BATTERY FUSE

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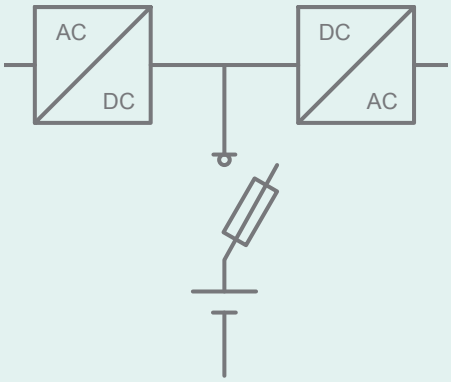
BECAUSE EVERY SECOND COUNTS

NH Fuse-links with gBat Characteristic

ETI
SWITCH TO
A SAFE FUTURE

Battery Storage Fuse Selection



Short circuit current

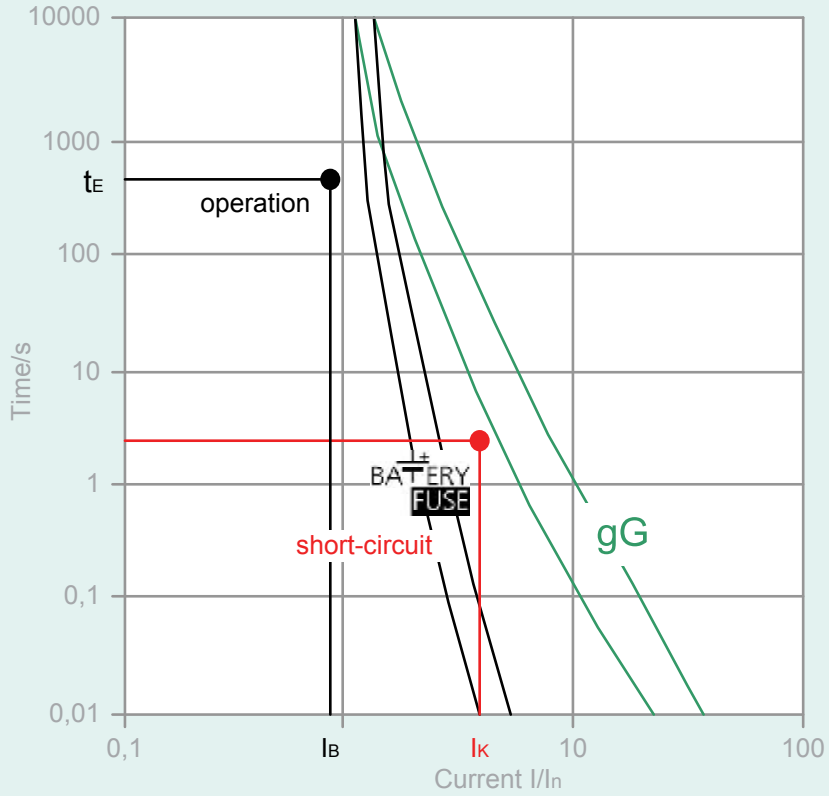
- Short circuit current depending on battery model, type and capacity, low compared to operating current
- Short circuit current has to be interrupted in <5 seconds

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



In accordance with IEC 60269-7

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 curent IB has to be calculated from battery storage true power and final discharge voltage U_E: IB = 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!

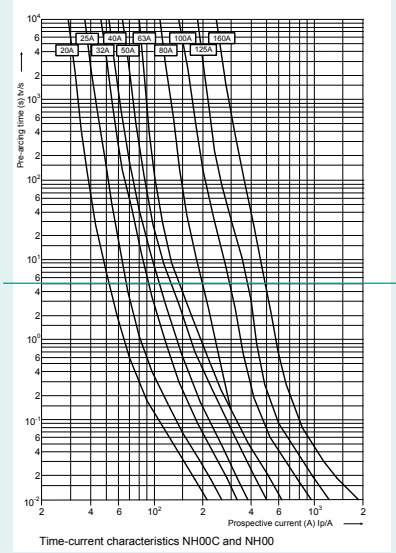
$$P_d(I_B) < P_y$$

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

Low Power Dissipation and Fast Characteristic in Time Range of 5s!



