

Battery Fuse

Application:
in battery storage systems
in UPS systems

BATTERY FUSE

NEW!



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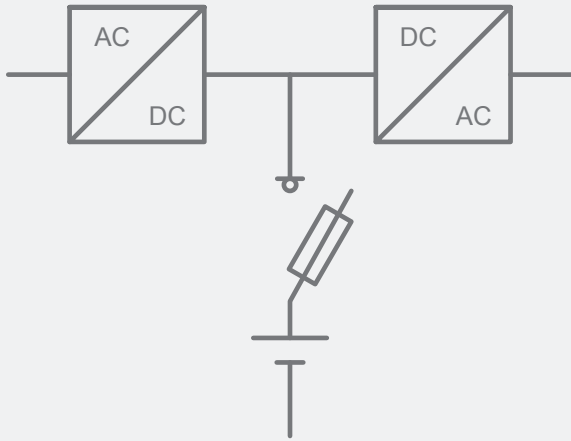
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Battery Protection Fuses

Battery storage fuse selection



Short circuit current

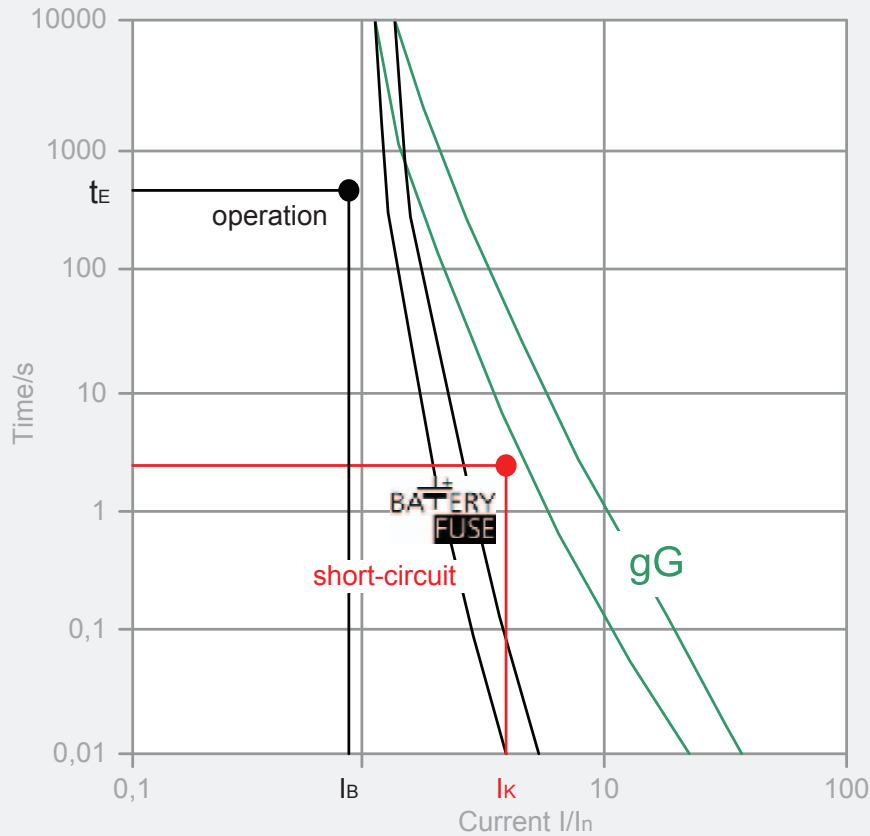
- Short circuit current depending on battery model, type and capacity, low compared to operating current
- Short circuit current has to be interrupted in <5 seconds

Required steep characteristics: protection with Battery fuse link required!

Operating current

- Operating current depends on battery storage specification
- Battery operation: voltage of DC link circuit decreases to the final discharge voltage

Consider maximum current at final discharge voltage for fuse link selection



Short circuit point (I_k)

- Short circuit current depending on battery model and type
- Manufacturer datasheets to include short circuit current according to IEC896
- Operating point has to be in adequate distance below the curve
- Short-circuit point has to be above the range of tolerance of the curve

Operating point (t_E/I_B)

- maximum operating current I_B has to be calculated from battery storage true power and final discharge voltage U_E : $I_B = P_w / U_E$
- t_E is the back-up time of battery storage system

When choosing fuse switch disconnector consider fuse link power dissipation!

$$P_d(I_B) < P_y$$

Power dissipation of fuse link at maximal operating current (I_B):

$$P_d(I_B) = (I_B / I_n)^2 \times P_d(I_n)$$

I_B - maximal operating current

$P_d(I_B)$ - power dissipation of fuse link at maximal operating current

$P_d(I_n)$ - power dissipation of fuse link at nominal current

P_y - maximal permissible fuse link power dissipation mounted in fuse switch disconnector

CH 10x38 BATTERY Fuse link 550V d.c.

General characteristics	
Rated voltage	550V d.c. (L/R=10ms)
Breaking capacity	30kA d.c.
Standard	IEC 60269
Application	Battery protection

CH BATTERY fuse link									
Size	I_n	Code No. "standard contacts" 550V DC	Code No. "type SU contacts" 550V DC	Pre-arcing Joule integral L/R=10ms	Operating Joule integral L/R=10ms	Power dissipation [0,7 x I_n] P_d	Power dissipation [1x I_n] P_d	Weight	Pack.
	[A]	30kA	30kA	[A ² s]	[A ² s]	[W]	[W]	[g]	[pcs]
10x38	2	002626002	002626102	1,1	1,8	0,47	1,12	10/12	10/500 SU: 10/380
	4	002626004	002626104	3,0	7,8	0,52	1,25		
	6	002626006	002626106	14,1	27,3	0,73	1,75		
	8	002626008	002626108	25,1	53,4	0,8	1,9		
	10	002626010	002626110	8,0	18,8	0,97	2,4		
	12	002626012	002626112	18,5	41,5	0,8	1,9		
	16	002626016	002626116	42	88	1,1	2,6		
	20	002626020	002626120	86	166	1,3	3,2		
	25	002626025	002626125	140	270	1,65	4,1		



Note:
CH Battery fuse links are used in combination
with fuse disconnecter EFH 10 DC

CH 10x38 BATTERY Fuse link 800V d.c.

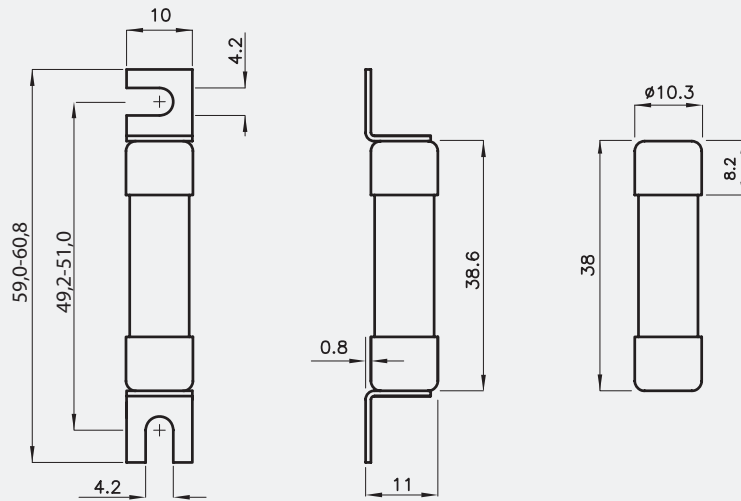
General characteristics	
Rated voltage	800V d.c. (L/R=10ms)
Breaking capacity	30kA d.c.
Standard	IEC 60269
Application	Battery protection

CH BATTERY fuse link									
Size	I_n	Code No. "standard contacts" 800V DC 30kA	Code No. "type SU contacts" 800V DC 30kA	Pre-arcing Joule integral L/R=10ms [A ² s]	Operating Joule integral L/R=10ms [A ² s]	Power dissipation [0,7 x I_n] P_d [W]	Power dissipation [1x I_n] P_d [W]	Weight [g]	Pack. [pcs]
10x38	2	002626030	002626130	1,2	1,6	0,47	1,12	10/12	10/500 SU: 10/380
	4	002626032	002626132	3,6	8,9	0,52	1,25		
	6	002626034	002626134	9,5	27,2	0,73	1,75		
	8	002626036	002626136	27,3	65,8	0,8	1,9		
	10	002626038	002626138	8,2	26,6	0,97	2,4		
	12	002626040	002626140	20,6	54,6	0,8	1,9		
	16	002626042	002626142	44,4	109,3	1,1	2,6		

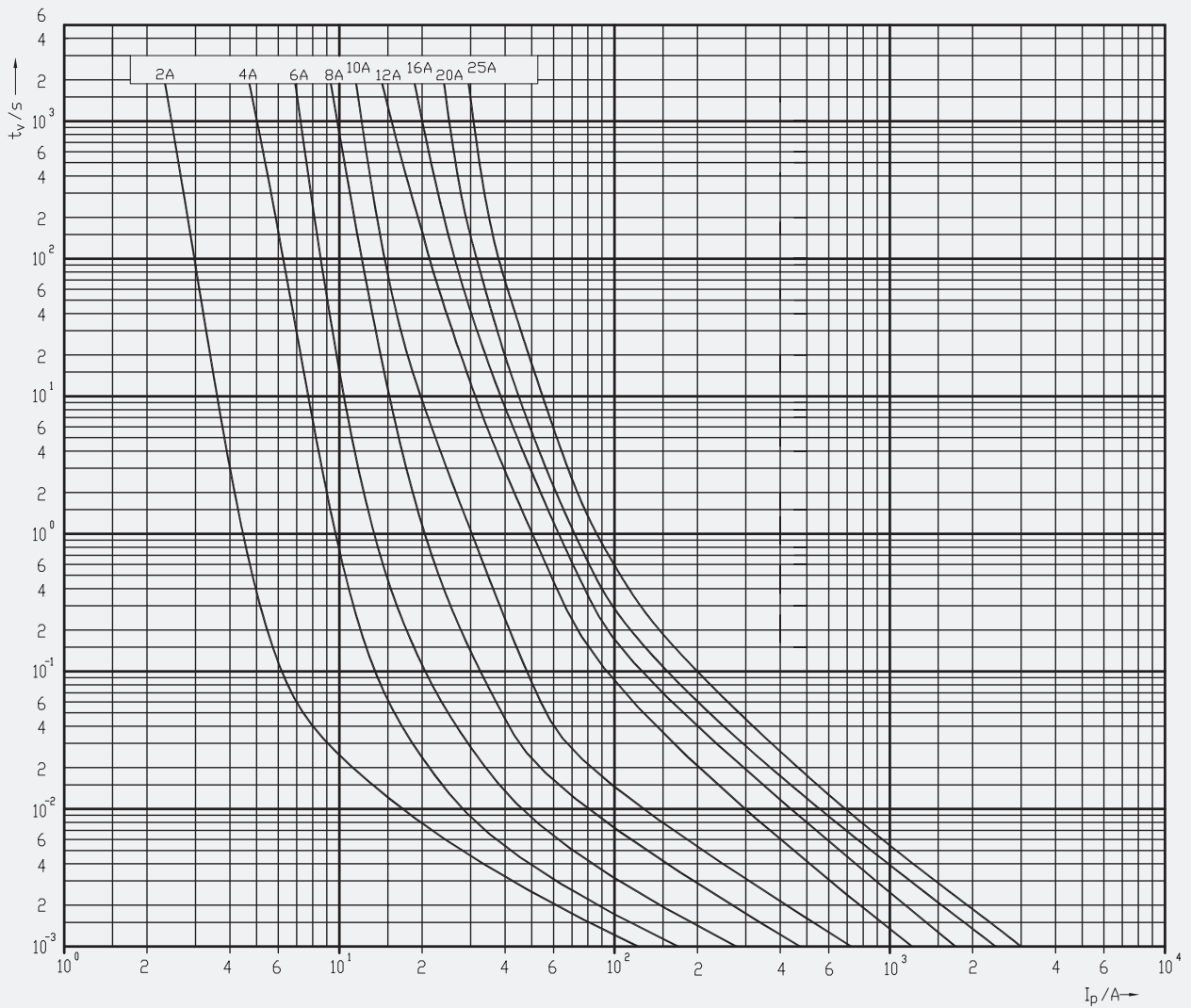


Note:
CH Battery fuse links are used in combination
with fuse disconnecter EFH 10 DC

Dimensions for CH 10x38 Battery fuses



I/t characteristics for CH 10x38 Battery fuses



CH 14x51 BATTERY Fuse link 800V d.c.

