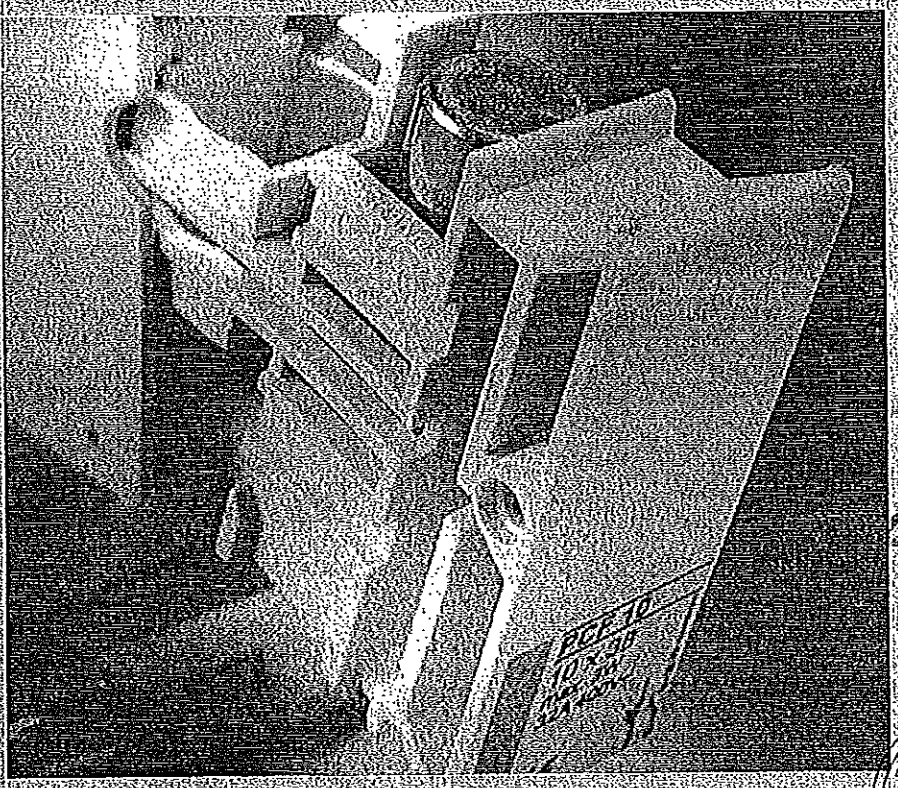
C

LOW VOLTAGE CYLINDRICAL FUSES



ETI POWER NEEDS CONTROL

Cylindrical fuse-links

Cylindrical fuse-link CH

Ratings: 1-100 A | Fuse characteristics: gG, aM

Application: Cylindrical fuse-links are used as the most secure protection of electrical installations, control, and signal circuits against overloads and short circuit currents. Their dimensions comply with IEC 60269-1 and IEC 60269-2-1. They are used mainly in industrial areas, since their dimensions allow voltages of up to 690 V. The most common sizes are the following four: 8x32, 10x38, 14x51 and 22x58.

CH8

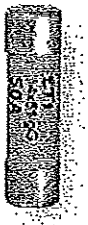
rated current/rated voltage	code no. gG	code no. aM	weight (g)	packing unit (pcs)
1A, 400V	002610000	002611000	4	10/740
2A, 400V	002610001	002611001		
4A, 400V	002610003	002611003		
6A, 400V	002610005	002611005		
8A, 400V	002610006	002611006		
10A, 400V	002610007	002611007		
12A, 400V	002610008	002611008		
16A, 400V	002610009	002611009		
20A, 400V	002610011	002611011		
25A, 400V	002610013	002611013		

CH10

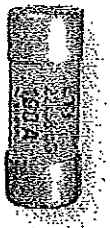
rated current/rated voltage	code no. gG	code no. aM	weight (g)	packing unit (pcs)
0.5A, 500V	002620017	002621017	7,5	10/500
1A, 500V	002620000	002621000		
2A, 500V	002620001	002621001		
4A, 500V	002620003	002621003		
6A, 500V	002620005	002621005		
8A, 500V	002620006	002621006		
10A, 500V	002620007	002621007		
12A, 500V	002620008	002621008		
16A, 500V	002620009	002621009		
20A, 500V(400V aM)	002620011	002621011		
25A, 500V(400V aM)	002620013	002621013		
32A, 400V	002620015	002621015		

CH14		NEW!		NEW!		
rated current/rated voltage	code No. gG	code No. gG with blown signal	code No. aM	code No. aM with blown signal	weight [g]	packaging [pcs]
2A, 690V	002630001	006711015*	002631001	006711029*	18,6	10/200
4A, 690V	002630003	006711005*	002631003	006711030*		
6A, 690V	002630005	006711016*	002631005	006711031*		
8A, 690V	002630006	006711017*	002631006	006711032*		
10A, 690V	002630007	006711018*	002631007	006711033*		
12A, 690V	002630008	006711006*	002631008	006711034*		
16A, 690V	002630009	006711001*	002631009	006711035*		
20A, 690V	002630011	006711002*	002631011	006711036*		
25A, 690V	002630013	006711003*	002631013	006711037*		
32A, 690V	002630015	006711019*	002631015*	006711038*		
40A, 500V	002630017	006711004	002631017	006711039		
50A, 500V	002630019	006711020**	002631019**	006711040**		

*500V
**400V



CH22		NEW!		NEW!		
rated current/rated voltage	code No. gG	code No. gG with blown signal	code No. aM	code No. aM with blown signal	weight [g]	packaging [pcs]
4A, 690V		006711008			51	10/480
6A, 690V		006711009		006711041		
8A, 690V		006711021		006711042		
10A, 690V		006711010		006711043		
12A, 690V		006711022		006711044		
16A, 690V	002640009	006711023	002641009	006711045		
20A, 690V	002640011	006711024	002641011	006711046		
25A, 690V	002640013	006711025	002641013	006711047		
32A, 690V	002640015	006711011	002641015	006711048		
40A, 690V	002640017	006711026	002641017	006711049		
50A, 690V	002640019	006711027	002641019	006711050		
63A, 690V	002640021	006711012	002641021	006711051		
80A, 500V	002640023	006711013	002641023	006711052		
100A, 500V	002640025	006711014	002641025	006711053		



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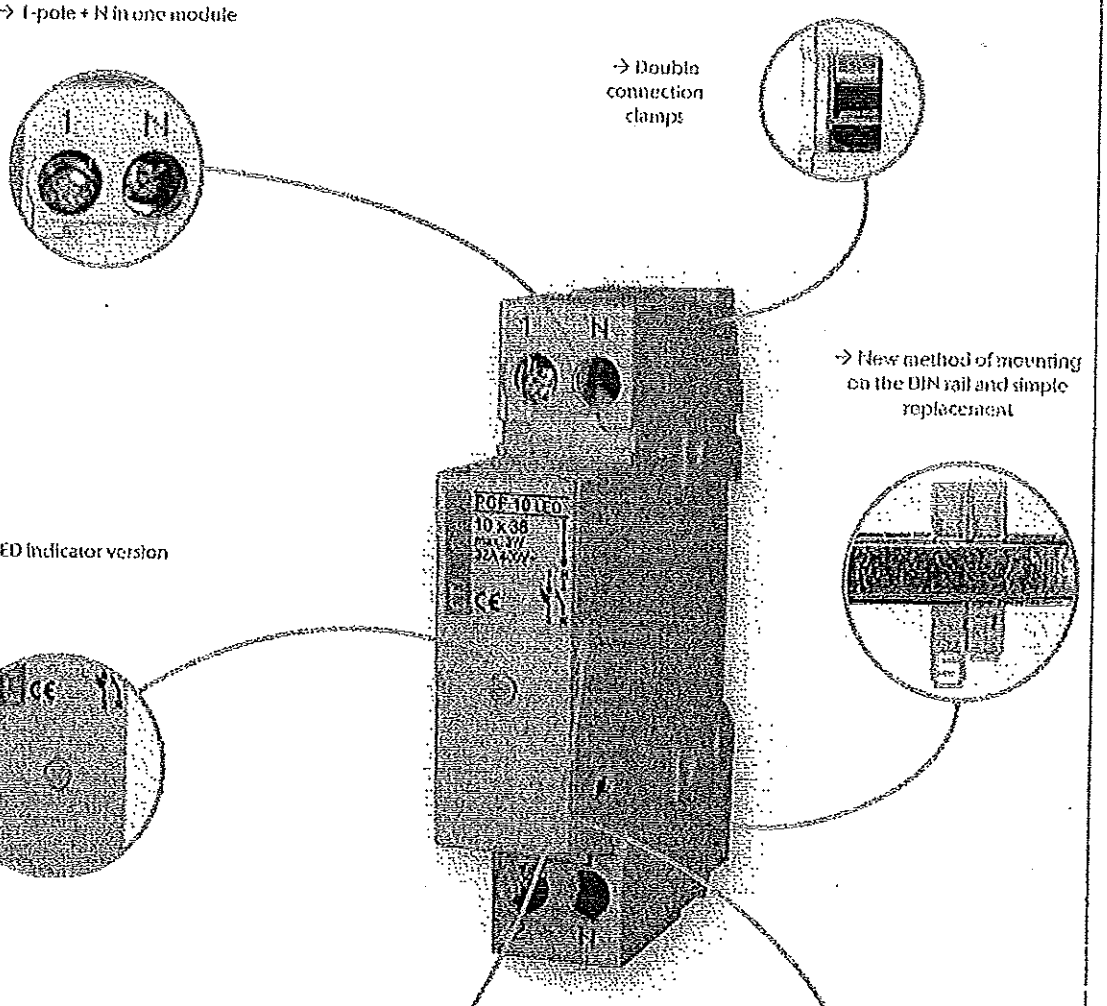
Fuse disconnectors for cylindrical fuse-links

Advantages of fuse disconnector PCF

→ 1-pole + N in one module

→ Double connection clamps



→ New method of mounting on the DIN rail and simple replacement

→ LED indicator version

→ Extraction of entire fuse-link when changing

→ Chamber for spare fuse-link

→ Sealing possibility

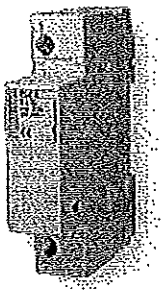
Fuse disconnector PCF 8

Performance	Rated operational voltage	Utilization category
max. 20 A	400 V	AC22B

1-pole

U (V)	I (A)	Cat. No.	Indicator	Weight (g)	Packaging (pcs)	
400	20	002530001	-	58	12/108	
		002530011	LED			
		*002531001	-	58	12/108	NEW!
		*002531011	LED			

*Connection clamp on the right side "French version"



1-pole + N

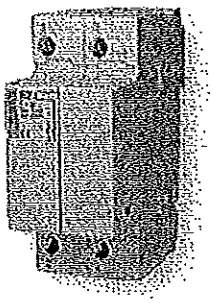
U (V)	I (A)	Cat. No.	Indicator	Weight (g)	Packaging (pcs)	
400	20	002530002	-	70	12/108	
		002530012	LED			
		*002531002	-	70	12/108	NEW!
		*002531012	LED			

*Connection clamp on the right side, N pole on the left "French version"

2-pole

U (V)	I (A)	Cat. No.	Indicator	Weight (g)	Packaging (pcs)	
400	20	002530003	-	120	6/54	
		002530013	LED			
		*002531003	-	120	6/54	NEW!
		*002531013	LED			

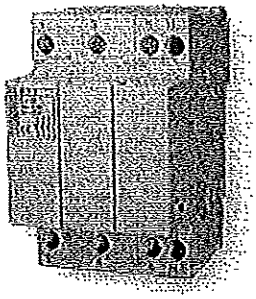
*Connection clamp on the right side "French version"



3-pole

U (V)	I (A)	Cat. No.	Indicator	Weight (g)	Packaging (pcs)	
400	20	002530004	-	180	4/36	
		002530014	LED			
		*002531004	-	180	4/36	NEW!
		*002531014	LED			

*Connection clamp on the right side "French version"



3-pole + N

U (V)	I (A)	Cat. No.	Indicator	Weight (g)	Packaging (pcs)	
400	20	002530005	-	195	4/36	
		002530015	LED			
		*002531005	-	195	4/36	NEW!
		*002531015	LED			

*Connection clamp on the right side, N pole on the left "French version"

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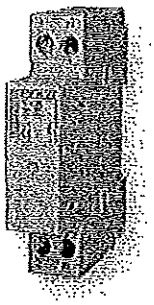
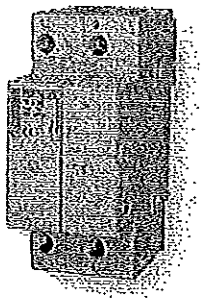
Fuse disconnector PCF 10

Rated current: max. 32 A | Rated operational voltage: 690 V a.c. | Utilization category: AC22B



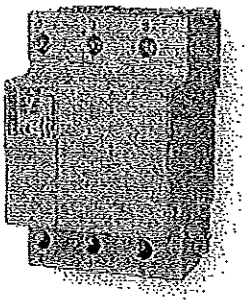
1-pole					
U_e/U_i (V)	I_n (A)	Code No.	Indicator	Weight (g)	Packaging (pcs)
690	32	002550001	-	58	12/108
		002550011	LED		
		*002551001	-	58	12/108 NEW!
		*002551011	LED		

*Connection clamp on the right side "French version"



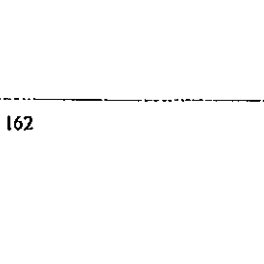
1-pole + N					
U_e/U_i (V)	I_n (A)	Code No.	Indicator	Weight (g)	Packaging (pcs)
400/690	32	002550002	-	70	12/108
		002550012	LED		
		*002551002	-	70	12/108 NEW!
		*002551012	LED		

*Connection clamp on the right side, N pole on the left "French version"



2-pole					
U_e/U_i (V)	I_n (A)	Code No.	Indicator	Weight (g)	Packaging (pcs)
690	32	002550003	-	120	6/54
		002550013	LED		
		*002551003	-	120	6/54 NEW!
		*002551013	LED		

*Connection clamp on the right side "French version"



3-pole					
U_e/U_i (V)	I_n (A)	Code No.	Indicator	Weight (g)	Packaging (pcs)
690	32	002550004	-	180	4/36
		002550014	LED		
		*002551004	-	180	4/36 NEW!
		*002551014	LED		

*Connection clamp on the right side "French version"

3-pole + N					
U_e/U_i (V)	I_n (A)	Code No.	Indicator	Weight (g)	Packaging (pcs)
690	32	002550005	-	195	4/36
		002550015	LED		
		*002551005	-	195	4/36 NEW!
		*002551015	LED		

*Connection clamp on the right side, N pole on the left "French version"

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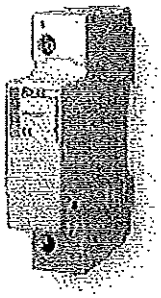
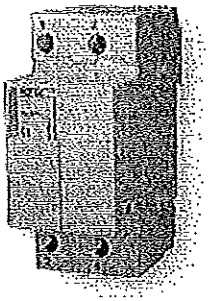
Fuse disconnector PCF CC

Fuse rating	Rated operational voltage	Utilization category
max. 30 A	600 V	AC 22B



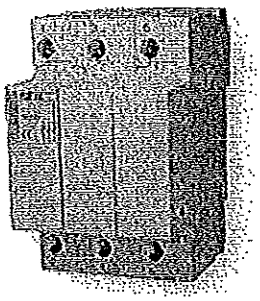
1-pole

U [V]	I [A]	code no.	indicator	weight [g]	packing [pcs]
600	30	002550101	-	58	12/108
		002550111	LED		



2-pole

U [V]	I [A]	code no.	indicator	weight [g]	packing [pcs]
600	30	002550103	-	120	6/54
		002550113	LED		



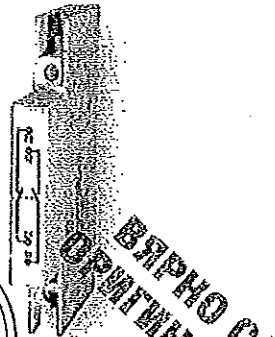
3-pole

U [V]	I [A]	code no.	indicator	weight [g]	packing [pcs]
600	30	002550104	-	180	4/36
		002550114	LED		

Accessories

Fuse disconnector PS PCF

U [V]	I [A]	code no. 1/18	code no. PCD	weight [g]	packing [pcs]	contact
230	6	002559001	002559001	35	1/10	1 x b 1 x a/b



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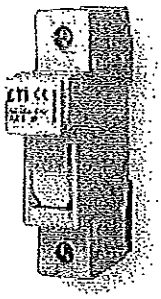
General information about fuse disconnector VLC

The main characteristics of ETI fuse disconnectors are:

- Compliance with IEC 60947-1, IEC 60947-3, UL 512 and UL 486 E.
- Plastic parts are made of material resistant to high temperatures.
- All contact surfaces are silver plated.
- Mounting on standard DIN 35 mm rail (DIN EN60715). The sizes 14x51 and 22x58 can be also fixed with screws on a flat base.
- For all sizes a version with electronic indicator is available. There are two technical types of indicator:
  a) L (LED) with built-in LED diode which blinks after the fuse-link operates. The internal circuit resistance is 2 MΩ, thus the total dissipation is minimal. The indicator is capable of operating in conditions of open circuit with minimum capacitance between connection cables. Operating voltage range spans from 50 V to 690 V a.c. and d.c.
  b) I (NEON) with neon lamp which is constantly lit after the fuse-link operates. The internal circuit resistance is 570 kΩ, thus it is necessary for the circuit to be closed in order for the indicator to function. The operational voltage range is 100 V to 750 V a.c.
- Modular design-it is possible to assemble multi pole versions on customer's site for VLC 8, VLC 10, VLC 14 and VLC 22.

Fuse disconnector VLC 8

Rated current max. 20 A | Rated operational voltage 400 V | Utilization category AC22B



1-pole

U_{AC} (V)	I_n (A)	code no.	indicator	weight (g)	pack qty. (pcs)
400	20	002521000	-	65	12/108
		002521100	L-LED		
		002521200	I-NEON		

1-pole + N

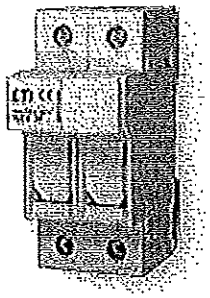
U_{AC} (V)	I_n (A)	code no.	indicator	weight (g)	pack qty. (pcs)
400	20	002522000	-	128	6/54
		002522100	L-LED		
		002522200	I-NEON		
		*002522001	-	128	6/54
		*002522101	L-LED		
		*002522201	I-NEON		

NEW!

*N pole on left "French version"

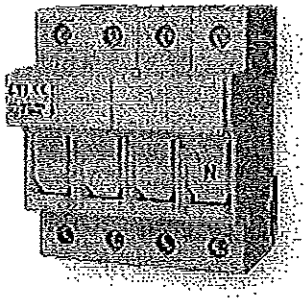
2-pole

U (V) AC	I (A)	catalog. no.	indicator	weight (g)	packaging (pcs.)
400	20	002523000	-	124	6/54
		002523100	L-LED		
		002523200	I-NEON		



3-pole

U (V) AC	I (A)	catalog. no.	indicator	weight (g)	packaging (pcs.)
400	20	002524000	-	187	4/36
		002524100	L-LED		
		002524200	I-NEON		



3-pole + N

U (V) AC	I (A)	catalog. no.	indicator	weight (g)	packaging (pcs.)
400	20	002525000	-	270	3/27
		002525100	L-LED		
		002525200	I-NEON		
		*002525001	-	270	3/27 NEW!
		*002525101	L-LED		
		*002525201	I-NEON		

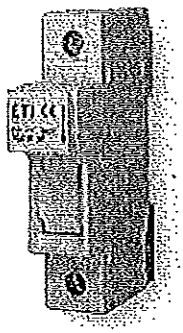
*N pole on left "French version"

Fuse disconnector VLC 10

Rated current: max. 32 A | Rated operational voltage: 690 V | Utilization category: AC22B

1-pole

U (V) AC	I (A)	catalog. no.	indicator	weight (g)	packaging (pcs.)
690	32	002541000	-	65	12/108
		002541100	L-LED		
		002541200	I-NEON		



1-pole + N

U (V) AC	I (A)	catalog. no.	indicator	weight (g)	packaging (pcs.)
400/690	32	002542000	-	128	6/54
		002542100	L-LED		
		002542200	I-NEON		
		*002542001	-	128	6/54 NEW!
		*002542101	L-LED		
		*002542201	I-NEON		

*N pole on left "French version"

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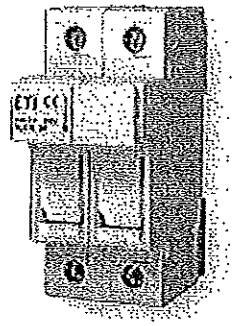
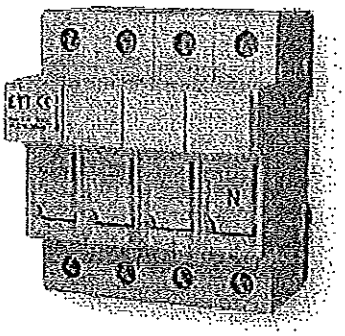


2-pole

U_n (V)	I_n (A)	code No.	indicator	weight (g)	packaging (pcs)
690	32	002543000	-	124	6/54
		002543100	L-LED		
		002543200	I-NEON		



3-pole

U_n (V)	I_n (A)	code No.	indicator	weight (g)	packaging (pcs)
690	32	002544000	-	187	4/36
		002544100	L-LED		
		002544200	I-NEON		

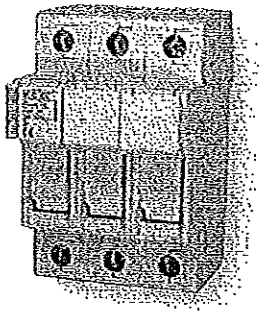
3-pole + N

U_n (V)	I_n (A)	code No.	indicator	weight (g)	packaging (pcs)
690	32	002545000	-	270	3/27
		002545100	L-LED		
		002545200	I-NEON		
		*002545001	-	270	3/27 NEW!
		*002545101	L-LED		
		*002545201	I-NEON		

*N pole on left "french version"

Fuse disconnector VLC CC

Rated current: max. 30 A | Rated operational voltage: 600 V | Utilization category: AC22B



1-pole

U_n (V)	I_n (A)	code No.	indicator	weight (g)	packaging (pcs)
600	30	002541300	-	65	12/108

2-pole

U_n (V)	I_n (A)	code No.	indicator	weight (g)	packaging (pcs)
600	30	002543300	-	124	6/54

3-pole

U_n (V)	I_n (A)	code No.	indicator	weight (g)	packaging (pcs)
600	30	002544300	-	187	4/36

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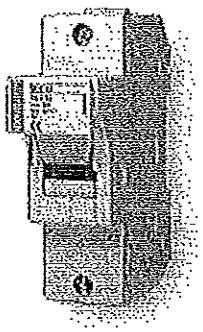
Varovalčni ločilnik VLC 14

Rated current: max. 50 A | Rated operational voltage: 690 V | Utilization category: AC22B

1-pole

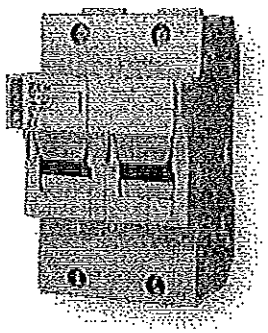
U/U_e (V)	I_e (A)	code no.	indicator	weight (g)	packaging (pcs)
690	50	002561000	-	100	12/96
		002561100	LED		



1-pole + N

U/U_e (V)	I_e (A)	code no.	indicator	weight (g)	packaging (pcs)
690	50	002562000	-	222	6/48
		002562100	LED		
		*002562001	-	222	6/48 NEW!
		*002562101	LED		

*N pole on left *French version*

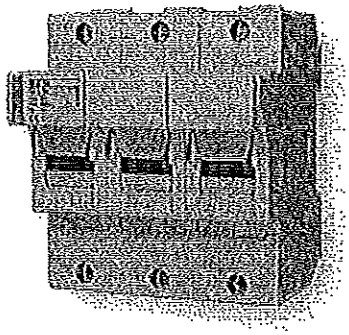


2-pole

U/U_e (V)	I_e (A)	code no.	indicator	weight (g)	packaging (pcs)
690	50	002563000	-	201	6/48
		002563100	LED		

3-pole

U/U_e (V)	I_e (A)	code no.	indicator	weight (g)	packaging (pcs)
690	50	002564000	-	308	4/32
		002564100	LED		



3-pole + N

U/U_e (V)	I_e (A)	code no.	indicator	weight (g)	packaging (pcs)
690	50	002565000	-	437	3/24
		002565100	LED		
		*002565001	-	437	3/24 NEW!
		*002565101	LED		

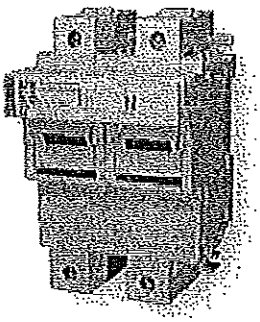
*N pole on left *French version*

Fuse disconnector VLC 22

Rated current: max. 100 A | Rated operational voltage: 690 V | Utilization category: AC21B

1-pole

U/U_e (V)	I_e (A)	code no.	indicator	weight (g)	packaging (pcs)
690	100	002571000	-	160	3/105
		002571100	LED		

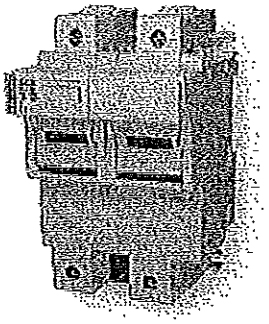


1 pole + N

U(V)	I (A)	code no.	indicator	weight (g)	packaging (pcs)
690	100	002572000	-	355	2/48
		002572100	L-LED		
		*002572001	-	355	2/48
		*002572101	L-LED		

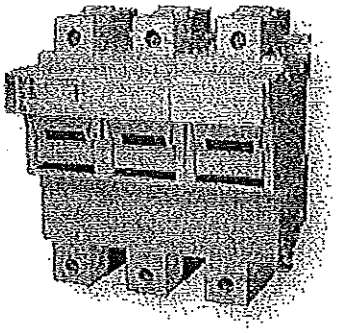
*N pole on left *French version*

NEW!



