

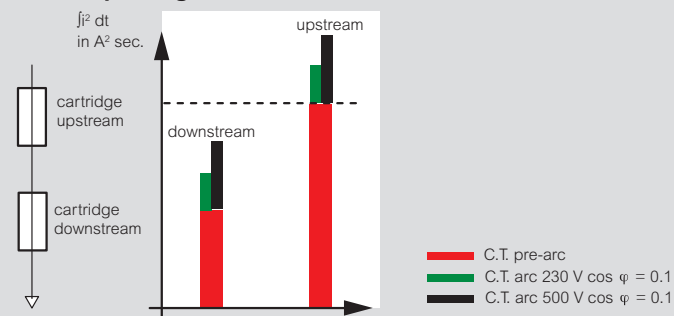
Selection charts

How to select a protection system ?

Depending on the type of failure, overload or short-circuit, use 2 series of data

- ① Overloads: use the operating zone curves of the different protection devices. On the same row, the operating zones should not overlap
- ② Short-circuits: use the I_i^{2t} tables. The total I_i^{2t} of the protection system the furthest downstream must be less than the upstream protection pre-arc I_i^{2t}

Example of good selection



Selection between cartridge fuses (according to IEC 60269-2-1)

Upstream rating gG cartridge fuse (A)	Downstream maximum rating determined according to class and voltage to obtain selection	
	aM	gG
2		
4	1	1
6	2	2
8	2	2
10	2	4
12	2	4
16	4	6
20	6	10
25	8	16
32	10	20
35	12	20
40	12	25
50	16	32
63	20	40
80	25	50
100	36	63
125	40	80
160	63	100
200	80	125
250	125	160
315	125	200
400	160	250

Upstream rating aM cartridge fuse (A)	Downstream maximum rating determined according to class and voltage to obtain selection	
	aM	gG
2	1	1
4	2	4
6	2	6
8	4	8
10	6	10
12	6	12
16	10	16
20	12	20
25	12	25
32	20	32
36	20	32
40	25	32
50	25	40
63	40	50
80	50	63
100	63	80
125	80	100
160	100	125
200	125	160
250	160	160
315	200	200
400	250	250

Motor protection

Motor three-phase									Cartridges																	
230 V			400 V			500 V			10 x 38 ratings		14 x 51 ratings		22 x 58 ratings		S. 00 ratings		S. 0 ratings		S. 1 ratings		S. 2 ratings		S. 3 ratings		S. 4 ratings	
kW	Hp	In A	kW	Hp	In A	kW	Hp	In A	gG	aM	gG	aM	gG	aM	gG	aM	gG	aM	gG	aM	gG	aM	gG	aM	gG	aM
			0.37	0.5	1.03	0.75	1	1.5	4	2	4	2														
0.37	0.5	1.8	0.75	1	2	1.5	2	2.6	6	4	6	4														
0.75	1	3.5	1.5	2	3.5	2.2	3	3.8	8	4	8	4														
1.1	1.5	4.4	2.2	3	5	3.7	5	5.9	12	6	12	6														
1.8	2.5	7	3	4	6.6	4	5.5	6.5	16	8	16	8	16													
2.2	3	8.7	4	5.5	8.5	5.5	7.5	9	20	10	20	10	20													
3	4	11.5	5.5	7.5	11.5	7.5	10	12	25	12	25	12	25	25												
4	5.5	14.3	7.5	10	15.5	11	15	18.4	20 ⁽¹⁾	32	20	32	20	32	20											
5.5	7.5	20	11	15	22	15	20	23	20 ⁽¹⁾	50	25	50	25	50	25											
7.5	10	27	15	20	30	18.5	25	28.5		32	50	32	50	32	50	32										
10	13.5	35	18.5	25	37	25	34	39.4		40	63	40	63	40	63											
11	15	39	22	30	44	30	40	45		50 ⁽¹⁾	80	50	80	50	80											
15	20	52	25	34	51	40	54	60			100	63	100	63	100	63										
18.5	25	64	30	40	60	45	60	65				80	125	80	125	80	125									
22	30	75	37	50	72	51	70	75					80	125	80	125	80	125								
25	35	85	45	60	85	63	109	89					100	160	100	160	100	160								
30	40	103	55	75	105	80	110	112					125 ⁽¹⁾		125	200	125	200	125	200						
45	60	147	75	100	138	110	150	156							160	250	160	250								
55	75	182	90	125	170	132	180	187									200	315	200	315						
75	100	239	110	150	205	160	220	220									250	400	250	400						
80	160	260	132	180	245	220	300	310											315							
90	125	295	160	218	300														315							
110	150	356	200	270	370	250	340	360											400							
132	180	425	250	340	475	335	450	472																		
160	218	520	315	430	584	450	610	608																		
220	300	710	400	550	750	500	680	680																		800