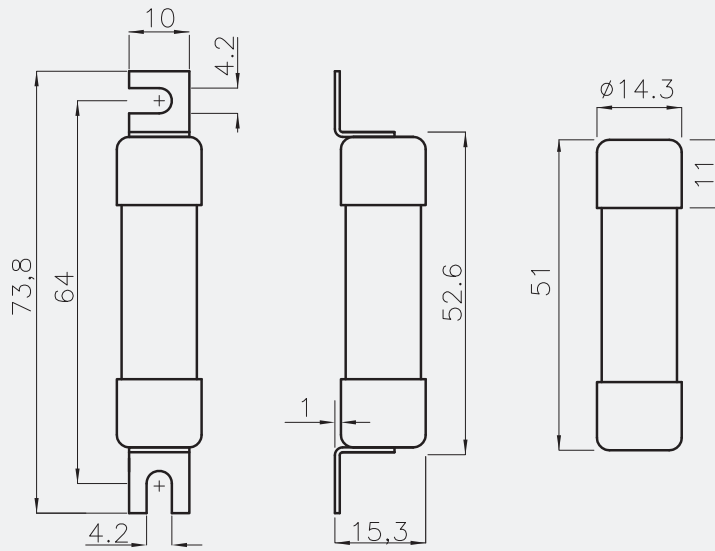
General characteristics	
Rated voltage	800V d.c. (L/R=10ms)
Breaking capacity	30kA d.c.
Standard	IEC 60269
Application	Battery protection

CH BATTERY fuse link									
Size	I_n	Code No. "standard contacts" 800V DC 30kA	Code No. "type SU contacts" 800V DC 30kA	Pre-arcing Joule integral L/R=10ms [A ² s]	Operating Joule integral L/R=10ms [A ² s]	Power dissipation [0,7 x I_n] P_d [W]	Power dissipation [1x I_n] P_d [W]	Weight [g]	Pack. [pcs]
14x51	16	002637405	002637505	37	136	1,4	3,1	19/21	10/200 SU: 10/260
	20	002637407	002637507	80	284	1,5	3,2		
	25	002637409	002637509	128	438	2	4		
	32	002637411	002637511	296	1050	2,1	5,1		
	36	002637412	002637512	370	1160	2,3	5,6		

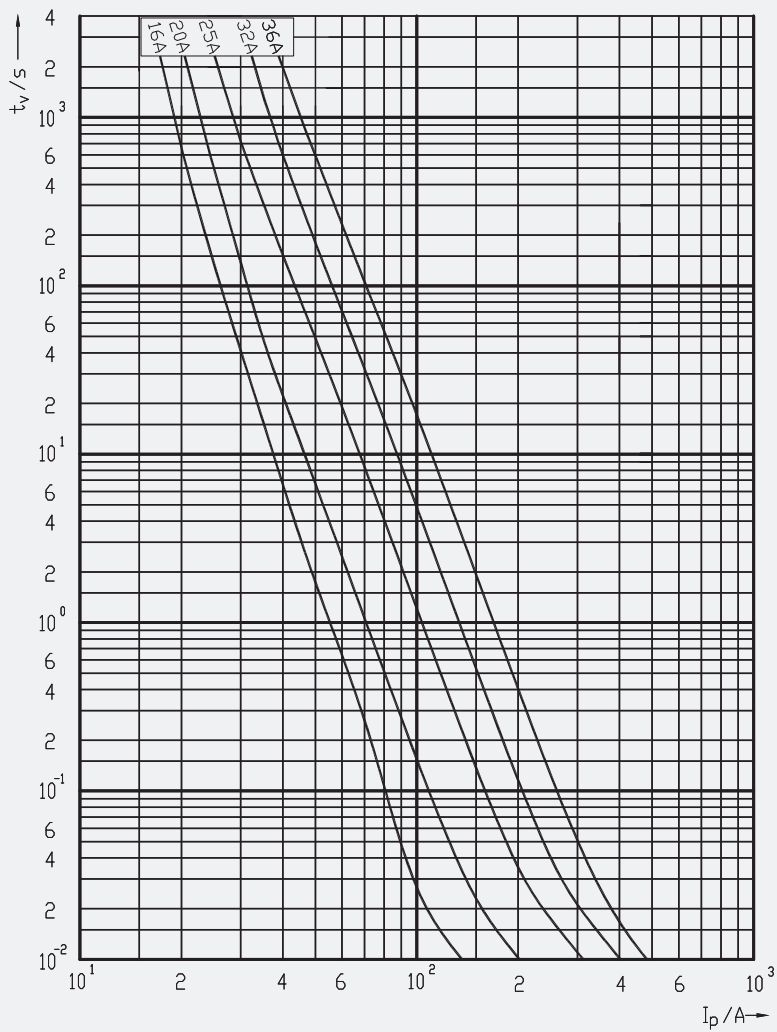


Note:
CH Battery fuse links are used in combination
with fuse disconnecter EFH 14 DC

Dimensions for CH 14x51 Battery fuses



I/t characteristics for CH 14x51 Battery fuses



CH fuse holder for DC applications

Technical data				
Fuse type	EFH 10 DC		EFH 14 DC	
	CH 10x38 DC		CH 14x51 DC	
	IEC	UL	IEC	UL
Versions	Without indicator, LED indicator			
Number of poles	1p, 2p			
Rated operational voltage U _e	1000V d.c.			
Rated operational current I _e	25A		50A	
Rated conditional short-circuit current	30kA	10kA	30kA	10kA
Rated insulation voltage U _i	1000V		1000V	
Rated imp. withstand voltage U _{imp}	8kV		8kV	
Required insulation temperature rating		60°C		60°C
Max power dissipation of the fuse-link	3W		5W	
Derating factor of current I _n for different ambient temperatures	20°	1		
	30°	0,95		
	40°	0,9		
	50°	0,8		
	60°	0,7		
	70°	0,5		
Derating factor of current I _n for side by side mounting fuse holders (nr. of poles)	1-4	1		
	5-6	0,8		
	7-9	0,7		
	≥10	0,6		
LED indicator operating range	80V - 1000V d.c.			
Utilization category	Do not operate under load			
Operational performance (cycles with current)	0		0	
Operational performance (cycles without current)	2000		2000	
Inclined Plane Tracking (IPT)		60min at 1kV		60min at 1kV
Humidity	90% at 20°C		90% at 20°C	
Operating ambient temperature	-5°C ... +40°C		-5°C ... +40°C	
Store ambient temperature	-25°C ... +55°C		-25°C ... +55°C	
Degree of protection (IEC 60529)	IP 20		IP 20	
Terminal capacity	1-25mm ²	AWG 18-8, solid&stranded, Cu only	1,5-35mm ²	AWG 16-6, solid&stranded, Cu only
Screw	PZ M5	PZ M5	PZ M5	PZ M5
Torque	2Nm	2Nm, 17,7 lb-in	2,5-3Nm	2Nm, 17,7 lb-in
Mounting on EN 60715 rail	35mm rail			
Sealing possibility	ON and OFF			
Standards - fuse links	IEC/EN 60269-2, IEC/EN 60269-6, UL 284-4	IEC/EN 60269-2, IEC/EN 60269-6, UL 284-4	IEC/EN 60269-2, IEC/EN 60269-6, UL 284-4	UL 248-4, IEC/EN 60269-2
Standards - fuse holders	IEC 60947-1, IEC 60947-3	UL 4248-1, UL 4248-18, UL 486E, CSA C22.2 No.65	IEC 60947-1, IEC 60947-3	UL 4248-1, UL 4248-18, UL 486E
Test reports	Int	UL	Int	UL
Certificates		UL Listed		UL Listed

EFH 10 DC - Fuse holder

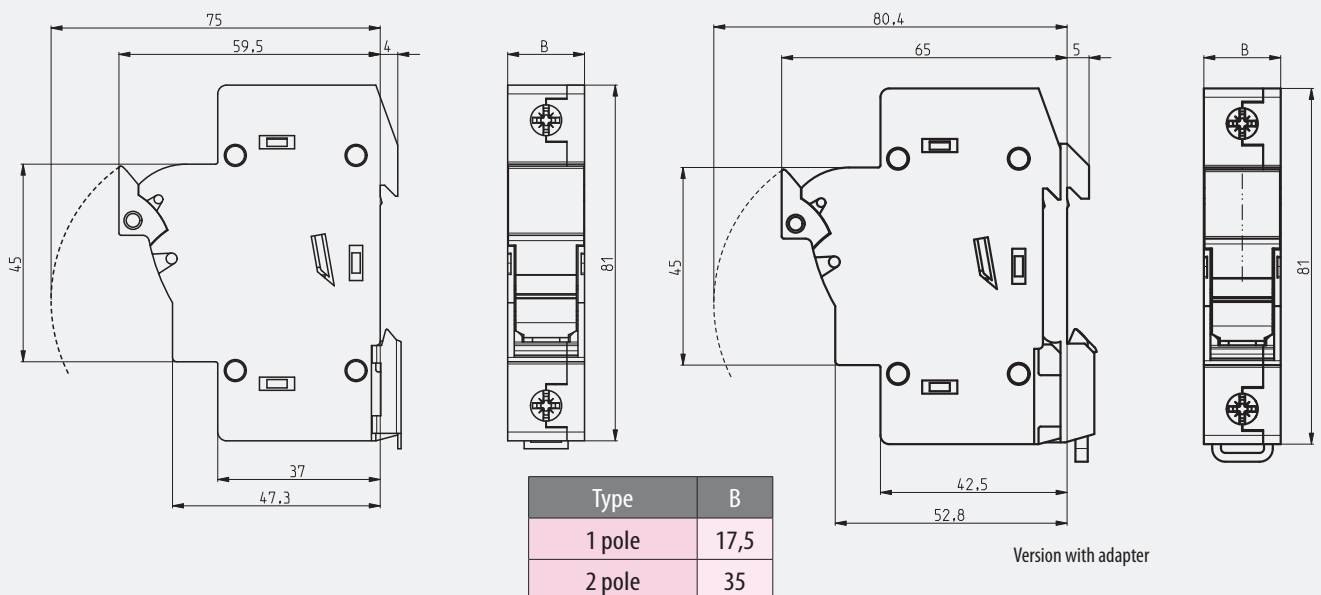
General characteristics

Rated voltage	1000V d.c.
Rated current	max. 25A
Max. fuse link power dissipation	3 W
Cross section of connecting wire	1 mm ² - 25 mm ²
Pole build-in width	17,5 mm
Mounting on the rail	EN 60715 - 35mm rail
Utilization category	DC-20B (Do not operate under load)
Rated torque	2Nm
Standards Fuse-links	IEC/EN 60269-2, IEC/EN 60269-6, UL 284-4
Standards - Fuse holder	IEC 60947-1, IEC 60947-3, UL 4248-1, UL 4248-18, UL 486E, CSA C22.2 No.65



