

FUSE-LINKS FOR SEMICONDUCTOR PROTECTION UP TO 690 V a.c. (WITH BLADE CONTACTS)

Fuse-links for semiconductor protection P51.. are intended for protection of semiconductors and devices especially sensitive to short-circuits.

- Extremely low values of I^2t and cut-off currents.
- Small dimensions and low power losses.
- Possibility of use in fuse switch-disconnectors FH00, FH0, FH1, FH2 and FH3.
- Visual state indicator.
- Possibility of remote signalling of fuse state - see page D21.
- The fuse-links do not contain harmful substances according to the RoHS Regulation (cadmium, lead and other).
- Utilization category gR for protection of semiconductor devices against overload and short-circuit.
- Utilization category aR for protection of semiconductor devices only against short-circuit.
- In use of the fuses in fuse switch-disconnectors it is necessary to reduce connection cross-sections of cables depending on current load. Required cross-sections are specified in the tables in chapter "Conditions for use of cylindrical fuse-links in switch-disconnectors" see page H37 - H40.

Fuse-links for semiconductor protection

| | I_n [A] | Type | Product code | Power losses [W] | Temperature rise [K] | I^2t total [A ² s] | Weight [kg] | Package [pcs] |
|--------|----------------|------------------------------|--------------|------------------|----------------------|---------------------------------|-------------|---------------|
| P51R06 | 6 | P51R06 6A gR | 06632 | 2.7 | 17 | 37 | 0.130 | 3 |
| | 10 | P51R06 10A gR | 06633 | 4.5 | 30 | 50 | 0.130 | 3 |
| | 16 | P51R06 16A gR | 06634 | 6.7 | 38 | 73 | 0.130 | 3 |
| | 20 | P51R06 20A gR | 06635 | 9.0 | 48 | 90 | 0.130 | 3 |
| | 25 | P51R06 25A gR | 06636 | 8.0 | 38 | 250 | 0.130 | 3 |
| | 32 | P51R06 32A gR | 06637 | 11.0 | 48 | 350 | 0.130 | 3 |
| | 40 | P51R06 40A gR | 06638 | 14.0 | 53 | 480 | 0.130 | 3 |
| | 50 | P51R06 50A gR | 06639 | 14.5 | 56 | 1 050 | 0.130 | 3 |
| | 63 | P51R06 63A gR | 06640 | 23.0 | 74 | 1 960 | 0.130 | 3 |
| | 80 | P51R06 80A aR | 06641 | 23.3 | 68 | 2 200 | 0.130 | 3 |
| P51U06 | 100 | P51R06 100A aR | 06642 | 29.2 | 70 | 3 650 | 0.130 | 3 |
| | 125 | P51R06 125A aR | 06643 | 33.4 | 90 | 7 800 | 0.130 | 3 |
| | 160 | P51R06 160A aR ¹⁾ | 06644 | 37.2 | 90 | 15 500 | 0.130 | 3 |
| | 63 | P51U06 63A gR | 10558 | 17.5 | 42 | 2 050 | 0.390 | 3 |
| | 80 | P51U06 80A gR | 10559 | 23.5 | 45 | 2 850 | 0.390 | 3 |
| | 100 | P51U06 100A aR | 10560 | 25.5 | 45 | 6 050 | 0.390 | 3 |
| | 125 | P51U06 125A aR | 10561 | 29.0 | 46 | 8 900 | 0.390 | 3 |
| | 160 | P51U06 160A aR | 11201 | 38.0 | 60 | 16 800 | 0.390 | 3 |
| | 200 | P51U06 200A aR | 11202 | 50.5 | 64 | 26 000 | 0.390 | 3 |
| | 250 | P51U06 250A aR | 11203 | 52.0 | 70 | 59 000 | 0.390 | 3 |
| P51V06 | 315 | P51U06 315A aR | 11204 | 69.5 | 70 | 120 000 | 0.390 | 3 |
| | 250 | P51V06 250A aR | 35990 | 60.3 | 53 | 34 500 | 0.530 | 3 |
| | 315 | P51V06 315A aR | 35991 | 65.8 | 52 | 69 900 | 0.530 | 3 |
| | 350 | P51V06 350A aR | 35992 | 68.6 | 55 | 83 500 | 0.530 | 3 |
| | 400 | P51V06 400A aR | 35993 | 72.8 | 60 | 136 000 | 0.530 | 3 |
| | 450 | P51V06 450A aR | 35994 | 80.1 | 58 | 207 000 | 0.530 | 3 |
| | 500 | P51V06 500A aR | 35995 | 77.5 | 58 | 318 000 | 0.530 | 3 |
| | 550 | P51V06 550A aR | 35996 | 86.4 | 65 | 399 000 | 0.530 | 3 |
| 630 | P51V06 630A aR | 35997 | 90.7 | 67 | 682 000 | 0.530 | 3 | |

