
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

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Ref. No. ISO 1548-1976 (E)

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

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.

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

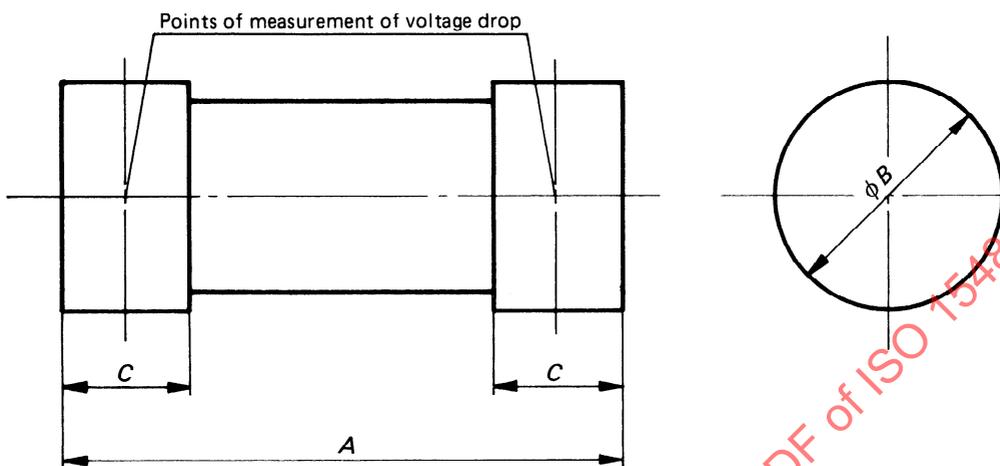
The pre-arcing time/current characteristics of the fuse-links shall be within the appropriate envelope curves shown in the annex.

8 TESTS

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

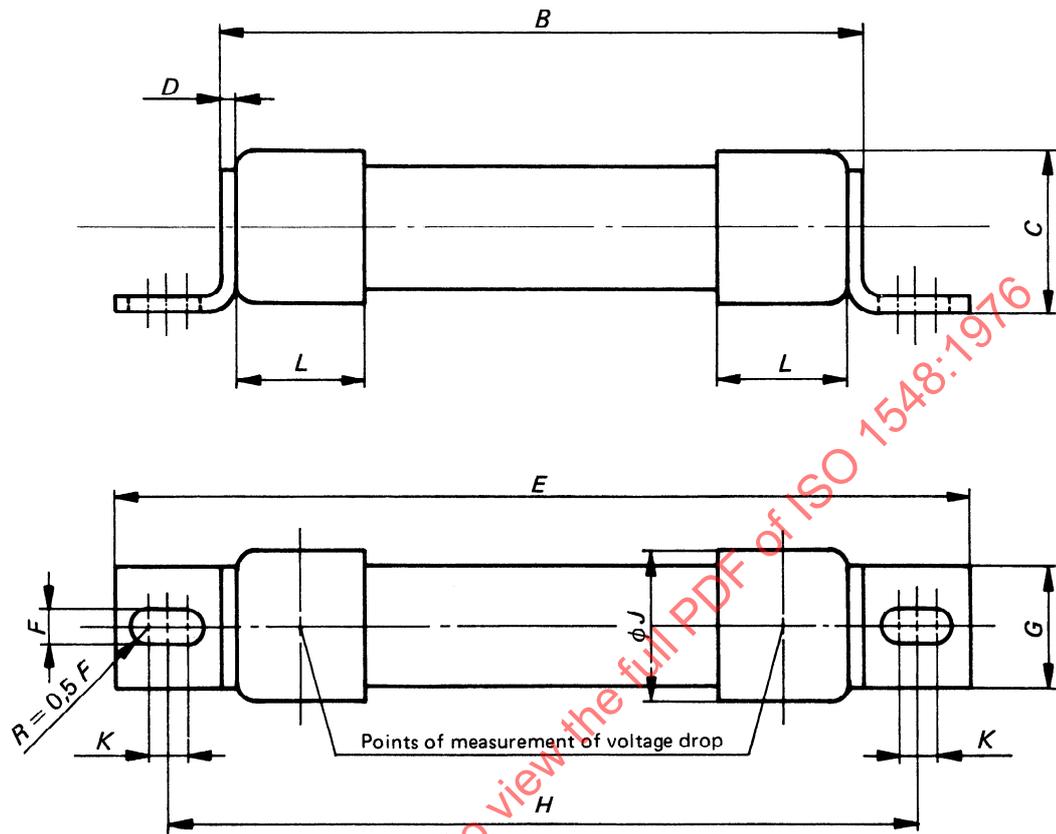
1) At present at the stage of draft.