EFH 10 DC

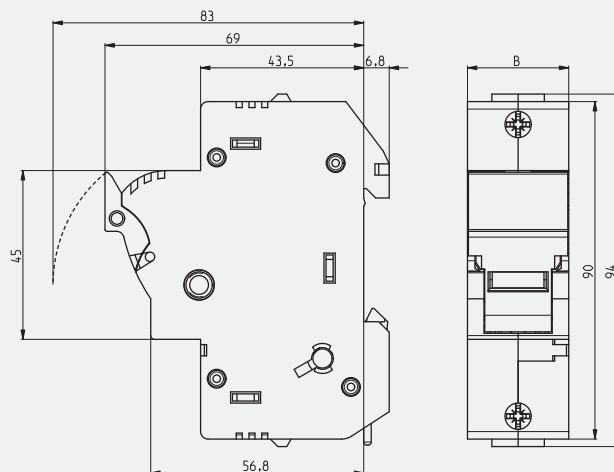
Number of poles	U _e /U _i [V]	I _{max.} [A]	Code No.	Indicator	Adapter	Weight [g]	Pack. [pcs]
1 pole	1000V d.c.	25	002540201	-	-	63	12/108
			002540211	LED	-	64	
			002540501	-	✓	68	
			002540511	LED	✓	69	
2 pole	1000V d.c.	25	002540203	-	-	124	6/54
			002540213	LED	-	125	
			002540503	-	✓	134	
			002540513	LED	✓	135	



EFH 14 DC - Fuse holder

General characteristics	
Rated voltage	1000V d.c.
Rated current	max. 50A
Max. fuse link power dissipation	5 W
Cross section of connecting wire	1,5 mm ² - 35 mm ²
Pole build-in width	27 mm
Mounting on the rail	EN 60715 - 35mm rail
Utilization category	DC-20B (Do not operate under load)
Rated torque	2,5 - 3Nm
Standards Fuse-links	IEC/EN 60269-2, IEC/EN 60269-6, UL 284-4
Standards - Fuse holder	IEC 60947-1, IEC 60947-3, UL 4248-1, UL 4248-18, UL 486E

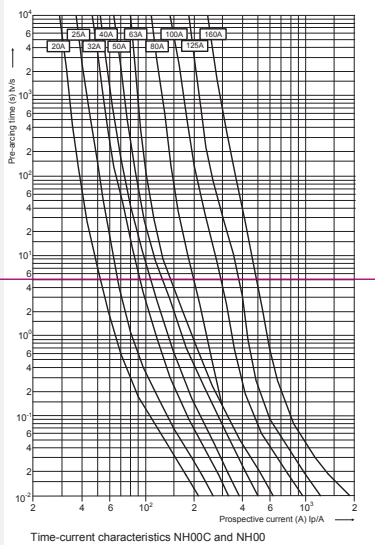
EFH 14 DC						
Number of poles	U _e /U _i [V]	I _{max.} [A]	Code No.	Indicator	Weight [g]	Pack. [pcs]
1 pole	1000V d.c.	25	002560201	-	102	12/96
			002560211	LED	103	
2 pole		25	002560203	-	206	6/48
			002560213	LED	208	



Type	B
1 pole	27
2 pole	54

NH BATTERY fuse link 80V d.c.

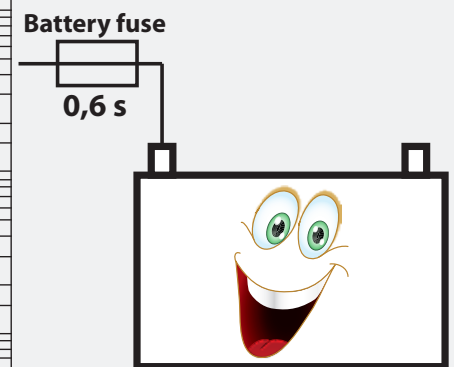
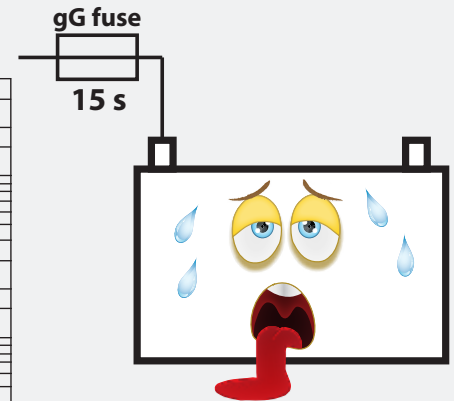
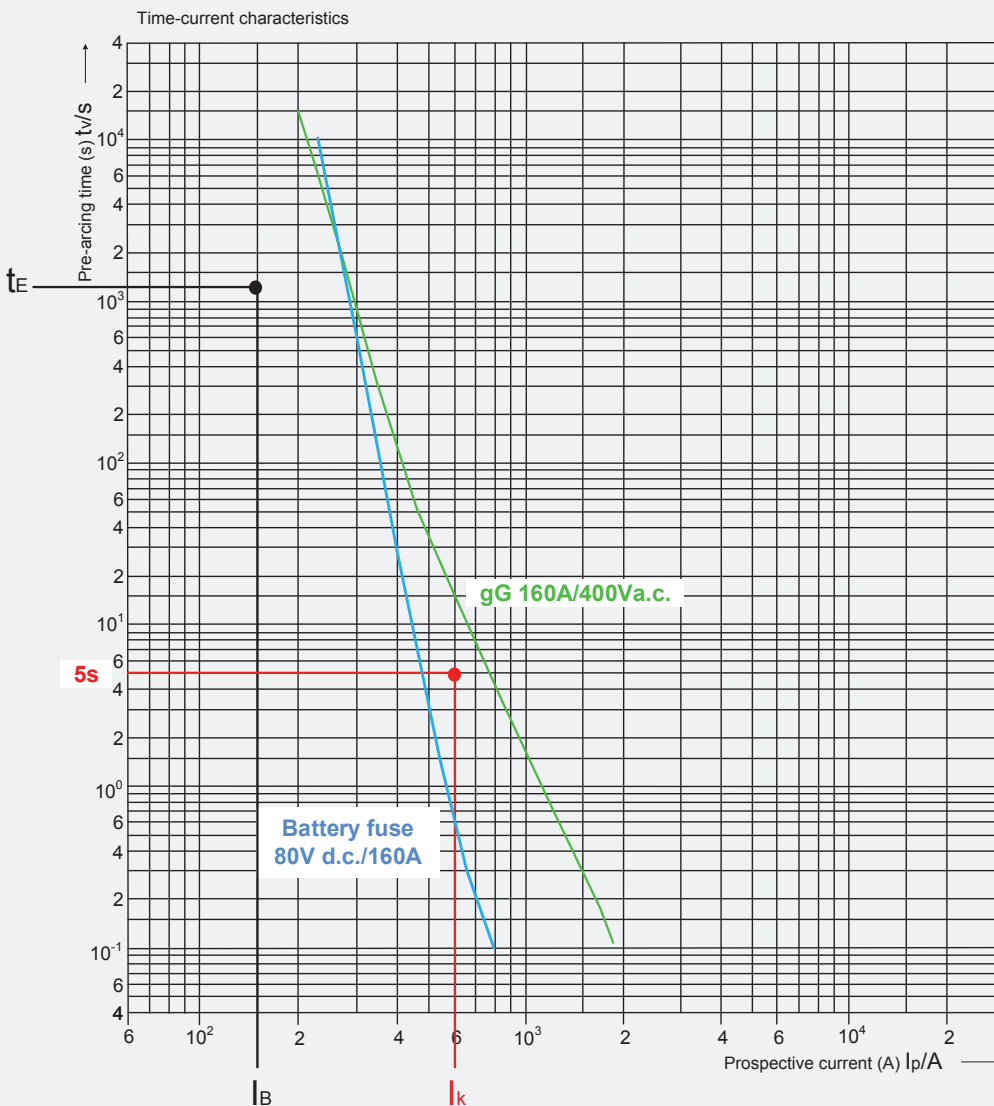
Low power dissipation and fast characteristic in time range of 5s!



Discharge	-20~60°C
Charge	-10~60°C
Storage	-20~60°C
Max. Discharge Current 77°F(25°C)	1000A(5s)
Short Circuit Current	3300A
Charge Methods: Constant Voltage Charge 77°F(25°C)	
Cycle use	14.4-14.7V
Maximum charging current	60A
Temperature compensation	-30mV/°C

5s **Ik**

Better protection of battery cells on overheating in case of short circuit comparable to standard gG characteristic

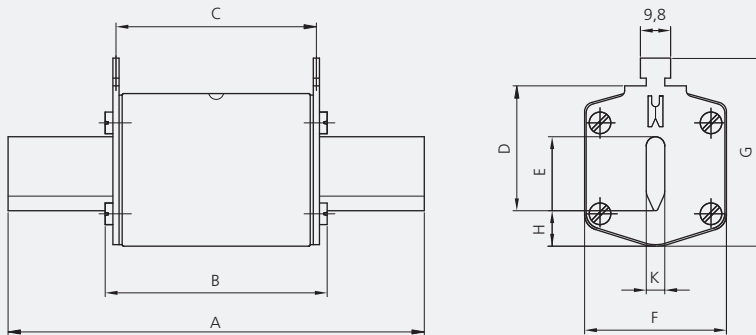


General characteristics	
Rated voltage	80V d.c., L/R=10ms
Breaking capacity	50kA d.c..
Standard	IEC 60269
Application	Battery protection

NH BATTERY fuse link 80V d.c.					
Size	I _n [A]	Standard indicator pic. 1	Power dissipation [W]	Weight [g]	Pack. [pcs]
00C	20	004110075	4,6	125	3/120
	25	004110076	5,8		
	32	004110077	6,6		
	40	004110078	9,4		
	50	004110079	11,1		
00	63	004110080	11,7	173	3/90
	80	004110081	10,4		
	100	004110082	11,1		
	125	004110083	13,4		
1C	160	004110084	15,5	233	3/45
	20	004110085	6,3		
	25	004110086	7,3		
	32	004110087	9		
	40	004110088	11,2		
	50	004110089	14,5		
	63	004110090	16,8		
	80	004110091	11,4		
1	100	004110092	12	430	3/24
	125	004110093	14,8		
	160	004110094	17,6		
1	200	004110095	26,6	430	3/24
	250	004110096	31		