¹⁾ $U_n = 500$ V a.c.

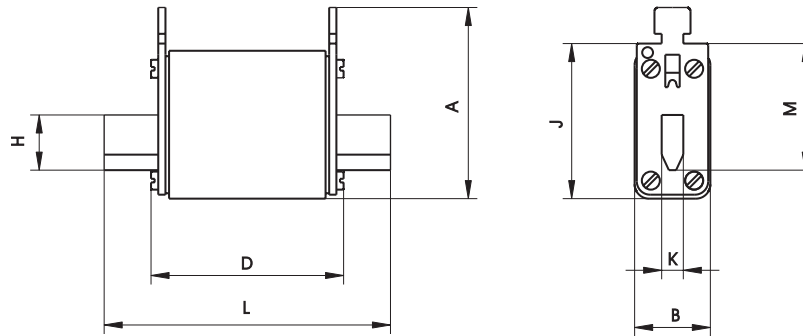


Parameters

| Type | P51R06 | P51U06 | P51V06 |
|-------------------------------------|--------------------------------------------------------------------------|------------------|------------------|
| Size | 000/blade contacts | 1/blade contacts | 2/blade contacts |
| Rated voltage U_n | 690 V a.c., 440 V d.c. (500 V a.c. for P51R06 160A) | | |
| Rated breaking capacity (rms) I_b | 690 V a.c. 120 kA | | 440 V d.c. 50 kA |
| Signalling | visual state indicator, remote signalling type T for signal contact VL50 | | |
| Rated frequency f_n | 50 Hz | | |
| Standards | IEC 60269-1, -2, -4; EN 60269-1, -4; EN 60269 | | |
| Approval marks | | | |

FUSE-LINKS FOR SEMICONDUCTOR PROTECTION UP TO 690 V a.c. (WITH BLADE CONTACTS)