2 pole

U(V)	I (A)	code no.	indicator	weight (g)	packaging (pcs)
690	100	002573000	-	310	2/48
		002573100	L-LED		



3 pole

U(V)	I (A)	code no.	indicator	weight (g)	packaging (pcs)
690	100	002574000	-	480	1/35
		002574100	L-LED		

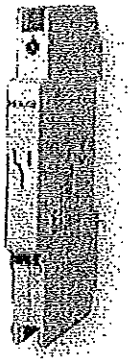
3 pole + N

U(V)	I (A)	code no.	indicator	weight (g)	packaging (pcs)
690	100	002575000	-	680	1/24
		002575100	L-LED		
		*002575001	-	680	1/24
		*002575101	L-LED		

*N pole on left *French version*

NEW!

Accessories



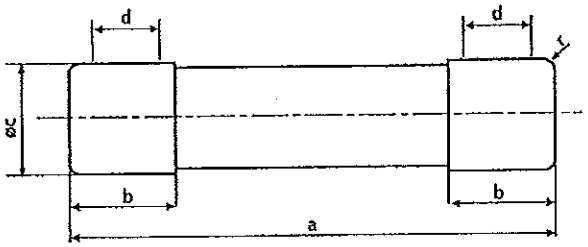
Auxiliary switch PS VLC

U (V)	I (A)	code no. VLC14	code no. VLC22	weight (g)	packaging (pcs)	contacts
250	5	002569001	002579001	50	1/10	1 x make 1 x break

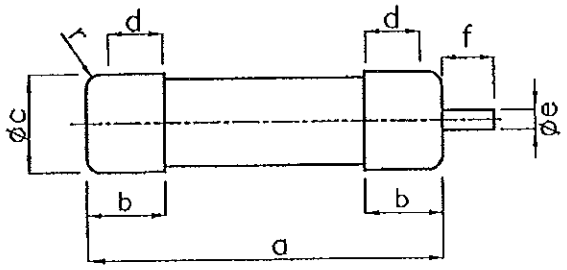
Auxiliary switch PS VLC is intended to be mounted with disconnectors VLC 14 and VLC 22 for all versions (1p, 2p, 2p+N, 3p, 3p+N). The width of apparatus is 9 mm, other dimensions comply with VLC 14 and VLC 22 series switches. Auxiliary switch PS VLC signals the operation of CH14 or CH 22 fuse-links only in the case a fuse-link is fitted with striking pin - see IEC 60 269-2-1 Figure 1a (III).

Cylindrical fuse-link

Technical data		
Rated voltage	400 V a.c., 500 V a.c., 690 V a.c.	
Rated current	CH 8	1-25 A/400 V
	CH 10	0,5-16 A/500 V, 20-32 A/400 V
	CH 14	2-25 A/690 V, 32-50 A/500 V
	CH 22	16-40 A/690 V (50 A/690 V aM), 50-100 A/500 V
Rated frequency	50 Hz	
Rated breaking capacity	CH 8	50 kA
	CH 10	100 kA
	CH 14	2-25 A/80 kA, 32-50 A/120 kA
	CH 22	16-40 A/80 kA (50 A/80 kA aM), 50-100 A/120 kA
Characteristics	gG, aM	
Body material	ceramic	
Material of contact parts	CuZn28, gal.Ag	



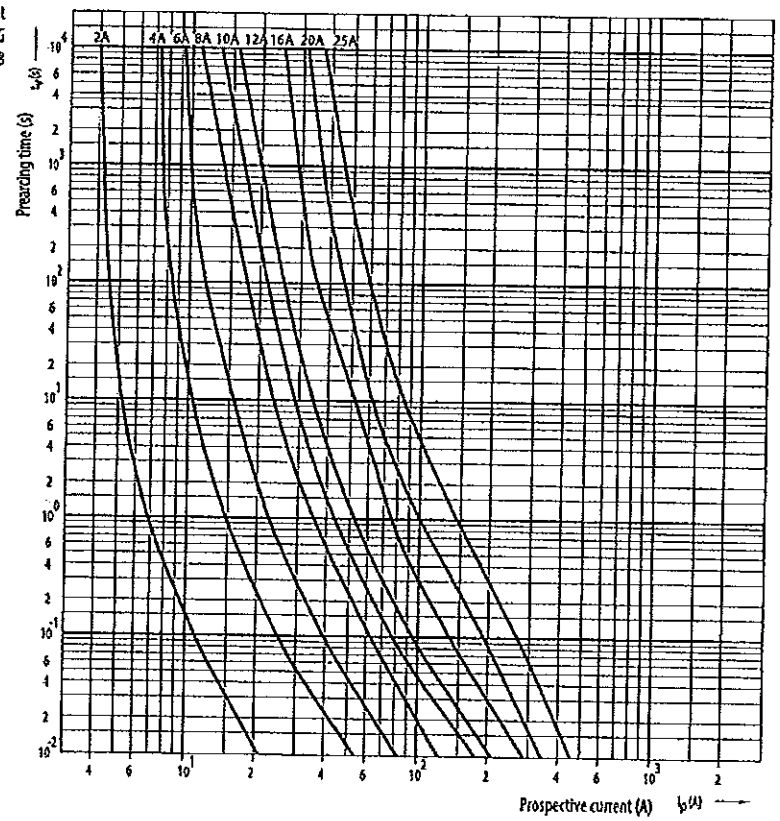
size	a	b	c	d	r
8x32	31,5±0,5	6,7	8,5±0,1	4	1±0,5
10x38	38,0±0,6	10,5	10,3±0,1	6	1,5±0,5
14x51	51,0+0,6/-1	13,8	14,3±0,1	7,5	±1
22x58	58,0±0,1	16,2	22,2±0,1	11	±1



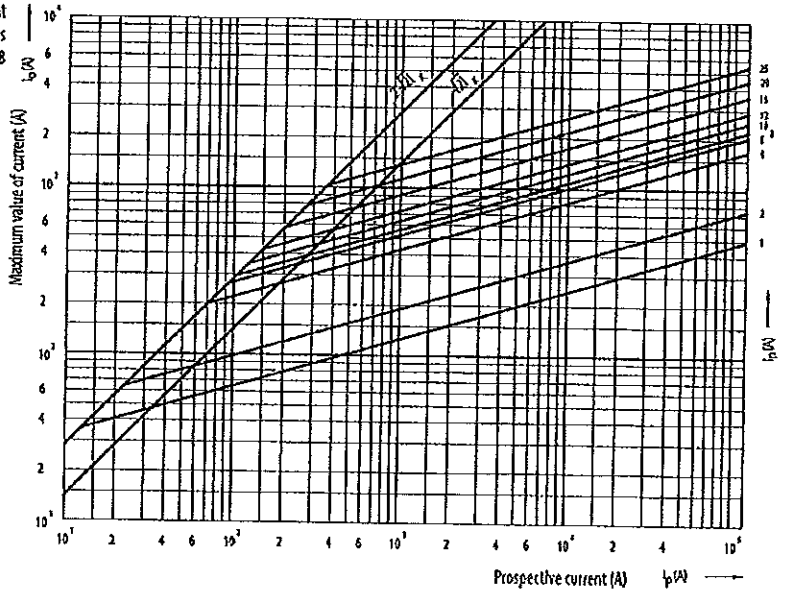
size	e	f
14x51	3,8	7,5
22x58	3,8	7,5

With striker pin

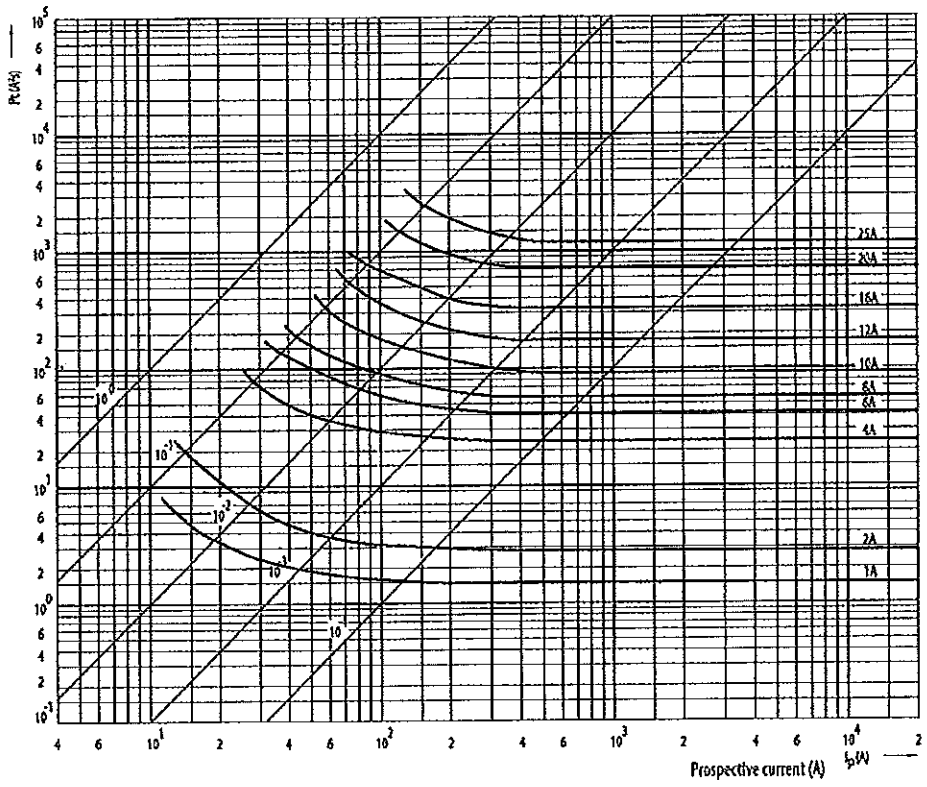
Time current characteristics I/t, gG CH8



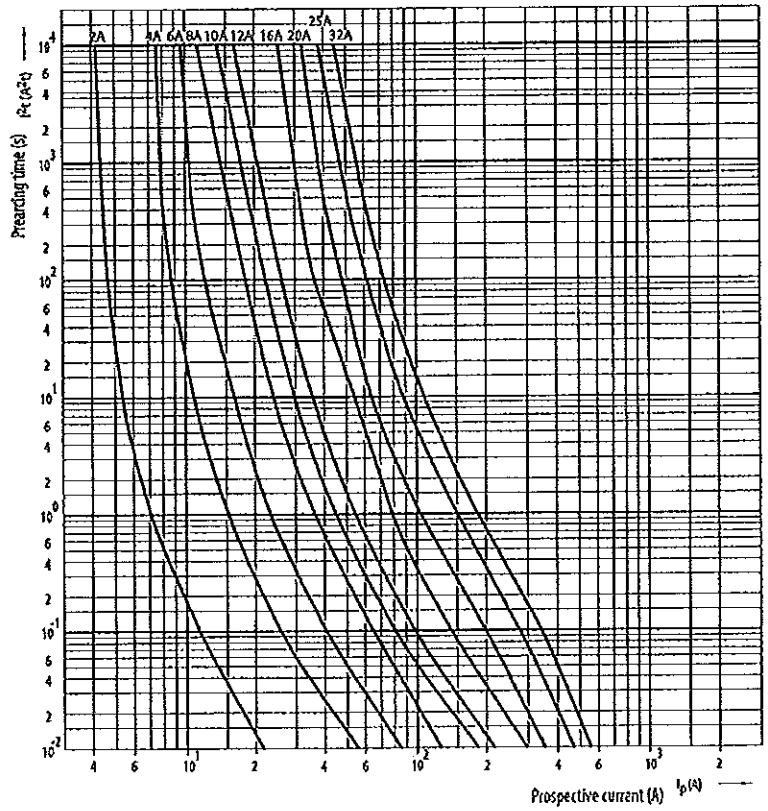
Cut-off current characteristics CH8



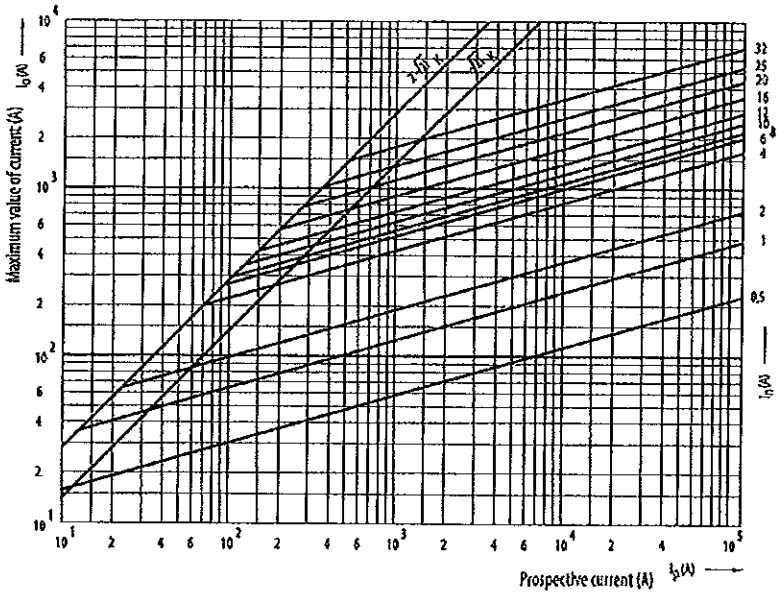
Melting energy characteristics I^2t CH8



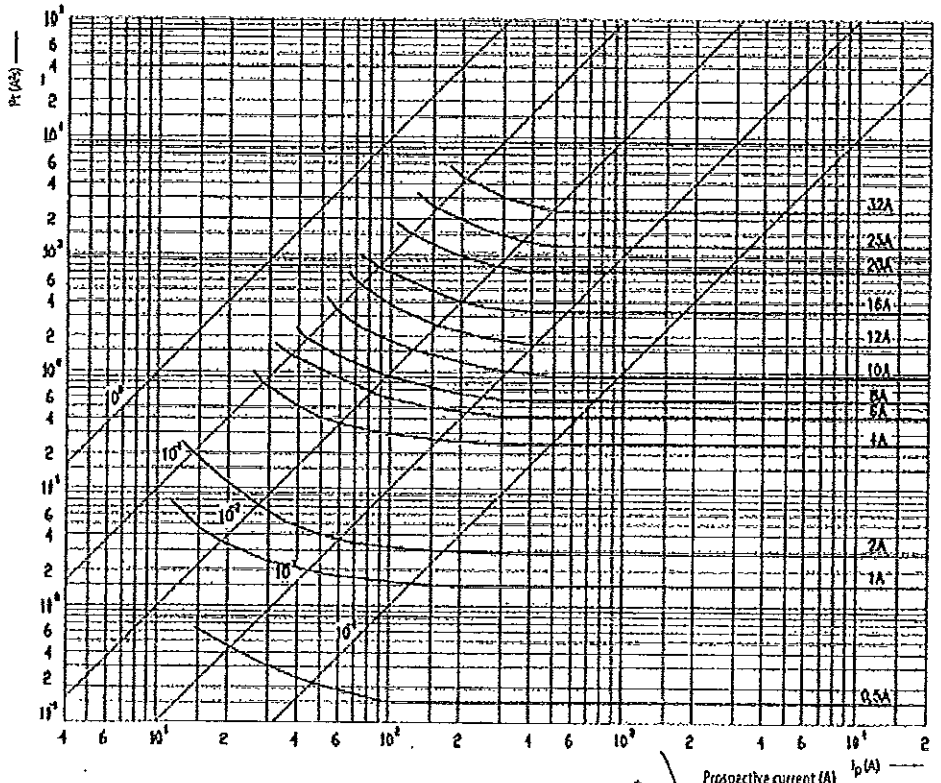
Time current characteristics I/t gG CH10



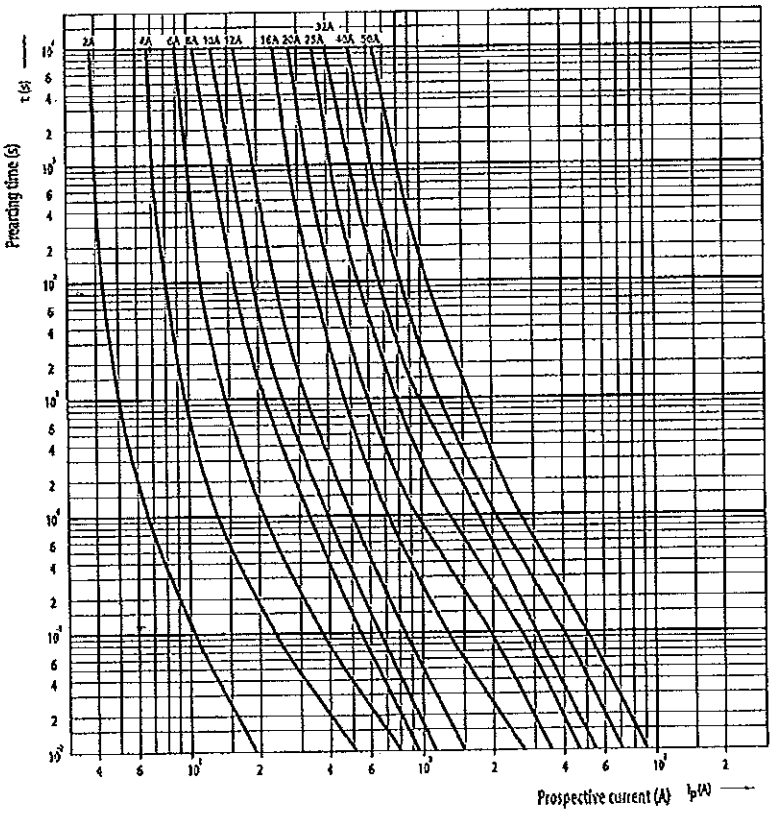
Cut-off current characteristics CH10



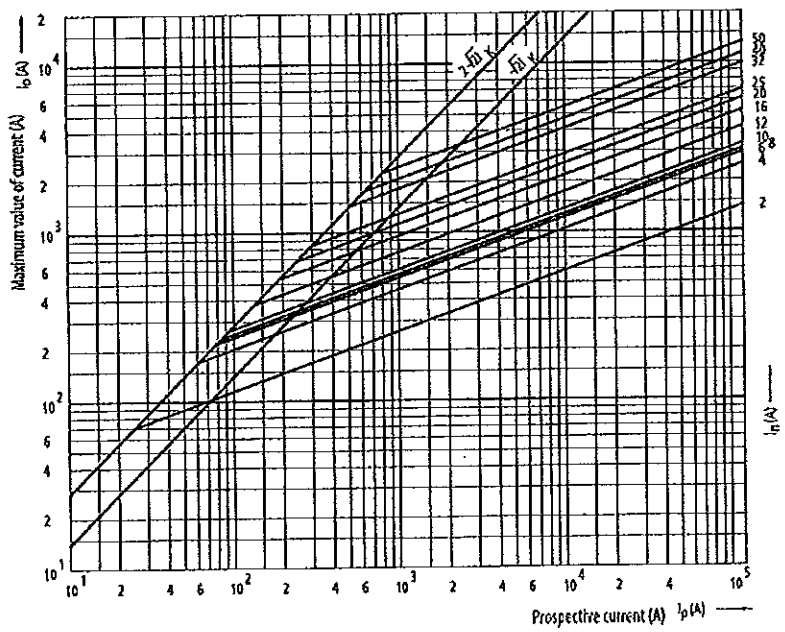
Melting energy characteristics I^2t CH10



