INTERNATIONAL STANDARD 1548

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Aircraft — Precision fuse-links — Type A

Aéronefs — Porte-fusible de précision — Type A

First edition — 1976-03-15

UDC 629.7.064.5 : 621.316.923.1 **Ref. No. ISO 1548-1976 (E)**

Descriptors : aircraft equipment, electric fuses, fuse-links, precision equipment, specifications, dimensions, ratings, tests.

Price based on 20 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 20 has reviewed ISO Recommendation R 1548 and found it technically suitable for transformation. International Standard ISO 1548 therefore replaces ISO Recommendation R 1548-1971 to which it is technically identical.

ISO Recommendation R 1548 was approved by the Member Bodies of the following countries :

Australia	Israel	Switzerland
Belgium	Italy	Thailand
Canada	New Zealand	Turkey
Czechoslovakia	Peru	United Kingdom
Egypt. Arab Rep. of	South Africa, Rep. of	
Greece	Spain	

The Member Bodies of the following countries expressed disapproval of the Recommendation on technical grounds :

Germany
Netherlands
U.S.S.R.

The Member Bodies of the following countries disapproved the transformation of ISO/R 1548 into an International Standard :

Germany
U.S.S.R.

Printed in Switzerland

Aircraft – Precision fuse-links – Type A

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the dimensions and performance requirements for a range of precision fuse-links suitable for use in aircraft electrical systems having voltage and frequency characteristics conforming to ISO/R 222, at any ambient temperature from −65 to +85 °C, and all altitudes from 0 to 24 400 m (See also ISO 1540.)

2 REFERENCES

ISO/R 222, *Voltages for aircraft electrical systems.*

ISO/R 469, *Dimensions and conductor resistance of general purpose electrical cables with copper conductors, for aircraft.*

ISO/R 474, *Performance requirements for general purpose electrical cables with copper conductors for aircraft.*

ISO 1540, *Aerospace – Aircraft electrical systems – Characteristics.* [1)]

ISO 1547, *Aircraft – Precision fuse-links – General requirements.*

IEC Publication 269, *Low-voltage fuses – Part I : General requirements.*

3 TERMINOLOGY

The terminology used in this International Standard is in conformity with IEC Publication 269, as far as practicable

4 GENERAL REQUIREMENTS

The fuse-links shall comply with the requirements of ISO 1547.

5 DIMENSIONS

The dimensions of the fuse-links shall comply with table 1 for the ferrule type or table 2 for the tag type.

6 CURRENT, VOLTAGE AND BREAKING-CAPACITY RATINGS

The current ratings, the voltage ratings and the breaking-capacity ratings of the fuse-links shall be in accordance with those listed in table 3.

7 TIME/CURRENT CHARACTERISTICS

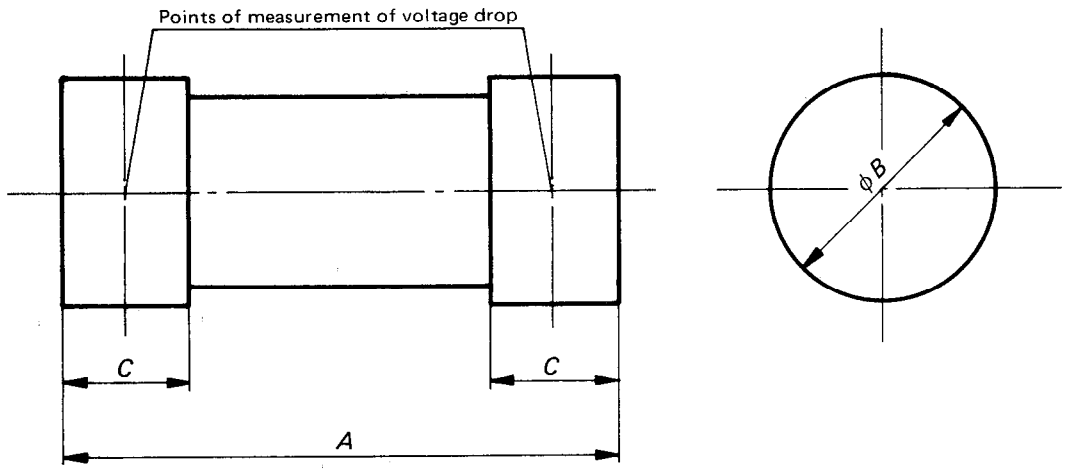
The pre-arcing time/current characteristics of the fuse-links shall be within the appropriate envelope curves shown in the annex.

8 TESTS

The fuse-links shall be tested in accordance with ISO 1547

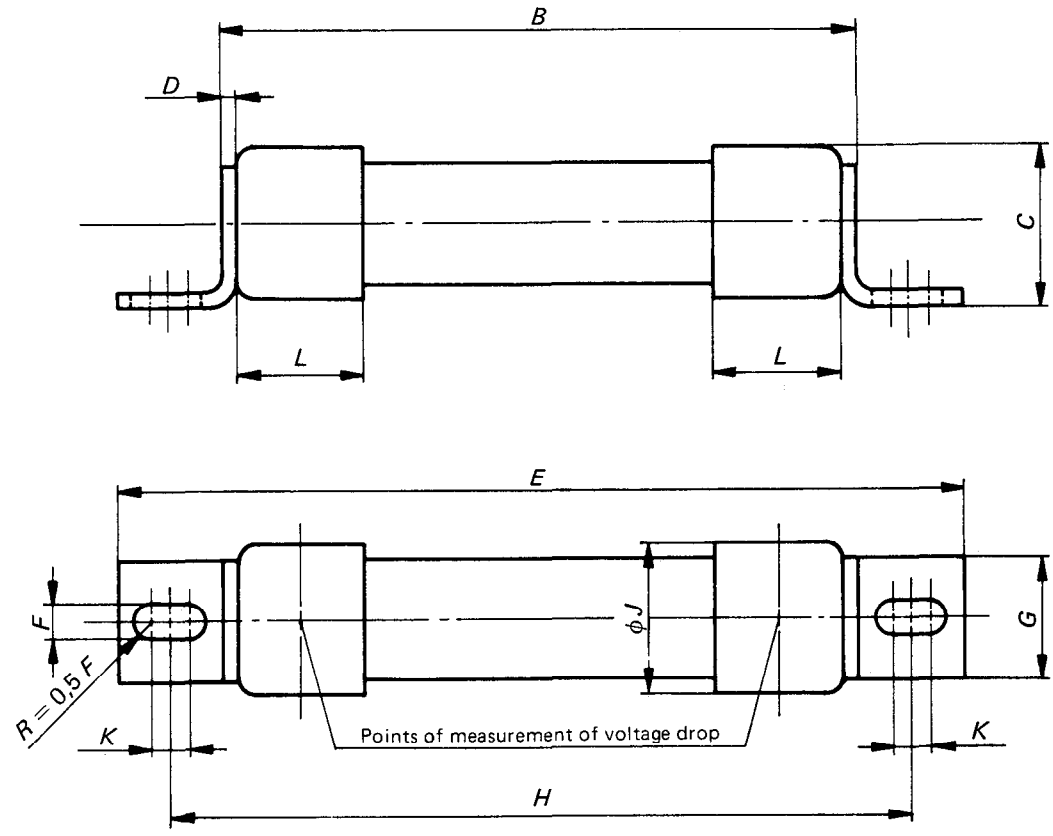
1) At present at the stage of draft.

TABLE 1 — **Dimensions of ferrule-type fuse-links**



Body size		A		B		C	
		max.	min.	max.	min.	max.	min
00	mm	16,7	15,5	4,9	4,6	4,9	3,2
	in	0.656	0.609	0.192	0.182	0.192	0.125
0	mm	32,5	31,2	6,5	6,2	6,4	4,7
	in	1.281	1.234	0.255	0.245	0.250	0.187
1	mm	34,3	32,8	12,0	11,8	7,9	6,4
	in	1.354	1.291	0.474	0.463	0.312	0.250
2	mm	38,1	36,8	16,8	16,6	9,5	7,9
	in	1.509	1,454	0.663	0.656	0.374	0.312
3	mm	48,5	47,0	33,3	33,0	12,7	11,1
	in	1.919	1.858	1.319	1.306	0.499	0.437

TABLE 2 — **Dimensions of tag-type fuse-links**



Body size		B		C		D	E		F	
		max.	min.	max.	min.	nom.	max.	min.	max.	min.
0	mm	34,0	32,8	7,3	7,0	0.8	53,1	50,0	3,9	3,7
	in	1.349	1.294	0.289	0.275	0.032	2.097	1.974	0.152	0.147
1	mm	34,3	33,0	12,7	12,1	0,8	56,6	54,9	5,2	4,9
	in	1.354	1.300	0.500	0.475	0.032	2.234	2.160	0.204	0.194
2	mm	37,8	36,8	18,3	17,9	1,2	71,4	69,9	6,9	6,5
	in	1.490	1.450	0.720	0.704	0.048	2.818	2.754	0.270	0.256
3	mm	48,0	47,0	35,1	34,5	1,6	89,4	87,9	8,9	8,1
	in	1.890	1.850	1.382	1.360	0.063	3.522	3.462	0.334	0.318

Body size		G		H	J		K		L
		max.	min.	nom.	max.	min.	max.	min.	max.
0	mm	6,5	6,2	43,4	6,5	6,2	0,81	0,71	0,64
	in	0.255	0.245	1.71	0.255	0.245	0.032	0.028	0.25
1	mm	10,3	9,5	44,5	12,0	11,8	1,40	0,51	7,9
	in	0.406	0.375	1.75	0.474	0.463	0.055	0.020	0.312
2	mm	16,0	15,2	55,4	16,8	16,7	1,40	0,51	9,5
	in	0.630	0.600	2.187	0.663	0.656	0.055	0.020	0.375
3	mm	26,2	25,4	69,9	33,3	33,0	1,40	0,51	12,7
	in	1.030	1.000	2.75	1.319	1.306	0,055	0.020	0.5

TABLE 3 — Rating of fuse links

1	2	3	4	5	6	7	8	9	10	11	12	2
Body size	Rated current[1] (– 65 to + 35 °C ambient temperature)	Type of end cap	Voltage rating and breaking capacity				Voltage drop[2]		Duration of test for minimum fusing current	Copper core cable to be used during tests (in accordance with ISO/R 469 and ISO/R 474)		Rated current (– 65 to + 35 °C ambient temperature)
			Voltage	Prospective current of circuit	Power factor (lagging) of test circuit (max.)	Time constant of test circuit (min.)	Upper limit of mean value	Percentage tolerance on actual mean value		Nominal cross-sectional area of conductor	Cable size number	
	A		V	A		s	mV	± %	h	mm^2		A
00	0,025	Ferrule only	250 a.c.	4 000	0,4	–	540[3]	30[3]	1,0	0,347	22	0,025
	0,05		230 d.c.	4 000	–	0,004 0	4 300	20				0,05
	0,1						3 000	20				0,1
	0,25						1 850	20				0,25
	0,5						2 100	15				0,5
	1,0						385	15				1,0
	2,0						275	15				2,0
0	0,06	Ferrule or tag	250 a.c.	4 000	0,4	–	3 100	20	1,5	0,347	22	0,06
	0,1		230 d.c.	4 000	–	0,004 0	3 100	20				0,1
	0,15						3 800	20				0,15
	0,25						3 960	15				0,25
	0,5						2 500	12,5				0,5
	1,0						2 700	10				1,0
	2						370	10				2
	3		440 a.c.	33 000	0,3	0,015 0	340	7,5				3
	5		230 d.c.	33 000	–	–	300	7,5		0,556	20	5
	7						190	7,5				7
	10						170	7,5		0,966	18	10
	15						185	7,5				15
	20	Tag only					250	7,5		2,05	14	20

TABLE 3 — **Rating of fuse links** (*concluded*)

1	2	3	4	5	6	7	8	9	10	11	12	2
1	0,5	Ferrule or tag	440 a.c. 230 d.c.	33 000 33 000	0,3 —	— 0,015 0	3 420	12,5	1,5	0,347	22	0,5
	1,0						2 350	10				1,0
	2						450	10				2
	3						550	7,5				3
	5						615	7,5		0,556	20	5
	7						345	7,5				7
	10						190	7,5		0,966	18	10
	15						155	7,5		2,05	14	15
	20						175	7,5				20
	30	Tag only					145	7,5		5,33	10	30
2	10	Ferrule or tag	440 a.c. 230 d.c.	33 000 33 000	0,3 —	— 0,015 0	175	7,5	2,0	0,966	18	10
	15						155	7,5		2,05	14	15
	20						170	7,5				20
	30						125	7,5		5,33	10	30
	40	Tag only					150	7,5				40
	50						150	7,5		13,3	6	50
	60						145	7,5				60
3	40	Ferrule or tag	440 a.c. 230 d.c.	33 000 33 000	0,3 —	— 0,015 0	150	7,5	2,0	5,33	10	40
	60						140	7,5		13,3	6	60
	80						115	7,5				80
	100						104	7,5		21,5	14	100
	125	Tag only					98	7,5		33,3	2	125
	150						73	7,5		40,7	1	150
	200						81[3]	7,5[3]		68,3	00	200

1) See ISO 1547.

2) As determined by the method described in the annex to ISO 1547. For fuse-links of ratings of 35 A and above, the voltage drop values are so low as to have no significant effect on the impedance of a circuit.

3) These values have been obtained from one source only.

