

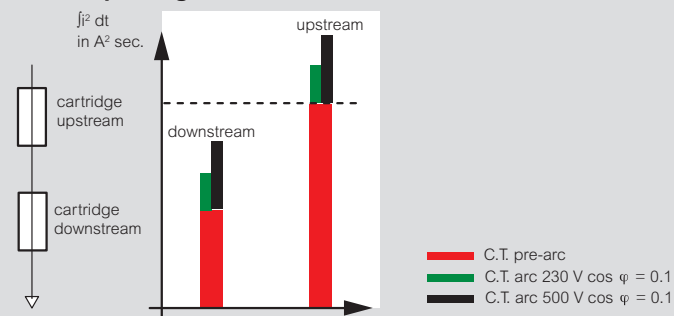
Selection charts

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 | 50 | | | | | | | | | | |
| 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:

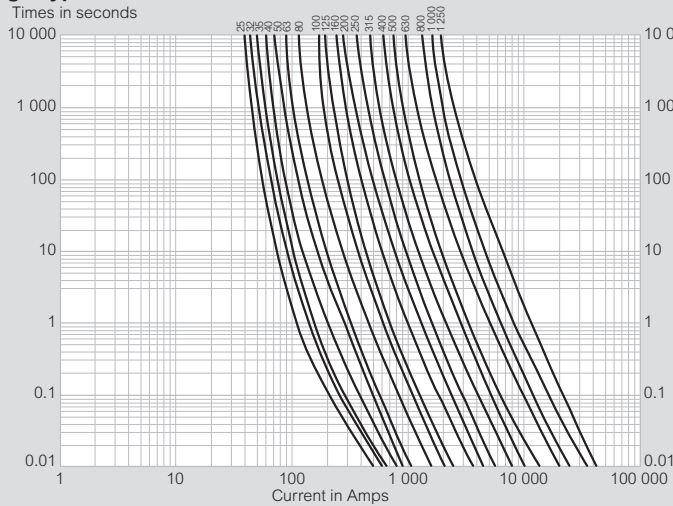
These cartridge fuses must be combined with a low-overload thermal protection device

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

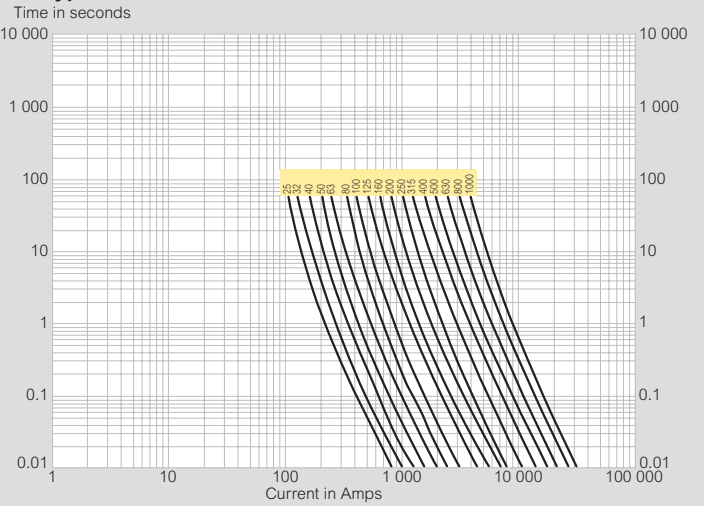
Cylindrical industrial cartridge fuses can be used to protect DC circuits supplied at up to 48 V max.

Rupture capacity curves

gG type

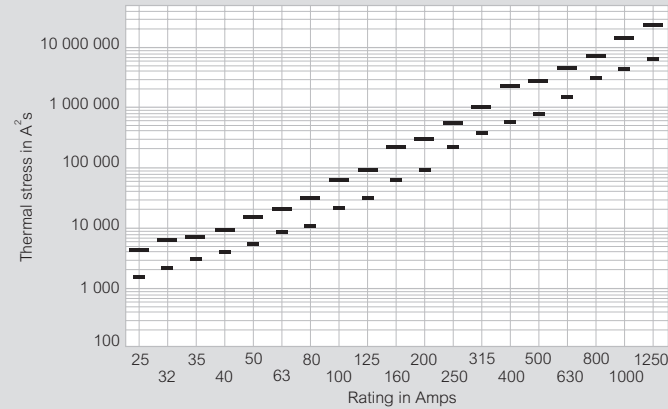


aM type



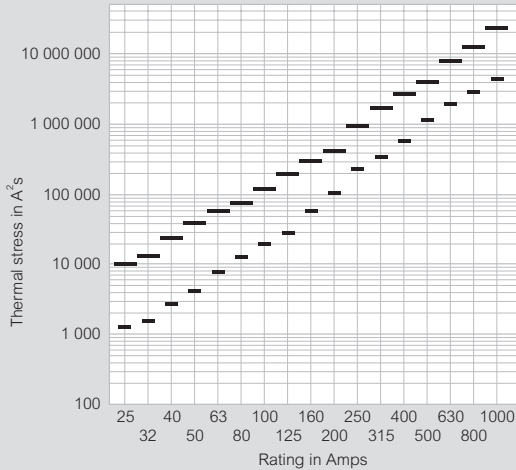
Thermal stresses $\int I^2 dt$

gG type (for 500 V~)

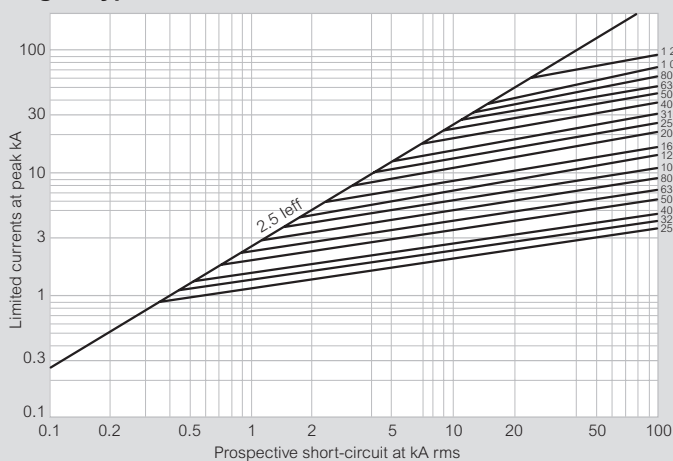


- Total maximum thermal stress for critical current
- - - Pre-arc thermal stress for critical current

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



gG⁽¹⁾ type limitation curve



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

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 |