fuse-switch disconnector 1P/3P
Sicherungslasttrennschalter 1P/3P

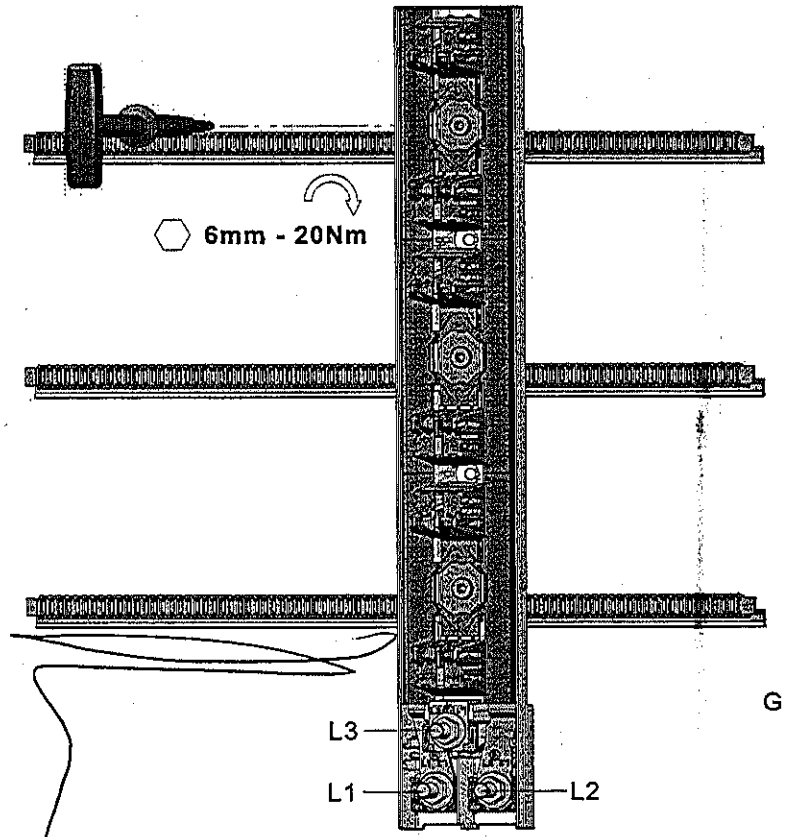


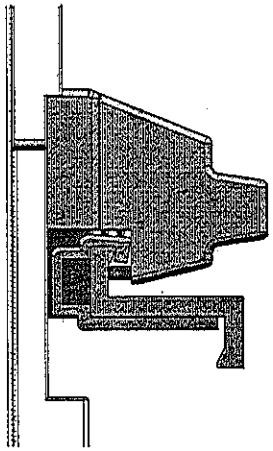


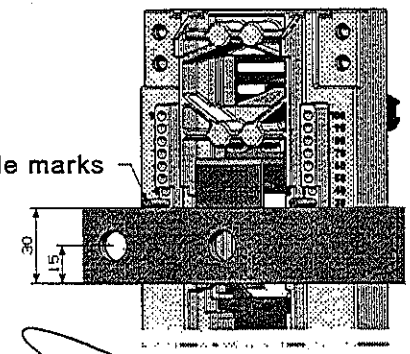


ZLBM1/2/3 = Low version
ZHBM1/2/3 = High version

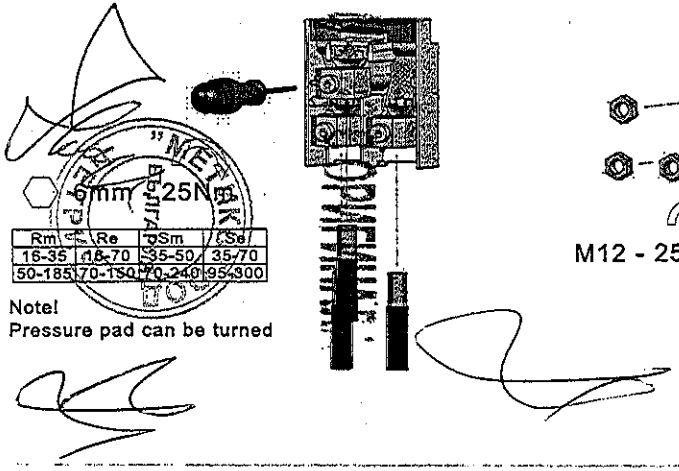
Z-Busbar system



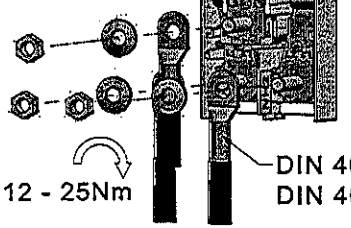




V-clamp connection

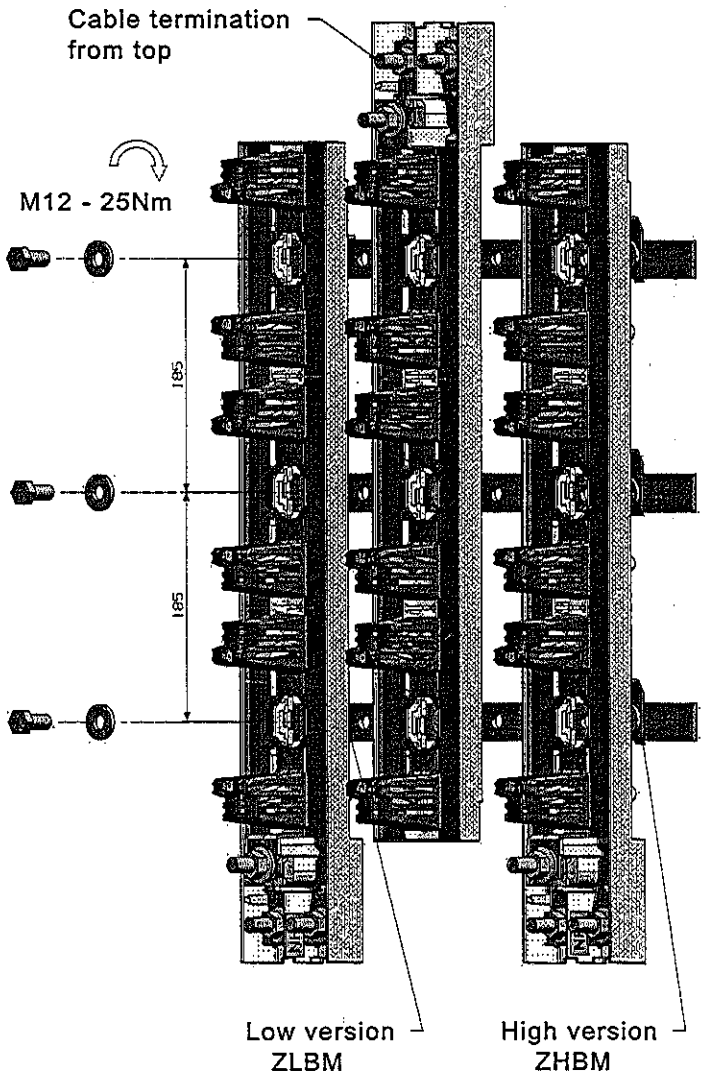


Standard connection



*Kabelsko må være fortinnet
Cable lug must be tin-coated
kabelschuh muss verzinnt sein

185mm-Busbar system



Al-ledere børstes og innsettes med fett før tilkobling.
Al-conductors have to be brushed and greased before connection.
Al-leiter mussen vor den anschliessen gebursted und eingefettet werden.

Technical data
ZLBM/ZHBM

ZLBM/ZHBM Fuse Switch Disconnector

		ZLBM/ZHBM 00	ZLBM/ZHBM 1	ZLBM/ZHBM 2	ZLBM/ZHBM 3
Rated operational voltage Ue	(V)	400/500/690	400/500/690	400/500/690	400/500/690
Rated operational current Ie	(A)	160/160/125	250	400	630
Rated insulation voltage Ui	(V)	1000	1000	1000	1000
Rated impulse withstand voltage Uimp	(kV)	8	8	8	8
Fuse protected short circuit withstand current	(kArms)	100	100	100	100
Fuse protected short circuit making	(kArms)	100	100	100	100
Rated making and breaking capacity		AC23B/AC22B/AC21B	AC23B/AC22B/AC21B	AC23B/AC22B/AC21B	AC23B/AC22B/AC21B
Rated frequency	(Hz)	50/60	50/60	50/60	50/60
Electrical durability		200	200	200	200
Mechanical durability		1400	1400	800	800
Degree of protection from the front	Open	IP20	IP20	IP20	IP20
	Closed	IP30	IP30	IP30	IP30

Type tested according to EN/IEC 60947-3

Метикс
www.metix.bg
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гр.Петрич 2850, Промишлена зона
ул."Свобода"49
тел.:00359 745 60743; факс:00359 745 60742
e-mail: metix@metix.bg
гр.София 1000 ул."Рикардо Вакарини"бл.5
тел.:00359 2 869 0598; факс:00359 2 958 9334
e-mail:sales@metix.bg

TÜVRheinland
TÜV Rheinland Bulgaria
BDS EN ISO 9001:2008
Cert. No.TRBA 100 0300

TÜVRheinland CERTIFIED
Management System ISO 9001:2008 + OHSAS 18001:2007

TÜVRheinland CERTIFIED
Management System ISO 14001:2004

ПРИЛОЖЕНИЕ 9.6.3

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

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ / НН / "

РЕФ. № PPD 15-101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД
БЪЛГАРИЯ

Test Report issued under the responsibility of

TEST REPORT
IEC 60947-3
Low-voltage switchgear and controlgear
Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units

Report Number	00901-CB2014CQC-060737-M1
Date of issue	2014-11-17
Total number of pages	41
Applicant's name	ABB AS
Address	Amtm A1 Isgt 97, P.O. Box 100, Sentrum NO-3701 Skien, Norway
Test specification:	
Standard	IEC 60947-3:2008 (Third Edition) + A1:2012 in conjunction with IEC 60947-1:2007 (Fifth Edition) + A1:2010
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60947_3C
Test Report Form(s) Originator	OVE
Master TRF	Dated 2013-05

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

Test item description	Fuse switch disconnector
Trade Mark	ABB
Manufacturer	ABB AS
Model/Type reference	ZLBM2, ZHBM2
Ratings	See page 9

ВЯРНО С ОРИГИНАЛА

Testing procedure and testing location:			
☒	CB Testing Laboratory:	Shanghai Testing & Inspection Institute for Electrical Equipment (STIEE)	
Testing location/ address.....:		505 Wu Ning Rd. Shanghai 200063, P.R. CHINA	
☐	Associated CB Laboratory:		
Testing location/ address.....:			
	Tested by (name + signature).....:	Cheng Yanmin	程彦敏
	Approved by (name + signature)..:	Wei Qingyuan	魏青源
☐	Testing procedure: TMP		
Testing location/ address.....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)..:		
☐	Testing procedure: WMT		
Testing location/ address.....:			
	Tested by (name + signature).....:		
	Witnessed by (name + signature)..:		
	Approved by (name + signature)..:		
☐	Testing procedure: SMT		
Testing location/ address.....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)..:		
	Supervised by (name + signature).:		

ВЯРНО С ОРИГИ...

ВЯРНО С ОРИГИНАЛА

List of Attachments (including a total number of pages in each attachment): N/A

Remark:

This test report must be read in conjunction with the original test report 00901-CB2014CQC-063189.

The latest CB certificate No. is CN30901.

The latest test report 00901-CB2014CQC-063189, dated 2014-07-24 was modified on 2014-11-17 to include the following changes:

Serial No.	Item	Before change	After change
1	Add type	ZLBM2	ZLBM2,ZHBM2
2	Explanation of model/ type	See below	See below

Before change:

ZLBM 2

Fuse-links type: NH2

ZLBM fuse-switch-disconnector

After change:

Z L B M 2 – 1P – Z – M12
① ② ① ① ③ ④ ⑤ ⑥

①It is basic.
② L/H. L is normal version; H is deeper version.
③The size of fuse link is NH2.
④ 1P/3P. 1P is single pole operated switch, 3P is three pole operated switch.
⑤ Blank/Z. Blank is the application to normal busbar connection, Z is the application to Z-busbar connection.
⑥ M12/M12SS/V. M12 is normal bolt M12 for cable connection, M12SS is stainless steel bolt M12 for cable connection. V is integrated V- clamp for cable connection.

Z L B M 2
① ② ① ① ③

①It is basic.
② L/H, L is normal version; H is deeper version.
③The size of fuse link is NH2.

ВЯРНО С ОРИГИНАЛА

ВЯРНО С ОРИГИНАЛА

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
ZLBM2 Test seq. I, IV Test Sequence I: #01: ZLBM2 Z-calmp Ith=400A Ie=400A Ue=500V AC-22B 3P three poles operated #02: ZLBM2 Integrated V Ith=400A Ie=400A Ue=500V AC-22B 3P three poles operated #03: ZLBM2 Z-calmp Ith=400A Ie=400A Ue=500V AC-22B 3P single pole operated #04: ZLBM2 Integrated V Ith=400A Ie=400A Ue=500V AC-22B 3P single pole operated #05: ZHBM2 Ith=400A Ie=400A Ue=500V AC-22B 3P three poles operated #06: ZHBM2 Ith=400A Ie=400A Ue=500V AC-22B 3P single pole operated Test Sequence IV: #07: ZLBM2 Z-clamp Ith=400A Ie=400A Ue=690V Ui=1000V AC-21B 3P three poles operated #08: ZLBM2 Z-clamp Ith=400A Ie=400A Ue=690V AC-21B 3P single pole operated #09 ZHBM2 Ith=400A Ie=400A Ue=690V AC-21B 3P three poles operated #10 ZHBM2 Ith=400A Ie=400A Ue=690V AC-21B 3P single pole operated **Remark** #01~#06:only for Clause 8.3.3.1	Shanghai Testing & Inspection Institute for Electrical Equipment (STIEE) 505 Wu Ning Rd. Shanghai 200063, P.R. CHINA

Summary of compliance with National Differences

List of countries addressed: N/A

☐ **The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)**

ВЯРНО С ОРИГ

ВЯРНО С ОРИГИНАЛА

Метикс
www.metix.bg
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гр.Петрич 2850, Промишлена зона
ул."Свобода"49
тел.:00359 745 60743; факс:00359 745 60742
e-mail: metix@metix.bg
гр.София 1000 ул."Ректорат Бакарджиев"бл.5
тел.:00359 2 868 0698; факс:00359 2 958 9334
e-mail: sales@metix.bg

TÜVRheinland
TÜV Rheinland Bulgaria
SOS EN ISO 9001:2008
Cert. No. TRBA 100.0300

TÜVRheinland CERTIFIED Management System ISO 9001:2008 OHSAS 18001:2007 www.tuv.com ID 9105026656

TÜVRheinland CERTIFIED Management System ISO 14001:2004 www.tuv.com ID 9105026656

ПРИЛОЖЕНИЕ 9.6.4

Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания по т. 3 – заверено копие

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ / НН / "

РЕФ. № PPD 15-101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД БЪЛГАРИЯ * ПЕТРИЧ *

International Electrotechnical Commission

IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE)

CERTIFICATE OF ACCEPTANCE

TO PARTICIPATE IN THE IECEE CB-SCHEME

STIEE – Shanghai Testing & Inspection Institute for Electrical Equipment

No. 505 Wu Ning Road, 200063 Shanghai, China

has been assessed and determined to fully comply with the requirements of ISO/IEC 17025: 2005-05, The Basic Rules, IECEE 01: 2012-06 and Rules of Procedure IECEE 02: 2012-06, and the relevant IECEE CB-Scheme Operational Documents

STIEE – Shanghai Testing & Inspection Institute for Electrical Equipment

is therefore entitled to operate as a Chinese CB Testing Laboratory under the responsibility of CQC as National Certification Body and to carry out testing within the IECEE CB Scheme for the Scope (Product Category(ies) and Standard(s)) as listed in the relevant part of the IECEE Web Site at www.iecee.org, and is subject to all other terms as set forth in the IECEE Basic Rules and Rules of Procedure

This certificate remains valid until December 5th 2016 at which time it will be reissued by the IECEE Executive Secretary upon successful completion of the normally scheduled 3-year Reassessment Programme administered by the IECEE CB Scheme.

Signed by:

Kerry McMANAMA
IECEE EXECUTIVE SECRETARY AND CDO

Date of Issue: 2014-02-05
TL030

ВЯРНО С ОРИГИНА

ВЯРНО С ОРИГИ

БЪЛГАРИЯ

Ref. Certif. No.
CN31569

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

Product Produit	Fuse-switch-disconnector
Name and address of the applicant Nom et adresse du demandeur	ABB AS Amtm Aallsgt. 97 P.O. Box 100, Sentrum NO-3701 Skien, Norway
Name and address of the manufacturer Nom et adresse du fabricant	ABB AS Amtm Aallsgt. 97 P.O. Box 100, Sentrum NO-3701 Skien, Norway
Name and address of the factory Nom et adresse de l'usine *Note: When more than one factory, please report on page 2* *Note: Lorsqu'il y a plus d'une usine, veuillez utiliser la 2ème page*	ABB Bulgaria EOOD - Rakovski branch Industrial Zone, Plovdiv District, Rakovski Municipality 4150 RAKOVSKI BULGARIA
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Ui=1000V Ith=400A Ue/Ie AC-21B AC690V/400A AC-22B AC500V/400A AC-23B AC400V/400A Iq=100kA 3P
Trademark (if any) Marque de fabrique (si elle existe)	ABB
Model / Type Ref. Ref. De type	ZLBM2
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page)	PUBLICATION EDITION IEC 60947-3:2008(3rd Edition)+A1:2012 in conjunction with IEC 60947-1:2007(5th Edition)+A1:2010
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat	00901-CB2014COC-060737

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

CQC CHINA QUALITY CERTIFICATION CENTRE

Date: 2014-08-27 Signature: Wang Kejiao

Issued 2003-05
China Quality Certification Centre
Section 9,No.188,Nansihuan Xilu, Beijing 100070 P.R.China
Tel: +86-10-83886666
Fax: +86-10-83886282
website:
www.cqc.com.cn

CB 0025846

Метикс
www.metix.bg
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гр.Петрич 2850, Промишлена зона
ул."Свобода"49
тел.:00359 745 60743; факс:00359 745 60742
e-mail: metix@metix.bg
гр.София 1000 ул."Ректор Балкански"бл.5
тел.:00359 2 869 0595; факс:00359 2 958 9334
e-mail: sales@metix.bg

ПРИЛОЖЕНИЕ 9.6.5

ЕО декларация за съответствие

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ / НН / "

РЕФ. № PPD 15-101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД
БЪЛГАРИЯ
ПЕТРИЧ

Samsvarserklæring
Declaration of Conformity

Vi : ABB AS , Low Voltage Products
We : ABB AS , Low Voltage Products
(Fabrikantens navn / name of the manufacturer)

Adresse : Postboks 100, N 3702 SKIEN, Norway
Address : Postbox 100, N 3702 SKIEN, Norway

erklærer herved som eneansvarlig at produktet: / declare under our sole responsibility that the product:

Type/Betegnelse : Sikringslastskillebryter/Fuse Switch Disconnector
Type/Designation : ZLBM00, ZLBM1, ZLBM2, ZLBM3
ZHBM00, ZHBM1, ZHBM2, ZHBM3

Denne samsvarserklæring er i overensstemmelse med europeisk standard EN 45014: "Generelle kriterier for samsvarserklæring».
Basis for innholdet er å finne i internasjonal dokumentasjon, hovedsakelig ISO/IEC veiledning 22, 1982: «Informasjon om samsvarserklæring med standarder eller andre tekniske spesifikasjoner».

This Declaration of Conformity is in accordance with the European Standard EN 45014 «General criteria for declarations of Conformity».
The basis for the contents has been found in international documentation, particularly in: ISO/IEC Guide 22, 1982, «Informations on manufacturer's declaration of conformity with standards or other technical specifications».

Er konstruert og produsert i h.h.t. relevante europeiske standarder:/ are designed and manufactured according to relevant European Standards:

- IEC 60947-1 Ed. 5.0 (2007 and later)
- IEC 60947-3 Ed. 3.0 (2008 and later)

og europeiske direktiv såsom / and European Directives like:

LVD 2006/95/EC publisert i Offentlig Journal (OJ) 2006/12/27
published in Official Journal (OJ) 2006/12/27

EMC 2004/108/EC publisert i Offentlig Journal (OJ) 2004/12/31
published in Official Journal (OJ) 2004/12/31

ВЯРНО С ОРИГИНАЛА

År for CE-merking:/
Year of CE-marking: 2014

Ansvarlig: / Person in charge:

Skien, 27.-Nov - 2014
(Sted, dato og år for utstedelse/
Place, date and year of issue)

Jon Arild Zinke
(Signature / sign)

Erklæringsidentnr.
Declarationidentno. 1 SEP 500046P0001

ВЯРНО С ОРИГИНАЛА

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ПРИЛОЖЕНИЕ 9.6.6

Декларация за съответствие на предлаганото изпълнение с изискванията на техническата спецификация на този стандарт за материал, вкл. на параграфи „Характеристика на материала" и „Съответствие на предложеното изпълнение с нормативно-техническите документи"

Триполюсен предпазител-разединител с вертикална конструкция, с обявен работен ток 400 А, с общо управление на полюсите, за директен монтаж върху събирателни шини с междуосово разстояние 185 mm, за високомощни предпазители със стопяема вложка НН, система А (NH система), с характеристика gG, размер 2, съответстващи на БДС EN 60269-1:2007 и БДС HD 60269-2:2007.
Вертикалният предпазител-разединител е предназначен за включване, изключване, разединяване и защита на кабелни линии НН.
Триполюсният вертикален предпазител-разединител за 400 А, с общо управление на полюсите отговаря на приложимите български и международни стандарти 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
БДС EN 60947-3:2002 „Комутационни апарати за ниско напрежение. Част 3: Товарови прекъсвачи, разединители, товаров прекъсвач-разединители и апарати, комбинирани с предпазители (IEC 60947-3:1999 + поправка юли 1999)"
и е оценен 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.

С настоящето декларираме съоттветствието на предлаганото изпълнение с изискванията
на техническата спосификация

гр. Петрич
04.12.2015г.

Декларатор:
инж. Николай Джамбазов
/Управител/

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ / НН / "

РЕФ. № PPD 15-101

организиран от "ЧЕЗ Разпределение България" АД

ABB

To whom it may concern

Deres referanse *Your reference*	Deres dato *Your date*	Vår referanse *Our reference*	Vår dato *Our date*
		JKS	18.03.2015

Materials used in ABB InLine II - Fuse Switch Disconnectors

Plastic materials used in ABB InLine Fuse switch disconnectors range, type ZLBM00, ZLBM1, ZLBM2 and ZLBM3, fulfils the requirements of glow-wire test according to IEC 60695-2-10 and IEC 60695-2-11.
Parts made of insulating material necessary to retain current-carrying parts in position, have been tested and passed with a test temperature of 960 °C.
Parts of insulating material not necessary to retain current-carrying parts in position, even though in contact with them, have been tested and passed with a test temperature of 650 °C.

All plastic materials used in ABB InLine Fuse switch disconnectors range, type ZLBM00, ZLBM1, ZLBM2 and ZLBM3, have V0 as "Flammability Classification" according to UL94.
This test is similar to the requirement in the Vertical Burning Test according to EN/IEC 60695-11-10

Yours faithfully

Kyrre Semb
Product Manager

ABB AS - Division Low Voltage Products

Inngår i *Part of* ABB AS

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Management System ISO 9001:2008 OHSAS 18001:2007

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Management System ISO 14001:2004

ПРИЛОЖЕНИЕ 9.6.7

Инструкции за транспортиране, складиране, монтиране, поддържане и експлоатация

ВПР НН 400А, 3-полюсно управление не трябва да се складират в среда с висока влажност, с наличие на корозивни вещества или кондензирани изпарения.

Да се съхраняват в температурния интервал -20С + 55С.

ВПР се опаковат и транспортират в картонени кутии, да се избягва изпускането на кутиите по време на транспортирането и товаро-разтоварни работи.

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ / НН / “

РЕФ. № PPD 15-101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД * БЪЛГАРИЯ * ПЕТРИЧ

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ПРИЛОЖЕНИЕ 9.6.8

Описание на потенциалната заплаха за увеличаване опасността и рисковете от замърсяване на околната среда и класификация на отпадъците съгласно Наредба №3/2004 г. за класификация на отпадъците, издадена от министъра на околната среда и водите и министъра на здравеопазването, обн. ДВ, бр. 44 от 25.05.2004 г.

Долу подписания инж. Николай Джамбазов - Управител на МЕТИКС ООД , град Петрич ,със седалище и адрес на управление в гр. Петрич,
ул. "Свобода" 49 , живущ в гр. Петрич , ул. "България" 32 , притежаващ л.к. 640835690, издадена на 17.09.2010г. от МВР гр. Благоевград , с ЕГН 7709230105

ДЕКЛАРИРАМ :

Че всички материали използвани при производството на вертикален предпазител-разединител НН 400 А, с триполюсно управление НЕ СА ПОТЕНЦИАЛНА ЗАПЛАХА ЗА УВЕЛИЧАВАНЕТО ОПАСНОСТТА И РИСКОВЕТЕ ЗА ЗАМЪРСЯВАНЕ НА ОКОЛНАТА СРЕДА и класификацията на отпадъците съгласно НАРЕДБА №3/2004 г за класификация на отпадъците издадена от министъра на околната среда и водите и министъра на здравеопазването , обнародвана в ДВ, бр. 44 от 25.05.2004 г.

Известно ми е ,че за неверни данни нося отговорност по чл. 313 от НК.

Гр. Петрич
Дата:04.12.2015г.

