NOTE: This equation is for Arcs in Open Air - Not recommended for Arcs in a Box (such as electrical equipment)

Arc Flash Protection Boundary (Dc) Calculation - Three-Phase, Arcs in Open Air

Lee Equation solved for Dc with E at 1.2 cal/cm2 - NFPA 70E Annex D.2: Dc = (2.65 X 1.732 X V X Isc X 10^-6 X t)^1/2

Note: MVAbf = 1.732 X V X Isc X 10^-6

V (V)	1000
Isc (A)	22600
t (sec)	0.1
Dc (ft)	**3.22**
Dc (in)	**38.65**

1/4 cycle (0.004 sec) for current-limiting fuses when arcing current in current-limiting range or 6 cycle (0.1 sec) for 5kV and 15kV if operating in instantaneous trip - otherwise Time Current Curve (TCC)

Lee Equation solved for Dc with E not specified - NFPA 70E Annex D.6: Dc = (793 X F X V X tA / E)^1/2

E (cal/cm2)	1.2
V (kV)	0.48
F (kA)	22.6
tA (sec)	0.1
Dc (in)	**26.77**

Adjust E from 1.2 to 1.5 if over 600V and Clearing time is 0.1 seconds or less

1/4 second for current-limiting fuses when arcing current in current-limiting range or 6 cycle for 5kV and 15kV if operating in instantaneous trip - otherwise Time Current Curve (TCC)

Incident Energy (E) Calculation - Three-Phase, Arcs in Open Air

Lee Equation solved for E with D not specified - NFPA 70E Annex D.6: E = 793 X F X V X tA / D^2

V (kV)	0.48
F (kA)	22.6
tA (sec)	0.1
D (in)	18
E (cal/cm2)	**2.66**

1/4 cycle (0.004 sec) for current-limiting fuses when arcing current in current-limiting range or 6 cycle (0.1 sec) for 5kV and 15kV if operating in instantaneous trip - otherwise Time Current Curve (TCC)

Incident Energy (E) Calculation - Three-Phase, Arcs in Open Air, 600V or less

Doughty Equation solved for E_{MA} - NFPA 70E Annex D.5.1: $E_{MA} = 5271 \times D_A^{-1.9593} \times t_A \times [(0.0016 \times F^2) - (0.0076*F) + 0.8938)]$

D_A (in)	18	Valid for 18" and greater only
t_A (sec)	0.1	(Based at min 38% of F and F - see Time Current Curve (TCC))
F (kA)	22.6	Valid from 16kA to 50kA Only
E_{MA} (cal/cm2)	**2.82**	

Incident Energy Calculation - Three-Phase, Arcs in a Box, 600V or less

Doughty Equation solved for E_{MB} - NFPA 70E Annex D.5.2: $E_{MB} = 1038.7 \times D_B^{-1.4738} \times t_A \times [(0.0093 \times F^2) - (0.3453*F) + 5.9675)]$

D_B (in)	18	Valid for 18" and greater only
t_A (sec)	0.1	(Based at min 38% of F and F - see Time Current Curve (TCC))
F (kA)	22.6	Valid from 16kA to 50kA Only
E_{MB} (cal/cm2)	**4.27**	

Formulas Based on Basic Equations in IEEE 1584 and 2009 NFPA 70E Annex D.7, D.7.1, D.7.2, D.7.3, D.7.4 and D.7.5

PART 1: Determine the Three Phase Arcing Current that can flow during the event.

Enter the three phase bolted fault current in kA.	22.6	kA	(Valid from 700A to 106,000A)
Enter the Amperage of the Overcurrent Protective Device in A.	640	A	
Enter the system voltage.	480	V	(Valid from 208V to 1kV)
Select the Equipment Type.	2	1 - Switchgear	2 - MCC/Panel 3 - Open Air 4 - Cable
Select the arc configuration.	2	1 - Open Air	2 - In a Box

The three phase calculated arcing current Ia = 13.16 kA

Due to fluctuations in the calculated arcing current, 85% of Ia should also be used to calculate Incident Energy.
The higher value from the two calculations should be used as the incident energy exposure.