ANNEX

ENVELOPE CURVES OF TIME/CURRENT CHARACTERISTICS OF FUSE-LINKS

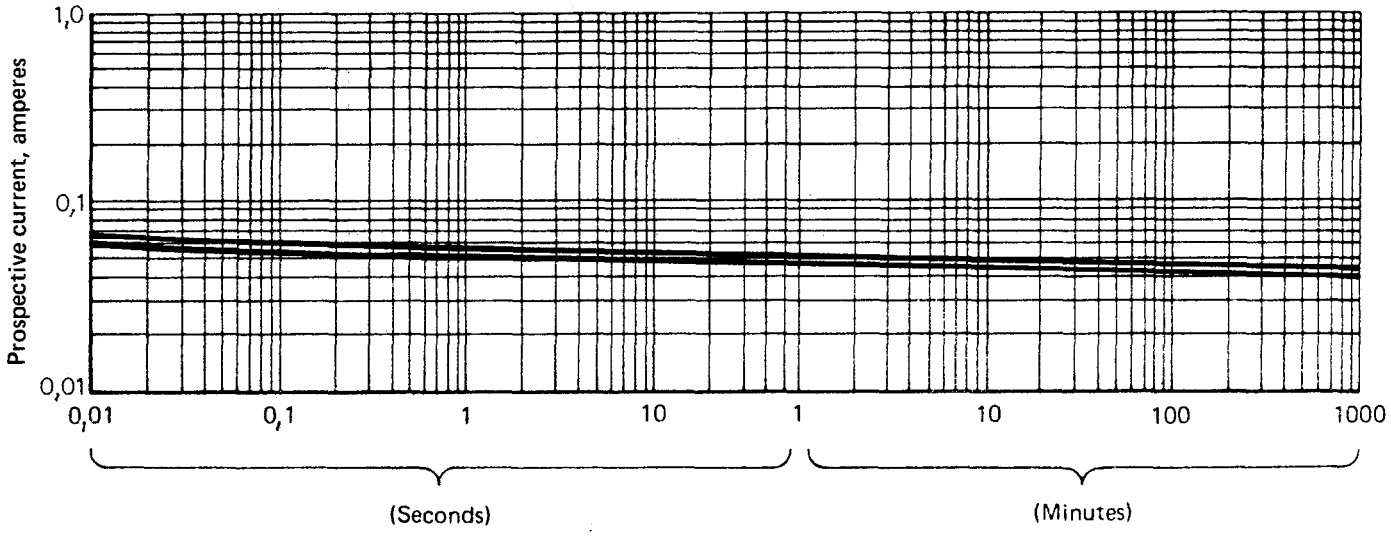


FIGURE 1 – **Size 00; 0,025 A**

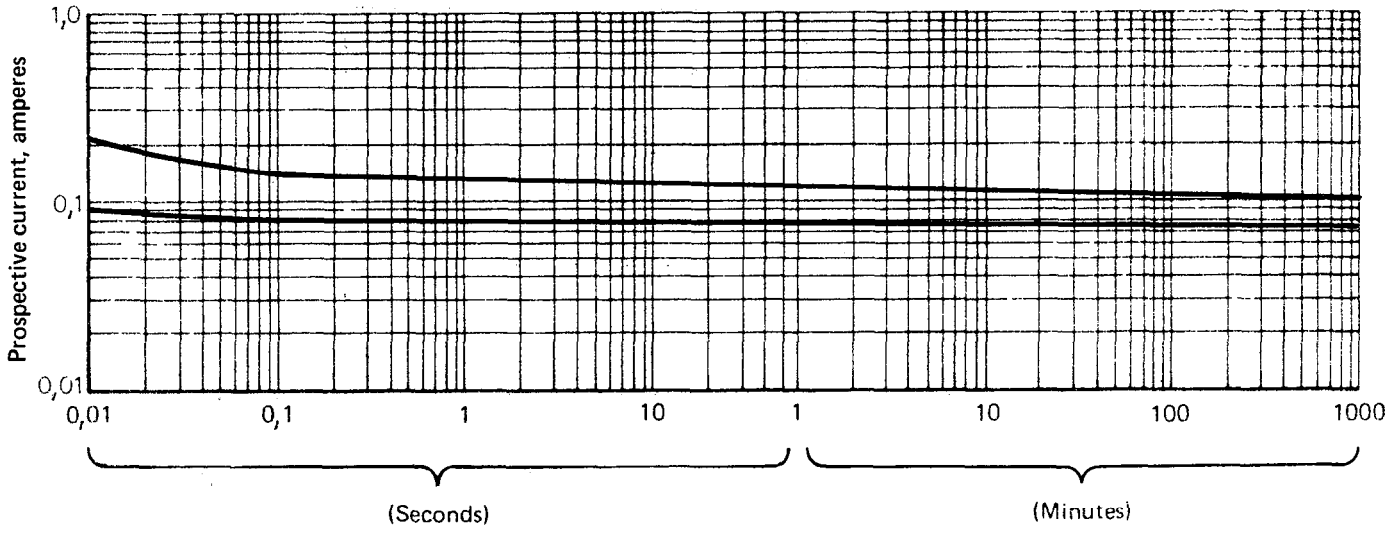


FIGURE 2 – **Size 00; 0,05 A**

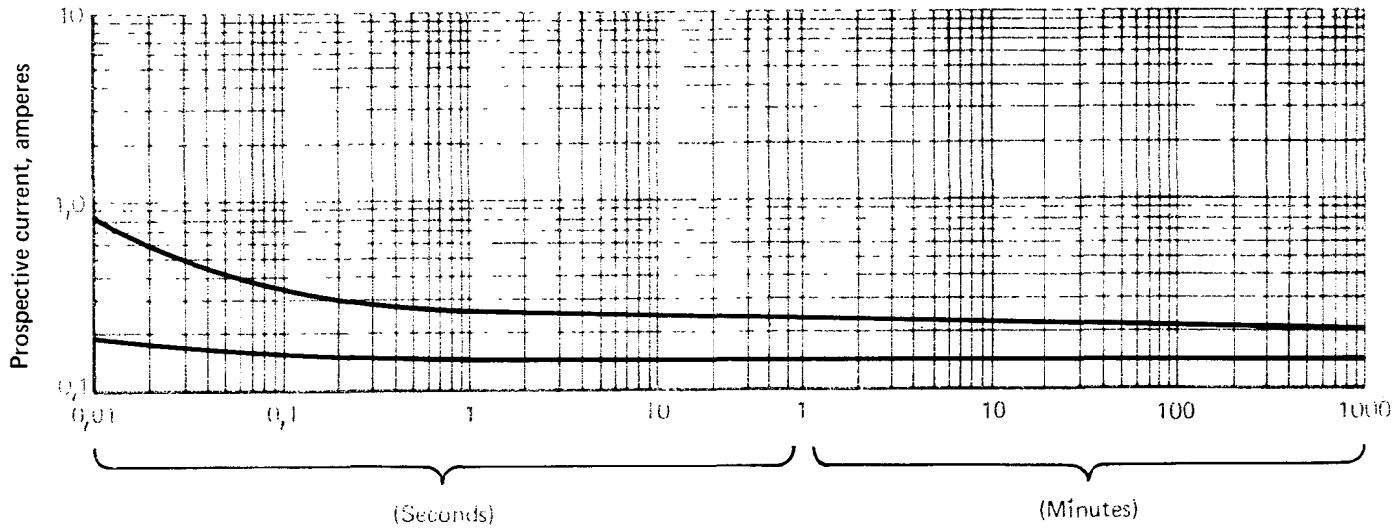


FIGURE 3 – **Size 00; 0,1 A**

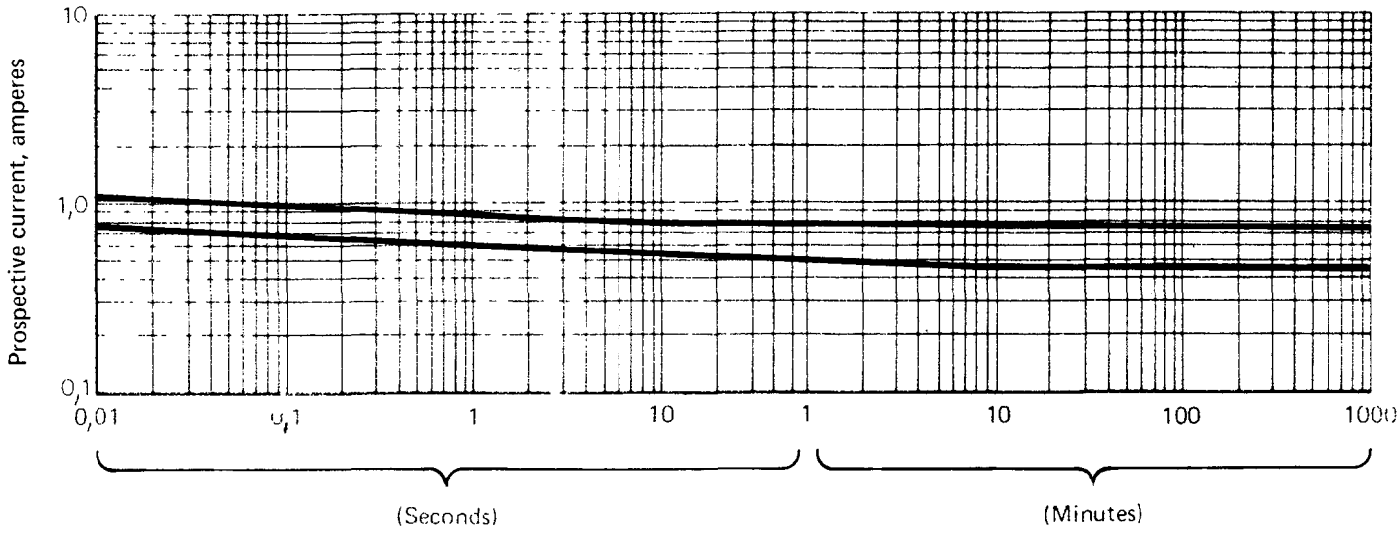


FIGURE 4 – **Size 00; 0,25 A**

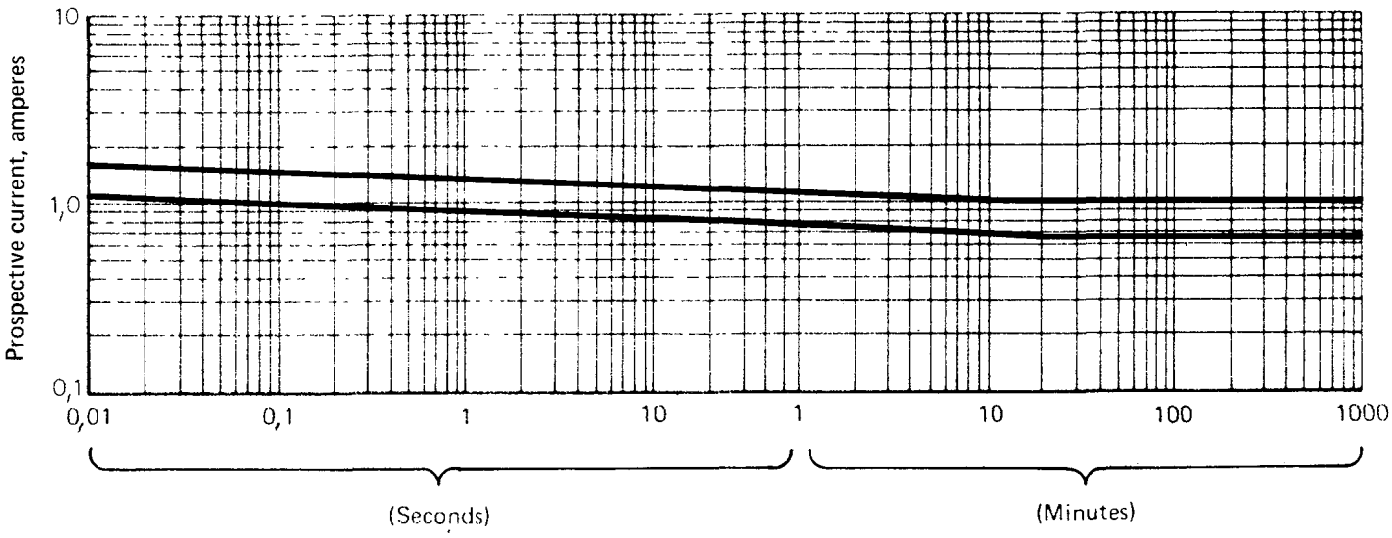
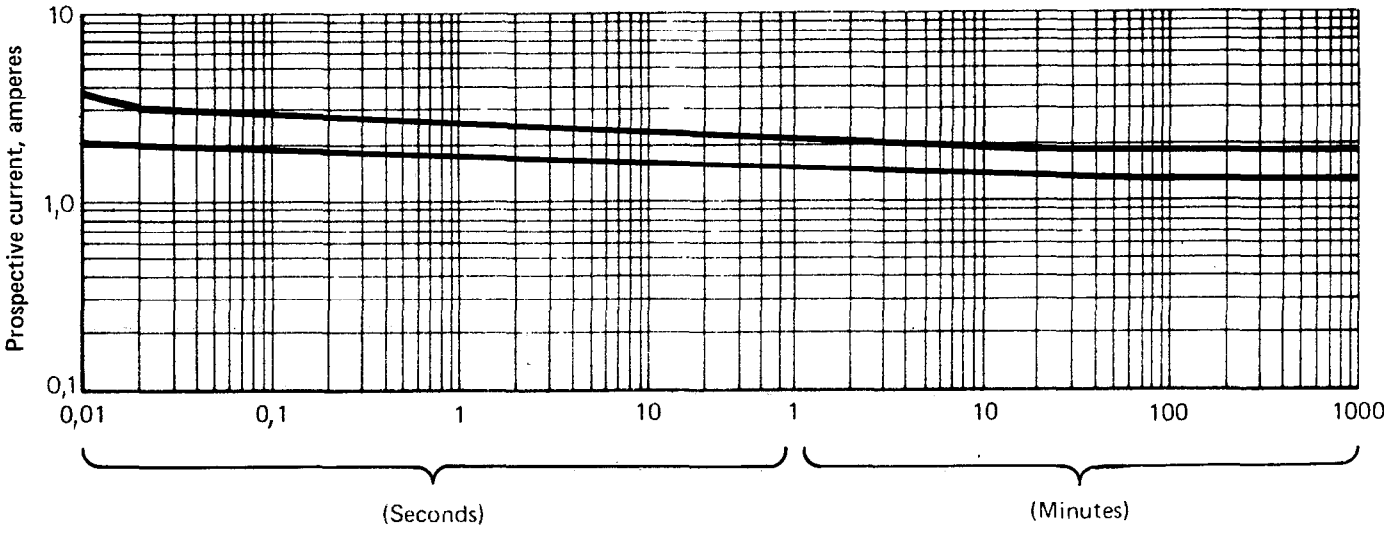
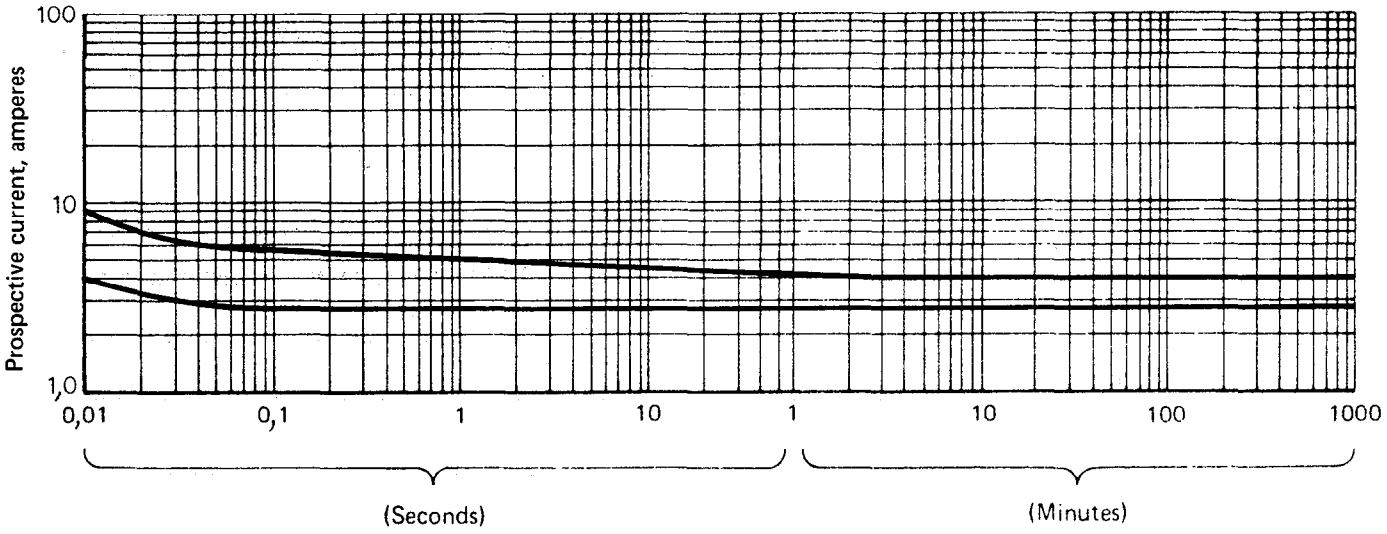


