FWE 1000 V d.c. round body fuses for EV charging stations



Product description

Eaton's Bussmann series FWE North American round body high speed 1000 V d.c. fuse links have leading DC performance making them the ideal choice for the protection of high-power DC Charging station applications.

Features

- Wide range of solutions available for the protection of DC conditioning circuits and high Voltage DC/DC Converters for up to 400kW+ rated chargers.
- Supports the full range of charger output ratings up to 1000VDC as covered by CCS & CHAdeMO Protocols
- Compact, space saving design coupled with a low minimum breaking current which offers easy coordination within DC applications and reduces dimensioning requirements of DC contactors to optimize space and decrease overall cost of system
- Demonstrated performance in extreme temperature cycling conditions ensure your installation will be protected by the best possible and most suitable electrical circuit protection solutions.

Applications

- DC Charging stations:
  - Private & Public charging stations
  - Slow (low power) and fast (high power)
- Specialist vehicle onboard applications
- General DC power conversion equipment and battery systems

Catalogue symbol

- FWE-(Amps)A

Fuse body size

- North American round body fuses

Technical data

- Rated voltage: 1000 V d.c.
- Rated current: 70 A to 600 A
- Class of operation: aR Ultra rapid characteristics available as partial and full range operating class
- Breaking capacity: 100 kA
- Time constant: 10 mS time constant tested (suitable for most DC applications)