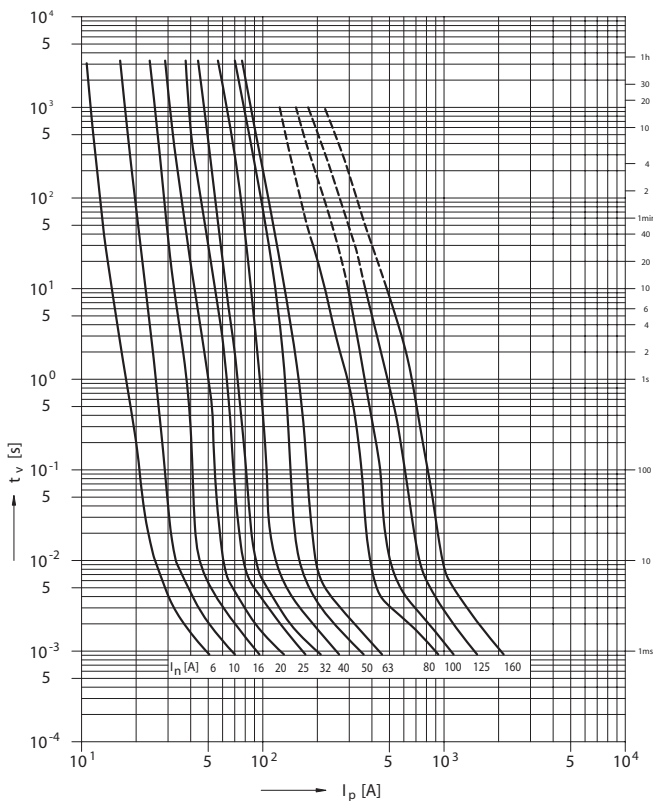
Dimensions



| Type | A | B | D | H | J | K | L | M | |
|--------|--------|--------|--------|----|----|---|-------|--------|--|
| | [mm] | | | | | | | | |
| P51R06 | 53 | 21 | 51.5 | 15 | 43 | 6 | 78.5 | 35 | |
| P51U06 | 62.5 | 44 | 70.5 | 20 | 53 | 6 | 135 | 40 | |
| P51V06 | 68±1.3 | 50±1.3 | 70.5±2 | 25 | 61 | 6 | 150±2 | 48±0.8 | |