FIGURE 5 – **Size 00; 0,5 A**



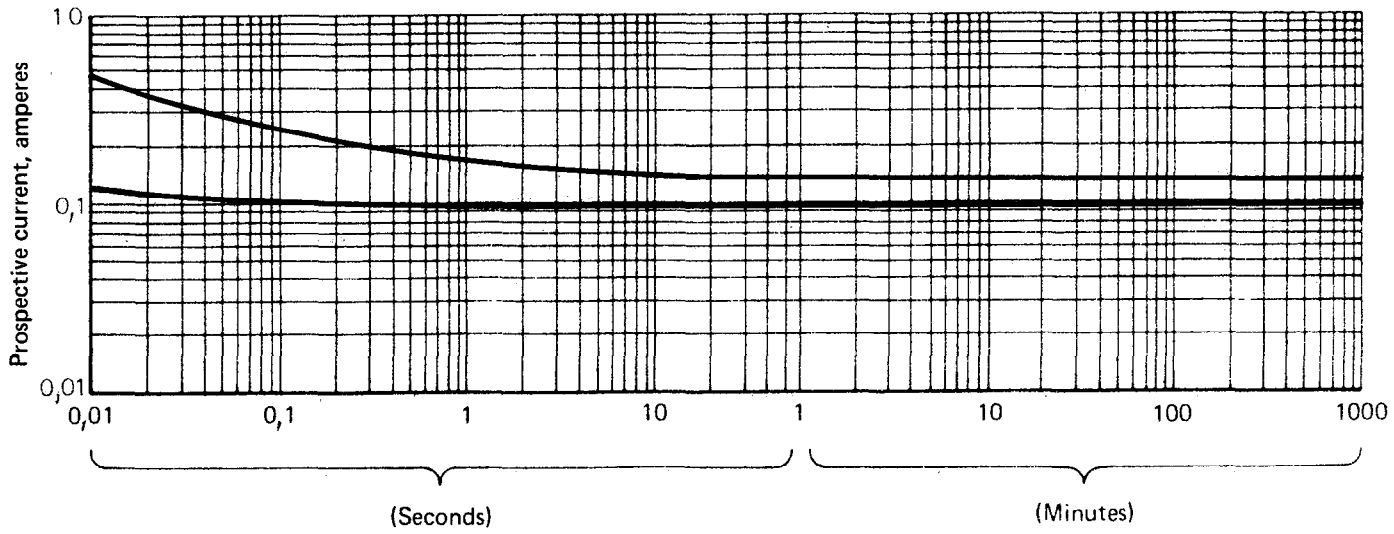
Pre-arcing time

FIGURE 6 – **Size 00; 1 A**



Pre-arcing time

FIGURE 7 – **Size 00; 2 A**



Pre-arcing time

FIGURE 8 – **Size 0; 0,06 A**

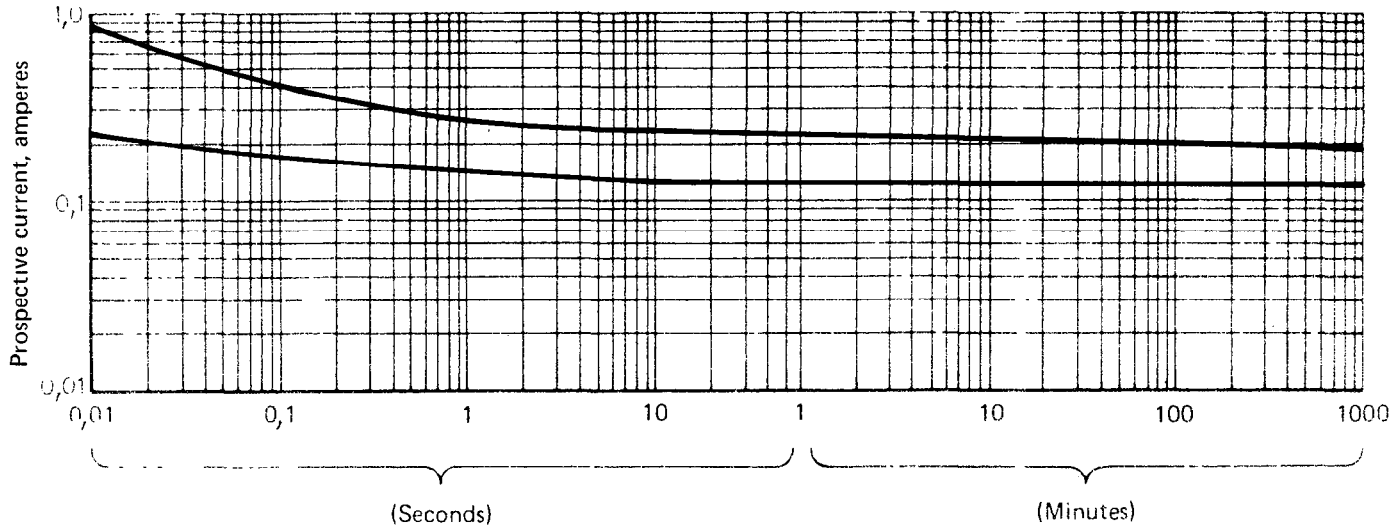


FIGURE 9 – **Size 0; 0,1 A**

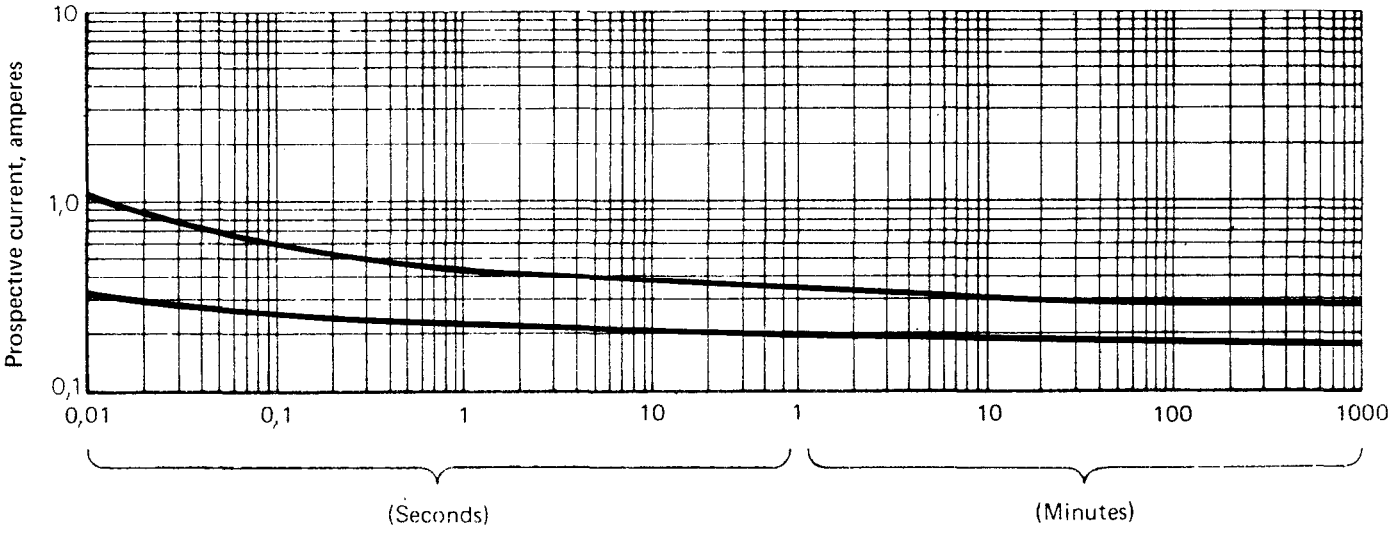


FIGURE 10 – **Size 0; 0,15 A**

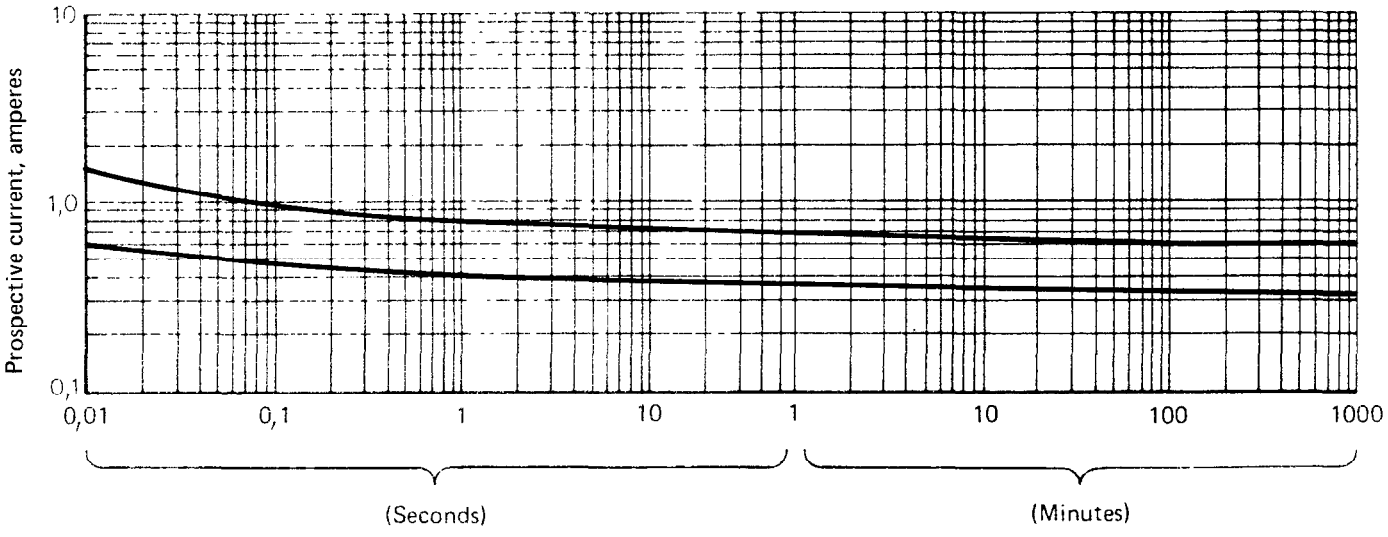


FIGURE 11 – **Size 0; 0,25 A**

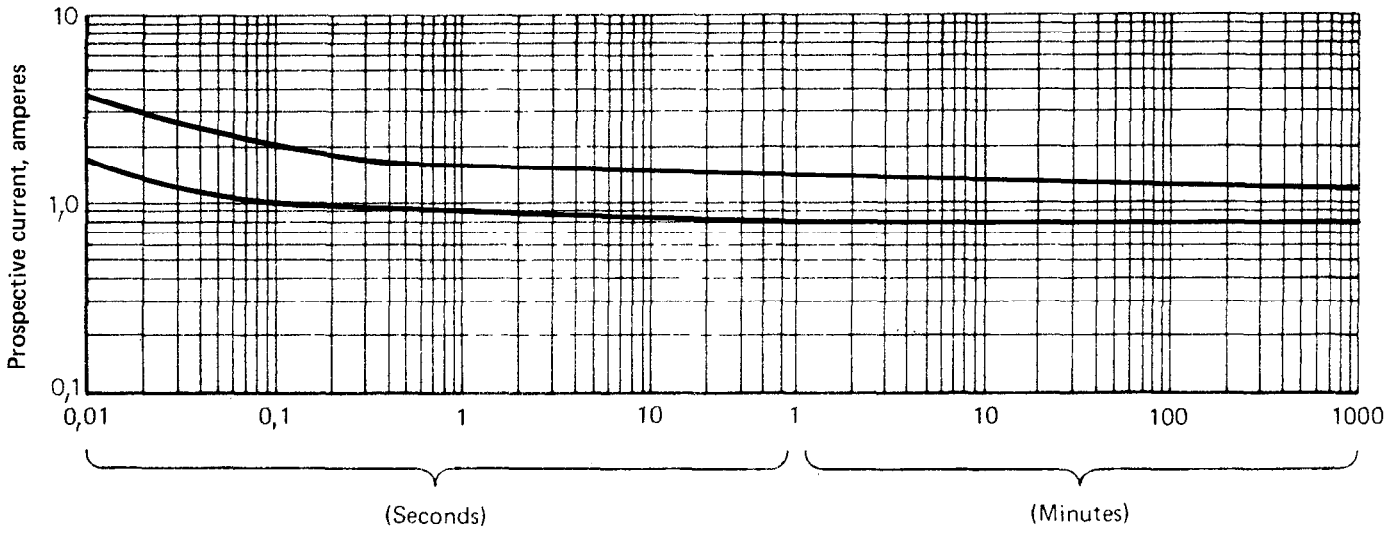