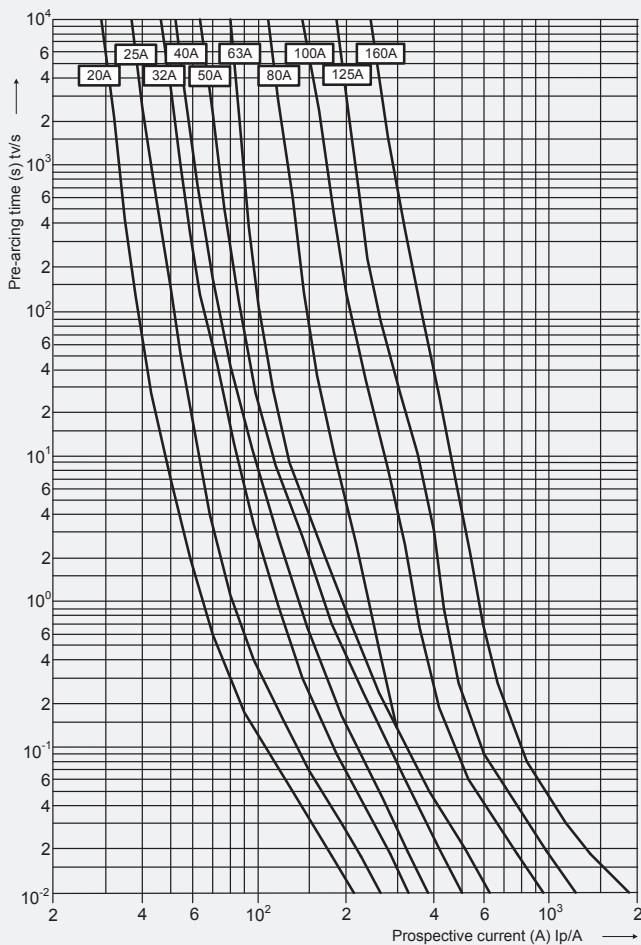


Dimensions

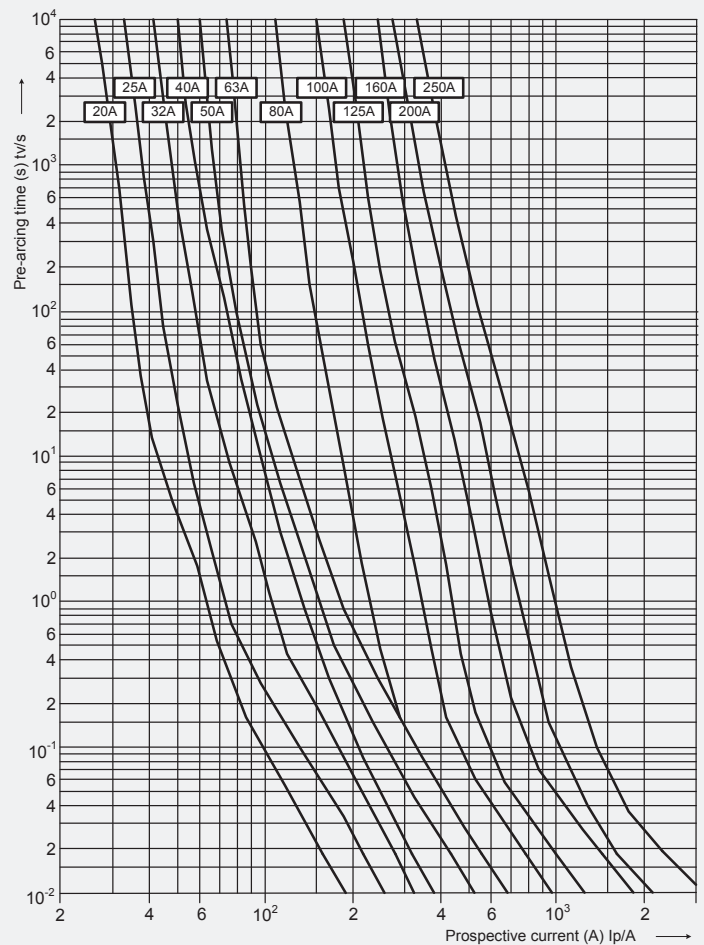


	A	B	C	D	E	F	G	H	K
00 C	79	53	47	35	15	21	52	7,5	6
00	79	53	47	35	15	28	56	12	6
1 C	135	68	65	40	15	28	61	12	6
1	135	72	65	40	20	46	65	14	6

I/t characteristics for NH Battery fuses



Time-current characteristics NH00C and NH00



Time-current characteristics NH1C and NH1

NH BATTERY fuse link 550V d.c.

General characteristics	
Rated voltage	550V d.c. (L/R=10ms)
Breaking capacity	30kA d.c.
Standard	IEC 60269
Application	Battery protection

NH BATTERY fuse link 550 V d.c.							
Size	I_n	Standard indicator	Striker indicator	Standard indicator S110mm	Power dissipation	Weight [g]	Pack. [pcs]
	[A]	pic. 1	pic. 1	pic. 2	[W]		
1	40	004723259	004723279	004723269	6	420	3/24
	50	004723260	004723280	004723270	7		
	63	004723261	004723281	004723271	9		
	80	004723262	004723282	004723272	12		
	100	004723263	004723283	004723273	15		
	125	004723264	004723284	004723274	20		
	160	004723265	004723285	004723275	26		
	200	004723266	004723286	004723276	32		
	224	004723267	004723287	004723277	37		
	250	004723268	004723288	004723278	43		
2	125	004724260	004724280	004724270	20	660	3/24
	160	004724261	004724281	004724271	26		
	200	004724262	004724282	004724272	32		
	224	004724263	004724283	004724273	37		
	250	004724264	004724284	004724274	43		
	315	004724265	004724285	004724275	57		
	350	004724266	004724286	004724276	67		
3	250	004725260	004725280	004725270	43	870	3/24
	315	004725261	004725281	004725271	57		
	350	004725262	004725282	004725272	67		
	400	004725263	004725283	004725273	76		
	425	004725264	004725284	004725274	84		
	500	004725265	004725285	004725275	110		
630	004725266	004725286	004725276	160			



NH BATTERY fuse link 700V d.c.

General characteristics	
Rated voltage	700V d.c. (L/R=10ms)
Breaking capacity	30kA d.c.
Standard	IEC 60269
Application	Battery protection

NH BATTERY fuse link 700 V d.c.							
Size	I _n	Standard indicator	Striker indicator	Standard indicator S110mm	Power dissipation	Weight	Pack.
	[A]	pic. 1	pic. 1	pic. 2	[W]	[g]	[pcs]
1	40	004723289	004723309	004723299	6	420	3/24
	50	004723290	004723310	004723300	7		
	63	004723291	004723311	004723301	9		
	80	004723292	004723312	004723302	12		
	100	004723293	004723313	004723303	15		
	125	004723294	004723314	004723304	20		
	160	004723295	004723315	004723305	26		
	200	004723296	004723316	004723306	32		
	224	004723297	004723317	004723307	37		
	250	004723298	004723318	004723308	43		
2	125	004724290	004724310	004724300	20	660	3/24
	160	004724291	004724311	004724301	26		
	200	004724292	004724312	004724302	32		
	224	004724293	004724313	004724303	37		
	250	004724294	004724314	004724304	43		
	315	004724295	004724315	004724305	57		
	350	004724296	004724316	004724306	67		
3	250	004725290	004725304	004725297	43	870	3/24
	315	004725291	004725305	004725298	57		
	350	004725292	004725306	004725299	67		
	400	004725293	004725307	004725300	76		
	425	004725294	004725308	004725301	84		
	500	004725295	004725309	004725302	110		
630	004725296	004725310	004725303	160			



NH BATTERY fuse link 800V d.c.

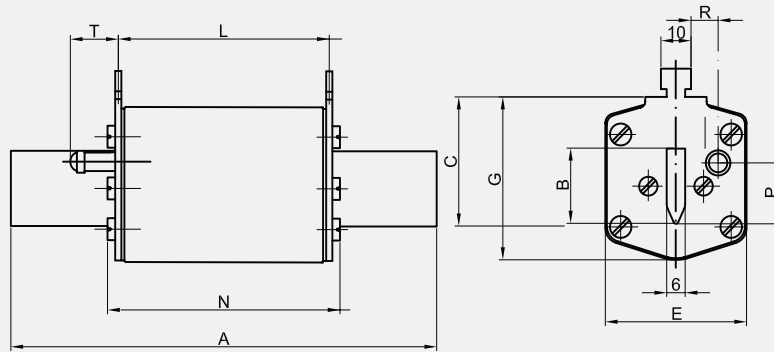
General characteristics	
Rated voltage	800V d.c. (L/R=10ms)
Breaking capacity	30kA d.c.
Standard	IEC 60269
Application	Battery protection

NH BATTERY fuse link 800 V d.c.							
Size	I_n	Standard indicator	Striker indicator	Standard indicator S110mm	Power dissipation	Weight	Pack.
	[A]	pic. 1	pic. 1	pic. 2	[W]	[g]	[pcs]
1	40	004723320	004723330	004723340	6	420	3/24
	50	004723321	004723331	004723341	7		
	63	004723322	004723332	004723342	9		
	80	004723323	004723333	004723343	12		
	100	004723324	004723334	004723344	15		
	125	004723325	004723335	004723345	20		
	160	004723326	004723336	004723346	26		
	200	004723327	004723337	004723347	32		
2	125	004724320	004724330	004724340	20	660	3/24
	160	004724321	004724331	004724341	26		
	200	004724322	004724332	004724342	32		
	224	004724323	004724333	004724343	37		
	250	004724324	004724334	004724344	43		
	315	004724325	004724335	004724345	57		
	350	004724326	004724336	004724346	67		
	400	004724327	004724337	004724347	76		



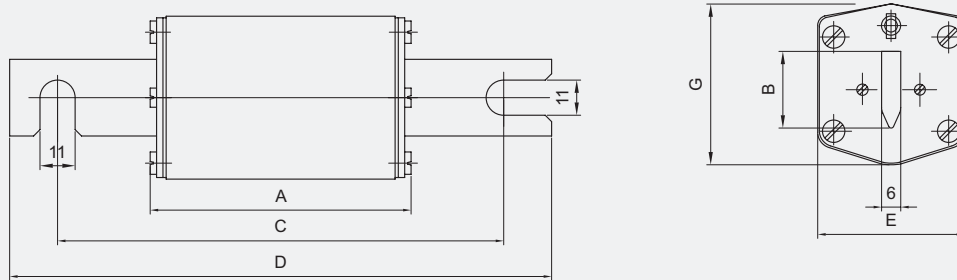
Dimensions

pic. 1



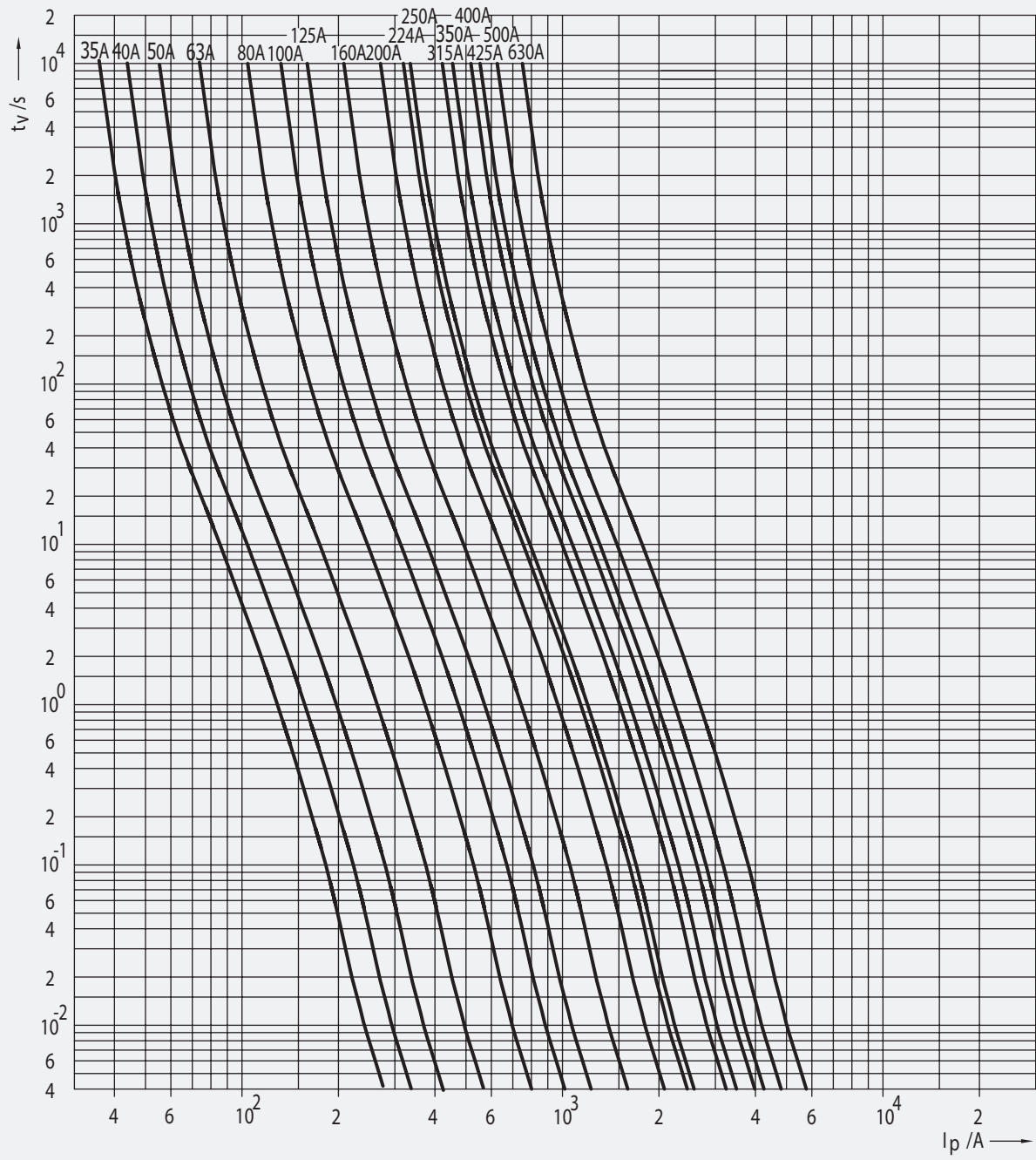
	A	B	C	E	G	S	L	N	P	R	T
1	135	24	40	46	52	6	65	73	20,5	13,7	27,5
2	150	30	48	54	61	6	65	73	27,3	16,2	27,5
3	150	37	60	64	74	6	65	73	35,6	17	27,5