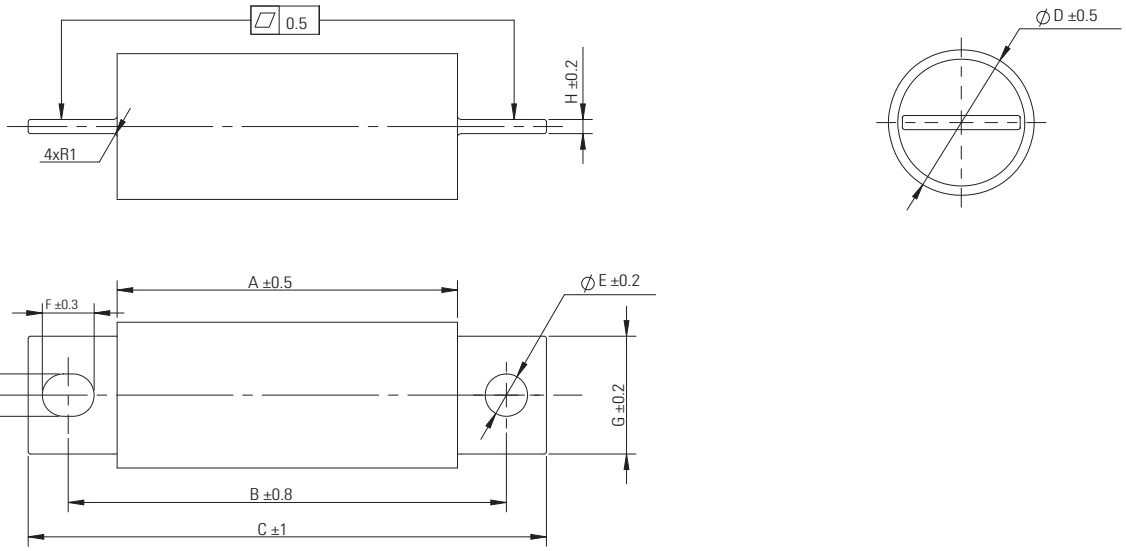
Standards/Approvals

- CE
- IEC 60269-4
- UL 248-13 recognised

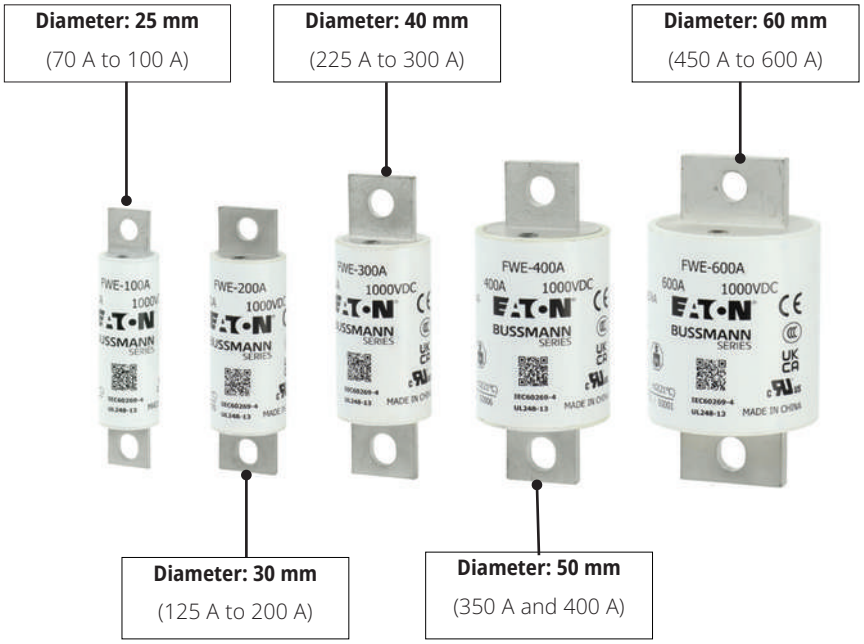
Table 1. Technical data

Catalogue number	Fuse body size	Rated current (A)	Rated voltage V d.c.	Breaking capacity (kA)	Minimum breaking capacity at 1000 V d.c.	Watts loss (50% rated current)	Watts loss (100% rated current)	Pre-arcing I^2t (A^2 Sec)	Clearing I^2t	Pack quantity
FWE-70A	25 mm	70	1000	100	420	3.8	21	680	5060	5
FWE-80A	25 mm	80	1000	100	480	4.2	24	1020	7240	5
FWE-90A	25 mm	90	1000	100	540	4.6	27	1400	9400	5
FWE-100A	25 mm	100	1000	100	600	5	30	1820	12300	5
FWE-125A	30 mm	125	1000	100	625	6	43	1830	8400	1
FWE-150A	30 mm	150	1000	100	750	7	49	2670	12,900	1
FWE-175A	30 mm	175	1000	100	875	8	52	4670	22,300	1
FWE-200A	30 mm	200	1000	100	1000	9	56	6900	31,600	1
FWE-225A	40 mm	225	1000	100	1125	10	69	7880	34,600	1
FWE-250A	40 mm	250	1000	100	1250	11	79	9940	46,700	1
FWE-275A	40 mm	275	1000	100	1375	12	83	13,000	57,000	1
FWE-300A	40 mm	300	1000	100	1500	13	87	16,800	73,900	1
FWE-350A	50 mm	350	1000	100	1750	15	100	21,100	132,000	1
FWE-400A	50 mm	400	1000	100	2000	16	110	31,500	186,000	1
FWE-450A	60 mm	450	1000	100	2250	19	139	35,300	161,000	1
FWE-500A	60 mm	500	1000	100	2500	21	155	49,300	197,000	1
FWE-550A	60 mm	550	1000	100	2750	23	167	58,600	312,000	1
FWE-600A	60 mm	600	1000	100	3000	25	180	74,700	335,000	1

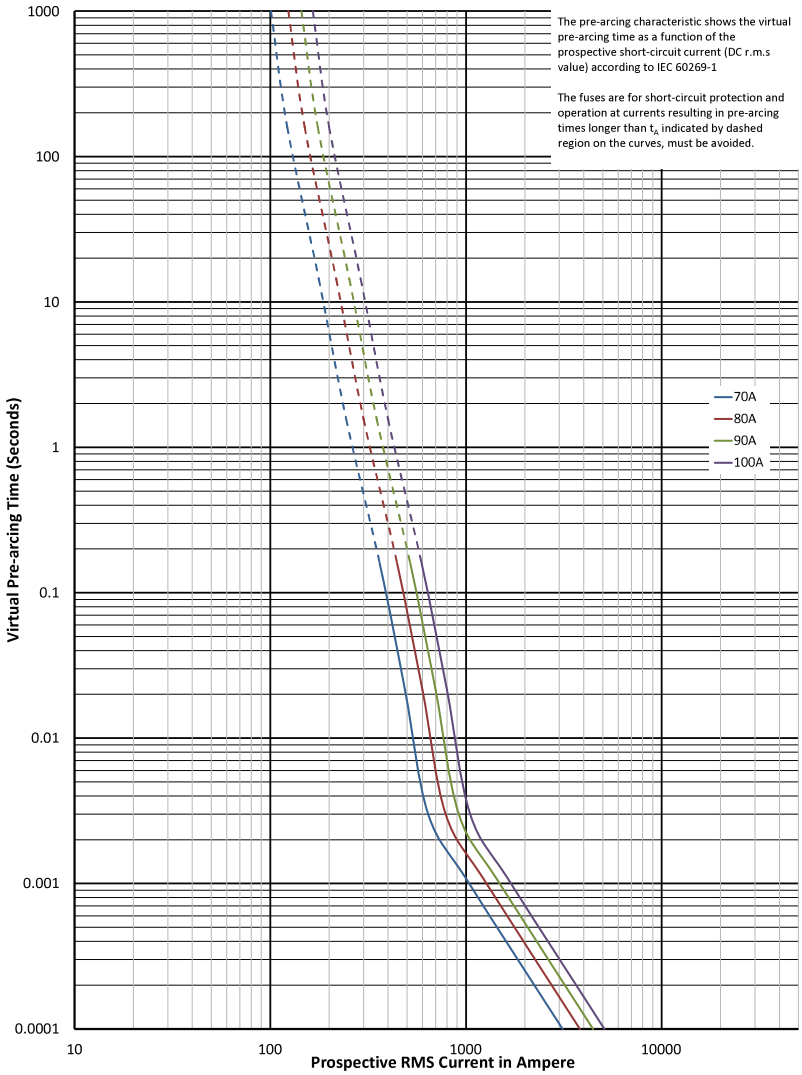
Dimensions - mm



Catalogue number	A	B	C	D	E	F	G	H
FWE-70A to FWE-100A	72.2	93	110	25.4	9	11	19	2.2
FWE-125A to FWE-200A	72.2	93	110	31	9	11	25	3
FWE-225A to FWE-300A	72.2	100	122	38.1	11	13	28	3.5
FWE-350A and FWE-400A	72.2	100	122	50.8	11	13	28	5
FWE-450A to FWE-600A	72.2	100	122	63.5	11	13	40	6