ДЕКЛАРАТОР:
/инж. Николай Джамбазов/

"МЕТИКС" ООД * БЪЛГАРИЯ * ГРИ

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„Доставка на разпределителни табла ниско напрежение /НН/"

РЕФ. № РРД 15-101

организиран от "ЧЕЗ Разпределение България" АД

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ПРИЛОЖЕНИЕ 9.6.9

Декларация за възможността за рециклиране на използваните материали или за начина на ликвидацията им

Долу подписания инж. Николай Джамбазов - Управител на МЕТИКС ООД , град Петрич ,със седалище и адрес на управление в гр. Петрич,
ул. "Свобода" 49 , живущ в гр. Петрич , ул. "България" 32 , притежаващ л.к. 640835690, издадена на 17.09.2010г. от МВР гр. Благоевград , с ЕГН 7709230105

ДЕКЛАРИРАМ :

Че всички материали използвани при производството на вертикален предпазител-разединител НН 400 А, с триполюсно управление могат да се рециклират.

Известно ми е ,че за неверни данни нося отговорност по чл. 313 от НК.

Гр. Петрич
Дата:04.12.2015г.

ДЕКЛАРАТОР:
/ инж. Николай Джамбазов/

"МЕТИКС" ООД България ПЕТРИЧ

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„Доставка на разпределителни табла ниско напрежение /НН/"

РЕФ. № PPD 15-101

организиран от "ЧЕЗ Разпределение България" АД

Наименование на материала: Предпазители със стопяема вложка НН, размер 2 XXX A за 400 (500) V, високомощни, ножови, характеристика gG, система A (NH система)

Съкратено наименование на материала: Предпазители НН, размер 2 XXX A, хар. gG, с-ма NH

Област: H – Трансформаторни постове (Кабелни разпределителни шкафове)

Категория: 16 – Предпазители, основи за предпазители

Мерна единица: Брой

Аварийни запаси: Да

Характеристика на материала:

Обявено напрежение: 400 V AC или 500 V AC; 250 V DC. Способност за изключване (прекъсване на ток): 100 кА при обявено напрежение 400 V AC или 120 kA при обявено напрежение 500 V AC; 50 kA при 250 V DC. Времетокова характеристика на стопяемия елемент: gG. Система на предпазителя: A (NH система).

Използване:

Предпазителите са предназначени за използване в електрически разпределителни уредби, които са достъпни единствено от упълномощен квалифициран персонал, за защита от токове на къси съединения и претоварване.

Съответствие на предложеното изпълнение с нормативно-техническите документи:

Предпазителите трябва да отговарят най-малко на посочените по-долу стандарти или еквиваленти, включително на техните валидни изменения и допълнения:

- БДС EN 60269-1:2007 „Стопяеми предпазители за ниско напрежение. Част 1: Общи изисквания (IEC 60269-1:2006)";
- БДС HD 60269-2:2007 „Стопяеми предпазители за ниско напрежение. Част 2: Допълнителни изисквания за стопяемите предпазители, предназначени да се използват от квалифицирани лица (предпазители предимно за промишлено приложение). Примери на стандартизирани системи за предпазители от A до I (IEC 60269-2:2006, с промени)"; 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. .....

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	NV/NH2 2 KOMBI Gg/Gl ,400A ETI Elektroelement d.d. Словения Приложение 9.12.1
2.	Техническо описание и чертежи с нанесени размери	Приложение 9.12.2
3.	ЕО декларация за съответствие	Приложение 9.12.3
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 9.12.4
5.	Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания по т. 4 – заверено копие	Приложение 9.12.5
6.	Списък на провежданите рутинни (контролни) изпитвания	Приложение

№ по ред	Документ	Приложение № (или текст)
		9.12.6
7.	Инструкции за, поставяне в основата, обслужване и поддържане.	Приложение 9.12.7

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

Технически данни:

1. Характеристики на работната среда

№ по ред	Характеристика	Стойност
1.1	Място на монтиране	На закрито
1.2	Максимална температура на въздуха на околната среда	+ 40°C
1.3	Минимална температура на въздуха на околната среда	минус 5°C
1.4	Средна стойност на температурата на въздуха на околната среда, измерена за период от 24 h	+ 35°C
1.5	Относителна влажност	До 90 %
1.6	Степен на замърсяване	3
1.7	Надморска височина	До 2000 m

2. Параметри на електроразпределителната мрежа

№ по ред	Параметър	Стойност
2.1	Номинално напрежение	400 / 230 V
2.2	Максимално напрежение	440 / 253 V
2.3	Номинална честота	50 Hz
2.4	Електроразпределителна мрежа	4 - проводникова (L1, L2, L3, PEN)
2.5	Схема на електроразпределителната мрежа	TN-C

3. Общи технически параметри и други данни

№ по ред	Параметър/данни	Изискване	Гарантирано предложение
3.1	Размер	2	
3.2	Система	A (NH система)	A (NH система)
3.3	Тип	Ножов	Ножов
3.4	Обявено напрежение	400 V или 500 V	500 V
3.5	Способност за изключване (прекъсване) на ток	min 100 kA при 400 V или min 120 kA при 500 V	120 kA при 500 V

№ по ред	Параметър/данни	Изискване	Гарантирано предложение
3.6	Времетокова характеристика на стопяемия елемент	gG	gG
3.7	Селективност gG	1:1,6	1:1,6
3.8	Маркировка	а) Съгласно т. 6.2 БДС EN 60269-1 и т. 6.2 от БДС HD 60269-2 или еквиваленти.	ДА, Съгласно т. 6.2 БДС EN 60269-1 и т. 6.2 от БДС HD 60269-2
		б) CE маркировка за съответствие	ДА

4. Предпазители със стопяема вложка НН, размер 2 – разсейвана мощност

Номер на стандарта	Съкратено наименование	Обявен ток, А	Максимална разсейвана мощност, W	
			Изискване	Гарантирано предложение
20 16 0213	Предпазители НН, размер 2, 400 А, хар. gG, с-ма NH	400	33,0	33,0

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ПРИЛОЖЕНИЕ 9.12.1

Точно означение на типа, производителя и страната на производство (произход) и последно издание на каталога на производителя

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ /НН/ “

РЕФ. № PPD 15 101

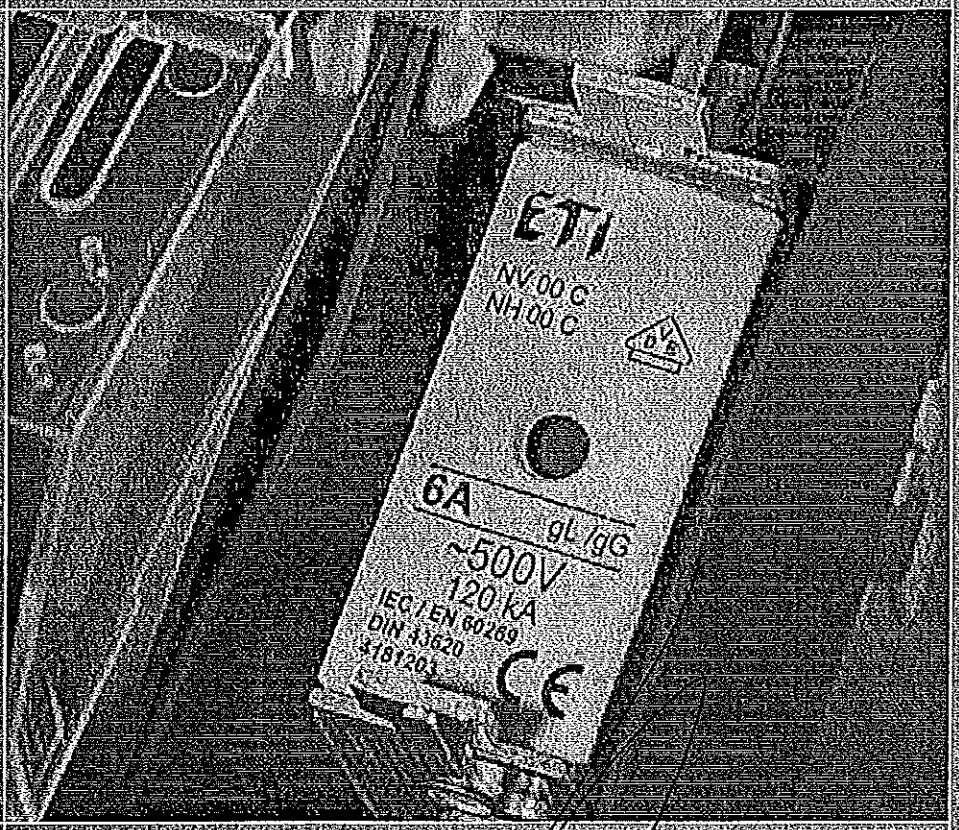
организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД
БЪЛГАРИЯ
ПЕТРИЧ

NV/NH

HR

Високомощни предпазители тип ВПНН



Високомощни предпазители тип ВПНН

Предимства на ВПНН предпазителите KOMBI

ЕТИ представя новата серия високомощни предпазители NV/NH, която ще замести съществуващите досега серии. Най-значимото преимущество на новата серия е двойната индикация, наречена KOMBI (комбинирана), която много надеждно обединява така наречената "челна индикация" (традиционно разположение на индикатора на горната пластина) и "централна индикация" (разположение на индикатора в центъра на керамичния корпус). Използваната версия на механизма за индикация е високотехнологична и осигурява добра видимост на индикатора при всички приложения на предпазителя - основи за предпазители (ОВП), товарови основи и прекъсвач-предпазители.

Основните предимства на високомощни предпазители NV/NH KOMBI са следните:

- Размери в съответствие със стандарт DIN 43620 Част 1 - 4
- Висока изключвателна способност
- Предлагат се в три варианта с номинално напрежение: 400V a.c., 500V a.c. и 690V a.c.
- Две версии на покриваща плоча: алуминиева, при която щифтът е под напрежение, и пластмасова, при която изолираният метален щифт е вграден в пластмасовата повърхност
- Комбиниран индикатор, осигуряващ двойна индикация: на горната част на покриващата плоча и в центъра на керамичния корпус

Високомощни предпазители ВПНН

Предпазителите със стопяеми вложки ЕТИ NV осигуряват възможно най-надеждната и икономична защита на въздушни и кабелни линии срещу малки пренапрежения и високи токове на късо съединение. Размерите им са съобразени с изискванията по стандарт DIN 43620, а останалите технически характеристики съответстват на следните стандарти:

- Номинално напрежение 500/690V/gG/gL: IEC 60269-1 Ed. 3.0:1998+Corr.1:2000+A1:2005 / EN 60269-1:1998+A1:2005 IEC 60269-2 Ed. 2.0:1986+Corr.1:1996+A1:1995+A2:2001 / EN 60269-2:1995+A1:1998+A2:2002 IEC 60269-2-1 Ed. 4.0:2004 / HD 630.2.1 S6:2003
- Номинално напрежение 690V/aM: VDE 0636-2011
- Номинално напрежение 400V/gF: PN-IEC 60269-2

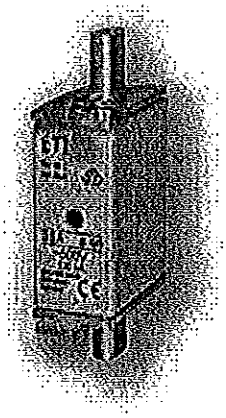
Кратко описание на съставните елементи на високомощни предпазители NV

Корпусът на предпазителя е произведен от качествен стеатит, високо устойчив на температурно претоварване. Във вътрешността на стеатитното тяло е поставен стопяем меден елемент, запоен на специално пригодено за целта място от вътрешната страна на контактния нож. Благодарение на прецизното оформяне на тази част, при монтаж предпазителният елемент попада точно в нейната среда. Вътрешността на керамичното тяло се запълва с кварцов пясък с прецизно определени гранули и състав. Всички контактни ножове с размер до NV 2 C са произведени от мед, а останалите - от месинг. Всички те са допълнително защитени с пласт сребърно, или, при специална поръчка, никелово покритие. Изключителната стабилност на предпазителните характеристики е доказана с цикъл от проведени изпитания. Осигурена е селективност в съответствие с пропорцията на номиналния ток 1:1,6 в областите с опасност от пренапрежение, както и в тези с опасност от късо съединение.

Високомощни предпазители NV/NH с gG/gL характеристика

NV/NH

Номинални токове: 16 - 1600 A | Изключителна способност: 120 kA | Номинални напрежения: 400, 500, 690 V



Ном. ток	NV/NH 00 C KOMBI gG/gL — Кат. No			NV/NH 00 C1 KOMBI gG/gL — Кат. No			Тегло	Опаковка
[A]	~400V	~500V	~690V	~400V	~500V	~690V	[гр.]	[бр.]
2	004181101	004181201	004181301	004191101	004191201	004191301	125	3/120
4	004181102	004181202	004181302	004191102	004191202	004191302	125	3/120
6	004181103	004181203	004181303	004191103	004191203	004191303	125	3/120
10	004181104	004181204	004181304	004191104	004191204	004191304	125	3/120
16	004181105	004181205	004181305	004191105	004191205	004191305	125	3/120
20	004181106	004181206	004181306	004191106	004191206	004191306	125	3/120
25	004181107	004181207	004181307	004191107	004191207	004191307	125	3/120
32	004181108	004181208	004181308	004191108	004191208	004191308	125	3/120
35	004181109	004181209	004181309	004191109	004191209	004191309	125	3/120
40	004181110	004181210	004181310	004191110	004191210	004191310	125	3/120
50	004181111	004181211	004181311	004191111	004191211	004191311	125	3/120
63	004181112	004181212		004191112	004191212		125	3/120
80	004181113	004181213		004191113	004191213		125	3/120
100	004181114	004181214		004191114	004191214		125	3/120

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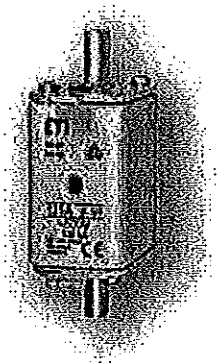
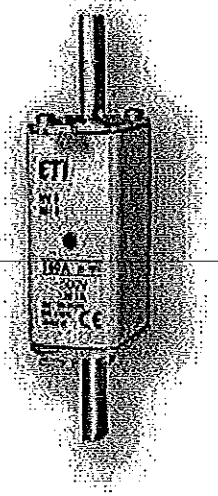
Високомощни предпазителни вложки NH

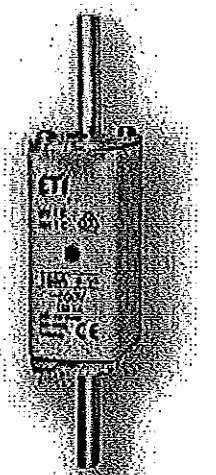
ном. ток [A]	NV/NH 00 KOMBI gG/gL кат. No. ~400 V	~500 V	~690 V	NV/NH 00 KOMBI gG/gL кат. No. ~400 V	~500 V	~690 V	тегло [гр.]	опаковка [бр.]
63			004182112			004192112	173	3/90
80			004182113			004192113	173	3/90
100			004182114			004192114	173	3/90
125	004182115	004182215	004182315	004192115	004192215	004192315	173	3/90
160	004182116	004182216		004192116	004192216		173	3/90



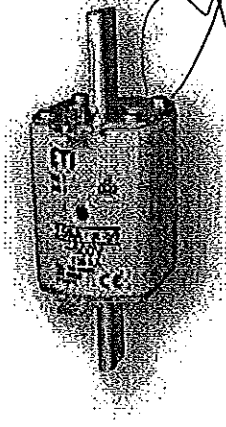
ном. ток [A]	NV/NH 0 KOMBI gG/gL кат. No. ~500V	~690V	тегло [гр.]	опаковка [бр.]
6	004183203	004183303	226	3/45
10	004183204	004183304	226	3/45
16	004183205	004183305	226	3/45
20	004183206	004183306	226	3/45
25	004183207	004183307	226	3/45
32	004183208	004183308	226	3/45
35	004183209	004183309	226	3/45
40	004183210	004183310	226	3/45
50	004183211	004183311	226	3/45
63	004183212	004183312	226	3/45
80	004183213	004183313	226	3/45
100	004183214	004183314	226	3/45
125	004183215	004183315	226	3/45
160	004183216		226	3/45



ном. ток [A]	NV/NH 1C KOMBI gG/gL кат. No. ~500V	~690V	NV/NH 1 CI KOMBI gG/gL кат. No. ~500V	~690V	тегло [гр.]	опаковка [бр.]
25	004184207	004184307	004194207	004194307	233	3/45
32	004184208	004184308	004194208	004194308	233	3/45
35	004184209	004184309	004194209	004194309	233	3/45
40	004184210	004184310	004194210	004194310	233	3/45
50	004184211	004184311	004194211	004194311	233	3/45
63	004184212	004184312	004194212	004194312	233	3/45
80	004184213	004184313	004194213	004194313	233	3/45
100	004184214	004184314	004194214	004194314	233	3/45
125	004184215	004184315	004194215	004194315	233	3/45
160	004184216		004194216		233	3/45



ном. ток [A]	NV/NH 1 KOMBI gG/gL кат. No. ~400V	~500V	~690V	NV/NH 1 I KOMBI gG/gL кат. No. ~400V	~500V	~690V	тегло [гр.]	опаковка [бр.]
63	004184120	004184220	004184320	004194120	004194220	004194320	430	3/24
80	004184121	004184221	004184321	004194121	004194221	004194321	430	3/24
100	004184122	004184222	004184322	004194122	004194222	004194322	430	3/24
125	004184123	004184223	004184323	004194123	004194223	004194323	430	3/24
160	004184124	004184224	004184324	004194124	004194224	004194324	430	3/24
200	004184117	004184217	004184317	004194117	004194217	004194317	430	3/24
224	004184118	004184218	004184318	004194118	004194218	004194318	430	3/24
250	004184119	004184219	004184319	004194119	004194219	004194319	430	3/24



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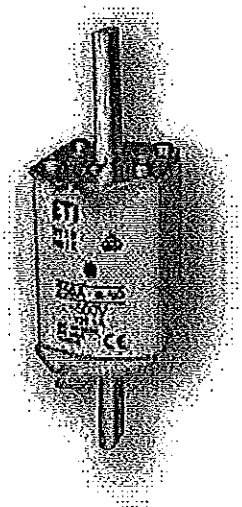
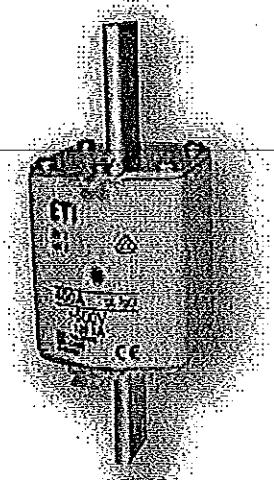
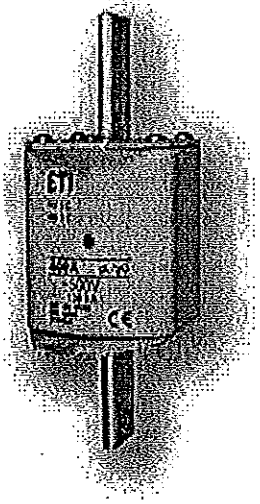


ном. ток	NV/NH 2 C KOMBI gG/gL кат. No.			NV/NH 2 C KOMBI gG/gL кат. No.			тегло	опаковка
[A]	~ 400 V	~ 500 V	~ 690 V	~ 400 V	~ 500 V	~ 690 V	[гр.]	[бр.]
63	004185112	004185212	004185312	004195112	004195212	004195312	430	3/15
80	004185113	004185213	004185313	004195113	004195213	004195313	430	3/15
100	004185114	004185214	004185314	004195114	004195214	004195314	430	3/15
125	004185115	004185215	004185315	004195115	004195215	004195315	430	3/15
160	004185116	004185216	004185316	004195116	004195216	004195316	430	3/15
200	004185117	004185217	004185317	004195117	004195217	004195317	430	3/15
224	004185118	004185218	004185318	004195118	004195218	004195318	430	3/15
250	004185119	004185219	004185319	004195119	004195219	004195319	430	3/15



ном. ток	NV/NH 2 KOMBI gG/gL кат. No.			NV/NH 2 L KOMBI gG/gL кат. No.			тегло	опаковка
[A]	~ 400 V	~ 500 V	~ 690 V	~ 400 V	~ 500 V	~ 690 V	[гр.]	[бр.]
280	004185120	004185220	004185320	004195120	004195220	004195320	500	3/15
300	004185121	004185221	004185321	004195121	004195221	004195321	500	3/15
315	004185122	004185222	004185322	004195122	004195222	004195322	500	3/15
355	004185123	004185223		004195123	004195223		500	3/15
400	004185124	004185224		004195124	004195224		500	3/15



ном. ток	NV/NH 3 C KOMBI gG/gL кат. No.			тегло	опаковка
[A]	~ 400 V	~ 500 V	~ 690 V	[гр.]	[бр.]
250	004186119	004186219	004186319	510	3/12
280	004186120	004186220	004186320	510	3/12
300	004186121	004186221	004186321	510	3/12
315	004186122	004186222	004186322	510	3/12
355	004186123	004186223		510	3/12
400	004186124	004186224		510	3/12

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Високомощни предпазители тип NH

NV/NH 3 КОМБИ gG/gL

ном. ток [A]	кат. No. ~ 400V	кат. No. ~ 500V	кат. No. ~ 690V	тегло [гр.]	опаковка [бр.]
355			004186328	923	3/12
400			004186329	923	3/12
425	004186130	004186230	004186330	923	3/12
500	004186131	004186231	004186331	923	3/12
560	004186132	004186232		923	3/12
630	004186133	004186233		923	3/12

NV/NH 4 gG/gL

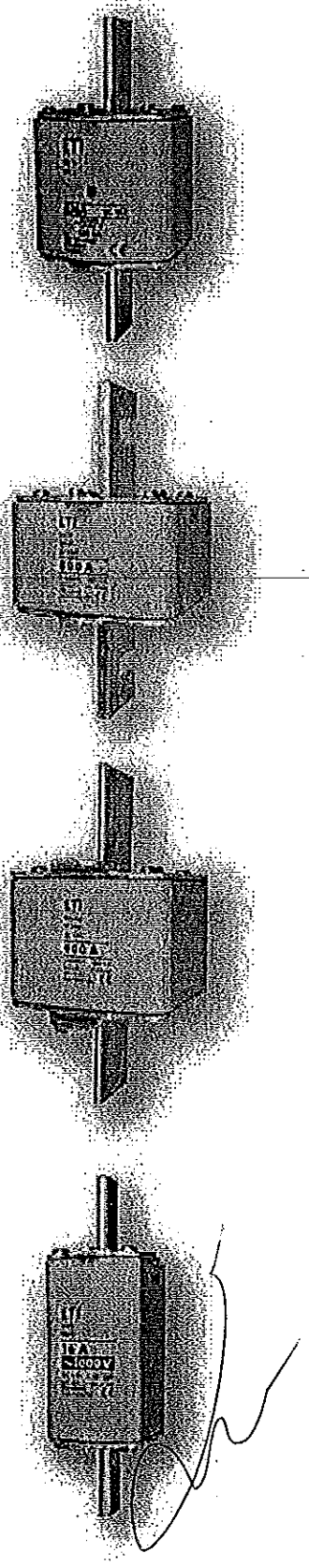
ном. ток [A]	кат. No. ~ 500V	тегло [гр.]	опаковка [бр.]
630	004116101	2130	1/12
710	004116102	2130	1/12
800	004116103	2130	1/12
900	004116105	2130	1/12
1000	004116104	2130	1/12
1250	004116106	2130	1/12

NV/NH 4a gG/gL

ном. ток [A]	кат. No. ~ 500V	кат. No. ~ 500V SI	кат. No. ~ 690V	тегло [гр.]	опаковка [бр.]
630	004116108	004176026	004176105	2170	1/12
710	004116109	004176027	004176106	2170	1/12
800	004116110	004176028	004176107	2170	1/12
900	004116111	004176029	004176108	2170	1/12
1000	004116112	004176030	004176109	2170	1/12
1250	004116113	004176031	004176110	2170	1/12
1500	004116119	004176032		2170	1/12
1600	004116120	004176033		2170	1/12

NV/NH 1 1000 V a.c. gG/gL

ном. ток [A]	кат. No.	тегло [гр.]	опаковка [бр.]
10	004113703	487	3/24
16	004113704	487	3/24
20	004113705	487	3/24
25	004113706	487	3/24
32	004113707	487	3/24
35	004113708	487	3/24
40	004113710	487	3/24
50	004113711	487	3/24
63	004113712	487	3/24
80	004113713	487	3/24
100	004113714	487	3/24
125	004113715	487	3/24
160	004113716	487	3/24
200	004113717	487	3/24



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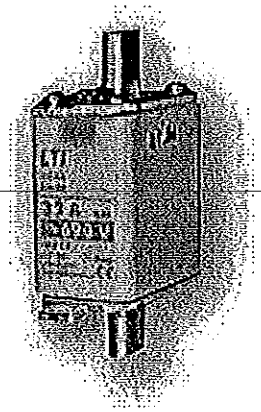
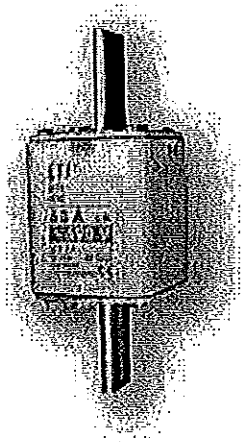
Високомощни предпазители NV/NH с aM характеристика

Номинален ток 2 ÷ 1250 A | Номинална способност 100 kA | Номинално напрежение 690 V

Високомощните предпазители с aM характеристика са предназначени за защита на електрокомутационно, превключващо и контролно оборудване, както и на двигатели, управлявани от честотни регулатори, където gL или gG характеристиките не съответстват на всички необходими изисквания за успешна защита на тези устройства. Те се произвеждат във всички стандартни за NV размери от 00C до 3 за всички стандартни номинални токове и за напрежения до 690 V. Основното им предназначение е да осигурят възможност за пълна употреба на електрокомутационното, превключващо и контролно оборудване в зоната на стартов ток и да предотвратят евентуална поява на искри или повреда в защитните контакти в случай на късо съединение. Необходимо е да се отбележи, че тези предпазители със стопяеми вложки са предназначени за защита в ограничена зона (зоната на тока на късо съединение).