pic. 2



	A	B	C	D	E	G
1	72	24	110	140	46	51
2	72	30	110	140	54	59
3	72	37	110	140	64	70

I/t characteristics for NH Battery fuses



Horizontal fuse-switch disconnecter type HVL for DC applications

Technical data (in accordance with IEC/EN 60947-3 and VDE 0660, part 107)											
Technical specifications			Size 00			Size 1			Size 3		
Technical characteristics											
Rated operational voltage	Ue	V	DC220	DC440	DC550	DC220	DC440	DC550	DC220	DC440	DC550
Rated operational current	Ie	A	160	100	160	250	200	250	630	500	630
Rated insulation voltage	Ui	V	AC800			AC800			AC800		
Total power loss (without fuse)	Pv	W	6,2	2,7	7	8,6	5,5	13	34,6	21,8	52
Utilisation category	-	-	DC22B	DC21B	DC20B	DC22B	DC21B	DC20B	DC22B	DC21B	DC20B
Fuse links											
Size-DIN43620	-	-	00			1			3		
Max. rated current	In	A	160	100	160	250	200	250	630	500	630
Max. permissible power loss per fuse link	Py	W	12			23			48		
Screw	-	-	M8			M10			M10		
Torque	Ma	Nm	12-15			30-35			30-35		
V-clip	-	mm ²	1,5 - 70			25-150			25-240		
Torque	Ma	Nm	2,6			9,5			23		
Protection											
Front cover close	-	-	IP20			IP20			IP20		
Front cover open	-	-	IP 10			IP 10			IP 10		
Operating condition											
Ambient temperature	Tu	°C	-25°C ... +55°C								
Operating condition	-	-	continuous operation								
Mounting	-	-	vertical, horizontal								
Altitude	-	m	≤ 2000								
Pollution degree overvoltage category	-	-	3								

* Switching operations at 550V DC are not allowed under load

1-pole horizontal fuse-switch disconnecter for baseplate mounting

For size	Code No.	Type	Weight [kg]	Packaging [pcs]
00	001692492	HVL 00 1p M8-M8	0,45	1/1
1	001692494	HVL 1 1p M10-M10	1,5	1/1
3	001692496	HVL 3 1p M10-M10	1,9	1/1

* see also table of accessories for HVL

** for fuse size NH 2 use HVL 3

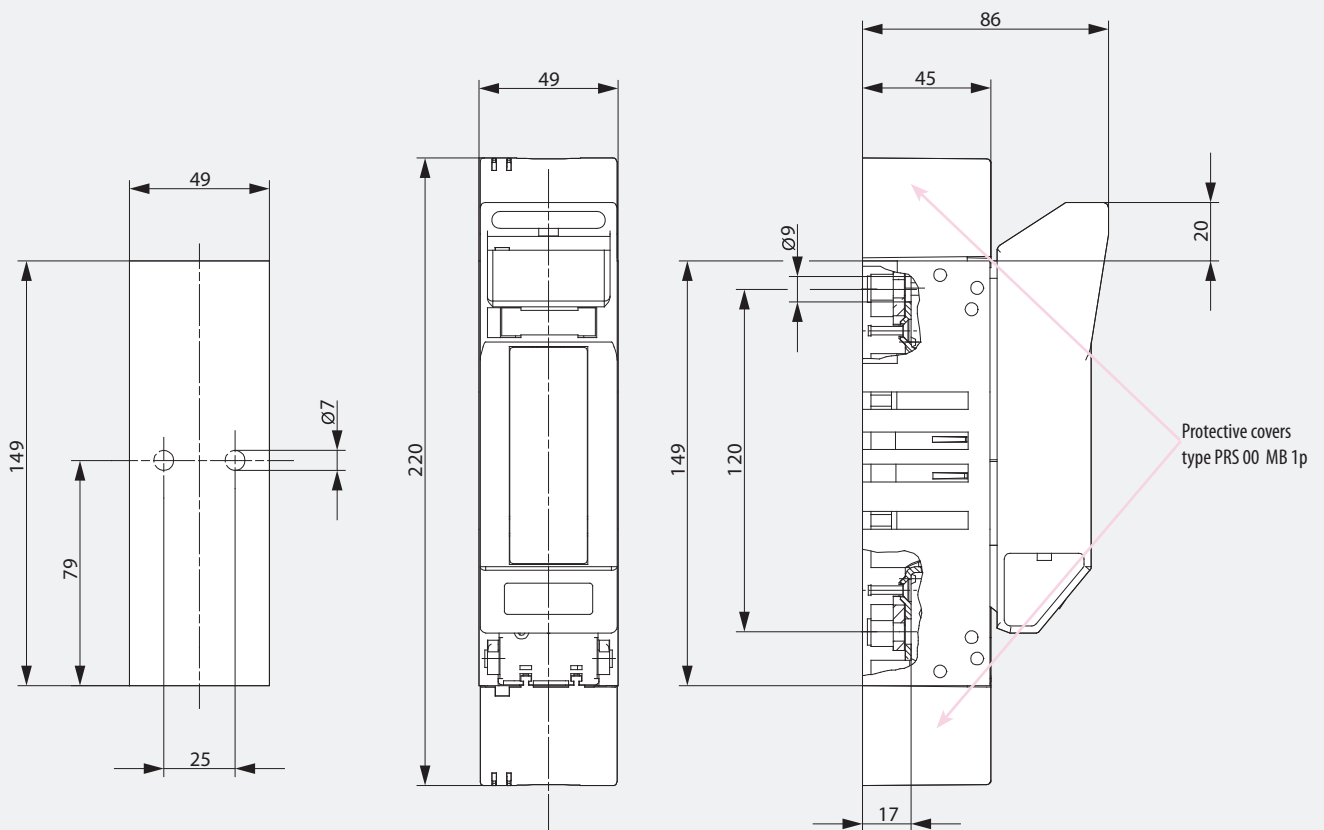


2-pole horizontal fuse-switch disconnecter for baseplate mounting

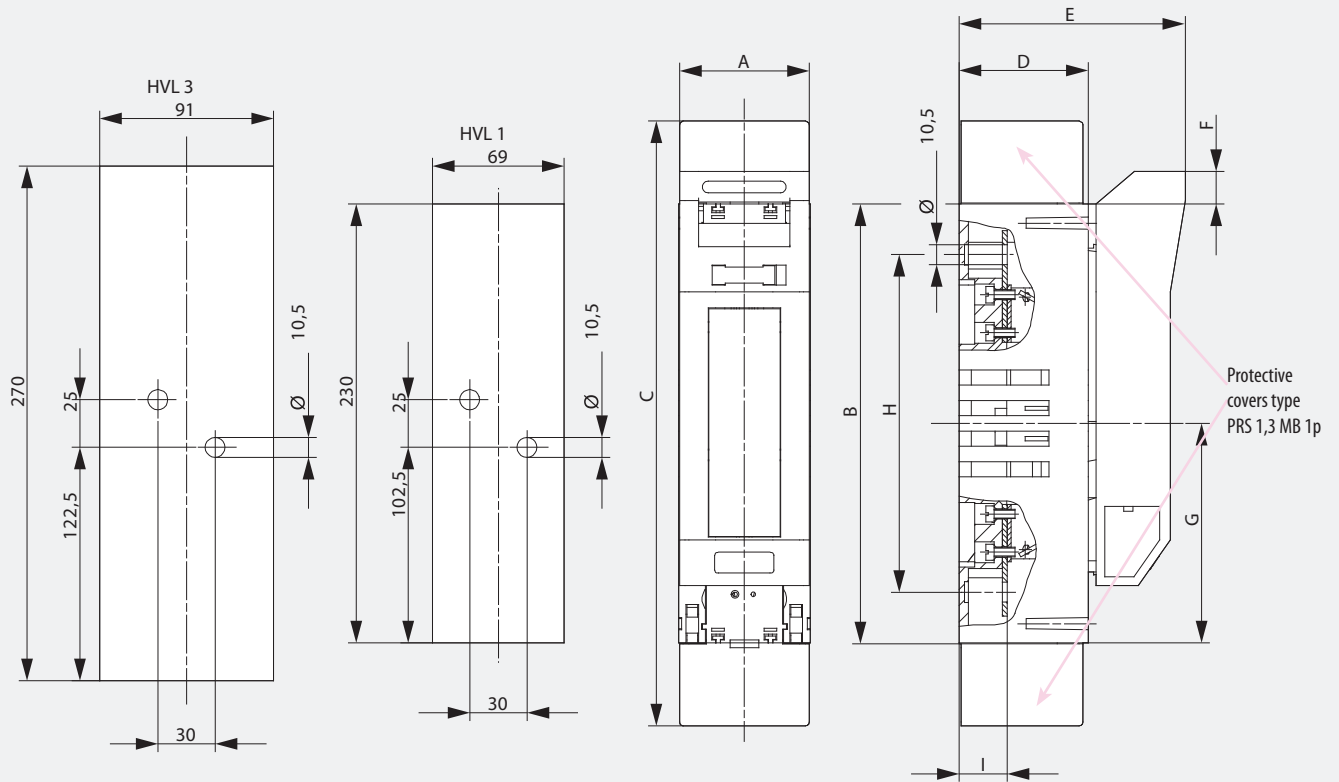
For size	Code No.	Type	Weight [kg]	Packaging [pcs]
00	001692501	HVL00 2p M8-M8	0,74	1/1
1	001692502	HVL1 2p M10-M10	2,17	1/1
3	001692503	HVL3 2p M10-M10	4,11	1/1