Time current curve - 70 A to 100 A



K_b = 1

Total clearing I^2t

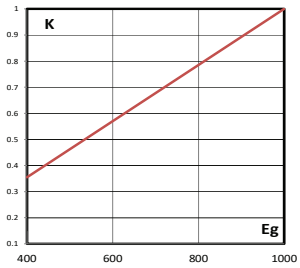
The total clearing I^2t at rated voltage and tested DC time constant are given in electrical characteristics. For other voltages the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltages, E.

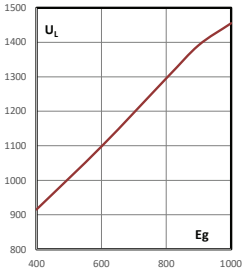
Arc voltage

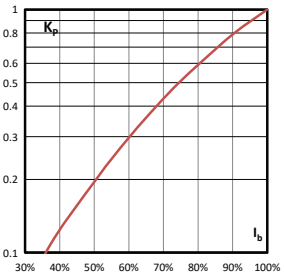
This curve gives the peak arc voltage,U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, at a time constant of 10ms.

Watts losses

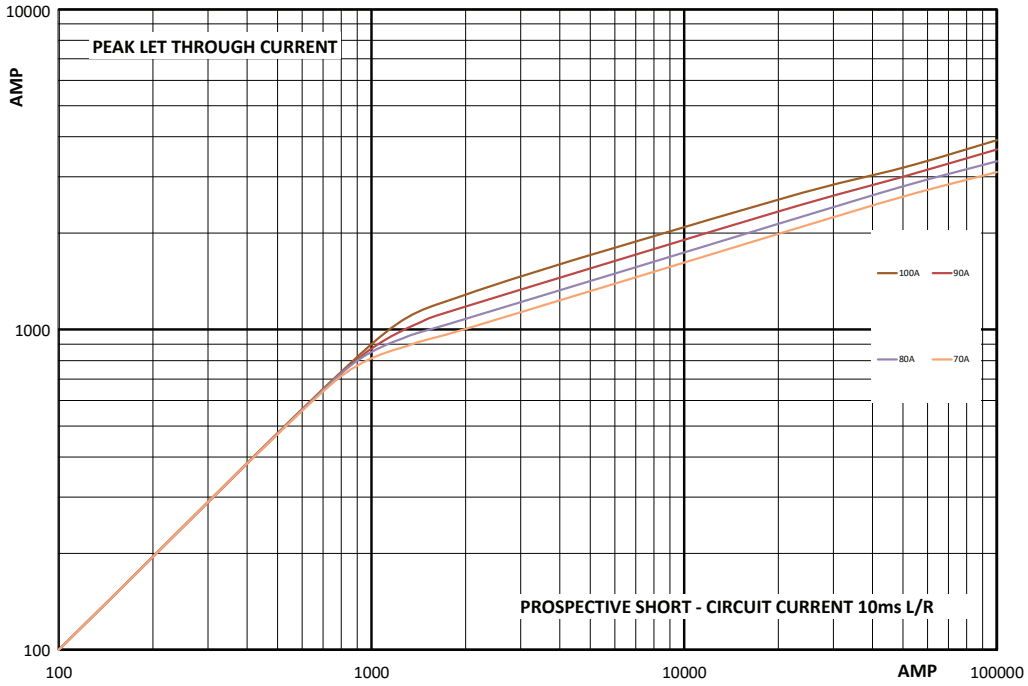
Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the watts losses at load currents lower than the rated current.
The correction factor, K_p , is given as a function of the RMS load current, I_b , in percent of the rated current.