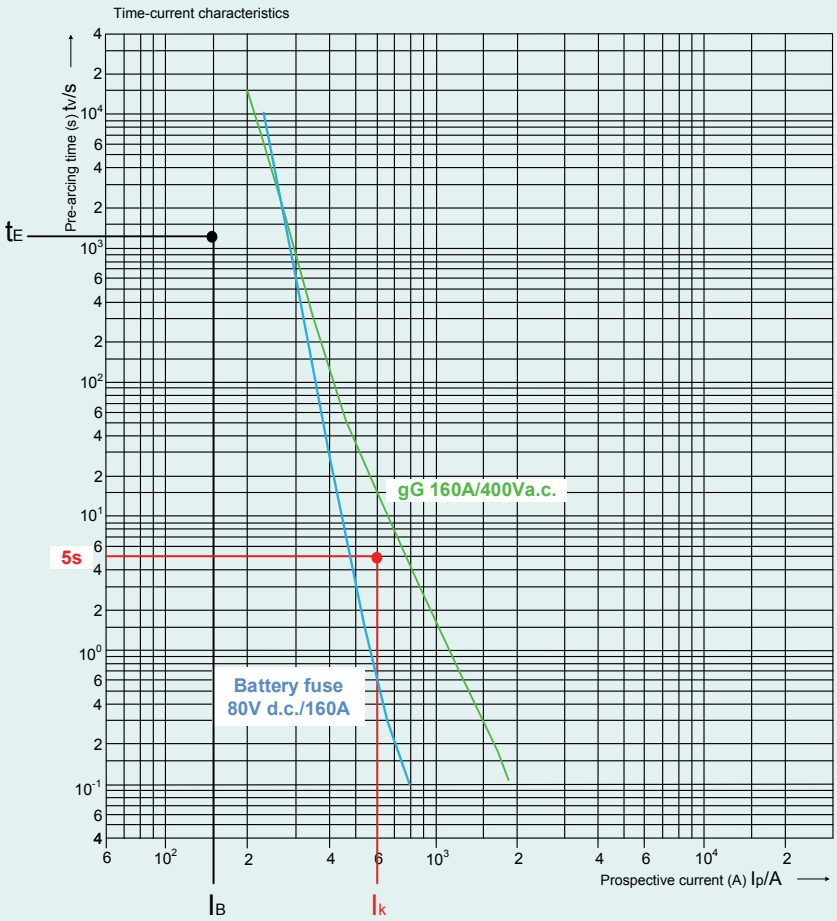
Time-current characteristics NH00C and NH00

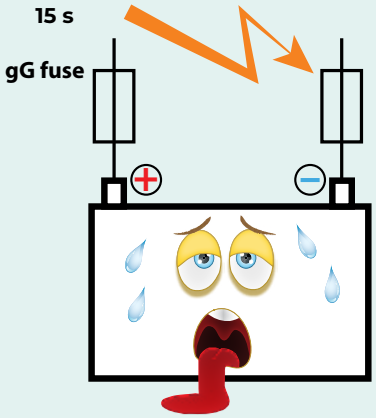
5s

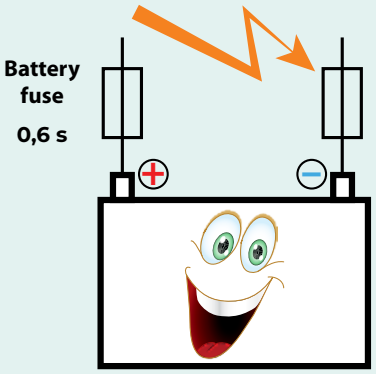
I_k

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

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







NH gBat fuse-link 80V d.c.

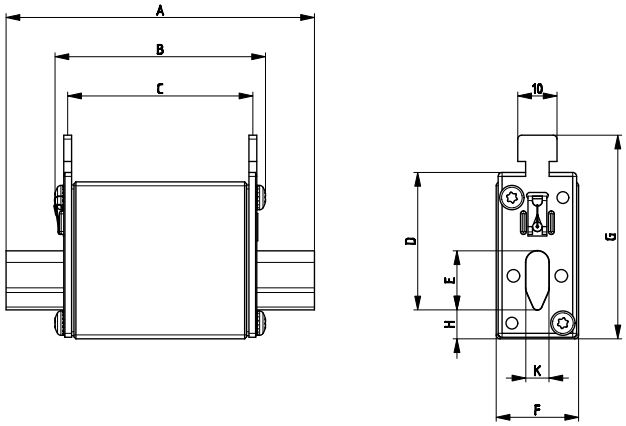
General characteristics

Rated voltage	80V d.c., L/R=10ms
Breaking capacity	50kA d.c..
Standard	IEC 60269-7
Application	Battery protection
Fuse base	NH00C, NH00: 004123001 PK00 NH1C, NH1: 004123100 PK1