1: 400 V max.

Blade cartridge fuses gG and aM types

The gG or aM types protect the conductors of electrical circuits in the event of overbad or short-circuit

gG cartridge fuses:

The selectivity ratio is 1.6 instead of 2

The breaking capacity of 120000 A provides full protection in the most critical situations

aM cartridge fuses:

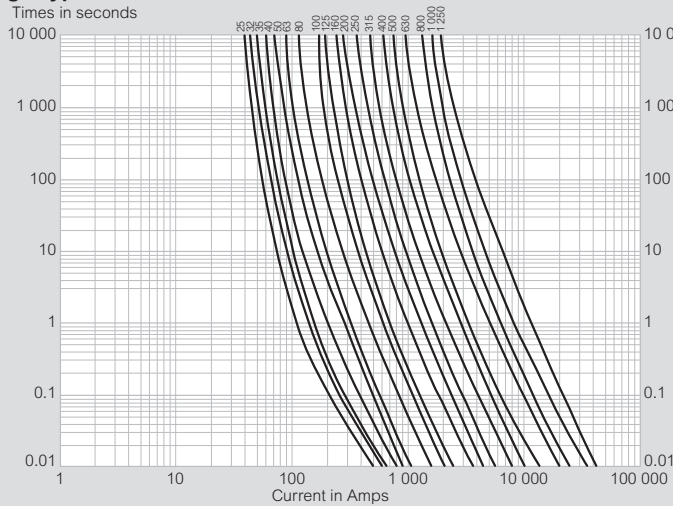
These cartridge fuses must be combined with a low-overload thermal protection device

The breaking capacity of 100000 A from size 10 x 38 upwards provides full protection in the most critical situations

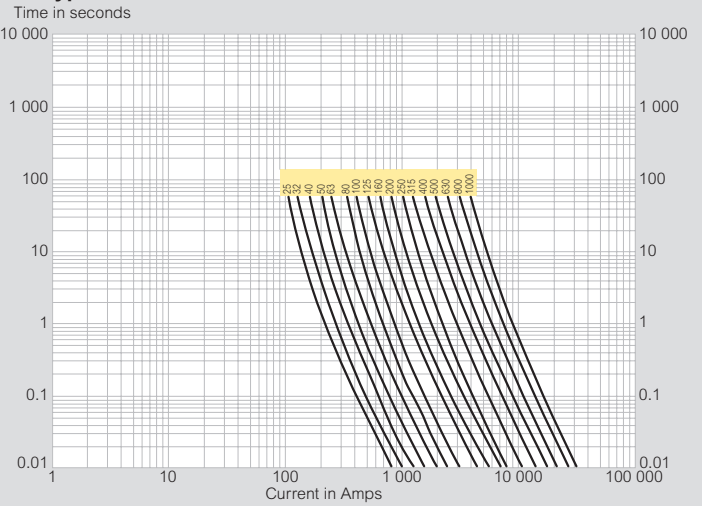
Cylindrical industrial cartridge fuses can be used to protect DC circuits supplied at up to 48 V max.