The three phase calculated 85% arcing current 0.85 Ia= 11.19 kA

Part II: Select System Type and Detemine the OCPD Clearing Time based on Arcing Current

Enter the type of Grounding System	1	1 - Ungrounded and High-Resistance Grounded 2 - Solidly Grounded Systems	
Enter total clearing time of OCPD based on Ia **from TCC**	0.1	seconds	See Time Current Curve (TCC)
Enter total clearing time of OCPD based on 0.85 Ia **from TCC**	0.1	seconds	See Time Current Curve (TCC)
Enter the Working Distance from the possible arc to the person	18	inches	

Part III: Detemine the Incident Energy Exposure (Use Higher Value in Red Text)

Incident Energy using Ia =	**5.79**	Cal/cm^2
Incident Energy using 0.85 Ia =	4.86	Cal/cm^2

Part IV: Detemine the Flash Protection Boundary (Use Higher Value in Red Text)

Arc Flash Protection Boundary using Ia =	**46.98**	Inches
Arc Flash Protection Boundary using 0.85 Ia =	42.21	Inches

E - Incident Energy 1.2 cal/cm^2 Adjust E from 1.2 to 1.5 if over 600V and Clearing time is 0.1 seconds or less

Bussmann AF Tables - Values shown are based on Simplified Method Formulas shown in IEEE 158 and NFPA 70E Annex D.7.6 and D.7.7

Arc Flash Incident Energy Calculator

Fuses: Bussmann® Low-Peak® LPS-RK_SP (0-600 Amp), Circuit Breakers: Molded Case Circuit Breakers

Incident Energy (I.E.) values are expressed in cal/cm^2. Arc Flash Protection Boundary (AFPB) values are expressed in inches.