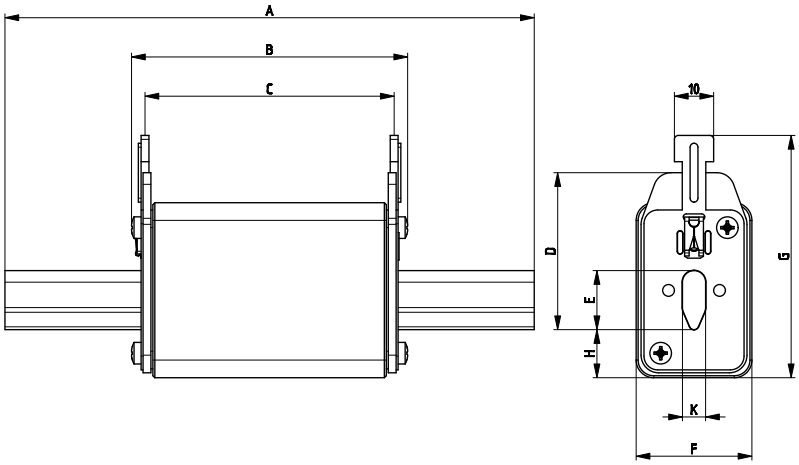
NH gBat fuse-link 80V d.c.

Size	I_n [A]	Standard indicator	Power dissipation [W]	Power dissipation 0,7xI_n [W]	Pre-arcing Joule integral [A²s]	Operating Joule integral [A²s]	g	
00C pic. 1	20	004110075	4,6	2	360	414	125	3/120
	25	004110076	5,8	2,6	710	817		
	32	004110077	6,6	3	920	1.058		
	40	004110078	9,4	4,2	1.440	1.656		
	50	004110079	11,1	5	2.820	3.243		
00 pic. 1	63	004110080	11,7	5,2	4.160	4.784	173	3/90
	80	004110081	10,4	4,7	4.670	5.371		
	100	004110082	11,1	5	9.360	10.764		
	125	004110083	13,4	6	14.750	16.963		
	160	004110084	15,5	7	27.880	32.062		
1C pic. 2	20	004110085	6,3	2,8	360	414	233	3/45
	25	004110086	7,3	3,3	710	817		
	32	004110087	9	4	920	1.058		
	40	004110088	11,2	5	1.440	1.656		
	50	004110089	14,5	6,5	2.820	3.243		
	63	004110090	16,8	7,5	4.160	4.784		
	80	004110091	11,4	5,1	4.670	5.371		
	100	004110092	12	5,4	9.360	10.764		
	125	004110093	14,8	6,6	14.750	16.963		
	160	004110094	17,6	7,9	27.880	32.062		
1 pic. 3	200	004110095	26,6	11,9	41.990	48.289	430	3/24
	250	004110096	31	13,9	81.000	93.150		

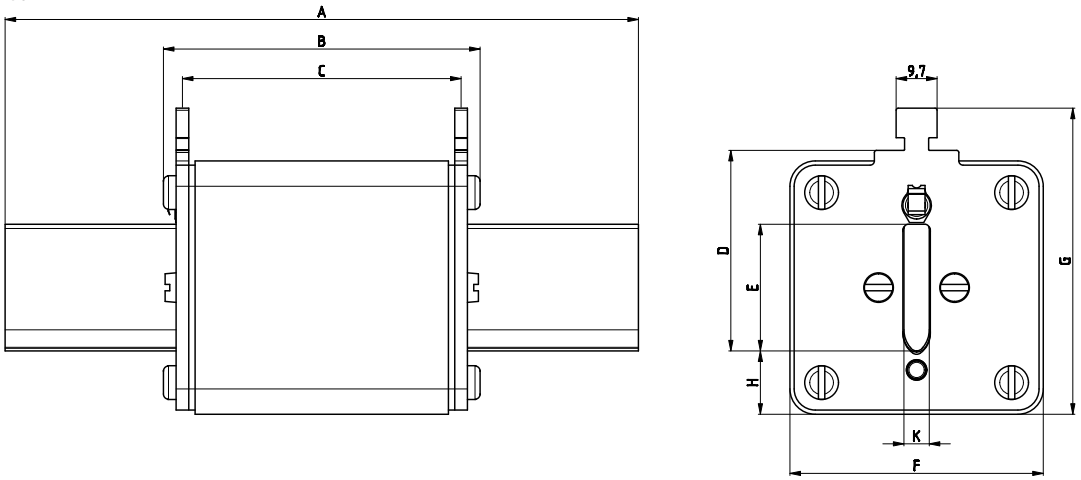
Picture 1



Picture 2



Picture 3



Size	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