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				7	8		10	11	12	2
			Voltage	Prospective current of circuit	Power factor (lagging) of test circuit (max.)	Time constant of test circuit (min.)		Voltage drop ²⁾					
V	A	Upper limit of mean value					Percentage tolerance on actual mean value	mV	± %	h	mm ²	A	
00	0,025	Ferrule only	250 a.c. 230 d.c.	4 000 4 000	0,4 —	— 0,004 0	540 ³⁾ 4 300 3 000 1 850 2 100 385 275	30 ³⁾ 20 20 20	1,0	0,347	22	0,025 0,05 0,1 0,25 0,5 1,0 2,0	
	0,05												
	0,1												
	0,25												
	0,5												
	1,0												
2,0													
0	0,06	Ferrule or tag Tag only	250 a.c. 230 d.c.	4 000 4 000	0,4 —	— 0,004 0	3 100 3 100 3 800 3 960 2 500 2 700 370 340 300 190 170 185 250	20 20 20 15 12,5 10 10 7,5 7,5 7,5 7,5 7,5 7,5	1,5	0,347 0,556 0,966 2,05	22 20 18 14	0,06 0,1 0,15 0,25 0,5 1,0 2 3 5 7 10 15 20	
	0,1												
	0,15												
	0,25												
	0,5												
	1,0												
	2												
	3												
	5												
	7												
	10												
	15												
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	—	—	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					5								
	7						345	7,5					7								
	10						190	7,5					10								
	15						155	7,5					15								
	20						175	7,5					20								
	30						145	7,5					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				15									
	20						170	7,5				20									
	30						125	7,5				30									
	40						150	7,5				40									
	50						150	7,5				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				60
							80									115	7,5				80
100		104	7,5	100																	
125		98	7,5	125																	
150		73	7,5	150																	
200		813	7,53	200																	

