

# PROTECTION OF PV INVERTERS



**New generation of NH gG and gS fuse-links for cable protection in 800V a.c. system in standard NH sizes**



# New directions in PV inverters development

New directions in PV inverters development...

PV inverters are getting larger and smarter, their characteristics better and better, they have become smart, safe, reliable and efficient.

Higher yields are reached by utilizing dynamic system efficiency optimization with intelligent technology. Achieved efficiency currently ranges above 98,5%. One of most important technical features of the new generation of PV inverters is 800V a.c. output voltage instead of 400V a.c. With this output voltage increase, we achieve a 75% decrease in a.c. connection wires losses. Yet, because of the increased output voltage modern PV central inverters demand a specially designed fuse-link for reliable short-circuit and over-current protection.

... and new fuse-links to answer the increased demands of their output protection

As one of the first among the producers of NH fuse-links, ETI has developed a new generation of NH gG fuse-links, specially designed for cable protection on 800V a.c. system voltage. With an innovative design of melting elements, adoption of high temperature and internal pressure resistant ceramic material, the final NH fuse-link construction can now be incorporated in a standard NH size dimensions.

At the moment ETI is offering sizes NH00, NH1 and NH3 gG fuse-links, from rated current 25A up to 250A, designed and tested on 800V a.c. with very low power dissipation and high breaking capacity. On a customer request, we are also ready to develop even higher rated currents.

## Features and benefits

- ✓ Load switching capacity up to 800V a.c.
- ✓ Meets IEC photovoltaic standards
- ✓ In standard NH size dimensions
- ✓ Extremely low power dissipation
- ✓ High breaking capacity
- ✓ Designed to protect against a full range of overcurrents
- ✓ High temperature and internal pressure resistant ceramic material
- ✓ Innovative design of melting elements

## Specifications

General characteristics	
Rated voltage	800V a.c.
Rated current	6A - 315A
Breaking capacity	120kA a.c. (NH1, NH3), 30kA a.c. (NH00)
Standards	IEC 60269-2
Characteristic	gG



## Applications

- ✓ For cable protection on a.c. side of 1500V PV inverter

# Fuse-link gG NV/NH 800V a.c.

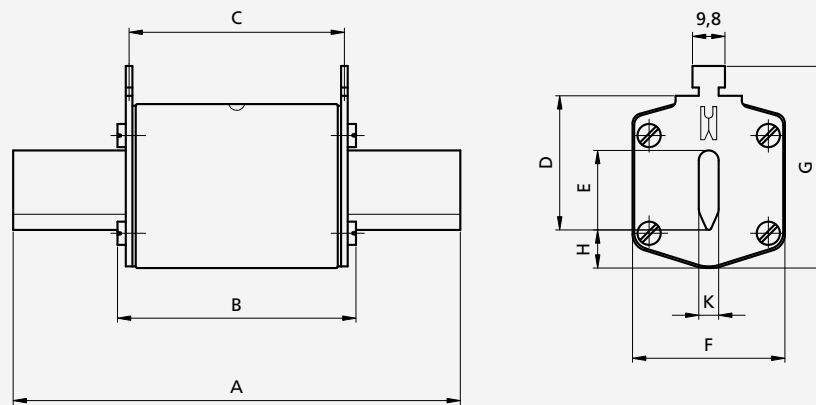
NV/NH gG 800V a.c.								
Size	Breaking capacity [kA]	$I_n$ [A]	Standard indicator	Pre-arcing Joule integral [A <sup>2</sup> s]	Operating Joule integral [A <sup>2</sup> s]	Power dissipation [W]	Weight [g]	Packaging [pcs]
00	30	6	004184464	120	240	1,50	173	3/90
		10	004184499	180	600	1,30		
		16	004184465	340	960	2,50		
		20	004184466	650	2000	2,90		
		25	004184491	1.300	3000	3,20		
		35	004184492	2.000	6000	3,80		
		40	004184493	2.500	7000	4,00		
		50	004184494	4.000	11000	5,40		
1	120	63	004184495	9.000	19000	7,00	430	3/24
		25	004184482*	600	14.000	3,2		
		35	004184483*	2.400	35.000	3,4		
		40	004184484*	3.200	50.000	4,0		
		50	004184485*	3.500	70.000	4,4		
		63	004184486*	5.500	120.000	5,5		
		80	004184487*	11.000	145.000	6,9		
		100	004184488*	18.000	185.000	8,6		
3		125	004184489*	27.000	260.000	9,7	1200	3/15
		200	004184496	50.000	650.000	16		
		250	004184497	85.000	1.100.000	20		
		315	004184498	140.000	1.340.000	29		

\*Kombi indicator



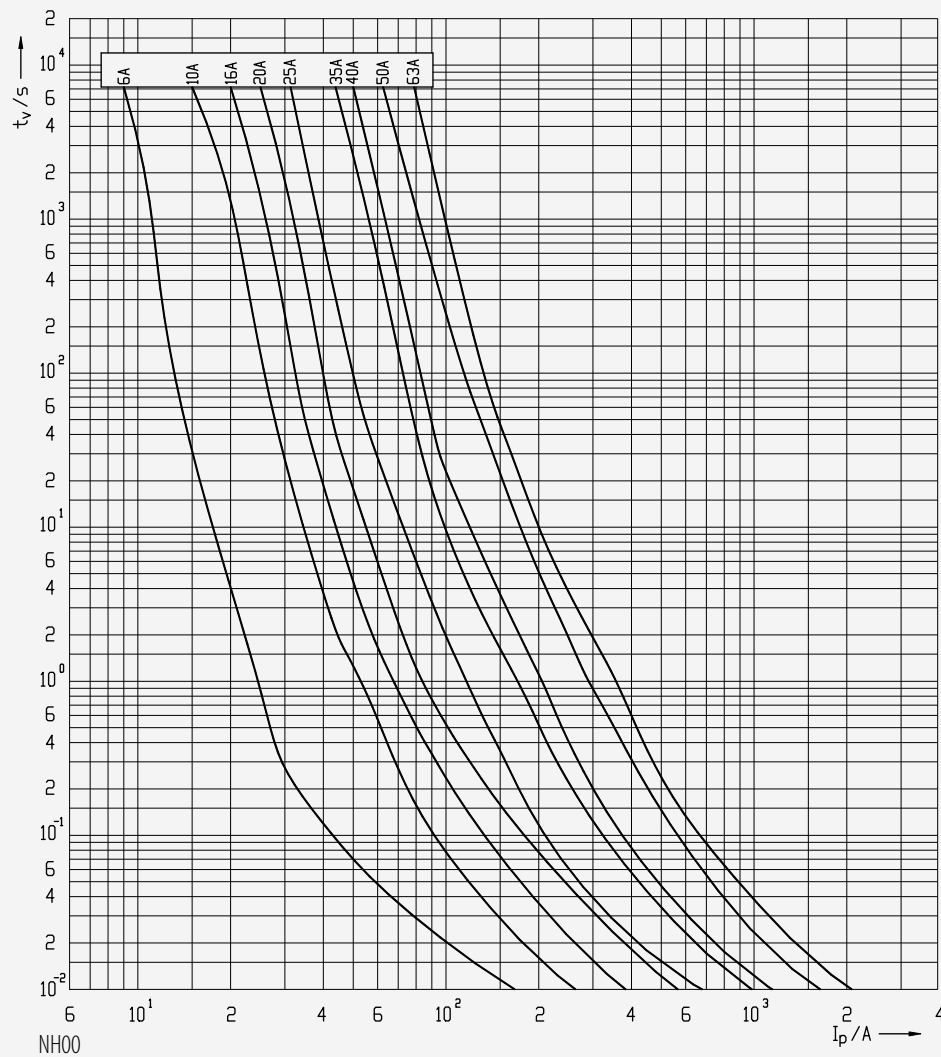
## Recommended Accessories

- ✦ Ceramic fuse bases
- ✦ Plastic fuse bases
- ✦ Fuse disconnectors

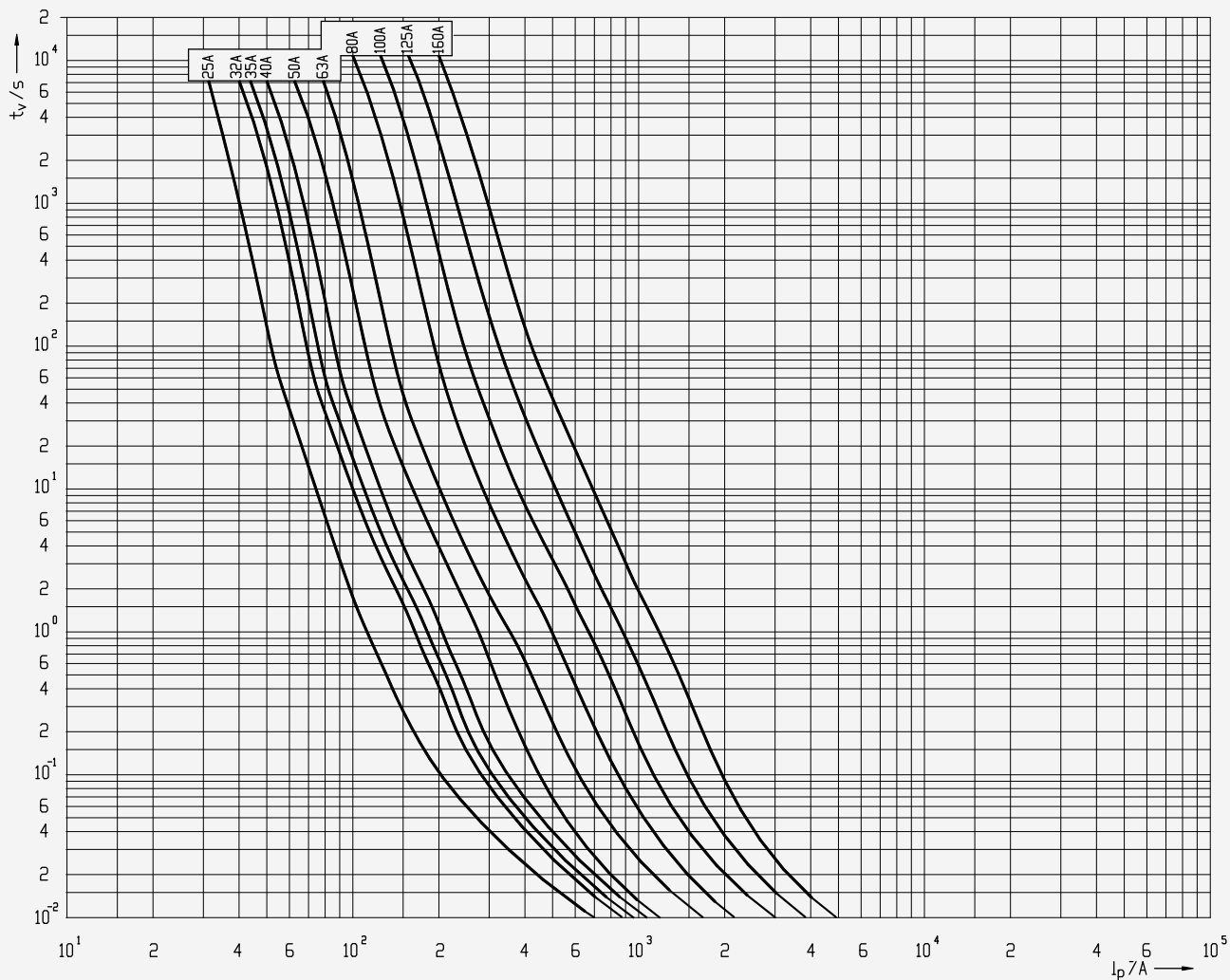


Size	Dimensions [mm]								
	A	B	C	D	E	F	G	H	K
00	79	53	47	35	15	28	56	12	6
1	135	72	65	40	20	46	65	14	6

### t-I characteristics

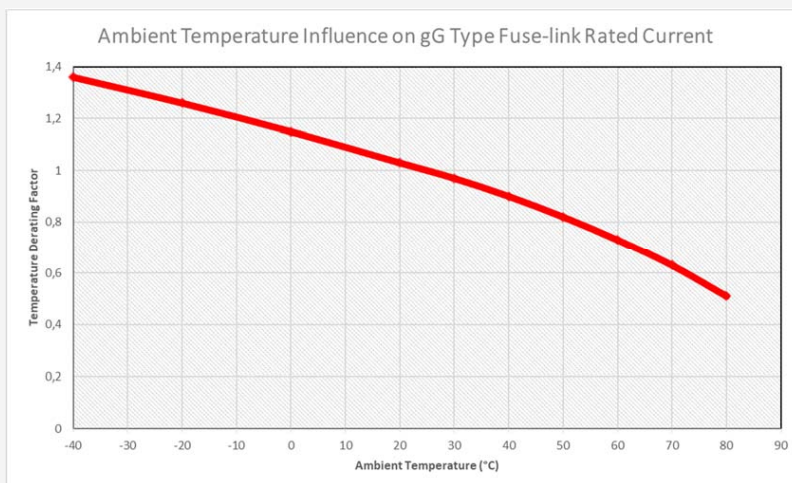






NH1

### Ambient Temperature Influence on gG Type Fuse-link Rated Current



T <sub>amb</sub> (°C)	TDF
-40	1,36
-20	1,26
0	1,15
20	1,03
30	0,97
40	0,90
50	0,82
60	0,73
70	0,63
80	0,51

Legend:

T<sub>amb</sub> – Ambient Temperature

TDF – Temperature Derating Factor

I<sub>N</sub> – Nominal Current of Fuse-link

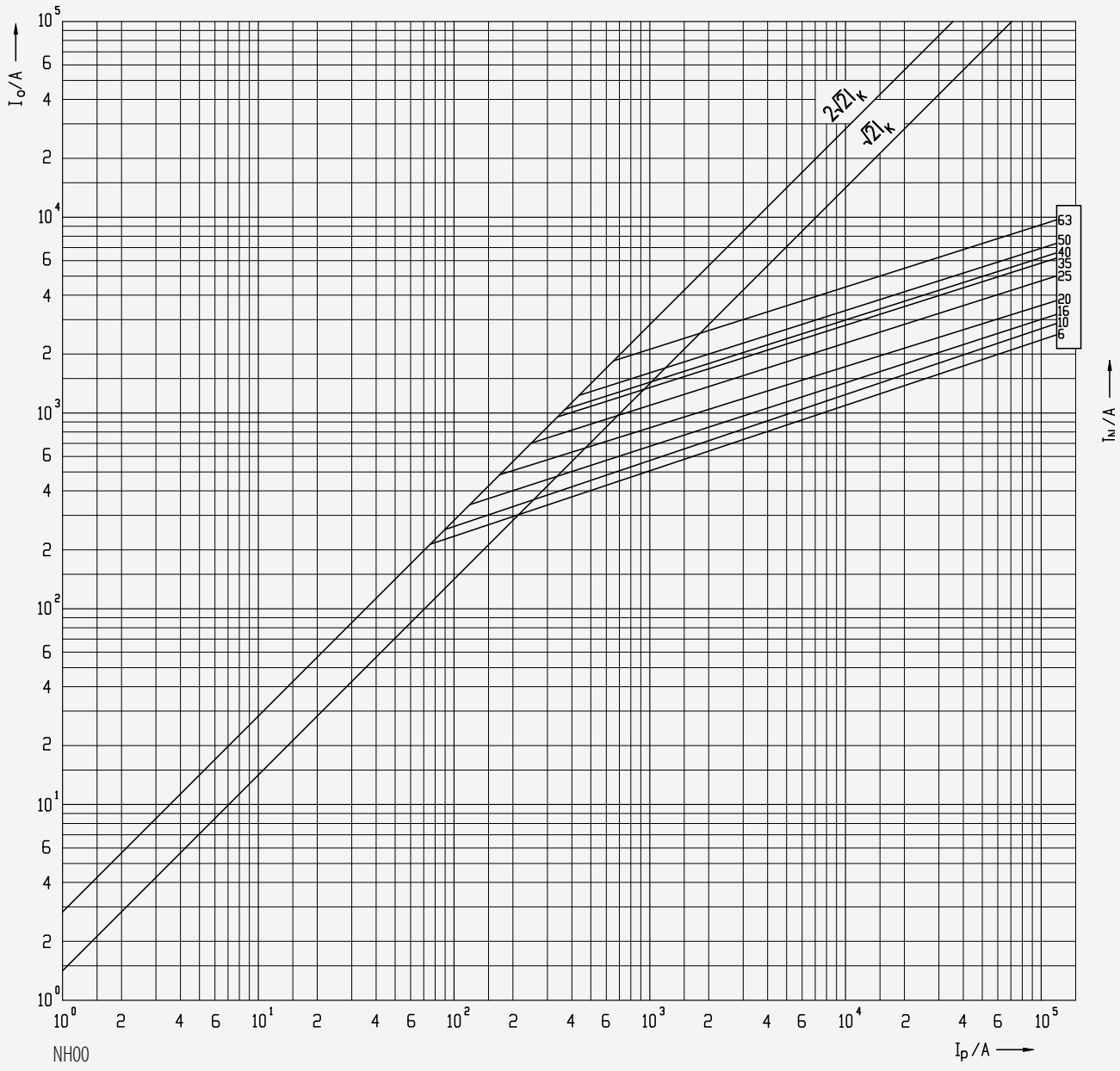
I<sub>TDF</sub> – Nominal Current Including Temperature Derating Factor

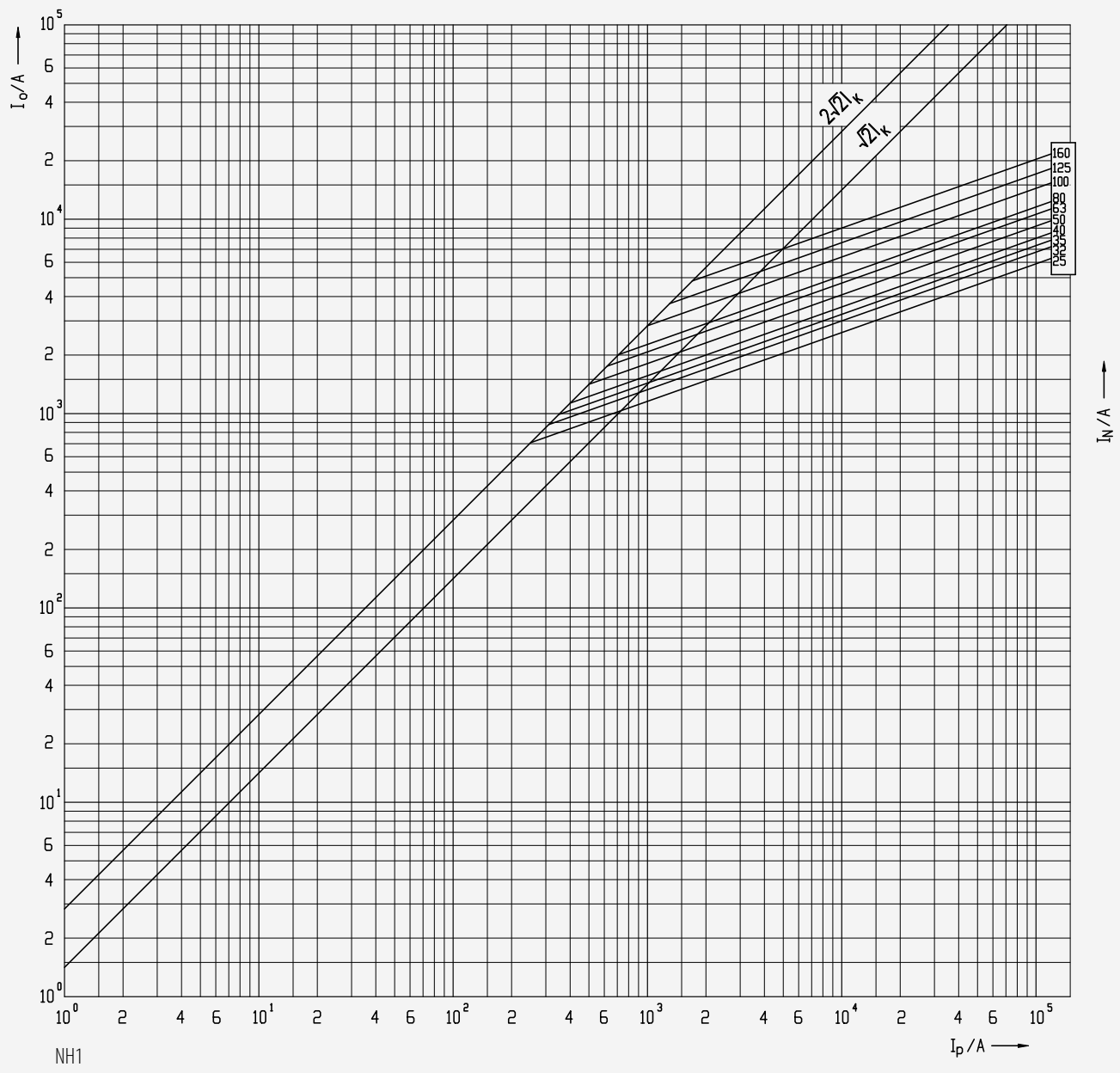
Current calculation:  $I_{TDF} = I_N * TDF$