Bolted Fault	1-100 Amp				101-200 Amp				201-400 Amp				401-600 Amp			
Current(kA)	Fuse		MCCB		Fuse		MCCB		Fuse		MCCB		Fuse		MCCB	
	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB
1	2.39	29	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
2	0.25	6	0.25	6	5.20	49	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
3	0.25	6	0.27	7	0.93	15	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
4	0.25	6	0.35	8	0.25	6	0.35	8	20.60	124	>100	>120	>100	>120	>100	>120
5	0.25	6	0.43	9	0.25	6	0.43	9	1.54	21	>100	>120	>100	>120	>100	>120
6	0.25	6	0.50	10	0.25	6	0.50	10	0.75	13	>100	>120	>100	>120	>100	>120
8	0.25	6	0.65	12	0.25	6	0.65	12	0.69	12	0.65	12	36.85	184	>100	>120
10	0.25	6	0.81	14	0.25	6	0.81	14	0.63	12	0.81	14	12.82	90	>100	>120
12	0.25	6	0.96	15	0.25	6	0.96	15	0.57	11	0.96	15	6.71	58	1.70	23
14	0.25	6	1.11	17	0.25	6	1.11	17	0.51	10	1.11	17	0.60	11	1.96	25
16	0.25	6	1.26	19	0.25	6	1.26	19	0.45	9	1.26	19	0.59	11	2.22	27
18	0.25	6	1.41	20	0.25	6	1.41	20	0.39	8	1.41	20	0.48	10	2.48	29
20	0.25	6	1.56	22	0.25	6	1.56	22	0.33	7	1.56	22	0.38	8	2.74	32
22	0.25	6	1.72	23	0.25	6	1.72	23	0.27	7	1.72	23	0.28	7	3.00	34
24	0.25	6	1.87	24	0.25	6	1.87	24	0.25	6	1.87	24	0.25	6	3.26	36
26	0.25	6	2.02	26	0.25	6	2.02	26	0.25	6	2.02	26	0.25	6	3.53	37
28	0.25	6	2.17	27	0.25	6	2.17	27	0.25	6	2.17	27	0.25	6	3.79	39
30	0.25	6	2.32	28	0.25	6	2.32	28	0.25	6	2.32	28	0.25	6	4.05	41
32	0.25	6	2.47	29	0.25	6	2.47	29	0.25	6	2.47	29	0.25	6	4.31	43
34	0.25	6	2.63	31	0.25	6	2.63	31	0.25	6	2.63	31	0.25	6	4.57	45
36	0.25	6	2.78	32	0.25	6	2.78	32	0.25	6	2.78	32	0.25	6	4.83	46
38	0.25	6	2.93	33	0.25	6	2.93	33	0.25	6	2.93	33	0.25	6	5.09	48
40	0.25	6	3.08	34	0.25	6	3.08	34	0.25	6	3.08	34	0.25	6	5.36	50
42	0.25	6	3.23	35	0.25	6	3.23	35	0.25	6	3.23	35	0.25	6	5.62	51
44	0.25	6	3.38	36	0.25	6	3.38	36	0.25	6	3.38	36	0.25	6	5.88	53
46	0.25	6	3.54	37	0.25	6	3.54	37	0.25	6	3.54	37	0.25	6	6.14	55
48	0.25	6	3.69	39	0.25	6	3.69	39	0.25	6	3.69	39	0.25	6	6.40	56