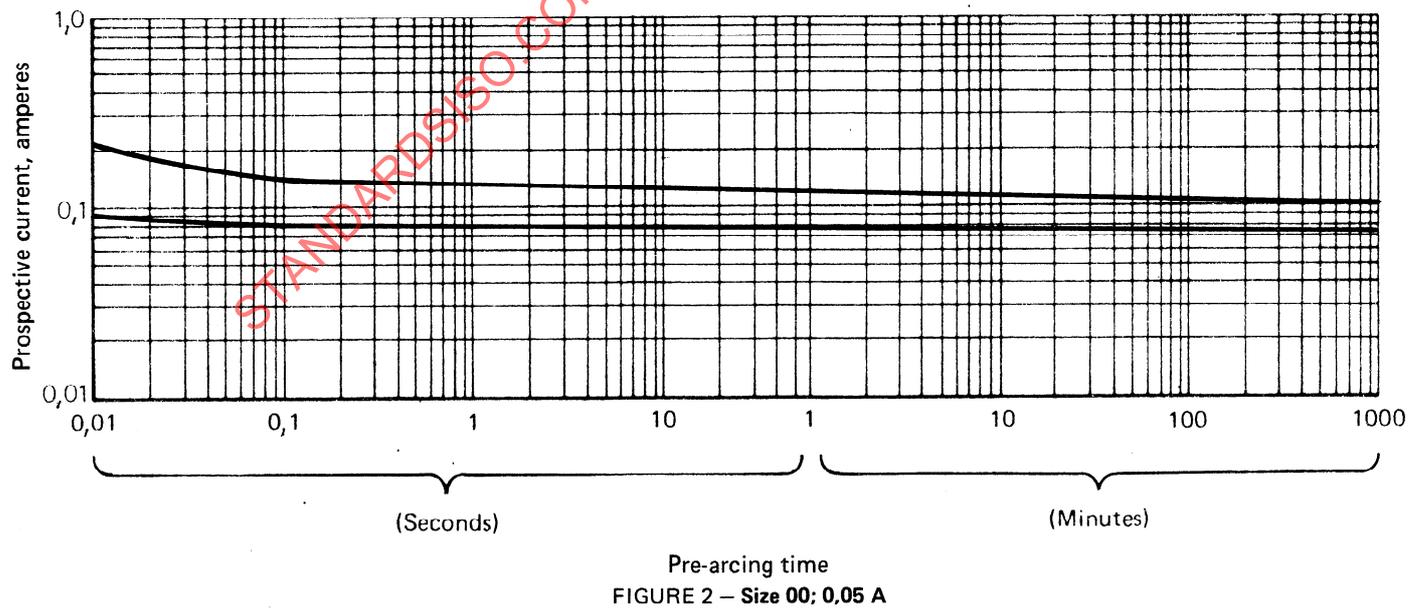
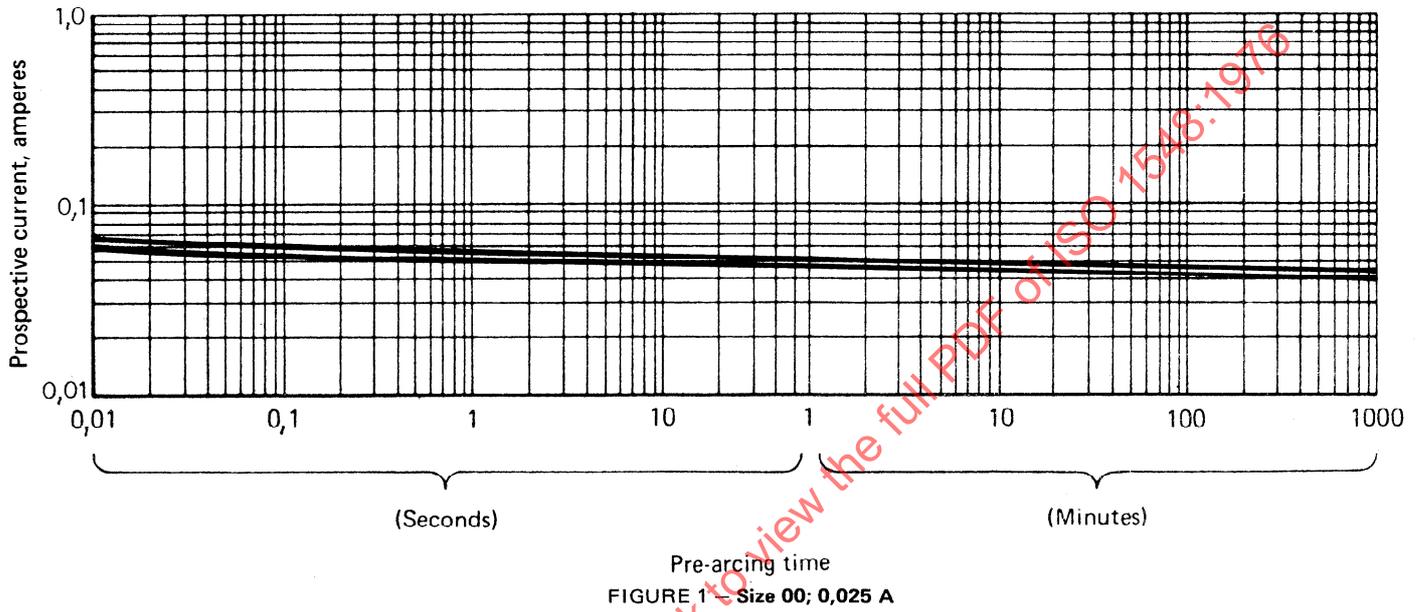
1) See ISO 1547.