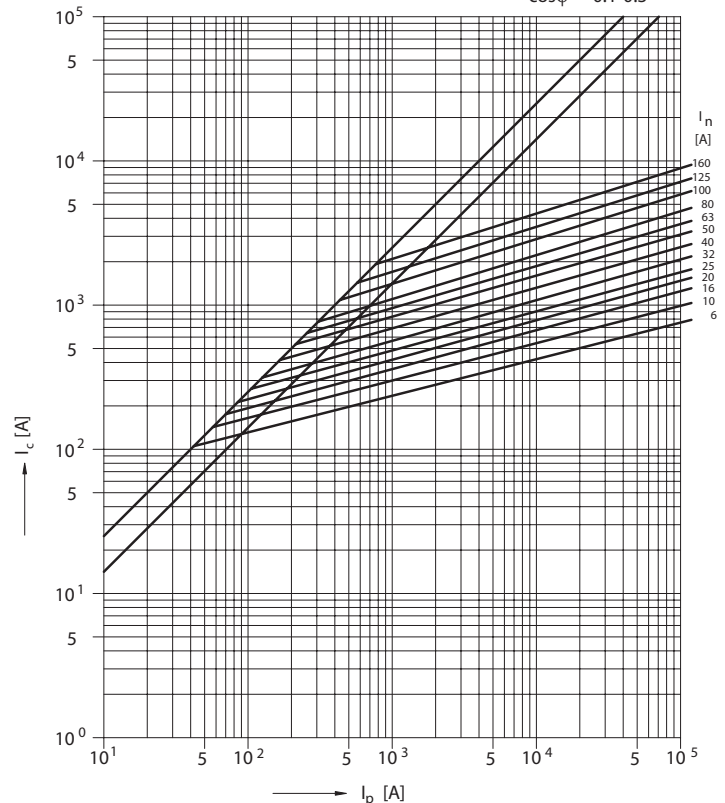
Characteristics

Prearcing time/current characteristic
P51R06 gR, aR



Cut-off characteristic
P51R06 gR, aR

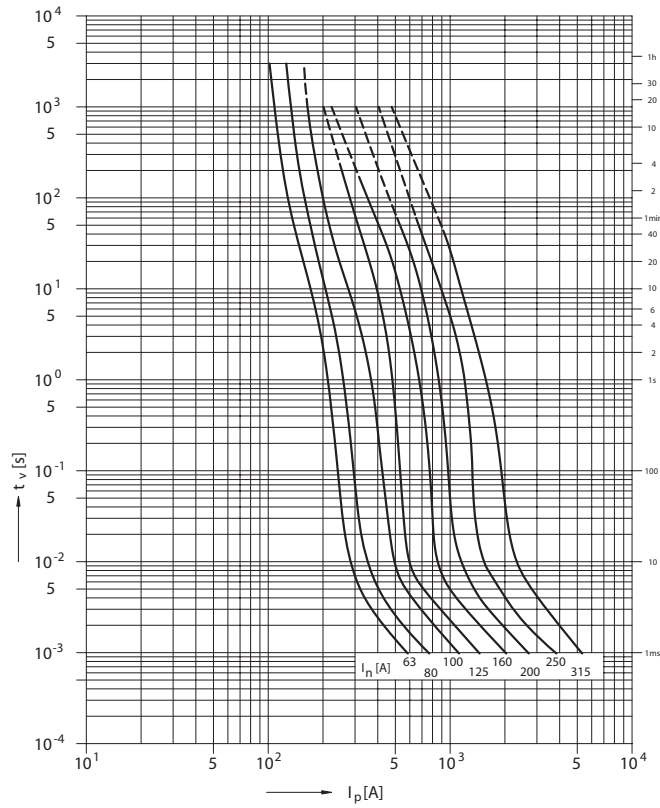
~ 690 V
 $\cos\phi = 0.1-0.3$



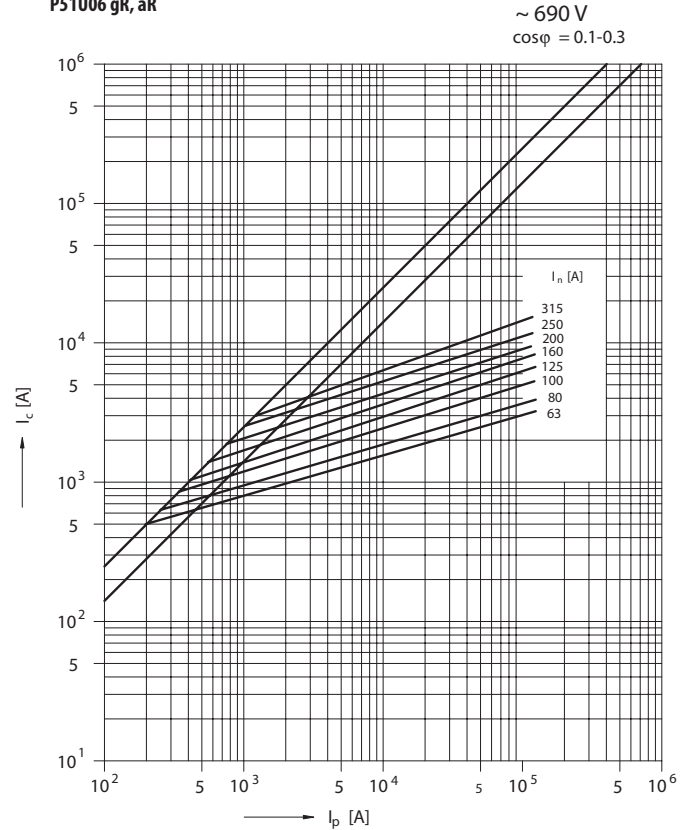
FUSE-LINKS FOR SEMICONDUCTOR PROTECTION UP TO 690 V a.c. (WITH BLADE CONTACTS)