Rupture capacity curves

gG type

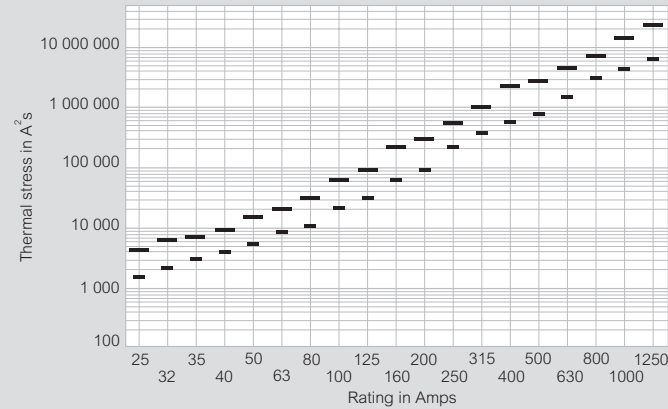


aM type



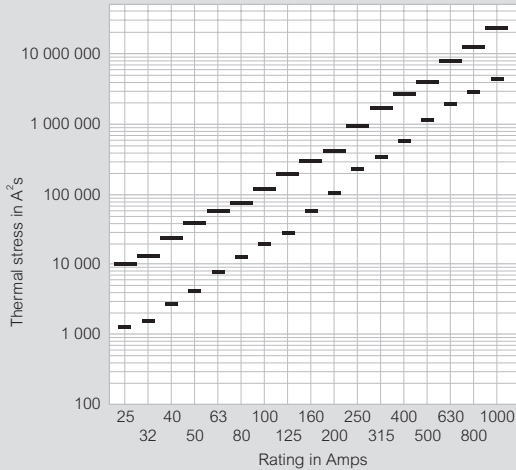
Thermal stresses ($\int I^2 dt$)

gG type (for 500 V~)

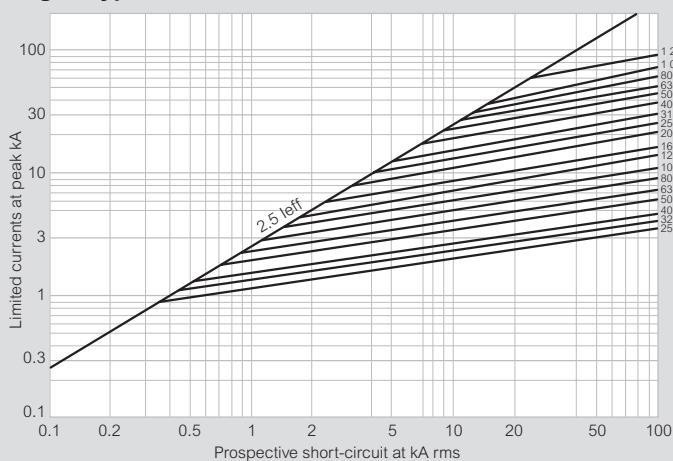


- Total maximum thermal stress for critical current
- - - Pre-arc thermal stress for critical current

aM type for 500 V~ - except 1250 A for 400 V



gG⁽¹⁾ type limitation curve



Consumption in watts when hot, at rated current

Fuse ratings (A)	Cartridge fuses			
	gG		aM	
	Size 00	Size 0 to 4	Size 00	Size 0 to 4
25	2.1		1.3	
32	3		1.8	
35	3			
40	3.3	4.2	2.5	
50	4.5	5.5	3	
63	6	6.5	3.6	3.9
80	7	8.5	5.2	5.5
100	7.5	9.5	6	6.5
125	13	12	7	8.5
160	15	15		11.5
200		19		13.5
250		23		17
315		24		24
400		33		28

1: For aM cartridge fuses, see technical data sheets in the Legrand e-catalogue