50	0.25	6	3.84	40	0.25	6	3.84	40	0.25	6	3.84	40	0.25	6	6.66	58
52	0.25	6	3.99	41	0.25	6	3.99	41	0.25	6	3.99	41	0.25	6	6.92	59
54	0.25	6	4.14	42	0.25	6	4.14	42	0.25	6	4.14	42	0.25	6	7.18	61
56	0.25	6	4.29	43	0.25	6	4.29	43	0.25	6	4.29	43	0.25	6	7.45	62
58	0.25	6	4.45	44	0.25	6	4.45	44	0.25	6	4.45	44	0.25	6	7.71	64
60	0.25	6	4.60	45	0.25	6	4.60	45	0.25	6	4.60	45	0.25	6	7.97	65
62	0.25	6	4.75	46	0.25	6	4.75	46	0.25	6	4.75	46	0.25	6	8.23	67
64	0.25	6	4.90	47	0.25	6	4.90	47	0.25	6	4.90	47	0.25	6	8.49	68
66	0.25	6	5.05	48	0.25	6	5.05	48	0.25	6	5.05	48	0.25	6	8.75	69
68	0.25	6	5.20	49	0.25	6	5.20	49	0.25	6	5.20	49	0.25	6	9.01	71
70	0.25	6	5.36	50	0.25	6	5.36	50	0.25	6	5.36	50	0.25	6	9.28	72
72	0.25	6	5.51	51	0.25	6	5.51	51	0.25	6	5.51	51	0.25	6	9.54	74
74	0.25	6	5.66	52	0.25	6	5.66	52	0.25	6	5.66	52	0.25	6	9.80	75
76	0.25	6	5.81	53	0.25	6	5.81	53	0.25	6	5.81	53	0.25	6	10.06	76
78	0.25	6	5.96	53	0.25	6	5.96	53	0.25	6	5.96	53	0.25	6	10.32	78
80	0.25	6	6.11	54	0.25	6	6.11	54	0.25	6	6.11	54	0.25	6	10.58	79
82	0.25	6	6.27	55	0.25	6	6.27	55	0.25	6	6.27	55	0.25	6	10.84	80
84	0.25	6	6.42	56	0.25	6	6.42	56	0.25	6	6.42	56	0.25	6	11.10	82
86	0.25	6	6.57	57	0.25	6	6.57	57	0.25	6	6.57	57	0.25	6	11.37	83
88	0.25	6	6.72	58	0.25	6	6.72	58	0.25	6	6.72	58	0.25	6	11.63	84
90	0.25	6	6.87	59	0.25	6	6.87	59	0.25	6	6.87	59	0.25	6	11.89	85
92	0.25	6	7.02	60	0.25	6	7.02	60	0.25	6	7.02	60	0.25	6	12.15	87
94	0.25	6	7.18	61	0.25	6	7.18	61	0.25	6	7.18	61	0.25	6	12.41	88
96	0.25	6	7.33	61	0.25	6	7.33	61	0.25	6	7.33	61	0.25	6	12.67	89
98	0.25	6	7.48	62	0.25	6	7.48	62	0.25	6	7.48	62	0.25	6	12.93	90
100	0.25	6	7.63	63	0.25	6	7.63	63	0.25	6	7.63	63	0.25	6	13.20	92
102	0.25	6	7.78	64	0.25	6	7.78	64	0.25	6	7.78	64	0.25	6	13.46	93
104	0.25	6	7.93	65	0.25	6	7.93	65	0.25	6	7.93	65	0.25	6	13.72	94
106	0.25	6	8.09	66	0.25	6	8.09	66	0.25	6	8.09	66	0.25	6	13.98	95

Read notes tab. Fuse and circuit breaker results are based upon simplified formulas in NFPA 70E Annex D.7.6 and D.7.7 and IEEE 1584.