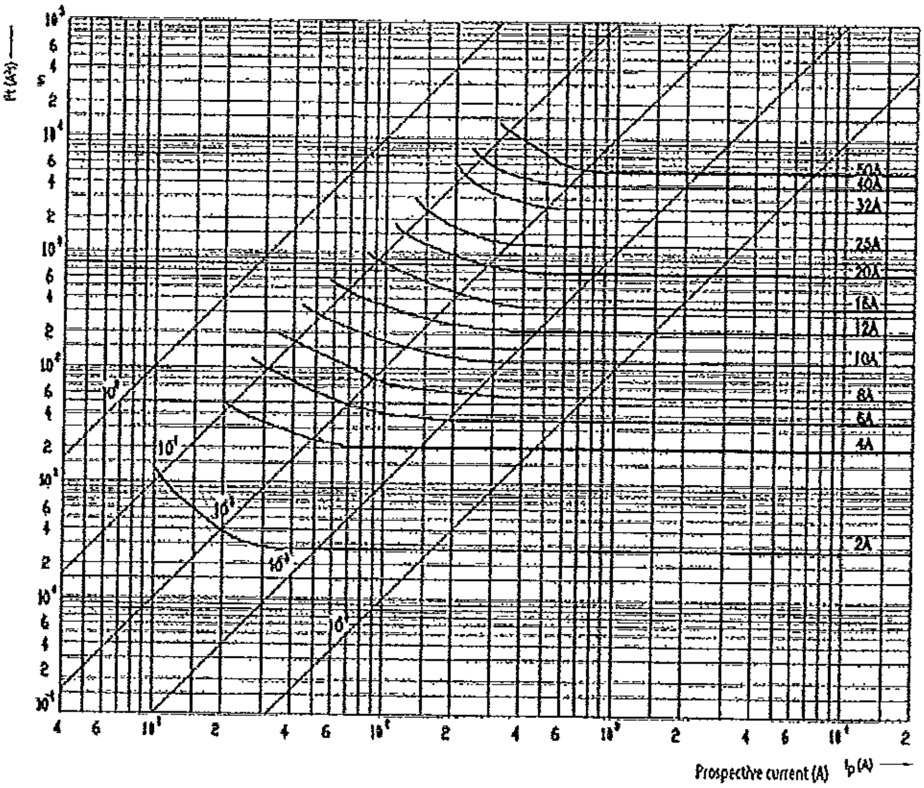
Time current characteristics I/t, gG CH14



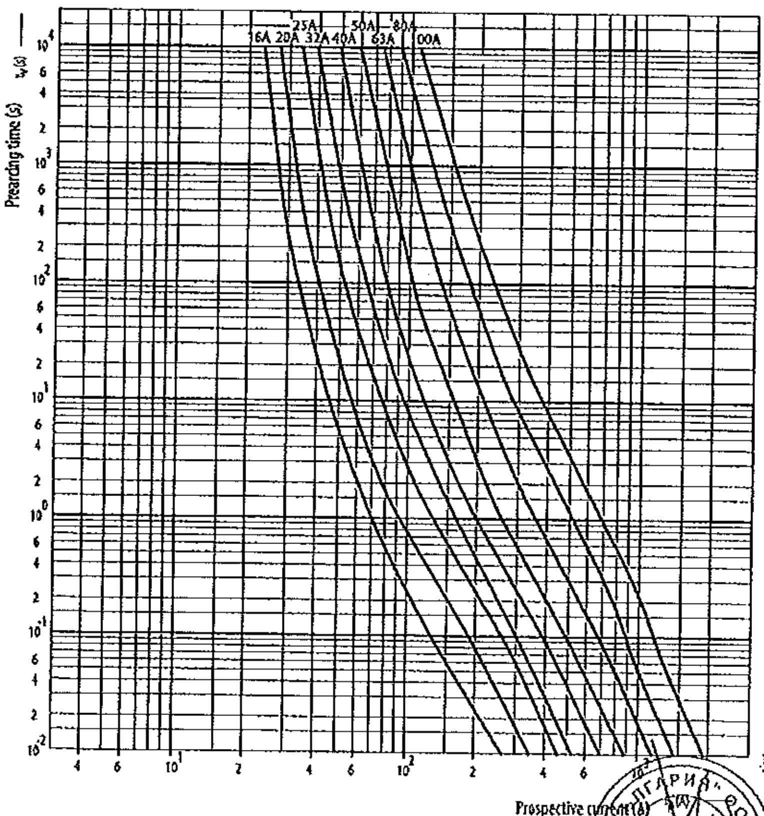
Cut-off current characteristics CH14



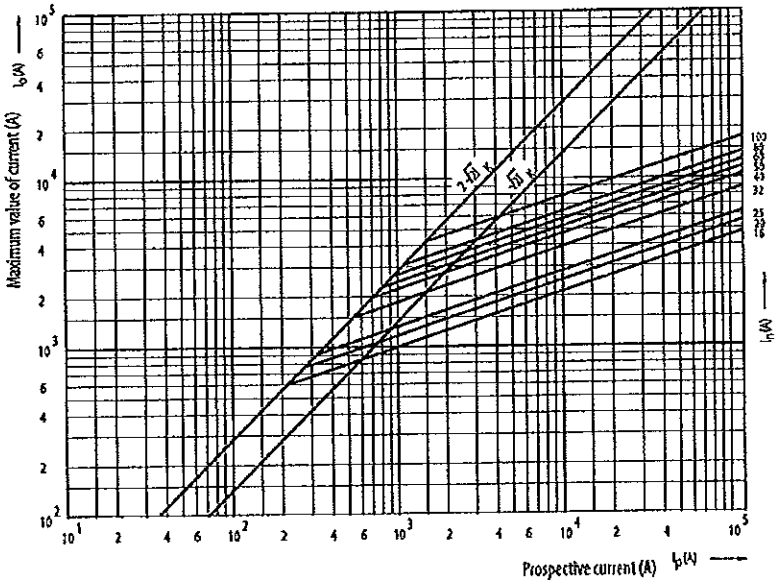
Melting energy characteristics I²t CH14



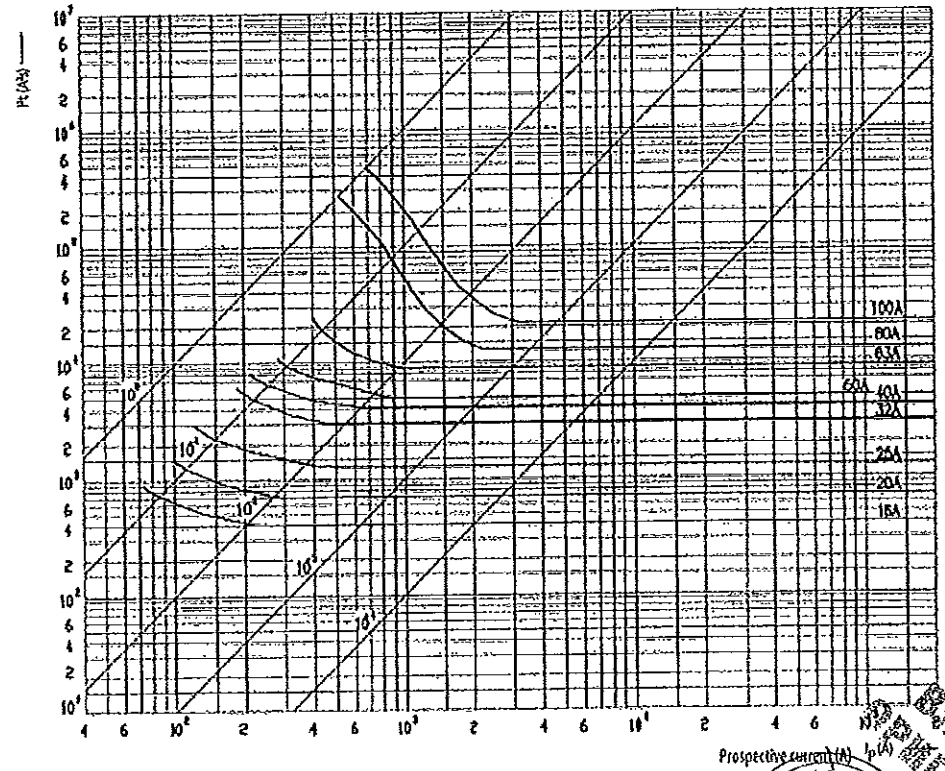
Time current characteristics I/t, gG CH22



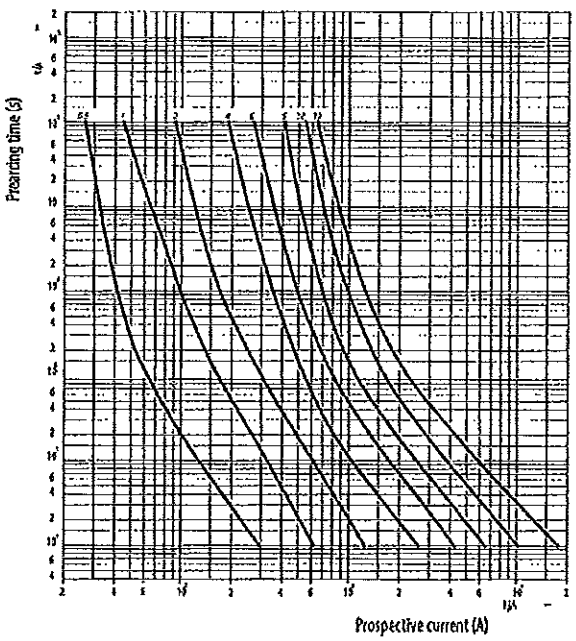
Cut-off current characteristics CH22



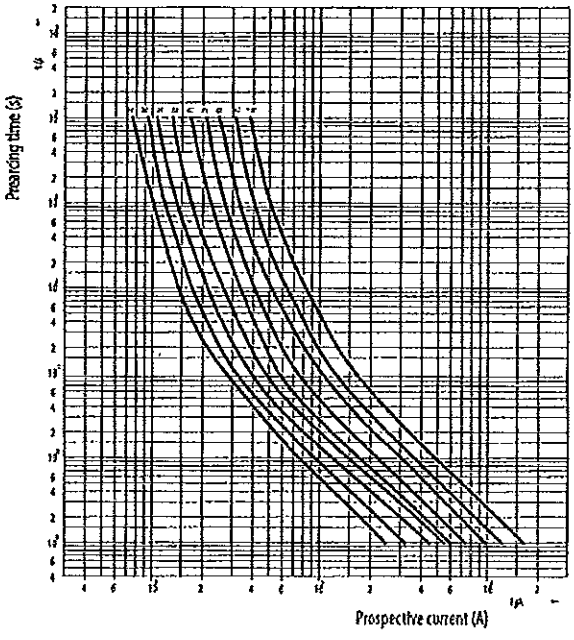
Melting energy characteristics Pt CH22



Time current characteristics I/t, aM CH10, 14, 22



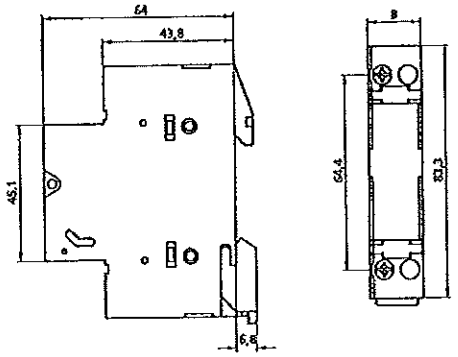
Time current characteristics I/t, aM CH10, 14, 22



Fuse disconnectors for cylindrical fuse-links

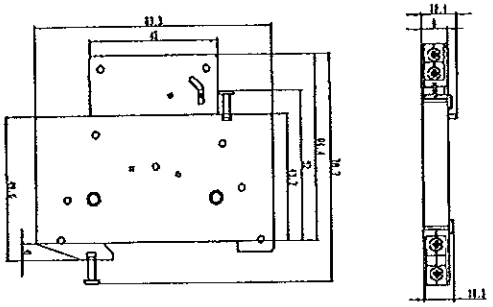
Technical data							
Type	VFC8	VFC8	VFC10	VFC10	VFC14	VFC14	VFC22
Number of poles	1p, 1p+N, 2p, 3p, 3p+N				1p, 2p, 3p	1p, 1p+N, 2p, 3p, 3p+N	
Type of current	a.c.						
Utilization category	AC-22B						AC21-B
Rated Operational voltage Ue (V)	400	400	400/690 1p+N	400/690 1p+N	600	690	690
Rated frequency (Hz)	50				60	50	
Rated impulse withstand voltage Uimp (kV)	8	4	8	4	8	8	8
Rated operational current (A)	20	20	32	32	30	50	125
Rated short time withstand Icw (A)	240	240	390	390	360	600	1500
Rated conditional short circuit current (kA)	50	100		200		100	
Cage clamps (max mm²)	25	10	25	10	25	35	50
Maximal power dissipation (W)	2,5	2,5	3	3	3	5	9,5
Test reports	UL	Int.	CCA/CB, UL, CSA	CCA/CB, UL	Int., UL	CCA/CB, UL, CSA	CCA/CB

Fuse disconnector PCF



Fuse disconnector PCF 8, PCF 10	
Type	Dimension B
1p	17,8
1p+N	17,8
2p	35,6
3p	53,4
3p+N	53,4

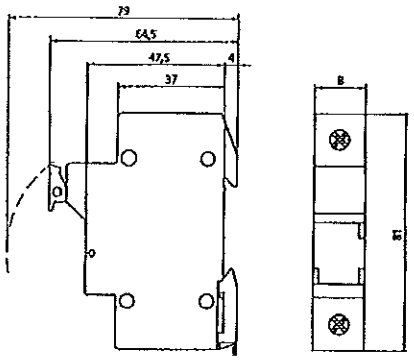
Auxiliary switch PS PCF



Fuse disconnector VLC

Fuse disconnector VLC 8, VLC 10

type	dimension B
VLC 8, 10 1p	17,5
VLC 8, 10 1p+N	35
VLC 8, 10 2p	35
VLC 8, 10 3p	52,5
VLC 8, 10 3p+N	70

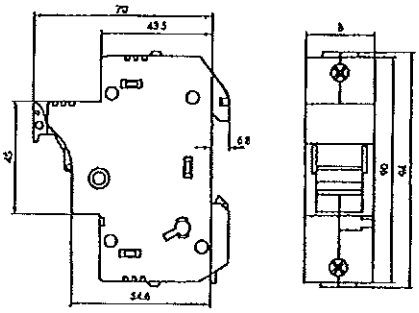


Fuse disconnector VLC CC

type	dimension B
VLC CC 1p	17,5
VLC CC 2p	35
VLC CC 3p	52,5

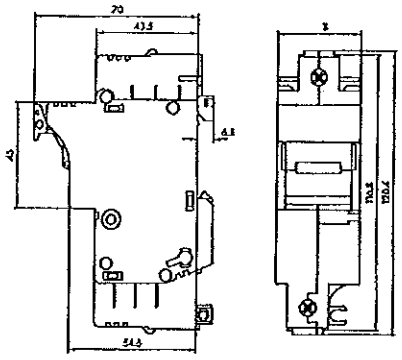
Fuse disconnector VLC 14

type	dimension B
VLC 14 1p	27
VLC 14 1p+N	54
VLC 14 2p	54
VLC 14 3p	81
VLC 14 3p+N	108

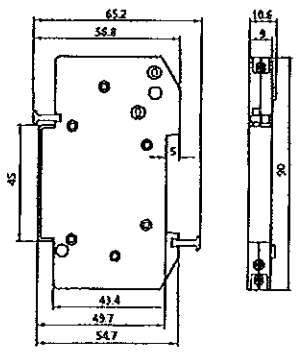


Fuse disconnector VLC 22

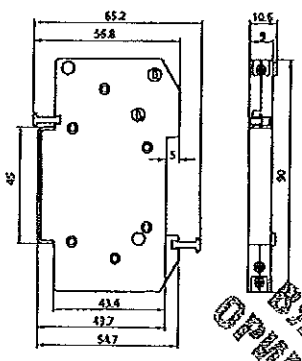
type	dimension B
VLC 22 1p	35,6
VLC 22 1p+N	71,2
VLC 22 2p	71,2
VLC 22 3p	106,8
VLC 22 3p+N	142,4



Auxiliary switch VLC



PS VLC 14



PS VLC 22

Technical parameter	VLC 10	VLC 10 DC	VLC CC	VLC 14	VLC 14 DC	VLC 22	PCF 10	PCF 10 DC	PCF 10 DC
rated current (A)	32	25	30	50	50	125	32	20	25
rated voltage (V)	400/690 1p+N	1000	600	690	1000	690	400/690 1p+N	1000	900
type of current	a.c.	d.c.	a.c.	a.c.	d.c.	a.c.	a.c.	d.c.	d.c.
max power dissipation of the fuse-link (W)	3	3	3	5	5	9,5	3	3	3
AC22-B acc. IEC 60947-3	AC22-B	AC22-B	AC22-B	AC22-B	AC22-B	AC21-B	AC22-B	AC22-B	AC22-B
DC20-B acc. IEC 60947-3	DC20-B	DC20-B	DC20-B	DC20-B	DC20-B		DC20-B	DC20-B	DC20-B
rated conditional short-circuit current (kA)	100	25	200	100	50	100	100/200	25	25
rated short-time withstand current (A)	390	300	360	600	600	1500	390	240	300
operating cycles (mech)	1700	2000	1700	1700	2000	1400	1700	2000	2000
operating cycles (electr.)	300	0	2000	300	0	200	300	0	0
operating ambient temperature (°C)	-5..+40	-5..+40	-5..+40	-5..+40	-5..+40	-5..+40	-5..+40	-5..+40	-5..+40
cross section (mm^2)	1,5...25	1,5...25	1,5...25	1,5...35	1,5...35	4...50	0,5...10	0,5...10	0,5...10
torque (Nm)	2,5	2,5	2,5	3	3	3	1,2	1,2	1,2
rated insulation voltage (V)	690	1000	600	690	1000	390	690	1000	900
rated imp. withstand voltage (kV)	8	8	8	8	8	8	4	4	4
overvoltage category	Overvoltage category III (according to Table H.1 in IEC 60947-1 and according to IEC 60099-1)								
test report acc. IEC 60947-3 (CB, CCA)	CCA/CB	Int.		CCA/CB	CCA/CB	CCA/CB	CCA/CB	Int.	Int.
approvals	UL		UL	UL	UL	UL	UL		

version with signal detector - LED indicator									
min./max. voltage a.c. (V)	50/690			50/690	50/690	50/690	50/690		
min./max. voltage d.c. (V)		50/1.000						50/1.000	50/900

ETI
БЪЛГАРИЯ

ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

Производител:	ETI Elektroelement d.d.
Адрес:	ETI Elektroelement d.d. Obrezija 5 1411 Izlake Slovenia

Продукт: Основа-разединител за цилиндрични стопяеми предпазители VLC

Размер: VLC10 1-p, 1p+N,2p,3p,3p+N
32A/690V a.c

Продуктите отговарят на следните Европейски директиви:

Директива:	2006/95/EC Директива на Европейския парламент и на Съвета на 12 Декември 2006 за хармонизиране на законите на държавите членки отнасящи се до електро оборудване, проектирано за употреба в определени граници на напрежение.
Хармозизирани Стандарти:	EN 60947-1:2007 , EN 60947-3;1999/A2;2005, EN 60947-3:2008,

Описаните продукти са произведени съгласно изискванията на съответните стандарти и с това изпълняват изискванията на Европейската директива.

Стандарти:	IEC 60947-1 Ed.5.0:2007, IEC 60947-3 Ed.3:2008
Протоколи от изпитания:	CB/CCA/No. 2.03.00938.1.0/VLC10/CB/CCA
Маркировка CE:	На продукта; на опаковката

Място и дата: София, 01 юни 2013

Представляващ производителя Александър Маркович

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УНИКРЕДИТ БУЛБАНК АД, филиал АКСАКОВ, BIC: UNCRBGSF, IBAN: BG04 UNCR 7000 1520 4705 01

PÜZ
1

Accredited by BMWA, No. BMWA-92.714/0532-I/12/2006 as test- and inspection body and according to BGBl. II, No. 244/2006 as certification body for personnel

arsenal research
Ein Unternehmen der Austrian Research Centers

Test Report

Project Designation

TYPE TEST AT
FUSE-SWITCH-DISCONNECTORS
FOR CYLINDRICAL FUSE-LINKS
TYPE VLC 10

Client

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

Order from / No. 09/2008 / ---

Project Number 2.03.00938.1.0/VLC10 Test Engineer Ing.J.Alnetter

Date of issue	26.01.2009
Total number of issues / No.	1 / 1
Number of pages	5
Annex	CB/CCA - Test Report No. 2.03.00938.1.0/VLC10/CB/CCA (30 pages)

The results relate exclusively to the items tested.

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ВЕРНО С ОРИГИНАЛА

КОМТЕХ-БЪЛГАРИЯ" ООД

Test item

Identification:
Low-voltage fuse-switch-disconnectors for cylindrical fuse-links type VLC 10

Manufacturer:	ETI Elektroelement d.d.
Trademark:	ETI
Number of poles:	1p, 1p+N, 2p, 3p, 3p+N
Rated operational voltage(s):	400V up to 690V
Rated operational current(s):	10A up to 32A
Rated frequency:	50Hz

Technical data and description:
See page 4

Testing location, Period of testing

Testing location:
Österreichisches Forschungs- und Prüfzentrum Arsenal Ges.m.b.H.
Business Unit Monitoring, Energy and Drive Technologies – Power Service Center
Giefinggasse 2
1210 Wien
AUSTRIA

Period of testing:
10 ... 12/2008

Test(s)

Test(s) performed:
Type test

Test standard(s):
IEC 60947-1:2007 (5th Edition) and IEC 60947-3:2008 (3rd Edition)
EN 60947-1:2007 and EN 60947-3:1999+A1:2001+A2:2005

Test procedure(s):
CB Scheme and CCA Scheme

Result

The low-voltage fuse-switch-disconnectors for cylindrical fuse-links type VLC 10 have passed the type test successfully.