FIGURE 12 – **Size 0; 0,5 A**

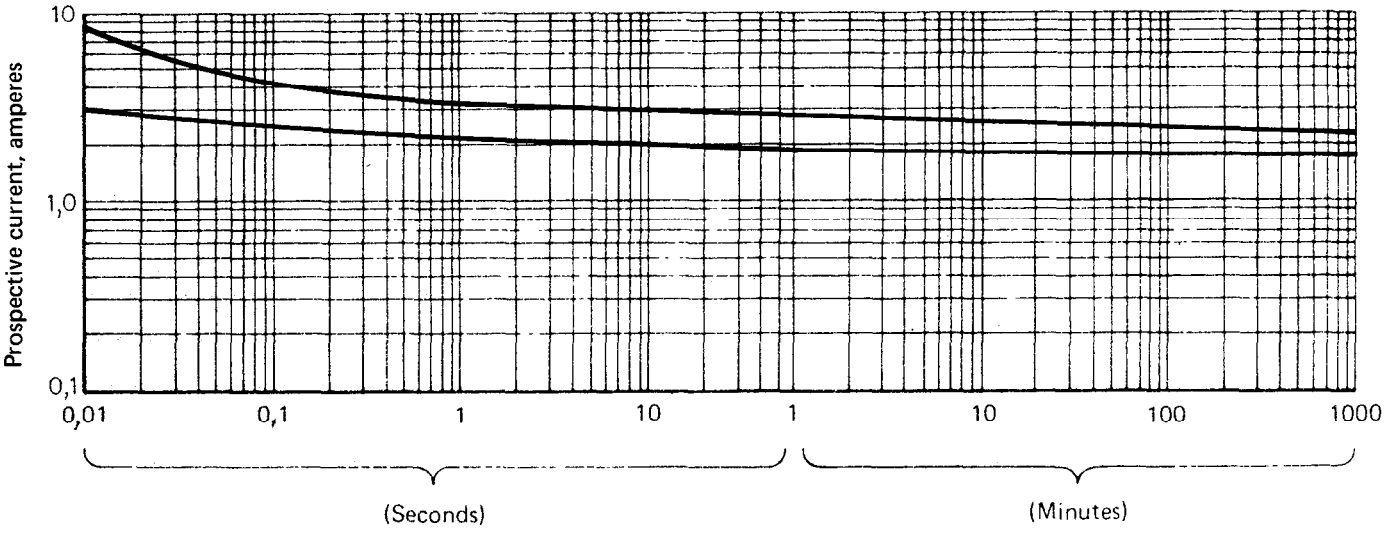


FIGURE 13 – **Size 0; 1 A**

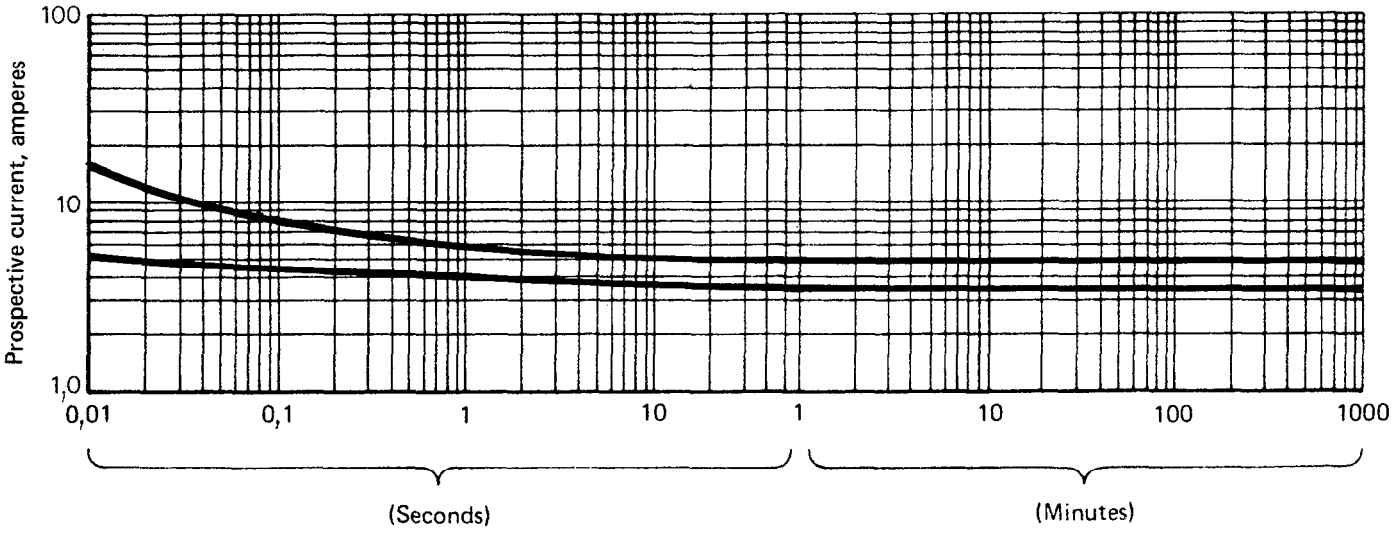


FIGURE 14 – **Size 0; 2 A**

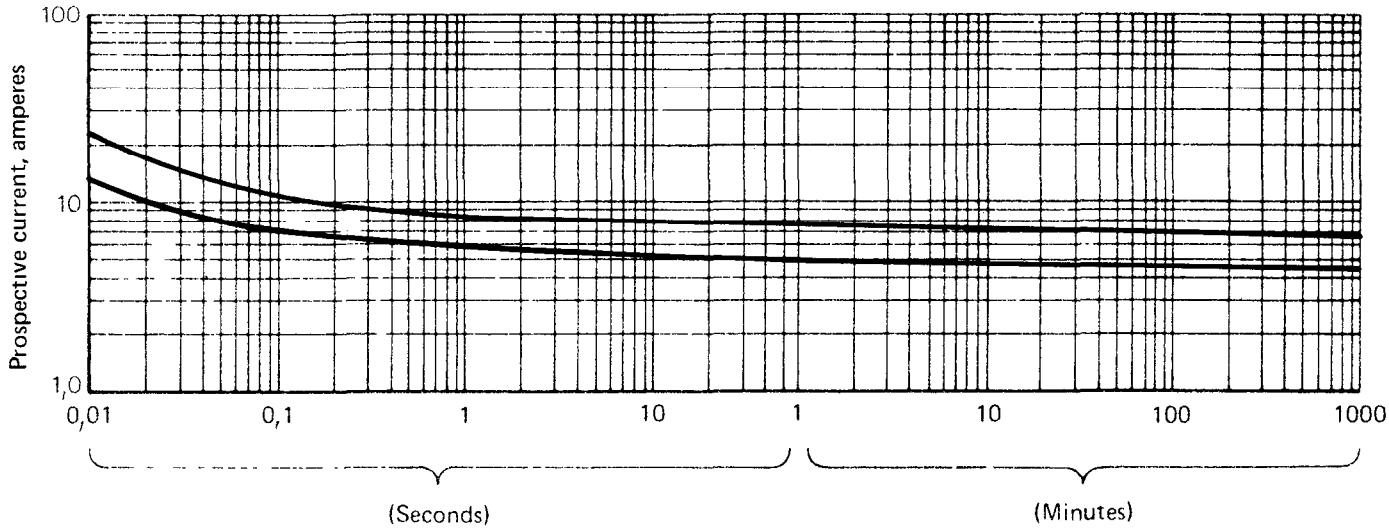


FIGURE 15 – **Size 0; 3 A**

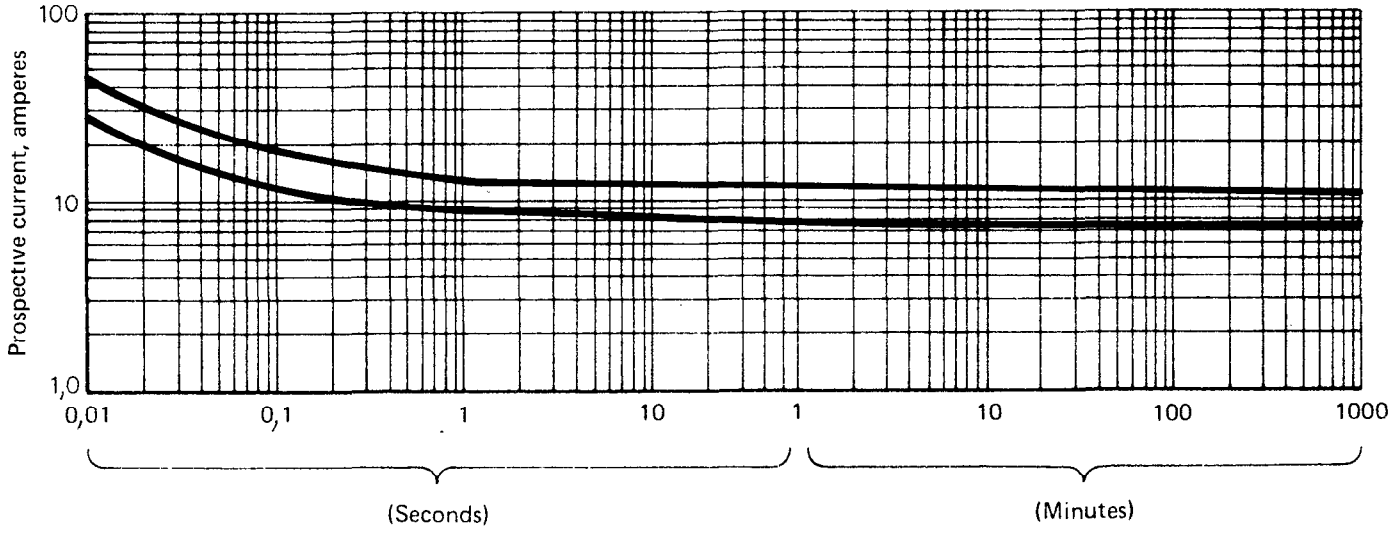


FIGURE 16 – **Size 0; 5 A**

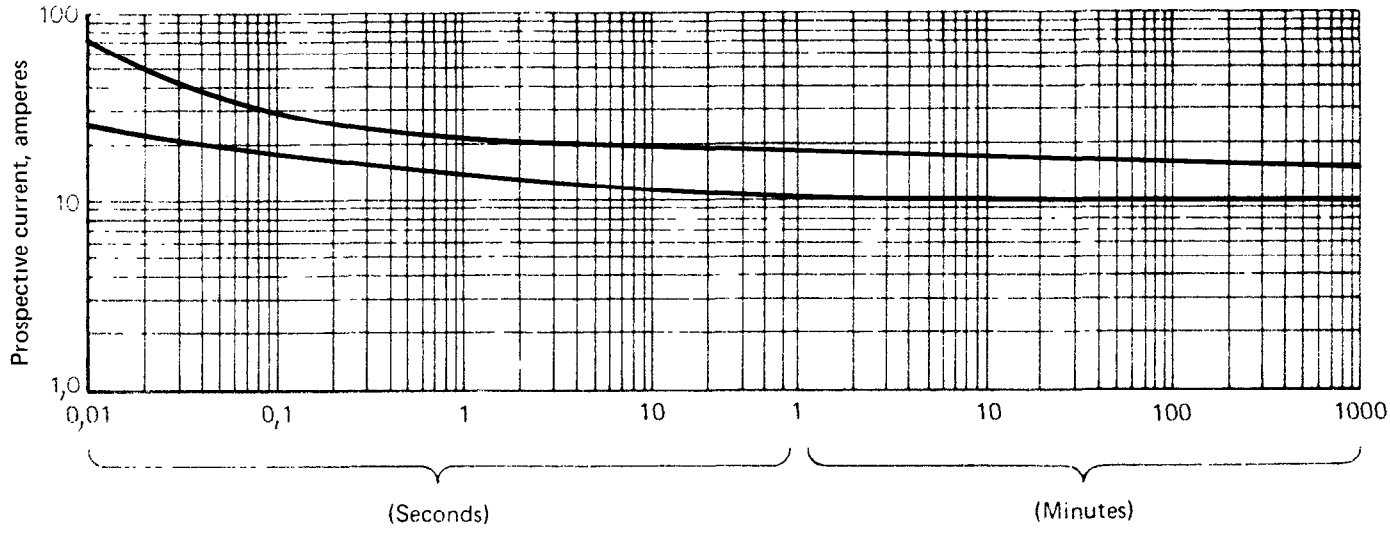
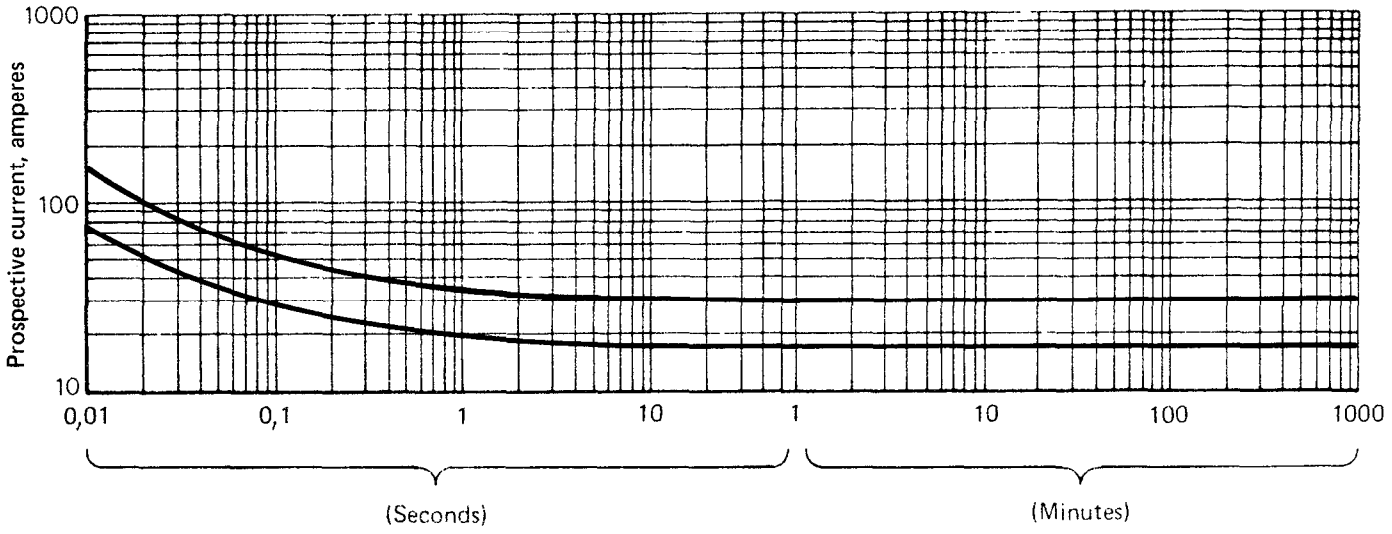
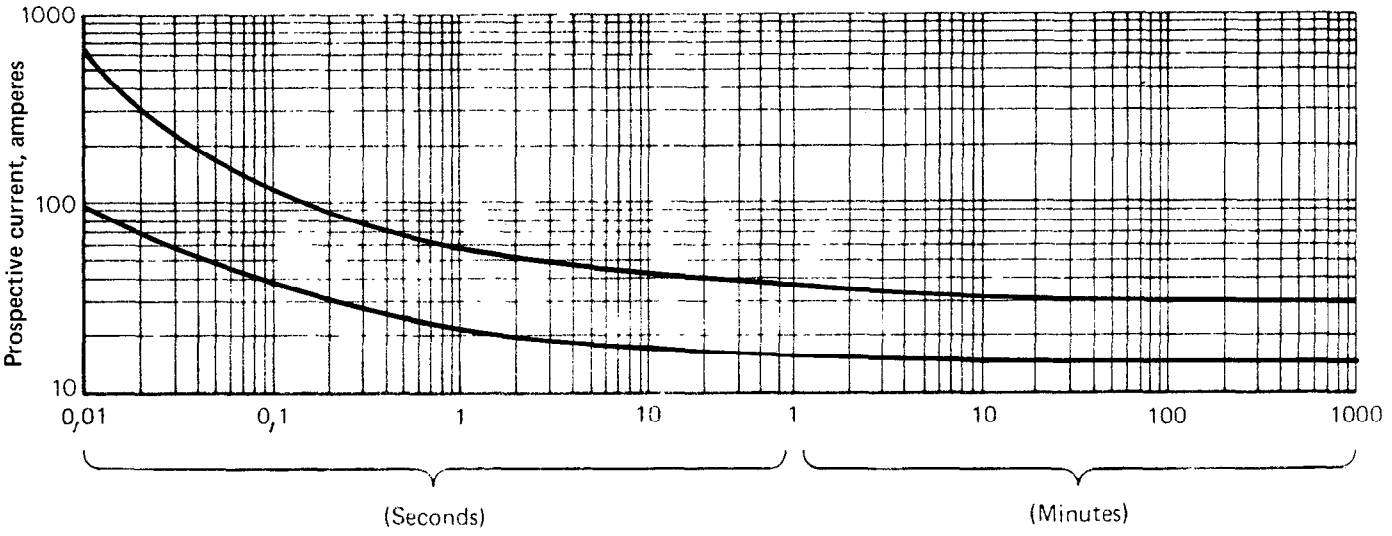