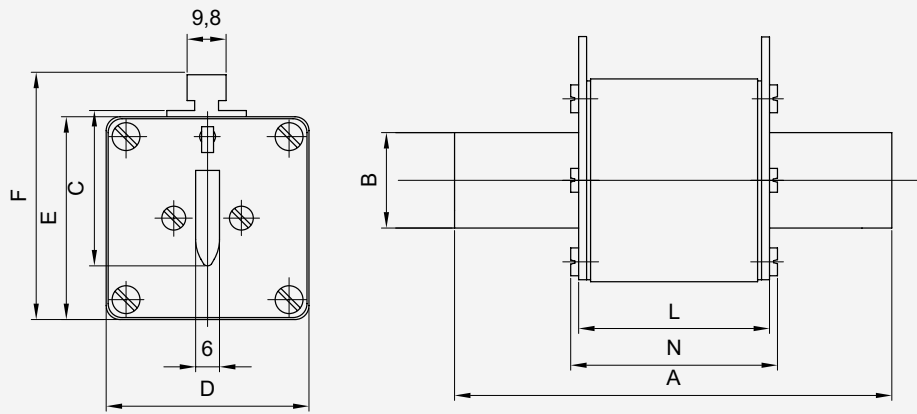
### Cut-off current characteristics





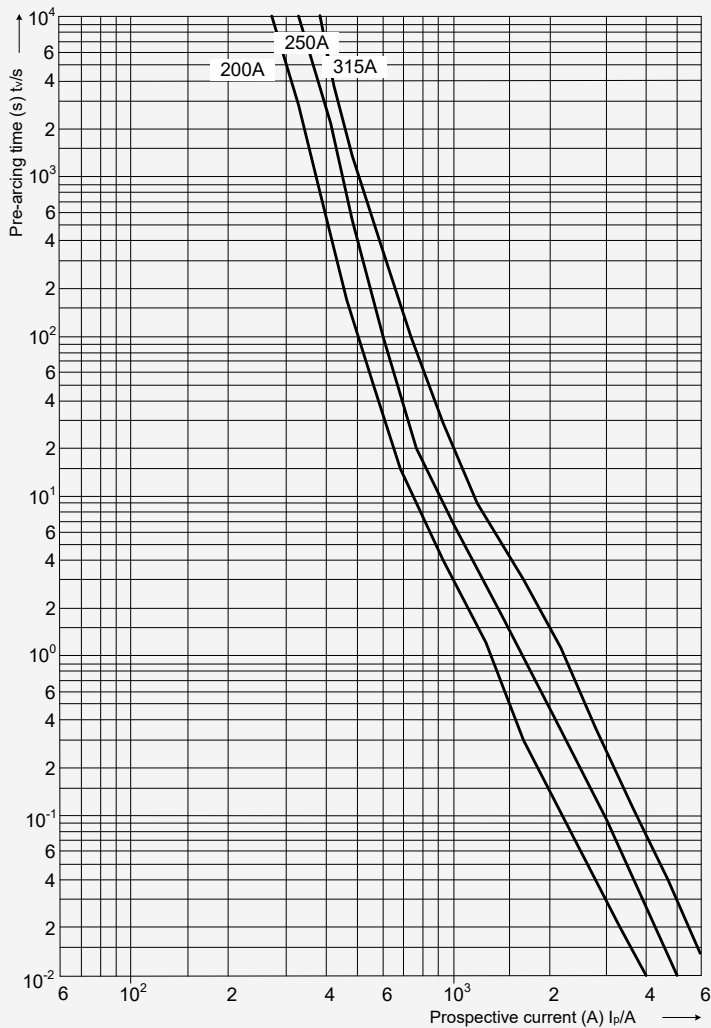
$I_N/A \rightarrow$





Size	Dimensions [mm]								
	A	B	C	D	E	F	L	N	K
3	150	37	60	73	73	87	70	74	6

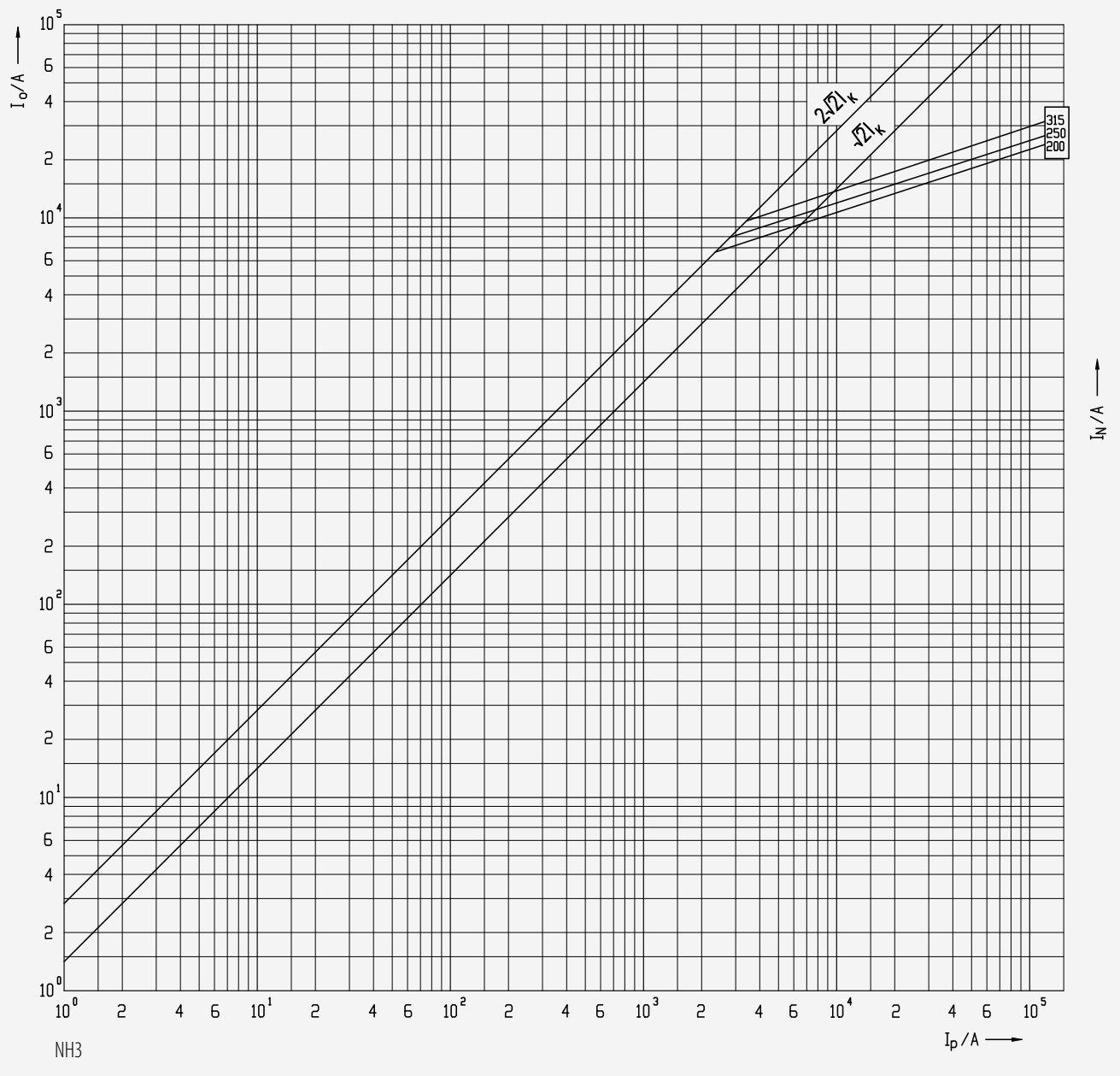
### t-I characteristics



NH3



# Cut-off current characteristics

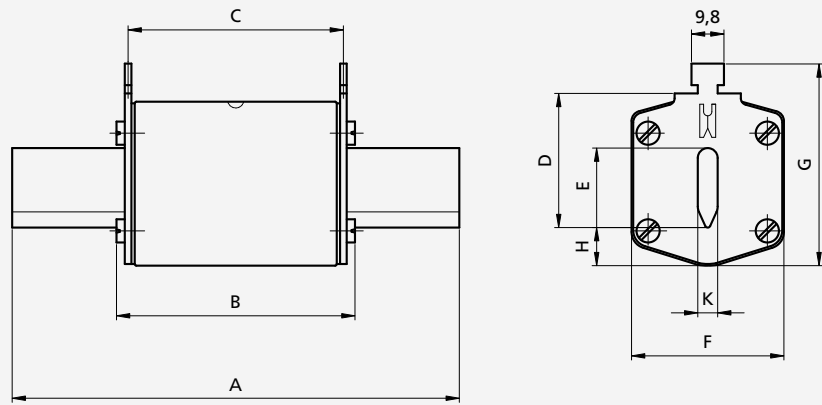




# Fuse-link gS NV/NH 800V a.c.

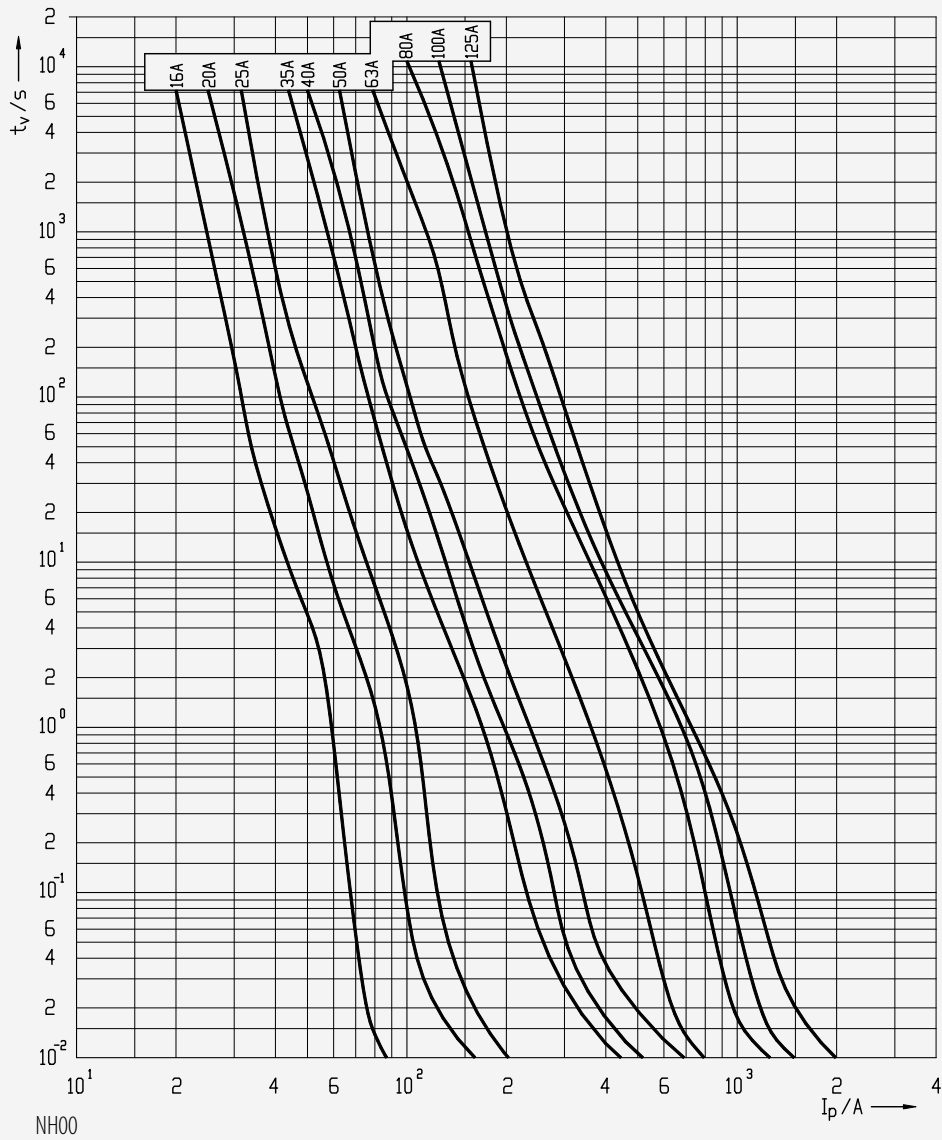
NV/NH gS 800V a.c.								
Size	Breaking capacity [kA]	$I_n$ [A]	Standard indicator	Pre-arcing Joule integral [A <sup>2</sup> s]	Operating Joule integral [A <sup>2</sup> s]	Power dissipation [W]	Weight [g]	Packaging [pcs]
00	30	16	004184504	15	1000	3,1	173	3/90
		20	004184505	32	1200	3,2		
		25	004184506	54	1600	4,3		
		35	004184507	250	5500	4,3		
		40	004184508	390	6300	4,5		
		50	004184509	460	9500	5,7		
		63	004184502	510	18.400	6,2		
		80	004184501	1360	32.000	6,7		
		100	004184500	3000	60.000	9,0		
1	120	160	004723234	3500	110.000	17,0	500	3/24
		200	004723235	9000	145.000	19,0		
		250	004723236	18.000	275.000	22,0		
		315	004723237	35.000	490.000	28,0		
2	120	350	004724234	70.000	825.000	25,0	660	1/16
		400	004724235	95.000	1.020.000	30,0		
3	120	350	004725232	85.000	980.000	25,0	1200	3/15
		400	004725233	105.000	1.200.000	30,0		
		450	004725234	170.000	1.750.000	31,7		
		500	004725235	220.000	2.100.000	33,5		





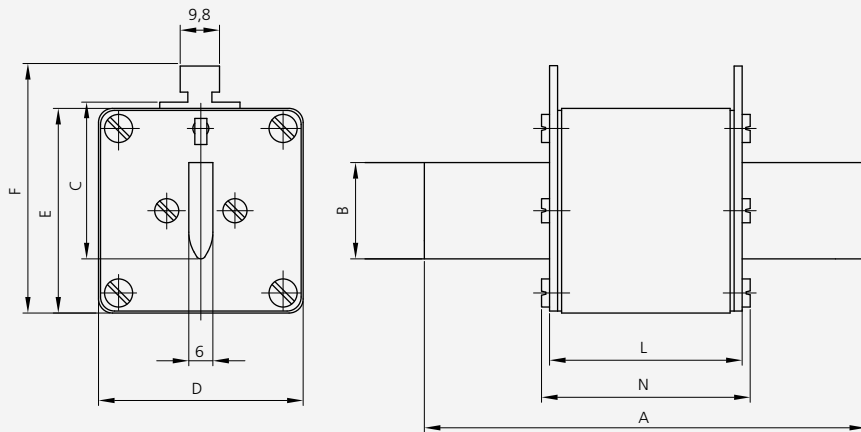
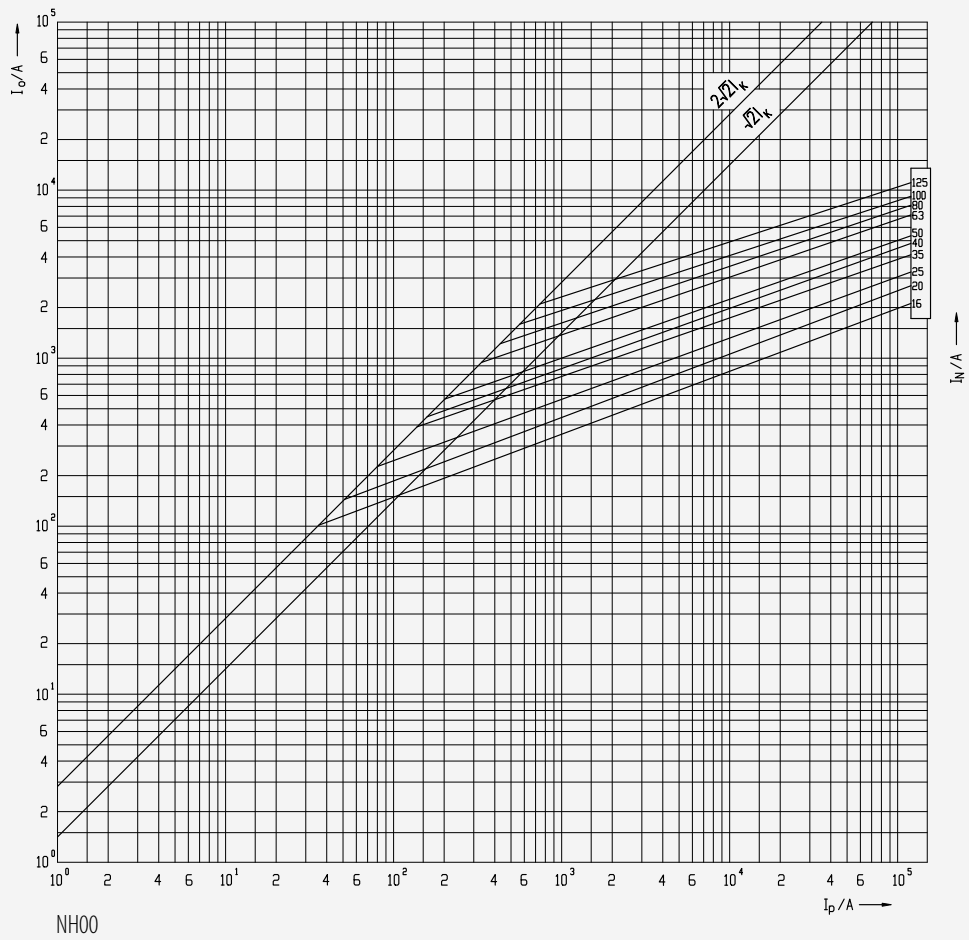
Size	Dimensions [mm]								
	A	B	C	D	E	F	G	H	K
00	79	53	47	35	15	28	56	12	6

### t-I characteristics





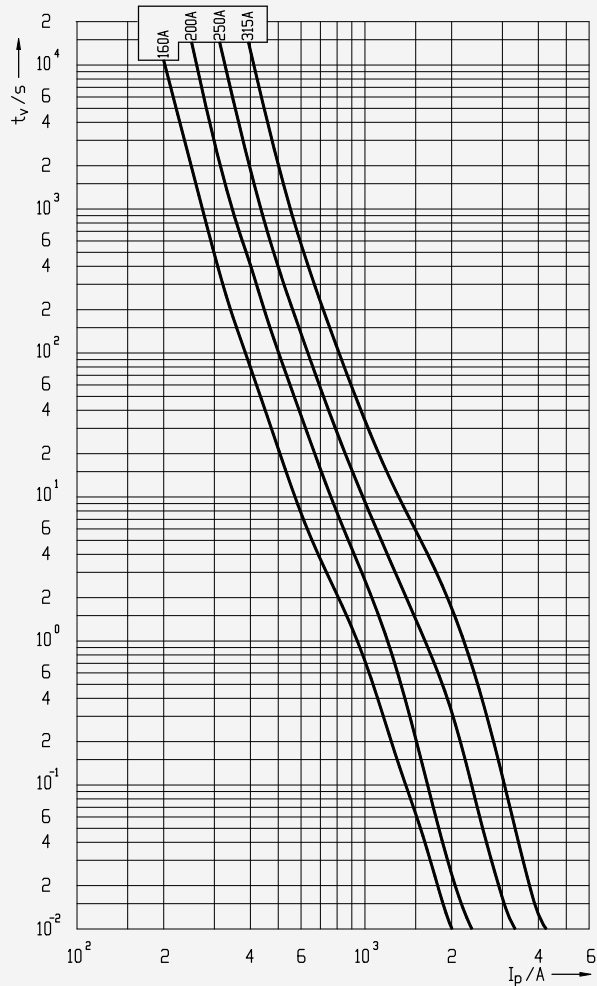
## Cut-off current characteristics



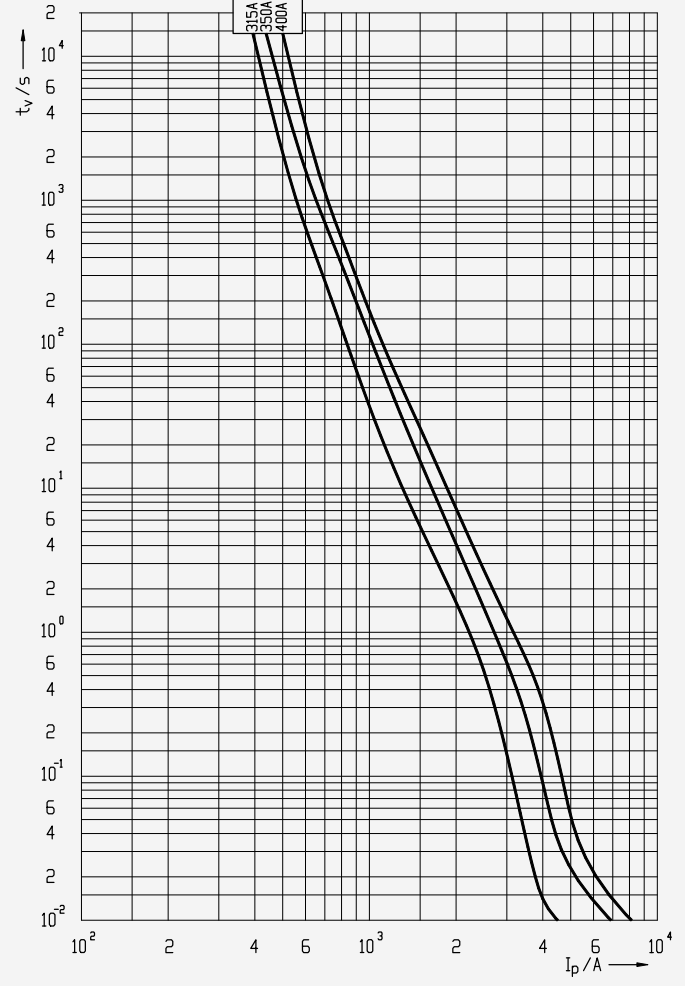
Size	Dimensions [mm]							
	A	B	C	D	E	F	L	N
1	135	24	40	46	52	62	65	72
2	150	30	48	54	61	71	65	72
3	150	37	60	64	74	84	65	72