Test Engineer

Ing.J.Alnetter

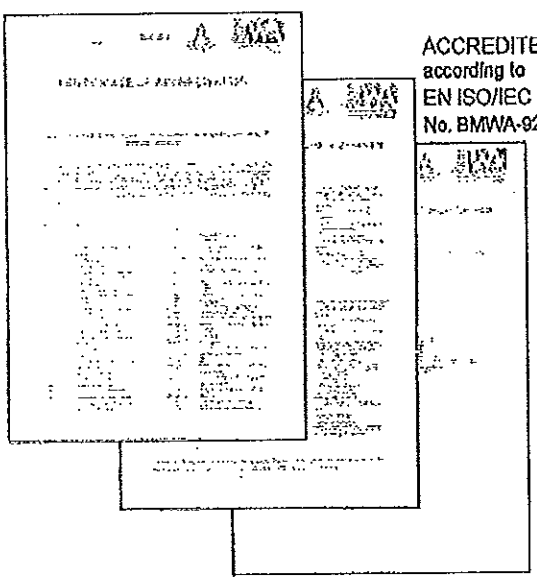
Project Engineer,
technical responsibility

Ing.K.Farthofer

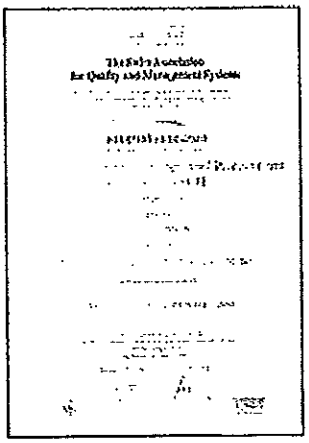
ВЕРНО С ОРИГИНАЛА

arsenal research
Ein Unternehmen der Austrian Research Centers

Testing laboratory



ACCREDITED
according to
EN ISO/IEC 17025
No. BMWA-92.714/0532-I/12/2006



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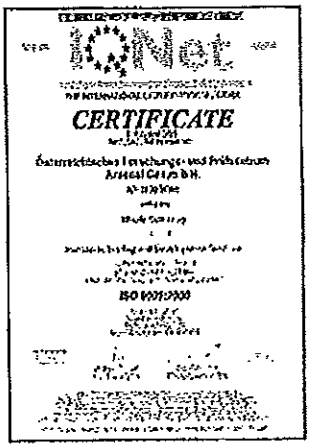
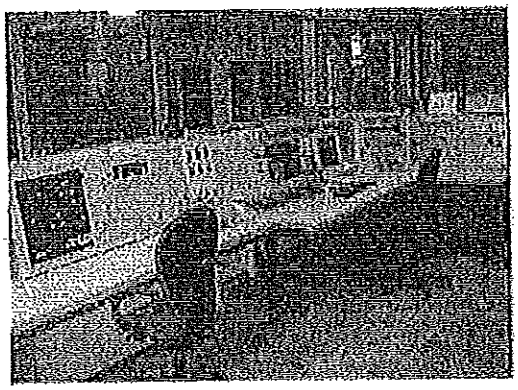
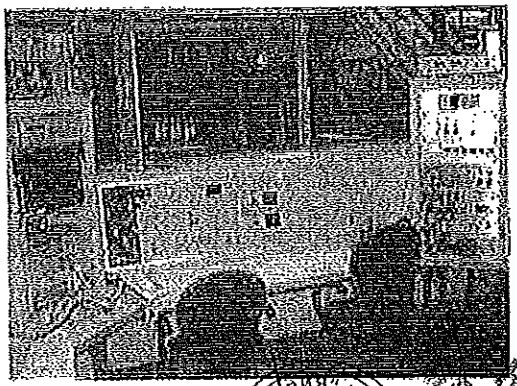


PSC – Power Service Center:



Control station for tests up to 15kA



Control station for tests above 15kA

Technical data and description

Test Item	Low-voltage fuse-switch-disconnectors for use with cylindrical fuse-links
Trademark	ETI
Model/Type reference	VLC 10
Manufacturer	ETI Elektroelement d.d.
Place of manufacture	1411 Izlake, Obrezija 5
Method of operation	Dependent manual operation
Switching positions	ON / OFF
Number of poles	1p, 1p+N, 2p, 3p, 3p+N
Nature of supply	AC
Utilization category	AC-22B at 690V/32A
Rated operational voltage	p to 690V up t
Rated operational current	p to 32A10A up t
Rated frequency	50Hz
Conventional free air thermal current	10A up to 32A (max. 3W)
Rated insulation voltage	690V
Rated impulse withstand voltage	8kV
Rated short-time withstand current	300A / 1s
Rated conditional short-circuit current	100kA at 400V (with 32A fuse-links)
Kind of protective device	Cylindrical fuse-link CH 10 (10 x 38)
Degree of protection	IP 20

ВЯРНО С ОРИГИНАЛА

Measuring equipment

Measured quantity	Device	Manufacturer	Code
Voltage (tests up to 15kA)	Voltage divider 1:2000 Difference amplifier AM 502 Signal memory recorder TRA 800	ÖFPZ Arsenal Tektronix W&W	- AM 502/1...3 TRA800
Current (tests up to 15kA)	Lin. current transformer LGSSO Burden 1Ω Signal memory recorder TRA 800	Ritz ÖFPZ Arsenal W&W	WLIN5000/1...3 - TRA800
Current ((tests at reduced voltage)	Current transformer GE 4461 Current transformer AET110 True-RMS amperemeter Kl. 0,5 Digital multimeter Fluke 185	Goerz Siemens Norma Fluke	WI600/1...3 WI4000/1...3 A0,5/1...3 FLUKE185/1, 2
Transient recovery voltage	Adjustment equipment for TRV Oscilloscope G 801.1	ÖFPZ Arsenal Tektronix	- G801.1
Dielectric properties	High-voltage test equipment 90-1F with measuring equipment Impulse tester 35 Impulse voltmeter 64M Oscilloscope 9410	Elabo Haefely Haefely Le Croy	HSG5KV G304 G502 G803
Leakage current	High-voltage test equipment 90-1F Digital multimeter Fluke 185 Digital multimeter Fluke 185	Elabo Fluke Fluke	HSG5KV FLUKE185/1 FLUKE185/2
Time	Signal memory recorder TRA 800 Stopwatch	W&W Junghans	TRA800 938-2
Temperature	24-channel recorder Polycomp SK30 Temperature meter TESTO 901	H & B Testoterm	SK 30 TESTO
Abnormal heat and fire	Glow-wire test device with measuring equipment	ÖFPZ Arsenal	-
Mechanical strength of terminals	Test equipment	ÖFPZ Arsenal	-
Insertability of unprepared conductors	Gauges	ÖFPZ Arsenal	-
Strength of actuator mechanism	Test equipment	Schatz	-
Degree of protection	Test probe	PTL	-
Clearances, creepage distances	Digital slide gauge CD-20D	Mitutoyo	SCHUB

[redacted]

ВЯРНО С ОРИГИНАЛА

Kimtech
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Списък на проведените изпитвания на Триполюсни и еднополюсни стопяем цилиндричен предпазител-прекъсвач-разединители, размер 10x38 mm

1. Изпитване напрежение до 15kV;
2. Изпитване ток до 15kV;
3. Изпитване ток при редуцирано напрежение;
4. Възстановяване на предходно напрежение;
5. Диелектрични свойства;
6. Ток на утечка;
7. Време;
8. Температура
9. Анормално нагряване и пламък;
10. Механична якост;
11. Нестабилност на неподготвени проводници;
12. Якост на задвижващия механизъм;
13. Степен на защита;
14. Отстояния, утечки;

13.01.2016г.

Подпис и печат:

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Превод от английски език

Фирмена бланка на Akkreditierung Austria

Националният акредитиращ орган

Akkreditierung Austria

потвърждава акредитацията на

Лаборатория за изпитване

AIT Austrian Institute of Technology GmbH
ул. Донау-Сити 1, A-1220 Виена
Идентификационен номер: **0001**

Акредитацията е въз основа на:
ÖVE/ÖNORM EN ISO/IEC 17025:2007
Начална дата на акредитация: **01.12.1993 г.**

Информация относно обхвата на акредитацията и Akkreditierung Austria
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Тази акредитация е предоставена със сертификат, който потвърждава че Органът за оценка за съответствието - включително обектите, посочени в сертификата – отговаря на изискванията на ÖVE/ÖNORM EN ISO/IEC 17025:2007. Това потвърждение за акредитация може да бъде възпроизвеждано само в пълна форма.

12.08.2014 г.
Дата

(*подпис не се чете*)
Допл. инж. д-р. Норман Брунер
Ръководител на Акредитация Австрия

Кръгъл фирмен печат

Долуподписаният, Жасмин Кръстев Кръстев, удостоверявам верността на извършения от мен превод от английски език на български език на приложения документ: Удостоверение за акредитация с дата 12.08.2014 г. Преводът се състои от 1 стр.

Подпис:
Жасмин Кръстев Кръстев

Bundesministerium für
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Akkreditierungsgrundlage / *Accreditation basis*:

ÖVE/ÖNORM EN ISO/IEC 17025:2007

Datum der Erstakkreditierung / *Initial date of accreditation*: **01.12.1993**

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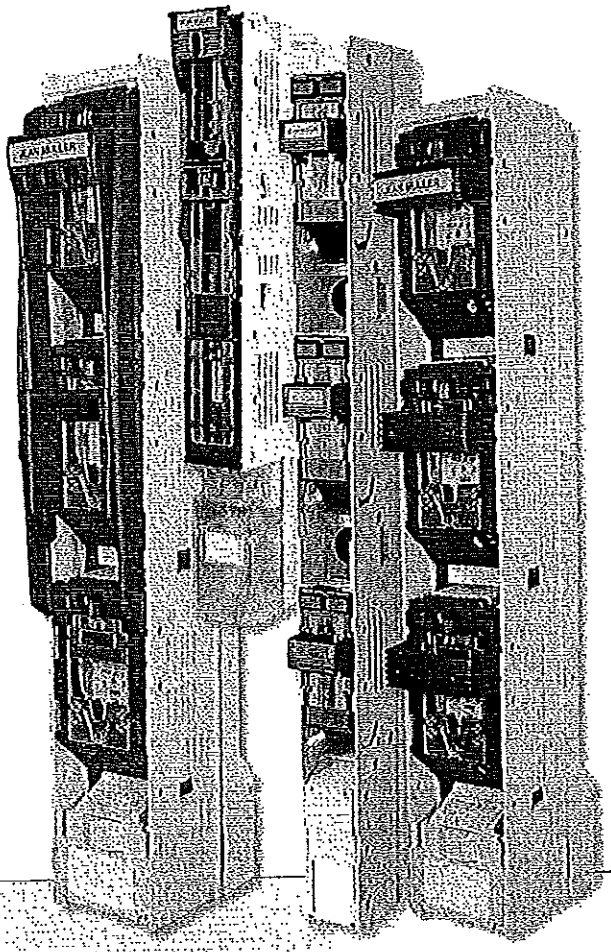
NH-Sicherungslastschaltleisten
NH strip-type fuse-switch-disconnectors



NH-Sicherungslastschaltleisten sind zur Aufnahme von NH-Sicherungseinsätzen bestimmt. Die Einschwenkvorrichtungen dienen zum Öffnen und Schließen des Stromkreises und können unter Last geschaltet werden. Dabei bildet der NH-Sicherungseinsatz oder das Trennmesser den bewegbaren Kontakt.

NH-Sicherungslastschaltleisten sind 1-polig oder 3-polig schaltbar.

NH-Sicherungslastschaltleisten werden sowohl in Trafostationen und Kabelverteilerschränken der Versorgungsnetzbetreiber eingesetzt als auch in Niederspannungsschaltgeräte-Kombinationen nach IEC/EN 60439-1 für die Energieverteilung im Industriellen Bereich. Die geschlossene Bauweise sowie das hohe Schaltvermögen machen sie zu äußerst sicheren und sehr leistungsfähigen Sicherungsschaltgeräten.

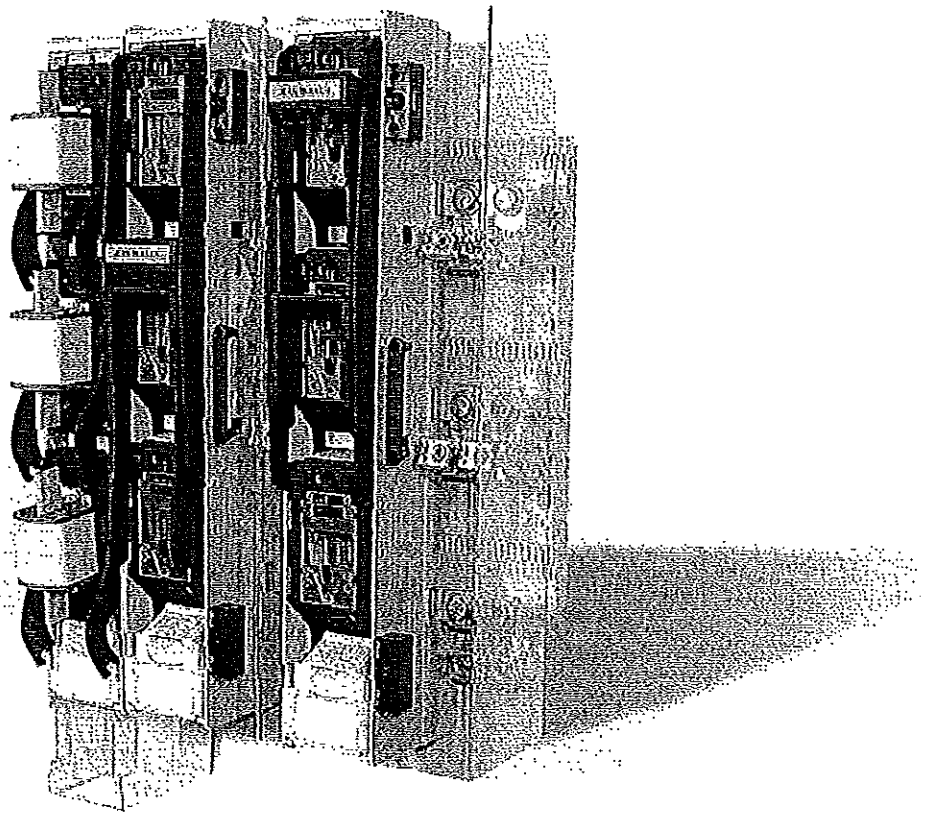
NH strip-type fuse-switch-disconnectors are designed to receive NH fuse-links. Hinged fuse-carriers enable opening and closing operation in electric circuits under load conditions. Thereby, the fuse-link or solid link forms the moving contact. Both, single-pole and three-pole switching is possible.

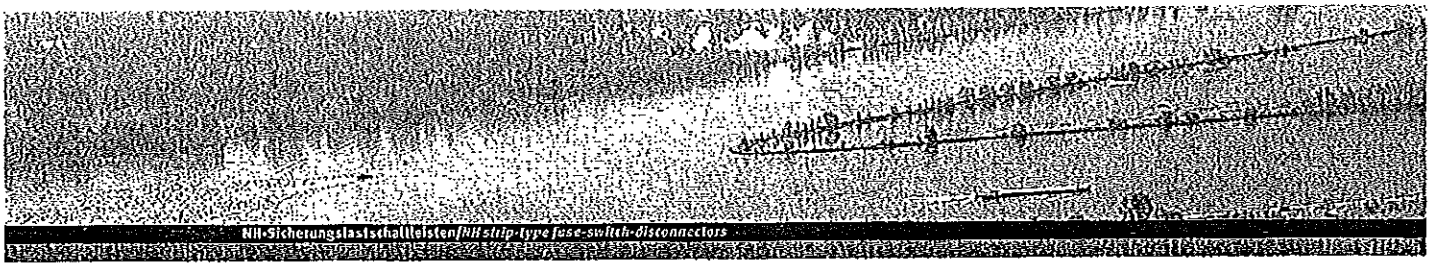
NH strip-type fuse-switch-disconnectors are used in transformer stations and cable distribution cabinets of public utilities as well as in low voltage switchgear and controlgear assemblies acc. to IEC/EN 60439-1. Their closed design and high breaking capacity make them extremely reliable and powerful fuse-combination units.

SL

Niederspannungsverteilung/Beispiel 1
Low voltage distribution panel/sample 1

SL2 und SL3 auf IP20-geschütztem Schienensystem
SL2 and SL3 on IP20-protected busbar system





Technische Daten/*Technical data*

Typ/*Type*					SL1	SL2
Leistungs-Kenngrößen/*Power data*	Für NH-Sicherungen nach DIN VDE 0636-2/*For NH fuse-links acc. to DIN VDE 0636-2*	–	Größe/*Size*	–	1	2
	Bemessungsbetriebsspannung/*Rated operational voltage*	U_e	V	–	AC690	AC690
	Bemessungsbetriebsstrom/*Rated operational current*	I_e	A	–	250	400
	Konv. therm. Strom frei in Luft mit Sicherungen/*Conv. free air thermal current with fuse-links*	I_{th}	A	–	250	400
	Konv. therm. Strom frei in Luft mit Trennmessern/*Conv. free air thermal current with solid links*	I_{th}	A	–	400	630
	Bemessungsfrequenz/*Rated frequency*	–	Hz	–	40-60	40-60
	Bemessungsisolationsspannung/*Rated insulation voltage*	U_i	V	–	AC1000	AC1000
	Gesamtverlustleistung bei Ith (ohne Sicherungen)/*Total power loss at Ith (without fuse-links)*	P_v	W	–	23	54
	Bemessungsstoßspannung/*Rated impulse withstand voltage*	U_{imp}	kV	–	12	12
	Gebrauchskategorie/*Utilization category*	–	–	–	AC-22B (250A/690V) AC-22B (250A/500V) AC-23B (250A/400V)	AC-21B (400A/690V) AC-22B (400A/500V) AC-23B (400A/400V)
	Bedingter Bemessungskurzschlussstrom/*Rated conditional short-circuit current*	I_q	kA	–	110	110
	Bemessungskurzzeitstromfestigkeit/*Rated short-time withstand current*	I_{cw}	kA	–	–	–
	Max. zul. Verlustleistung pro Sicherungseinsatz/*Max. permiss. power loss per fuse-link*	P_{vs}	W	–	32	45
Anschlüsse/*Terminals*	Flachanschluss/*Flat terminal*	Bolzendurchmesser/*Bolt diameter*	–	–	M10	M12
		Kabelschuh (DIN 46 235)/*Cable lug (DIN 46 235)*	–	mm^2	1 x 25-150	1 x 25-240
		Flachschiene/*Flat bar*	–	mm	30 x 10	30 x 10
		Anzugsdrehmoment/*Tightening torque*	M_s	Nm	30-35	35-40
	Klemme/*Clamp*	Klemmquerschnitt/*Clamping cross-section*	–	mm^2	KM2G-F 25-240	KM2G-F 25-240
		Anzugsdrehmoment/*Tightening torque*	–	Nm	32	32

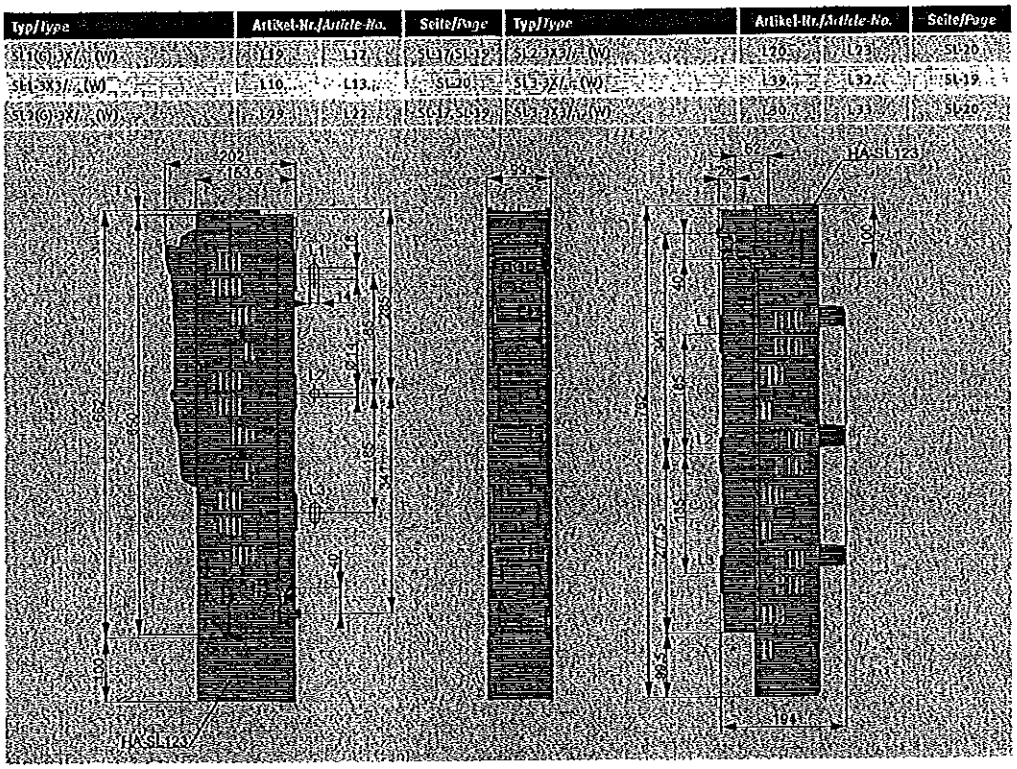
JEAN MÜLLER
THE NAME FOR SAFETY

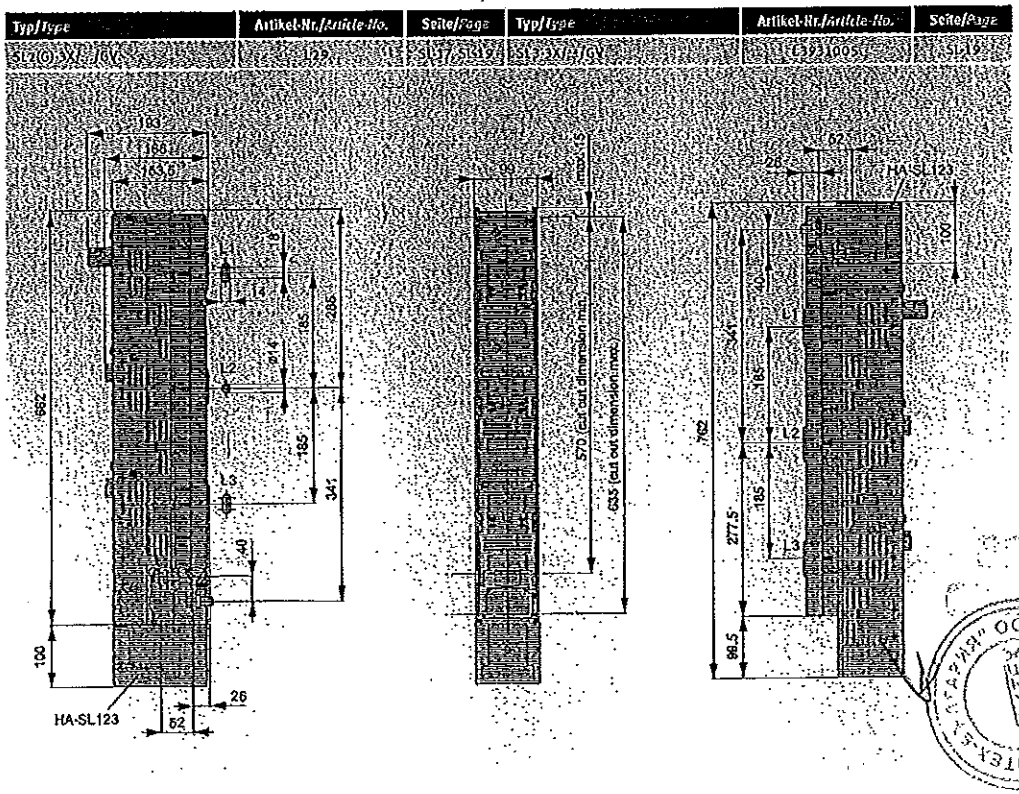
Typ/*Type*					SL1	SL2
[illegible]	Frontseitig Gerät eingebaut mit Klemmen- und Seitenabdeckung *Front side device fitted with clamp and lateral covers*	Betriebszustand *Operating condition*			IP30	IP30
		Schaltdeckel geöffnet *Switching element open*			IP10	IP10

[illegible]	Umgebungstemperatur 3)/*Ambient temperature 3)*	T[illegible]	°C	25 bis/*to* +55
	Bemessungsbetriebsart/*Rated operating mode*			Dauerbetrieb/*Uninterrupted duty*
	Betätigung/*Actuation*			Abhängige Handbetätigung *Dependent manual operation*
	Einbaulage/*Mounting position*			Senkrecht, waagerecht *Vertical, horizontal*
	Höhenlage/*Altitude*		m	Bis zu 2000/*Up to 2000*
	Verschmutzungsgrad/*Pollution degree*			3
	Überspannungskategorie/*Overvoltage category*			IV

1) Bei Einbau von mehreren Geräten in Niederspannungs-Schaltgerätekombinationen sind Bemessungsbelastungsfaktoren nach EN 60439-1 zu beachten
In case of mounting of several units in low voltage switchgear-combinations, please consider rated diversity factors acc. to EN 60439-1.
2) Typgeprüft bei AC725V mit NH-Sicherungseinsätzen Betriebsklasse gG./*Type tested at AC725V with NH fuse-links characteristic gG.*
3) 35°C Normaltemperatur, bei 55°C mit reduziertem Betriebsstrom./*35°C Normal temperature, at 55°C with reduced operating current*

Maßzeichnungen/*Dimensions*





Deutscher Akkreditierungs Rat
DAR
DAT-P-027/92-01

RWE Eurotest GmbH
ELECTROTECHNICAL TESTING LABORATORY

RWE

Test report

No.: **05.11.30.242** **Version: 2/2**

Customer	:	Jean Müller GmbH H.-J. Müller Straße 7 65343 Eltville
Test object	:	V-box clamps 25-240 mm²
Type	:	KM2G-F
Manufacturer	:	Jean Müller GmbH
Date of receipt	:	23.11.2005
Date of test	:	23.11.2005
Applied test regulations	:	DIN VDE 0636-201 (VDE 0636 Teil 201):2004-10
Test carried out	:	Ageing stability test
Test result	:	The V-box clamps, type KM2G-F manufactured by Jean Müller GmbH passed the ageing stability test according to DIN VDE 0636 201 (VDE 0636 Teil 201):2004-10
Specialist testers	:	Mr. A. Cichowski, Mr. Ch. Pieper, Mr. H. Walter

Dortmund, 31.03.2006

Mr. D. Borneburg
(manager test laboratory)

Mr. M. Hasean
(Assistant manager test laboratory)

Report No. 05.11.30.242 contains 8 pages and 2 annexes.