Високомощни предпазители NV/NH с aM характеристика

Ном. ток	Кат. No. 690 V							
(A)	NV 00 C kombi	NV 00 kombi	NV 0	NV 1 kombi	NV 2 C kombi	NV 2 kombi	NV 3 kombi	NV 4a
2	004181401							
4	004181402							
6	004181403							
10	004181404			004184425				
16	004181405		004112125	004184426				
20	004181406		004112126	004184427				
25	004181407		004112127	004184428				
32	004181408		004112128					
35	004181409		004112129	004184429	004185429			
40	004181410		004112130	004184430	004185430			
50	004181411	004182411	004112131	004184431	004185431			
63	004181412	004182412	004112132	004184420	004185412			
80	004181413	004182413	004112133	004184421	004185413			
100	004181414	004182414	004112134	004184422	004185414			
125		004111735	004112135	004184423	004185415			
160		004111736	004112136	004184424	004185416	004185425		
200				004184417	004185417	004185426		
224				004184418	004185418	004185427		
250				004184419	004185419	004185428		
280						004185420		
300						004185421		
315						004185422		
355						004185423	004186428	
400						004185424	004186429	
425							004186430	
500							004186431	
630								004187432
710								004187433
800								004187434
900								004187435
1000								004187436
1250								004187437

* Теглото и опаковката са същите като при предпазители с характеристика gG/gL
** 500 V
*** Не се предлагат в KOMBI версия

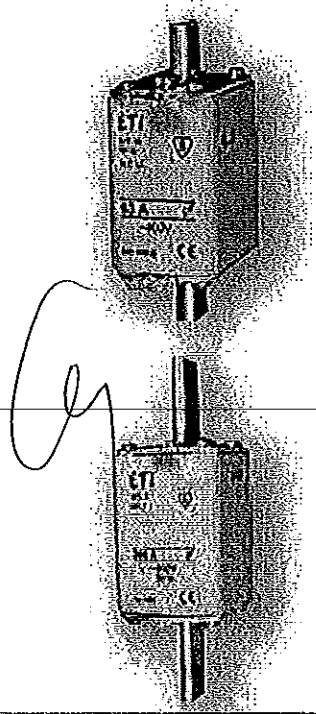
Високомощни предпазители NV/NH с gF характеристика

Номинални токове	Номинална отключваща способност	Номинално напрежение
20-250 A	100 kA	400 V

Високомощните предпазители с gF характеристика са предназначени за нисконапреженови инсталации и тоководещи линии с малък очакван ток на късо съединение. Предлагаме версии за всички стандартни номинални токове в размери 00 C, 00, 1 C и 1 за напрежение до 400V.

Високомощни предпазители NV/NH с gF характеристика

Ном. ток	кат. No. 400 V				тегло	опаковка
(A)	NV/NH 00 C	NV/NH 00	NV/NH 1 C	NV/NH 1	(gr.)	(бр.)
20	004119200		004139200			
25	004119201		004139201			
32	004119202		004139202			
40	004119203		004139203			
50	004119204		004139204			
63		004119100	004139205		същото като при предпазители gG	същата като при предпазители gG
80		004119101	004139206			
100		004119102	004139207			
125		004119103	004139208			
160		004119104	004139209			
200				004139100		
250				004139101		



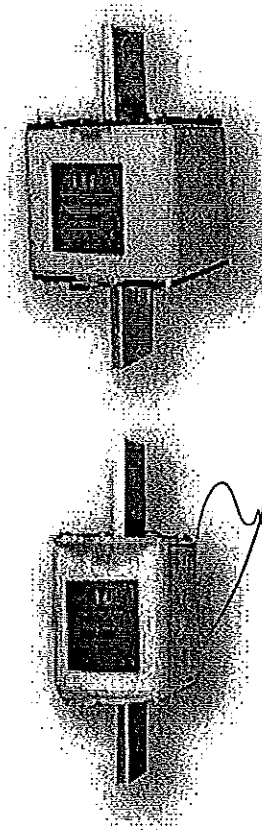
Високомощни предпазители NV/NH с gTr характеристика

Номинални мощности (трансформатори)	Номинална отключваща способност	Номинално напрежение
50-1000 A	100 kA	400 V

Високомощни предпазители NV/NH с gTr характеристика

Номинална мощност (трансформатори)	кат. No.			тегло	опаковка
(kVA)	NV/NH 2	NV/NH 3	NV/NH 4	(gr.)	(бр.)
50	004114400	004115400			
75	004114401	004115401			
100	004114402	004115402			
125	004114403	004115403			
160	004114404	004115404			
200	004114405	004115405			
250	004114406	004115406			
315		004115407	004116407		
400		004115408	004116408		
500			004116409		
630			004116410		
800			004116411		
1000			004116412		

същото като при предпазители gG | същата като при предпазители gG



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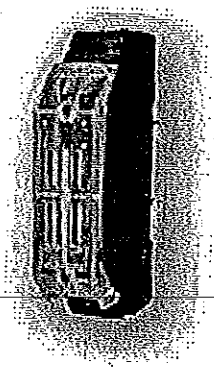
Основи за предпазители

Основи за високомощни предпазители NV/NH

Номинални токове 125 - 1250 A | Номинално напрежение 690 V

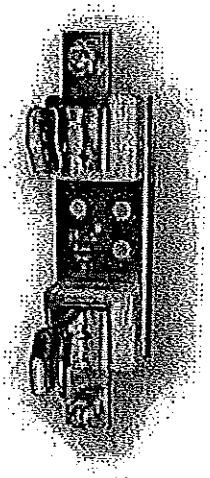


1-полюсна основа за предпазители NVPP 00

Тип	I_n [A]	Кат.№	Тегло [гр.]	Опаковка [бр.]
NVPP 00 M8-2M6	160	004121101	147	3/111
NVPP 00 M8-M8	160	004121102	147	3/111
NVPP 00 2M6-2M6	160	004121103	147	3/111
NVPPI 00 M8-2M6	160	004121115	187	3/75
NVPPI 00 M8-M8	160	004121116	187	3/75
NVPPI 00 2M6-2M6	160	004121117	187	3/75
NVPPIP 00 M8-2M6	160	004121130	204	3/75
NVPPIP 00 M8-M8	160	004121131	204	3/75
NVPPIP 00 2M6-2M6	160	004121132	204	3/75
NVPPN 00 M8-2M6	160	004121106	147	3/111
NVPPN 00 M8-M8	160	004121107	147	3/111
NVPPN 00 2M6-2M6	160	004121108	147	3/111
NVPPNI 00 M8-2M6	160	004121121	187	3/75
NVPPNI 00 M8-M8	160	004121122	187	3/75
NVPPNI 00 2M6-2M6	160	004121123	187	3/75
NVPPNIP 00 M8-2M6	160	004121136	204	3/75
NVPPNIP 00 M8-M8	160	004121137	204	3/75
NVPPNIP 00 2M6-2M6	160	004121138	204	3/75

NVPP базова версия основа за предпазители.
NVPPI изолирана основа за предпазители.
NVPPIP изолирана основа и предпазен капак.

NVPPN базова версия с възможност за фиксиране към монтажна шина.
NVPPNI изолирана основа за предпазители с възможност за фиксиране към монтажна шина.
NVPPNIP основа за предпазители, изолиран корпус и възможност за фиксиране към монтажна шина.



1-полюсна основа за предпазители PK и PKI

Тип	I_n [A]	Кат.№	Тегло [гр.]	Опаковка [бр.]
PK 00 M8 - 2 x M6	160	004122001	170	3/120
PK 00 M8 - M8	160	004121007	170	3/120
PK 00 2 x M6 - 2xM6	160	004122007	170	3/120
PK 0 M8 - 2 x M6	160	004122009	258	3/90
PK 0 M8 - M8	160	004122002	258	3/90
PK 02 x M6 - 2 x M6	160	004122008	258	3/90
PK1	250	004122003	598	3/42
PK2	400	004122004	995	3/30
PK3	630	004122005	1702	3/24
PK4	1250	004122006	3030	1/7
PKI1	250	004122010	624	3/42
PKI2	400	004122011	1033	3/30
PKI3	630	004122012	1241	3/24
PKI1/1000V	250	004122014	665	3/30

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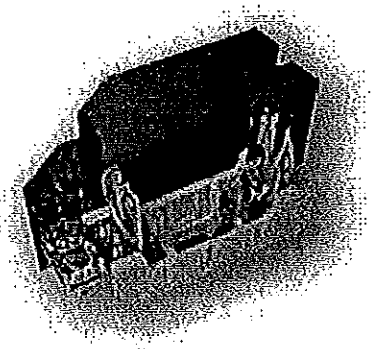
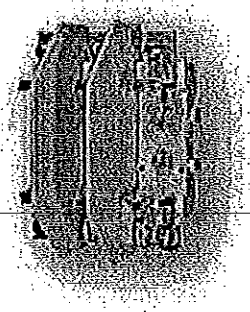
3-полюсна основа за предпазители PRR

тип	I_n (A)	кат. No.	тегло (гр.)	опаковка (бр.)
PRR 00	125	004121003	137	3/75
PRR 00 DIN	125	004121008	265	3/42



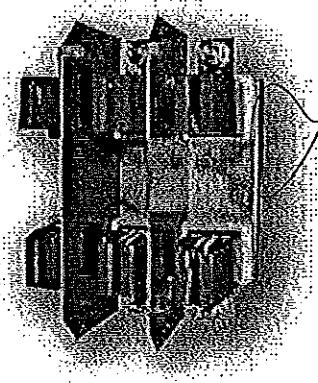
3-полюсна основа за предпазители NVPP 00

тип	I_n (A)	кат. No.	тегло (гр.)	опаковка (бр.)
NVPP 00/3 M8-2M6	160	004131101	490	1/25
NVPP 00/3 M8-M8	160	004131102	490	1/25
NVPP 00/3 2M6-2M6	160	004131103	490	1/25
NVPM 00/3 M8-2M6	160	004131115	560	1/25
NVPM 00/3 M8-M8	160	004131116	560	1/25
NVPM 00/3 2M6-2M6	160	004131117	560	1/25
NVPIP 00/3 M8-2M6	160	004131130	610	1/25
NVPIP 00/3 M8-M8	160	004131131	610	1/25
NVPIP 00/3 2M6-2M6	160	004131132	610	1/25
NVPN 00/3 M8-2M6	160	004131106	490	1/25
NVPN 00/3 M8-M8	160	004131107	490	1/25
NVPN 00/3 2M6-2M6	160	004131108	490	1/25
NVPNI 00/3 M8-2M6	160	004131121	560	1/25
NVPNI 00/3 M8-M8	160	004131122	560	1/25
NVPNI 00/3 2M6-2M6	160	004131123	560	1/25
NVPNIP 00/3 M8-2M6	160	004131136	610	1/25
NVPNIP 00/3 M8-M8	160	004131137	610	1/25
NVPNIP 00/3 2M6-2M6	160	004131138	610	1/25



3-полюсна основа за предпазители PK и PKI

тип	I_n (A)	кат. No.	тегло (гр.)	опаковка (бр.)
PK 00/3 M8 - 2 x M6	160	004132001	555	1/25
PK 00/3 M8 - M8	160	004132008	555	1/25
PK 00/3 2xM6 - 2xM6	160	004132015	555	1/25
PK 0/3 M8 - 2 x M6	160	004132007	650	1/18
PK 0/3 M8 - M8	160	004132002	650	1/18
PK 0/3 2xM6 - 2xM6	160	004132016	650	1/18
PK 1/3	250	004132003	1900	1/10
PK 2/3	400	004132004	3035	1/6
PK 3/3	630	004132005	3800	1/6
PKI 1/3	250	004132009	1990	1/10
PKI 2/3	400	004132010	2990	1/6
PKI 3/3	630	004132011	3890	1/10



технически данни на стр. 228

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ПРИЛОЖЕНИЕ 9.12.2

Техническо описание и чертежи с нанесени размери

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ /НН/ “

РЕФ. № PPD 15 101

организиран от "ЧЕЗ Разпределение България" АД

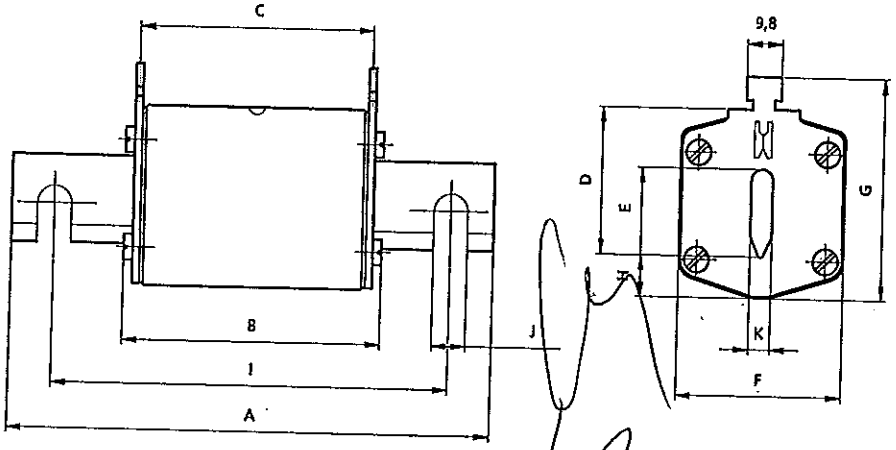
"МЕТИКС" ООД
БЪЛГАРИЯ
ПЕТРИЧ

Високомощни NV/NH стопяеми предпазители

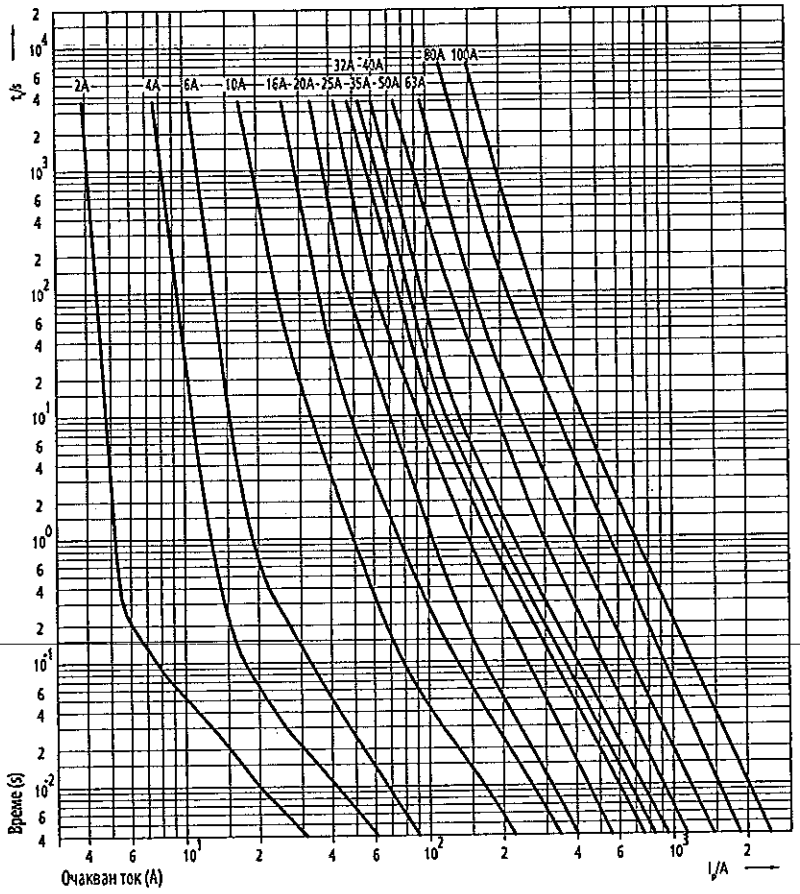
Електрически характеристики	
Ном. напрежение U_n	400 V a.c., 500 V a.c., 690 V a.c.
Ном. ток I_n	2 - 1600 A
Комутационна способност U_n	120 kA
Стопяема характеристика	gG/gL, aM, gF
Сертифицирани съгласно	DIN VDE 0636-201 (1998-06)
В съответствие с	EN/IEC 60269-2-1 Edition 2.2 (2002-04)
Размери в съответствие със стандарт	DIN 43620 Част 1 до 4
Две версии на покриваща плоча	алуминиева и пластмасова

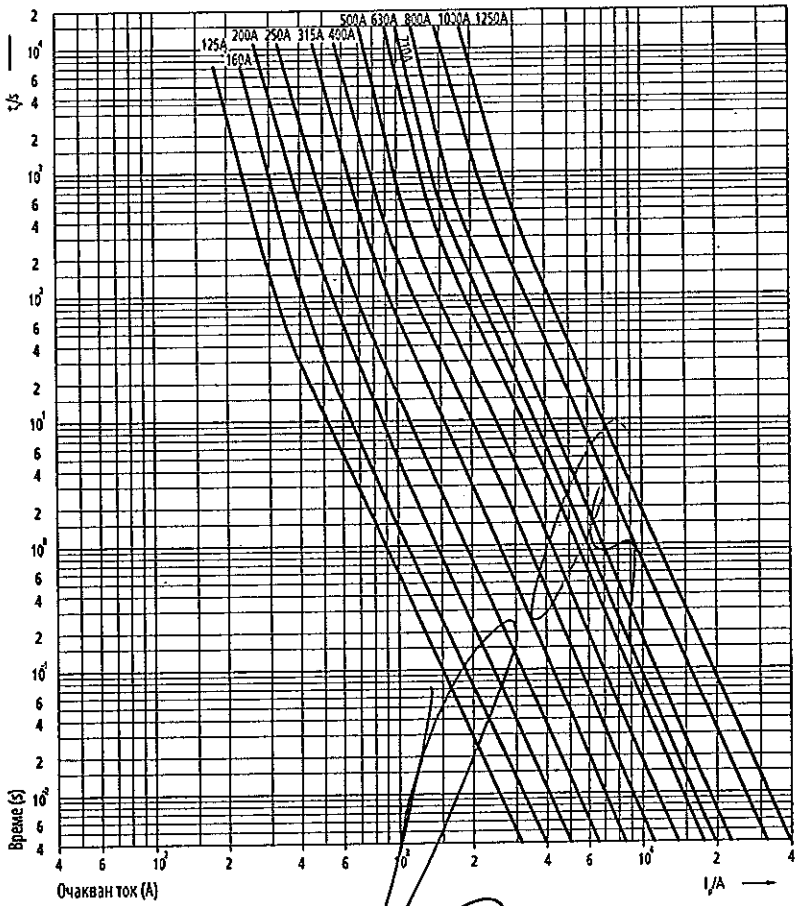
Стопяеми предпазители NV/NH с gL/gG характеристика

тип	размери											
	A	B	C	D	E	F	G	H	J	J	K	
NV00 C	79	53	47	35	15	21	52	7,5			6	kombi
NV00 CI	79	53	47	35	15	21	52	7,5			6	kombi
NV00	79	53	47	35	15	28	56	12			6	kombi
NV00 I	79	53	47	35	15	28	56	12			6	kombi
NV0	125	68	65	35	15	28	56	12			6	kombi
NV1 C	135	68	65	40	15	28	61	12			6	kombi
NV1 CI	135	68	65	40	15	28	61	12			6	kombi
NV1	135	72	65	40	20	46	65	14			6	kombi
NV1 I	135	72	65	40	20	46	65	14			6	kombi
NV2 C	150	72	65	48	20	46	73	14			6	kombi
NV2 CI	150	72	65	48	20	46	73	14			6	kombi
NV2	150	72	65	48	26	54	73	14			6	kombi
NV2 I	150	72	65	48	26	54	73	14			6	kombi
NV3 C	150	72	65	60	26	54	84	14			6	kombi
NV3	150	72	65	60	33	65	84	14			6	kombi
NV4	200	75	66	87	50	100	121	24	150	16	8	
NV45	200	99	87	85	50	95	121	27			6	
NV4 S*	200	99	87	85	50	95	121	27			6	
NV1/1000V	155	90	87	40	20	45	59	9			6	

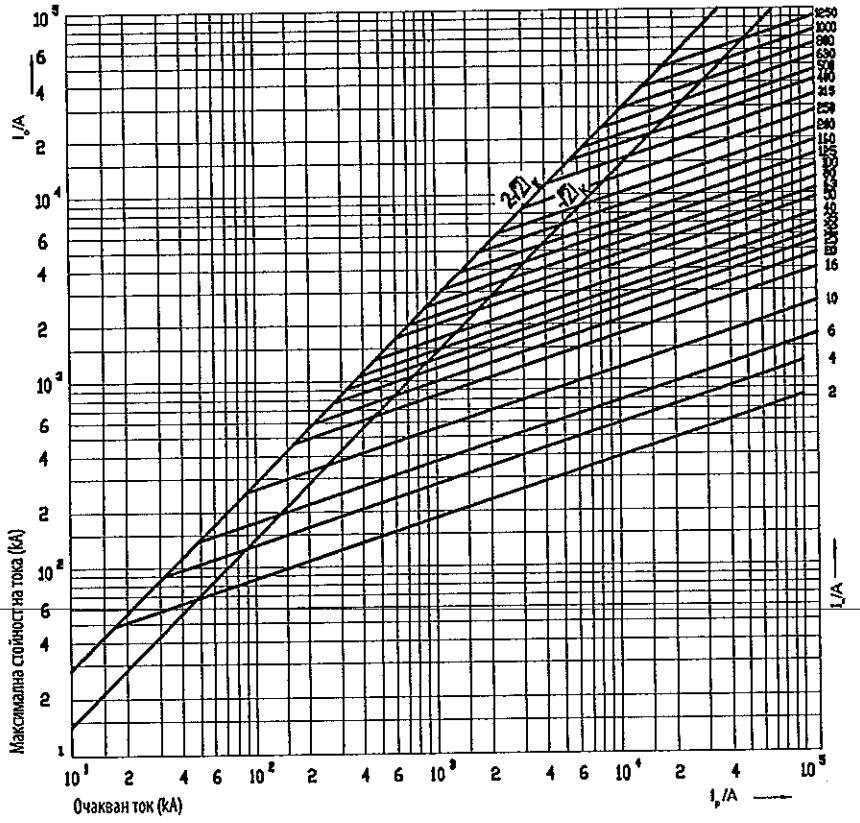


Време-токова характеристика I/t, gG/gL





Характеристика
ток на изключване I^2t



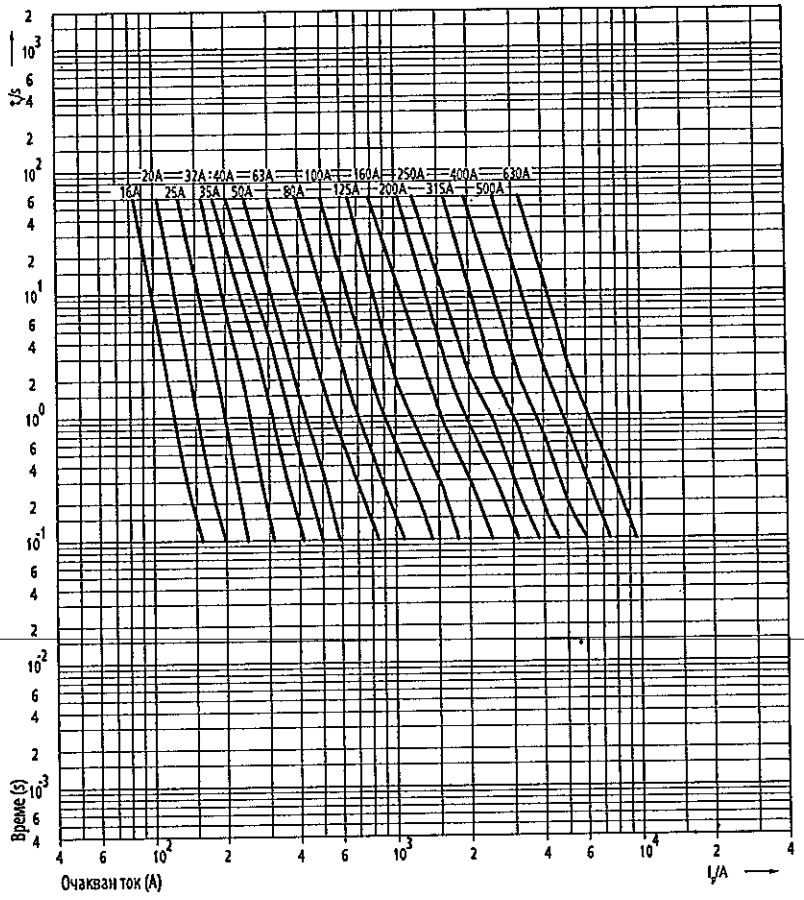
NV стопяеми предпазители с aM характеристика

Технически данни:	
Ном. напрежение U_n	690 V a.c.
Ном. ток I_n	2-1250 A
Размери	DIN 43620, IEC 60269, EN 60269
Стопяема характеристика	aM съгл. VDE 0636-2011, DIN VDE 0636
Комутационна способност IN	100 kA

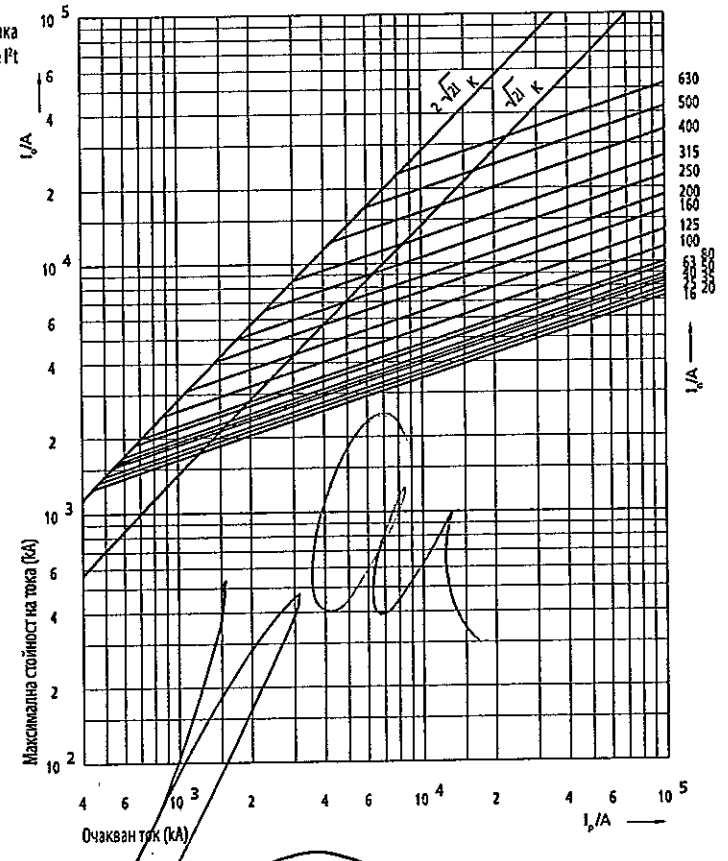
Загуба на мощност при предпазители NV aM 690 V a.c.