Arc Flash Incident Energy Calculator

Fuses: Bussmann® Low-Peak® KRP-C_SP (601-2000 Amp), Circuit Breakers: Low Voltage Power Circuit Breakers (LVPCB) w/STD

Incident Energy (I.E.) values are expressed in cal/cm^2. Flash Protection Boundary (FPB) values are expressed in inches.

Bolted Fault Current(kA)	601-800 Amp				801-1200 Amp				1201-1600 Amp				1601-2000 Amp			
	Fuse		LVPCB		Fuse		LVPCB		Fuse		LVPCB		Fuse		LVPCB	
	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB	I.E.	AFPB
1	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
2	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
3	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
4	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
5	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
6	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
8	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
10	75.44	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
12	49.66	>120	>100	>120	73.59	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
14	23.87	>120	>100	>120	39.87	>120	>100	>120	>100	>120	>100	>120	>100	>120	>100	>120
16	1.94	25	31.22	>120	11.14	82	>100	>120	24.95	>120	>100	>120	>100	>120	>100	>120
18	1.82	24	35.05	>120	10.76	80	>100	>120	24.57	>120	>100	>120	>100	>120	>100	>120
20	1.70	23	38.87	>120	10.37	78	>100	>120	24.20	>120	>100	>120	>100	>120	>100	>120
22	1.58	22	42.70	>120	9.98	76	>100	>120	23.83	>120	>100	>120	>100	>120	>100	>120
24	1.46	21	46.53	>120	8.88	70	46.53	>120	23.45	>120	>100	>120	29.18	>120	>100	>120
26	1.34	19	50.35	>120	7.52	63	50.35	>120	23.08	>120	>100	>120	28.92	>120	>100	>120
28	1.22	18	54.18	>120	6.28	55	54.18	>120	22.71	>120	>100	>120	28.67	>120	>100	>120
30	1.10	17	58.01	>120	5.16	48	58.01	>120	22.34	>120	>100	>120	28.41	>120	>100	>120
32	0.98	16	61.83	>120	4.15	42	61.83	>120	21.69	>120	61.83	>120	28.15	>120	>100	>120
34	0.86	14	65.66	>120	3.25	35	65.66	>120	18.59	116	65.66	>120	27.90	>120	>100	>120
36	0.74	13	69.49	>120	2.47	29	69.49	>120	15.49	102	69.49	>120	27.64	>120	>100	>120
38	0.62	11	73.31	>120	1.80	24	73.31	>120	12.39	88	73.31	>120	27.38	>120	>100	>120
40	0.50	10	77.14	>120	1.25	18	77.14	>120	9.29	72	77.14	>120	27.13	>120	77.14	>120
42	0.38	8	80.97	>120	0.81	14	80.97	>120	6.19	55	80.97	>120	26.87	>120	80.97	>120
44	0.25	6	84.79	>120	0.49	10	84.79	>120	3.09	34	84.79	>120	26.61	>120	84.79	>120
46	0.25	6	88.62	>120	0.39	8	88.62	>120	2.93	33	88.62	>120	26.36	>120	88.62	>120
48	0.25	6	92.45	>120	0.39	8	92.45	>120	2.93	33	92.45	>120	26.10	>120	92.45	>120
50	0.25	6	96.27	>120	0.39	8	96.27	>120	2.93	33	96.27	>120	25.84	>120	96.27	>120
52	0.25	6	>100	>120	0.39	8	>100	>120	2.93	33	>100	>120	25.59	>120	>100	>120
54	0.25	6	>100	>120	0.39	8	>100	>120	2.93	33	>100	>120	25.33	>120	>100	>120
56	0.25	6	>100	>120	0.39	8	>100	>120	2.93	33	>100	>120	25.07	>120	>100	>120
58	0.25	6	>100	>120	0.39	8	>100	>120	2.93	33	>100	>120	24.81	>120	>100	>120
60	0.25	6	>100	>120	0.39	8	>100	>120	2.93	33	>100	>120	24.56	>120	>100	>120
62	0.25	6	>100	>120	0.39	8	>100	>120	2.93	33	>100	>120	24.30	>120	>100	>120
64	0.25	6	>100	>120	0.39	8	>100	>120	2.93	33	>100	>120	24.04	>120	>100	>120
66	0.25	6	>100	>120	0.39	8	>100	>120	2.92	33	>100	>120	23.75	>120	>100	>120
68	0.25	6	>100	>120	0.39	8	>100	>120	2.80	32	>100	>120	22.71	>120	>100	>120
70	0.25	6	>100	>120	0.39	8	>100	>120	2.67	31	>100	>120	21.68	>120	>100	>120
72	0.25	6	>100	>120	0.39	8	>100	>120	2.54	30	>100	>120	20.64	>120	>100	>120
74	0.25	6	>100	>120	0.39	8	>100	>120	2.42	29	>100	>120	19.61	120	>100	>120
76	0.25	6	>100	>120	0.39	8	>100	>120	2.29	28	>100	>120	18.57	116	>100	>120
78	0.25	6	>100	>120	0.39	8	>100	>120	2.17	27	>100	>120	17.54	111	>100	>120
80	0.25	6	>100	>120	0.39	8	>100	>120	2.04	26	>100	>120	16.50	107	>100	>120
82	0.25	6	>100	>120	0.39	8	>100	>120	1.91	25	>100	>120	15.47	102	>100	>120
84	0.25	6	>100	>120	0.39	8	>100	>120	1.79	24	>100	>120	14.43	97	>100	>120
86	0.25	6	>100	>120	0.39	8	>100	>120	1.66	22	>100	>120	13.39	93	>100	>120
88	0.25	6	>100	>120	0.39	8	>100	>120	1.54	21	>100	>120	12.36	88	>100	>120
90	0.25	6	>100	>120	0.39	8	>100	>120	1.41	20	>100	>120	11.32	83	>100	>120
92	0.25	6	>100	>120	0.39	8	>100	>120	1.28	19	>100	>120	10.29	77	>100	>120
94	0.25	6	>100	>120	0.39	8	>100	>120	1.16	18	>100	>120	9.25	72	>100	>120
96	0.25	6	>100	>120	0.39	8	>100	>120	1.03	16	>100	>120	8.22	66	>100	>120
98	0.25	6	>100	>120	0.39	8	>100	>120	0.90	15	>100	>120	7.18	61	>100	>120
100	0.25	6	>100	>120	0.39	8	>100	>120	0.78	13	>100	>120	6.15	55	>100	>120
102	0.25	6	>100	>120	0.39	8	>100	>120	0.65	12	>100	>120	5.11	48	>100	>120
104	0.25	6	>100	>120	0.39	8	>100	>120	0.53	10	>100	>120	4.08	41	>100	>120
106	0.25	6	>100	>120	0.39	8	>100	>120	0.40	9	>100	>120	3.04	34	>100	>120