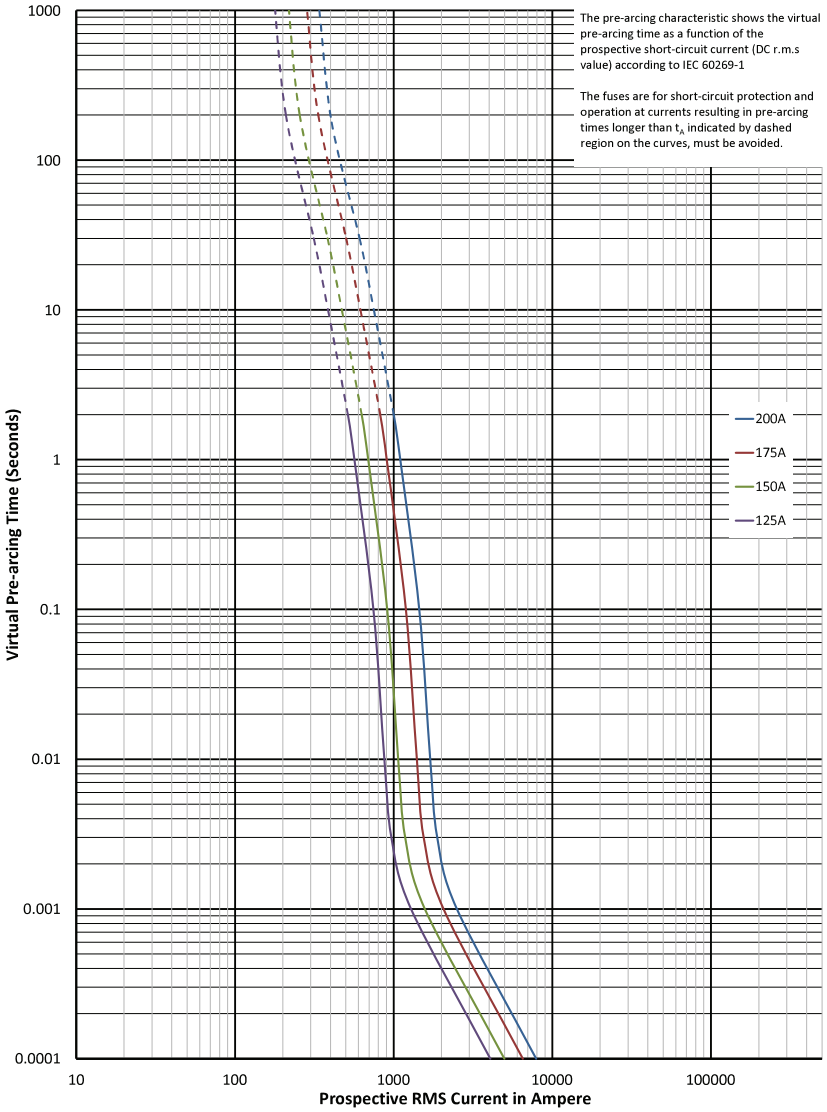




Peak let-through curve - 70 A to 100 A



Time current curve - 125 A to 200 A



K_b = 1

Total clearing I^2t

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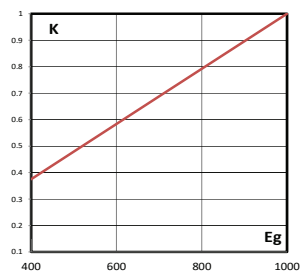
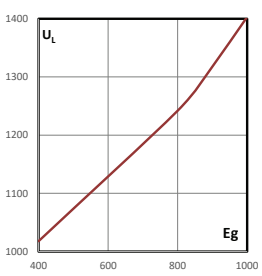


Arc voltage

This curve gives the peak arc voltage,U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, at a time constant of 10ms.