Размер	най-висок номинален ток в съответствие с VDE 0636-2011 690 V a.c. (A)	максимална загуба на мощност 690 V a.c. (W)	реална загуба на мощност на предпазител 690 V a.c. (W)
NV 00	160	9	6,5
NV 1	250	28	21,2
NV 2	400	41	33,5
NV 3	630	58	48

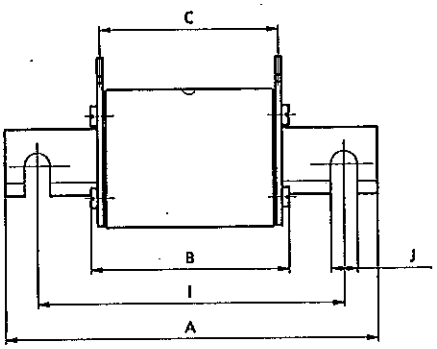
Време-токова характеристика I/t, aM

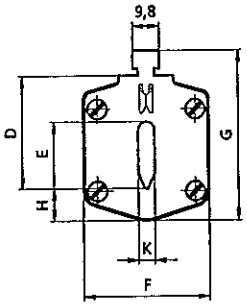


Характеристика ток на изключване I^2t



Стопяеми предпазители NV/NH с gF Характеристика



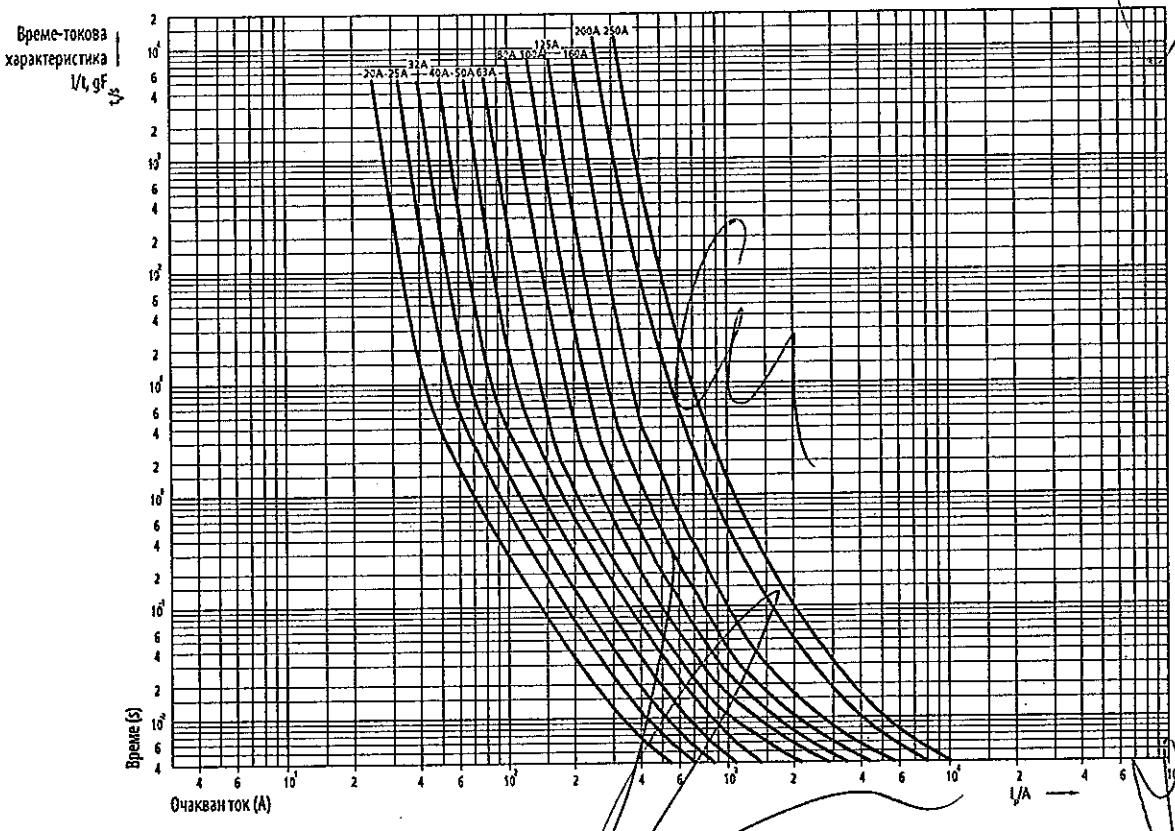


Технически данни:	
Ном. напрежение U_n	400 Va.c.
Ном. ток I_n	20 - 250 A
Размери	DIN 43620, IEC 60269, EN 60269
Стопяема характеристика	gF съгл. PN 91/E-06160/10, PN 91/E-06160/21
Комутационна способност I_1	100kA

Тип	Размери											
	A	B	C	D	E	F	G	H	I	J	K	
NV00 C	79	53	47	35	15	21	52	7,5			6	kombi
NV00	79	53	47	35	15	28	56	12			6	kombi
NV1 C	135	68	65	40	15	28	61	12			6	kombi
NV1	135	72	65	40	20	46	65	14			6	kombi

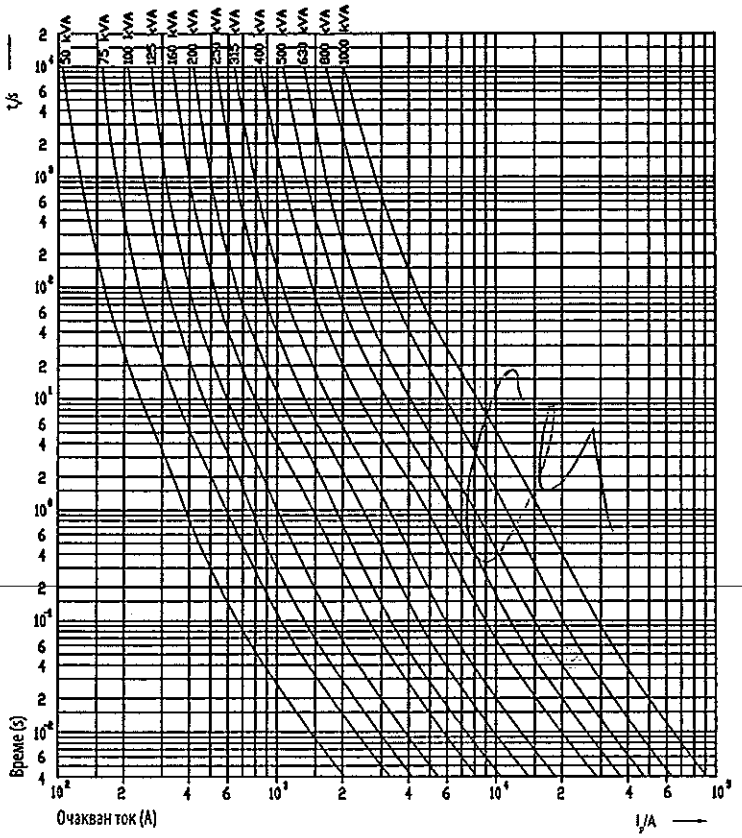
Загуба на мощност при предпазители gF 400 V a.c.

размер	най-висок ном. ток в съответствие с PN IEC 60269-2 400 V a.c. (A)	максимална загуба на мощност 400 V a.c. (W)	реална загуба на мощност на стопяеми предпазители 400 V a.c. (W)
NV00 C	100	12	7,2
NV00	160	16	15,1
NV1 C	160	23	21,9
NV1	250	32	31,3



Стопяеми предпазители NV/NH с gTr характеристика

Технически данни:	
Ном. напрежение	400 V
Ном. мощност на трансформатора	50-100 kVA
Комутационна способност	100 kA

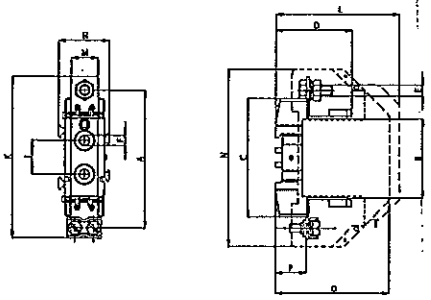


Основа за предпазител

Технически данни:	
Ном. напрежение U_n	690 V a.c.
Ном. ток I_n	125 ÷ 1250 A
Изолационен клас	C- VDE 0110
Стандарти	EN 60269, IEC 60269, DIN VDE 0636, DIN 43620, DIN 43623

1-полюсна основа NVPP 00

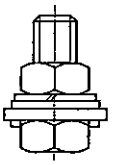
тип	размери													
	A	B	C	D	E	F	Ji	H	R	L	M	N	O	P
NVPP 00 M8-2M6	100	56,5	87,5	57	M8-2 x M6	7,5	37	25	120		20			23
NVPP 00 M8-M8	100	56,5	87,5	57	M8-M8	7,5	37	25	120		20			23
NVPP 00 2M6-2M6	100	56,5	87,5	57	2 x M6-2 x M6	7,5	37	25	120		20			23
NVPP I 00 M8-2M6	100	56,5	87,5	57	M8-2 x M6	7,5	37	25	120		20	132	84,5	23
NVPP I 00 M8-M8	100	56,5	87,5	57	M8-M8	7,5	37	25	120		20	132	84,5	23
NVPP I 00 2M6-2M6	100	56,5	87,5	57	2 x M6-2 x M6	7,5	37	25	120		20	132	84,5	23
NVPP IP 00 M8-2M6	100	56,5	87,5	57	M8-2 x M6	7,5	37	25	120	90	20	132	84,5	23
NVPP IP 00 M8-M8	100	56,5	87,5	57	M8-M8	7,5	37	25	120	90	20	132	84,5	23
NVPP IP 00 2M6-2M6	100	56,5	87,5	57	2 x M6-2 x M6	7,5	37	25	120	90	20	132	84,5	23
NVPP N 00 M8-2M6	100	56,5	87,5	57	M8-2 x M6	7,5	37	25	120		20			23
NVPP N 00 M8-M8	100	56,5	87,5	57	M8-M8	7,5	37	25	120		20			23
NVPP N 00 2M6-2M6	100	56,5	87,5	57	2 x M6-2 x M6	7,5	37	25	120		20			23
NVPP NI 00 M8-2M6	100	56,5	87,5	57	M8-2 x M6	7,5	37	25	120		20	132	84,5	23
NVPP NI 00 M8-M8	100	56,5	87,5	57	M8-M8	7,5	37	25	120		20	132	84,5	23
NVPP NI 00 2M6-2M6	100	56,5	87,5	57	2 x M6-2 x M6	7,5	37	25	120		20	132	84,5	23
NVPP NIP 00 M8-2M6	100	56,5	87,5	57	M8-2 x M6	7,5	37	25	120	90	20	132	84,5	23
NVPP NIP 00 M8-M8	100	56,5	87,5	57	M8-M8	7,5	37	25	120	90	20	132	84,5	23
NVPP NIP 00 2M6-2M6	100	56,5	87,5	57	2 x M6-2 x M6	7,5	37	25	120	90	20	132	84,5	23



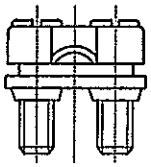
1-полюсни основи PK и PKI

тип	размери												
	A	B	C	D	E	F	G	H	I	J	K	L	M
PK00 M8 - 2 x M6	100	57	84	60	M8 - 2 x M6	Ø7,5			25	4,5	115		20
PK00 M8 - M8	100	57	84	60	M8 - M8	Ø7,5			25	4,5	115		20
PK00 2 x M6 - 2xM6	100	57	84	60	2 x M6 - 2 x M6	Ø7,5			25	4,5	115		20
PK0 M8 - 2 x M6	150	74	130	60	M8 - 2 x M6	Ø7,5		33	25	4,5	170		20
PK0 M8 - M8	150	74	130	60	M8 - M8	Ø7,5		33	25	4,5	170		20
PK02 x M6 - 2 x M6	150	74	130	60	M8 - 2 x M6	Ø7,5		33	25	4,5	170		20
PK1	175	80	141	81	M10	Ø10,5	30	55	25	10	200		26
PK2	200	80	166	102	M10	Ø10,5	30	65	25	10	225		30
PK3	210	80	166	102	M12	Ø10,5	30	65	25	10	240		30
PK4	270	100	220	143	M12	Ø13	30	102	25	12	310		50
PKI1	175	80	141	81	M10	Ø10,5	30	55	25	10	200	87	26
PKI2	200	80	166	102	M10	Ø10,5	30	65	25	10	225	98	30
PKI3	210	80	166	102	M12	Ø10,5	30	65	25	10	240	108	30
PKI/1000V	193	100	160	81	M10	Ø10,5	30	55	25	10	220		26

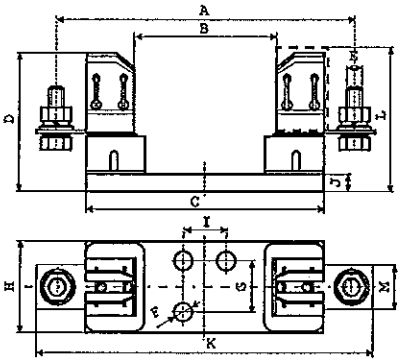
Използват се изолиращи елементи при основи PKI, PPI; целта им е да осигурят допълнителна защита срещу случаен допир.



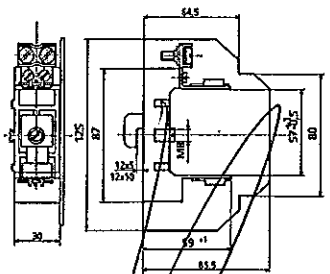
Присъединяване M8
(6 - 50 мм² Cu)



Присъединяване 2 X M6
(6 - 70 мм² Cu)



1-полюсна основа PPR



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гр.Петрич 2850, Промишлена зона
ул."Свобода"49
тел.:00359 745 60743; факс:00359 745 60742
e-mail: metix@metix.bg
гр.София 1000 ул."Рикардо Вакарини"бл.5
тел.:00359 2 859 0698; факс:00359 2 958 9334
e-mail:sales@metix.bg

ПРИЛОЖЕНИЕ 9.12.3

ЕО декларация за съответствие

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ /НН/ “

РЕФ. № PPD 15 101

организиран от "ЧЕЗ Разпределение България" АД

„МЕТИКС“ ООД
БЪЛГАРИЯ
ПЕТРИЧ

ЕТ "АДИС - 9 -
Анелия Митева"

АГЕНЦИЯ ЗА ПРЕВОДИ

Адрес на управление: 4023 Пловдив, ж.р. Тракия, бл. 20, ет. 9, ап. 53, тел: 032/ 826632; 266292

Превод от английски език

ETI d.d.
Obrezija 5, 1411 Izlake
Словения
тел. +386 (0) 3 56 57 570
факс + 386 (0) 3 56 74 007
e-mail: eti@eti.si, www.eti.si

CE – ДЕКЛАРАЦИЯ ЗА КАЧЕСТВО И СЪОТВЕТСТВИЕ

Продукт: NH ножови предпазители със стопяема вложка ниско напрежение

Предприятие: ***ETI Elektroelement d.d.***
1411 Izlake, Obrezija 5

СЛОВЕНИЯ

Модел/Тип: Предпазители със стопяема вложка ниско напрежение, тип NH/NV

Номинално напрежение/Номинален ток:

NV/NH 00C 2A to 100A
NV/NH 00 6A to 160A
NV/NH 0 6A to 160A
NV/NH 1 25A to 250A
NV/NH 2 63A to 400A
NV/NH 3 250A to 630A
NV/NH 4 630A to 1250A
NV/NH 4a 630A to 1600A

Продуктите са в съответствие със следните стандарти и други нормативни документи

IEC 60269-1 Ed.3.0:1998+Corr.1+A1:2005
EN 60269-1:1998+A1:2005
IEC 60269-2 Ed.2.0:1986+Corr.1:1996+A1:1995+A2:2001
EN 60269-2:1995+A1:1998+A2:2002
IEC 60269-2-1 Ed.4.0:2004
HD 630.2.1 S6:2003
DIN43620
VDE 0636/201

ВЯРНО С ОРИГИНАЛА

"МЕТИКС" ООД БЪЛГАРИЯ ПЕТРИЧ

Дата и място: Izlake, 25.05.2006

дипл. ел. инж. Victor Martincic, Продуктов Мениджър
/подпис нечетлив/
/печат ETI Elektroelement d.d./

Подписаната Анелия Иванова Митева удостоверявам верността на извършения от мен превод от английски на български език на приложения документ – СЕ Декларация за съответствие от 25.05.2006. Преводът се състои от 1 (една) страница.
Преводач:
Анелия Иванова Митева

ВЯРНО С ОРИГИНАЛА

ETI d.d.
Obrezija 5, 1411 Izlake
Slovenija

tel. +386 (0)3 56 67 570
faks. +386 (0)3 56 74 077
e-mail: eti@eti.si, www.eti.si

CE – DECLARATION OF CONFORMITY

Product: **Low Voltage NH knife-blade fuse-links**

Company: **ETI Elektroelement d.d.**
1411 Izlake, Obrezija 5

SLOVENIA

Model/Type: **Low voltage fuse-links, type NH/NV**

Rated voltage/Rated currents:
NV/NH 00C 2A to 100A
NV/NH 00 6A to 160A
NV/NH 0 6A to 160A
NV/NH 1 25A to 250A
NV/NH 2 63A to 400A
NV/NH 3 250A to 630A
NV/NH 4 630A to 1250A
NV/NH 4a 630A to 1600A

The products are in conformity with the following standards or other normative documents
IEC 60269-1 Ed.3.0:1998+Corr.1+A1:2005
EN 60269-1:1998+A1:2005
IEC 60269-2 Ed.2.0:1986+Corr.1:1996+A1:1995+A2:2001
EN 60269-2:1995+A1:1998+A2:2002
IEC 60269-2-1 Ed.4.0:2004
HD 630.2.1 S6:2003
DIN43620
VDE 0636/201

Place and date: Izlake, 25.05.2006

Manufacture representative signature:

Victor Martinčič, univ. dipl. ing. el. Product Manager

"С.С." ООД
БЪЛГАРИЯ
ПЕТРИЧ

ВЯРНО С ОРИГИНАЛА

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гр.Петрич 2850, Промишлена зона
ул."Свобода"49
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e-mail: metix@metix.bg
гр.София 1000 ул."Ричард Виларион"бл.5
тел.:00359 2 869 0898; факс:00359 2 958 9334
e-mail:sales@metix.bg

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ID 9105026855

ПРИЛОЖЕНИЕ 9.12.4

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

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ /НН/ “

РЕФ. № PPD 15 101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД
БЪЛГАРИЯ
ПЕТРИЧ

arsenal research
Ein Unternehmen der Austrian Research Centers.

Accredited by BMWA, number BMWA-92.714/5379-I/12/2004

Test Report

Project Designation

TYPE TEST
AT LOW-VOLTAGE HRC FUSE-LINKS
WITH COMBINED INDICATING DEVICES
TYPE NH2 – 500VAC / gG

Client

ETI Elektroelement d.d.
1411 Izlake, Obrezija 5
SLOVENIA

Order from / No 01/2005 / ---

Project number 2.03.00516.1.0/NH2/COMBI/500/gG Test Engineer Ing.J.Ainetter

Date of issue	09.08.2005
Total number of issues / No	1 / 1
Number of pages	5
Annex	CB/CCA – Test Report 2.03.00516.1.0/NH2/COMBI/500/gG/CB/CCA (54 pages)

ВЯРНО С ОРИГИНАЛА

Test item

Identification:

Low-voltage HRC fuse-links type NH2 with combined indicating devices
Manufacturer: ETI Elektroelement d.d.
Trademark: ETI
Size: 2
Indicating device: In the middle of ceramic body and on cover plate
Rated voltage: 500VAC
Rated current: 315A, 400A
Rated breaking capacity: 120kA
Breaking range and utilization category: gL/gG

Technical data and description:

See page 4

Testing location, Period of testing

Testing location:

ÖFPZ Arsenal Ges.m.b.H.,
Business Unit Monitoring, Energy and Drive Technologies,
Power Service Center

Period of testing:

01...05/2005

Test(s)

Test standard(s):

IEC 60269-1 Ed. 3.0:1998+Corr.1:2000+A1:2005 / EN 60269-1:1998+A1:2005
IEC 60269-2 Ed. 2.0:1986+Corr.1:1996+A1:1995+A2:2001 / EN 60269-2:1995+A1:1998+A2:2002
IEC 60269-2-1 Ed. 4.0:2004 / HD 630.2.1 S6:2003

Test procedure(s):

CB-scheme / CCA-scheme

Test(s) performed:

Type test

Result

The low-voltage HRC fuse-links type NH2 with combined indicating devices have passed the type test successfully.

Test engineer

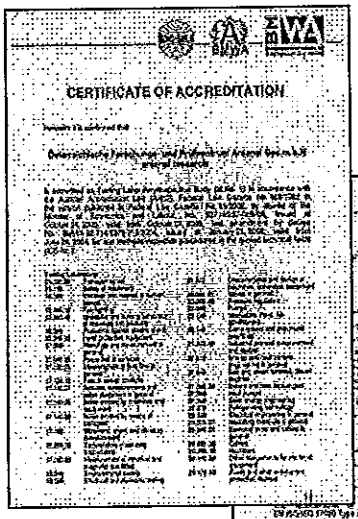
Ing.J.Ainetter

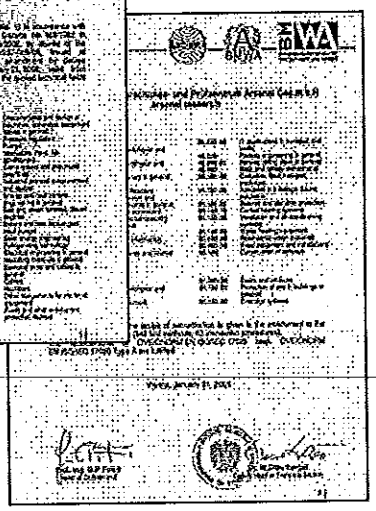
Project Engineer,
Technical responsibility

Ing.K.Farthofer

ВЯРНО С ОРИГИНАЛА

Testing laboratory





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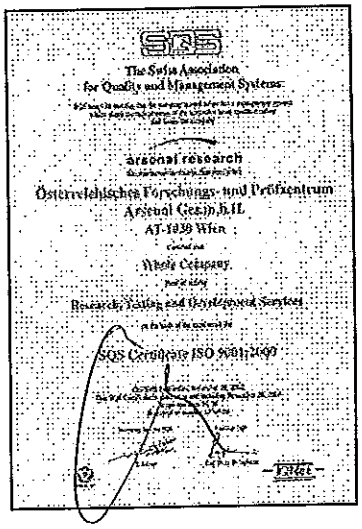
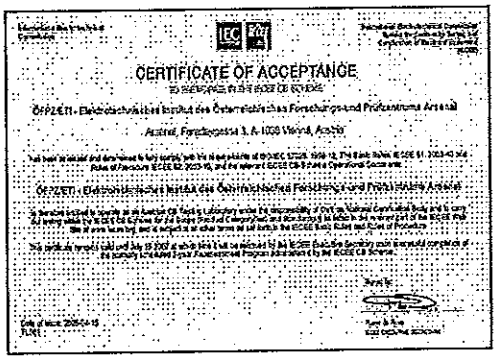
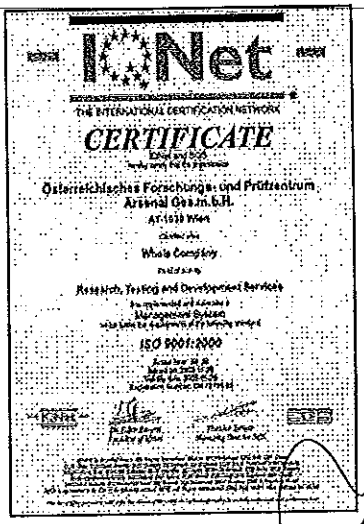
according to
EN ISO/IEC 17025
No. BMWA-92.714/5379-I/12/2004



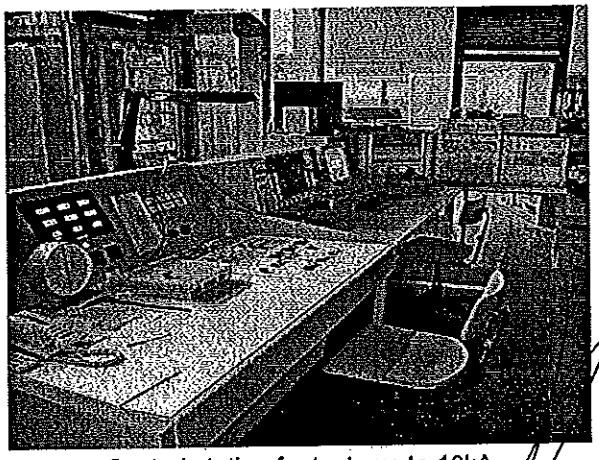
CERTIFICATED
according to
ISO 9001
Reg. No. 12769-03