Characteristics

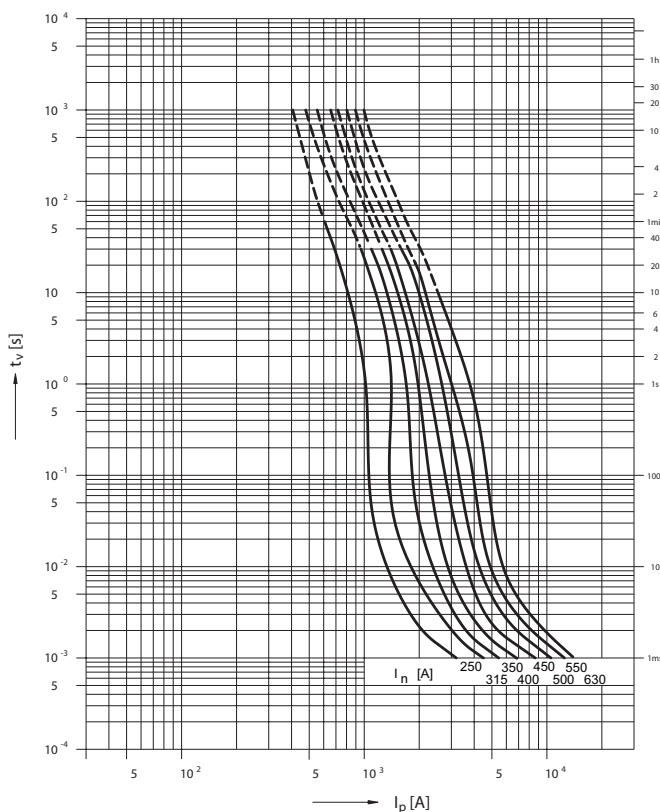
Prearing time/current characteristic
P51U06 gR, aR



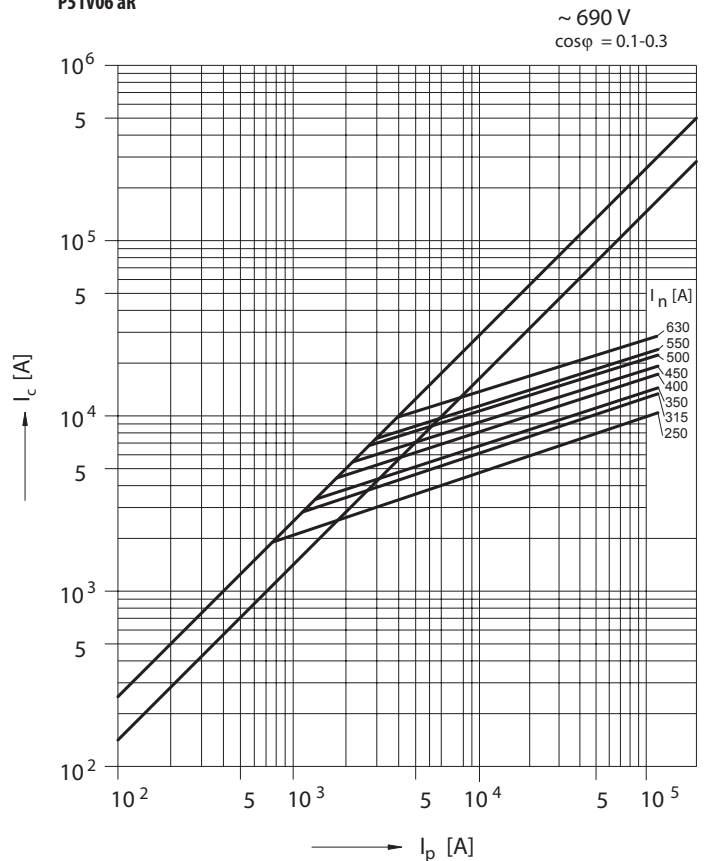
Cut-off characteristic
P51U06 gR, aR



Prearing time/current characteristic
P51V06 aR



Cut-off characteristic
P51V06 aR



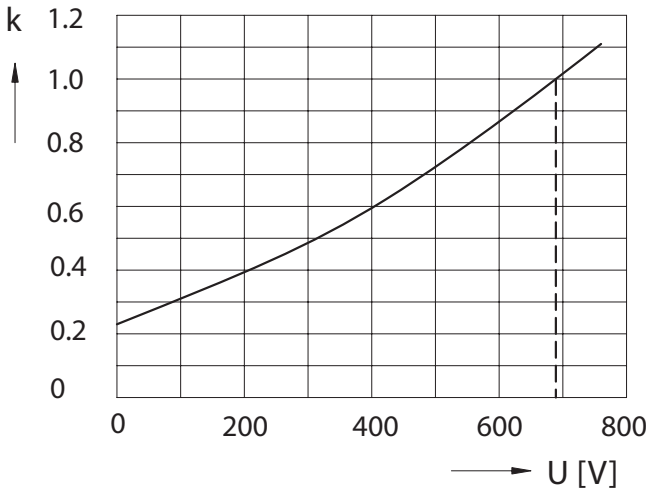
FUSE-LINKS FOR SEMICONDUCTOR PROTECTION UP TO 690 V a.c. (WITH BLADE CONTACTS)