### t-I characteristics

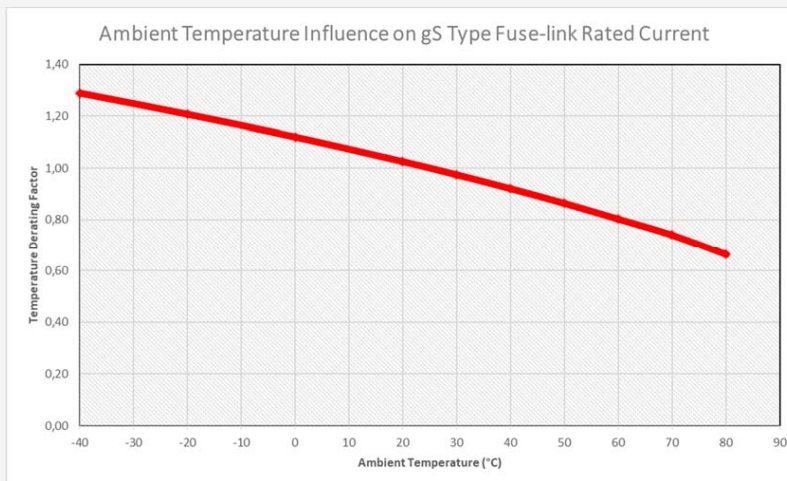


NH1



NH2

### Ambient Temperature Influence on gS Type Fuse-link Rated Current



T <sub>amb</sub> (°C)	TDF
-40	1,29
-20	1,21
0	1,12
20	1,03
30	0,97
40	0,92
50	0,86
60	0,80
70	0,74
80	0,66

Legend:

T<sub>amb</sub> – Ambient Temperature

TDF – Temperature Derating Factor

I<sub>N</sub> – Nominal Current of Fuse-link

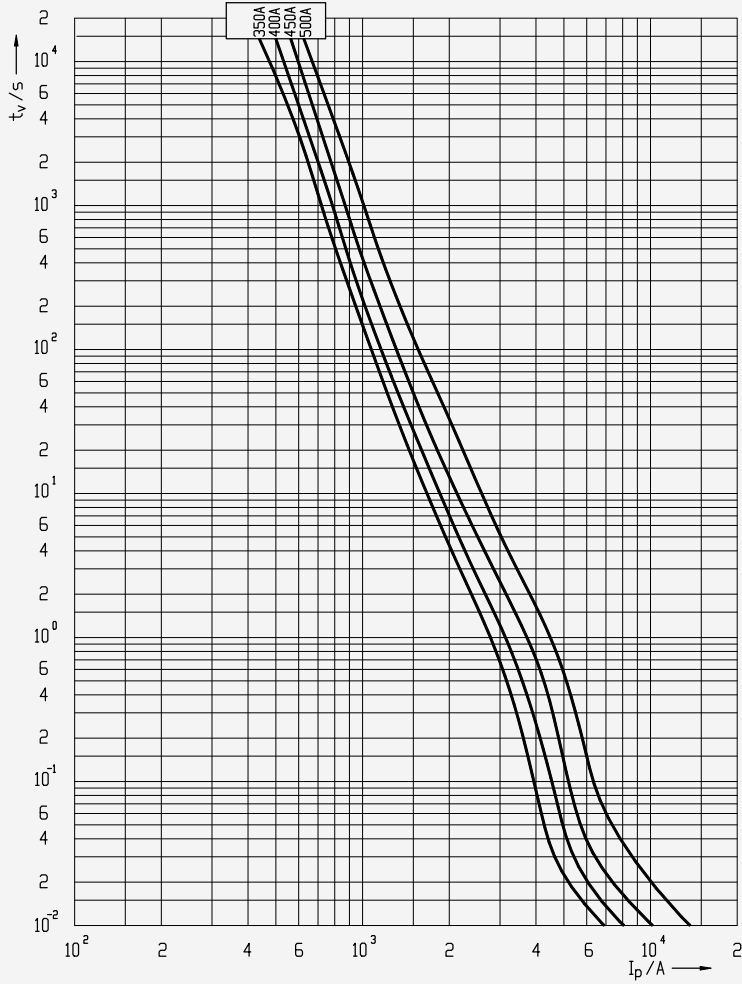
I<sub>TDF</sub> – Nominal Current Including Temperature Derating Factor