*) Scope of accreditation and type of documentation see overleaf. Test results in this report are only valid for the tested objects.
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The authenticity of this report is only ensured with RWE stamps on the first page.

Summary

RWE Eurotest GmbH carried out an ageing stability test (heat cycle test) according to DIN VDE 0636-201 (VDE 0636 Teil 201):2004-10 on the V-box clamps 25-240 mm², type KM2G-F manufactured by Jean Müller GmbH.

The V-box clamps 25-240 mm², type KM2G-F manufactured by Jean Müller GmbH passed the ageing stability test (heat cycle test) according to DIN VDE 0636-201 (VDE 0636 Teil 201):2004-10.

Contents:

Page

Annex:

01 Data sheet of the test object (1 sheet)

02 Data sheet of the current transformer (1 sheet)

ВЯРНО С ОРИГИНАЛА

„КИМТЕХ-БЪЛГАРИЯ" ДОО БУРГАС КИМТЕХ

1. Applied test regulations

DIN VDE:0636-201 (VDE 0636 Teil 201):2004-10

Niederspannungssicherungen (NH-System) -
Teil 2-1: Zusätzliche Anforderungen an Sicherungen zum Gebrauch durch Elektrofachkräfte bzw. elektrotechnisch unterwiesene Personen (Sicherungen überwiegend für den industriellen Gebrauch) -
Hauptabschnitt I bis VI: Beispiele von genormten Sicherungstypen
(IEC 60269-2-1:1998 + A1:1999 + A2:2002, modifiziert);
Deutsche Fassung HD 630.2.1 S6:2003

2. Technical data of the test object

V-box clamps:

Type:	KM2G-F
Rated cross section:	25-150 mm² re Cu/Al
	25-240 mm² rm Cu/Al
	25-240 mm² se Cu/Al
	25-185 mm² sm Cu/Al
Material:	see annex 01

Test conductor:

Material:	Copper
Strength:	-
Cross section:	240 mm² rm
Number of wires:	54
Stranded:	Yes

3. Test and measuring equipment

Equip.-No.	cal.	Equipment	Type	Manufacturer
630	*	Thermometer	52 II	Fluke
556	*	Digital Sampling Microohmmeter	DSM 200	T&R Test Equipment
		Thermocouple	Ni-CrNi 0,5 mm	Rössel

*) Measuring equipment is calibrated based on national and international reference standards. Calibration certificates can be inspected on request.

Table 1: Test and measuring equipment

The measurement uncertainty of the measuring instruments has been calculated and is archived by RWE Eurotest. Documents can be inspected on request.

4. Tests carried out and results

RWE Eurotest GmbH carried out an ageing stability test (heat cycle test) according to DIN VDE 0636-201 (VDE 0636 Teil 201):2004-10 on the V-box clamps 25-240 mm², type KM2G-F (see figure 1) manufactured by Jean Müller GmbH.

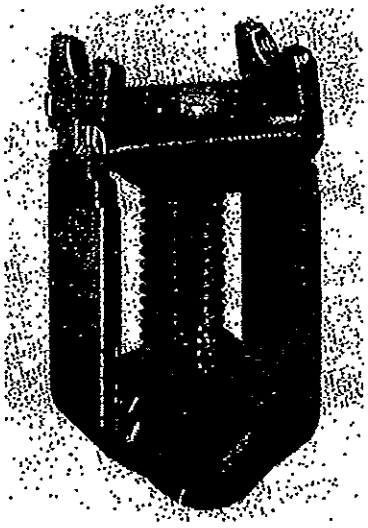


Figure 1: V-box clamp KM2G-F

Test set up:

The test set up was made available by the costumer:

Always three V-box clamps were mounted on three fuse-bases, type L2-3/9/KM2G-F. The tightening torque of the 9 test objects was 32 Nm. Model fuses were mounted in the fuse bases for the test (see figure 2 and table 2).

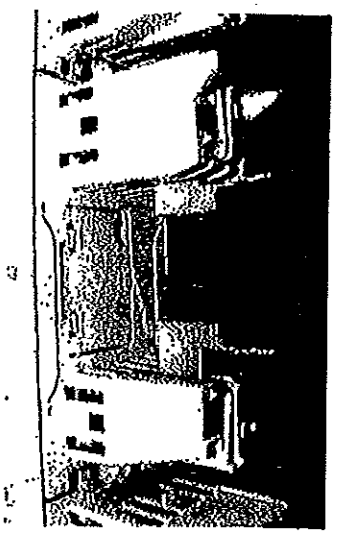


Figure 2: Mounted model fuse in the fuse base for the test.

Used model applications Gr. 2	
No.	R [mΩ]
1	0.288
2	0.288
3	0.285
4	0.284
5	0.287
6	0.288
7	0.287
8	0.286
9	0.291

Table 2: Resistance values of the model fuses.

The test was carried out according to DIN VDE 0636-201 (VDE 0636 Teil 201):2004-10, clause 8.10.2:

Test current I_{nf}:		400 A x 1.25 = 500 A
Load period:	25 % of the conventional time:	25 % of 3 h = 45 min
No-load period:	10 % of the conventional time:	10 % of 3 h = 18 min
Direct current:	I_M = (0.05 to 0.20) x I_{nf} = 25 A to 100 A	
	The used direct current I_M was 80 A.	

The changes of the resistance of the test objects were calculated according to DIN VDE 0636-201 (VDE 0636 Teil 201):2004-10, clause 8.10.2 (see table 3):

V-box clamp	R_{50} measured by 19.2 °C [µΩ]	R_{50} calculated to 20.0 °C [µΩ]	R_{250} measured by 20.0 °C [µΩ]	R_{250} calculated to 20.0 °C [µΩ]	Changes in %
1	7.7	7.72	7.13	7.13	-7.70
2	11.6	11.64	11.5	11.5	-1.18
3	8.3	8.33	7.2	7.2	-13.53
4	10.73	10.76	9.43	9.43	-12.40
5	6.4	6.42	7.13	7.13	11.06
6	9.27	9.30	8.3	8.3	-10.75
7	9.72	9.75	8.3	8.3	-14.88
8	7.3	7.32	6.7	6.7	-8.51
9	7.2	7.22	7	7	-3.09

Table 3: Changes of the resistance value of the test objects.

All changes of the resistance of the test objects were less then 15 % after the 250th heat cycle.

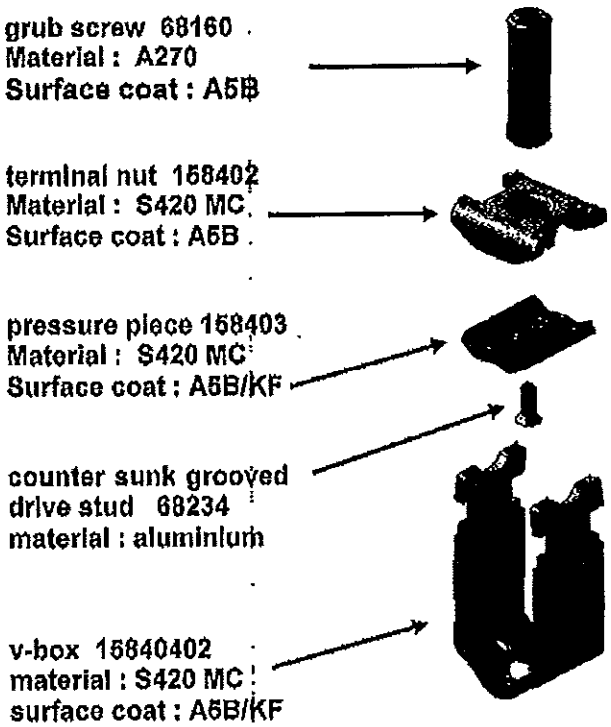
Result:

The V-box clamps 25-240 mm², type KM2G-F manufactured by Jean Müller GmbH passed the ageing stability test (heat cycle test) according to DIN VDE 0636-201 (VDE 0636 Teil 201):2004-10.

- End of test report -

V-box clamp

Type: KM2G-F



Current transformer ER 9 MRI

VII. Technische Daten

Eingang:
- Einspeisung: 3/N/PE 50 Hz 380 V +/- 5%
- Nennstrom: 27 A 2-phasig (Hauptstrom)
  2 A 1-phasig (Steuerstrom)
- Anschlußleistung: 10 kVA

Ausgang:
- Regelbereich 0...90 V mit zuschaltbaren Stufen 8 x 28 V
- max. Ausgangsspannung 314 V
- Nennstrom: 30 A (S1)
  36 A (S2) (10' - 30' Pause)
- Ausgangsleistung: 9 kVA

Steuerung:
- Eingänge: - Meßstrom 0...5A
  - externer Stop für Schließer 24 V DC; 0,1 A
- Ausgänge: - Temperaturüberwachung mit Temperaturwächtern; Kontaktbelastbarkeit 250 V, 1 A
  - Meldung Ausgangsschütz Kontaktbelastbarkeit 230 V, 50 Hz, 10 A

Betriebsart: S1/ S2
Schutzart: IP23
Meßmodus-Strom: True - RMS
Kühlart: AN/ AF

Mechanische Ausführung:
- Rittalgehäuse AP2600 (BxHxT - 800 x 670 x 400 mm), RAL 7032

- Sockel (H 100), RAL 7022
- Transportrollen, RAL 7022

- Breite über alles: 875 mm
- Höhe über alles: 875 mm
- Tiefe über alles: 650 mm

- Gewicht: 210 kg

KEMA

CCA
CENELEC CERTIFICATION AGREEMENT
ACCORD DE CERTIFICATION DU CENELEC
CENELEC-ZERTIFIZIERUNGS-ABKOMMEN

Ref.no. NTR-NL 4575

NOTIFICATION OF TEST RESULTS

Product	fuse-switch-disconnectors
Tested by request of	Jean Müller GmbH, Friedrichstrasse 21,
	D-65343 Eltville am Rhein, Germany
Manufactured at (name and place)	Jean Müller GmbH, Friedrichstrasse 21,
	D-65343 Eltville am Rhein, Germany
Rating and principal characteristics	Ui 1000V, Ith 400 A/630 A
Pre-licence factory inspection carried out by	VDE
Trade mark (if any)	JEAN MÜLLER
Model/Type Ref.	SL 2-3x and SL 2-3x3
Additional information (if any)	
A sample of product has been tested and found to be in conformity with the current HD/EN and equivalent national standard, (number and edition)	EN 60947-3:1999
as shown in the Test Report (ref.No.)	2001980.52 (30 pages)

This Notification of Test Results is the result of testing a sample of the product submitted, in accordance with the provisions of the relevant specific standard.

This Notification of Test Results has been established by a body which participates in the CENELEC Certification Agreement (CCA) of 11th September 1973 as amended on 29th March 1983. Any other body participating in the CCA will take this Notification as a basis for granting a national mark of conformity or a national approval as specified in the CCA, as long as the standard referred to above is still in force in the country of that body.

N.V. KEMA

Arnhem

Date: June 23, 2000

Internal ref: HLS/Sco

Signature:

B.T.M. Holtus

N.V. KEMA
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 9035, 6800 ET Arnhem
The Netherlands
Telephone +31 26 3 56 28 50
Telefax +31 26 3 51 49 22

KEMA

TEST REPORT

EN 60 947-3

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

Report

Reference No. ..... : *2001980.52*
Tested by (+ signature) ..... : *H. L. Schendstok*
Approved by (+ signature) ..... : *L.J.W. van Megen*
Date of issue ..... : *2000-06-22*
Contents ..... : *30* pages
..... :

This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator (see below).

Testing laboratory

Name ..... : KEMA Registered Quality B.V.
Address ..... : Utrechtseweg 310, 6812 AR Arnhem, The Netherlands
Testing location ..... : as above *and*
..... : *Holec Laagspanning B.V., Hengelo, The Netherlands*
All tests were observed by compiler

Client

Name ..... : *Jean Müller GmbH*
Address ..... : *Friedrichstrasse 21*
..... : *D-65343 ELTVILLE am Rhein, Germany*

Test specification

Standard ..... : EN 60 947-3:99
Test procedure ..... : CCA-scheme
Procedure deviation ..... : N.A.
Non-standard test method ..... : N.A.
..... :

Test Report Form/blank test report

Test Report Form No. ..... : 60947-3B/98-09
TRF originator ..... : KEMA
Master TRF ..... : dated 98-05

Test item

Description ..... : *fuse-switch-disconnector*
Trademark ..... : *Jean Müller*
Model and/or type reference ..... : *SL 2-3x and SL 2-3x3*
Manufacturer ..... : *Jean Müller GmbH, Eltville am Rhein, Germany*

КИМТЕХ-България КИМТЕХ ООД БУРГАС

Rating(s) ..... :	*UI 1000 V, Ith 400 A / 630 A*
..... :	
Particulars: test item vs. test requirements	
- method of operation ..... :	*dependent manual operation*
- switching positions ..... :	*2 (on and off)*
- number of poles ..... :	*3-poles*
- kind of current ..... :	*AC*
- number of phases ..... :	*3*
- rated frequency (Hz) ..... :	*50 Hz*
- number of positions of the main contacts ..... :	*2 (on and off)*
Rated and limiting values, main circuit ..... :	
- rated operational voltage Ue (V) ..... :	*400 V, 500 V and 690 V*
- rated insulation voltage Ui (V) ..... :	*1000 V*
- rated impulse withstand voltage Uimp (kV) ..... :	*12 kV*
- conventional free air thermal current Ith (A) ..... :	*fuse: 400 A*
	disconnect knife: 630 A
- conventional enclosed thermal current Ithe (A) .... :	
- rated operational current Ie (A) ..... :	*fuse: 400 A*
	disconnect knife: 630 A
- rated uninterrupted current Iu (A) ..... :	*fuse: 400 A*
	disconnect knife: 630 A
- utilization category ..... :	*with disconnect knife:*
	AC-21B 630 A 690 V
	AC-22B 630 A 400 V
	AC-22B 630 A 500 V
	with fuse:
	AC-21B 400 A 690 V
	AC-22B 400 A 400 V
	AC-22B 400 A 500 V
Short-circuit characteristic ..... :	
- rated short-time withstand current Icw (kA) ..... :	-
- rated short-time making capacity Icm (kA) ..... :	-
- rated conditional short-circuit current ..... :	*80 kA*
Rated and limiting values, auxiliary circuits ..... :	*N*
- rated operational voltage (V) ..... :	
- rated frequency (Hz) ..... :	

- number of circuits	:
- number and kind of contact elements	:
Co-ordination of short-circuit protective devices	:
- kind of protective device	: *fuse-link, NH2 gL/gG 400 A*
Test case verdicts	
Test case does not apply to the test object	: N(.A.)
Test item does meet the requirement	: P(ass)
Test item does not meet the requirement	: F(ail)
	:

Testing	
Date of receipt of test item	: *2000-02-24*
Date(s) of performance of test	: *2000-03 and 2000-04*
	:

ВЯРНО С ОРИГИНАЛА

КЕМТЕХ-БЪЛГАРИЯ КЕМТЕХ БУРГАС ООД

1

Accredited by BMWFJ with GZ: 92714/237-IV/9/00 as test- and inspection body
and with BGBl. II Nr. 244//2005 as certification body for personnel

AUSTRIAN INSTITUTE OF TECHNOLOGY

Test Report

Project Designation

TYPE TEST
ACCORDING TO
IEC 60947-1 AND IEC 60947-3
AT
LOW-VOLTAGE
SINGLE POLE OR THREE POLE OPERATED
FUSE-SWITCH-DISCONNECTORS
TYPE
SL2-3x/...(SINGLE POLE OPERATED)
SL2-3x3/...(THREE POLE OPERATED)

Client

Jean Müller GmbH Elektrotechnische Fabrik
H.J.-Müller-Straße 7
D-65343 Eltville am Rhein
GERMANY

Order from / No. 07/2012 / ---

Project Number 2.03.02447.1.0/SL2-3x(3) Test Engineer H.Raheb, MSc

Date of issue	20.12.2012
Total number of issues / No.	1 / 1
Number of pages	5
Annex: Number of pages	CB - Test Report No. 2.03.02447.1.0/SL2-3x(3)/CB (84 pages)

AUSTRIAN INSTITUTE OF TECHNOLOGY

Test item

Identification:

Low-voltage single pole or three pole operated fuse-switch-disconnectors

Manufacturer:	Jean Müller GmbH Elektrotechnische Fabrik
Trademark:	JEAN MÜLLER
Number of poles:	3-poles
Size:	2
Rated operational voltage(s):	400V up to 690V
Rated operational current(s):	400A(fuse-links), 630A(solid-links)
Rated frequency:	50/60Hz

Technical data and description:

See page 4

Testing location, Period of testing

Testing location:

AIT Austrian Institute of Technology GmbH
Business Unit Electric Energy Systems
Power Service Center
Giefinggasse 2
A-1210 Vienna
AUSTRIA

Period of testing:

07/2012 to 11/2012

Test(s)

Test(s) performed:

Type test

Test standard(s):

IEC 60947-1 Ed. 5.1:2011 and IEC 60947-3 Ed. 3.1:2012

Test procedure(s):

CB Scheme

Result

The low-voltage single pole or three pole operated fuse-switch-disconnectors

- SL2-3x/... (single pole operated)
- SL2-3x3/... (three pole operated)

have passed the type test successfully.

Test Engineer

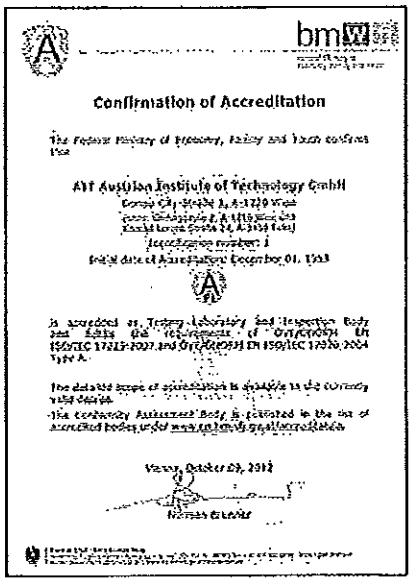
H.Raheb, MSc

Project Engineer, technical responsibility

Ing. J.Ainetter

AUSTRIAN INSTITUTE OF TECHNOLOGY

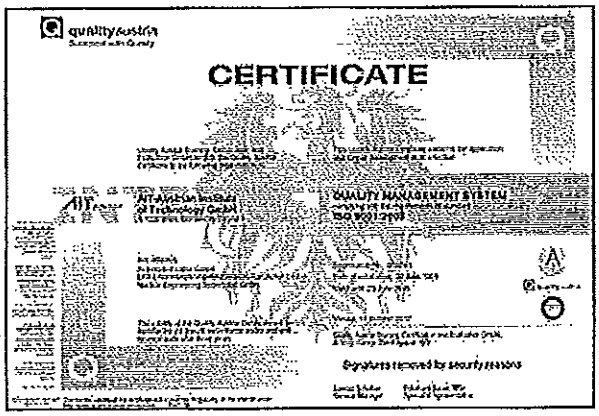
Testing laboratory



Confirmation of Accreditation

AIT Austrian Institute of Technology GmbH

ACCREDITED
according to
EN ISO/IEC 17025
confirmed by BMWFJ with GZ: 92714/237-IV/9/00



CERTIFICATE

CERTIFICATED
according to
ISO 9001
confirmed by Quality Austria with Reg. No. 00229/1

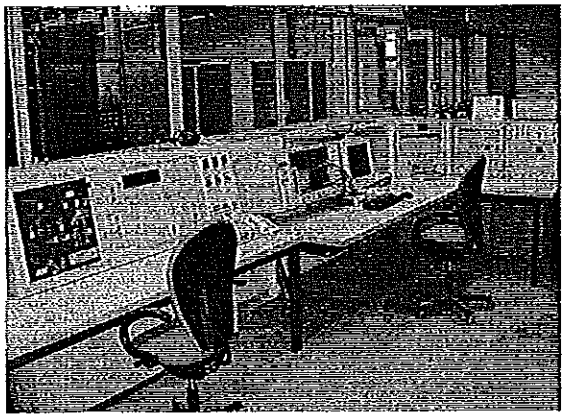
CERTIFICATE OF ACCEPTANCE

AIT Austrian Institute of Technology GmbH

AIT Austrian Institute of Technology GmbH

RECOGNIZED CB TESTING LABORATORY
confirmed by International Electrotechnical Commission
under the responsibility of OVE
as the National Certification Body

Power Service Center:



Control station for tests up to 15kA

Control station for tests above 15kA

Technical data and description

Test item	Low-voltage single pole or three pole operated fuse-switch-disconnectors
Trademark	JEAN MÜLLER
Model/Type reference	SL2-3x/... (single pole operated) SL2-3x3/... (three pole operated)
Manufacturer	Jean Müller GmbH Elektrotechnische Fabrik
Place of manufacture	D-65343 Eltville am Rhein, H.J.-Müller-Straße 7
Method of operation	Dependent manual operation
Switching positions	ON / OFF
Number of poles	3-poles
Busbar system	185mm
Nature of supply	AC
Utilization category	AC-23B at 400V/400A AC-22B at 500V/630A AC-21B at 690V/630A
Rated operational voltage	400V up to 690V
Rated operational current	400A (maximum power dissipation = 45W)
Rated frequency	50/60Hz
Conventional free air thermal current with fuse-links	400A
Conventional free air thermal current with solid-links	630A
Rated insulation voltage	1000V
Rated impulse withstand voltage	12kV
Rated short-time withstand current	10kA/1s (SL2-3x) 15kA/1s (SL2-3x3)
Rated conditional short-circuit current	80kA at 690V/400A 120kA at 500V/400A
Degree of protection	Device from front side, fitted, with clamp- and lateral covers: IP30 Operating condition, closed: IP20 Switching element open: IP10
Kind of protective device	Fuse-links NH2 (up to 400A)