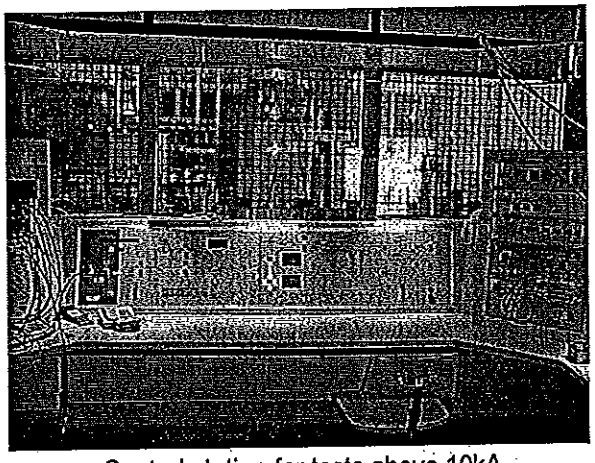
ACCEPTED
CB TESTING LABORATORY
under the responsibility of OVE
as National Certification Body



PSC – Power Service Center:



Control station for tests up to 10kA



Control station for tests above 10kA

ВЯРНО С ОРИГИНАЛА

"МЕТИКС" ООД БЪЛГАРИЯ ПЕТРИЧ

Technical data and description of test item

Test item	Low-voltage HRC fuse-link with combined indicating devices
Model/Type reference	NH2
Identification reference	315A: 004185222 400A: 004185224
Standard	IEC 60269-1 Ed. 3.0:1998+Corr.1:2000+A1:2005 / EN 60269-1:1998+A1:2005 IEC 60269-2 Ed. 2.0:1986+Corr.1:1996+A1:1995+A2:2001 / EN 60269-2:1995+A1:1998+A2:2002 IEC 60269-2-1 Ed. 4.0:2004 / HD 630.2.1 S6:2003
Test procedure	CB-scheme / CCA-scheme
Manufacturer	ETI Elektroelement d.d.
Place of manufacture	Obrezija 5, 1411 Izlake, SLOVENIA
Nature of supply	AC
Size	2
Utilization category	gL/gG
Rated current	315A, 400A
Rated voltage	500V
Rated frequency	45Hz to 62Hz
Rated breaking capacity	120kA
Homogeneous series	315A to 400A
Indicating device	In the middle of ceramic body and on cover plate
Gripping-lugs	Energized
Type of contacts	Blade contacts
Material of contacts	CuZn gal. Ag
Material of fuse-link body	Steatit C221
Material of cover plates	Al
Extinguishing means	Quartzsand

"МЕТИКС" ООД БЪЛГАРИЯ
ВЯРНО С ОРИГИНАЛА

Measuring equipment

Measured quantity	Device	Manufacturer	Code
Voltage (tests up to 10kA)	Voltage divider 1:2000 Difference amplifier AM 502 Transient recorder SMR II	ÖFPZ Arsenal Tektronix W&W	- AM 502/1...3 SMRII32
Current (tests up to 10kA)	Lin. current transformer LGSSO Burden 1Ω Transient recorder SMR II	Ritz ÖFPZ Arsenal W&W	WLIN5000/1...3 - SMRII32
Voltage (tests above 10kA)	3-channel insulating measuring amplifier Transient recorder SMR II	Rohrer W&W	T908D SMRII64/1
Current (tests above 10kA)	Lin. current transformer LGSSO Burden 0,7mΩ Transient recorder SMR II	Ritz ÖFPZ Arsenal W&W	WLIN6000.HVF/1...3 - SMRII64/1
Current (tests at reduced voltage)	Current transformer GE 4461 Current transformer AETt10 True-RMS amperemeter Kl. 0,5	Goerz Siemens Norma	WI600/1...3 WI4000/1...3 A0,5/1...3
Transient recovery voltage	Adjustment equipment for TRV Oscilloscope G 801.1	ÖFPZ Arsenal Tektronix	- G801.1
Voltage drop	Digital multimeter Fluke 185	Fluke	FLUKE185/1
Dielectric properties	High-voltage test equipment 90-1F	Elabo	HSG5KV
Internal resistance	Resistance meter microhm 300/0	Stetter	MICROHM
Time	Transient recorder SMR II Stopwatch	W&W Junghans	SMRII32, SMRII64/1 938-2
Temperature	24-channel recorder POLYCOMP SK 30 Temperature meter TESTO 901	H & B Testoterm	SK 30 TESTO
Heat	Heating cabinet UT 6060	Heraeus	-
Mechanical impact	Impact test apparatus	PTL	-
Resistance to rusting	Test chamber C330	Liebich	77
Dimensions	Digital slide gauge CD-20D	Mitutoyo	SCHUB

ВЯРНО С ОРИГИНАЛА

TEST REPORT

IEC 60269-1 / EN 60269-1

Low-voltage fuses
Part 1: General requirements

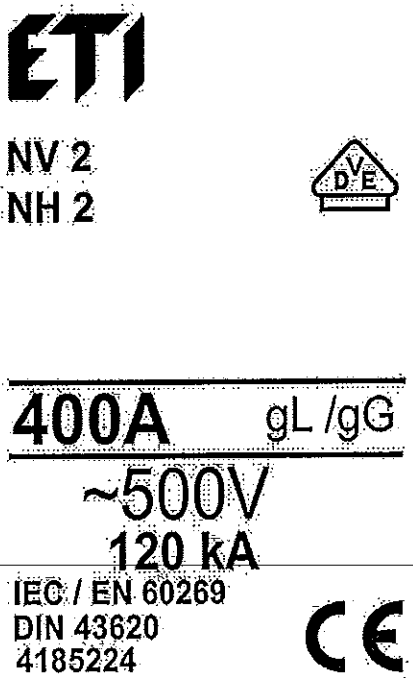
Report:	
Reference No.	2.03.00516.1.0/NH2/COMBI/500/gG/CB/CCA
Compiled by (+ signature)	Ing.J.Ainetter
Approved by (+ signature)	Ing.K.Farthofer
Date of issue	09.08.2005
Number of pages	54 pages for complete test report
Testing laboratory:	
Name	ÖFPZ Arsenal Ges.m.b.H.
Address	1030 Wien, Faradaygasse 3, AUSTRIA
Testing location	As above
Applicant:	
Name	ETI Elektroelement d.d.
Address	1411 Izlake, Obrezija 5, SLOVENIA
Test specification:	
Standard	IEC 60269-1 Ed. 3.0:1998+Corr.1:2000+A1:2005 EN 60269-1:1998+A1:2005
Test procedure	CB-scheme / CCA-scheme
Procedure deviation	N.A.
Non-standard test method	N.A.
Test report form:	
Test Report Form No.	I2691__A/96-07, completed by ÖFPZ Arsenal 2005
TRF originator.	EZU
Master TRF	Dated 91-10
Copyright blank test report	The bodies participating in the Committee of Certification Bodies (CB) and the CENELEC Certification Agreement (CCA). This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator.
Test Item:	
Type of test object	Low-voltage HRC fuse-link with combined indicating devices
Model/Type reference	NH2
Identification reference	See page 2
Trademark	ETI
Manufacturer	ETI Elektroelement d.d.
Place of manufacture	SI-1411 Izlake, Obrezija 5
Technical data and ratings	See page 2
Copy of marking plate	See page 3

Technical data and ratings:	
Identification reference	315A: 004185222 400A: 004185224
Nature of supply	AC
Size	2
Utilization category	gL/gG
Rated current	315A, 400A
Rated voltage	500V
Rated frequency	45Hz to 62Hz
Rated breaking capacity	120kA
Homogeneous series	315A to 400A
Indicating device	In the middle of ceramic body and on cover plate
Gripping-lugs	Energized
Type of contacts	Blade contacts
Material of contacts	CuZn gal. Ag
Material of fuse-link body	Steatit C221
Material of cover plates	Al
Extinguishing means	Quartzsand
Test item particulars:	
Fuse-holder	No
Fuse-base	No
Fuse-carrier	No
Fuse-link	Yes
For use by authorized persons	Yes
For use by unskilled persons	No
Protection of semiconductor devices	No
Possible test case verdicts:	
Test case does not apply to the test object	N(.A.)
Test object does meet the requirement	P(ass)
Test object does not meet the requirement	F(ail)
Testing:	
Date of receipt of test item	01/2005
Date(s) of performance of test	01...05/2005

ВЯРНО С ОРИГИНАЛА

"МЕТИКС" ООД БЪЛГАРИЯ

Copy of marking plate:



General remarks:

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

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

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

The 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 testing laboratory.

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.

Remark to test performance:

In case of differences in test requirements between IEC and EN, all tests were performed under the more severe conditions.

Summary of test result:

The low-voltage HRC fuse-links with combined indicating devices type

NH2

have passed the type test according to

IEC 60269-1 Ed. 3.0:1998+Corr.1:2000+A1:2005 / EN 60269-1:1998+A1:2005
IEC 60269-2 Ed. 2.0:1986+Corr.1:1996+A1:1995+A2:2001 / EN 60269-2:1995+A1:1998+A2:2002
IEC 60269-2-1 Ed. 4.0:2004 / HD 630.2.1 S6:2003

successfully.

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
5.	**CHARACTERISTICS OF FUSES**		
5.2	Rated voltage (V) as specified ..... :	**AC 500**	**P**
5.3.1	Rated current(s) (A) of the fuse-link(s) in accordance with specified values ..... :	**315, 400**	**P**
5.3.2	Rated current (A) of the fuse-holder as specified (IEC 60269-2-1/HD 630.2.1 S6) ..... :	**400**	**P**
5.4	Rated frequency (Hz) ..... :	**45-62**	**P**
5.5	Max. rated power dissipation (VA) of fuse-link(s) as specified (IEC 60269-2-1/HD 630.2.1 S6) ..... :	**Max. 34 at fuse-link 400A**	**P**
	Rated acceptable power dissipation (VA) of fuse-holder ..... :	**45**	**P**
5.6	Limits of time-current characteristics based on reference ambient temperature Ta = 20°C		**P**
5.6.1	Time-current zones deviated from standardized, or available in manufacturer's documentation (catalogue)		**P**
5.7.2	Rated breaking capacity (kA) of fuse-link a.c. corresponds to the rated voltage, and is equal or higher than given minimum in subsequent part of this standard ..... :	**120**	**P**
	Rated breaking capacity (kA) of fuse-link d.c. corresponds to the rated voltage, and is equal or higher than given minimum in subsequent part of this standard ..... :	**-**	**N**
5.8	Cut-off and I^2t characteristics are referred to the values of voltage, frequency and power factor		**P**
5.8.1	Cut-off characteristics, if required, given by the manufacturer acc. to Figure 3 (IEC 60269-1)		**P**
5.8.2	Pre-arcing and I^2t characteristics for pre-arcing times of less than 0,1 s down to a time corresponding to the rated breaking capacity given by the manufacturer		**P**
	The operating I^2t characteristics with specified voltages as parameter for pre-arcing times less than 0,1 s given by the manufacturer		**P**

6.	**MARKING**		
	Markings are durable and easily legible		**P**
	Compliance checked by inspection and by test:		**P**
	- rubbing by hand for 5s with a piece of cloth soaked with water		**P**
	- then rubbing by hand for 5s with a piece of cloth soaked with petroleum spirit		

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
6.1	Fuse-holder marked by:		N
	- name of manufacturer or trade mark which enables identification of fuse-holder ..... :	-	N
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.1 .. :	-	N
	- rated voltage (V) ..... :	-	N
	- rated current (A) ..... :	-	N
	- kind of current and rated frequency (Hz) ..... :	-	N
6.2	Fuse-link(s) except small fuse-link(s) marked by:		P
	- name of manufacturer or trade mark which enables identification of fuse-links ..... :	ETI	P
	- manufacturer's identification reference enabling to find all characteristics listed in 5.1.2..... :	See page 2 of this test report	P
	- rated voltage (V) ..... :	~500V	P
	- rated current(s) (A) ..... :	315A, 400A	P
	- rated breaking capacity (kA) ..... :	120kA	P
	- rated current (A) of "gM" type as specified in 5.7.1 Note 2 ..... :	-	N
	- breaking range and utilization category (if applicable) (5.7.1) ..... :	gL/gG	P
	- kind of current ..... :	~	P
	- rated frequency (Hz), if applicable (5.4) ..... :	-	N
	- fuse-links with insulated gripping-lugs marked with the graphical symbol of a gripping-lug in a square ..... :	-	N
	Small fuse-links marked by:		N
	- trademark ..... :	-	N
	- list reference of manufacturer ..... :	-	N
	- rated voltage (V) ..... :	-	N
	- rated current(s) (A) ..... :	-	N
6.3	Symbols for the kind of current and frequency in accordance with IEC 60417		P

7.	STANDARD CONDITIONS FOR CONSTRUCTION		
7.1.1	Replacing of the fuse-link easy and safe		P
7.1.2	Connections shall be such that the necessary contact force is maintained under conditions of service and operation		P
7.1.3	Necessary contact force of fuse-contacts is maintained under conditions of service and operation		P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
7.2	Fuses not lose insulating properties at voltages to which they are subjected in normal service		P
	When equipment is in its normal open position, the fuse shall be suitable for isolation		P
7.3	Fuse-holder so designed and proportioned as to carry continuously, under standard conditions of service, the rated current of the fuse-link without exceeding the temperature-rise limits		N
	Fuse-link so designed and proportioned as to carry continuously, under standard conditions of service, its rated current without exceeding the rated acceptable power dissipation		P
7.4	Fuse-link so designed and proportioned that when its tested in its appropriate test arrangement at rated frequency and ambient air temperature:		P
	- it's able to carry any current up to its rated current		P
	- it's able to withstand overload conditions as may occur in normal service		P
7.5	Fuse capable of breaking currents up to the rated breaking capacity		P
7.6	If not otherwise specified in subsequent parts, the values of cut-off current shall be less than, or equal to the values assigned by the manufacturer		P
7.7	Pre-arcing I^2t values shall not be less than stated by the manufacturer (and within limits of table 6 for "gG" and "aM" fuse-links)		P
7.8	Requirements concerning overcurrent discrimination given in subsequent parts		P
7.9	Uimp according to table 13 of IEC/EN 60269-1 appropriate to the rated voltage and the overvoltage category of the fuse, specified in subsequent parts		N
7.9.1	Clearances and creepage distances not less than the values given in table 14 and table 15 of IEC/EN 60269-1		N
7.9.2	For fuses suitable for isolation and having Un > 50V, the leakage current shall be measured through each pole with contacts in open position		N
7.9.3	Fuse-holder shall be marked with symbol S00369 of IEC 60617		N
7.10	All components sufficiently resistant to heat which may occur in normal use		P
7.11	All components sufficiently resistant to mechanical stresses which may occur in normal use		P
7.12	Metallic parts resistant to corrosive influences which may occur in normal use		P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
7.13	All components sufficiently resistant to abnormal heat and fire		P
7.14	No electromagnetic immunity tests are required		P
8.	TESTS		
8.1.2	At the beginning of each test the fuse shall be approximately at the ambient temperature		P
8.1.3	Tests made in clean and dry conditions		P
8.1.4	Fuse mounted in free air in draught-free surroundings in the normal position, on insulating material of sufficient rigidity to withstand the forces encountered without applying external load to the fuse under test	Vertical position	P
	Fuse-link mounted either as in normal use, or in the fuse-holder for which it is intended, or in a test rig given in a subsequent part	Fuse-base NH 2 (ETI)	P
	Before tests, the external dimensions shall be measured and compared with the dimensions specified in the data sheets of the manufacturer	See page 37 of this test report	P
8.1.5	Fuse-links tested with the kind(s) of current for which they are rated	AC	P
	Fuse-links for a.c. tested with the kind of frequency for which they are rated	50Hz	P
8.1.5.1	Internal resistance measured by a current ≤ 0,1In		P
	- Measuring current (A) ..... :	0,5	P
	- Ambient air temperature in range of 20 ± 5 °C		P
	Values of resistances.....:	See table at page 26 of this test report	P
8.1.5.2	Fuse-links tested like a homogeneous series ... :	Yes	P
	Homogeneous series.....:	315A to 400A	P
	If yes: fuse-links have identical enclosures in form and construction (except of fuse-elements and contacts):		P
	- the same extinguishing material		P
	- the same completeness of filling		P
	- fuse-elements of identical materials		P
	- their cross-section of fuse-elements shall not exceed the cross-section of fuse-links having the highest rated current		P
	- number of fuse-elements do not exceed number of fuse-elements of fuse-links with the highest rated current		P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	- minimum distances between adjacent fuse-elements and between fuse-elements and the inner surface of cartridge is not less than those in the fuse-link with the highest rated current		P
	- fuse-links used with a given fuse-holder, or		P
	- fuse-links intended to be used in an arrangement identical for all rated currents of the homogeneous series		N
	- value of Rin3/2 does not exceed value for the fuse-link with largest current of the homo-geneous series (R measured as stated in 8.1.5.1)		P
	- rated breaking capacity of fuse-links not greater than that of fuse-link with the largest rated current		P
	- if not, the fuse-links with greater breaking capacity subjected to tests No. 1 and No. 2		N
	Fuse-link(s) having the largest rated current tested according to Table VIIA of IEC/EN 60269-1	400A	P
	Fuse-link(s) having the smallest rated current tested according to Table VIIB of IEC/EN 60269-1	315A	P
	Fuse-link(s) between largest and smallest rated current tested according to Table VIIC of IEC/EN 60269-1	-	P
8.2	Verification of insulating properties and of suitability for isolation:		P
	Test according to IEC/EN 60269-1 and IEC 60269-2-1/HD 630.2.1 S6		P
8.2.1	The fuse-holder fitted with a fuse-link(s) of the largest dimensions for the type of fuse-holder		P
	The fuse-base fixed to a metal plate, unless otherwise specified		P
	For verification of suitability for insulation, equipment mounted in normal position		P
8.2.2	The test voltage shall be applied between:		P
	a) live parts and the frame with the fuse-link and the device for replacing it, or		P
	the fuse-carrier, if any, in position		N
	no breakdown of insulation or flashover during 1 min of the applying test voltage		P
	b) the terminals when the fuse is in normal open position		N
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	c) live parts of different polarity in case of multi-pole fuse-holder with fuse-link(s) of maximum dimensions, fuse-carrier(s) or device(s) for replacing the fuse-link(s), if any, in position		N
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N
	d) live parts which, in the case of a multi-pole fuse-holder can reach different potentials after the fuse-link has operated, fuse-carrier(s) or device(s) for replacing the fuse-link(s), if any, in position		N
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N
	e) metal parts of isolated gripping lugs and terminals of the test fuse-base		N
	no breakdown of insulation or flashover during 1 min of the applying test voltage		N
	r.m.s. value of test voltage (V) as specified in table 9..... :	2500	P
	Insulating properties of insulated metal gripping-lugs optionally verified by an impulse withstand voltage as specified in IEC 60269-2-1, table BB ..:	-	N
	Five impulses of both polarities and of the shape 1,2/50µs applied to the test object; minimum period between impulses is 1s		N
	no flash-over or puncture occures during test, partial discharges are ignored		N
	The fuse-holder subjected to humid atmospheric conditions:		P
	Relative moisture of ambient air (%) ..... :	92	P
	Ambient air temperature (°C) ..... :	24	P
	Duration of treatment (h) ..... :	48	P
	The insulation resistance measured between points prescribed in 8.2.2 by applying a d.c. voltage of 500 V		P
	Points of measuring:		P
	a) min. measured value (MΩ) ..... :	> 5	P
	b) min. measured value (MΩ) ..... :	-	N
	c) min. measured value (MΩ) ..... :	-	N
	d) min. measured value (MΩ) ..... :	-	N
	e) min. measured value (MΩ) ..... :	-	N
	The insulation resistance not less than 5 MΩ		P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.2.3	Verification of the suitability for isolation:		N
	Test voltage applied between the terminals when the fuse-link and the device for replacing it or the fuse carrier, if any, are removed, or the equipment is in its normal open position with the fuse-link remaining inside the fuse-carrier		N
	Test voltage (kV) as given in IEC 60269-1, table 16..... :	-	N
	The 1,2/50µs impulse voltage applied five times for each polarity at intervals of 1s minimum		N
	No breakdown of insulation or flash-over during test, glow discharges unaccompanied by a drop in voltage are neglected		N
	The insulation resistance measured between points prescribed in 8.2.2 by applying a d.c. voltage of 500 V		N
	Points of measuring:		N
	a) min. measured value (MΩ) ..... :	-	N
	b) min. measured value (MΩ) ..... :	-	N
	c) min. measured value (MΩ) ..... :	-	N
	d) min. measured value (MΩ) ..... :	-	N
	e) min. measured value (MΩ) ..... :	-	N
	The insulation resistance not less than 1 MΩ		N
8.2.6	Resistance to tracking:		N
	Test of plastic parts of fuse-links and fuse-bases carried out according to IEC 60112, test solution B; ceramic parts need not be tested	**Only insulating material made of ceramic**	N
	Five specimens passed the test at PTI 500 M		N
8.3	Verification of temperature rise and power dissipation:		P
	Test according to IEC/EN 60269-1 and IEC 60269-2-1/HD 630.2.1 S6		P
8.3.1	One fuse used for test (unless otherwise stated by the manufacturer) mounted in free air		P
	If test arrangement contains more than one fuse, the test samples mounted in service position on a wooden plate at a distance of 3 e2 (figure 1(l)		N
	Single-core copper-conductor cables insulated with black PVC for rated currents up to 400A		P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Copper bars painted mat black for rated currents of 500A to 1250A		N
	Test performed at ambient air temp. of 20 ± 5°C		P
	Terminals screws; diameter (mm) ..... :	M10	—
	Terminals tightened by torque (Nm) ..... :	32	—
	Fuse-carrier tightened by torque (Nm) ..... :	-	—
8.3.2	The temperature of the fuse measured by method of measuring ..... :	Thermocouples	P
	Protective covers and fuse-carriers, if any, are mounted		N
8.3.4.1	Temperature rise of the fuse-holder:		N
	Measured on sample as stated in Table VIII		N
	Applied a.c. current (A) for test equal to the rated current of the fuse-holder ..... :	-	N
	Test made with fuse-link (A), or ..... :	-	N
	with a dummy fuse-link stated in HD 630.2.1 S6..:	-	N
	Temperature rise limits T for contacts and terminals (Table IV):		N
	spring loaded contacts; limit (K) ..... :	-	N
	bolted contacts; limit (K) ..... :	-	N
	terminals; limit (K) ..... :	-	N
8.3.4.2	Power dissipation of the fuse-link(s):		P
	Test carried out at fuse-link(s) ..... :	Largest rated current of homogeneous series	P
	The test made with a.c. at the current (A) equal to the rated current of the fuse-link(s) ..... :	403	P
	The points of measuring ..... :	According to IEC 60269-2-1/ HD 630.2.1 S6, Fig. 6(I)	P
	Measured value of power dissipation (VA) within limits specified in IEC 60269-2-1/ HD 630.2.1 S6 ..... :	33,7	P
8.3.5	Rated power dissipation of the fuse-link(s) not exceed the rated acceptable power dissipation of the fuse-holder or the values stated in IEC 60269-2-1/HD 630.2.1 S6		P
	After the tests, the insulating parts of the fuse-holder cooled to ambient temperature withstood the test voltage according to 8.2		N
	No visible damage or deformation of the fuse-link(s) that would impair their correct operation		P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.4	Verification of operation:		P
	Test according to IEC/EN 60269-1 and IEC 60269-2-1/HD 630.2.1 S6		P
8.4.1	The test arrangements as specified in IEC/EN 60269-1, clause 8.1.4		P
	Length (m) of conductors ..... :	1	P
	their cross-sectional areas (mm²), specified in 8.3 . :	185 (315A fuse-link) 240 (400A fuse-link)	P
8.4.2	Ambient air temperature within 20 ± 5 °C		P
8.4.3.1	Verification of conventional non-fusing current and fusing current:		P
	Test carried out at fuse-link(s) ..... :	All fuse-links	P
	a) the fuse-link(s) subjected to the conventional non-fusing current (A) (Table II) ..... :	395 (315A fuse-link) 505 (400A fuse-link)	P
	the fuse-link(s) did not operate within the conventional time of (h) (Table II) ..... :	3 (315, 400A fuse-links)	P
	b) the same fuse-link(s) subjected to the conventional fusing current (A) (Table II) ..... :	506 (315A fuse-link) 644 (400A fuse-link)	P
	fuse-link(s) operated in (s) ..... :	3574 (315A fuse-link) 2682 (400A fuse-link)	P
8.4.3.2	Verification of rated current of "g" fuse-link(s):		P
	Test carried out at fuse-link(s) ..... :	All fuse-links	P
	rated current of fuse-link(s) (A) ..... :	315, 400	P
	One fuse-link submitted to a pulse test for 100 h		P
	On-period equal to conventional time (h) ..... :	3 (315, 400A fuse-links)	P
	Off-period 0,1 of the conventional time (h) ..... :	0,3 (315, 400A fuse-links)	P
	Test current (A) equal to 1,05 of the rated current ..... :	332 (315A fuse-link) 421 (400A fuse-link)	P
	After the test, the fuse-link(s) without changes		P
	Verified by test a) of 8.4.3.1 – the fuse-link(s) did not fuse		P
8.4.3.3	Verification of time-current characteristics and gates:		P
8.4.3.3.1	The time-current characteristics verified on the basis of the test according to 8.5	According to sub-clause 8.5 and sub-clause 8.4.3.3.2	P
	Values of pre-arcing and operating times within the time-current zones:		P
	- indicated by the manufacturer	Yes	P
	- specified in subsequent parts		N