FIGURE 17 – **Size 0; 7 A**



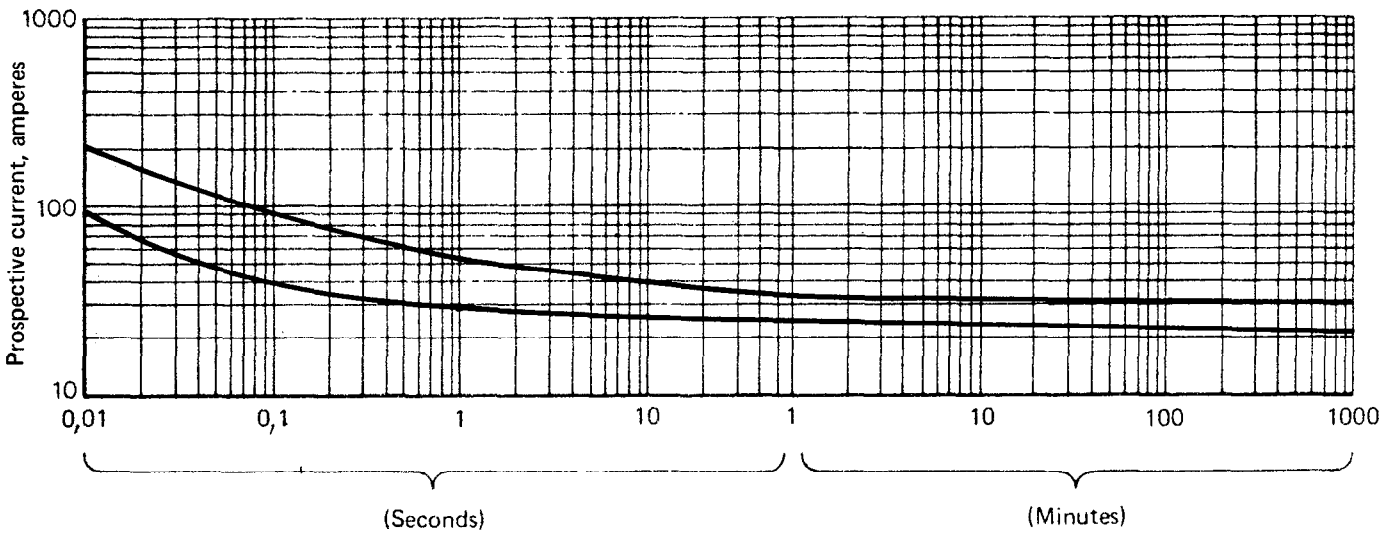
Pre-arcing time

FIGURE 18 – **Size 0; 10 A**



Pre-arcing time

FIGURE 19 – **Size 0; 15 A**



Pre-arcing time

FIGURE 20 – **Size 0; 20 A**

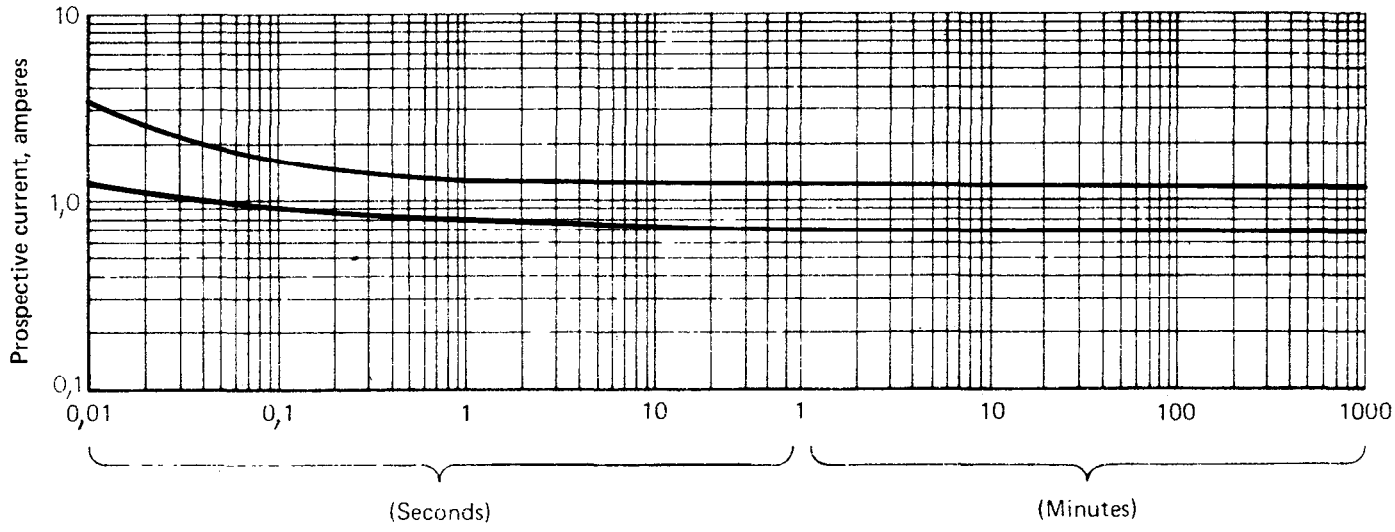


FIGURE 21 – **Size 1; 0,5 A**

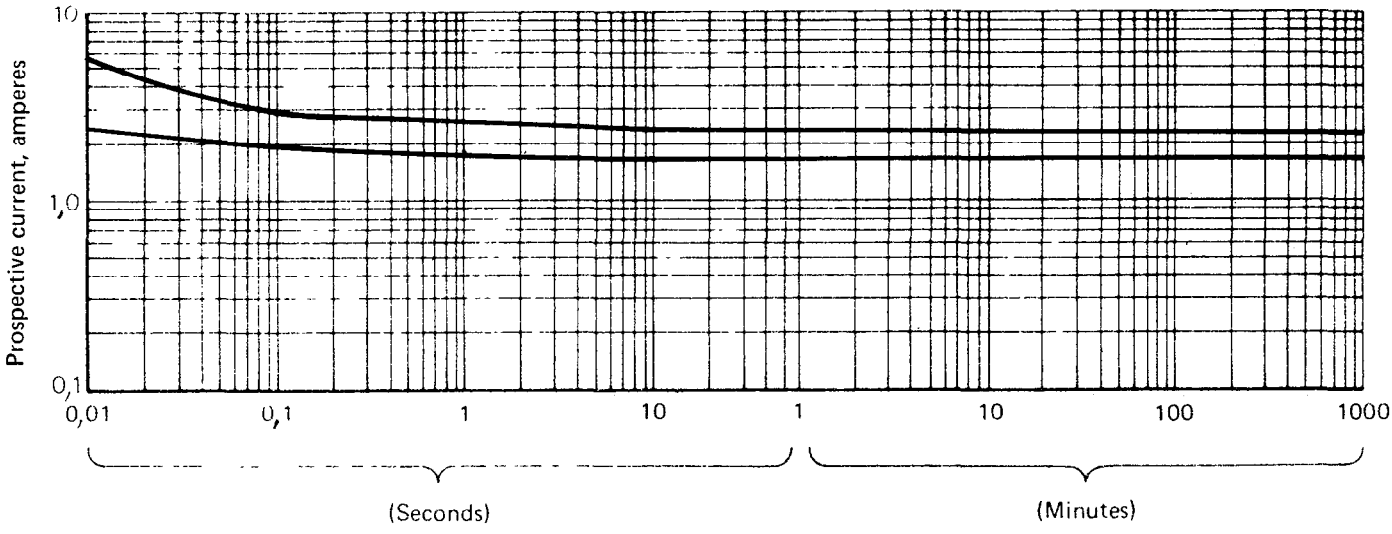


FIGURE 22 – **Size 1; 1 A**

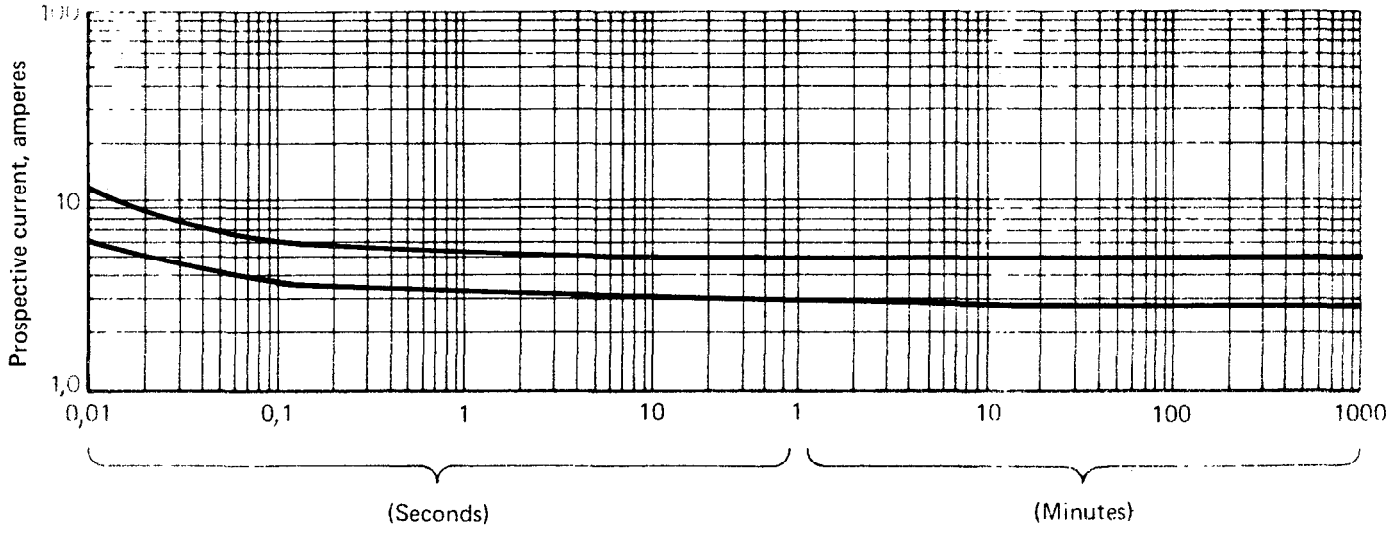
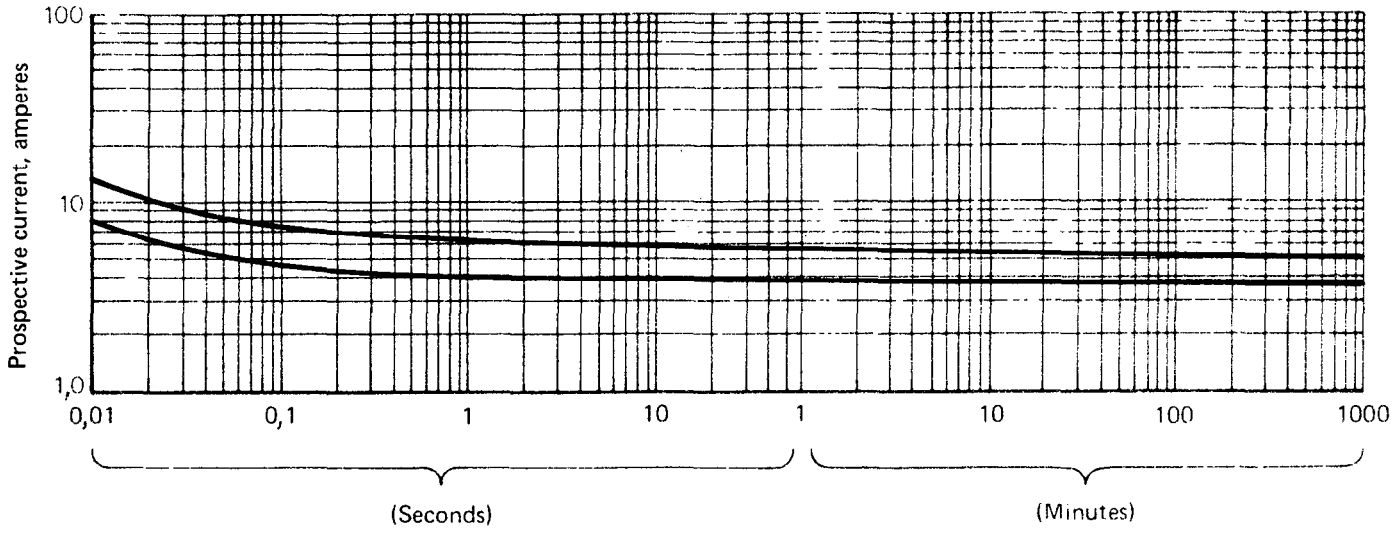
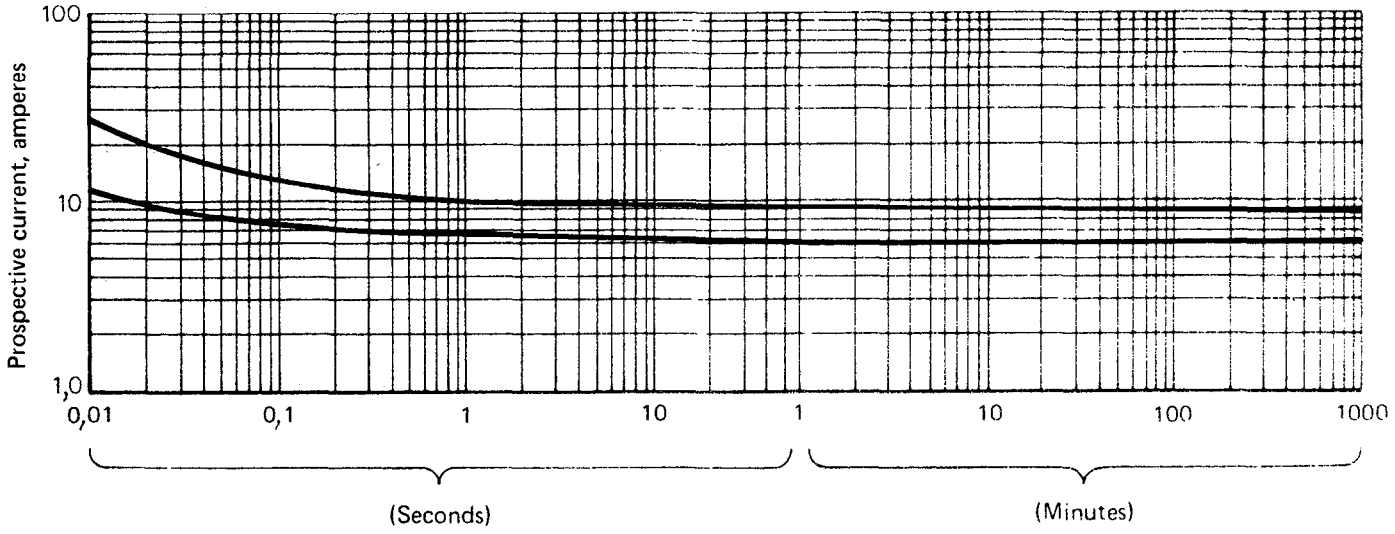