Measuring equipment

Measured quantity	Device	Manufacturer	Code
Voltage (tests up to 15kA)	Voltage divider 1:2000 Difference amplifier AM 502 Signal memory recorder TRA 800	AIT Tektronix W&W	- AM 502/1...3 TRA800
Current (tests up to 15kA)	Lin. current transformer LGSSO Burden 1Ω Signal memory recorder TRA 800	Ritz AIT W&W	WLIN5000/1...3 - TRA800
Voltage (tests above 15kA)	3-channel insulating measuring amplifier Signal memory recorder Nicolet	Rohrer W&W	Arcus 930-1 2580-P
Current (tests above 15kA)	Lin. current transformer LGSSO Burden 0,7mΩ Signal memory recorder Nicolet	Ritz AIT W&W	WLIN6000.HVF/1...3 - 2580-P
Current (tests at reduced voltage)	Current transformer GE 4461 Current transformer AETt10 True-RMS amperemeter Kl. 0,5 Digital multimeter Fluke 185	Goerz Siemens Norma Fluke	WI600/1...3 WI4000/1...3 A0,5/1 /4 FLUKE185/2
Transient recovery voltage	Adjustment equipment for TRV Oscilloscope G 801.1	AIT Tektronix	- G801.1
Dielectric properties	High-voltage test equipment 90-1F with measuring equipment Impulse tester 35 Impulse voltmeter SV642 Oscilloscope 9430	Elabo Haefely Haefely Le Croy	HSG5KV G304 G503 G805
Leakage current	High-voltage test equipment 90-1F Digital multimeter Fluke 187 Digital multimeter Fluke 185	Elabo Fluke Fluke	HSG5KV G922 FLUKE185/2
Time	Signal memory recorders TA 800 Stopwatch	W&W Quantum	TRA800 938-3
Temperature	Data Acquisition/Data Logger Switch Unit 34970A Temperature meter TESTO 901	Agilent Testoterm	942 TESTO
Abnormal heat and fire	Glow-wire test device with measuring equipment	Friborg	Glow
Mechanical strength of terminals	Test equipment	AIT	MSD
Insertability of unprepared conductors	Gauges	AIT	Gauge 1...16
Strength of actuator mechanism	Test equipment	Sauter GmbH	FH1K
Degree of protection	Test probe	PTL	PTL 1...3
Clearances, creepage distances	Digital slide gauge CD-20D	Mitutoyo	SCHUB

Test Report issued under the responsibility of:

OVE

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

Report Reference No.	2.03.02447.1.0/SL2-3x(3)/CB
Date of issue.....	20.12.2012
Total number of pages	84
CB Testing Laboratory.....	AIT Austrian Institute of Technology GmbH
Address	A-1210 Vienna, Giefingasse 2, AUSTRIA
Applicant's name.....	Jean Müller GmbH Elektrotechnische Fabrik
Address	D-65343 Eltville am Rhein, H.J.-Müller-Straße 7
Test specification:	
Standard.....	IEC 60947-3: 3rd Edition (2008) In conjunction with IEC 60947-1: 5th Edition (2007)
Test procedure	CB
Non-standard test method.....	N/A
Test Report Form No.	IEC60947_3B
Test Report Form(s) Originator.....	OVE
Master TRF.....	Dated 2009-08

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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	Low-voltage single pole or three pole operated fuse-switch-disconnectors
Trade Mark.....	JEAN MULLER
Manufacturer	Jean Müller GmbH Elektrotechnische Fabrik
Model/Type reference	SL2-3x/... (single pole operated) SL2-3x3/... (three pole operated)
Ratings	400V a.c. up to 690V a.c. // 400A(fuse-links), 630A(solid-links)// 50/60Hz // 3-pole

ВЕРНО С ОРИГИНАЛА

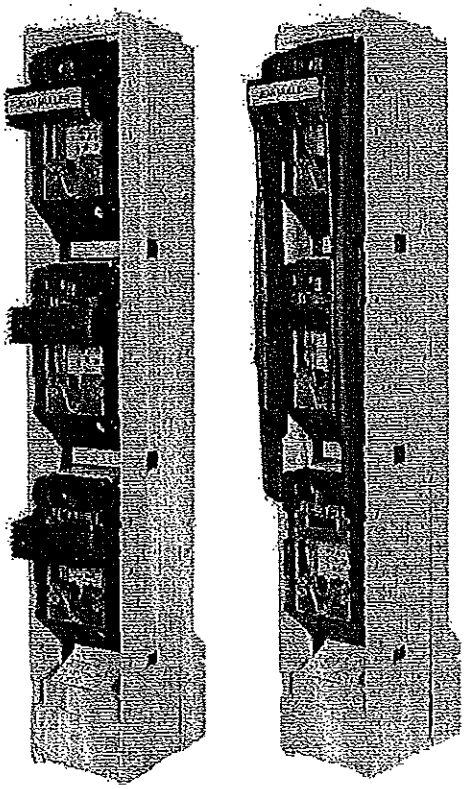
Testing procedure and testing location:	
☒ **CB Testing Laboratory:**	AIT Austrian Institute of Technology GmbH
Testing location / address .....:	A-1210 Vienna, Giefingasse 2, AUSTRIA
☐ **Associated CB Laboratory:**	---
Testing location / address .....:	---
Tested by (name + signature) .....:	H.Raheb, MSc
Approved by (name + signature)....:	Ing.J.Alnetter
☐ 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).:	---
☐ Testing procedure: RMT	
Testing location / address .....:	---
Tested by (name + signature) .....:	---
Approved by (name + signature)....:	---
Supervised by (name + signature).:	---

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
A type test was performed according to ▪ IEC 60947-1 Ed. 5.1:2011 ▪ IEC 60947-3 Ed. 3.1:2012	AIT Austrian Institute of Technology GmbH 1210 Wien, Giefinggasse 2, Austria
The low-voltage single pole or three pole operated fuse-switch-disconnectors ▪ SL2-3x/... ▪ SL2-3x3/... have passed the type test successfully.	The AIT Austrian Institute of Technology GmbH is a recognized CB Testing Laboratory under the responsibility of OVE as the National Certification Body.

Summary of compliance with National Differences:

Copy of marking plate/Picture of test item:



Test item particulars:	
- method of operation ..... :	Dependent manual operation
- suitability for isolation ..... :	Suitable
- degree of protection ..... :	Device from front side, fitted, with clamp- and lateral covers: IP30 Operating condition, closed: IP20 Switching element open: IP10
- number of poles..... :	3
- busbar system ..... :	185mm
- kind of current..... :	AC
- number of positions of the main contacts..... :	2
- number of phases..... :	3
Rated and limiting values, main circuit:	
- rated operational voltage Ue (V)..... :	400V up to 690V
- rated insulation voltage Ui (V)..... :	1000
- rated impulse withstand voltage Uimp (kV)..... :	12
- conventional free air thermal current Ith with fuse-links (A) ..... :	400
- conventional free air thermal current Ith with solid-links (A)..... :	630
- rated operational current Ie (A)..... :	400
- rated uninterrupted current Iu (A) ..... :	400 (maximum power dissipation = 45W)
- rated frequency (Hz)..... :	50/60Hz
- utilization category..... :	AC-23B at 400V/400A AC-22B at 500V/630A AC-21B at 690V/630A
Short-circuit characteristic:	
- rated short-time withstand current Icw (A)..... :	10kA/1s (SL2-3x) 15kA/1s (SL2-3x3)
- rated short-time making capacity Icm (A)..... :	-
- rated conditional short-circuit current (kA)..... :	80kA at 690V/400A 120kA at 500V/400A
Control circuits..... :	-
Auxiliary circuits..... :	-
Relays and releases..... :	-
Co-ordination of short-circuit protective devices:	
- kind of protective device..... :	Fuse-links NH2 (up to 400A)

Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A (Not applicable)
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement..... :	F (Fail)

Testing:

Date of receipt of test item ..... : 07/2012

Date(s) of performance of tests..... : 07 to 11/2012

General remarks:

The test results presented in this report relate only to the object tested.

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

"(See enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

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

General product information:

Low-voltage
single pole or three pole operated
fuse-switch-disconnectors
(185mm busbar system)
for use with NH2 fuse-links

type

SL2-3x/...
SL2-3x3/...

Remark to test performance:

Relevant tests on SL2-3x(3)/3A are deemed to also cover the variants SL2-3x(3)/4A, SL2-3x(3)/9/KM2G-F and SL2-3x(3)/9/KM2G

At all tests concerning making and breaking capacity, operational performance capability and performance under short-circuit conditions, a metallic screen were placed to the equipment, in accordance with the arrangements and distances specified by the manufacturer:

- ⇨ Distance above to metallic screen: 50mm
- ⇨ Distance lateral to metallic screen: 10mm

Remark for use of the fuse-switch-disconnectors:

The maximum power dissipation of the fuse-links suitable for use with the fuse-switch-disconnectors is 45W. Fuse-links with rated voltage 690V of the appropriate size (NH2) may have a power dissipation exceeding this value.

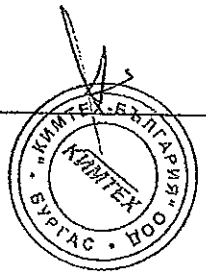
It has to be taken into consideration that the maximum power dissipation of

45W

will not be exceeded for use in uninterrupted duty.

Summary of variant(s):

Designation	Description
SL2-3x/3A	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 1-pole operated ▪ screw terminals M12 (incoming) ▪ screw terminals M12 (outgoing)
SL2-3x/4A	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 1-pole operated ▪ screw terminals M12 (incoming) ▪ stud bolt terminals M12 (outgoing)
SL2-3x/9/KM2G-F	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 1-pole operated ▪ screw terminals M12 (incoming) ▪ v-shape terminal with terminal clamp type KM2G-F (outgoing)
SL2-3x/9/KM2G	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 1-pole operated ▪ screw terminals M12 (incoming) ▪ v-shape terminal with terminal clamp type KM2G (outgoing)
SL2-3x3/3A	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 3-pole operated ▪ screw terminals M12 (incoming) ▪ screw terminals M12 (outgoing)
SL2-3x3/4A	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 3-pole operated ▪ screw terminals M12 (incoming) ▪ stud bolt terminals M12 (outgoing)
SL2-3x3/9/KM2G-F	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 3-pole operated ▪ screw terminals M12 (incoming) ▪ v-shape terminal with terminal clamp type KM2G-F (outgoing)
SL2-3x3/9/KM2G	Fuse-switch-disconnector for busbar mounting ▪ busbar system 185mm ▪ 3-pole operated ▪ screw terminals M12 (incoming) ▪ v-shape terminal with terminal clamp type KM2G (outgoing)



IEC 60947-3			
Clause	Requirement + Test	Result - Remark	Verdict
5.2	MARKING		P
	Marking on equipment itself or on nameplate or nameplates attached to the equipment and legible from the front after mounting		P
	- indication of the open and closed position	Visible open and closed position	P
	- suitability for isolation	In open position	P
	- disconnectors AC-20 and DC-20 only: marked "Do not operate under load"		N/A
	Marking on equipment not needed to be visible after mounting:		P
	- manufacturer's name or trademark	Jean Müller	P
	- type designation or serial number	SL2-3x/... or SL2-3x3/...	P
	- rated operational current	400A (with fuse-links) 630A (with solid-links)	P
	- rated operational voltage	690V	P
	- utilization category	AC-23B 400V/400A AC-22B 500V/630A AC-21B 690V/630A	P
	- rated frequency	50/60Hz	P
	- manufacturer's claim for compliance with IEC 60947-3	IEC/EN 60947-3	P
	- degree of protection	Device from front side, fitted, with clamp- and lateral covers: IP30 Operating condition, closed: IP20 Switching element open: IP10	P
	Marking on fuse-combination units:		P
	- fuse type	NH2	P
	- maximum rated current	max. 400A	P
	- power loss of the fuse-link	Pn=45W	P
	Identification of terminals:		P
	- line terminals	Yes	P
	- load terminals	Yes	P
	- neutral pole terminal		N/A
	- protective earth terminal		N/A
	Data in the manufacturer's published information:		P
	- rated insulation voltage	Ui=1000V	P
	- rated impulse withstand voltage for equipment suitable for isolation or when determined	Uimp=12kV	P
	- pollution degree, if different from 3	3	P
	- rated duty	Uninterrupted duty	P

IEC 60947-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- rated short-time withstand current and duration	-	N/A
	- rated short-circuit making capacity	-	N/A
	- rated conditional short-circuit current	80kA at 690V/400A 120kA at 500V/400A	P
5.3	Instructions for installation, operation and maintenance		P
6	Normal service, mounting and transport conditions		P
7.1	CONSTRUCTIONAL AND PERFORMANCE REQUIREMENTS		P
7.1.2	Materials		P
7.1.2.2	Resistance to abnormal heat and fire		P
	Test performed on.....:	Sections taken from the equipment	P
	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: test temperature 960 °C		P
	No visible flame and no sustained glowing		N/A
	Flames and glowing extinguish within 30 s	Extinguishing immediately after removing the glow-wire	P
	No ignition of the tissue paper		P
	Parts of insulating material not necessary to retain current-carrying parts in position, even though in contact with them: test temperature 650 °C		P
	No visible flame and no sustained glowing	No visible flame	P
	Flames and glowing extinguish within 30 s		N/A
	No ignition of the tissue paper		P
7.1.3 of Part 1	Current-carrying parts and their connection		P
7.1.4	Clearances .....:	14mm (min.) >14mm (measured)	P
	Creepage distances .....:	14mm (min.) >14mm (measured)	P
	Pollution degree .....:	3	
	Comparative tracking index (V) .....:	550	
	Material group .....:	II	
7.1.5 of Part 1	Actuator		P
7.1.5.1	Insulation		
	Actuator insulated from live parts for		
	- rated insulation voltage	1000V	P
	- rated impulse withstand voltage	12kV	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Actuator made of metal	No	
	- connected to a protective conductor or provided with an additional insulation		N/A
	Actuator made of or covered by insulating material	Made of insulating material	
	- internal metal parts, which might become accessible in the event of an insulation failure, are also insulated from live parts for the rated insulation voltage		N/A
7.1.5.2	Direction of movement		P
	The direction of operation for actuators shall where applicable conform to IEC 60447		P
	There is no doubt of the "I" and "O" position and the direction of operation	Visible open and closed position	P
7.1.6 of Part 1	Indication of contact position		P
7.1.6.1	Indicating means	Actuator	P
7.1.6.2	Indication by the actuator	Yes	P
7.1.7	Additional safety requirements for equipment suitable for isolation		P
7.1.7.1	Additional constructional requirements		P
	- marking according to 5.2.1b	Yes	P
	- indication of the position of the contacts	See clause 7.1.5.2	P
	- construction of the actuating mechanism		P
	- minimum clearances across open contacts (see Table 13, Part 1) (mm) .....:	14	
	- measured clearances (mm) .....:	> 14	P
	- test Uimp across gap (kV) .....:	18,5	P
7.1.7.2	Supplementary requirements for equipment with provision for electrical interlocking with contactors or circuit-breakers:		N/A
	Auxiliary switch is rated according to IEC 60947-5-1 (unless the equipment is rated AC-23)		N/A
	Time interval between opening of the contacts of the auxiliary contact and the contacts of the main poles: ≥20 ms .....:	-	
	Measured time interval (ms) .....:	-	N/A
	During the closing operation the contacts of the auxiliary switch closes after or simultaneously with the contacts of the main poles		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.1.7.3	Supplementary requirements for equipment provided with means for padlocking the open position:		N/A
	The locking means is so designed that it cannot be removed with the appropriate padlock(s) installed		N/A
	Test force F applied to the actuator in an attempt to operate to the closed position (N) .....:	-	
	Rated impulse withstand voltage (kV) .....:	-	
	Test Uimp on open main contacts at the test force		N/A
7.1.8 of Part 1	Terminals		P
7.1.8.1	All parts of terminals which maintain contact and carry current are of metal having adequate mechanical strength	See 8.2.4 below	P
	Terminal connections are such that necessary contact pressure is maintained	See 8.2.4 below	P
	Terminals are so constructed that the conductor is clamped between suitable surfaces without damage to the conductor and terminal	See 8.2.4 below	P
	Terminals do not allow the conductor to be displaced or to be displaced themselves in a manner detrimental to the operator of equipment and the insulation voltage is not reduced below the rated value	See 8.2.4 below	P
8.2.4	Mechanical properties of terminals		P
	Mechanical strength of terminals		P
	Maximum cross-sectional area of conductor (mm^2) .....:	**3A 4A KM2G-F KM2G** 1x300 1x300 1x240 1x300	
	Diameter of thread (mm) .....:	M12	
	Torque (Nm) .....:	40 x 1,1 = 44 (screw terminals) 32 x 1,1 = 35,2 (V-shape terminals)	
	5 times on 2 separate clamping units		P
	Testing for damage to and accidental loosening of conductor (flexion test)		P
	Conductor of the smallest cross-sectional area (mm^2) .....:	**KM2G-F** 25 / **KM2G** 25	
	Number of conductor of the smallest cross section:	**KM2G-F** 1 / **KM2G** 1	
	Diameter of bushing hole (mm) .....:	**KM2G-F** 13 / **KM2G** 13	
	Height between the equipment and the platen .....:	**KM2G-F** 300 / **KM2G** 300	
	Mass at the conductor(s) (kg) .....:	**KM2G-F** 4,5 / **KM2G** 4,5	

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Clause	Requirement + Test	Result - Remark		Verdict
	135 continuous revolutions: the conductor neither slips out of the terminal nor breaks near the clamping unit			P
	Pull-out test			P
	Force (N), applied for 1 min. .....:	**KM2G-F** 135	**KM2G** 135	—
	During the test, the conductor neither slips out of the terminal nor breaks near the clamping unit			P
	Conductor of the largest cross-sectional area (mm²) .....:	**KM2G-F** 240	**KM2G** 300	
	Number of conductor of the largest cross section .:	**KM2G-F** 1	**KM2G** 1	
	Diameter of bushing hole (mm) .....:	**KM2G-F** 28,6	**KM2G** 28,6	
	Height between the equipment and the platen .....:	**KM2G-F** 464	**KM2G** 464	
	Mass at the conductor(s) (kg) .....:	**KM2G-F** 20	**KM2G** 22,7	
	135 continuous revolutions: the conductor neither slips out of the terminal nor breaks near the clamping unit			P
	Pull-out test			P
	Force (N), applied for 1 min. .....:	**KM2G-F** 503	**KM2G** 578	—
	During the test, the conductor neither slips out of the terminal nor breaks near the clamping unit			P
	Conductor of the largest and smallest cross-sectional area (mm²) .....:	-		
	Number of conductor of the smallest cross section, number of conductor of the largest cross section ...:	-		
	Diameter of bushing hole (mm) .....:	-		
	Height between the equipment and the platen .....:	-		
	Mass at the conductor(s) (kg) .....:	-		
	135 continuous revolutions: the conductor neither slips out of the terminal nor breaks near the clamping unit			N/A
	Pull-out test			N/A
	Force (N), applied for 1 min. .....:	-		—
	During the test, the conductor neither slips out of the terminal nor breaks near the clamping unit			N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.1.8.2	Connection capacity		P
	Type of conductors .....:	Cu, rigid or flexible	—
	Minimum cross-sectional area of conductor (mm²) ... :	25	—
	Maximum cross-sectional area of conductor (mm²)... :	1x300 (screw terminals) 1x240 (KM2G-F) 1x300 (KM2G)	—
	Number of conductors simultaneously connectable to the terminal .....:	1	—
7.1.8.3	Connection		P
	Terminals for connection to external conductors are readily accessible during installation		P
	Clamping screws and nuts do not serve to fix any other component		P
7.1.8.4	Terminal identification and marking		P
	Terminal intended exclusively for the neutral conductor		N/A
	Protective earth terminal		N/A
	Other terminals		P
7.1.9	Additional requirements for equipment provided with a neutral pole		N/A
	Equipment provided with a pole intended for the connection of neutral, this pole shall be clearly marked by the letter "N"		N/A
	The switched neutral pole does not break before and does not make after the other poles except		N/A
	- a pole having the appropriate short-circuit breaking and making capacity is used as neutral pole, all poles may operate together		N/A
	Conventional thermal current of neutral pole		N/A
7.1.10	Provisions for protective earthing		N/A
7.1.10.1	The exposed conductive parts are electrically interconnected and connected to a protective earth terminal		N/A
7.1.10.2	Protective earth terminal is readily accessible		N/A
	Protective earth terminal is suitably protected against corrosion		N/A
	Electrical continuity between the exposed conductive parts of the protective earth terminal and the metal sheathing of connecting conductors		N/A
	Protective earth terminal has no other functions		N/A
7.1.10.3	Protective earth terminal marking and identification		N/A
7.1.11	Enclosure for equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.1.11.1	Design		N/A
	When the enclosure is opened, all parts requiring access for installation and maintenance are readily accessible		N/A
	Sufficient space is provided inside the enclosure		N/A
	The fixed parts of a metal enclosure are electrically connected to the other exposed conductive parts of the equipment and connected to a terminal which enables them to be earthed or connected to a protective conductor		N/A
	Under no circumstances a removable metal part of enclosure is insulated from the part carrying the earth terminal when the removable part is in place		N/A
	The removable parts of the enclosure are firmly secured to the fixed parts by a device such that they cannot be accidentally loosened or detached owing to the effects of operation of the equipment or vibrations		N/A
	If an enclosure is designed as to allow the covers to be opened without the use of tools, means is provided to prevent loss of the fastening devices		N/A
	If the enclosure is used for mounting push-buttons, it is not possible to remove the buttons from the outside of the enclosure		N/A
7.1.11.2	Insulation		N/A
	If, in order to prevent accidental contact between a metallic enclosure and live parts, the enclosure is partly or completely lined with insulating material, then this lining is securely fixed to the enclosure		N/A
7.1.12	Degree of protection of enclosed equipment		P
	Degree of protection .....:	Device from front side, fitted, with clamp- and lateral covers: IP30 Operating condition, closed: IP20 Switching element open: IP10	P
7.1.13	Condult pull-out, torque and bending with metallic conduits		N/A
	Withstand the stress occurring during its installation .....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3	TEST SEQUENCE I: GENERAL PERFORMANCE CHARACTERISTICS		P
8.3.3.1	Temperature-rise		P
	ambient temperature 10-40 °C .....:	See appended table 1 - 8	
	test enclosure W x H x D (mm x mm x mm) .....:	-	
	material of enclosure .....:	-	
	Main circuits, test conditions:		
	- conventional thermal current Ith (A) .....:	400 (with fuse-links) 630 (with solid-links)	
	- conventional enclosed thermal current Ithe (A) ...:	-	
	- cable/busbar cross-section (mm²)/(mm x mm)....:	1 x 240 / 30 x 10 (with fuse-links) 2 x 185 / 40 x 10 (with solid-links)	
	- cable/busbar length (mm)/(mm).....:	2000 / 600	
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Measured temperature-rise .....:	See appended table 1 - 8	P
	Auxiliary circuits, test conditions:		N/A
	- rated operation current (A) .....:	-	
	- cable cross-section (mm²) .....:	-	
	Measured temperature-rise .....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.2	Test of dielectric properties		P
	Type SL2-3x/3A		
	Rated impulse withstand voltage (kV) .....:	12	
	- test Uimp main circuits (kV) .....:	14,8	P
	- test Uimp auxiliary circuits (kV) .....:	-	N/A
	- test Uimp on open main contacts (equipment suitable for isolation) (kV) .....:	18,5	P
	Power-frequency withstand voltage (V) .....:	1000	
	- main circuits, test voltage for 5 sec. (V) .....:	2200	P
	- control and auxiliary circuits, test voltage for 5 sec. (V) .....:	-	N/A
	Devices, which have been disconnected for the power-frequency withstand voltage test.....	-	N/A
	Equipment suitable for isolation, leakage current not exceed 0,5 mA		
	Test voltage 1,1 Ue (V).....:	760	
	Measured leakage current (mA).....:	< 0,1	P