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Verification for smaller current ratings, if only one largest rated current fuse-link is subjected to the test according to 8.5 (in case of homogeneous series):		N
	"g" fuse-link (except "gD, gG" and "gM")		N
	Tests made in connection with verification of the gates (8.4.3.3.2) (Table XIIA a.c.):		N
	ambient temperature (°C) within 20 ± 5 °C ..... :	-	N
	rated current In (A) of the fuse-link ..... :	-	—
	test performed at voltage (V) ..... :	-	—
	test 3a) prospective current (A) equal to kIn (k) (10 ≤ k ≤ 20) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 4a) prospective current (A) equal to kIn (k) (5 ≤ k ≤ 8) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 5a) prospective current (A) equal to kIn (k) (2,5 ≤ k ≤ 4) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	Tests made in connection with verification of the gates (8.4.3.3.2) (Table XIIB d.c.):		N
	ambient temperature (°C) within 20 ± 5 °C ..... :	-	N
	rated current In (A) of the fuse-link ..... :	-	—
	test performed at voltage (V) ..... :	-	—
	test 3a) prospective current (A) equal to kIn (K) (10 ≤ k ≤ 20) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 4a) prospective current (A) equal to kIn (k) (5 ≤ k ≤ 8) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 5a) prospective current (A) equal to kIn (k) (2,5 ≤ k ≤ 4) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	Time constants for tests between 15 ms and 20 ms ..... :	-	N

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	Verification for smaller current ratings, if only one largest rated current fuse-link is subjected to the test according to 8.5 (in case of homogeneous series):		N
	"a" fuse-link		N
	Tests made in connection with verification of the gates (8.4.3.3.2) (Table XIIA a.c.):		N
	ambient temperature (°C) within 20 ± 5 °C ..... :	-	N
	rated current In (A) of the fuse-link ..... :	-	—
	test performed at voltage (V) ..... :	-	—
	test 3a) prospective current (A) equal to nk2In (n) (5 ≤ n ≤ 8) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 4a) prospective current (A) equal to nk2In (n) (2 ≤ n ≤ 3) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 5a) prospective current (A) equal to nk2In (n) (1 ≤ n ≤ 1,5) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	Tests made in connection with verification of the gates (8.4.3.3.2) (Table XIIB d.c.):		N
	ambient temperature (°C) within 20 ± 5 °C ..... :	-	N
	rated current In (A) of the fuse-link ..... :	-	—
	test performed at voltage (V) ..... :	-	—
	test 3a) prospective current (A) equal to nk2In (n) (5 ≤ n ≤ 8) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 4a) prospective current (A) equal to nk2In (n) (2 ≤ n ≤ 3) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	test 5a) prospective current (A) equal to nk2In (n) (1 ≤ n ≤ 1,5) ..... :	-	N
	pre-arcing time (s) ..... :	-	—
	specified pre-arcing time (s) max./min. ..... :	-	N
	Time constants for tests between 15 ms and 20 ms ..... :	-	N

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Clause	Requirement - Test	Result - Remark	Verdict
8.4.3.3.2	Verification of gates ("gG", "gM" only):		P
	Test carried out at fuse-link(s) ..... :	All fuse-links	P
	test performed at voltage (V) ..... :	400	P
	rated current of fuse-link(s) (A) ..... :	315, 400	P
	a) testing current (A); pre-arcing time (ms) (higher than 10 s) ..... :	1065; >10000 (315A fuse-link) 1440; >10000 (400A fuse-link)	P
	b) testing current (A); pre-arcing time (ms) (less than 5 s) ..... :	2210; 2864 (315A fuse-link) 2860; 3014 (400A fuse-link)	P
	c) testing current (A); pre-arcing time (ms) (higher than 0,1 s) ..... :	3480; 719 (315A fuse-link) 4500; 726 (400A fuse-link)	P
	d) testing current (A); pre-arcing time (ms) (less than 0,1 s) ..... :	6025; 49 (315A fuse-link) 8120; 53 (400A fuse-link)	P
8.4.3.4	Overload:		P
	Test carried out at fuse-link(s) ..... :	Largest & smallest rated current of homogeneous series	P
	The test arrangement: the same as for the temperature rise (8.3.1 of IEC/EN 60269-1)		P
	Three fuse-links submitted to 50 pulses having the same duration and test current		P
	Test carried out at voltage (V) ..... :	10	-
	Fuse-link(s) "g":		P
	test current (A) equal to 0,8 times the current stated for a pre-arcing time of 5 s ..... :	1350 (315A fuse-links) 1650 (400A fuse-links)	P
	duration of each pulse 5 s		P
	time interval (s) between pulses equal to 0,2 times of conventional time specified in Table II..... :	2160 (315, 400A fuse-links)	P
	Fuse-link(s) "a":		N
	rated current In (A) of fuse-link(s) ..... :	-	-
	test current (a) equal to k1In ± 2% ..... :	-	N
	pulse duration (s) corresponds to that indicated on the overload curve for k1In stated by manufacturer ..... :	-	N
	time (s) intervals between pulses equal to 30 times the pulse duration ..... :	-	N
	fuse-links having ambient air temperature subjected to a current (A) equal to current for the overload test ..... :	1350 (315A fuse-links) 1650 (400A fuse-links)	P
	pre-arcing time (s) of sample lies within stated zone ..... :	1): 23 2): 25 (315A fuse-links) 3): 21 1): 19 2): 18 (400A fuse-links) 3): 20	P

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Clause	Requirement - Test	Result - Remark	Verdict
8.4.3.5	Conventional cable overload protection (for "gG" fuse-links and In > 16A only). Three samples tested according to Annex A of IEC 60269-2-1/HD630.2.1 S6:		P
	Test carried out at fuse-link(s) ..... :	**All fuse-links**	P
	each fuse-link mounted as specified		P
	fuse-links connected in series		P
	ambient temperature (°C) within 30 +5, -0°C ... :	**30,5**	P
	provided with PVC insulated copper conductors of cross-sectional areas (mm²) ..... :	**185 (315A fuse-links)** **240 (400A fuse-links)**	P
	fuse and conductor connected to it, preheated with 1,13 In (A) of fuse-link ..... :	**357 (315A fuse-links)** **455 (400A fuse-links)**	P
	for a time (h) equal to the conventional time (Table II) ..... :	**3 (315, 400A fuse-links)**	P
	test current increased to 1,45 In (A) ..... :	**460 (315A fuse-links)** **583 (400A fuse-links)**	P
	one fuse-link operated in time (s) less than the conventional time (s) ..... :	**4258 (315A fuse-links)** **4511 (400A fuse-links)**	P
8.4.3.6	Operation of indicating devices and strikers:		P
	Operation of indicating device verified in combination with the verification of breaking capacity (8.5.5)		P
	Verification of striker operation:		N
	"g" fuse-link(s) tested at current (A) equal to current I4 = 2If (Table XIIA) (Table XIIB, time constant T (ms)) ..... :	-	N
	recovery voltage (V) ..... :	-	N
	stated recovery voltage (V) ..... :	-	N
	"a" fuse-link tested at current (A) equal to current 2k1In (A); k1; In (A) (Table XIIB, time constant T (ms)) ..... :	-	N
	recovery voltage (V) ..... :	-	N
	stated recovery voltage (V)		N
	No failure of indicating device or striker		N
8.5	Verification of breaking capacity:		P
	Test according to IEC/EN 60269-1		P
	Test arrangement as specified in 8.1.4 and 8.5.1		P
8.5.2	Characteristics of the test circuit as specified		P
	Scheme of test circuit ..... :	**Acc. to IEC/EN 60269-1, Fig. 4**	P
	Deviations of characteristics of test circuit ..... :	-	N

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.5.4	Calibration of test circuit		P
	Calibration oscillograms and their evaluation		P
8.5.6	The breaking-capacity tests made at an ambient air temperature of 20 ± 5 °C		P
	Breaking-capacity tests on a.c. and d.c. fuses:		P
8.5.5.1	Table XIIA, test No. 1 for "g" and "a" fuse-links:		P
	Test carried out at fuse-link(s) ..... :	**Largest and smallest rated current of homogeneous series**	P
	Rated breaking capacity of the fuse-links (kA), at voltage (V) ..... :	**120kA at 500V**	—
	Rated current (A) of the fuse-links ..... :	**315, 400**	P
	Prospective current I1 (kA) equal to rated breaking capacity with tolerance of +10%, -0%.... :	**120,5**	P
	Power factor ..... :	**0,15**	P
	Initiation of arcing after voltage zero: within 40° - 65° for sample 1 and within 65° - 90° for sample 2 and 3 ..... :	**1): 55 2): 76 (315A fuse-links) 3): 67 1): 51 2): 68 (400A fuse-links) 3): 73**	P
	Power frequency recovery voltage (V): within 110% +5%, -0% of the rated voltage ..... :	**554**	P
	Cut-off current (A) ..... :	**1): 35140 2): 37290 (315A fuse-links) 3): 35870 1): 38860 2): 41140 (400A fuse-links) 3): 42290**	P
8.5.8	Acceptability of No. 1 test results:		P
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	**< 2500 (all fuse-links)**	P
	b) fuse-links operated without external effects or damage to the components of the complete fuse		P
	c) no permanent arcing, flashover or ejection of dangerous flames		P
	d) no damage of fuse components hindering from their further use		P
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		P
	f) fuse-link remains in one piece before its removal from the fuse-carrier		P
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	**> 100 (all fuse-links)**	P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.5.5.1	Table XIIA, test No. 2 for "g" and "a" fuse-links:		P
	Test carried out at fuse-link(s) ..... :	**Largest rated current of homogeneous series**	P
	Rated current (A) of the fuse-links ..... :	**400**	P
	Prospective current I2 (A) ..... :	**28600 (400A fuse-links)**	P
	Test made under conditions which approximate those giving maximum arc energy		P
	Power factor ..... :	**0,18 (400A fuse-links)**	P
	Making angle after voltage zero (°): within 0° +20°, -0° ..... :	**1): 6 2): 0 (400A fuse-links) 3): 7**	P
	Power frequency recovery voltage (V): within 110% +5%, -0% of the rated voltage ..... :	**553**	P
	Recovery voltage maintained at a value (V); duration (s) for sample (No.) ..... :	**553V during 30s for sample 1**	P
	For other samples duration 15s (8.5.5.2)		P
	Current (A) at beginning of arcing ..... :	**1): 25140 2): 24860 (400A fuse-links) 3): 25140**	P
8.5.8	Acceptability of No. 2 test results:		P
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	**< 2500 (all fuse-links)**	P
	b) fuse-links operated without external effects or damage to the components of the complete fuse		P
	c) no permanent arcing, flashover or ejection of dangerous flames		P
	d) no damage of fuse components hindering from their further use		P
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		P
	f) fuse-link remains in one piece before its removal from the fuse-carrier		P
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	**> 100 (all fuse-links)**	P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.5.5.1	Table XIIA, test No. 2* for "g" and "a" fuse-links, for I2 ≥ I1		N
	Prospective current I2 (kA) for test No. 2 greater than the rated breaking capacity (kA) .. :	-	N
	Test made on six samples replacing tests of Nos. 1 and 2. Test made with current I1 (kA) .. :	-	N
	Making angels differ approximately 30° between each test		N
	Power frequency recovery voltage (V): within 110% +5%, -0% of the rated voltage ..... :	-	N
	Power factor ..... :	-	N
8.5.8	Acceptability of No. 2* test results:		N
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	-	N
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N
	c) no permanent arcing, flashover or ejection of dangerous flames		N
	d) no damage of fuse components hindering from their further use		N
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N
	f) fuse-link remains in one piece before its removal from the fuse-carrier		N
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	-	N
8.5.5.1	Table XIIA, test No. 3 for "g" and "a" fuse-links:		P
	Test carried out at fuse-link(s) ..... :	**Largest rated current of homogeneous series**	P
	Rated current (A) of the fuse-link(s) ..... :	**400**	P
	Prospective current for "g" fuse-link I3 (A) equal to 3,2 If ..... :	**2055 (400A fuse-link)**	P
	Prospective current for "a" fuse-link I3 (A) equal to 2,5 k2In ..... :	-	N
	Power factor ..... :	**0,34 (400A fuse-link)**	P
	Tolerance on current ± 20%		P
	Recovery voltage (V) maintained for 15 s (8.5.5.2) ..... :	**556**	P
	Operating time (s) ..... :	**12,4 (400A fuse-link)**	P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.5.8	Acceptability of No. 3 test results:		P
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	< 2500	P
	b) fuse-links operated without external effects or damage to the components of the complete fuse		P
	c) no permanent arcing, flashover or ejection of dangerous flames		P
	d) no damage of fuse components hindering from their further use		P
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		P
	f) fuse-link remains in one piece before its removal from the fuse-carrier		P
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	> 100	P
8.5.5.1	Table XIIA, test No. 4 for "g" and "a" fuse-links:		P
	Test carried out at fuse-link(s) ..... :	Largest rated current of homogeneous series	P
	Rated current (A) of the fuse-link(s) ..... :	400	P
	Prospective current for "g" fuse-link I4 (A) equal to 2,0 If ..... :	1290 (400A fuse-link)	P
	Prospective current for "a" fuse-link I4 (A) equal to 1,6 k2In ..... :	-	N
	Power factor ..... :	0,37 (400A fuse-link)	P
	Tolerance on current + 20%, - 0%		P
	Recovery voltage (V) maintained for 15 s (8.5.5.2) ..... :	556	P
	Operating time (s) ..... :	67 (400A fuse-link)	P
8.5.8	Acceptability of No. 4 test results:		P
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	< 2500	P
	b) fuse-links operated without external effects or damage to the components of the complete fuse		P
	c) no permanent arcing, flashover or ejection of dangerous flames		P
	d) no damage of fuse components hindering from their further use		P
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	f) fuse-link remains in one piece before its removal from the fuse-carrier		P
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	> 100	P
8.5.5.1	Table XIIA, test No. 5 for "g" and "a" fuse-links:		P
	Test carried out at fuse-link(s) ..... :	**Largest rated current of homogeneous series**	P
	Rated current (A) of the fuse-link(s) ..... :	**400**	P
	Prospective current for "g" fuse-link I5 (A) equal to 1,25 If ..... :	**804 (400A fuse-link)**	P
	Prospective current for "a" fuse-link I5 (A) equal to k2In ..... :	-	N
	Power factor ..... :	**0,38 (400A fuse-link)**	P
	Tolerance on current + 20%, - 0%		P
	Recovery voltage (V) maintained for 15 s (8.5.5.2) ..... :	**556**	P
	Operating time (s) ..... :	**553 (400A fuse-link)**	P
8.5.8	Acceptability of No. 5 test results:		P
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	**< 2500**	P
	b) fuse-links operated without external effects or damage to the components of the complete fuse		P
	c) no permanent arcing, flashover or ejection of dangerous flames		P
	d) no damage of fuse components hindering from their further use		P
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		P
	f) fuse-link remains in one piece before its removal from the fuse-carrier		P
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	**> 100**	P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.5.5.1	Table XIIB, d.c. test No. 1 for "g" and "a" fuse-links:		N
	Rated breaking d.c. capacity of the fuse-links (kA), at voltage (V) ..... :	-	-
	Rated current (A) of the fuse-links ..... :	-	N
	Prospective current I1 (kA) equal to rated breaking capacity, tolerance +10%, -0% ..... :	-	N
	Time constant (ms) between 15 to 20 ms ..... :	-	N
	Arcing commences at current (A) ..... :	-	N
	Value of recovery voltage: voltage (V) within 115% + 5%, - 9% of the rated voltage ..... :	-	N
8.5.8	Acceptability of No. 1 test results:		N
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	-	N
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N
	c) no permanent arcing, flashover or ejection of dangerous flames		N
	d) no damage of fuse components hindering from their further use		N
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N
	f) fuse-link remains in one piece before its removal from the fuse-carrier		N
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	-	N
8.5.5.1	Table XIIB, d.c. test No. 2 for "g" and "a" fuse-links:		N
	a) During test No. 1 arcing commences at a current ≥ 0,5 I1, test No. 2 was not performed		N
	b) Prospective current I2 (kA). Test made under conditions which approximate those giving maximum arc energy ..... :	-	N
	Time constant (ms) between 15 to 20 ms ..... :	-	N
	Arcing commences at current (A) ..... :	-	N
	Value of recovery voltage: voltage (V) within 115% + 5%, - 9% of the rated voltage ..... :	-	N
8.5.8	Acceptability of No. 2 test results:		N
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	-	N
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N

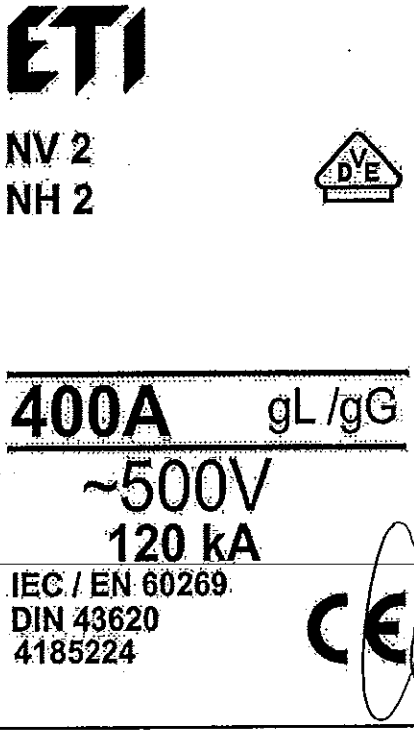
IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	c) no permanent arcing, flashover or ejection of dangerous flames		N
	d) no damage of fuse components hindering from their further use		N
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N
	f) fuse-link remains in one piece before its removal from the fuse-carrier		N
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	-	N
8.5.5.1	Table XIIB, d.c. test No. 3 for "g" and "a" fuse-links:		N
	Prospective current I3 (A) equal to 3,2 If ..... :	-	N
	Tolerance of current (%) ± 20%		N
	Time constant (ms) ≤ 3 ms ..... :	-	N
	Value of recovery voltage: voltage (V) within 115% + 5%, - 9% of the rated voltage ..... :	-	N
	Operating time (s) ..... :	-	N
	Table XIIB, d.c. test No. 4 for "g" and "a" fuse-links:		N
	Prospective current I4 (A) equal to 2,0 If ..... :	-	N
	Tolerance of current (%) + 20%, - 0%		N
	Time constant (ms) ≤ 3 ms ..... :	-	N
	Value of recovery voltage: voltage (V) within 115% + 5%, - 9% of the rated voltage ..... :	-	N
	Operating time (s) ..... :	-	N
	Table XIIB, d.c. test No. 5 for "g" and "a" fuse-links:		N
	Prospective current I5 (A) equal to 1,25 If ..... :	-	N
	Tolerance of current (%) + 20%, - 0%		N
	Time constant (ms) ≤ 3 ms ..... :	-	N
	Value of recovery voltage: voltage (V) within 115% + 5%, - 9% of the rated voltage ..... :	-	N
	Operating time (s) ..... :	-	N
8.5.8	Acceptability of No. 3 to 5 test results:		N
	a) max. arc voltage (V) did not exceed stated values of 7.5 (Table V) ..... :	-	N
	b) fuse-links operated without external effects or damage to the components of the complete fuse		N
	c) no permanent arcing, flashover or ejection of dangerous flames		N

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
	d) no damage of fuse components hindering from their further use		N
	e) no damage of fuse-link such, that it is difficult or dangerous to replace them		N
	f) fuse-link remains in one piece before its removal from the fuse-carrier		N
	g) resistance (kΩ) between contacts of fuse-links after test not less than 50kΩ for fuse-links up to 250V, 100kΩ in all other cases ..... :	-	N
8.6	Verification of the cut-off current characteristics:		P
	Test according to IEC/EN 60269-1		P
8.6.2	The measured values did not exceed cut-off characteristics indicated by the manufacturer (5.8.1)		P
8.7	Verification of I^2t characteristics and overcurrent discrimination:		P
	Test according to IEC/EN 60269-1 and IEC 60269-2-1/HD 630.2.1 S6		P
8.7.2	The operating I^2t values measured did not exceed the values indicated by the manufacturer, or		N
	those specified in subsequent parts		P
	The pre-arcing I^2t values not less than minimum pre-arcing values given by the manufacturer, or		N
	they lie within the limits indicated in Table VI		P
8.7.3	Verification of compliance for "gG" and "gM" fuse-links at 0,01 s:		P
	"gG" and "gM" fuse-links at 0,01 s comply with Table VI		P
	Pre-arcing I^2t values for test duty I2 for smaller current ratings of a homogeneous series can be calculated from the formula given in annex B		P
	Determination as specified		P
8.7.4	Verification of overcurrent discrimination:		P
	The discrimination of the fuse-link verified by means of the time-current characteristics and the pre-arcing and operating I^2t values		P
	Test according to IEC 60269-2-1/ HD 630.2.1 S6	**See page 41 of this test report**	P

IEC 60269-1 / EN 60269-1			
Clause	Requirement - Test	Result - Remark	Verdict
8.8	Verification of the degree of protection of enclosures:		N
	Test according to IEC/EN 60269-1		N
	Degree of protection IP ..... :	-	N
	Verification by test under conditions specified in IEC 60529 ..... :	-	N
	The enclosure satisfies the test of relevant degree of protection		N
8.9	Verification of resistance to heat:		P
	No damage impaired by heat during the previous tests (in particular with respect to 8.3 to 8.5 and 8.10)		P
	Test according to IEC 60269-2-1/ HD 630.2.1 S6		N
8.10	Verification of non-deterioration of contacts:		N
	Verification that contacts do not deteriorate when left undisturbed in service for a long period		N
	Test according to IEC 60269-2-1/ HD 630.2.1 S6		N
8.11.1	Mechanical strength:		P
	Mechanical characteristics of fuse-links, fuse-base, fuse-carrier are judged in the context of normal handling and mounting, as well as with the results shown after breaking-capacity test		P
	Test according to IEC 60269-2-1/ HD 630.2.1 S6		N
8.11.2.1	Verification of freedom from season cracking:		P
	Test according to IEC/EN 60269-1		P
	Current-carrying parts made of rolled copper alloy with less than 83% copper content and with all grease removed, placed for 4 h in test cabinet at temperature 30 ± 10 °C		P
	After this, samples placed for 8 h in test cabinet in atmosphere as specified		P
	After the test no damage		P
8.11.2.2	Verification of resistance to abnormal heat and fire:		N
	Test according to IEC/EN 60269-1		N
8.11.2.2.1	Parts of insulating material, except ceramic, have a limited duration of burning without spreading fire by flames or burning droplets or glowing particles falling from the specimen	**Only insulating material made of ceramic**	N

Technical data and ratings:	
Identification reference	315A: 004185222 400A: 004185224
Nature of supply	AC
Size	2
Utilization category	gL/gG
Rated current	315A, 400A
Rated voltage	500V
Rated frequency	45Hz to 62Hz
Rated breaking capacity	120kA
Homogeneous series	315A to 400A
Indicating device	In the middle of ceramic body and on cover plate
Gripping-lugs	Energized
Type of contacts	Blade contacts
Material of contacts	CuZn gal. Ag
Material of fuse-link body	Steatit C221
Material of cover plates	Al
Extinguishing means	Quartzsand
Test item particulars:	
Fuse-holder	No
Fuse-base	No
Fuse-carrier	No
Fuse-link	Yes
For use by authorized persons	Yes
For use by unskilled persons	No
Protection of semiconductor devices	No
Possible test case verdicts:	
Test case does not apply to the test object	N(.A.)
Test object does meet the requirement	P(ass)
Test object does not meet the requirement	F(ail)
Testing:	
Date of receipt of test item	01/2005
Date(s) of performance of test	01...05/2005

Copy of marking plate:



General remarks:

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

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

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

The 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 testing laboratory.

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.

Remark to test performance:

In case of differences in test requirements between IEC and EN, all tests were performed under the more severe conditions.

Summary of test result:

The low-voltage HRC fuse-links with combined indicating devices type

NH2

have passed the type test according to

IEC 60269-1 Ed. 3.0:1998+Corr.1:2000+A1:2005 / EN 60269-1:1998+A1:2005
IEC 60269-2 Ed. 2.0:1986+Corr.1:1996+A1:1995+A2:2001 / EN 60269-2:1995+A1:1998+A2:2002
IEC 60269-2-1 Ed. 4.0:2004 / HD 630.2.1 S6:2003

successfully.