FIGURE 23 – **Size 1; 2 A**



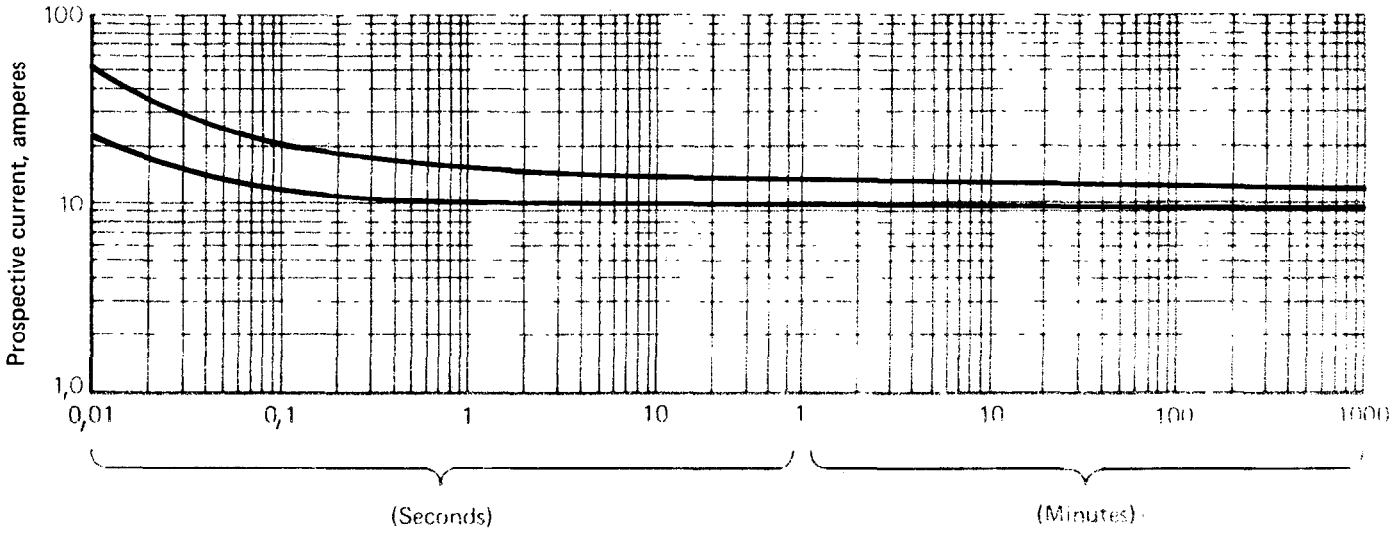
Pre-arcing time

FIGURE 24 – **Size 1; 3 A**



Pre-arcing time

FIGURE 25 – **Size 1; 5 A**



Pre-arcing time

FIGURE 26 – **Size 1; 7 A**

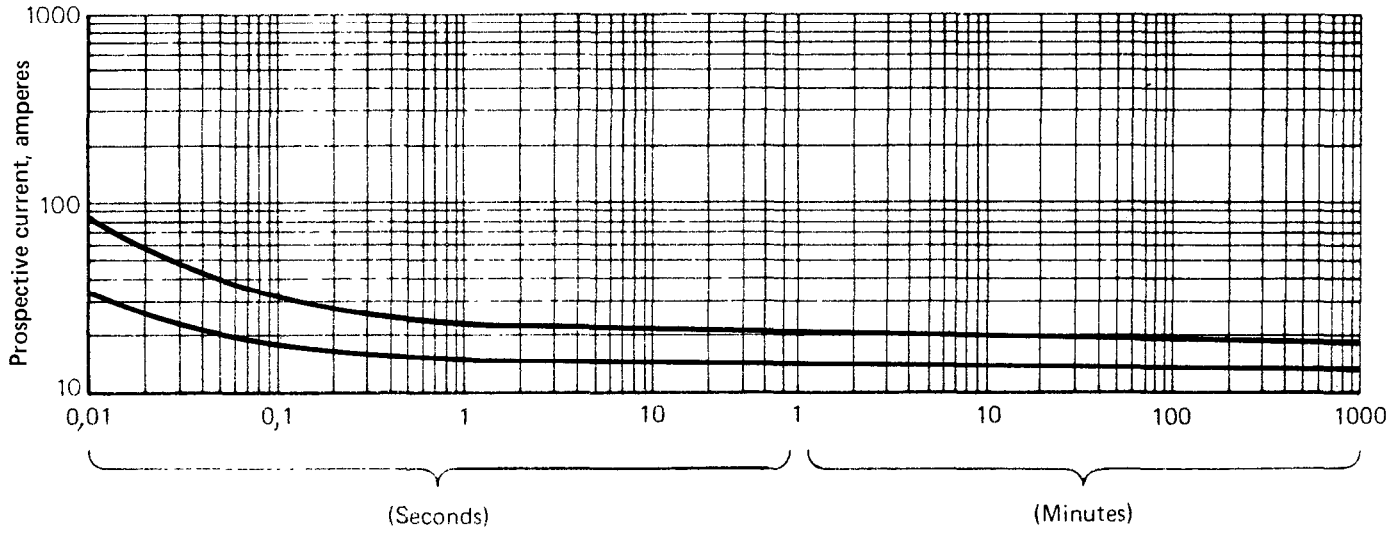


FIGURE 27 – **Size 1; 10 A**

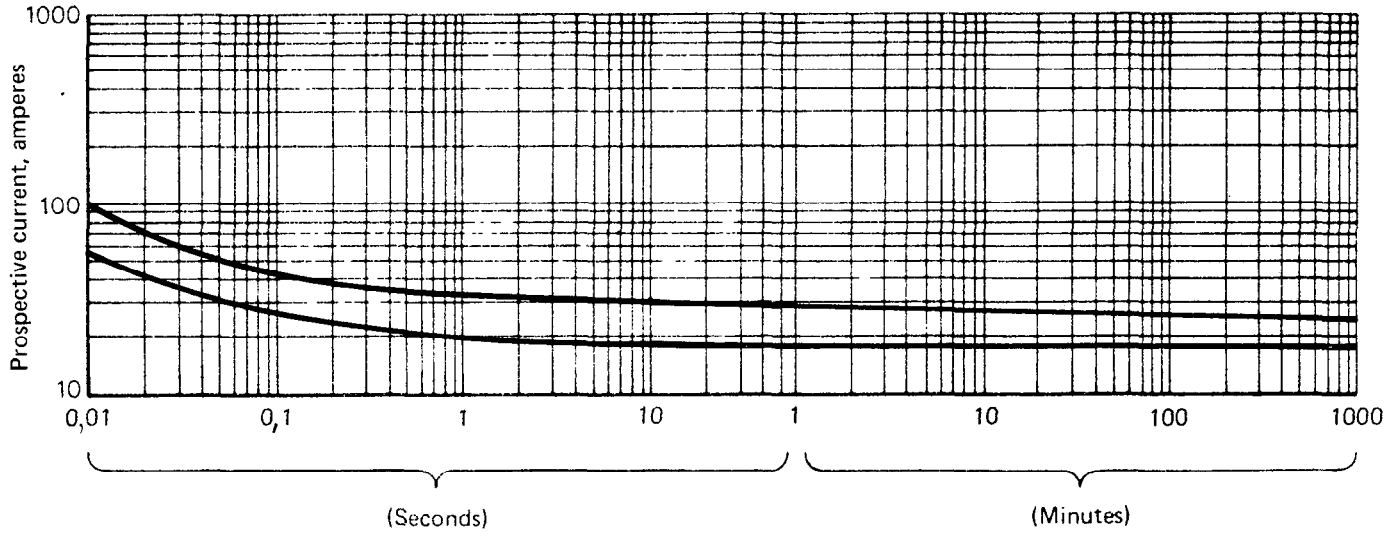


FIGURE 28 – **Size 1; 15 A**

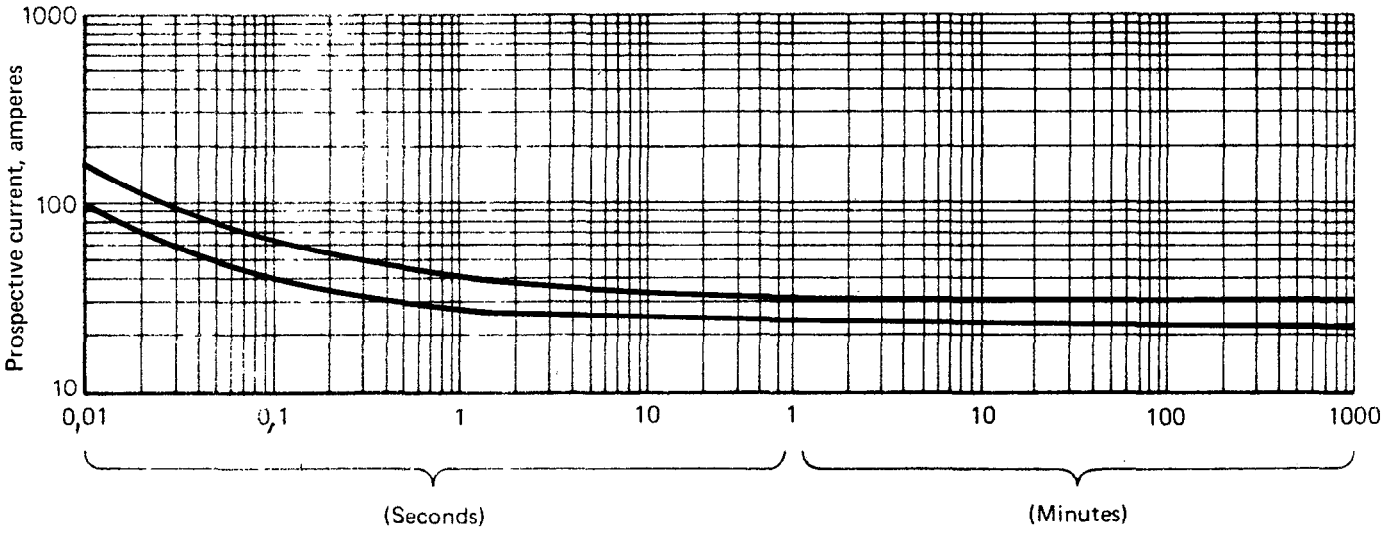


FIGURE 29 – **Size 1; 20 A**

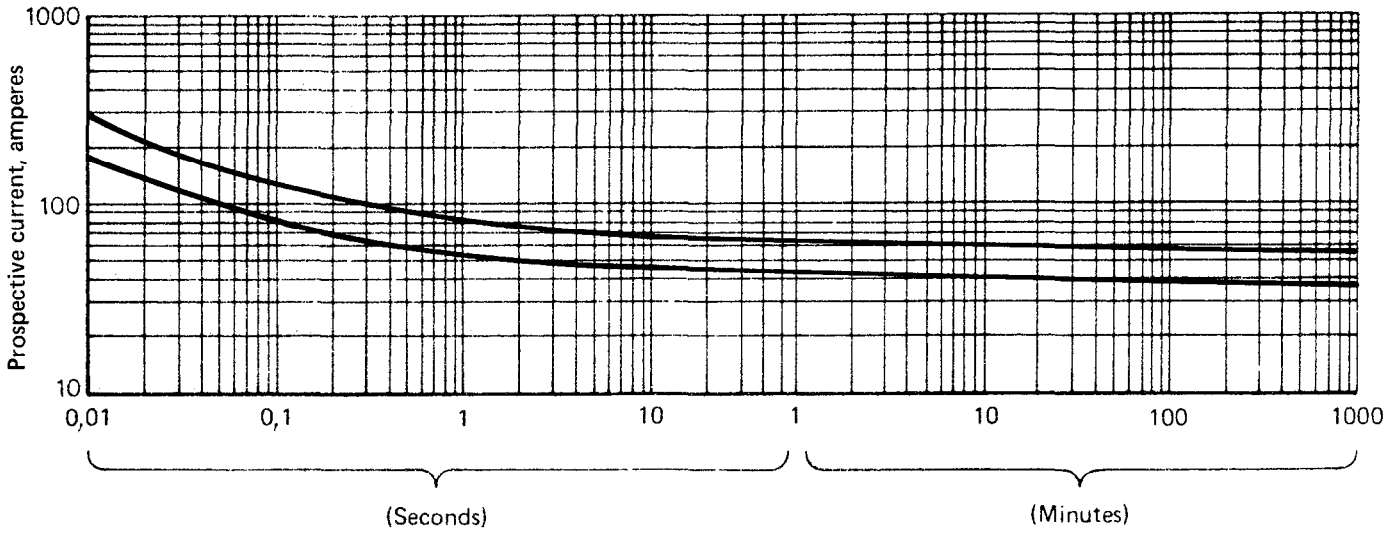