Characteristics

Correction factor „k“ of I²t dependence on operating voltage U

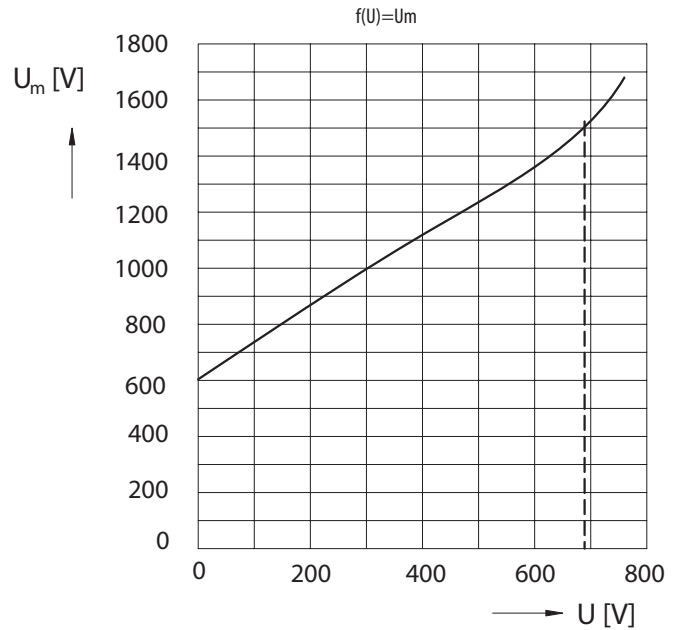
$$(I^2t_{\text{cell}})_{f(U)} = k \times I^2t_{\text{cell}}$$