Watts losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the watts losses at load currents lower than the rated current.
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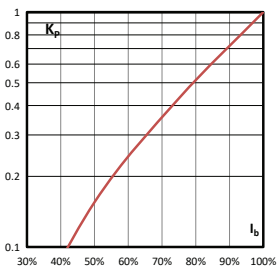
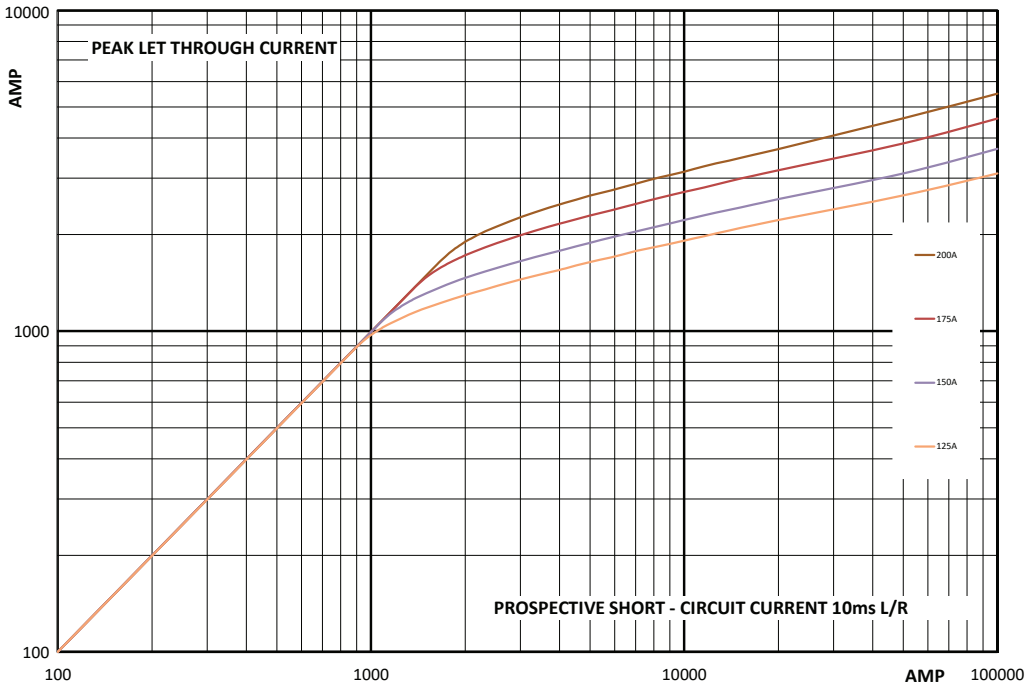
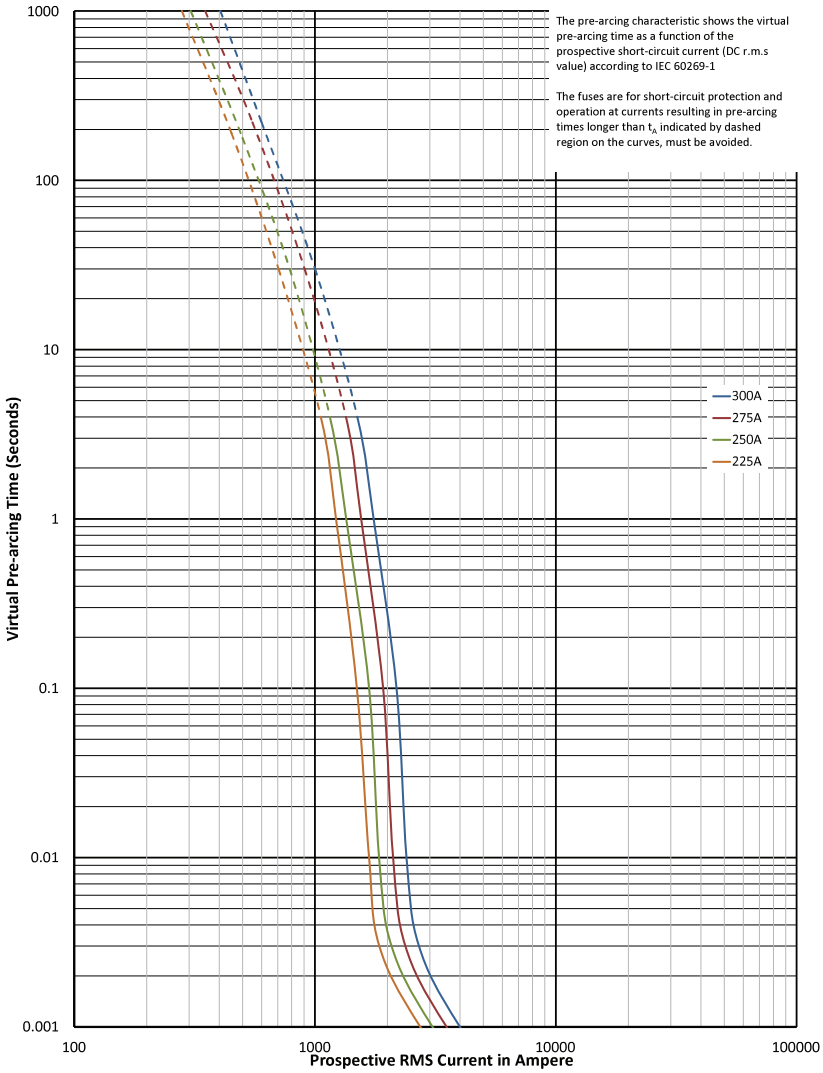


Peak let-through curve - 125 A to 200 A



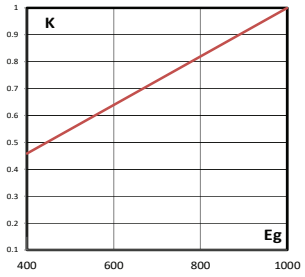
Time current curve - 225 A to 300 A



K_b = 1

Total clearing I^2t

The total clearing I^2t at rated voltage and tested DC time constant are given in electrical characteristics. For other voltages the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltages, E.



Arc voltage

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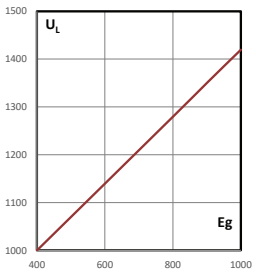