8.3.3.2	Test of dielectric properties		P
	Type SL2-3x3/3A		
	Rated impulse withstand voltage (kV) .....:	12	
	- test Uimp main circuits (kV) .....:	14,8	P
	- test Uimp auxiliary circuits (kV) .....:	-	N/A
	- test Uimp on open main contacts (equipment suitable for isolation) (kV) .....:	18,5	P
	Power-frequency withstand voltage (V) .....:	1000	
	- main circuits, test voltage for 5 sec. (V) .....:	2200	P
	- control and auxiliary circuits, test voltage for 5 sec. (V) .....:	-	N/A
	Devices, which have been disconnected for the power-frequency withstand voltage test.....	-	N/A
	Equipment suitable for isolation, leakage current not exceed 0,5 mA		
	Test voltage 1,1 Ue (V).....:	760	
	Measured leakage current (mA).....:	< 0,1	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.3	Making and breaking capacity		P
	Type SL2-3x/3A: AC-23B at 400V/400A (Test1: L1 and L2 closed, L3 operated; Test2: L1 operated, L2 closed, L3 open)		
	- utilization category .....:	AC-23B	—
	- rated operational voltage Ue (V) .....:	400	—
	- rated operational current Ie (A) .....:	400	—
	Conditions for make operation, AC-23A and AC-23B only:		P
	- test voltage, U = 1,05 Ue .....(V):	L1: 423 L2: 424 L3: 422	—
	- test current, I = ... 10 x Ie (A):	L1: 4026 L2: 4037 L3: 4021	—
	- power factor .....:	L1: 0,34 L2: 0,34 L3: 0,34	—
	Conditions for break operation, AC-23A and AC-23B only:		P
	- test voltage, U = 1,05 Ue .....(V):	L1: 423 L2: 424 L3: 422	—
	- test current, I = ... 8 x Ie (A):	L1: 3219 L2: 3227 L3: 3214	—
	- power factor .....:	L1: 0,36 L2: 0,35 L3: 0,36	—
	Conditions for make/break operations, other than AC-23A and AC-23B:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	—
	- test current, I = ... _ x Ie (A):	L1: - L2: - L3: -	—
	- power factor / time constant .....:	L1: - L2: - L3: -	—
	Number of make/break or make and break operations .....:	3 and 3	P
	- recovery voltage duration ≥ 50 ms (ms).....:	350	P
	- current duration (ms) .....:	330 and 320	—
	- time interval between operations (s).....:	30	P
	Characteristic of transient recovery voltage for AC-22 and AC-23 only:		P
	- oscillatory frequency (kHz) .....:	83,26	—
	- measured oscillatory frequency (kHz) .....:	L1: 83,3 L2: 83,3 L3: 83,3	—

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Clause	Requirement + Test	Result - Remark	Verdict
	- factor γ .....:	L1: 1,1 L2: 1,1 L3: 1,1	P
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240	
	Test current Ie (A) .....:	400	

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Clause	Requirement + Test	Result - Remark		Verdict
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 63	80	P
	Manual operating means: non-metallic	≤ 5	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 32	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 41	60	P
8.3.3.7	Strength of actuator mechanism			P
8.2.5	Verification of the strength of actuator mechanism and position indicating device			P
	- actuator type (fig.) .....:	1e		
8.2.5.2.1	Dependent and independent manual operation			P
	- actuating force for opening (N) .....:	141		
	- test force with blocked main contacts (N) .....:	400		
	- used method to keep the contact closed .....:	Brazing		
	During and after the test, open position not indicated .....:	No open position		P
	Equipment with locking mean, no locking in the open position while test force is applied.....:	No locking mechanism		N/A
8.2.5.2.2	Dependent power operation			N/A
	- main contacts fixed together in the closed position .....:	-		N/A
	- used method to keep the contact closed .....:	-		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times) .....:	-		N/A
	During and after the test, open position not indicated .....:	-		N/A
	Equipment show no damage impairing its normal operation.....:	-		N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.2.5.2.3	Independent power operation		N/A
	- main contacts fixed together in the closed position ..... :	-	N/A
	- used method to keep the contact closed ..... :	-	N/A
	- stored energy of the power operator released (3 times)..... :	-	N/A
	During and after the test, open position not indicated ..... :	-	N/A
	Equipment show no damage impairing its normal operation..... :	-	N/A
	Equipment with locking mean, no locking in the open position while test force is applied..... :	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.3	Making and breaking capacity		P
	Type SL2-3x3/3A: AC-23B at 400V/400A		
	- utilization category .....:	AC-23B	
	- rated operational voltage Ue (V) .....:	400	
	- rated operational current Ie (A) .....:	400	
	Conditions for make operation, AC-23A and AC-23B only:		P
	- test voltage, U = 1,05 Ue .....(V):	L1: 423 L2: 424 L3: 422	
	- test current, I = ... 10 x Ie (A):	L1: 4026 L2: 4037 L3: 4021	
	- power factor .....:	L1: 0,34 L2: 0,34 L3: 0,34	
	Conditions for break operation, AC-23A and AC-23B only:		P
	- test voltage, U = 1,05 Ue .....(V):	L1: 423 L2: 424 L3: 422	
	- test current, I = ... 8 x Ie (A):	L1: 3219 L2: 3227 L3: 3214	
	- power factor .....:	L1: 0,36 L2: 0,35 L3: 0,36	
	Conditions for make/break operations, other than AC-23A and AC-23B:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	
	- test current, I = ... _ x Ie (A):	L1: - L2: - L3: -	
	- power factor / time constant .....:	L1: - L2: - L3: -	
	Number of make/break or make and break operations .....:	3 and 3	P
	- recovery voltage duration ≥ 50 ms (ms).....:	350	P
	- current duration (ms) .....:	330 and 320	
	- time interval between operations (s).....:	30	P
	Characteristic of transient recovery voltage for AC-22 and AC-23 only:		P
	- oscillatory frequency (kHz) .....:	83,26	
	- measured oscillatory frequency (kHz) .....:	L1: 83,3 L2: 83,3 L3: 83,3	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- factor γ .....:	L1: 1,1 L2: 1,1 L3: 1,1	P
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240	
	Test current Ie (A) .....:	400	

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Clause	Requirement + Test	Result - Remark		Verdict
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 62	80	P
	Manual operating means: non-metallic	≤ 5	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 33	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 40	60	P
8.3.3.7	Strength of actuator mechanism			P
8.2.5	Verification of the strength of actuator mechanism and position indicating device			P
	- actuator type (fig.) .....:	1e		
8.2.5.2.1	Dependent and independent manual operation			P
	- actuating force for opening (N) .....:	178		
	- test force with blocked main contacts (N) .....:	400		
	- used method to keep the contact closed .....:	Brazing		
	During and after the test, open position not indicated .....:	No open position		P
	Equipment with locking mean, no locking in the open position while test force is applied.....:	No locking mechanism		N/A
8.2.5.2.2	Dependent power operation			N/A
	- main contacts fixed together in the closed position .....:	-		N/A
	- used method to keep the contact closed .....:	-		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times) .....:	-		N/A
	During and after the test, open position not indicated .....:	-		N/A
	Equipment show no damage impairing its normal operation.....:	-		N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.2.5.2.3	Independent power operation		N/A
	- main contacts fixed together in the closed position .....:	-	N/A
	- used method to keep the contact closed .....:	-	N/A
	- stored energy of the power operator released (3 times).....:	-	N/A
	During and after the test, open position not indicated .....:	-	N/A
	Equipment show no damage impairing its normal operation.....:	-	N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.3	Making and breaking capacity		P
	Type SL2-3x/3A: AC-22B at 500V/630A (Test1: L1 and L2 closed, L3 operated; Test2: L1 operated, L2 closed, L3 open)		
	- utilization category .....:	AC-22B	
	- rated operational voltage Ue (V) .....:	500	
	- rated operational current Ie (A) .....:	630	
	Conditions for make operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	
	- test current, I = ... 10 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for break operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	
	- test current, I = ... 8 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for make/break operations, other than AC-23A and AC-23B:		P
	- test voltage, U = 1,05 Ue .....(V):	L1: 527 L2: 528 L3: 526	
	- test current, I = ... 3 x Ie (A):	L1: 1903 L2: 1910 L3: 1898	
	- power factor / time constant .....:	L1: 0,62 L2: 0,62 L3: 0,62	
	Number of make/break or make and break operations .....:	5	P
	- recovery voltage duration ≥ 50 ms (ms).....:	260	P
	- current duration (ms) .....:	290	
	- time interval between operations (s).....:	30	P
	Characteristic of transient recovery voltage for AC-22 and AC-23 only:		P
	- oscillatory frequency (kHz) .....:	62,68	
	- measured oscillatory frequency (kHz) .....:	L1: 62,7 L2: 62,7 L3: 62,7	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- factor γ .....:	L1: 1,1 L2: 1,1 L3: 1,1	P
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)	
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)	

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Clause	Requirement + Test	Result - Remark		Verdict
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 61 (fuse-links) ≤ 70 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 5 (fuse-links) ≤ 7 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 31 (fuse-links) ≤ 25 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 39 (fuse-links) ≤ 36 (solid-links)	60	P
8.3.3.7	Strength of actuator mechanism			P
8.2.5	Verification of the strength of actuator mechanism and position indicating device			P
	- actuator type (fig.) .....:	1e		
8.2.5.2.1	Dependent and independent manual operation			P
	- actuating force for opening (N) .....:	141		
	- test force with blocked main contacts (N) .....:	400		
	- used method to keep the contact closed .....:	Brazing		
	During and after the test, open position not indicated .....:	No open position		P
	Equipment with locking mean, no locking in the open position while test force is applied.....:	No locking mechanism		N/A
8.2.5.2.2	Dependent power operation			N/A
	- main contacts fixed together in the closed position .....:	-		N/A
	- used method to keep the contact closed .....:	-		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times) .....:	-		N/A
	During and after the test, open position not indicated .....:	-		N/A
	Equipment show no damage impairing its normal operation.....:	-		N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.2.5.2.3	Independent power operation		N/A
	- main contacts fixed together in the closed position .....:	-	N/A
	- used method to keep the contact closed .....:	-	N/A
	- stored energy of the power operator released (3 times).....:	-	N/A
	During and after the test, open position not indicated .....:	-	N/A
	Equipment show no damage impairing its normal operation.....:	-	N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.3	Making and breaking capacity		P
	Type SL2-3x3/3A: AC-22B at 500V/630A		
	- utilization category .....:	AC-22B	
	- rated operational voltage Ue (V) .....:	500	
	- rated operational current Ie (A) .....:	630	
	Conditions for make operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue.....(V):	L1: - L2: - L3: -	
	- test current, I = ... 10 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for break operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue.....(V):	L1: - L2: - L3: -	
	- test current, I = ... 8 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for make/break operations, other than AC-23A and AC-23B:		P
	- test voltage, U = 1,05 Ue.....(V):	L1: 527 L2: 528 L3: 526	
	- test current, I = ... 3 x Ie (A):	L1: 1903 L2: 1910 L3: 1898	
	- power factor / time constant .....:	L1: 0,62 L2: 0,62 L3: 0,62	
	Number of make/break or make and break operations .....:	5	P
	- recovery voltage duration ≥ 50 ms (ms).....:	Permanent	P
	- current duration (ms) .....:	290	
	- time interval between operations (s).....:	30	P
	Characteristic of transient recovery voltage for AC-22 and AC-23 only:		P
	- oscillatory frequency (kHz) .....:	62,68	
	- measured oscillatory frequency (kHz) .....:	L1: 62,7 L2: 62,7 L3: 62,7	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- factor γ .....:	L1: 1,1 L2: 1,1 L3: 1,1	P
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)	
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)	

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Clause	Requirement + Test	Result - Remark		Verdict
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 62 (fuse-links) ≤ 69 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 5 (fuse-links) ≤ 7 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 31 (fuse-links) ≤ 26 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 39 (fuse-links) ≤ 35 (solid-links)	60	P
8.3.3.7	Strength of actuator mechanism			P
8.2.5	Verification of the strength of actuator mechanism and position indicating device			P
	- actuator type (fig.) .....:	1e		
8.2.5.2.1	Dependent and independent manual operation			P
	- actuating force for opening (N) .....:	178		
	- test force with blocked main contacts (N) .....:	400		
	- used method to keep the contact closed .....:	Brazing		
	During and after the test, open position not indicated .....:	No open position		P
	Equipment with locking mean, no locking in the open position while test force is applied.....:	No locking mechanism		N/A
8.2.5.2.2	Dependent power operation			N/A
	- main contacts fixed together in the closed position .....:	-		N/A
	- used method to keep the contact closed .....:	-		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times) .....:	-		N/A
	During and after the test, open position not indicated .....:	-		N/A
	Equipment show no damage impairing its normal operation.....:	-		N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.2.5.2.3	Independent power operation		N/A
	- main contacts fixed together in the closed position .....:	-	N/A
	- used method to keep the contact closed .....:	-	N/A
	- stored energy of the power operator released (3 times).....:	-	N/A
	During and after the test, open position not indicated .....:	-	N/A
	Equipment show no damage impairing its normal operation.....:	-	N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.3	Making and breaking capacity		P
	Type SL2-3x/3A: AC-21B at 690V/630A (Test1: L1 and L2 closed, L3 operated; Test2: L1 operated, L2 closed, L3 open)		
	- utilization category .....:	AC-21B	
	- rated operational voltage Ue (V) .....:	690	
	- rated operational current Ie (A) .....:	630	
	Conditions for make operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	
	- test current, I = ... 10 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for break operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	
	- test current, I = ... 8 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for make/break operations, other than AC-23A and AC-23B:		P
	- test voltage, U = 1,05 Ue .....(V):	L1: 729 L2: 730 L3: 728	
	- test current, I = ... 1,5 x Ie (A):	L1: 955 L2: 960 L3: 951	
	- power factor / time constant .....:	L1: 0,95 L2: 0,94 L3: 0,95	
	Number of make/break or make and break operations .....:	5	P
	- recovery voltage duration ≥ 50 ms (ms).....:	340	P
	- current duration (ms) .....:	280	
	- time interval between operations (s).....:	30	P
	Characteristic of transient recovery voltage for AC-22 and AC-23 only:		N/A
	- oscillatory frequency (kHz) .....:	-	
	- measured oscillatory frequency (kHz) .....:	L1: - L2: - L3: -	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- factor γ .....:	L1: - L2: - L3: -	N/A
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)	
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)	

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Clause	Requirement + Test	Result - Remark	Verdict

	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 61 (fuse-links) ≤ 66 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 5 (fuse-links) ≤ 6 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 30 (fuse-links) ≤ 26 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 37 (fuse-links) ≤ 33 (solid-links)	60	P
8.3.3.7	Strength of actuator mechanism			P
8.2.5	Verification of the strength of actuator mechanism and position indicating device			P
	- actuator type (fig.) .....:	1e		
8.2.5.2.1	Dependent and independent manual operation			P
	- actuating force for opening (N) .....:	141		
	- test force with blocked main contacts (N) .....:	400		
	- used method to keep the contact closed .....:	Brazing		
	During and after the test, open position not indicated .....:	No open position		P
	Equipment with locking mean, no locking in the open position while test force is applied.....:	No locking mechanism		N/A
8.2.5.2.2	Dependent power operation			N/A
	- main contacts fixed together in the closed position .....:	-		N/A
	- used method to keep the contact closed .....:	-		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times) .....:	-		N/A
	During and after the test, open position not indicated .....:	-		N/A
	Equipment show no damage impairing its normal operation.....:	-		N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.2.5.2.3	Independent power operation		N/A
	- main contacts fixed together in the closed position .....:	-	N/A
	- used method to keep the contact closed .....:	-	N/A
	- stored energy of the power operator released (3 times).....:	-	N/A
	During and after the test, open position not indicated .....:	-	N/A
	Equipment show no damage impairing its normal operation.....:	-	N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.3.3	Making and breaking capacity		P
	Type SL2-3x3/3A: AC-21B at 690V/630A		
	- utilization category .....:	AC-21B	
	- rated operational voltage Ue (V) .....:	690	
	- rated operational current Ie (A) .....:	630	
	Conditions for make operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	
	- test current, I = ... 10 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for break operation, AC-23A and AC-23B only:		N/A
	- test voltage, U = 1,05 Ue .....(V):	L1: - L2: - L3: -	
	- test current, I = ... 8 x Ie (A):	L1: - L2: - L3: -	
	- power factor .....:	L1: - L2: - L3: -	
	Conditions for make/break operations, other than AC-23A and AC-23B:		P
	- test voltage, U = 1,05 Ue .....(V):	L1: 729 L2: 730 L3: 728	
	- test current, I = ... 1,5 x Ie (A):	L1: 955 L2: 960 L3: 951	
	- power factor / time constant .....:	L1: 0,95 L2: 0,94 L3: 0,95	
	Number of make/break or make and break operations .....:	5	P
	- recovery voltage duration ≥ 50 ms (ms).....:	Permanent	P
	- current duration (ms) .....:	280	
	- time interval between operations (s).....:	30	P
	Characteristic of transient recovery voltage for AC-22 and AC-23 only:		N/A
	- oscillatory frequency (kHz) .....:	-	
	- measured oscillatory frequency (kHz) .....:	L1: - L2: - L3: -	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- factor γ .....:	L1: - L2: - L3: -	N/A
8.3.3.3.5	Behaviour of the equipment during making and breaking capacity tests		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.3.3.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.3.4	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.3.5	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.3.6	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)	
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)	

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Clause	Requirement + Test	Result - Remark		Verdict
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 62 (fuse-links) ≤ 66 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 5 (fuse-links) ≤ 6 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 30 (fuse-links) ≤ 28 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 38 (fuse-links) ≤ 36 (solid-links)	60	P
8.3.3.7	Strength of actuator mechanism			P
8.2.5	Verification of the strength of actuator mechanism and position indicating device			P
	- actuator type (fig.) .....:	1e		
8.2.5.2.1	Dependent and independent manual operation			P
	- actuating force for opening (N) .....:	178		
	- test force with blocked main contacts (N) .....:	400		
	- used method to keep the contact closed .....:	Brazing		
	During and after the test, open position not indicated .....:	No open position		P
	Equipment with locking mean, no locking in the open position while test force is applied.....:	No locking mechanism		N/A
8.2.5.2.2	Dependent power operation			N/A
	- main contacts fixed together in the closed position .....:	-		N/A
	- used method to keep the contact closed .....:	-		N/A
	- 110% of the rated supply voltage applied to the equipment (3 times) .....:	-		N/A
	During and after the test, open position not indicated .....:	-		N/A
	Equipment show no damage impairing its normal operation.....:	-		N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.2.5.2.3	Independent power operation		N/A
	- main contacts fixed together in the closed position .....:	-	N/A
	- used method to keep the contact closed .....:	-	N/A
	- stored energy of the power operator released (3 times).....:	-	N/A
	During and after the test, open position not indicated .....:	-	N/A
	Equipment show no damage impairing its normal operation.....:	-	N/A
	Equipment with locking mean, no locking in the open position while test force is applied.....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.4	TEST SEQUENCE II: OPERATIONAL PERFORMANCE CAPABILITY		P
8.3.4.1	Operational performance test		P
	Type SL2-3x/3A: AC-23B at 400V/400A (Test1: L1 and L2 closed, L3 operated; Test2: L1 operated, L2 closed, L3 open)		
	- utilization category .....:	AC-23B	
	- rated operational voltage (V) .....:	400	
	- rated operational current (A) .....:	400	
	Test conditions for electrical operation cycles:		P
	- test voltage (V) .....:	L1: 403 L2: 402 L3: 403	
	- test current (A) .....:	L1: 409 L2: 413 L3: 407	
	- power factor / ~~time constant~~ .....:	L1: 0,65 L2: 0,65 L3: 0,65	
	Number of cycles with current .....:	200	P
	Number of cycles without current .....:	800	P
	First test sequence (with/without current) .....:	With	
	Second test sequence (with/without current) .....:	Without	
	- time interval between first and second test sequence .....:	No time interval	
	- recovery voltage duration at operations with current ≥ 50 ms (ms).....:	260	P
	- current duration (ms) .....:	280	
	- time interval between operations (s) .....:	60	P
8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.4.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

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Clause	Requirement + Test	Result - Remark		Verdict
8.3.4.2	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380		—
	No breakdown or flashover			P
8.3.4.3	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		—
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.4.4	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			—
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		—
	- manufacturer's model or type reference .....:	M2gG400/69		—
	- rated voltage (V) .....:	690		—
	- rated current (A) .....:	400		—
	- power loss (W) .....:	45 max.		—
	- rated breaking capacity (kA) .....:	100		—
	Conductor cross-section (mm²) .....:	1 x 240		—
	Test current Ie (A) .....:	400		—
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 67	80	P
	Manual operating means: non-metallic	5	35	P
	Parts intended to be touched but not hand-held: non-metallic	35	50	P
	Parts which need not be touched during normal operation: non-metallic	44	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.4.1	Operational performance test		P
	Type SL2-3X3/3A: AC-23B at 400V/400A		
	- utilization category .....:	AC-22B	—
	- rated operational voltage (V) .....:	400	—
	- rated operational current (A) .....:	400	—
	Test conditions for electrical operation cycles:		P
	- test voltage (V) .....:	L1: 403 L2: 402 L3: 403	—
	- test current (A) .....:	L1: 409 L2: 413 L3: 407	—
	- power factor / ~~time constant~~ .....:	L1: 0,65 L2: 0,65 L3: 0,65	—
	Number of cycles with current .....:	200	P
	Number of cycles without current .....:	800	P
	First test sequence (with/without current) .....:	With	—
	Second test sequence (with/without current) .....:	Without	—
	- time interval between first and second test sequence .....:	No time interval	—
	- recovery voltage duration at operatons with current ≥ 50 ms (ms).....:	Permanent	P
	- current duration (ms) .....:	380	—
	- time interval between operations (s) .....:	30	P
8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.4.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