P51R06



Overvoltage dependence on operating voltage

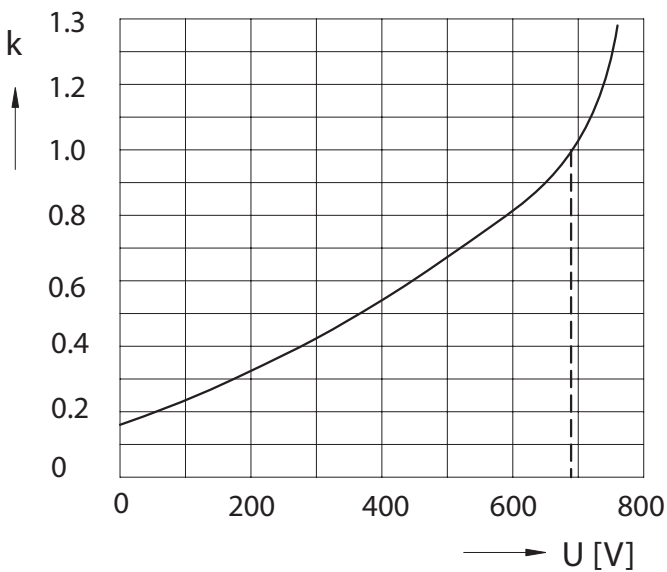
P51R06



Correction factor „k“ of I²t dependence on operating voltage U

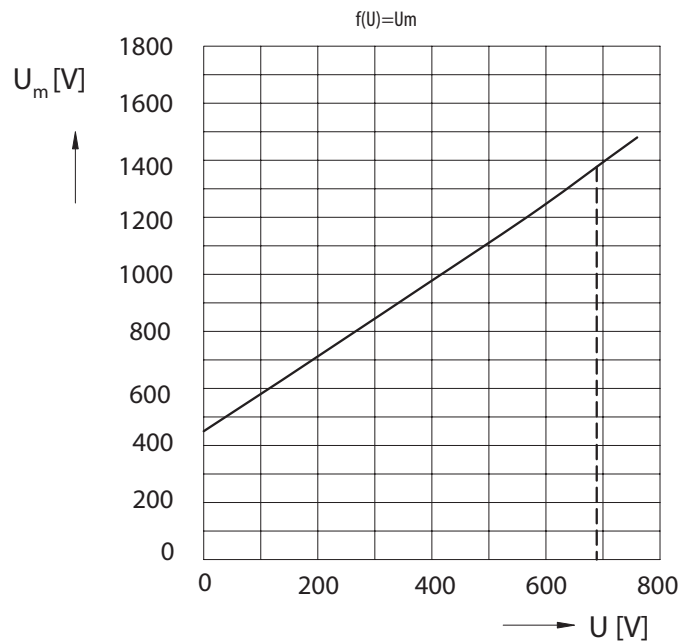
$$(I^2t_{\text{cell}})_{f(U)} = k \times I^2t_{\text{cell}}$$

P51U06, P51V06



Overvoltage dependence on operating voltage

P51U06, P51V06



CONDITIONS FOR THE USE OF FUSE-LINKS IN FUSE SWITCH-DISCONNECTORS

Use of fuse-links with blade contacts P51V06 in fuse switch-disconnectors FH2

| Fuse-link | Cross-section of Cu conductor [mm ²] | Reduced rated current [A] |
|-------------|--------------------------------------------------|---------------------------|
| P51V06 250A | 120 | 220 |
| | 185 | 240 |
| | 240 | 250 |
| | 2x 185 | 250 |
| P51V06 315A | 120 | 250 |
| | 185 | 280 |
| | 240 | 300 |
| | 2x 185 | 315 |
| P51V06 350A | 120 | 270 |
| | 185 | 300 |
| | 240 | 320 |
| | 2x 185 | 350 |
| P51V06 400A | 185 | 330 |
| | 240 | 350 |
| | 2x 185 | 390 |
| P51V06 450A | 185 | 340 |
| | 240 | 375 |
| | 2x 185 | 410 |
| P51V06 500 | 185 | 370 |
| | 240 | 400 |
| | 2x 185 | 450 |
| P51V06 550A | 185 | 390 |
| | 240 | 420 |
| | 2x 185 | 470 |
| P51V06 630A | 185 | 420 |
| | 240 | 450 |
| | 2x 185 | 500 |

Use of fuse-links with blade contacts P51V06 in fuse switch-disconnectors FH3

| Fuse-link | Cross-section of Cu conductor [mm ²] | Reduced rated current [A] |
|-------------|--------------------------------------------------|---------------------------|
| P51V06 250A | 120 | 230 |
| | 185 | 250 |
| | 240 | 250 |
| | 2x 185 | 250 |
| P51V06 315A | 120 | 260 |
| | 185 | 300 |
| | 240 | 315 |
| | 2x 185 | 315 |
| P51V06 350A | 120 | 280 |
| | 185 | 320 |
| | 240 | 340 |
| | 2x 185 | 350 |
| P51V06 400A | 120 | 300 |
| | 185 | 360 |
| | 240 | 375 |
| | 2x 185 | 400 |
| P51V06 450A | 185 | 370 |
| | 240 | 400 |
| | 2x 185 | 440 |
| P51V06 500 | 185 | 410 |
| | 240 | 420 |
| | 2x 185 | 480 |
| P51V06 550A | 185 | 420 |
| | 240 | 440 |
| | 2x 185 | 500 |
| P51V06 630A | 185 | 450 |
| | 240 | 470 |
| | 2x 185 | 540 |