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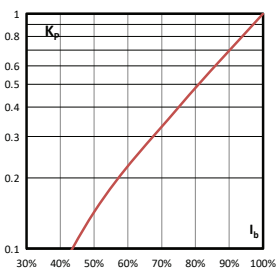
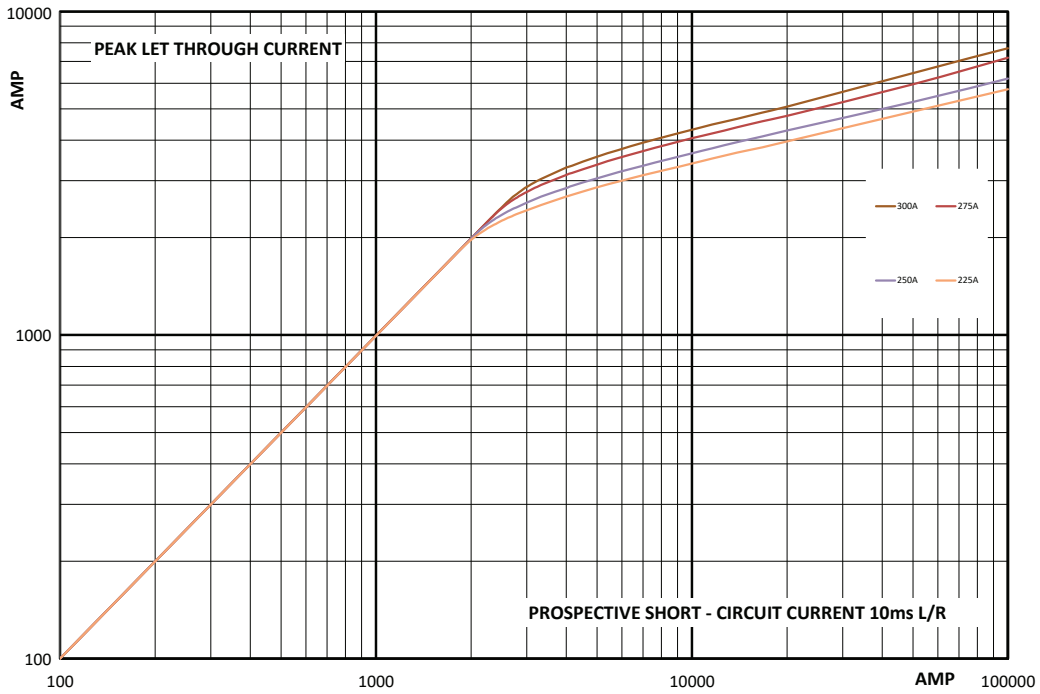
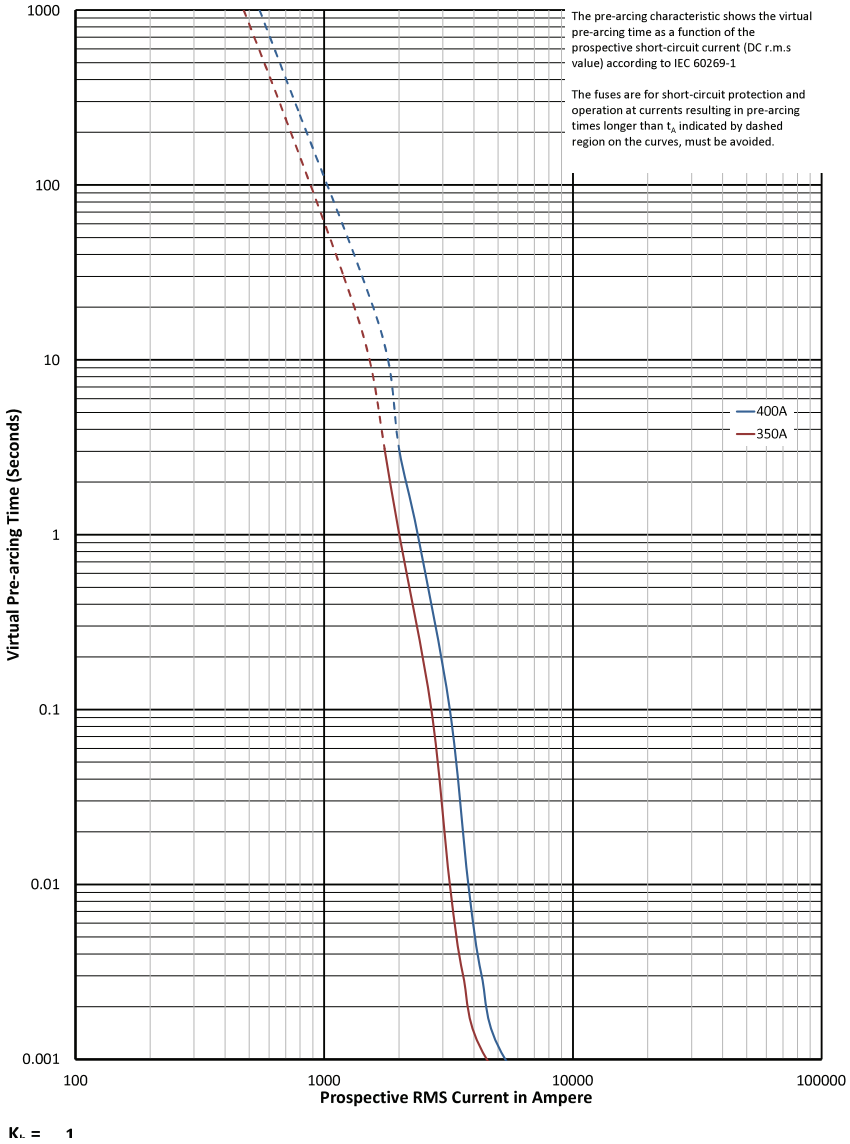