Current calculation:  $I_{TDF} = I_N * TDF$



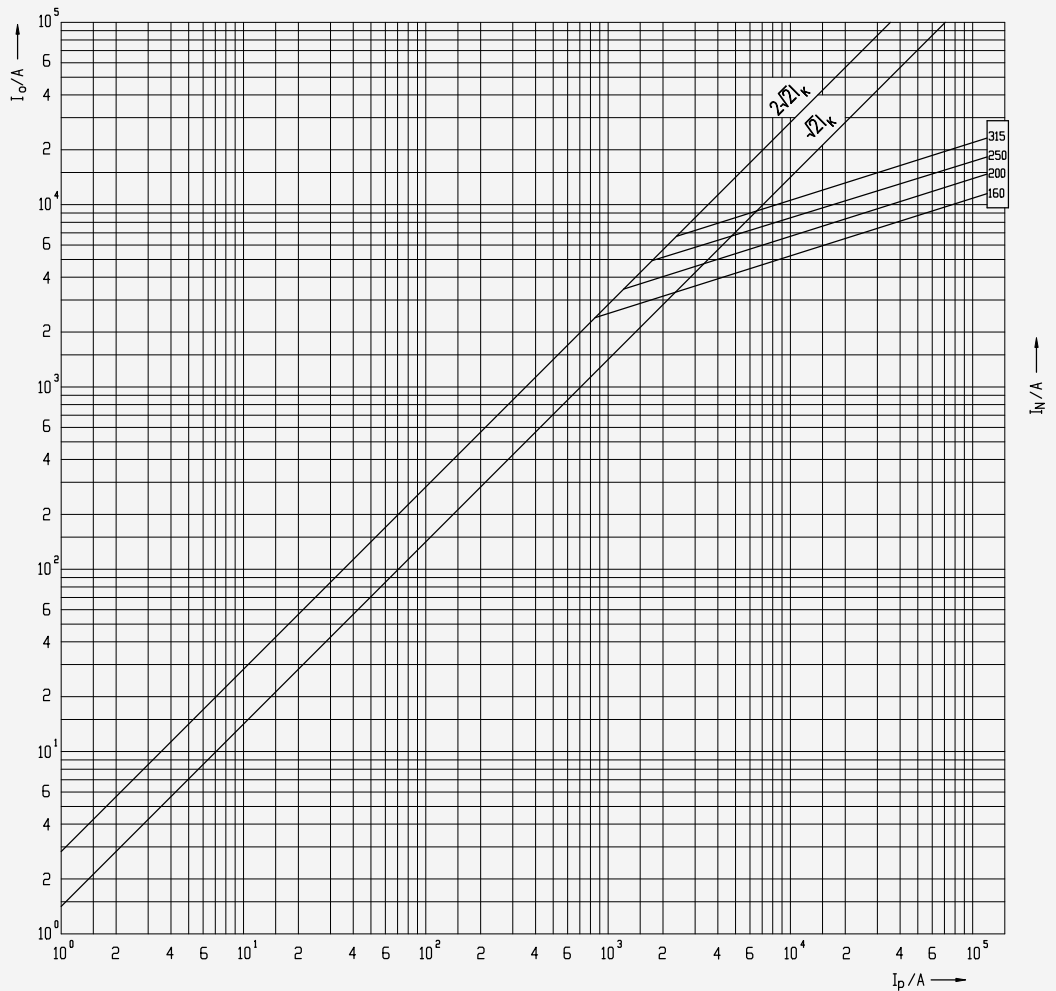


NH3



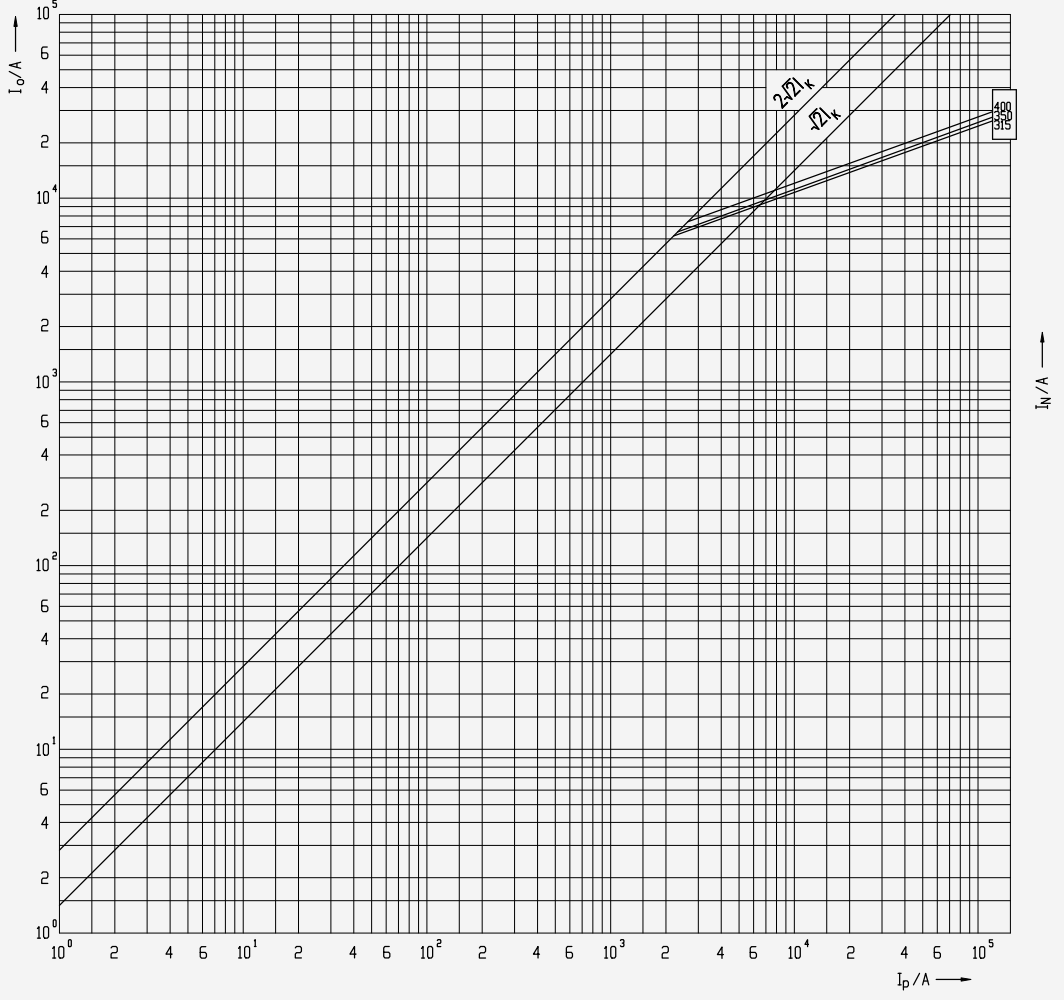
**Cut-off current characteristics**

NH1

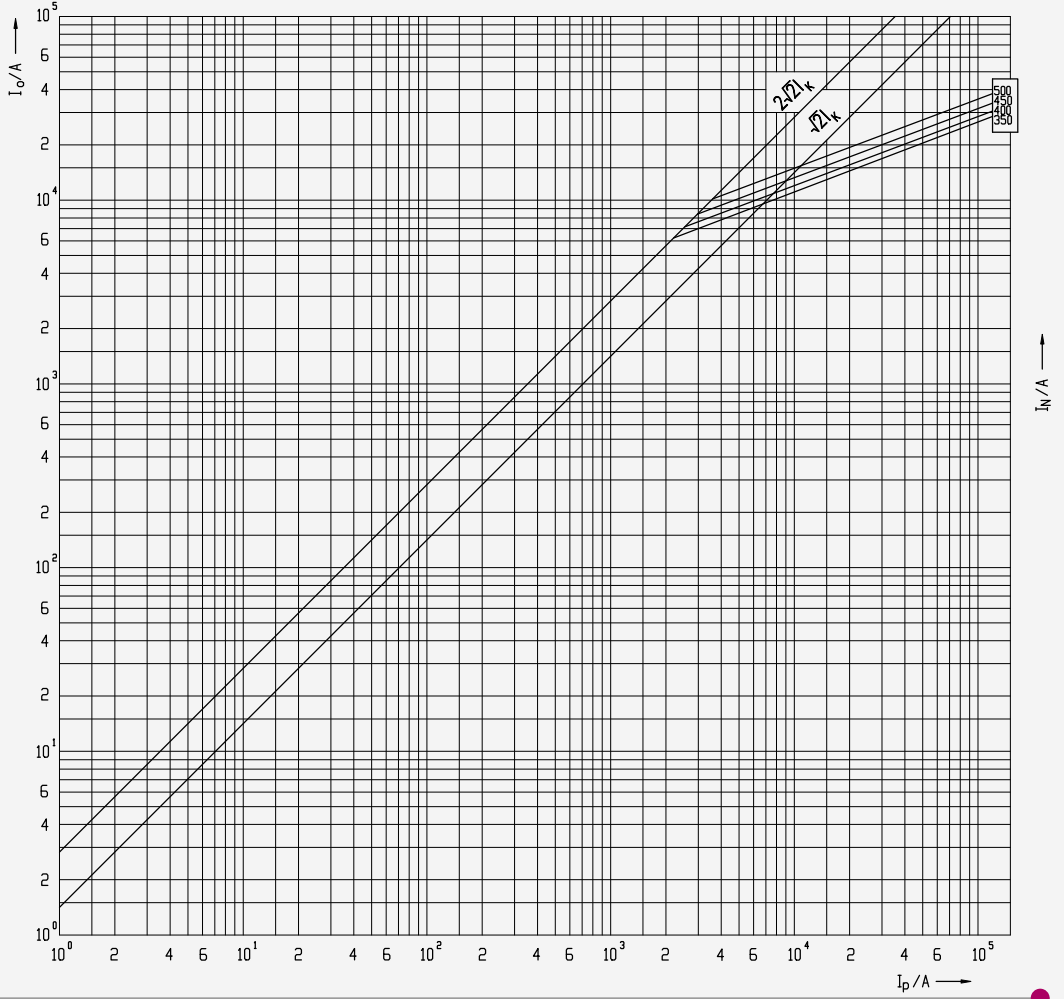




NH2



NH3





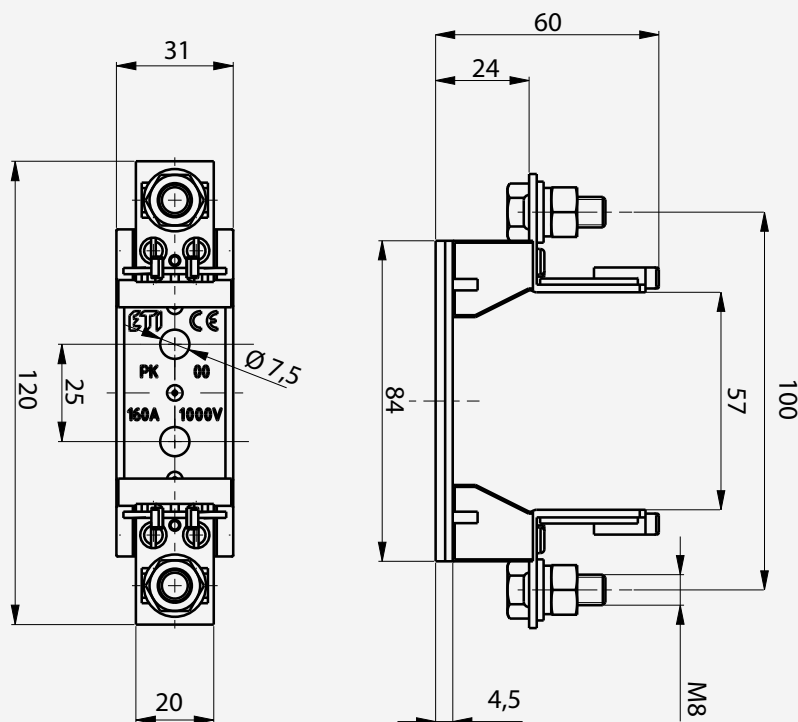
# Fuse base PK00, PK1 and PK3 DC

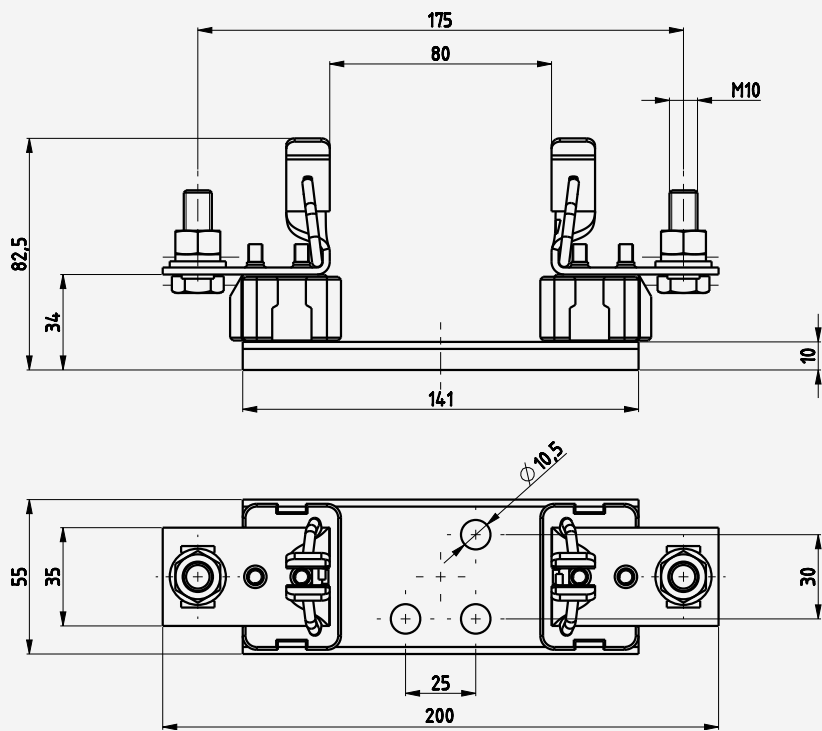
## General characteristics

Rated voltage	1000V a.c./d.c.
Rated current	160A, 250A, 630A
Degree of protection	IP00
Standards	EN 60269, IEC 60269, DIN VDE 0636, DIN 43620, DIN 43623

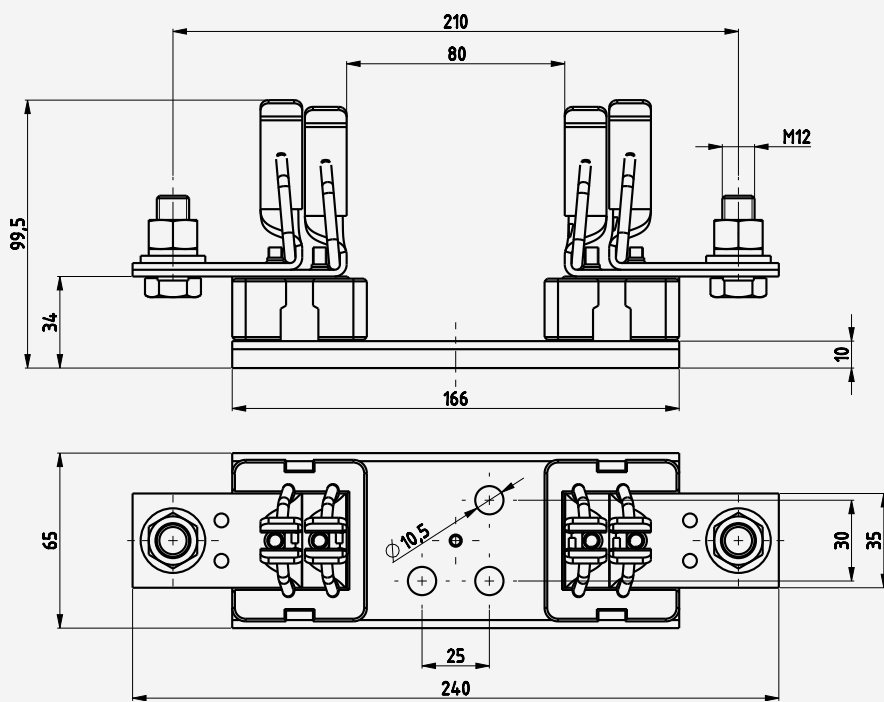
## Fuse base PK

Type	$I_n$ [A]	Screw terminal	Tightening torque [Nm]	Code No.	Weight [g]	Packaging [pcs]
PK 00 M8-M8 DC 1000V 1p	160	M8-M8	10	004122044	173	3/75
PK 1 M10-M10 DC 1000V 1p	250	M10-M10	32	004122025	605	3/18
PK 3 M12-M12 DC 1000V 1p	630	M12-M12	32	004122023	1110	3/12





PK1 DC



PK3 DC





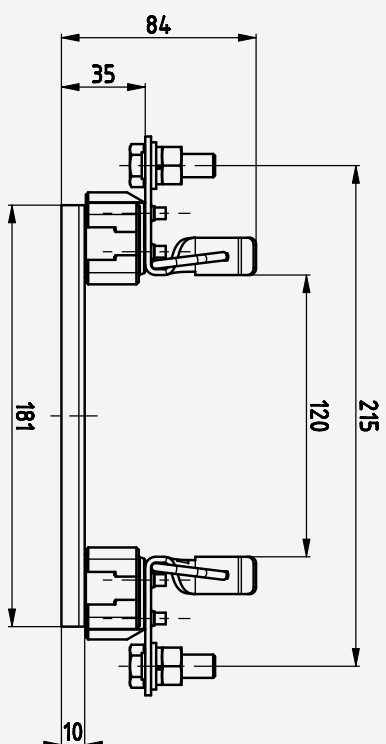
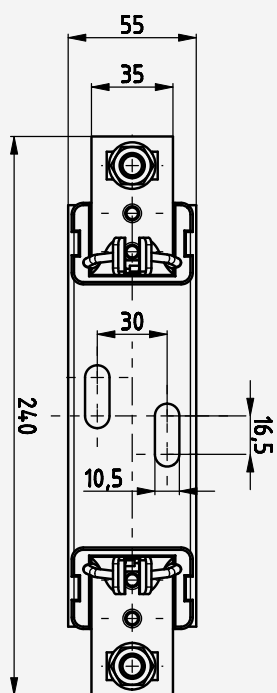
# Fuse base PK1L

## General characteristics

Rated voltage	1500V a.c./d.c.
Rated current	250A
Insulation class	C-VDE 0110
Rated torque - contact	32Nm
Rated torque (mounting plate)	12Nm
Degree of protection	IP00
Standards	EN 60269, IEC 60269, DIN VDE 0636, DIN 43620, DIN 43623

## Fuse base PK

Type	$I_n$ [A]	Cable lugs according to DIN 46235 [mm <sup>2</sup> ]	Code No.	Weight [g]	Packaging [pcs]
PK1L M10-M10 1500V 1p	250	25-150	004132035	670	3





# Horizontal fuse-switch disconnecter type KVL

General characteristics											
Size	00			1			3				
Technical Characteristics											
Rated operational voltage	$U_e$	V	690 a.c.	800 a.c.	1000 a.c.	690 a.c.	800 a.c.	1000 a.c.	690 a.c.	800 a.c.	1000 a.c.
Rated operational current*	$I_e$	A	160	63	160	250	160	250	630	250	630
Conv. free air thermal current with fuse-links*	$I_{th}$	A	160			250			630		
Conv. free air thermal current with solid-links*	$I_{th}$	A	210			325			910		
Rated frequency	$f$	Hz	40-60			40-60			40-60		
Rated insulation voltage	$U_i$	V	1000 a.c.			1000 a.c.			1000 a.c.		
Total power loss (without fuse)	$P_v$	W	1P - 3W, 3P - 9W			1P - 5W, 3P - 15W			1P - 17W, 3P - 51W		
Power loss at 80% I <sub>th</sub> (without fuse-links), **	$P_v$	W	1P - 1,9W, 3P - 5,8W			1P - 3,2W, 3P - 9,6W			1P - 10,9W, 3P - 32,6W		
Rated impulse withstand voltage	$U_{imp}$	kV	8			8			8		
Utilization category***			AC-21B	AC-21B	AC-20B	AC-21B	AC-21B	AC-20B	AC-21B	AC-21B	AC-20B
Rated conditional short-circuit current****		kA	120 (500V), 100 (690V), 10 (800V)			120 (500V), 100 (690V), 10 (800V)			120 (500V), 100 (690V), 10 (800V)		
Rated short-time withstand current	$I_{cw}$	kA	5/1s			8,6/1s			15/1s		
Fuse links											
Size - DIN VDE 0636-2	-	-	000/00			1			3		
Max. permissible power loss per fuse link	$P_a$	W	12			23			48		
Cable terminal											
Flat terminal-Screw			M8			M10			M10 / M12		
Tightening torque	$M_a$	Nm	12-15			30-35			30-35		
Clip terminal, Clamping cross-section		mm <sup>2</sup>	Round conductor: 1,5-70 Cu , Strip conductor: 6 x 9 x 0,8 Cu			Round conductor: 2,5-150 Cu , Strip conductor: 6 x 16 x 0,8 Cu			Strip conductor: 11 x 21 x 1 Cu		
Tightening torque	$M_a$	Nm	2,6			9,5			23		
Prism Clamp, Clamping cross-section		mm <sup>2</sup>	(SP KVL00 P1); 10-70 Al/Cu , 35-95 Al/Cu			(SP KVL1 P1); 10-150 Al/Cu			(SP KVL3 P1); 120-300 Al/Cu		
Tightening torque	$M_a$	Nm	(SP KVL00 P1); 2,6			(SP KVL1 P1); 4,5			(SP KVL3 P1); 11		
Prism Clamp, Clamping cross-section		mm <sup>2</sup>				(SP KVL1 P2); 2 x (10-150) Al/Cu			(SP KVL3 P2); 2 x (120-240) Al/Cu		
Tightening torque	$M_a$	Nm				(SP KVL1 P2); 4,5			(SP KVL3 P2); 11		
Frame clamp, Clamping cross-section		mm <sup>2</sup>	1,5-95 Al/Cu , (Al 95: max. 125A), *****			35-150 Al/Cu			95-300 Al/Cu		
Torque	$M_a$	Nm	4,5			12			20		
Degree of Protection, front side device											
Front cover close	-	-	IP20			IP20			IP20		
Front cover open	-	-	IP10			IP10			IP10		
With clamp- and lateral cover	-	-	IP2XC			IP2XC			IP2XC		
Operating condition											
Ambient temperature *****	$T_{amb}$	°C	-25 ... +55			-25 ... +55			-25 ... +55		
Operating condition	-	-				Continuous operation					
Mounting	-	-				vertical, horizontal					
Altitude	-	m				≤ 2000					
Pollution degree	-	-				3					
Overvoltage category	-	-	III			III			III		
Endurance											
Mechanical cycles			1400			1400			800		
Electrical cycles			300			200			200		

\* Mounting of several units in low voltage switchgear-combinations, please think about rated diversity factors acc. to DIN EN 61439.

\*\* Reference value for replacement of devices acc. to DIN EN 61439-1 clause 10.10.4.2.