Read notes tab. Fuse and circuit breaker results are based upon simplified formulas in NFPA 70E Annex D.7.6 and D.7.7 and IEEE 1584.

Bussman AF Table Notes

Annex G Arc Flash Calculator

Steps necessary to conduct an Arc Flash Hazard Analysis.

1. Determine the available bolted fault current on the lineside terminals of the equipment that will be worked upon.
2. Identify the amperage of the upstream Low-Peak® fuse or circuit breaker that is protecting the equipment where work is to be performed.
3. Consult the table to determine the incident energy exposure and the arc flash protection boundary.
4. Identify the minimum requirements for PPE when work is to be performed inside of the AFPB by consulting the requirements found in NFPA 70E.

Notes for Arc Flash Calculation Tables:

Note 1: First and foremost, this information is not to be used as a recommendation to work on energized equipment. This information is to help assist in determining the proper PPE to help safeguard a worker from the burns that can be sustained from an arc flash incident. This information does not take into account the effects of pressure, shrapnel, molten metal spray or the toxic copper vapor resulting from an arc fault.

Note 2: This data is based upon the simplifed fuse and circuit circuit breaker formulas in NFPA 70E Annex D.7.6 and D.7.7 and IEEE 1584 Guide for Arc Flash Hazard Analysis. These methods were created so that the PPE selected from the calculated incident energy would be adequate for 98% of arcflash incidents. In up to 2% of incidents incurable burns to the body and torso could result. This was based upon PPE with standard arc ratings of 1.2, 8, 25, 40 and 100cal/cm2. PPE with intermediate ATPV values can be utilized, but at the next lower standard ATPV rating. NFPA 70E Annex D.7 does not recognize 100 cal/cm2, instead a fine print note is added to recommend greater emphasis than nornal to de-energize equipment when the incident energy exceeds 40 cal/cm2.

Note 3: PPE must be utilized any time work is to be performed on equipment that is not placed in an electrically safe work condition. Voltage testing, while completing the lockout/tagout procedure (putting the equipment in an electrically safe work condition), is considered as working on energized parts per OSHA 1910.333(b).

Note 4: The data is based on 32mm (1-1/4”) electrode spacing, 600V 3Ø ungrounded system, and 20” X 20” X 20" box. The incident energy is based on a working distance of 18 inches, and the arc flash protection boundary is based on 1.2cal/cm2 (threshold for a second-degree "just curable" burn).

Note 5: The Low-Peak® fuse information is basedupon tests that were conducted at various fault currentsfor each Cooper Bussmann® KRP-C_SP and LPSRK_SPfuse indicated in the charts. These tests were used to develop the formulas as shown in NFPA 70E Annex D.7.6and IEEE 1584. Actual results from incidents could bedifferent for a number of reasons, including different(1) system voltage, (2) short-circuit power factor,(3) distance from the arc, (4) arc gap, (5) enclosure size, (6) fuse manufacturer,(7) fuse class, (8) orientation of the worker and(9) grounding scheme. 100A LPS-RK_SP fuses were thesmallest fuses tested. Data for the fuses smaller thanthat is based upon the 100A data. Arc flash values foractual 30 and 60A fuses would be considerably lessthan 100A fuses, however, it does not matter since thevalues for the 100A fuses are already so low.

Note 6: The fuse incident energy values were chosen not to go below 0.25cal/cm2 even though many actual values were below 0.25cal/cm2. This was chosen to keep from encouraging work on energized equipment without PPE because of a low AFPB.

Note 7: This Arc Flash Incident Energy Calculator Table can also be used for LPJ_SP, JJS, and LP-CC fusesto determine the incident energy available and arcflash protection boundary.

Note 8: These values from fuse tests and calculationsfor circuit breakers take into account the translationfrom available 3-phase bolted fault current to the arcingfault current.

Note 9: To determine the arc flash protection boundaryand incident energy for applications with other fuses,use the basic equations in IEEE 1584 or NFPA 70EAnnex D.7.

Note 10: The circuit breaker information comes from thesimplified circuit breaker equations in IEEE 1584 andNFPA 70E Annex D.7.7 that are based on how circuitbreakers operate.

Note 11: Where the arcing current is less than theinstantaneous trip setting of the circuit breaker or the current-limiting range of the fuse when calcuated per NFPA 70E Annex D.7.6 or D.7.7 and IEEE 1584 the value for incident energy is given as >100cal/cm2.

Note 12: The data for circuit breakers up to 400Ais based on Molded Case Circuit Breakers (MCCB)with instantaneous trip, for 401-600A it is based onMCCBs with electronic trip units, and the data for circuitbreakers from 601 up to 2000A is based on LowVoltage Power Circuit Breakers (LVPCB) with shorttime delay (STD). Per the simplified circuit breakerformulas in NFPA 70E Annex D.7.7 and IEEE 1584 the short time delay is assumed to be set at maximum.

Note 13: The data for circuit breakers is based upondevices being properly maintained in accordance withmanufacturer's instructions and industry standards.Devices that are not properly maintained and testedmay have longer clearing times resulting in higherincident energies.

For further explanation please consult the SPDElectrical Protection Handbook available atwww.bussmann.com.

Disclaimer: Cooper Bussmann is not responsible for errors or omissions contained in this spreadsheet or for misapplication of this spreadsheet.