Peak let-through curve - 225 A to 300 A



Time current curve - 350 A and 400 A



K_L = 1

Total clearing I^2t

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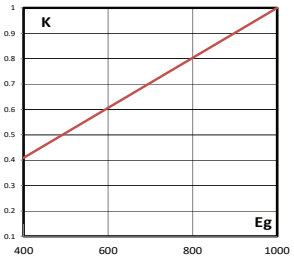

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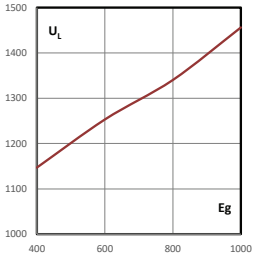

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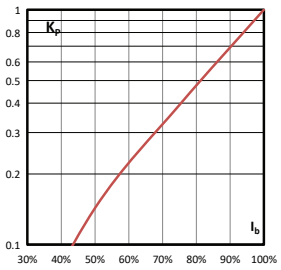
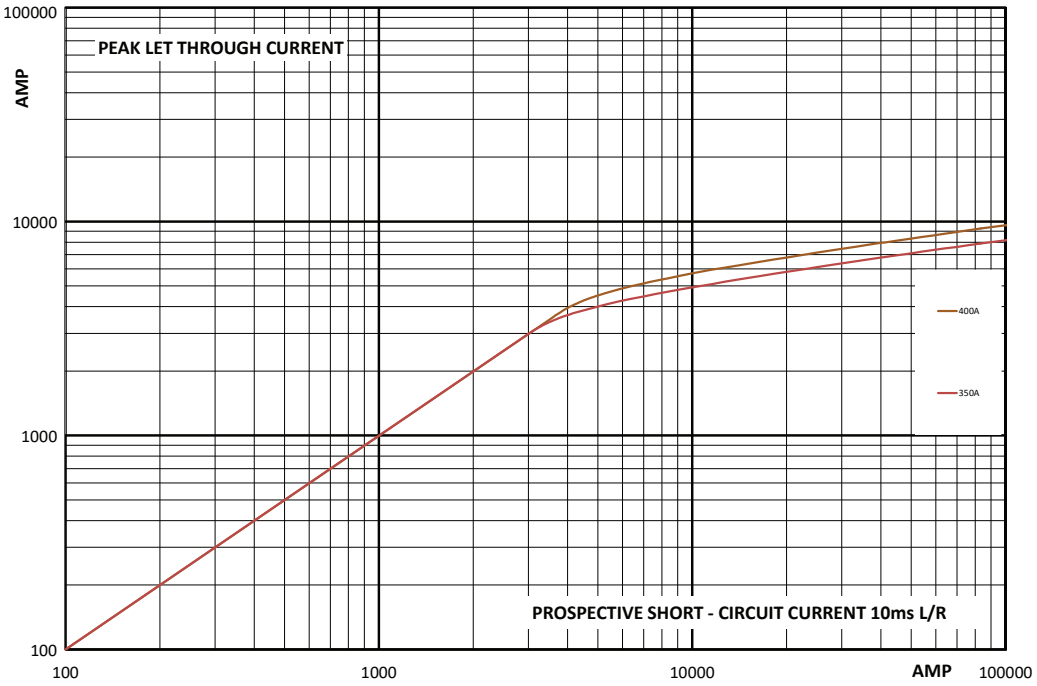
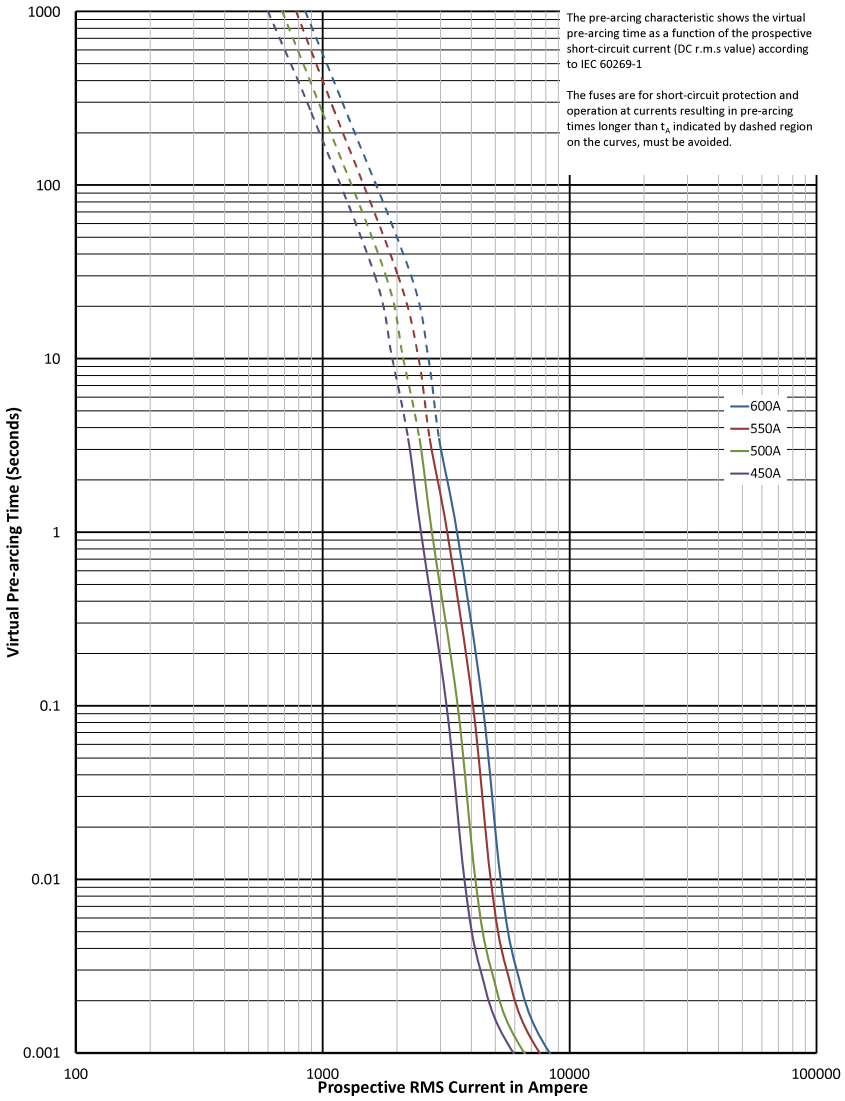