FIGURE 30 – **Size 1; 30 A**

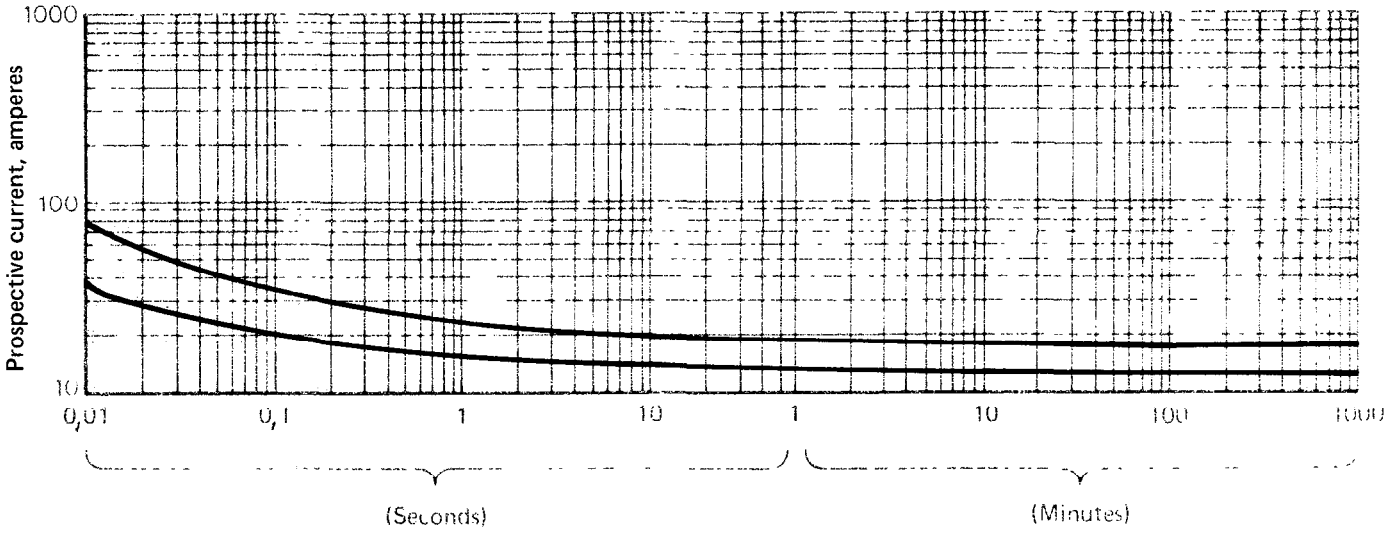


FIGURE 31 – **Size 2; 10 A**

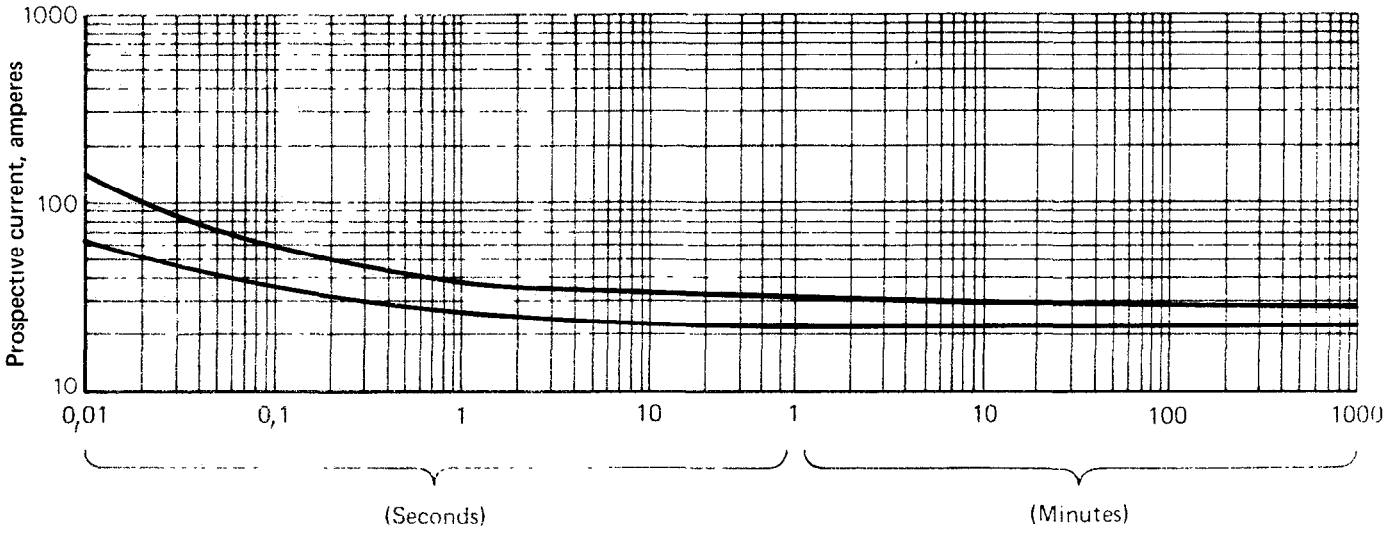


FIGURE 32 – **Size 2; 15 A**

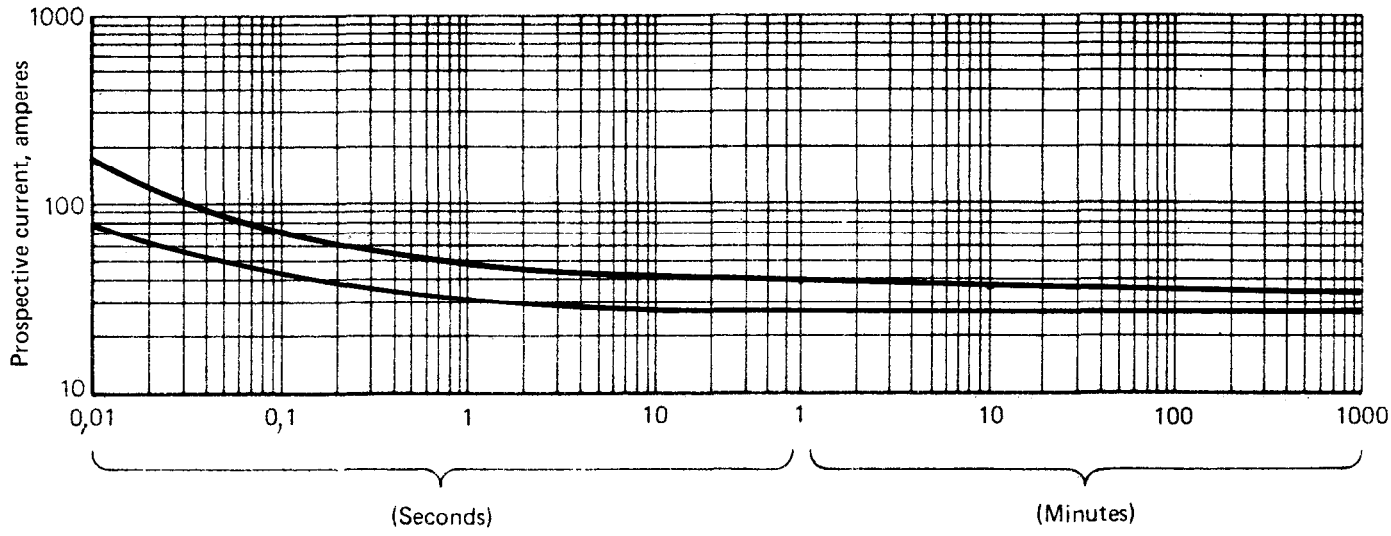


FIGURE 33 – **Size 2; 20 A**

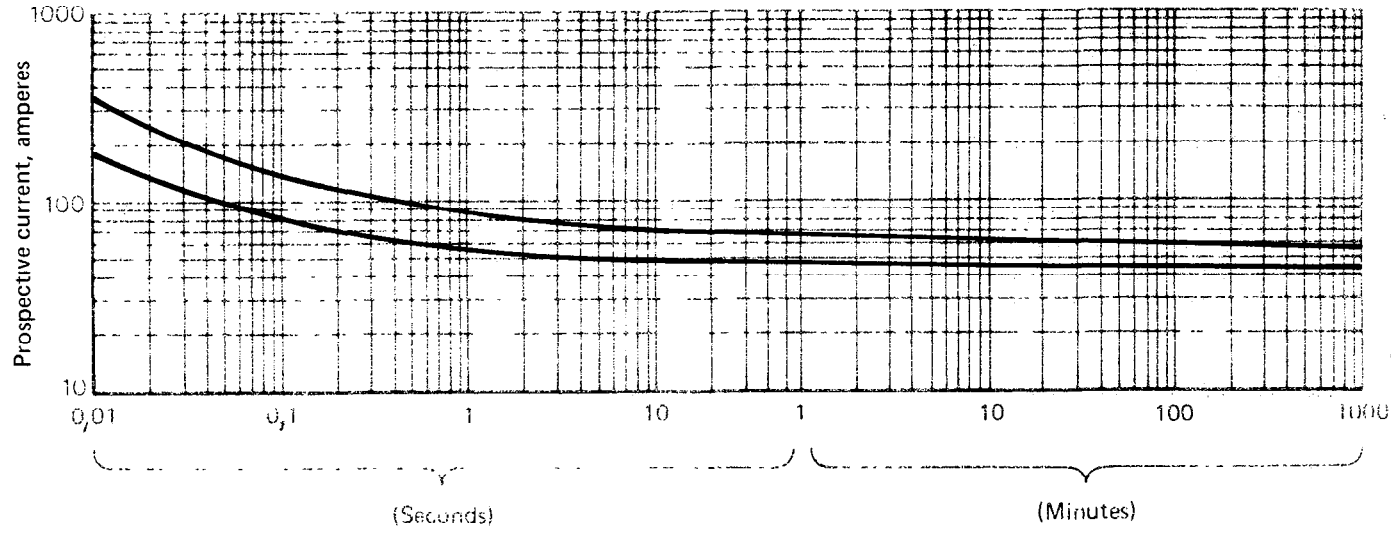


FIGURE 34 – **Size 2; 30 A**

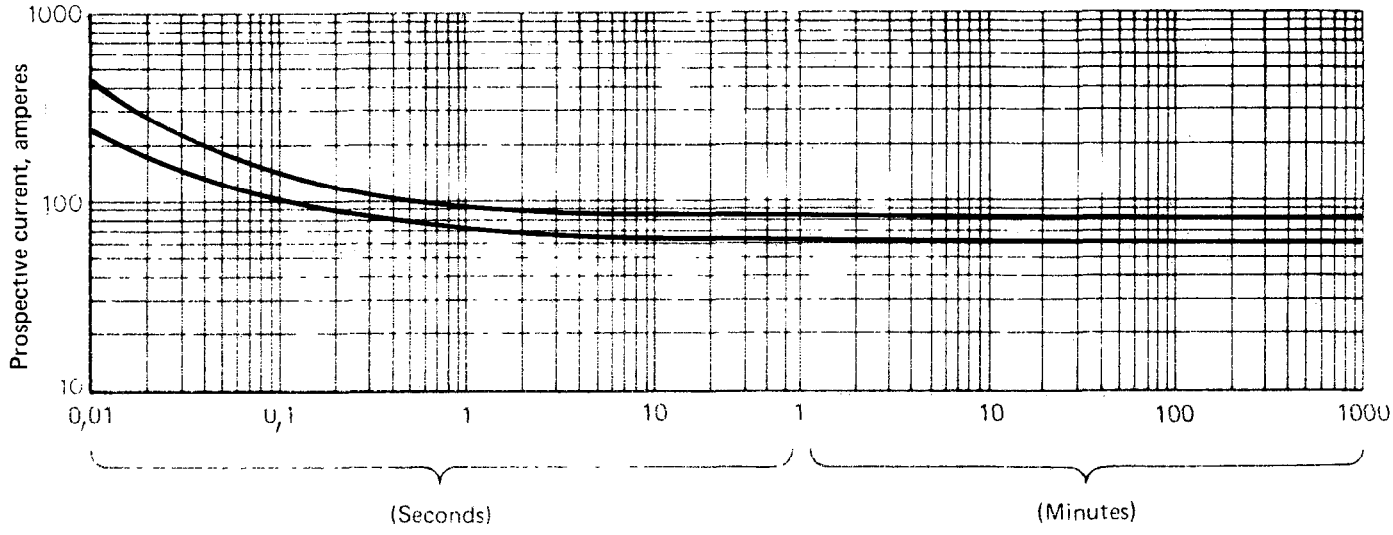
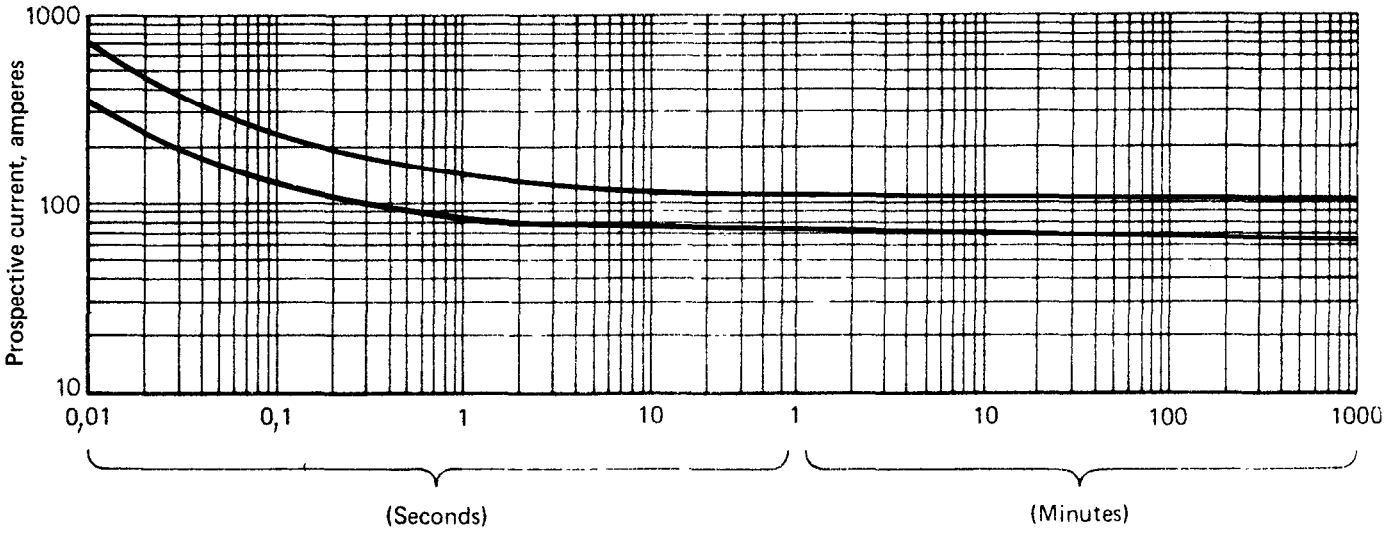
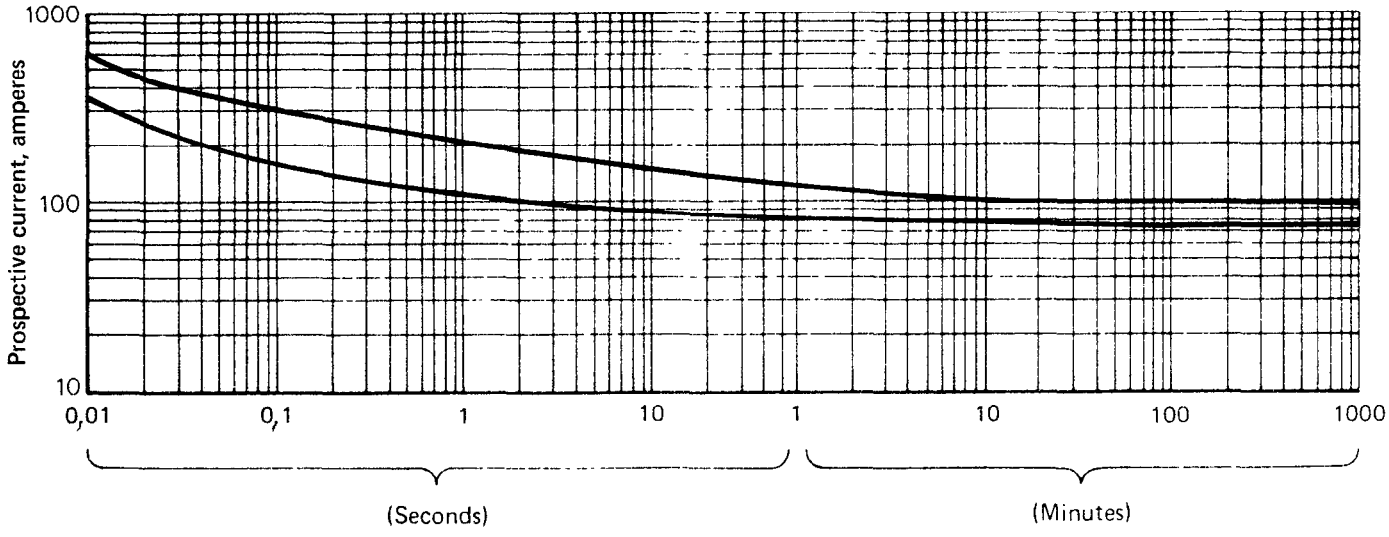