\*\*\* minimum distance to earthed, conductive parts: Lateral: 20mm/Above: 50mm

\*\*\*\* Type tested with NH fuse-links characteristic gG

\*\*\*\*\* 35°C Normal temperature, at 55°C with reduced operating current



### 3-pole, Baseplate mounting

Size	Code No.	Type	Weight [kg]	Packaging [pcs]
00	001690870	KVL-00 3p M8-M8	0,63	1
	001690871	KVL-00 3p BC95-BC95	0,67	1
1	001690872	KVL-1 3p M10-M10	2,03	1
3	001690874	KVL-3 3p M10-M10	3,95	1



BC95-BC95

### 3-pole, Baseplate mounting, LED indication

Size	Code No.	Type	Weight [kg]	Packaging [pcs]
00	001690880	KVL-00 3p M8-M8 LED	0,66	1
	001690881	KVL-00 3p BC95-BC95 LED	0,8	1
1	001690882	KVL-1 3p M10-M10 LED	2,06	1
3	001690884	KVL-3 3p M10-M10 LED	3,92	1



### 1-pole, Baseplate mounting

Size	Code No.	Type	Weight [kg]	Packaging [pcs]
00	001690890	KVL-00 1p M8-M8	0,31	2
1	001690891	KVL-1 1p M10-M10	0,93	1
3	001690892	KVL-3 1p M10-M10	1,57	1



### 2-pole, Baseplate mounting

Size	Code No.	Type	Weight [kg]	Packaging [pcs]
00	001690895	KVL-00 2p M8-M8	0,72	1
1	001690896	KVL-1 2p M10-M10	1,88	1
3	001690897	KVL-3 2p M10-M10	3,19	1



### 4-pole, Baseplate mounting

Size	Code No.	Type	Weight [kg]	Packaging [pcs]
00	001690900	KVL-00 4p M8-M8	1,19	1
1	001690901	KVL-1 4p M10-M10	2,91	1
3	001690902	KVL-3 4p M10-M10	5,76	1



## Accessories

Type	Code No.	Description	Packaging [pcs]
SP KVL00	001692701	Clip terminal, 1,5 – 70 mm <sup>2</sup> Cu	set=3
SP KVL1	001692702	Clip terminal, 25 – 150 mm <sup>2</sup> Cu	set=3
SP KVL2	001692703	Clip terminal, 25 – 240 mm <sup>2</sup> Cu	set=3
SP KVL3	001692704	Clip terminal, 11x21 mm <sup>2</sup> Cu	set=3
SP KVL00 P1	001692760	Prism clamp, 10 – 70 mm <sup>2</sup> Al/Cu	set=3
SP KVL1 P1	001692761	Prism clamp, 70 – 150 mm <sup>2</sup> Al/Cu	set=3
SP KVL2 P1	001692762	Prism clamp, 120 – 240 mm <sup>2</sup> Al/Cu	set=3
SP KVL3 P1	001692763	Prism clamp, 120 – 300 mm <sup>2</sup> Al/Cu	set=3
SP KVL1 P2	001692764	Prism clamp for 2-conductors connection, 2x70 – 95 mm <sup>2</sup> Al/Cu	set=3
SP KVL2 P2	001692765	Prism clamp for 2-conductors connection, 2x120 – 150 mm <sup>2</sup> Al/Cu	set=3
SP KVL3 P2	001692766	Prism clamp for 2-conductors connection, 2x120 – 240 mm <sup>2</sup> Al/Cu	set=3
SP KVL-1 V	001690940	Frame clamp, 35-150mm <sup>2</sup> Al/Cu	set=3
SP KVL-23 V	001690941	Frame clamp, 95-300mm <sup>2</sup> Al/Cu	set=3
SP KVL-00 FC95	001690942	Feeding clamp, 25-95mm <sup>2</sup> Cu/Al, isolated, terminal M8,*	set=3
IZ2 KVL-00 3p	001690943	Phase busbars, 2 x 3pole KVL-00 50mm <sup>2</sup>	5
IZ3 KVL-00 3p	001690944	Phase busbars, 3 x 3pole KVL-00 50mm <sup>2</sup>	5
IZ4 KVL-00 3p	001690945	Phase busbars, 4 x 3pole KVL-00 50mm <sup>2</sup>	3
IZ5 KVL-00 3p	001690946	Phase busbars, 5 x 3pole KVL-00 50mm <sup>2</sup>	3
MST KVL-00 1p	001690947	Switch position indicator, 1-pole, size 00, **	1
MST KVL-00 3p	001690948	Switch position indicator, 3-pole, size 00, **	1
MST KVL-123 1p/2p/3p	001690949	Switch position indicator, 1/2/3 -pole, size 1, 2, 3, **	1
MFM KVL-00 1p/2p/3p	001690950	Mechanical fuse monitor, size 00, **	3
MFM KVL-123 1p/2p/3p	001690951	Mechanical fuse monitor, size 1, 2, 3, **, ***	3
PRS KVL-00 3p L	001690952	Terminal cover, 3-pole, variable to open, Length 66mm, size 00	2
PRS KVL-00 3p S	001690953	Terminal cover, 3-pole, variable to open, Length 36mm, size 00	2
PRS KVL-1 3p	001690954	Terminal cover, 3-pole, variable to open, Length 42mm, size 1	2
PRS KVL-2 3p	001690955	Terminal cover, 3-pole, variable to open, Length 42mm, size 2	2
PRS KVL-3 3p	001690956	Terminal cover, 3-pole, variable to open, Length 42mm, size 3	2
PRS KVL-00 1p L	001690957	Terminal cover, 1-pole, variable to open, Length 66mm, size 00	2
PRS KVL-00 1p S	001690958	Terminal cover, 1-pole, variable to open, Length 36mm, size 00	2
PRS KVL-1 1p	001690959	Terminal cover, 1-pole, variable to open, Length 42mm, size 1	2
PRS KVL-3 1p	001690960	Terminal cover, 1-pole, variable to open, Length 42mm, size 3	2
DIN KVL-00 100-150	001690964	DIN rail fixing parts, For mounting on DIN rails, size 00	1
DIN KVL-1 100-150	001690965	DIN rail fixing parts, For mounting on DIN rails, size 1	1
EFMU KVL-00 3p	001690966	Electronic fuse monitoring unit, 3-pole, size 00, ****	1
EFMU KVL-1 3p	001690967	Electronic fuse monitoring unit, 3-pole, size 1, ****	1
EFMU KVL-2 3p	001690968	Electronic fuse monitoring unit, 3-pole, size 2, ****	1
EFMU KVL-3 3p	001690969	Electronic fuse monitoring unit, 3-pole, size 3, ****	1
MPFEMU KVL-00 3p	001690974	Elektromechanical fuse monitoring unit (AM), 3-pole, size 00, ****	1
MPFEMU KVL-1 3p	001690975	Elektromechanical fuse monitoring unit (AM), 3-pole, size 1, ****	1
MPFEMU KVL-2 3p	001690976	Elektromechanical fuse monitoring unit (AM), 3-pole, size 2, ****	1
MPFEMU KVL-3 3p	001690977	Elektromechanical fuse monitoring unit (AM), 3-pole, size 3, ****	1
CK KVL-00 2p/4p	001690970	Connecting kit 2- and 4-pole, For making of 2- and 4-pole disconnectors, size 00	1
CK KVL-123 2p/4p	001690971	Connecting kit 2- and 4-pole, For making of 2- and 4-pole disconnectors, size 1, 2, 3	1
LP KVL-00123	001690972	Interlock device, locking with padlock, diameter 6mm max., size 00, 1, 2, 3	10
IC KVL-00123	001690973	Contact cover interlock, only be operated by tool, size 00-3	10

\* Feeding clamp, AC690V/DC1000V-250A

\*\* 1 Changeover, AC250V, 10/3A (ohmic/ind.)

\*\*\* Only in combination with ETI fuse-links with striker-pin; not in combination with frame-clamp or 2-wire-prism clamp.

\*\*\*\* For monitoring of fuse-links with live gripping lugs



SP KVL



SP KVL...P1



DIN KVL-00 100-150



SP KVL-1 V



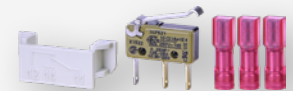
SP KVL-23 V



SP KVL-00 FC95



IZ2 KVL-00 3p



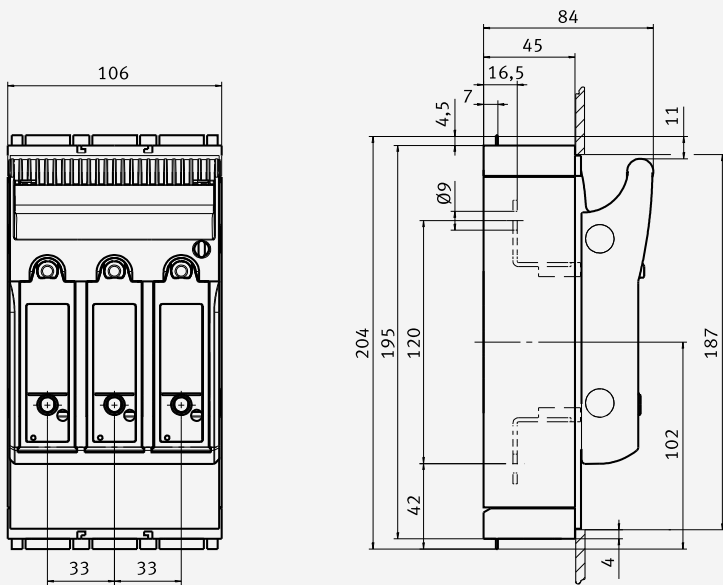
MST KVL- ...



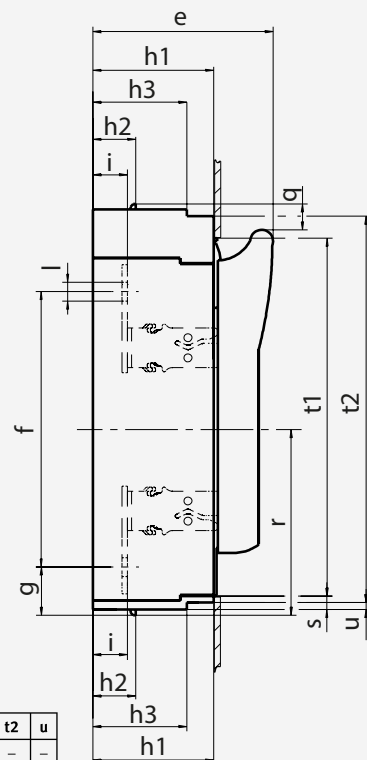
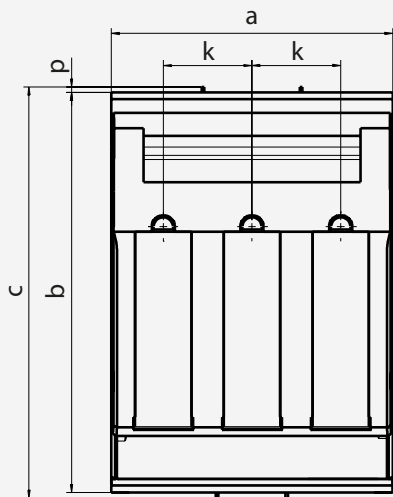
MFM KVL-123 1p 2p 3p



PRS KVL-... 3p

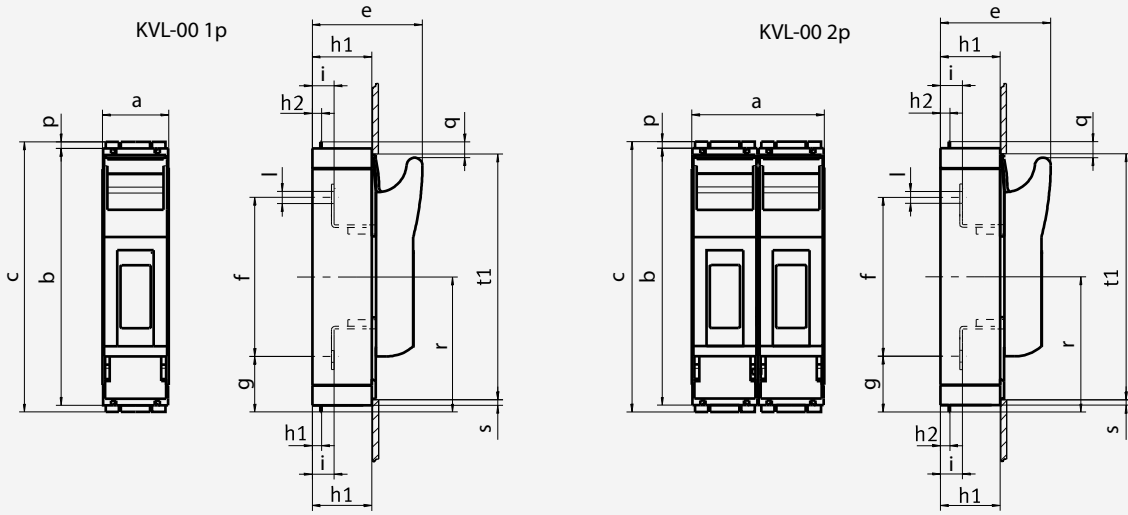


KVL-00 3p M8-M8
KVL-00 3p BC95-BC95
KVL-00 3p M8-M8 LED
KVL-00 3p BC95-BC95 LED

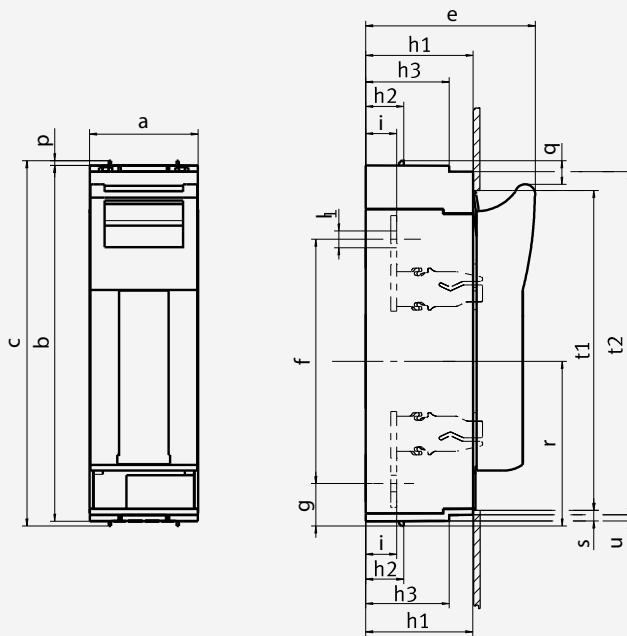


	a	b	c	e	f	g	h1	h2	h3	i	k	l	p	q	r	s	t1	t2	u
KVL-1 3p M10-M10 (LED)	184	298	306	117	185	46	70	32	-	25	58	Ø10,5	4	19	138	5	272	-	-
KVL-2 3p M10-M10 (LED)	210	298	306	134	205	36	90	32	70	26	66	Ø14	4	19	138	10	268	288	5
KVL-3 3p M10-M10 (LED)	250	298	306	143	205	36	90	32	70	26	82	Ø14	4	19	138	10	268	288	5