Peak let-through curve - 350 A and 400 A



Time current curve - 450 A to 600 A



Total clearing I^2t

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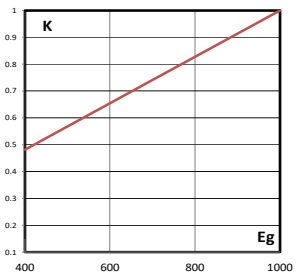
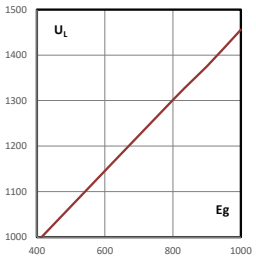
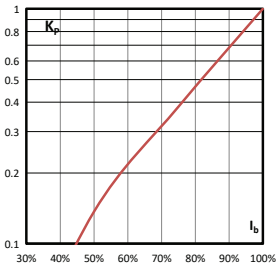
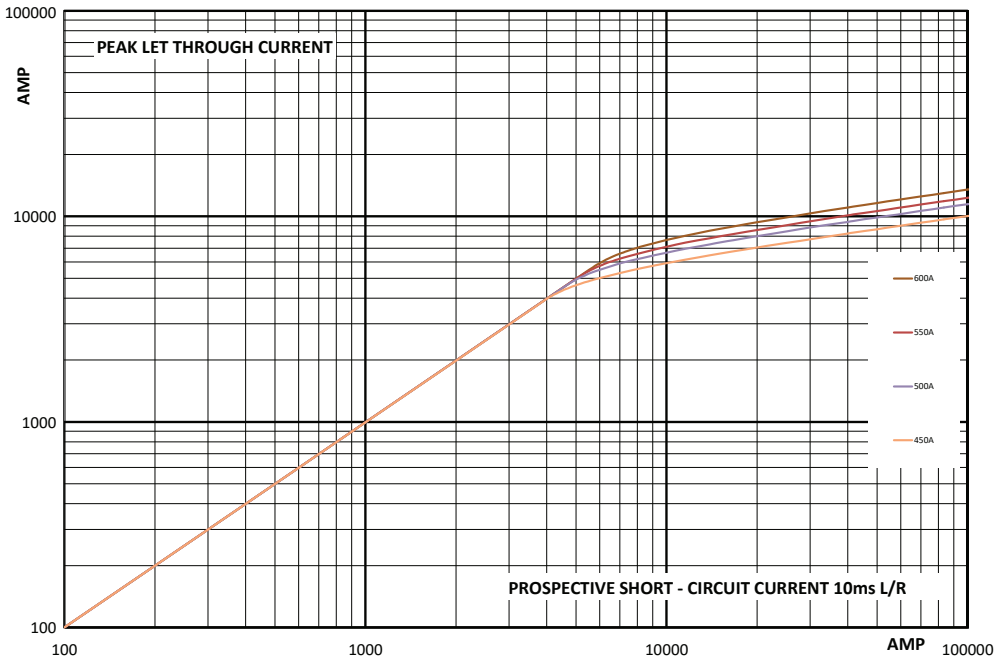






Peak let-through curve - 450 A to 600 A



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