* see also table of accessories for HVL

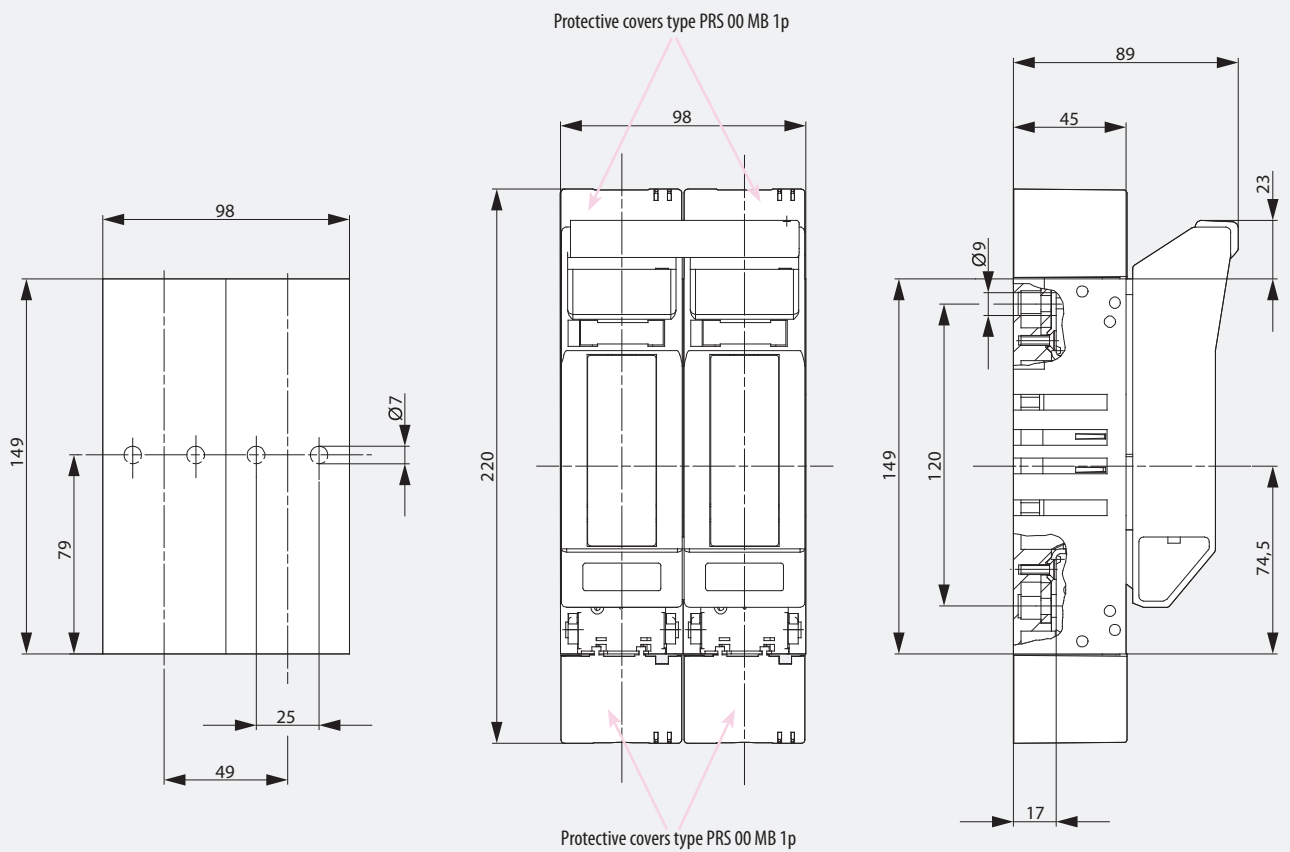
** for fuse size NH 2 use HVL 3



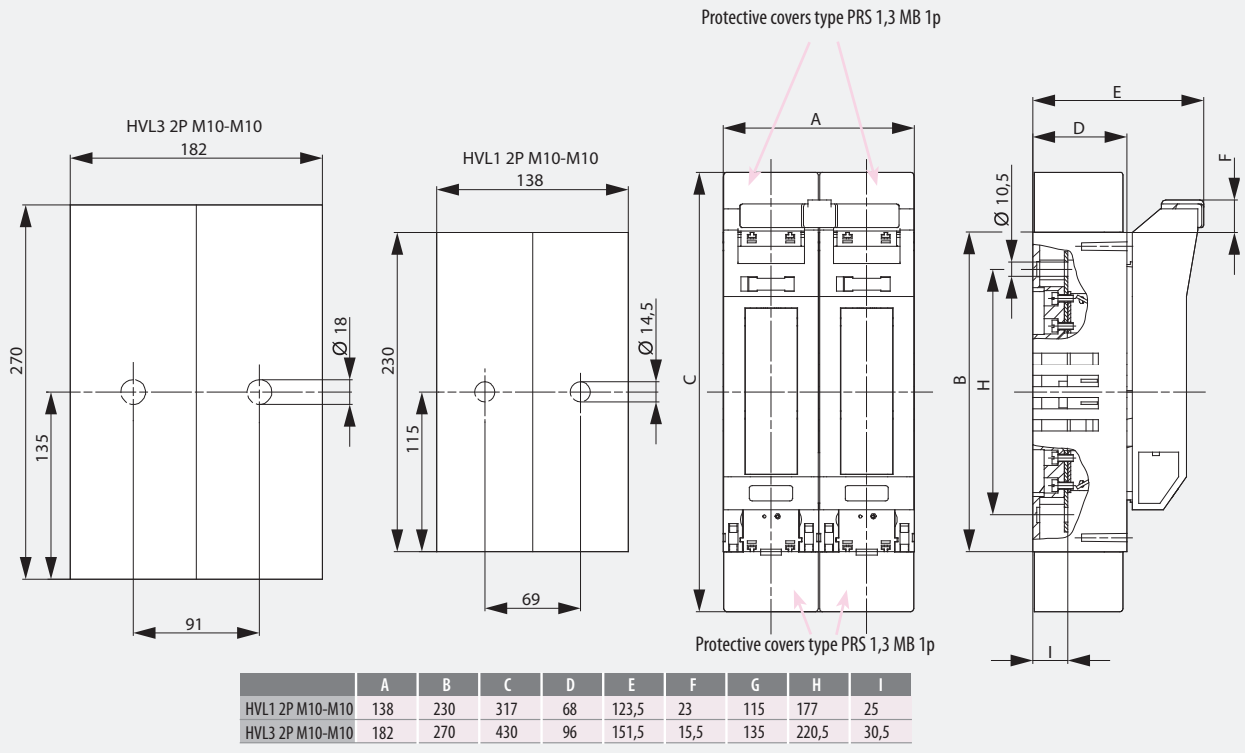
HVL 00 1-p



HVL 1 & HVL 3



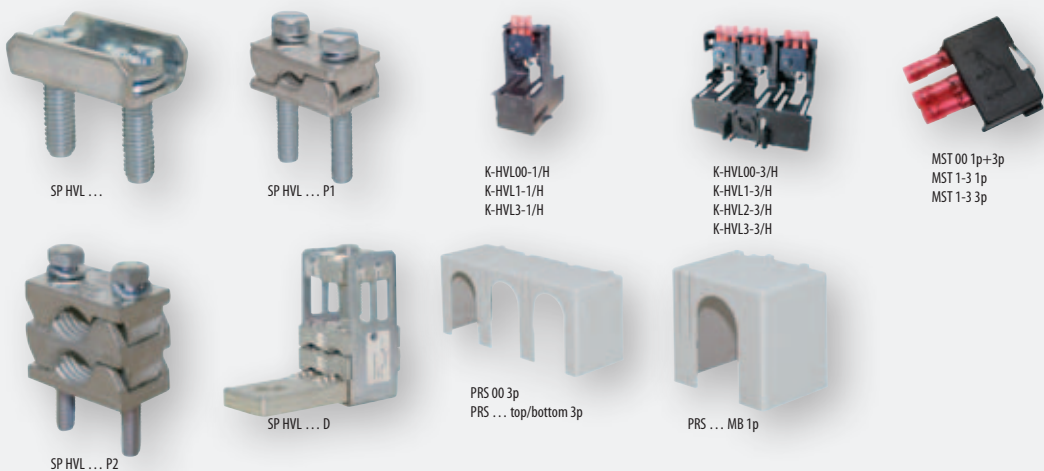
HVL00 2P M8-M8



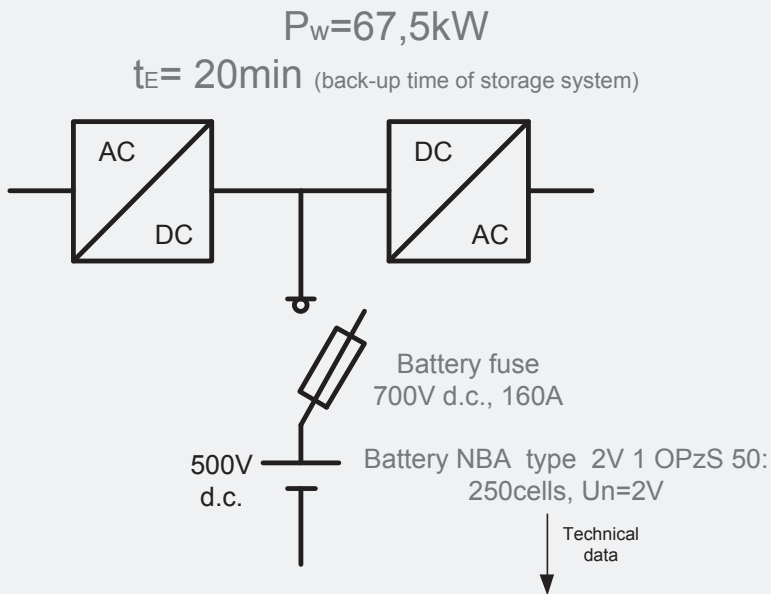
HVL1, 3 2P M10-M10

Accessories for HVL

Type	Code No.	Description	Packaging [pcs]
SP HVL00	1692701	Clip terminal, 1,5 – 50 mm ² Cu	3
SP HVL1	1692702	Clip terminal, 25– 150 mm ² Cu	3
SP HVL3	1692704	Clip terminal, 11x21 mm ² Cu	3
SP HVL00 P1	1692760	Prism clamp, 10 – 70 mm ² Al/Cu	3
SP HVL1 P1	1692761	Prism clamp, 70 – 150 mm ² Al/Cu	3
SP HVL3 P1	1692763	Prism clamp, 120 – 300 mm ² Al/Cu	3
SP HVL1 P2	1692764	Prism clamp for 2-conductors connection, 2x70 – 95 mm ² Al/Cu	3
SP HVL3 P2	1692766	Prism clamp for 2-conductors connection, 2x120 – 240 mm ² Al/Cu	3
MST 00 1p+3p	1692711	Switch position indicator for fuse switch disconnecter size 00, 1p/3p	1
MST 1-3 1p	1692712	Switch position indicator for fuse switch disconnecter size 1-3, 1p	1
MST 1-3 3p	1692713	Switch position indicator for fuse switch disconnecter size 1-3, 3p	1
K-HVL00-1/H	1692718	Mechanical fuse monitor, size 00, 1p	1
K-HVL00-3/H	1692708	Mechanical fuse monitor, size 00, 3p	1
K-HVL1-1/H	1692719	Mechanical fuse monitor, size 1, 1p	1
K-HVL1-3/H	1692715	Mechanical fuse monitor, size 1, 3p	1
K-HVL3-1/H	1692720	Mechanical fuse monitor, size3, 1p	1
K-HVL3-3/H	1692717	Mechanical fuse monitor, size 3, 3p	1
PRS 00	1692721	Protective cover, 3-pole, baseplate mounting, top/bottom	1
PRS 1 TOP	1692722	Protective cover, 3-pole, baseplate mounting, top	1
PRS 1 BOTTOM	1692725	Protective cover, 3-pole, baseplate mounting, bottom	1
PRS 3 TOP	1692724	Protective cover, 3-pole, baseplate mounting, top	1
PRS 3 BOTTOM	1692727	Protective cover, 3-pole, baseplate mounting, bottom	1
PRS 00 MB 1p	1696120	Protective cover, 1-pole, baseplate- and busbar mounting, top/bottom	1
PRS 1 MB 1p	1696121	Protective cover, 1-pole, baseplate- and busbar mounting, top/bottom	1
PRS 3 MB 1p	1696122	Protective cover, 1-pole, baseplate- and busbar mounting, top/bottom	1