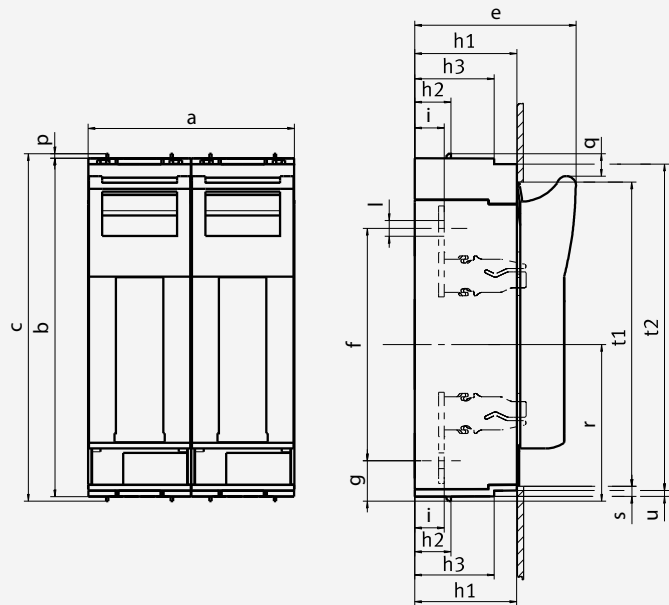
	a	b	c	e	f	g	h1	h2	h3	i	l	p	q	r	s	t1
KVL-00 1p M8-M8	50	195	204	84	120	42	45	7	-	16,5	Ø9	4,5	12	102	5	187
KVL-00 2p M8-M8	100	195	204	84	120	42	45	7	-	16,5	Ø9	4,5	12	102	5	187



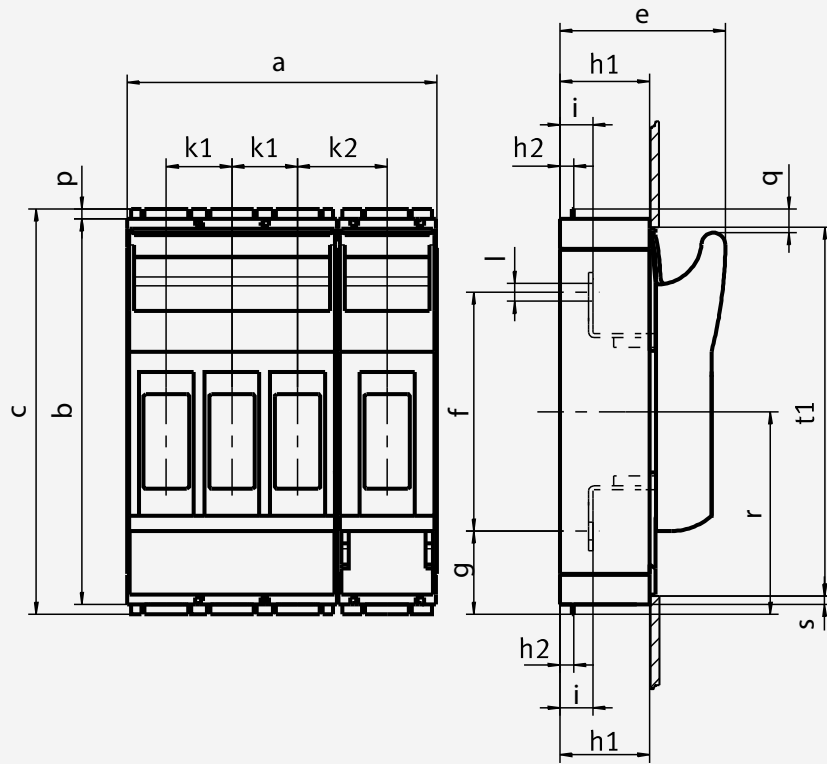
	a	b	c	e	f	g	h1	h2	h3	i	l	p	q	r	s	t1	t2	u
KVL-1 1p M10-M10	69	298	306	117	185	46	70	32	-	25	Ø10,5	4	19	138	5	272	-	-
KVL-3 1p M10-M10	91	298	306	143	205	36	90	32	70	26	Ø14	4	19	138	10	268	288	5

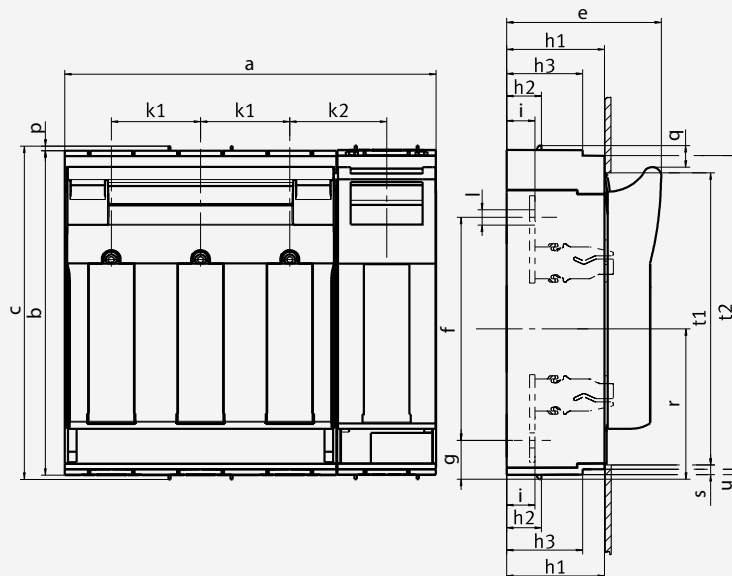






	a	b	c	e	f	g	h1	h2	h3	i	l	p	q	r	s	t1	t2	u
KVL-1 2p M10-M10	138	298	306	117	185	46	70	32	-	25	Ø10,5	4	19	138	5	272	-	-
KVL-3 2p M10-M10	182	298	306	143	205	36	90	32	70	26	Ø14	4	19	138	10	268	288	5





	a	b	c	e	f	g	h1	h2	h3	k1	k2	i	l	p	q	r	s	t1	t2	u
KVL-1 4p	254	298	306	117	185	46	70	32	-	58	69	25	∅10,5	4	19	138	5	272	-	-
KVL-3 4p	341,5	298	306	143	205	36	90	32	70	82	89	26	∅14	4	19	138	10	268	288	5

#### Technical data - Feeding clamps

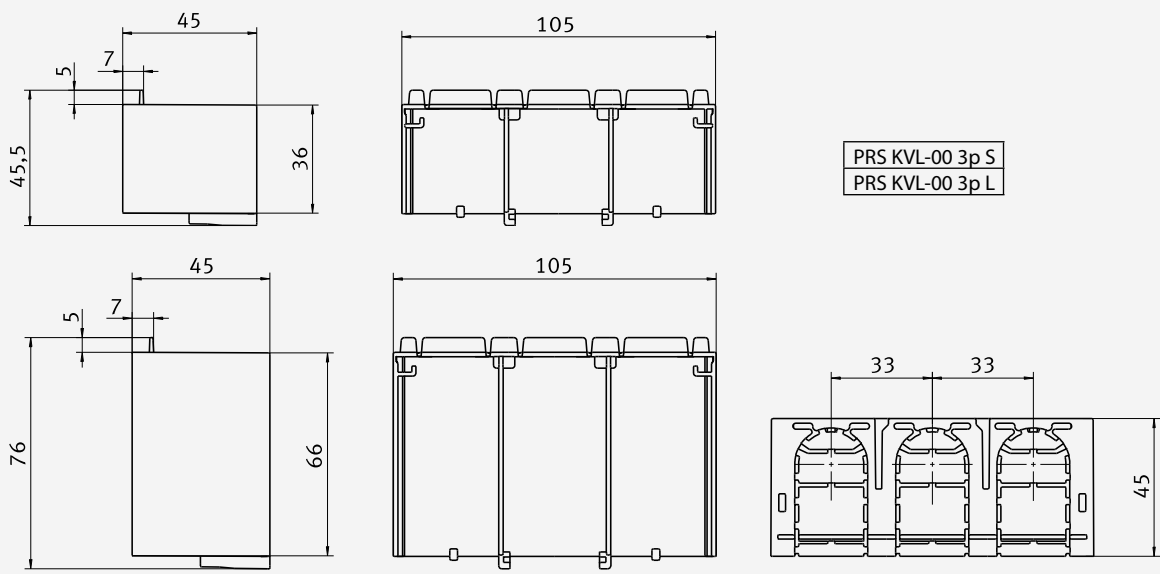
Technical Characteristics			
Max. electrical load			690V a.c. / 1000V d.c. -250A
Heat deflection temp.			125°C UL94: V0
Comparative tracking index			600
Cross sections			
Conductor - Max. Diameter ∅14 mm			
single wire		mm <sup>2</sup>	25 - 95
multi wire		mm <sup>2</sup>	25 - 95
fine wire (with end sleeve)		mm <sup>2</sup>	25 - 70
Torque	Ma	Nm	13
Degree of protection			IP20
Regulations			EN 60998-1:2004; EN 60998-2:2004; EN 60999-1:2000; EN 60999-2:2003

#### Important

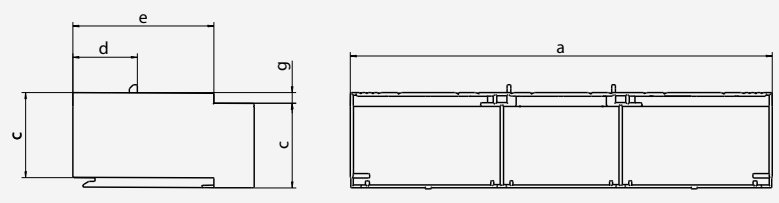
This Terminal is suitable for Al and Cu conductors. Please pay attention to the common handling guidelines when connecting the Aluminium conductors. Clean and brush the contact surfaces and lubricate them with an appropriate grease.

#### Technical data - Phase busbars

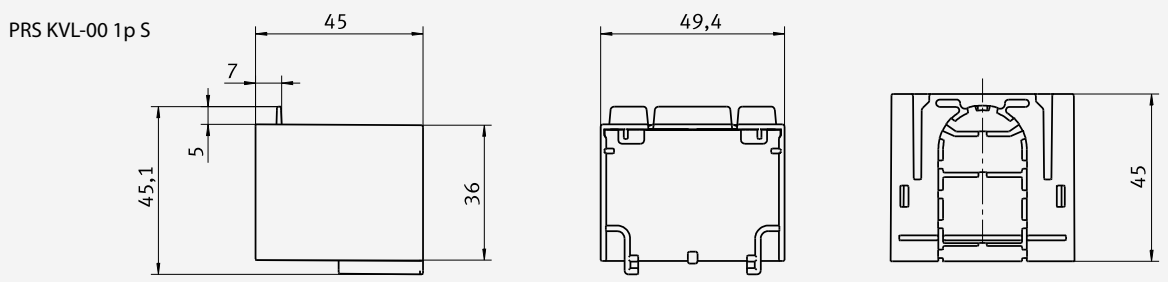
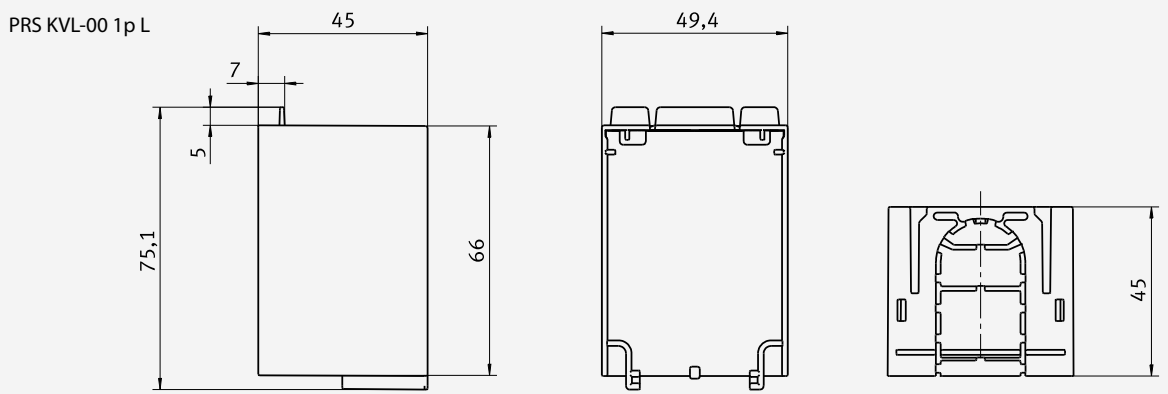
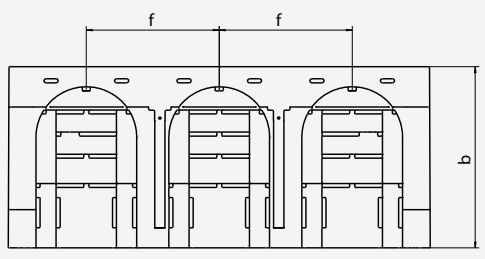
Technical Characteristics			
		mm <sup>2</sup>	50
Impulse voltage strenght		kV	≥8,5
Min. air distance		mm	>8
Min. creeping distance		mm	>9
Max. operating voltage		V	AC690
Protection class			IP20
Short circuit rating			$I_{PK} = 25kA/0,1s$ , Surge energy capacity $I_{PK} I_{CC} 100kA - NH3 355A gG 500V$
Dielectric strenght		kV/mm	≥32
Capacity at 35°C ambient temperature depending of feeding point cross section		mm <sup>2</sup>	50
Busbar lenght		mm	Max. 300
Feeding at beginning/ending			
Max. current Is /Phase		A	250
Connection cross current		mm <sup>2</sup>	95
Other feedings			
Max. feeding current Ie /Phase		A	250
Connection cross current		mm <sup>2</sup>	95
Insulation coordination			III / 2
Regulations			IEC 60947-1:2007



PRS KVL-00 3p S  
PRS KVL-00 3p L

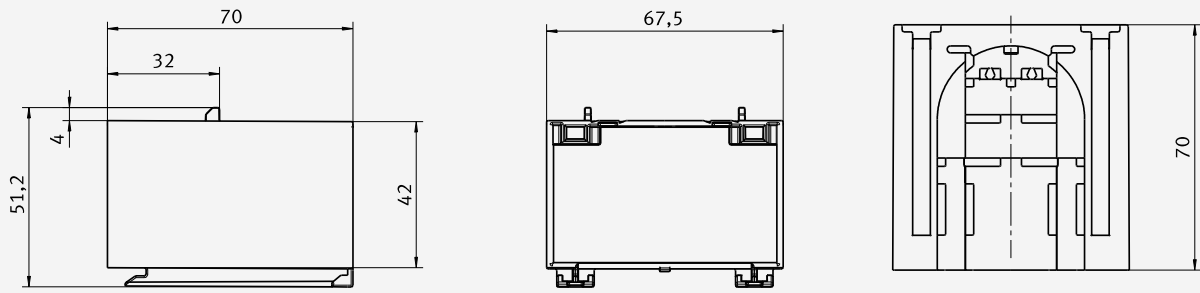


	a	b	c	d	e	f	g
PRS KVL-1 3p	184	70	42	32	-	58	-
PRS KVL-2 3p	210	90	42	32	70	66	5
PRS KVL-3 3p	250	90	42	32	70	82	5