IEC 60269-2 / EN 60269-2			
Clause	Requirement - Test	Result - Remark	Verdict
5.	CHARACTERISTICS OF FUSES		
5.3.2	Rated current (A) of the fuse-holder as specified (IEC 60269-2-1/HD 630.2.1 S6) ..... :	400	P
5.5	Rated power dissipation (VA) of fuse-link(s) within specified limit (IEC 60269-2-1/HD 630.2.1 S6) ..... :	Max. 34 at fuse-link 400A	P
	Rated acceptable power dissipation (VA) of fuse-holder within specified limit (IEC 60269-2-1/HD 630.2.1 S6) ..... :	45	P
5.6	Limits of time-current characteristics for "gG" and "gM" fuse-links: Table II and table III of IEC/EN 60269-1 and IEC 60269-2-1/HD 630.2.1 S6		P
	Limits of time-current characteristics for "aM" fuse-links: Table A and fig. 1 of IEC/EN 60269-2		N
	Limits of time-current characteristics for "gD" and "gN" fuse-links: Table II and table III of section V of IEC 60269-2-1		N
5.7.2	Minimum values of rated breaking capacity:		P
	Min. value (kA) for a.c. (≤ 690V) ..... :	50	P
	Rated value (kA) ..... :	120	P
	Min. value (kA) for d.c. (≤ 750V) ..... :	-	N
	Rated value (kA) ..... :	-	N
6.	MARKING		
6.1	Marking of the fuse-holder:		N
	- size ..... :	-	N
6.2	Marking of the fuse-link:		P
	- size or reference ..... :	See page 28 of this test report	P
	- rated breaking capacity (kA) ..... :	120	P
7.	STANDARD CONDITIONS FOR CONSTRUCTION		
7.7	I^2t characteristics:		P
	I^2t values for "gG" and "gM" fuse-links within limits specified in IEC/EN 60269-1		P
	I^2t values for "aM" fuse-links at the test No. 2 (Table XIIA of IEC/EN 60269-1) within limits specified in Table C (IEC/EN 60269-2)		N
	I^2t values for "gD" and "gN" fuse-links within limits specified in Table VI and Table V of section V of IEC 60269-2-1		N

IEC 60269-2 / EN 60269-2			
Clause	Requirement - Test	Result - Remark	Verdict
8	TESTS		
8.4.3.3	Time current characteristics and gates for "aM" fuse-links (Table A of IEC/EN 60269-2)		N
8.4.3.3.2	Verification of gates ("aM" only):		N
	Test carried out at fuse-link(s) ..... :	-	N
	test performed at voltage (V) ..... :	-	N
	conductor cross-sectional area as defined in table D		N
	rated current of fuse-link(s) (A) ..... :	-	N
	a) testing current (A) of table A, column 2 for 60 s; no operation ..... :	-	N
	b) testing current (A) of table A, column 3; operation (s) within 60s ..... :	-	N
	c) testing current (A) of table A, column 5 for 0,2 s; no operation ..... :	-	N
	d) testing current (A) of table A, column 7; operation (s) within 0,10s ..... :	-	N
8.9.1	Verification of resistance to heat of the fuse-holder:		N
	Fuse-holders fitted with fuse-links having the maximum power dissipation corresponding to the power acceptance of the fuse holder, rated current (A) ..... :	-	N
	Power dissipation of fuse-links (VA) ..... :	-	-
	Fuse-holders with fuse-links submitted to a pulse test for in accordance with 8.4.3.2 of IEC/EN 60269-1		N
	On period equal to conventional time (h) ..... :	-	N
	Off period 0,1 of the conventional time ..... :	-	N
	Test current (A) equal to 1,05 of the rated current ..... :	-	N
	After cooling down to normal temperature, the breaking capacity shall be tested at I1		N
	If fuse-links containing organic material in the body or filler:		N
	Each three samples of 1pole fuse-holders tested with fuse-links containing organic material		N
	"g" fuse-links (anorganic material/organic material		N
	"a" fuse-links (anorganic material/organic material		N

IEC 60269-2 / EN 60269-2			
Clause	Requirement - Test	Result - Remark	Verdict
	Fuse-holders with fuse-links submitted to a pulse test for in accordance with 8.4.3.2 of IEC/EN 60269-1		N
	Rated current(s) (A) of the fuse-links .....:	-	-
	On period equal to conventional time (h) ..... :	-	N
	Off period 0,1 of the conventional time (h) ..... :	-	N
	Test current(s) (A) equal to 1,05 of the rated current(s) ..... :	-	N
	After cooling down to normal temperature, the breaking capacity shall be tested at I1		N
	After cooling down to normal temperature, the breaking capacity shall be tested at I5		N
8.11.1.1	Mechanical strength of fuse-holder:		N
	fuse-holder fitted with a dummy fuse-link (specified in IEC 60269-2-1), or		N
	fuse-link(s) of largest rated current		N
	temperature rise at rated current (A) a.c. ..... :	-	-
	ambient air temperature (° C) ..... :	-	-
	max. temperature rise of contacts: limit (K) (Table IV) ..... :	-	-
	max. temperature rise of terminals: limit (K) (Table IV) ..... :	-	-
	fuse-link (fuse-carrier) 100 times withdrawn and inserted		N
	all parts intact and their function normal		N
	repeated temperature rise test at rated current of fuse-holder fitted with a dummy fuse-link (specified in IEC 60269-2-1), or		N
	fuse-link(s) of largest rated current		N
	temperature rise at rated current (A) a.c. ..... :	-	-
	ambient air temperature (°C) ..... :	-	-
	max. temperature rise of contacts: limit (K) (Table IV) ..... :	-	-
	max. temperature rise of terminals: limit (K) (Table IV) ..... :	-	-
	maximum difference between previous and present values of temperature fuse-link: +/-(K) i.e. +/- (%) limit + 5 K or 15% (whichever is the greater ..... :	-	-

IEC 60269-2-1 / HD 630.2.1 S6

Low-voltage fuses
Part 2-1: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application)
Sections I to VI: Examples of standardized fuses

Report:

Reference No. ..... : 2.03.00516.1.0/NH2/COMBI/500/gG/CB/CCA

Compiled by (+ signature) ..... : Ing.J.Alnetter

Approved by (+ signature) ..... : Ing.K.Farthofer

Date of issue ..... : 09.08.2005

Testing laboratory:

Name ..... : ÖFPZ Arsenal Ges.m.b.H.

Address ..... : 1030 Wien, Faradaygasse 3, AUSTRIA

Testing location ..... : As above

Applicant:

Name ..... : ETI Elektroelement d.d.

Address ..... : 1411 Izlake, Obrezija 5, SLOVENIA

Test specification:

Standard ..... : IEC 60269-2-1 Ed. 4.0:2004
HD 630.2.1 S6:2003

Test procedure ..... : CB-scheme / CCA-scheme

Procedure deviation ..... : N.A.

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

Test report form:

Test Report Form No. ..... : I269201A/96-08, completed by ÖFPZ Arsenal 2005

TRF originator ..... : EZU

Master TRF ..... : Dated 91-10

Copyright blank test report ..... : The bodies participating in the Committee of Certification Bodies (CB) and the CENELEC Certification Agreement (CCA). This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator.

Test item:

Type of test object ..... : Low-voltage HRC fuse-link with combined indicating devices

Model/Type reference ..... : NH2

Identification reference ..... : See page 34

Trademark ..... : ETI

Manufacturer ..... : ETI Elektroelement d.d.

Place of manufacture ..... : SI-1411 Izlake, Obrezija 5

Technical data and ratings ..... : See page 34

Copy of marking plate ..... : See page 35

Technical data and ratings:	
Identification reference	**315A: 004185222** **400A: 004185224**
Nature of supply	**AC**
Size	**2**
Utilization category	**gL/gG**
Rated current	**315A, 400A**
Rated voltage	**500V**
Rated frequency	**45Hz to 62Hz**
Rated breaking capacity	**120kA**
Homogeneous series	**315A to 400A**
Indicating device	**In the middle of ceramic body and on cover plate**
Gripping-lugs	**Energized**
Type of contacts	**Blade contacts**
Material of contacts	**CuZn gal. Ag**
Material of fuse-link body	**Steatit C221**
Material of cover plates	**Al**
Extinguishing means	**Quartzsand**
Test item particulars:	
Fuse-holder	**No**
Fuse-base	**No**
Fuse-carrier	**No**
Fuse-link	**Yes**
For use by authorized persons	**Yes**
For use by unskilled persons	**No**
Protection of semiconductor devices	**No**
Possible test case verdicts:	
Test case does not apply to the test object	**N(.A.)**
Test object does meet the requirement	**P(ass)**
Test object does not meet the requirement	**F(ail)**
Testing:	
Date of receipt of test item	**01/2005**
Date(s) of performance of test	**01...05/2005**

Copy of marking plate:

NV 2
NH 2

400A gL /gG

~500V

120 kA

IEC / EN 60269
DIN 43620
4185224

General remarks:

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

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

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

The 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 testing laboratory.

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.

Remark to test performance:

In case of differences in test requirements between IEC and EN, all tests were performed under the more severe conditions.

Summary of test result:

The low-voltage HRC fuse-links with combined indicating devices type

NH2

have passed the type test according to

IEC 60269-1 Ed. 3.0:1998+Corr.1:2000+A1:2005 / EN 60269-1:1998+A1:2005
IEC 60269-2 Ed. 2.0:1986+Corr.1:1996+A1:1995+A2:2001 / EN 60269-2:1995+A1:1998+A2:2002
IEC 60269-2-1 Ed. 4.0:2004 / HD 630.2.1 S6:2003

successfully.

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
	SECTION I: FUSES WITH FUSE-LINKS WITH BLADE CONTACTS		
5	**CHARACTERISTICS OF FUSES**		
5.2	Rated voltage of the fuse-link(s):		P
	- standard values for a.c.: 400V, 500V, 690V ..... :	**500V**	P
	- standard values for d.c.: 250V, 440V..... :	-	N
	Rated voltage of the fuse-holder:		P
	- standard value: 690V..... :	**690V**	P
5.3.1	Rated current(s) (A) of the fuse-link(s) and the size of the fuse-link(s) as specified in Fig. 1 (I) (IEC 60269-2-1/HD 630.2.1 S6) ..... :	**Size 2: 315, 400**	P
5.3.2	Rated current (A) of the fuse-holder and the size as specified in Fig. 2 (I) (IEC 60269-2-1/HD 630.2.1 S6) ..... :	**Size 2: 400**	P
5.5	Rated power dissipation (VA) of fuse-link(s) within specified limits (IEC 60269-2-1/HD 630.2.1 S6, Fig. 1 (I)) ..... :	**Max. 34 at fuse-link 400A**	P
	Rated acceptable power dissipation (VA) of fuse-holder within specified limits (IEC 60269-2-1/HD 630.2.1 S6, Fig. 2 (I)) ..... :	**45**	P
5.6.1	Tolerance on time-current characteristics given by the manufacturer shall not deviate by more than 10% in terms of current		P
	Time-current zones given in Fig. 4(I) (including manufacturing tolerances) shall be met by all pre-arcing and total times (at test voltage according to 8.7.4)		P
5.6.2	Conventional times and currents of "gG" fuse-links according to Table II of IEC/EN 60269-1 and IEC 60269-2-1/HD 630.2.1 S6		P
5.6.3	Gates of "gG" fuse-links according to Table III of IEC/EN 60269-1 and IEC 60269-2-1/ HD 630.2.1 S6		P
6	**MARKING**		
6.1	Fuse-holder without fuse-links: the marking of the rated current and rated voltage discernible from the front		N
6.2	Fuse-link: the marking of the rated voltage and rated current discernible from the front		P
	Fuse-links with insulated gripping-lugs marked with the graphical symbol of a gripping-lug in a square, easily visible from the front		N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict

7.	STANDARD CONDITIONS FOR CONSTRUCTION		
7.1	Dimensions of the fuse-links in tolerances given in Fig. 1 (I) (IEC 60269-2-1/HD 630.2.1 S6):		P
	Deviations		P
	dimension marking a1: prescribed in Fig. 1, measured (mm) ..... :	151,0	–
	dimension marking a2: prescribed in Fig. 1, measured (mm) ..... :	70,1	–
	dimension marking a3: prescribed in Fig. 1, measured (mm) ..... :	61,7	–
	dimension marking a4: prescribed in Fig. 1, measured (mm) ..... :	67,4	–
	dimension marking b1: prescribed in Fig. 1, measured (mm) ..... :	25,9	–
	dimension marking b2: prescribed in Fig. 1, measured (mm) ..... :	-	–
	dimension marking b3: prescribed in Fig. 1, measured (mm) ..... :	4,6	–
	dimension marking b4: prescribed in Fig. 1, measured (mm) ..... :	22,9	–
	dimension marking c1: prescribed in Fig. 1, measured (mm) ..... :	49,6	–
	dimension marking c2: prescribed in Fig. 1, measured (mm) ..... :	9,5	–
	dimension marking d: prescribed in Fig. 1, measured (mm) ..... :	2,9	–
	dimension marking e1: prescribed in Fig. 1, measured (mm) ..... :	59,7	–
	dimension marking e2: prescribed in Fig. 1, measured (mm) ..... :	53,9	–
	dimension marking e3: prescribed in Fig. 1, measured (mm) ..... :	20,0	–
	dimension marking e4: prescribed in Fig. 1, measured (mm) ..... :	6,0	–
	dimension marking f: prescribed in Fig. 1, measured (mm) ..... :	13,8	–
	dimension marking z: prescribed in Fig. 1, measured (mm) ..... :		–

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
7.1	Dimensions of the fuse-base in tolerances given in Fig. 2 (I) (IEC 60269-2-1/HD 630.2.1 S6):		N
	Deviations		N
	dimension marking a: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking b: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking c: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking d: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking e: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking g: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking h: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking n1: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking n2: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking p1: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking p2: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking r: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking s: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking t: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking v: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking w1: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking w2: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking x: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking y: prescribed in Fig. 2 measured (mm) ..... :	-	-
	dimension marking z: prescribed in Fig. 2 measured (mm) ..... :	-	-

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
7.1.2	Terminals for unprepared copper conductors enable to accept min. and max. cross-sectional areas of conductors as stated in Table D		N
	Lug terminals: torques given in table F		P
	Other terminals: torques as given by the manufacturer		N
	Size of sample ..... :	2	
	Terminals capable to accept conductors of cross-sectional areas from (mm²) to (mm²) ..... :	50 to 240	P
	Terminals suitable for Cu conductors		P
	Terminals suitable for Cu and Al conductors		N
7.1.3	Contact silver plated ..... :	Yes	P
	For other materials, test acc. to 8.10 has to be passed with dummies described in 8.10.1		N
7.1.5	Fuse-bases: The dynamic short-circuit withstand of the fuse, whenever needed, meet the cut-off currents given in Table G		N
	Fuse-bases meets the temperature-rise test acc. to 8.3 including all covers intended to be used		N
7.1.7	Fuse-links: blade contacts made of solid material		P
	End plates (except gripping-lugs) does not protrude radially from the insulation body		P
	Gripping-lugs may be insulated		N
	Fuse-links have an indicator		P
	Electrically conductive parts of indicators not be ejected from the fuse-link during operation		P
7.2	Minimum clearances and creepage distances of fuses and fuse-accessoires acc. to IEC 60664-1 for overvoltage category III and pollution degree 3		P
	No diminishing during replacement of fuse-link		P
	Creepage distances between insulated metal gripping-lugs and live parts chosen according to rated voltage divided by √3		N
	Insulating parts of fuse-bases supporting live parts: Test at PTI 500M acc. to IEC 60112 at five specimens		N
7.7	Limits of I^2t-values acc. to Table VI of IEC/EN 60269-1 and of IEC 60269-2-1/ HD 630.2.1 S6		P
7.8	"gG" fuse-links in series with rated current ratio of 1:1,6 (In ≥ 16A) have to discriminate up to the values specified in 8.7.4		P
7.9	Handling of fuse-links is considered safe when carried out by authorized persons, using replacement handles acc. to this standard		P
	Covers and phase separators may be used		N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict

8.	TESTS		
8.1.4	Requirements of 7.2 are verified on fuse-bases		N
	Fuse-bases connected to conductors having the min. and max. cross sections, given in Table D		N
	Clearances and creepage distances are verified according to 7.2 on fuse-links with insulated gripping-lugs (between insulated gripping-lugs and live parts)		N
	Creepage distances between insulated gripping-lugs and live parts are chosen according to rated voltage divided by √3		N
	For insulation stressed only for a short time, creepage distances of insulated gripping-lugs corresponding to two voltage steps lower may be used		N
	~~Clearances are also verified on a fuse-link~~ inserted into a model fuse-base acc. to Fig. 11(l)		N
	Minimum clearances (mm)..... :	-	—
	Measured clearances (mm) ..... :	-	N
	Minimum creepage distances (mm) ..... :	-	—
	Measured creepage distances (mm)..... :	-	N
8.1.6	Testing of fuse-holders:		N
	Tests according to IEC/EN 60269-1 and Table VIII of IEC 60269-2-1/HD 630.2.1 S6		N
8.2.3	Insulating properties of insulated metal gripping-lugs optionally verified by an impulse withstand voltage as specified in IEC 60269-2-1, table BB		N
8.2.6	Test of plastic parts of fuse-links and fuse-bases carried out acc, to IEC 60112, test solution B; ceramic parts need not be tested. Five specimens passed the test at PTI 500 M		N
8.3	Verification of temperature-rise and power dissipation:		P
	Test acc. to IEC/EN 60269-1 and IEC 60269-2-1/HD 630.2.1 S6 ..... :	**See pages 10 to 11 of this test report**	P
8.5.5.1	Verification of the peak withstand current of a fuse-base:		N
	One pole test, test arrangement according to IEC/EN 60269-1, clause 8.5.1		N
	The fuse-bases withstood the peak current (kA) as stated in Table G ..... :	-	N
	The fuse-links not ejected		N
	No signs of arcing or welding, no damage to prevent further use of fuse-base		N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
8.7.4	Verification of overcurrent discrimination:		P
	Test according to IEC 60269-2-1/ HD 630.2.1 S6		P
	Test carried out at fuse-link(s) ..... :	**Largest and smallest rated current of homogeneous series**	P
	Arrangement of the samples as for the breaking capacity test		P
	Four samples tested, two samples at a test current corresponding to the min. pre-arcing I^2t values, two samples at a test current corresponding to the max. operating I^2t values		P
	Test performed at voltage (V) ..... :	**325**	P
	Rated current of the fuse-links ..... :	**315, 400**	—
	Prospective current (A) (r.m.s) for minimum pre-arcing I^2t as stated in Table H (sample No. 1 and 2) ..... :	**8850 (315A fuse-links)** **12000 (400A fuse-links)**	—
	Minimum pre-arcing I^2t measured (A^2s) ..... :	**1): 435620 (315A fuse-links)** **2): 434790** **1): 782910 (400A fuse-links)** **2): 781890**	—
	Prospective current (A) (r.m.s) for maximum pre-arcing I^2t as stated in Table H (sample No. 3 and 4) ..... :	**15300 (315A fuse-links)** **20600 (400A fuse-links)**	—
	Maximum operating I^2t measured (A^2s) ..... :	**1): 699440 (315A fuse-links)** **2): 700830** **1): 1289000 (400A fuse-links)** **2): 1288500**	—
	The values of I^2t lie within corresponding limits		P
8.9	Verification of resistance to heat:		N
	Test according to IEC 60269-2-1/ HD 630.2.1 S6		N
8.9.1	Fuse-base		N
8.9.1.1	Fuse-base fitted with dummy fuse-link in accordance with Fig. 5 (I)		N
	The cross-sectional area (mm^2) of attached conductors (the length 1 m min.) in accordance with Table X of IEC/EN 60269-1		N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
8.9.1.2	The fuse-base with dummy fuse-link located in heating chamber at the temperature 80 + 5°C, - 0°C for 2 h without loading, after that next 2 h at the same temperature but loaded with 160% of rated current (A) i.e. .....:	-	N
	After loading and 3 min after switching off, a tensile force Fmax (N) (Table J) is applied to the dummy, duration of exerted force 15s (Fig. 8(I)) .....:	-	N
8.9.1.3	After the test the contact pieces did not move to such an extent as to affect further use of the fuse-base		N
	The insulating mounting parts are without any signs of cracks and not broken		N
8.9.2	Fuse-links with gripping lugs of moulded material or of metal fixed in moulded material		N
8.9.2.1	A fuse-link of the highest rating (A) for a size fitted into a fuse-base, measuring device connected (Fig. 8 (I)) .....:	-	N
8.9.2.2	The fuse-link placed in the heating chamber at a temperature of 80 + 5°C, - 0°C for 2 h without loading		N
	After that the fuse-link loaded with 150% rated current, i.e. (A) until it blows or until conventional time .....:	-	N
	Three minutes after the fuse-link has blown or conventional time has expired, a tensile force Fmax (see Table J) is applied to the gripping lugs for a period of 15 s; stated force (N); applied force (N) .....:	-	-
8.9.2.3	The gripping lugs shall remain fully operational		N
	The length of the neck (2,5 + 0,5, - 0mm) shall not be exceeded by more than 2 mm		N
8.10	Verification of non-deterioration of contacts and direct terminal clamps:		N
	Test according to IEC 60269-2-1/ HD 630.2.1 S6		N
8.10.1.1	Contacts:		N
	8.10.1 of IEC/EN 60269-1 applies		N
8.10.1.2	Direct terminal clamps:		N
	8.10.1 of IEC/EN 60269-1 and 8.10.1.2 of IEC 60269-2-1/HD 630.2.1 S6 applies		N
	Five samples provided with standardized dummy fuse-links of the highest current rating (A) intended to be used in the fuse-holder .....:		N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
	Type of conductors ..... :	-	N
	Cross sectional area of conductors (mm^2) ..... :	-	N
	Length of conductors (m) ..... :	-	N
	Terminals tightened by torque (Nm) ..... :	-	N
	Test arrangement according to 8.10.1.2		N
	Insulation of conductors removed over the whole length		N
8.10.2	Test current (A) for load period ..... :	-	N
	Duration (min) of load period ..... :	-	N
	Duration (min) of non-load period ..... :	-	N
	During no-load period, the samples cooled down to a temperature below 35°C		N
	Determination of contact resistances ..... :	-	N
	Test sequence:		—
	a) Temperature-rise test at rated current - At beginning ($I_{n\,0}$)		N
	b) Determination of contact resistances - At beginning (R_0)		N
	c) 50 test cycles		N
	d) Determination of contact resistances - After 50 cycles (R_{50})		N
	e) 200 test cycles		N
	f) Determination of contact resistances - After 250 cycles (R_{250})		N
	g) Temperature-rise test at rated current - After 250 cycles ($I_{n\,250}$)		N
	h) Measurement of withdrawal forces - After 250 cycles (F_{250})		N
8.10.3	Acceptability of test results		N
8.10.3.1	Contacts:		N
	- $((R_{250} - R_{50}) / R_{50}) \times 100 \leq 15\%$ ..... :	-	N
	- Difference between temp.-rise at beginning and temp.-rise after 250 cycles < 20K ..... :	-	N
	- Withdrawal forces within limits of table J ..... :	-	N
8.10.3.2	Direct terminal clamps:		N
	- $((R_{250} - R_{50}) / R_{50}) \times 100 \leq 15\%$ ..... :	-	N
	- Temperature-rise at test point F < 75K ..... :	-	N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
8.11	Mechanical and miscellaneous tests		P
	Test according to IEC 60269-2-1/ HD 630.2.1 S6		P
8.11.1.2	Mechanical strength of the fuse-base:		N
	Test performed at three unused fuse-bases as supplied		N
	Test-link as described in 8.11.1.2		N
	The forces for withdrawal of test-link from tested fuse-bases lie within the limits as specified in Table J		N
	Measuring device in accordance with Fig. 8 (I)		N
	Size of sample ..... :	-	-
	Specified force for withdrawal min. (N) / max. (N); measured force (N) ..... :	-	-
	Size of fuse-base fitted with steel screws ..... :	-	-
	The screws fastened three times by applying a torque 1,2 times the torque (Nm) as stated in Table F, i.e. (Nm)		N
	After the test are the contact pieces without dislocation, or		N
	not moved in such an extent as to affect further use of the fuse-base		N
	The insulating mounting parts are without any signs of cracks and not broken		N
8.11.1.8	Verification of impact resistance of gripping lugs of moulded material or of metal fixed in moulded material:		N
8.11.1.8.1	Test arrangement as given in Fig. 9 (I)		N
	Weight of the drop hammer (g) ..... :	-	N
	Height of fall (mm) ..... :	-	N
8.11.1.8.2	Two fuse-links of size In (A) tested ..... :	-	N
	One fuse-link exposed to 150 ± 5 °C for 168 h, the other one to -15 °C for 72 h		N
	Hot sample after being cooled off to room temperature, placed in the test facility of Fig. 9 (I)		N
	Each of the gripping lugs once exposed to stress as defined		N
	Cold sample tested in the test facility of Fig. 9 (I), during 1 min after removal of temperature -15 °C		N
8.11.1.8.3	No damage of gripping lugs hindering their further use		N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
	Gripping lugs not bent out by more than 3 mm in relation to position before test		N
	Coupling with a handle according to Fig. 3(l) shall not be hindered		N
8.11.2.3	Verification of resistance to rusting:		P
8.11.2.3.1	Test according to EN ISO 6988:		P
	Three fuse-links of size In (A) tested .....:	400	P
	- One test cycle with 0,2% SO_2		P
	Conditions of test samples after test .....:	**No signs of rust at any metallic part**	P
8.11.2.3.2	Additional test for severe environmental conditions (pollution degree ≥ 3) according to EN ISO 6988:		P
	Three fuse-links of size In (A) tested .....:	400	P
	- Five test cycles with 2,0% SO_2		P
	Conditions of test samples after test .....:	**Negligible signs of rust at contact knifes**	P
8.11.2.4	Non-deterioration of insulating parts of fuse-links and fuse-bases:		P
8.11.2.4.1	Three fuse-bases comprising moulded elements intended to support live parts exposed for a period of 168 h to a temperature of 150 ± 5 °C		N
	Three fuse-links of size In (A) exposed to the temperature 150 ± 5 °C for 168 h .....:	400	P
8.11.2.4.2	Acceptability of test results:		P
	no changes of fuse-base contacts affecting correct function		N
	insulating body on which the terminals are fixed without signs of a fracture		N
	the mechanical strength of cemented joints not impaired		N
	sealing compounds shall not have shifted to an extent permitting live parts to be exposed		N
	the marking durable and easily legible		P
	fuse-links operates correctly		P
	Testing of fuse-links		P
	Verification of the breaking capacity with I1 and I2 after the test 8.11.2.4.1 in accordance with 8.5 of IEC/EN 60269-1		P
	Testing of fuse-bases		N
	Test of the mechanical strength after the test 8.11.2.4.1 in accordance with 8.11.1.2		N

IEC 60269-2-1 / HD 630.2.1 S6			
Clause	Requirement - Test	Result - Remark	Verdict
	SECTION IA: FUSES WITH STRIKER FUSE-LINKS WITH BLADE CONTACTS		
	Not applicable		P
	SECTION IB: FUSE-RAILS		
	Not applicable		P
	SECTION IC: FUSE-BASES FOR BUSBAR MOUNTING (40mm - SYSTEM)		
	Not applicable		P
	SECTION II: FUSES WITH FUSE-LINKS FOR BOLTED CONNECTION		
	Not applicable		P
	SECTION III: FUSES WITH FUSE-LINKS HAVING CYLINDRICAL CONTACT CAPS		
	Not applicable		P
	SECTION IV: FUSES WITH FUSE-LINKS WITH OFFSET BLADE CONTACTS		
	Not applicable		P
	SECTION V: FUSES WITH FUSE-LINKS HAVING "gD" & "gN" CHARACTERISTICS		
	Not applicable		P
	SECTION VI: "gU" FUSE-LINKS WITH WEDGE TIGHTENING CONTACTS		
	Not applicable		P

Drawings of melting elements

NV/NH 1 / 1I Kombi gL/gG Fuse links

Rated current	Drawing No.	No. of melting elements	Rated voltage
50A	7700502	1	500V
63A	7700601	1	500V
80A	7700501	2	500V
100A	7700001	2	500V
125A	7700701	1	500V
	7700502	1	500V
160A	7700702	1	500V
	7700503	1	500V
200A	7700201	2	500V
	7700001	1	500V
224A	7700201	3	500V
250A	7700205	3	500V

NV/NH 2C / 2CI Kombi gL/gG Fuse links

Rated current	Drawing No.	No. of melting elements	Rated voltage
50A	7700502	1	500V
63A	7700601	1	500V
80A	7700501	2	500V
100A	7700001	2	500V
125A	7700701	1	500V
	7700502	1	500V
160A	7700702	1	500V
	7700503	1	500V
200A	7700201	2	500V
	7700001	1	500V
224A	7700201	3	500V
250A	7700205	3	500V

NV/NH 2 / 2I Kombi gL/gG Fuse links

Rated current	Drawing No.	No. of melting elements	Rated voltage
~~300A~~	~~7700201~~	~~1~~	~~500V~~
	~~7700301~~	~~2~~	~~500V~~
315A	7700301	3	500V
~~355A~~	~~7700201~~	~~2~~	~~500V~~
	~~7700301~~	~~2~~	~~500V~~
400A	7700201	1	500V
	7700301	3	500V

Materialni normativ		Dne	Podpis	spremembe	način	št.obv.	datum	podpis	spremembe	način	št.obv.	datum	podpis
	Projektiral	9.8.05											
	Kont. mere	—	—										
	Izdelal	9.8.05	PESAN										
	Preskusil	—	—										
	Predpisi	—	—										
	Odobril	9.8.05	—										

ETI ELEKTROELEMENT d.d.