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Clause	Requirement + Test	Result - Remark		Verdict
8.3.4.2	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380		
	No breakdown or flashover			P
8.3.4.3	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.4.4	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		
	- manufacturer's model or type reference .....:	M2gG400/69		
	- rated voltage (V) .....:	690		
	- rated current (A) .....:	400		
	- power loss (W) .....:	45 max.		
	- rated breaking capacity (kA) .....:	100		
	Conductor cross-section (mm²) .....:	1 x 240		
	Test current Ie (A) .....:	400		
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 66	80	P
	Manual operating means: non-metallic	5	35	P
	Parts intended to be touched but not hand-held: non-metallic	34	50	P
	Parts which need not be touched during normal operation: non-metallic	43	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.4.1	Operational performance test		P
	Type SL2-3X/3A: AC-22B at 500V/630A (Test1: L1 and L2 closed, L3 operated; Test2: L1 operated, L2 closed, L3 open)		
	- utilization category .....:	AC-22B	
	- rated operational voltage (V) .....:	500	
	- rated operational current (A) .....:	630	
	Test conditions for electrical operation cycles:		P
	- test voltage (V) .....:	L1: 509 L2: 510 L3: 509	
	- test current (A) .....:	L1: 637 L2: 641 L3: 632	
	- power factor / ~~time constant~~ .....:	L1: 0,80 L2: 0,80 L3: 0,80	
	Number of cycles with current .....:	200	P
	Number of cycles without current .....:	800	P
	First test sequence (with/without current) .....:	With	
	Second test sequence (with/without current) .....:	Without	
	- time interval between first and second test sequence .....:	No time interval	
	- recovery voltage duration at operations with current ≥ 50 ms (ms).....:	260	P
	- current duration (ms) .....:	280	
	- time interval between operations (s) .....:	60	P
8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.4.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

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Clause	Requirement + Test	Result - Remark		Verdict
8.3.4.2	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380		
	No breakdown or flashover			P
8.3.4.3	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.4.4	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		
	- manufacturer's model or type reference .....:	M2gG400/69		
	- rated voltage (V) .....:	690		
	- rated current (A) .....:	400		
	- power loss (W) .....:	45 max.		
	- rated breaking capacity (kA) .....:	100		
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)		
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)		
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 66 (fuse-links) ≤ 73 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 6 (fuse-links) ≤ 7 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 34 (fuse-links) ≤ 31 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 43 (fuse-links) ≤ 40 (solid-links)	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.4.1	Operational performance test		P
	Type SL2-3X3/3A: AC-22B at 500V/630A		
	- utilization category .....:	AC-22B	—
	- rated operational voltage (V) .....:	500	—
	- rated operational current (A) .....:	630	—
	Test conditions for electrical operation cycles:		P
	- test voltage (V) .....:	L1: 509 L2: 510 L3: 509	—
	- test current (A) .....:	L1: 637 L2: 641 L3: 632	—
	- power factor / ~~time constant~~ .....:	L1: 0,80 L2: 0,80 L3: 0,80	—
	Number of cycles with current .....:	200	P
	Number of cycles without current .....:	800	P
	First test sequence (with/without current) .....:	With	—
	Second test sequence (with/without current) .....:	Without	—
	- time interval between first and second test sequence .....:	No time interval	—
	- recovery voltage duration at operations with current ≥ 50 ms (ms).....:	Permanent	P
	- current duration (ms) .....:	280	—
	- time interval between operations (s) .....:	60	P
8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		—
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.4.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

IEC 60947-3				
Clause	Requirement + Test	Result - Remark		Verdict
8.3.4.2	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380		
	No breakdown or flashover			P
8.3.4.3	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.4.4	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		
	- manufacturer's model or type reference .....:	M2gG400/69		
	- rated voltage (V) .....:	690		
	- rated current (A) .....:	400		
	- power loss (W) .....:	45 max.		
	- rated breaking capacity (kA) .....:	100		
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)		
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)		
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 66 (fuse-links) ≤ 72 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 6 (fuse-links) ≤ 7 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 34 (fuse-links) ≤ 32 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 45 (fuse-links) ≤ 41 (solid-links)	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.4.1	Operational performance test		P
	Type SL2-3X/3A: AC-21B at 690V/630A (Test1: L1 and L2 closed, L3 operated; Test2: L1 operated, L2 closed, L3 open)		
	- utilization category .....:	AC-21B	
	- rated operational voltage (V) .....:	690	
	- rated operational current (A) .....:	690	
	Test conditions for electrical operation cycles:		P
	- test voltage (V) .....:	L1: 694 L2: 694 L3: 695	
	- test current (A) .....:	L1: 640 L2: 643 L3: 634	
	- power factor / ~~time constant~~ .....:	L1: 0,96 L2: 0,95 L3: 0,95	
	Number of cycles with current .....:	200	P
	Number of cycles without current .....:	800	P
	First test sequence (with/without current) .....:	With	
	Second test sequence (with/without current) .....:	Without	
	- time interval between first and second test sequence .....:	No time interval	
	- recovery voltage duration at operations with current ≥ 50 ms (ms).....:	270	P
	- current duration (ms) .....:	280	
	- time interval between operations (s) .....:	60	P
8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.4.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

IEC 60947-3				
Clause	Requirement + Test	Result - Remark		Verdict
8.3.4.2	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ....:	1380		
	No breakdown or flashover			P
8.3.4.3	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.4.4	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		
	- manufacturer's model or type reference .....:	M2gG400/69		
	- rated voltage (V) .....:	690		
	- rated current (A) .....:	400		
	- power loss (W) .....:	45 max.		
	- rated breaking capacity (kA) .....:	100		
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)		
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)		
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 67 (fuse-links) ≤ 73 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 7 (fuse-links) ≤ 7 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 33 (fuse-links) ≤ 32 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 46 (fuse-links) ≤ 42 (solid-links)	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.4.1	Operational performance test		P
	Type SL2-3X/3A: AC-21B at 690V/630A		
	- utilization category .....:	AC-21B	
	- rated operational voltage (V) .....:	690	
	- rated operational current (A) .....:	690	
	Test conditions for electrical operation cycles:		P
	- test voltage (V) .....:	L1: 694 L2: 694 L3: 695	
	- test current (A) .....:	L1: 640 L2: 643 L3: 634	
	- power factor / ~~time constant~~ .....:	L1: 0,96 L2: 0,95 L3: 0,95	
	Number of cycles with current .....:	200	P
	Number of cycles without current .....:	800	P
	First test sequence (with/without current) .....:	With	
	Second test sequence (with/without current) .....:	Without	
	- time interval between first and second test sequence .....:	No time interval	
	- recovery voltage duration at operations with current ≥ 50 ms (ms).....:	Permanent	P
	- current duration (ms) .....:	280	
	- time interval between operations (s) .....:	60	P
8.3.4.1.5	Behaviour of the equipment during the operational performance test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.4.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

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Clause	Requirement + Test	Result - Remark		Verdict
8.3.4.2	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ....:	1380		
	No breakdown or flashover			P
8.3.4.3	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.4.4	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		
	- manufacturer's model or type reference .....:	M2gG400/69		
	- rated voltage (V) .....:	690		
	- rated current (A) .....:	400		
	- power loss (W) .....:	45 max.		
	- rated breaking capacity (kA) .....:	100		
	Conductor cross-section (mm²) .....:	1 x 240 (fuse-links) 2 x 185 (solid-links)		
	Test current Ie (A) .....:	400 (fuse-links) 630 (solid-links)		
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 67 (fuse-links) ≤ 74 (solid-links)	80	P
	Manual operating means: non-metallic	≤ 5 (fuse-links) ≤ 7 (solid-links)	35	P
	Parts intended to be touched but not hand-held: non-metallic	≤ 30 (fuse-links) ≤ 34 (solid-links)	50	P
	Parts which need not be touched during normal operation: non-metallic	≤ 38 (fuse-links) ≤ 44 (solid-links)	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.5	TEST SEQUENCE III: SHORT-CIRCUIT PERFORMANCE CAPABILITY		P
8.3.5.1	Short-time withstand current test		P
	Type SL2-3x/3A		
	Rated short-time withstand current Icw (A) (≥ 12 Ie max.) .....:	10000 / 1s	P
	- test voltage (V) .....:	L1: 695 L2: 695 L3: 694	
	- r.m.s. test current (A) .....:	L1: 10470 L2: 10790 L3: 10200	
	- peak test current (A) .....:	L1: 15240 L2: 17100 L3: 18280	
	- power factor / ~~time constant~~ .....:	L1: 0,46 L2: 0,46 L3: 0,46	
	- factor n .....:	1,79	
	Test duration (ms) .....:	1010	
8.3.5.1.5	Behaviour of the equipment during the test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.5.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.5.2	Short-circuit making capacity		N/A
	Rated short-circuit making capacity Icm (A) .....:	-	N/A
	- test voltage (1,05 x Ue) .....(V):	L1: - L2: - L3: -	
	- r.m.s. test current (A) .....(A):	L1: - L2: - L3: -	
	- maximum peak test current (factor n) .....:	-	N/A
	- power factor / time constant .....:	L1: - L2: - L3: -	N/A
	Current duration (s) .....:	-	
	Time interval between the cycles .....:	-	
8.3.5.2.5	Behaviour of the equipment during the test		N/A
	Test performed without:		
	- endanger to the operator		N/A
	-cause damage to adjacent equipment		N/A
	No permanent arcing		N/A
	No flash over between poles and poles and frame		N/A
	No melting of the fuse in the detection circuit		N/A
8.3.5.2.6	Condition of the equipment after making and breaking capacity tests		N/A
	Immediately after the test equipment must work satisfactorily		N/A
	- required opening force not greater than the test force of 8.2.5.2 and table 8		N/A
	- equipment is able to carry its rated current after normal closing operation		N/A

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Clause	Requirement + Test	Result - Remark		Verdict
8.3.5.3	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380		
	No flashover or breakdown			P
8.3.5.4	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.5.5	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		
	- manufacturer's model or type reference .....:	M2gG400/69		
	- rated voltage (V) .....:	690		
	- rated current (A) .....:	400		
	- power loss (W) .....:	45 max.		
	- rated breaking capacity (kA) .....:	100		
	Conductor cross-section (mm²) .....:	1 x 240		
	Test current Ie (A) .....:	400		
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	N/A
	Terminals	≤ 61	80	N/A
	Manual operating means: non-metallic	5	35	N/A
	Parts intended to be touched but not hand-held: non-metallic	30	50	N/A
	Parts which need not be touched during normal operation: non-metallic	37	60	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.5.1	Short-time withstand current test		P
	Type SL2-3x3/3A		
	Rated short-time withstand current Icw (A) (≥ 12 Ie max.) .....:	15000 / 1s	P
	- test voltage (V) .....:	L1: 695 L2: 695 L3: 694	
	- r.m.s. test current (A) .....:	L1: 15130 L2: 15180 L3: 15090	
	- peak test current (A) .....:	L1: 24150 L2: 29100 L3: 30590	
	- power factor / ~~time constant~~ .....:	L1: 0,27 L2: 0,27 L3: 0,27	
	- factor n .....:	2,02	
	Test duration (ms) .....:	1010	
8.3.5.1.5	Behaviour of the equipment during the test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.5.1.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P

ВЕРНО С ОРИГИНАЛА

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.5.2	Short-circuit making capacity		N/A
	Rated short-circuit making capacity Icm (A) .....:	-	N/A
	- test voltage (1,05 x Ue) .....(V):	L1: - L2: - L3: -	
	- r.m.s. test current (A) .....(A):	L1: - L2: - L3: -	
	- maximum peak test current (factor n) .....:	-	N/A
	- power factor / time constant .....:	L1: - L2: - L3: -	N/A
	Current duration (s) .....:	-	
	Time interval between the cycles .....:	-	
8.3.5.2.5	Behaviour of the equipment during the test		N/A
	Test performed without:		
	- endanger to the operator		N/A
	-cause damage to adjacent equipment		N/A
	No permanent arcing		N/A
	No flash over between poles and poles and frame		N/A
	No melting of the fuse in the detection circuit		N/A
8.3.5.2.6	Condition of the equipment after making and breaking capacity tests		N/A
	Immediately after the test equipment must work satisfactorily		N/A
	- required opening force not greater than the test force of 8.2.5.2 and table 8		N/A
	- equipment is able to carry its rated current after normal closing operation		N/A

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Clause	Requirement + Test	Result - Remark		Verdict
8.3.5.3	Dielectric verification			P
	test voltage 2 Ue with a minimum of 1000V~ (V) ....:	1380		
	No flashover or breakdown			P
8.3.5.4	Leakage current			P
	test voltage 1,1 Ue (V) .....:	760		
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-		N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1		P
8.3.5.5	Temperature-rise verification			P
	Fuse-link details (fuse-combination units only):			
	- manufacturer's name, trademark or identification mark .....:	Jean Müller		
	- manufacturer's model or type reference .....:	M2gG400/69		
	- rated voltage (V) .....:	690		
	- rated current (A) .....:	400		
	- power loss (W) .....:	45 max.		
	- rated breaking capacity (kA) .....:	100		
	Conductor cross-section (mm²) .....:	1 x 240		
	Test current Ie (A) .....:	400		
	Temperature-rise dT of part:	dT (K) measured	dT (K) required	N/A
	Terminals	≤ 60	80	N/A
	Manual operating means: non-metallic	5	35	N/A
	Parts intended to be touched but not hand-held: non-metallic	30	50	N/A
	Parts which need not be touched during normal operation: non-metallic	37	60	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.6	TEST SEQUENCE IV: CONDITIONAL SHORT-CIRCUIT CURRENT		P
	Conditional short-circuit current test		P
	Type SL2-3x/3A: 120kA at 500V/400A (L1 open, L2 closed, L3 operated)		
	Protective device details:		P
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gL400	
	- rated voltage (V) .....:	500	
	- rated current (A) .....:	400	
	- rated breaking capacity (kA) .....:	120	
8.3.6.2	Conditional short-circuit current test values		P
	- test voltage (1,05 Ue) (V) .....:	L1: 528 L2: 530 L3: 527	
	- test current (A) .....:	L1: 120940 L2: 121300 L3: 120630	
	- rated frequency (Hz) .....:	50	
	- power factor .....:	0,17	
	- time constant (ms) .....:	-	
	- factor n .....:	2,22	
	Fuse protected short-circuit withstand (equipment in closed position)		P
	- max. let-through current (A) .....:	L1: 27500 L2: 18400 L3: 31540	
	- Joule integral I^2dt (A^2s) .....:	L1: 1085400 L2: 411000 L3: 1489500	
	Fuse protected short-circuit making (equipment closing on to short-circuit)		P
	- mean velocity of 15 manually under no-load conditions operations (m/s) .....:	0,98	
	- point at which the measurement is made .....:	Handle of the actuator	
	- test speed during the fuse protected short-circuit making (m/s) .....:	1,1	
	- max. let-through current (A) .....:	L1: - L2: 36500 L3: 36500	
	- Joule integral I^2dt (A^2s) .....:	L1: - L2: 1556000 L3: 1556000	

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.6.2.5	Behaviour of the equipment during the test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.6.2.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.6.3	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.6.4	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.6.5	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240	
	Test current Ie (A) .....:	400	

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Clause	Requirement + Test	Result - Remark	Verdict

	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 61	80	P
	Manual operating means: non-metallic	5	35	P
	Parts intended to be touched but not hand-held: non-metallic	31	50	P
	Parts which need not be touched during normal operation: non-metallic	38	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Conditional short-circuit current test		P
	Type SL2-3x3/3A: 120kA at 500V/400A		
	Protective device details:		P
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gL400	
	- rated voltage (V) .....:	500	
	- rated current (A) .....:	400	
	- rated breaking capacity (kA) .....:	120	
8.3.6.2	Conditional short-circuit current test values		P
	- test voltage (1,05 Ue) (V) .....:	L1: 528 L2: 530 L3: 527	
	- test current (A) .....:	L1: 120940 L2: 121300 L3: 120630	
	- rated frequency (Hz) .....:	50	
	- power factor .....:	0,17	
	- time constant (ms) .....:	-	
	- factor n .....:	2,22	
	Fuse protected short-circuit withstand (equipment in closed position)		P
	- max. let-through current (A) .....:	L1: 44120 L2: 44990 L3: 4980	
	- Joule integral I^2dt (A^2s) .....:	L1: 1085400 L2: 1273500 L3: 80010	
	Fuse protected short-circuit making (equipment closing on to short-circuit)		P
	- mean velocity of 15 manually under no-load conditions operations (m/s) .....:	0,98	
	- point at which the measurement is made .....:	Handle of the actuator	
	- test speed during the fuse protected short-circuit making (m/s) .....:	1,1	
	- max. let-through current (A) .....:	L1: 30120 L2: 35470 L3: 29860	
	- Joule integral I^2dt (A^2s) .....:	L1: 1178000 L2: 1269990 L3: 1154200	

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.6.2.5	Behaviour of the equipment during the test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.6.2.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.6.3	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.6.4	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.6.5	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240	
	Test current Ie (A) .....:	400	

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Clause	Requirement + Test	Result - Remark	Verdict

	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 62	80	P
	Manual operating means: non-metallic	5	35	P
	Parts intended to be touched but not hand-held: non-metallic	31	50	P
	Parts which need not be touched during normal operation: non-metallic	38	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.6	Conditional short-circuit current test		P
	Type SL2-3x/3A: 80kA at 690V/400A (L1 open, L2 closed, L3 operated)		
	Protective device details:		P
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- rated breaking capacity (kA) .....:	100	
8.3.6.2	Conditional short-circuit current test values		P
	- test voltage (1,05 Ue) (V) .....:	L1: 726 L2: 727 L3: 726	
	- test current (A) .....:	L1: 80790 L2: 81130 L3: 80350	
	- rated frequency (Hz) .....:	50	
	- power factor .....:	0,17	
	- time constant (ms) .....:	-	
	- factor n .....:	2,21	
	Fuse protected short-circuit withstand (equipment in closed position)		P
	- max. let-through current (A) .....:	L1: 31520 L2: 5650 L3: 36110	
	- Joule integral I^2dt (A^2s) .....:	L1: 882000 L2: 125000 L3: 1110200	
	Fuse protected short-circuit making (equipment closing on to short-circuit)		P
	- mean velocity of 15 manually under no-load conditions operations (m/s) .....:	0,98	
	- point at which the measurement is made .....:	Handle of the actuator	
	- test speed during the fuse protected short-circuit making (m/s) .....:	1,1	
	- max. let-through current (A) .....:	L1: - L2: 35700 L3: 35700	
	- Joule integral I^2dt (A^2s) .....:	L1: - L2: 1288000 L3: 1288000	

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.6.2.5	Behaviour of the equipment during the test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.6.2.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.6.3	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.6.4	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.6.5	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240	
	Test current Ie (A) .....:	400	

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Clause	Requirement + Test	Result - Remark	Verdict

	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 62	80	P
	Manual operating means: non-metallic	5	35	P
	Parts intended to be touched but not hand-held: non-metallic	32	50	P
	Parts which need not be touched during normal operation: non-metallic	38	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.6	Conditional short-circuit current test		P
	Type SL2-3x3/3A: 80kA at 690V/400A		
	Protective device details:		P
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- rated breaking capacity (kA) .....:	100	
8.3.6.2	Conditional short-circuit current test values		P
	- test voltage (1,05 Ue) (V) .....:	L1: 726 L2: 727 L3: 726	
	- test current (A) .....:	L1: 80790 L2: 81130 L3: 80350	
	- rated frequency (Hz) .....:	50	
	- power factor .....:	0,17	
	- time constant (ms) .....:	-	
	- factor n .....:	2,21	
	Fuse protected short-circuit withstand (equipment in closed position)		P
	- max. let-through current (A) .....:	L1: 25950 L2: 35200 L3: 15400	
	- Joule integral I^2dt (A^2s) .....:	L1: 982560 L2: 1195200 L3: 365000	
	Fuse protected short-circuit making (equipment closing on to short-circuit)		P
	- mean velocity of 15 manually under no-load conditions operations (m/s) .....:	0,98	
	- point at which the measurement is made .....:	Handle of the actuator	
	- test speed during the fuse protected short-circuit making (m/s) .....:	1,1	
	- max. let-through current (A) .....:	L1: 35120 L2: 34590 L3: 7100	
	- Joule integral I^2dt (A^2s) .....:	L1: 1168000 L2: 1008500 L3: 100020	

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.6.2.5	Behaviour of the equipment during the test		P
	Test performed without:		
	- endanger to the operator		P
	- cause damage to adjacent equipment		P
	No permanent arcing		P
	No flash over between poles and poles and frame		P
	No melting of the fuse in the detection circuit		P
8.3.6.2.6	Condition of the equipment after making and breaking capacity tests		P
	Immediately after the test equipment must work satisfactorily		P
	- required opening force not greater than the test force of 8.2.5.2 and table 8		P
	- equipment is able to carry its rated current after normal closing operation		P
8.3.6.3	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.6.4	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P
8.3.6.5	Temperature-rise verification		P
	Fuse-link details (fuse-combination units only):		
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Conductor cross-section (mm²) .....:	1 x 240	
	Test current Ie (A) .....:	400	

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Clause	Requirement + Test	Result - Remark	Verdict

	Temperature-rise dT of part:	dT (K) measured	dT (K) required	P
	Terminals	≤ 62	75	P
	Manual operating means: non-metallic	6	35	P
	Parts intended to be touched but not hand-held: non-metallic	32	50	P
	Parts which need not be touched during normal operation: non-metallic	39	60	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.3.7	TEST SEQUENCE V: OVERLOAD PERFORMANCE CAPABILITY		P
8.3.7.1	Overload test		P
	Type SL2-3x/3A		
	ambient temperature 10-40 °C .....:	22	
	test enclosure W x H x D (mm x mm x mm) .....:	-	
	material of enclosure .....:	-	
	test current 1,6 x Ithe or 1,6 x Ith (A) .....:	640	
	cable/busbar cross-section (mm²)/(mm x mm).....:	1 x 240 / 30 x 10	
	cable/busbar length (mm)/(mm).....:	2000 / 600	
	Fuse-link details:		P
	- manufacturer's name, trademark or identification mark .....:	Jean Müller	
	- manufacturer's model or type reference .....:	M2gG400/69	
	- rated voltage (V) .....:	690	
	- rated current (A) .....:	400	
	- power loss (W) .....:	45 max.	
	- rated breaking capacity (kA) .....:	100	
	Time duration of the overload test (s) .....:	770	
	Within 3 to 5 min after the fuse(s) has(have) operated (or 1 h), the equipment has been operated once, i.e. opened and closed	Opened and closed	P
	Required opening force not greater than the test force of 8.2.5.2 and table 8		P
	The equipment has not undergone any impairment hindering such operation		P
8.3.7.2	Dielectric verification		P
	test voltage 2 Ue with a minimum of 1000V~ (V) ...:	1380	
	No flashover or breakdown		P
8.3.7.3	Leakage current		P
	test voltage 1,1 Ue (V) .....:	760	
	Leakage current (utilization categories AC-20A, AC-20B, DC-20A and DC-20B) ≤ 0,5 mA/pole .....:	-	N/A
	Leakage current (other utilization categories) ≤ 2 mA/pole (mA) .....:	< 1	P