How to choose the correct Battery fuse - example



1. Short circuit point (I_k):

2. Types, capacities, dimensions, mass

Type	C10	C5	C3	C1	Ri 1)	I_k 2)	length	width	height max	mass 3)	mass 4)
	Ah	Ah	Ah	Ah	mΩ	kA	mm	mm	mm	kg	kg
U_n (V/cell)	1,80	1,77	1,75	1,67							
2V 1 OPzS 50	50	45	36	24	3,96	0,58	103	206	426	4,5	7
2V 2 OPzS 100	100	85	66	48	1,98	1,16	103	206	426	7,5	13
2V 3 OPzS 150	150	125	102	72	1,27	1,74	103	206	426	10	18
2V 4 OPzS 200	200	170	138	96	1,01	2,32	103	206	426	12	22
2V 5 OPzS 250	250	210	171	120	0,81	2,90	124	206	426	14	26
2V 6 OPzS 300	300	250	204	144	0,69	3,48	145	206	426	16	30
6V 3 OPzS 150	150	125	107	75	3,71	0,62	233	224	426	20,5	36,5

1, 2) internal resistance and short-circuit current according to IEC 696-1 3) dry-charged 4) filled and charged



$I_k = 580A$

2. Operating point (t_E/I_B):

$t_E = 20min$ (1200s)

$U_E = 250cells \times 1,8V = 450V$ d.c.

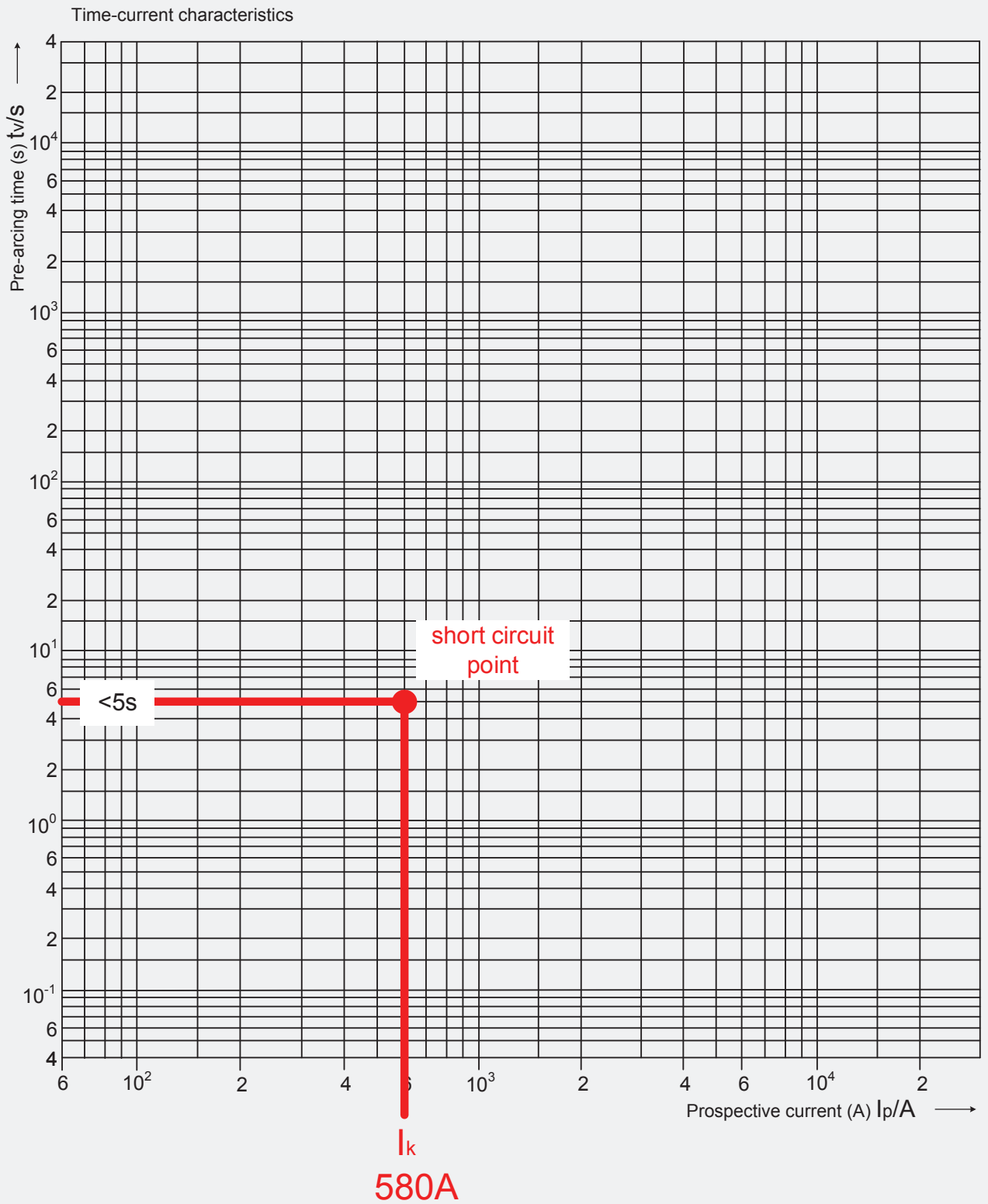
$I_B = P_w / U_E = 67,5kW / 450V = 150A$

3. DC rated fuse link:

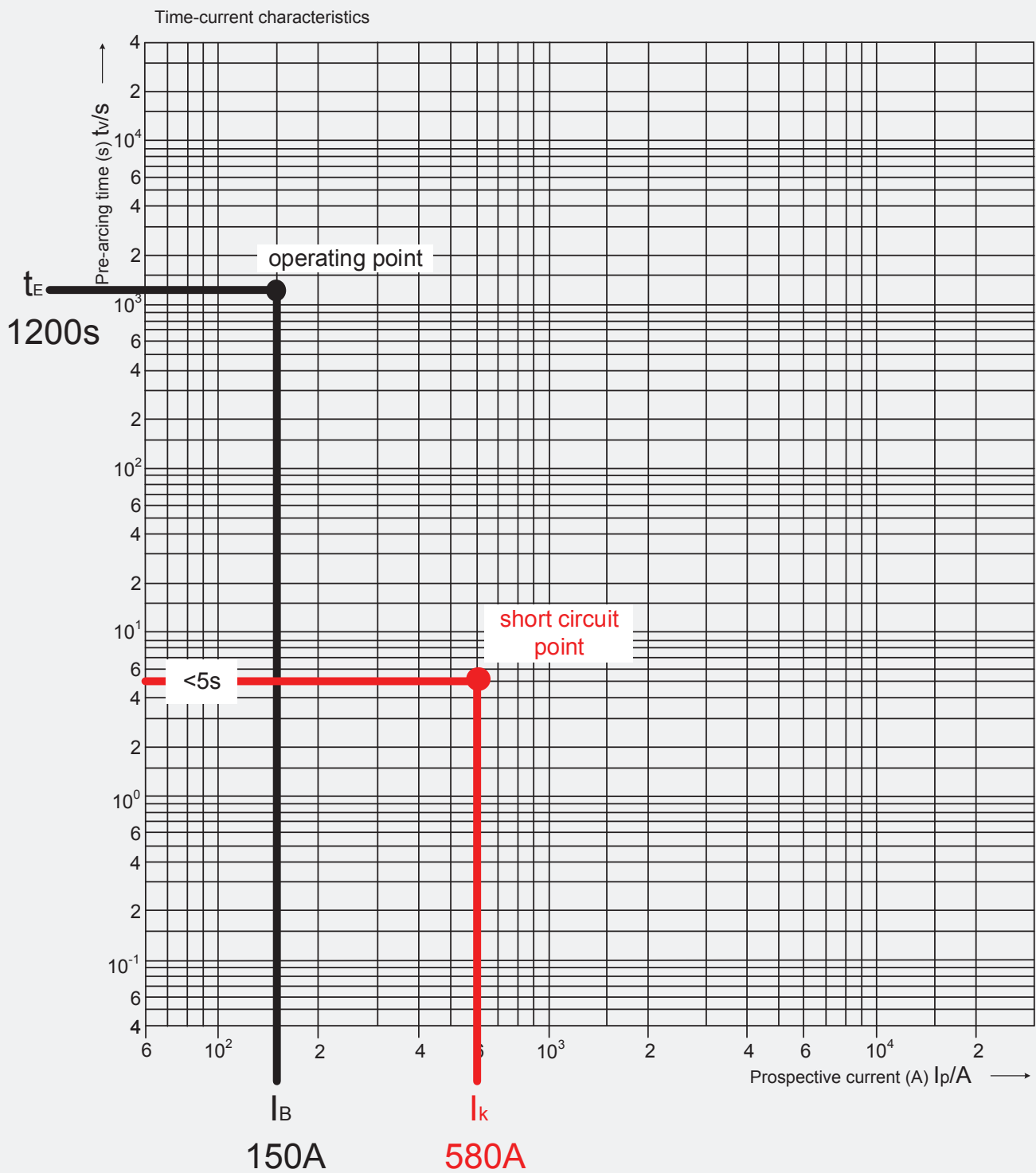
Battery fuse 700V d.c., $L/R = 10ms$

NH00 gG 160A 690V a.c. **problem DC rating at min. breaking capacity $\sim 2xI_n$???**