FIGURE 35 – **Size 2; 40 A**



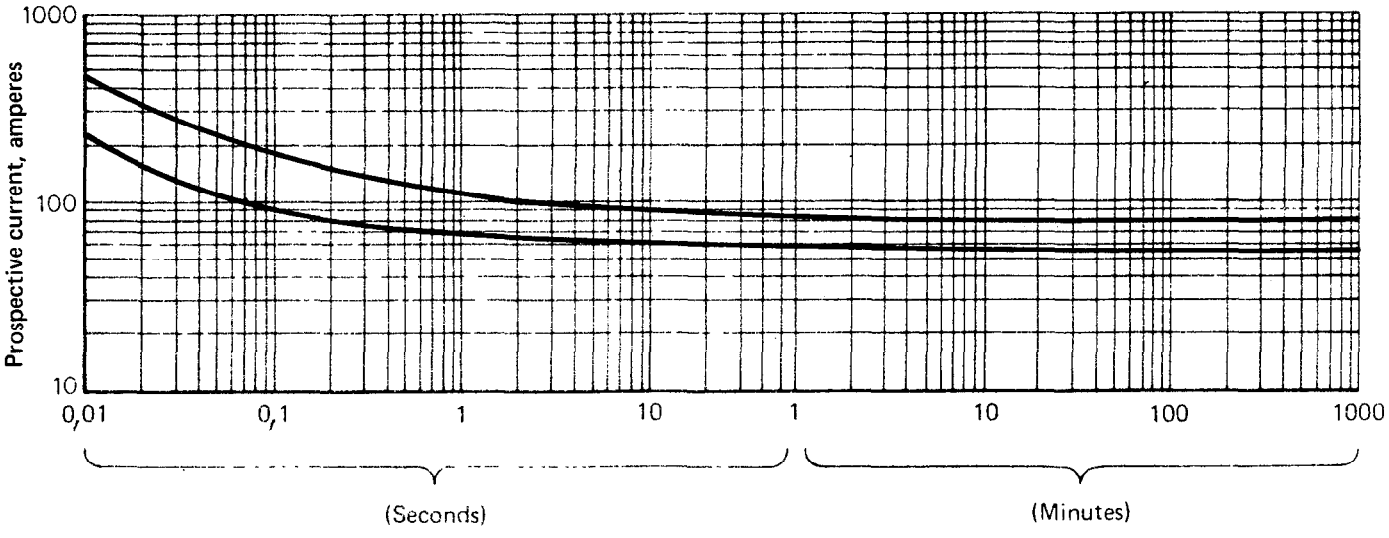
Pre-arcing time

FIGURE 36 – **Size 2; 50 A**



Pre-arcing time

FIGURE 37 – **Size 2; 60 A**



Pre-arcing time

FIGURE 38 – **Size 3; 40 A**

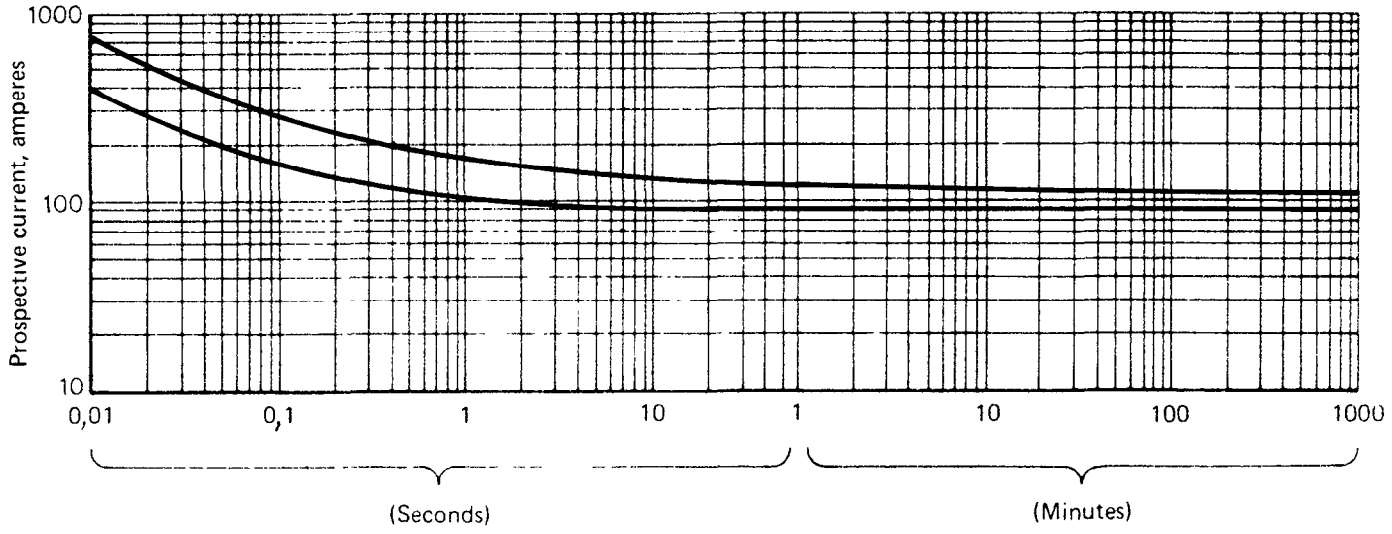


FIGURE 39 – **Size 3; 60 A**

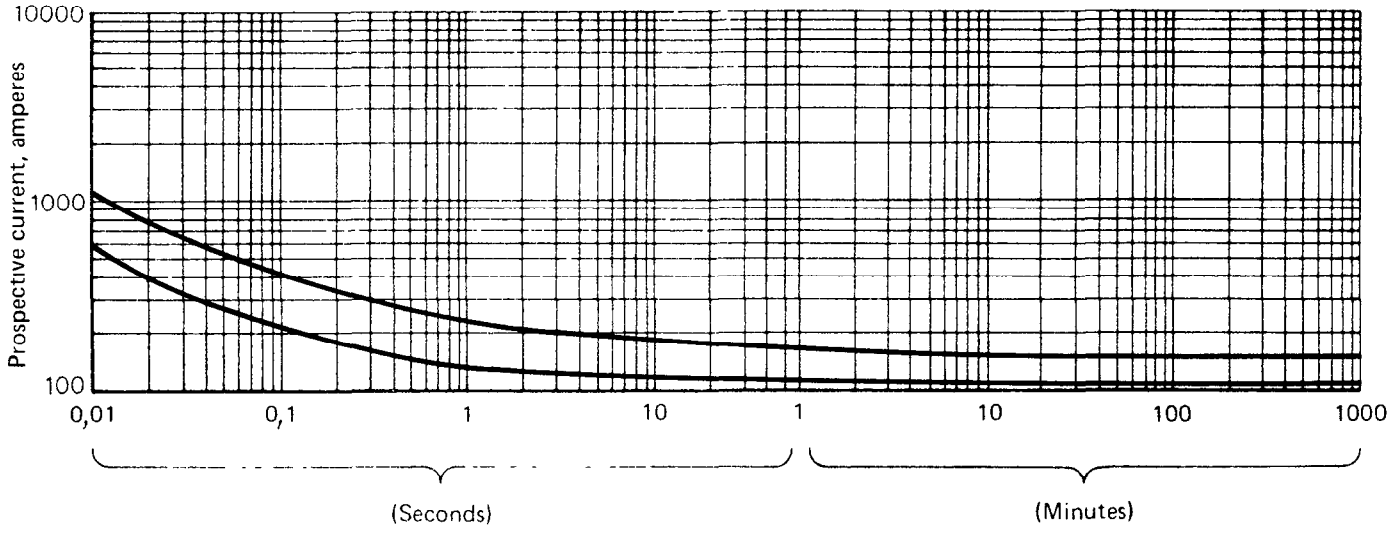


FIGURE 40 – **Size 3; 80 A**

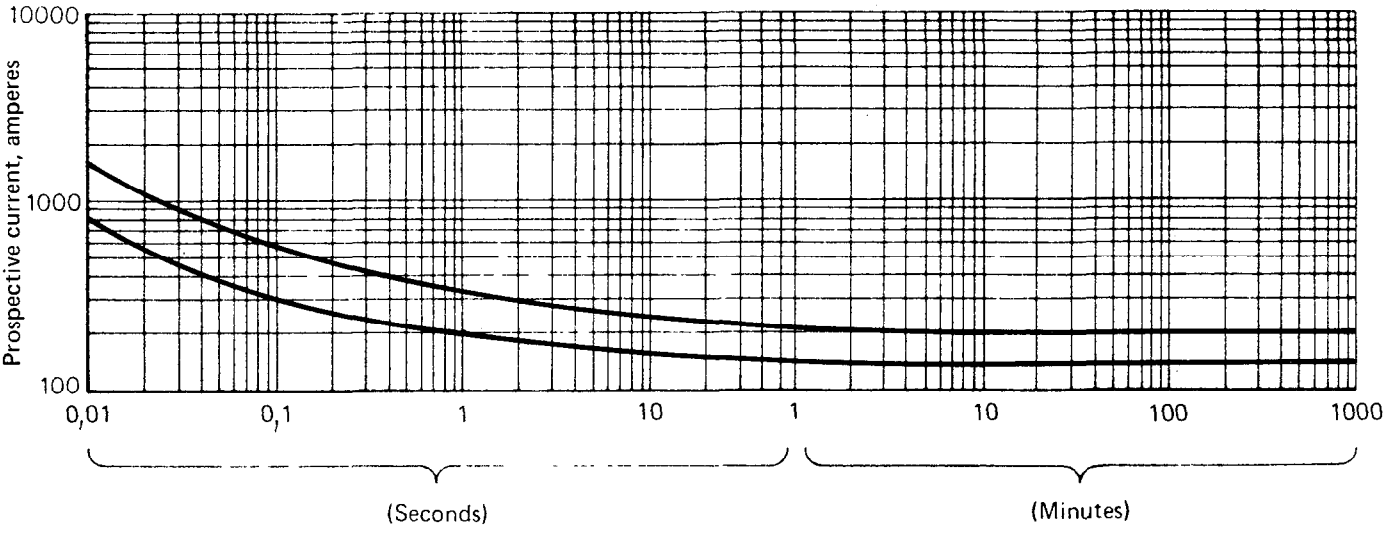


FIGURE 41 – **Size 3; 100 A**

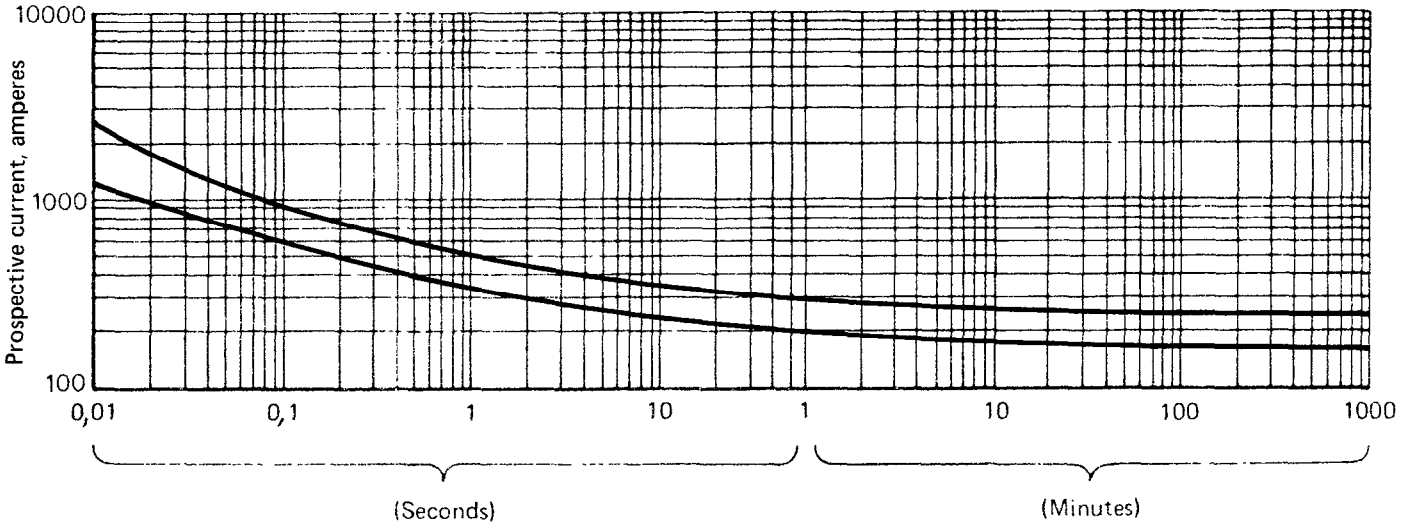


FIGURE 42 – **Size 3; 125 A**

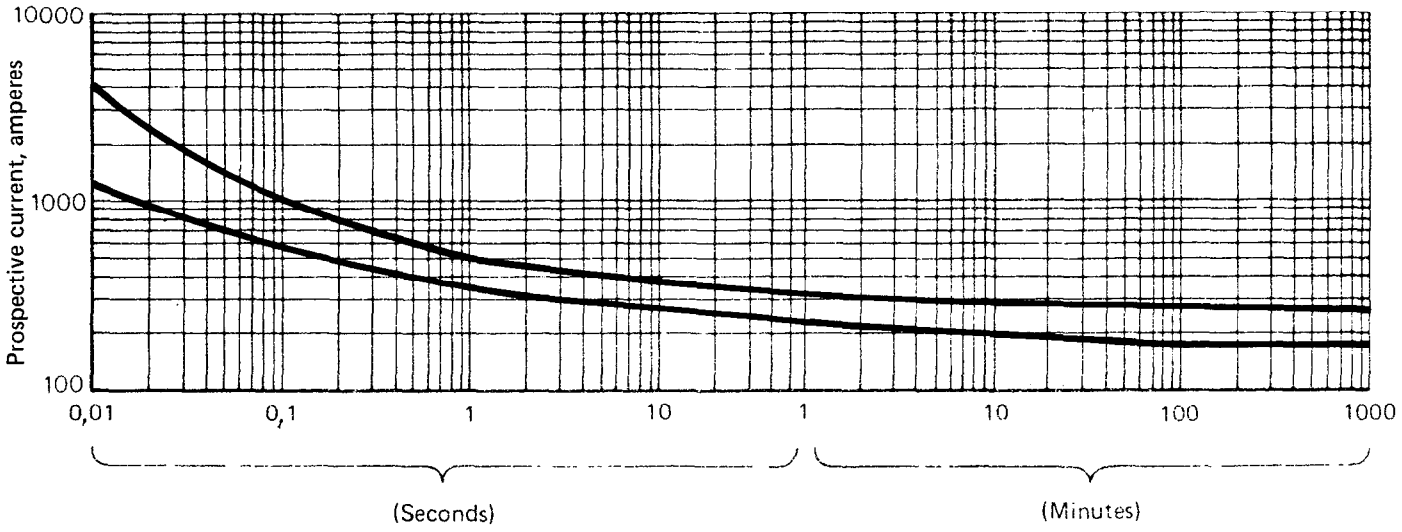


FIGURE 43 – **Size 3; 150 A**

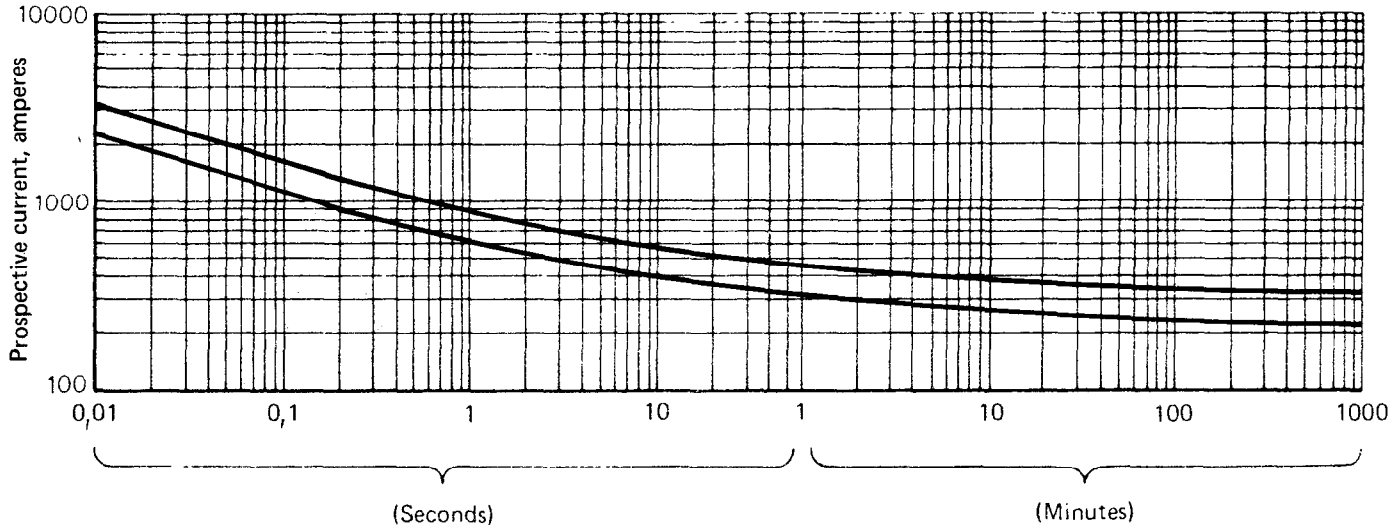


FIGURE 44 – **Size 3; 200 A**