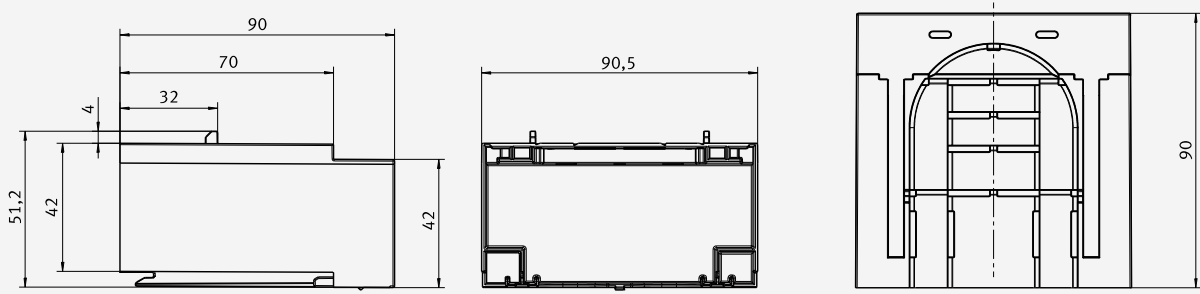




PRS KVL-1 1p



PRS KVL-3 1p



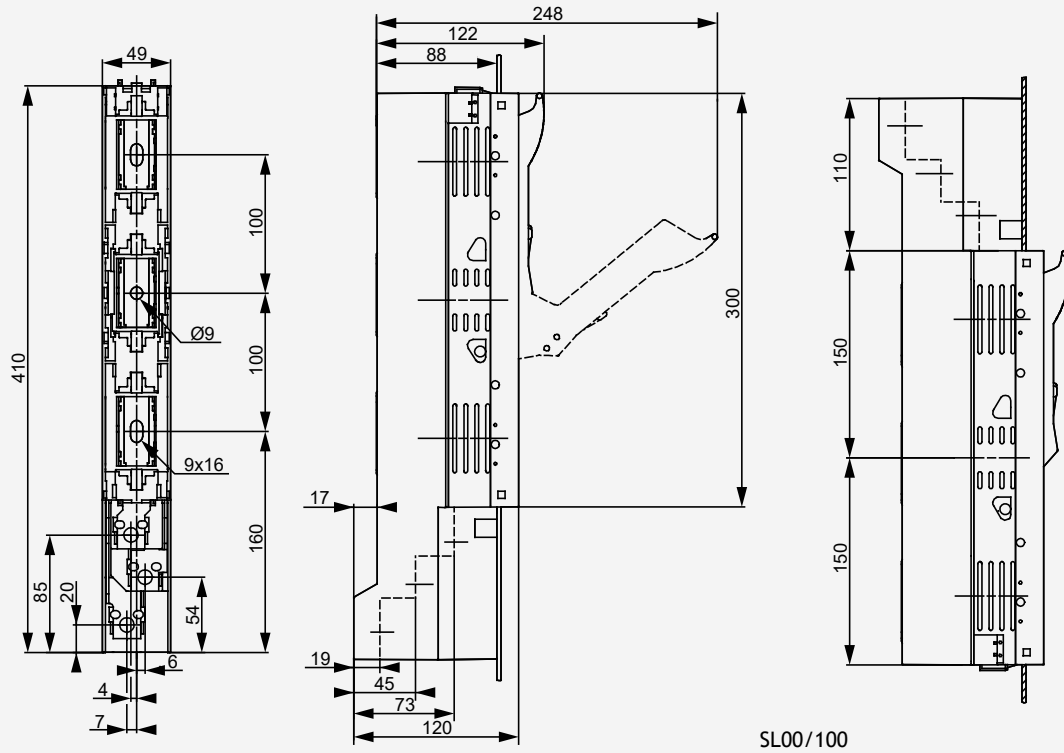
# Fuse-switch disconnecter type SL 800V

General characteristics						
Size			SL00/100	SL00/185	SL1	SL3
Technical Characteristics						
Rated operational voltage	$U_e$	V	800 a.c.	800 a.c.	800 a.c.	800 a.c.
Rated operational current	$I_e$	A	63	63	160	315
Rated frequency	$f$	Hz	40-60	40-60	40-60	40-60
Rated insulation voltage	$U_i$	V	800 a.c.	800 a.c.	800 a.c.	800 a.c.
Total power loss at $I_{th}$ (without fuse)	$P_v$	W	18	23	23	115
Utilisation category			AC-21B (160A/800V)	AC-21B (160A/800V)	AC-21B (250A/800V)	AC-21B (315A/800V)
Fuse links						
Size - DIN 43620, IEC 60269-2	-	-	000/00		1	3
Max. permissible power loss per fuse link	$P_a$	W	12		32	48
Dimensions						
Mass	-	kg	100mm=1,40	185mm=2,40	4,9	5,6
Bubars (distance)	-	mm	100	185	185	48
Cable connection						
Screw			M8		M10	M12
Protection						
Operational state	-	-	IP30		IP30	IP30
Cover open	-	-	IP10		IP10	IP10
Operating condition						
Ambient temperature	$T_{amb}$	°C	-25 ... +55		-25 ... +55	-25 ... +55
Operating condition	-	-	Continuous operation			
Mounting	-	-	vertical, horizontal			
Altitude	-	m	≤ 2000			
Pollution degree	-	-	3			
Overvoltage category	-	-	III	III	III	III

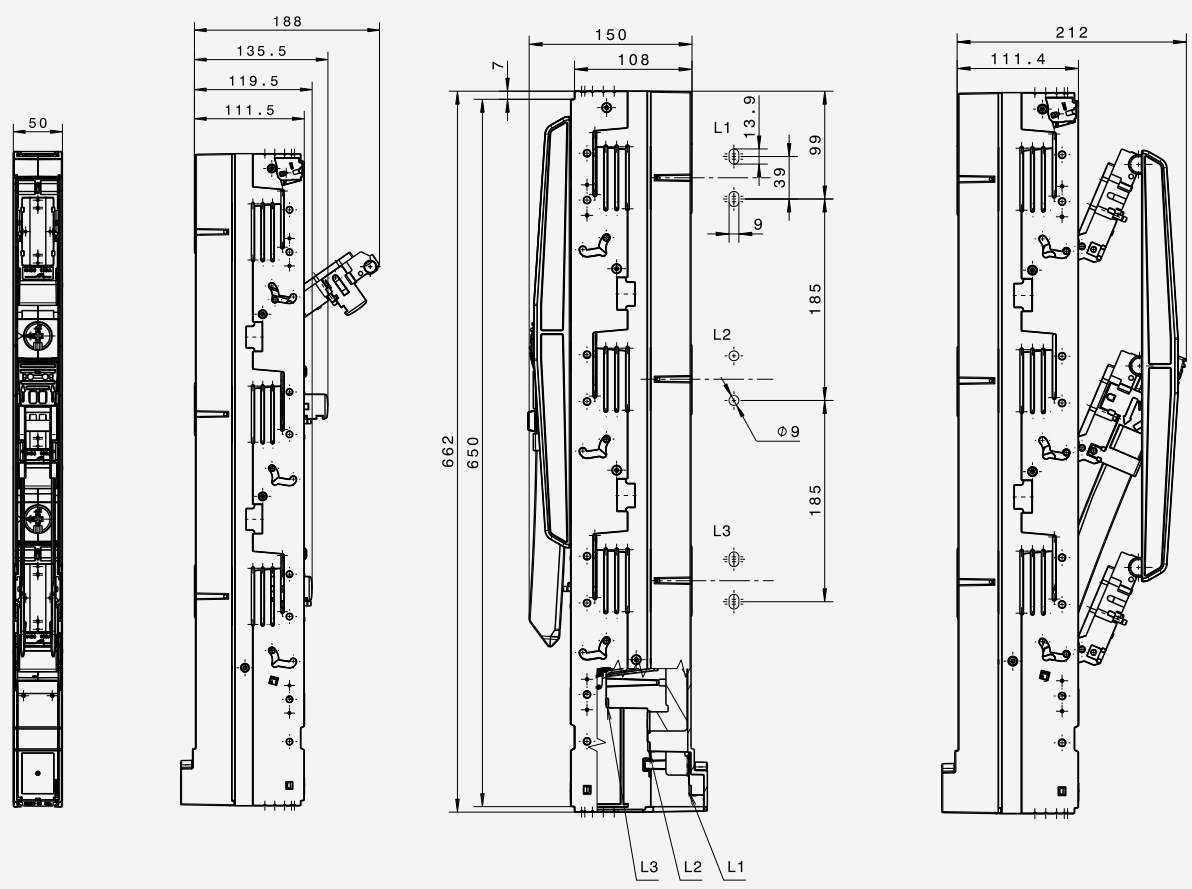
SL 800V						
Size	Code No.	Busbar system	Type	Connection description	Weight [kg]	Packaging [pcs]
00	001690860	100	SL00/100 3P M8 800AC	flat connection – screw M8	0,85	1
	001690861	185	SL00 3P M8 800AC	flat connection – screw M8	1,79	1
1	001690862	185	SL1 3P M10 800AC	flat connection – screw M10	4,66	1
3	001690863	185	SL3 3P M12 800AC	flat connection – screw M12	5,48	1





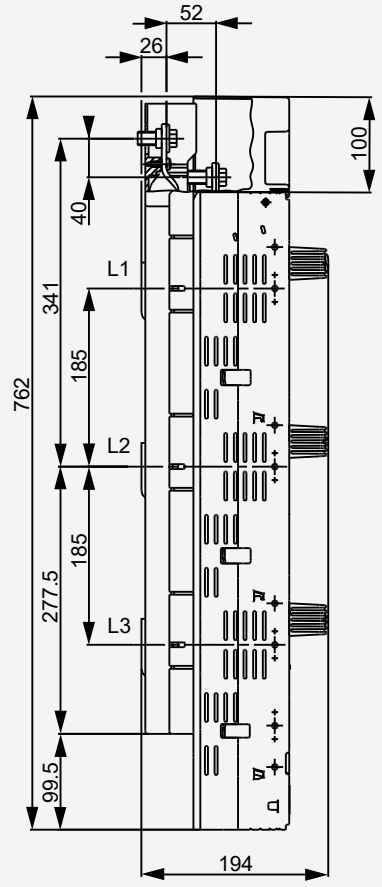
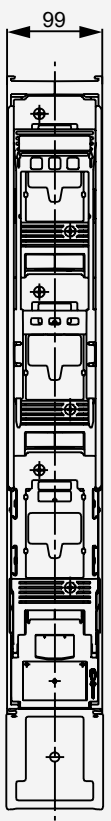
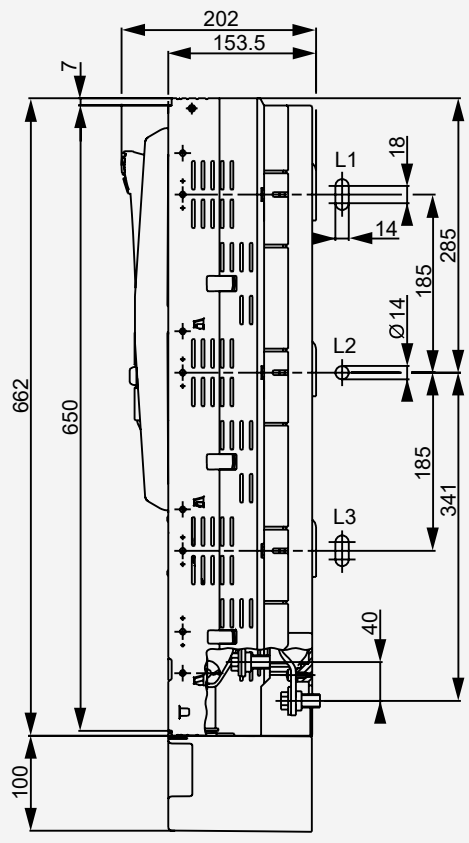


SL00/100



SL00/185





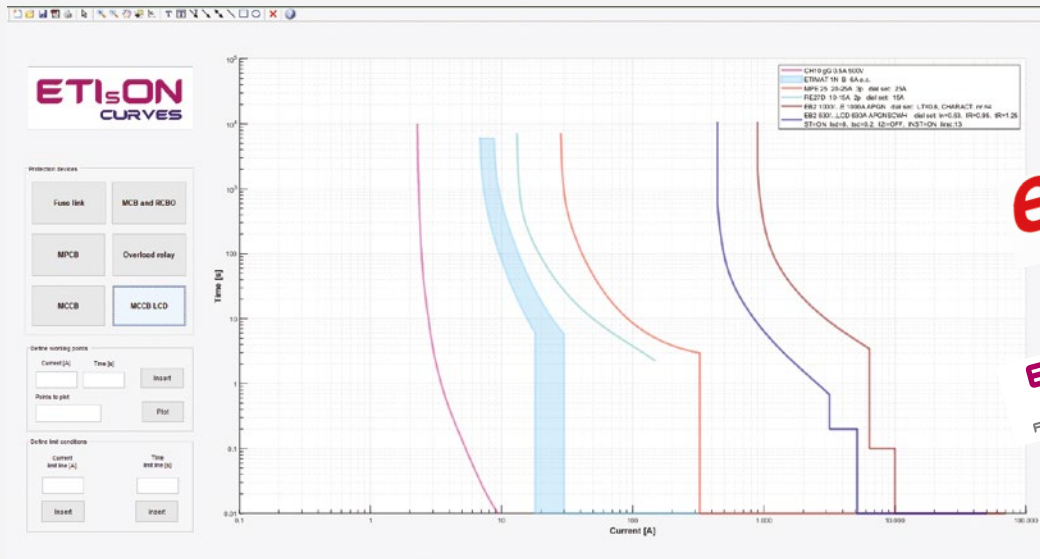
SL1, SL3

# User Support

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May 2019

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