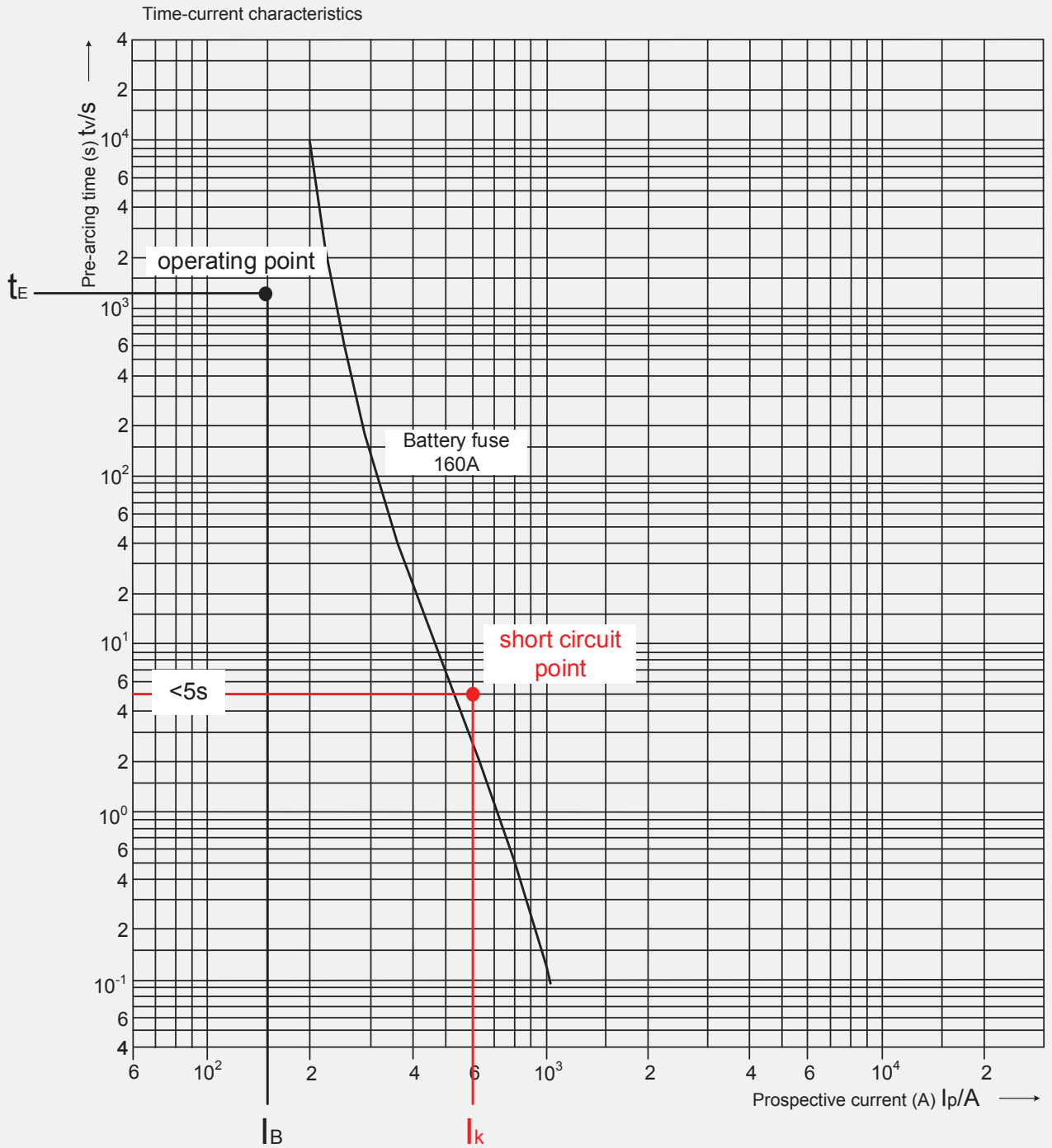
1. Short circuit point (I_k):



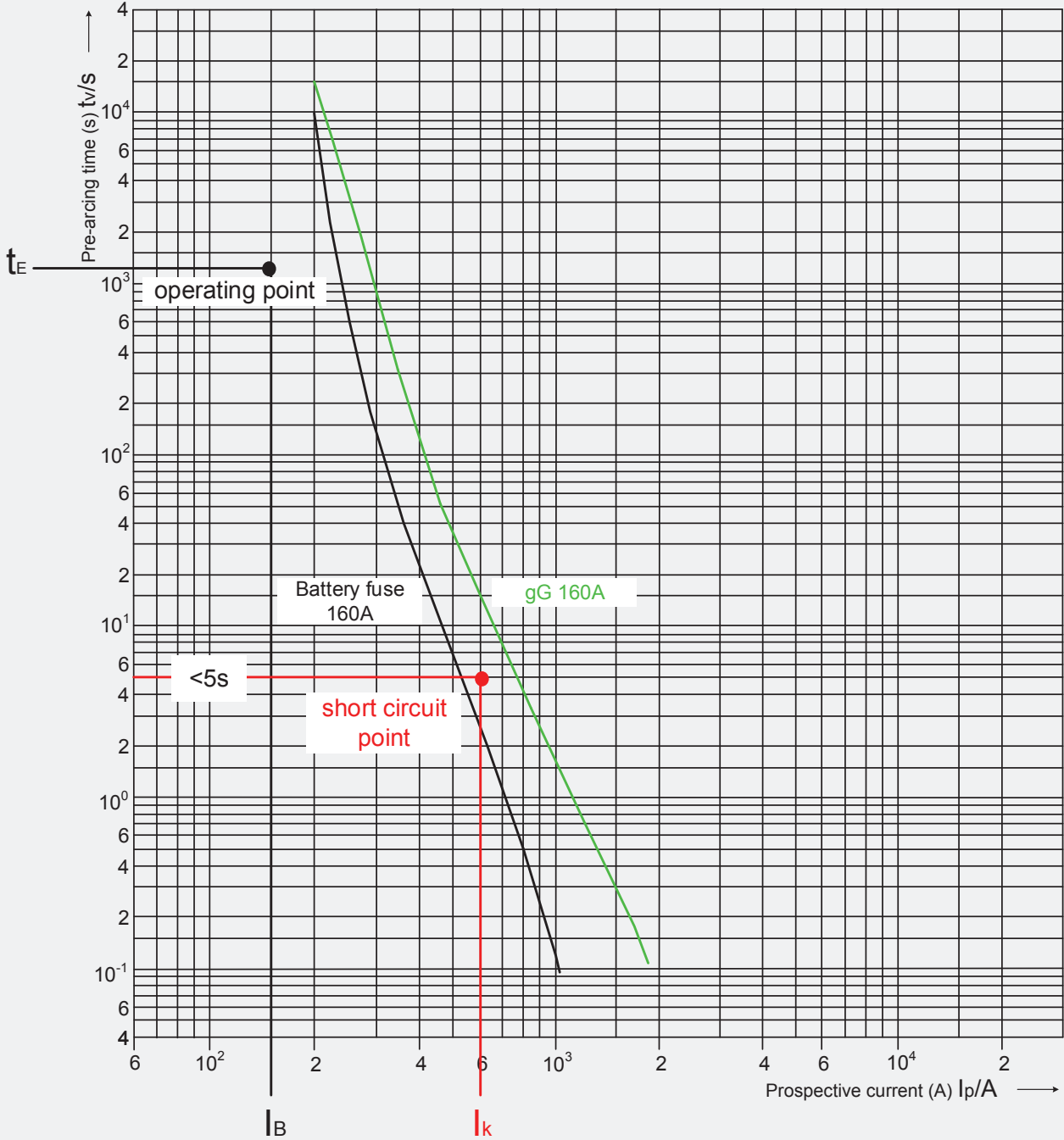
2. Operating point (t_E/I_B):



Battery fuse selection-I/t characteristic



Time-current characteristics



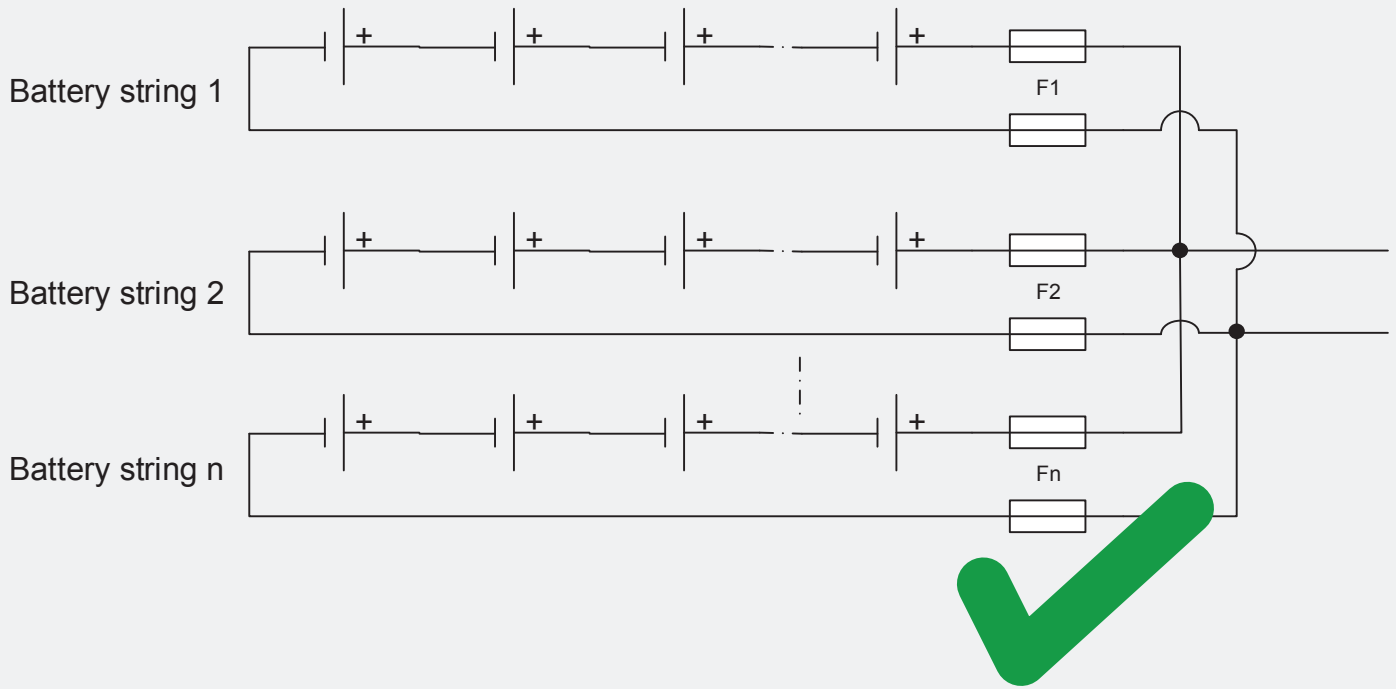
Required operating time
<5s

Battery fuse 700V d.c.
160A
operating time
2,5s

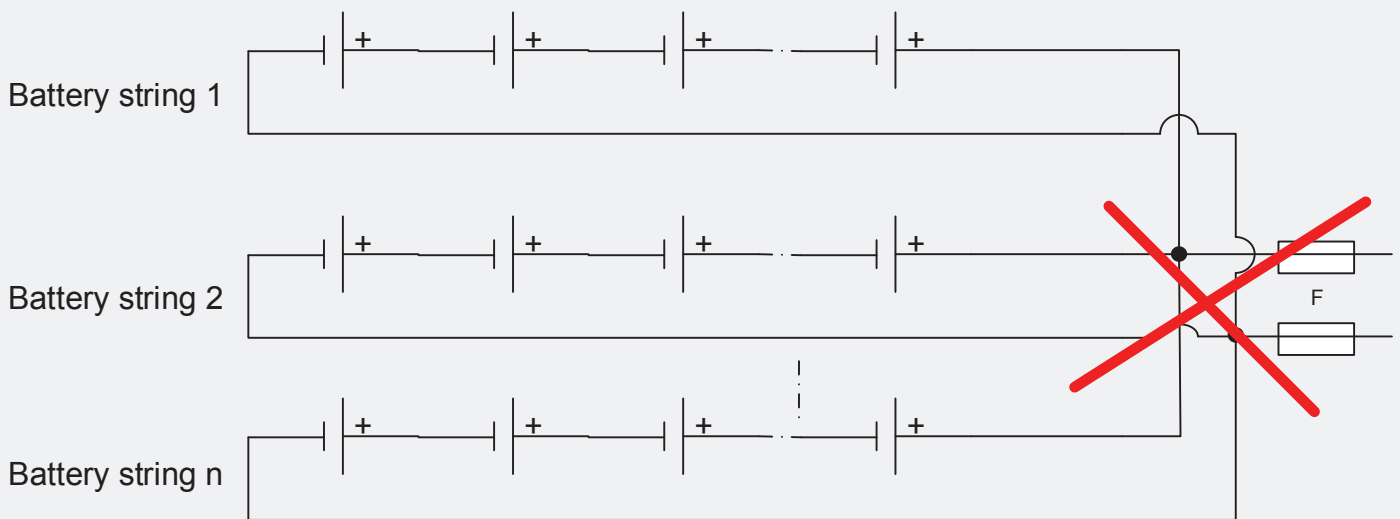
~~gG fuse 160A
operating time
15s~~

~~MCB 160A
operating time
~30s~~

Battery array



Battery array





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March 2015

ETI d.d. withholds the right to make changes and additions to any information contained herein.