Izdelano po risbi / vzorcu :

Tolerance po :

Merilo :

Naziv :

Melting elements

NV 1, 2C, 2 gL/gG 500V

Koda :

Krčenje%:

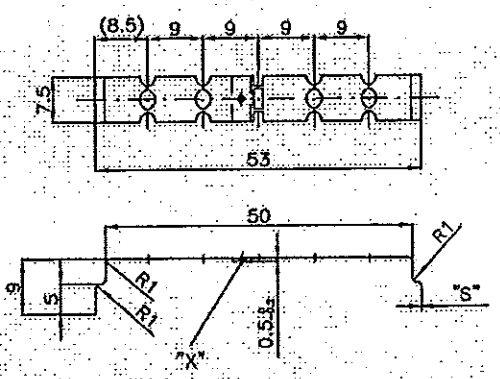
spada k :NV Kombi

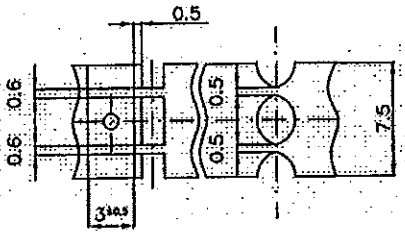
Gradivo / zaščita:

List št. 1

Datoteka: TABELA-500V.DWG

"METALOPLASTIKA" AD ЕТ БЪЛГАРИЯ





No.	"S"	Material	Solder "X"	Used for Size	A	V	Characteristic
0.1	0.18	ECu	SnCd 80/20	1	100, 200	500	gL/gG
0.1	0.18	ECu	SnCd 80/20	2C	100, 200	500	gL/gG

Materialni normativ		Dne	Podpis	spremembe	način	št.obv.	datum	podpis	spremembe	način	št.obv.	datum	podpis
	Projektiral	—	—										
	Kont. mere	—	—										
	Risal	8.8.05	PEŠAN										
	Preskusil	—	—										
	Predpisi	—	—										
	Videl	8.8.05											

ELEKTROELEMENT d.d.

Izdelano po risbi/ vzorcu :

Tolerance po :

Merilo :

Naziv :

Melting element

J0.5

Koda :

77000

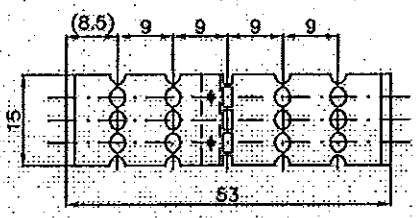
List št. 1

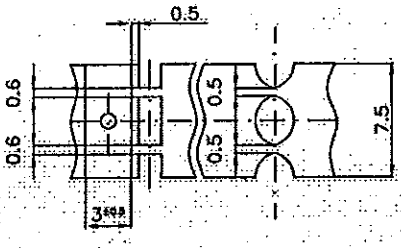
Datoteka: 77000-LAMELA.DWG

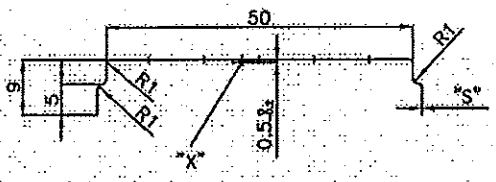
Krčenje%:

spada k :NV Kombi

Gradivo / zaščita:







No.	"S"	Material	Solder "X"	Size	Used for A	Used for V	Characteristic
01	0.18	ECu	SnCd 80/20	1	200, 224	500	gL/gG
01	0.18	ECu	SnCd 80/20	2C	200, 224	500	gL/gG
01	0.18	ECu	SnCd 80/20	2	300, 315, 355, 400	500	gL/gG
05	0.19	ECu	SnCd 80/20	1	250	500	gL/gG
05	0.19	ECu	SnCd 80/20	2C	250	500	gL/gG

Materialni normativ		Dne	Podpis	spremembe	način	št.obv.	datum	podpis	spremembe	način	št.obv.	datum	podpis
	Projektiral	—	—										
	Kont. mere	—	—										
	Risal	9.8.05	PESAN										
	Preskusil	—	—										
	Predpisi	—	—										
	Videl	9.8.05											

ETI ELEKTROELEMENT d.d.

Izdelano po risbi / vzorcu :

Tolerance po :

Merilo :

Naziv :

Melting element
J0.5

Koda :
77002-.-/4

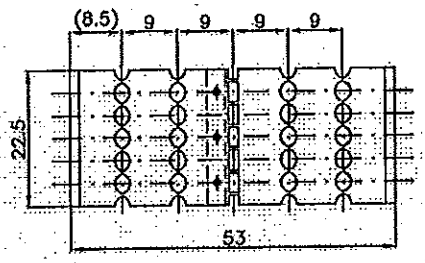
Krčenje%:

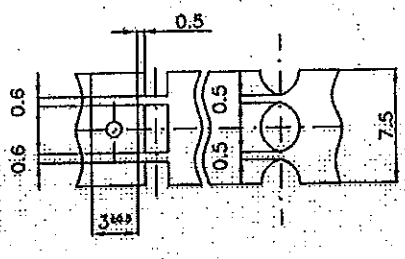
spada k : NV Kombi

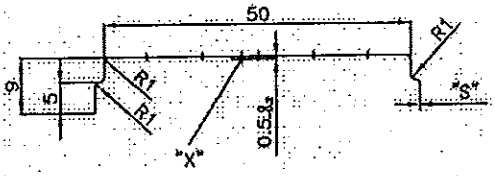
Gradivo / zaščita:

List št. 1

Datoteka: 77002-LAMELA.DWG







No.	"S"	Material	Solder "X"	Size	Used for A	Used for V	Characteristic
01	0.18	ECu	SnCd 80/20	2	300, 315, 355, 400	500	gL/gG

Materialni normativ		Dne	Podpis	spremembe	način	št.obv.	datum	podpis	spremembe	način	št.obv.	datum	podpis
	Projektiral	—	—										
	Kont. mere	—	—										
	Risal	9.8.05	PESAN										
	Preskusil	—	—										
	Predpisi	—	—										
	Videl	9.8.05											

ETI ELEKTROELEMENT d.d.

Izdelano po risbi / vzorcu :

Tolerance po :

Merilo :

Naziv : Melting element J0.5

Koda : 77003.../4

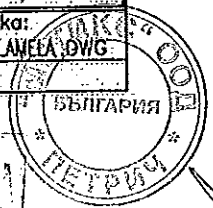
List št. 1

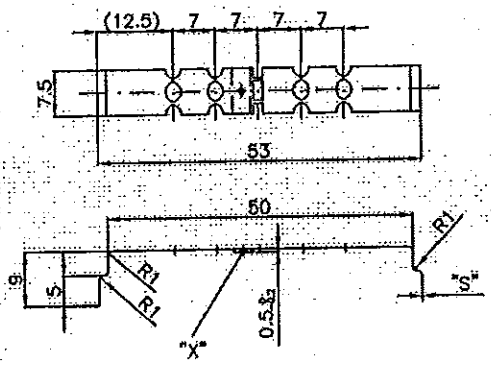
Datoteka: 77003-LAMELA.DWG

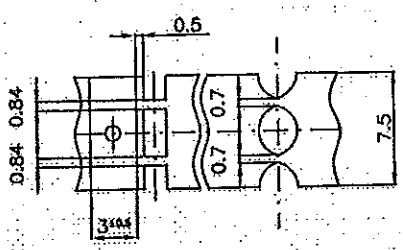
Krčenje%:

spada k : NV Kombi

Gradivo / zaščita:







No.	"S"	Material	Solder "X"	Used for Size	A	V	Characteristic
01	0.12	ECu	SnCd 80/20	1	80	500	gL/gG
01	0.12	ECu	SnCd 80/20	2C	80	500	gL/gG
02	0.15	ECu	SnCd 80/20	1	50, 125	500 (* 400)	gL/gG
02	0.15	ECu	SnCd 80/20	2C	50, 125	500 (* 400)	gL/gG
03	0.18	ECu	SnCd 80/20	1	160	500	gL/gG
03	0.18	ECu	SnCd 80/20	2C	160	500	gL/gG

* also for size 1, 2C 50A 400V

Materialni normativ

	Dne.	Podpis
Projektiral		
Kont. mere		
Risal	8.8.05	PESAN
Preskusil		
Predpisi		
Videl	8.8.05	

spremembe	način	št.obv.	datum	podpis

spremembe	način	št.obv.	datum	podpis

ETI ELEKTROELEMENT d.d.

Izdelano po risbi / vzorcu :

Tolerance po :

Merilo :

Naziv : Melting element J0.7

Koda : 77005.../4

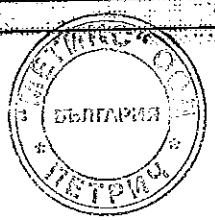
List št. 1

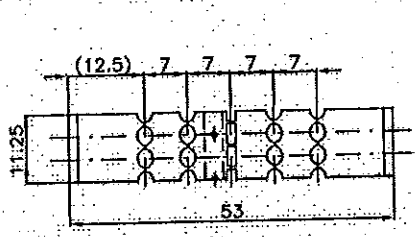
Datoteka: 77005-LAMELA.DWG

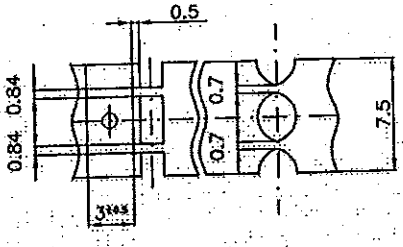
Krčenje%:

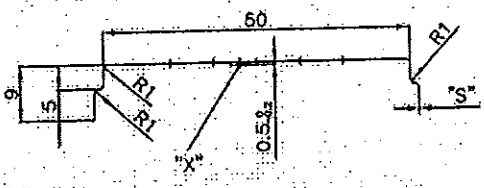
spada k : NV Kombi

Gradivo / zaščita:









No.	"S"	Material	Solder "X"	Used for Size	A	V	Characteristic
01	0.13	ECu	SnCd 80/20	1	63	500	gL/gG
01	0.13	ECu	SnCd 80/20	2C	63	500	gL/gG

Materialni normativ		Dne	Podpis
	Projektiral	.	
	Kont. mere	.	
	Risal	9.8.05	PESAN
	Preskusil	.	
	Predpisi	.	
	Videl	9.8.05	
	Merilo :	Naziv :	
	Krčenje%:	spada k : NV Kombi	
		Gradivo / zaščita: .	

spremembe	način	št.obv.	datum	podpis

spremembe	način	št.obv.	datum	podpis

ETI ELEKTROELEMENT d.d.

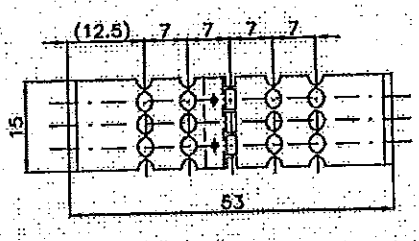
Melting element
J0.7

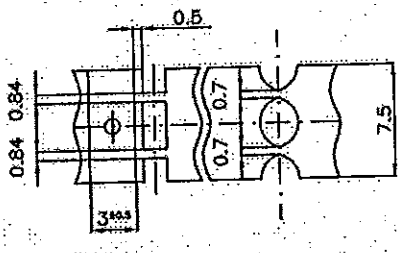
Koda : 77006.../4

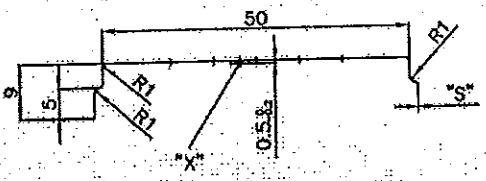
List št. 1 | Datoteka: 77006-LAMELA.DWG

Izdelano po risbi/ vzorcu :

Tolerance po :







No.	"S"	Material	Solder "X"	Used for Size	A	V	Characteristic
01	0.15	ECu	SnCd 80/20	1	125	500	gL/gG
01	0.15	ECu	SnCd 80/20	2C	125	500	gL/gG
02	0.18	ECu	SnCd 80/20	1	160	500	gL/gG
02	0.18	ECu	SnCd 80/20	2C	160	500	gL/gG

Materialni normativ		Dne	Podpis	spremembe	način	št.obv.	datum	podpis	spremembe	način	št.obv.	datum	podpis
	Projektiral												
	Kont. mere												
	Risal	9.8.05	PESAN										
	Preskusil												
	Predpisi												
	Videl	9.8.05											

Izdelano po risbi / vzorcu :

Tolerance po :

ETI ELEKTROELEMENT d.d.

Merilo :

Naziv :

Melting element 10.7

Koda : 77007...4

List št. | Datoteka: 77007-LAMELA.DWG

Krčenje%:

spada k :NV Kombi

Gradivo / zaščita: .

Remarks

Метикс
www.metix.bg
ЕЛЕКТРИЧЕСКИ ТАБЛА, КОМПЛЕКТНИ ТРАНСФОРМАТОРНИ ПОСТОВЕ, ЕЛЕКТРОАПАРАТУРА-НН и СрН

гр.Петрич 2850, Промишлена зона
ул."Свобода"49
тел.:00359 745 60743; факс:00359 745 60742
e-mail: metix@metix.bg
гр.София 1000 ул."Ректор Васкарчев"бл.5
тел.:00359 2 889 0686; факс:00359 2 958 9334
e-mail:sales@metix.bg

TÜVRheinland
TÜV Rheinland Bulgaria
BDS EN ISO 9001:2008
Cert. No.TRBA 100 0300

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www.tuv.com ID 9105036535

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Management System ISO 14001:2004
www.tuv.com ID 9105036535

ПРИЛОЖЕНИЕ 9.12.5

Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания по т. 4 – заверено копие

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

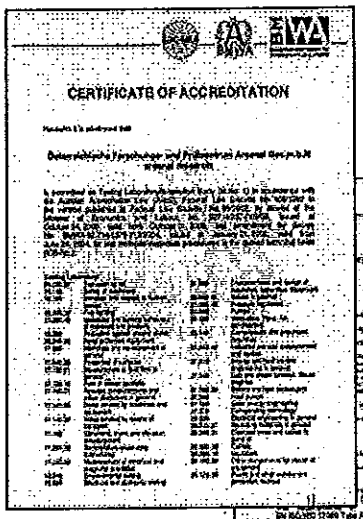
„ ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ /НН/ "

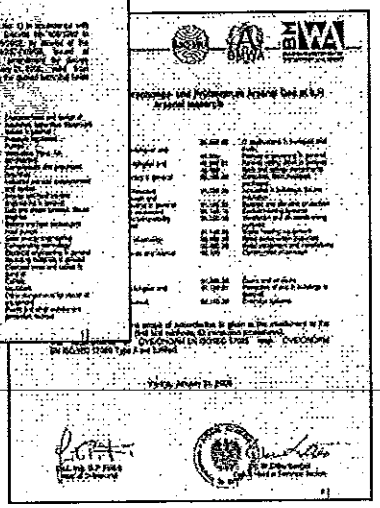
РЕФ. № PPD 15 101

организиран от "ЧЕЗ Разпределение България" АД

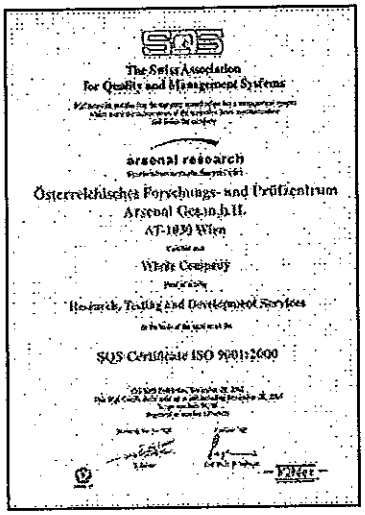
"МЕТИКС" ООД БЪЛГАРИЯ ПЕТРИЧ

Testing laboratory

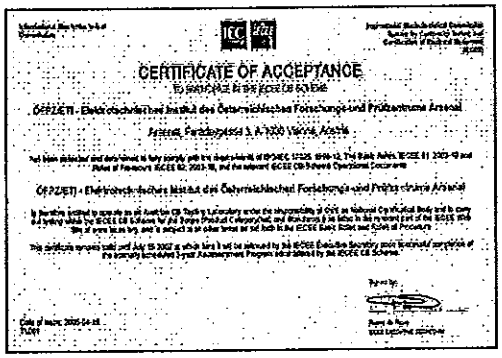




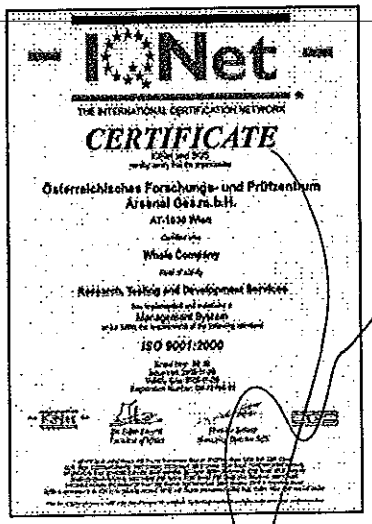
ACCREDITED
according to
EN ISO/IEC 17025
No. BMWA-92.714/5379-I/12/2004



CERTIFICATED
according to
ISO 9001
Reg. No. 12769-03

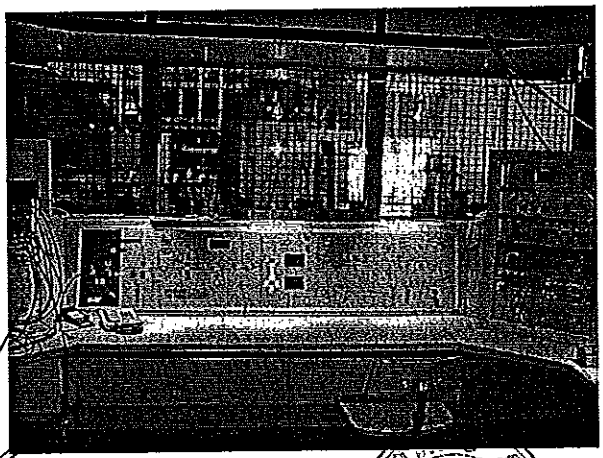


ACCEPTED
CB TESTING LABORATORY
under the responsibility of OVE
as National Certification Body



PSC – POWER SERVICE CENTER:

Control station for tests up to 10kA



Control station for tests above 10kA

Метикс
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гр.Петрич 2850, Промишлена зона
ул."Свобода"49
тел.:00359 745 60743; факс:00359 745 60742
e-mail: metix@metix.bg
гр.София 1000 ул."Ришардо Вакарини" бл.5
тел.:00359 2 869 0595; факс:00359 2 958 9334
e-mail: sales@metix.bg

TÜVRheinland
TÜV Rheinland Bulgaria
BDS EN ISO 9001:2008
Cert. No.TRBA 100 0300

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Management System
ISO 9001:2008
OHSAS 18001:2007
www.tuv.com
ID 9105025855

TÜVRheinland CERTIFIED
Management System
ISO 14001:2004
www.tuv.com
ID 9105025855

ПРИЛОЖЕНИЕ 9.12.6

Списък на провежданите рутинни (контролни) изпитвания

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ /НН/ “

РЕФ. № PPD 15 101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД
БЪЛГАРИЯ
* ПЕТРИЧ *

ROUTINE AND TYPE TEST REPORT

Product: **Low-voltage Fuse Links, Size 2, gG, 500V**

Manufactured by: **ETI Elektroelement d.d.**
1411 Izlake, Obrezija 5
SLOVENIA

The product confirm with the following standards:

IEC 60269-1
EN60269-1
IEC 60269-2
EN 60269-2
VDE 0636

Invoice No:

Rated current (A)	Routine test report Resistance, Visual inspection (marking, checking on cracks), Dimensions to DIN 43620			Type test report Power dissipation		
	QTY tested	Resistance Test value (mΩ)±10%	Remarks	QTY tested	Test value (W)±10%	Remarks
400	100 %	152	**OK**	0.20 %	30.5	**OK**

Place and date: **Izlake, 04.12.2015**

Manufacturer representative - signature and stamp:
Quality assurance:
Mag. Tomaž Klopčič

ELEKTROELEMENT d.d. IZLAKE 71 ETI

This company inspection certificate has been established for Firm:

RITTBUL LTD
St.L.Kostov St, fl. 2
1407 S O F I A
BULGARIJA

ВЯРНО С ОРИГИНАЛА

ЕТИКС "ОБ" БЪЛГАРИЯ ПЕТРИЧ

Метикс
www.metix.bg
ЕЛЕКТРИЧЕСКИ ТАБЛА, КОМПЛЕКТНИ ТРАНСФОРМАТОРНИ ПОСТОВЕ, ЕЛЕКТРОАПАРАТУРА-НН и СрН

гр.Петрич 2850, Промишлена зона
ул."Свобода"49
тел.:00359 745 60743; факс:00359 745 60742
e-mail: metix@metix.bg
гр.София 1000 ул."Рикардо Вазаров"бл.5
тел.:00359 2 869 0696; факс:00359 2 958 9334
e-mail:sales@metix.bg

ПРИЛОЖЕНИЕ 9.12.7

Инструкции за, поставяне в основата, обслужване и поддържане.

Настоящото приложение се прилага във връзка с участието ми в:
търг с предмет:

„ ДОСТАВКА НА РАЗПРЕДЕЛИТЕЛНИ ТАБЛА НИСКО НАПРЕЖЕНИЕ /НН/ “

РЕФ. № PPD 15 101

организиран от "ЧЕЗ Разпределение България" АД

"МЕТИКС" ООД БЪЛГАРИЯ * ПЕТРИЧ *

ИНСТРУКЦИЯ

ЗА СЪХРАНЕНИЕ, МОНТАЖ И ЕКСПЛОАТАЦИЯ

Високомощни предпазители със стопяема вложка НН, клас gG

Описание
Предпазител за голяма мощност (високомощен), със стопяема вложка, НН, клас gG, типоразмер: (0), (1), (2)

Високомощните еднополюсни предпазители се състоят от порцеланов патрон, една или повече стопяеми вложки и ножови контакти. Те имат индикатор, служещ за сигнализация при изгоряла вложка.

Употреба
Високомощните предпазители са предназначение за защита на въздушни и кабелни линии, и друго електрическо оборудване от токове на претоварване и късо съединение. Те имат голяма изключвателна възможност и токоограничаващо действие, изразяващо се в прекъсване на електрическата верига при възникване на късо съединение, преди токът да е достигнал максималната си стойност.

Общи изисквания
Високомощният предпазител трябва да отговаря на посочените стандарти и/или еквивалентни за тях стандартизационни документи, включително на съответните последни изменения и поправки:

БДС EN 60269 -1:2002 - Стопяеми предпазители за ниско напрежение.
Част 1: Общи изисквания (IEC 60269 - 1: 1998)

БДС EN 60269 - 2:2002 - Стопяеми предпазители за ниско напрежение.
Част 2: Допълнителни изисквания за стопяемите предпазители, предназначени да се използват от квалифицирани лица (предпазители предимно за промишлено приложение)
(IEC 60269 - 2: 1986 + поправка юли 1996)

Данни за работната среда

№	Наименование на данните	Стойност на данните
1.	Околна среда, в която работи	На закрито
2.	Максимална околна температура	+ 50 °C
3.	Минимална околна температура	-25°C
4.	Относителна влажност (при 20 °C)	до 90%
5.	Степен на замърсяване	3
6.	Надморска височина	до 2 000 м

Параметри на мрежата НН

№	Наименование	Стойност
1.	Номинално напрежение	400 / 230 V
2.	Максимално напрежение	440 / 254 V
3.	Номинална честота	50 Hz
1.	Вид схема на разпределителната мрежа	TN-C

Транспорт и разопаковане
Опакованият апарат трябва да се транспортира внимателно и не трябва силно да се хвърля.

Съхранение и складиране
Предпазителите се съхраняват в стандартната си транспортна опаковка в сухи, закрити помещения годни за складиране на електотехническа продукция.

Монтаж
Монтажът, демонтажът и работата с предпазители трябва да се извършва единствено и само от квалифициран и упълномощен за това персонал. Задължителни се взимат мерки за безопасност съгласно утвърдените наредби и правилници и осигуряване на изискваните лични предпазни средства при работа по електрически мрежи.
Не се допуска да се прави опит за ремонт или модификация на предпазителите.

Поддръжка
Предпазителите не изискват специална поддръжка.