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



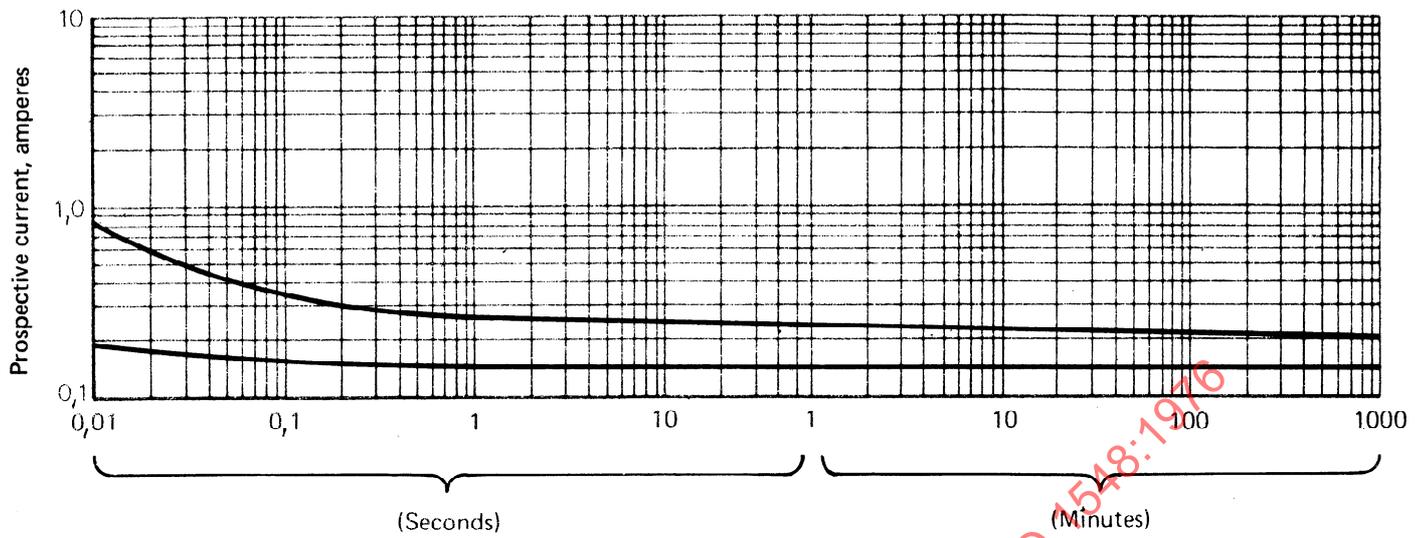


FIGURE 3 — Size 00; 0,1 A

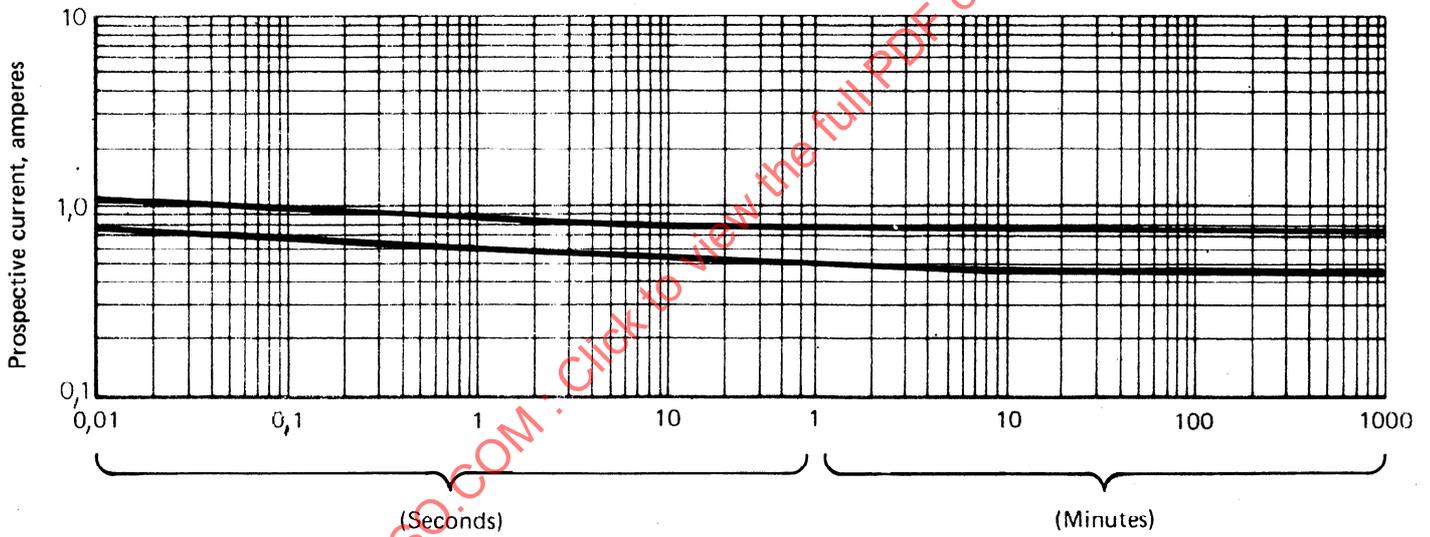


FIGURE 4 — Size 00; 0,25 A

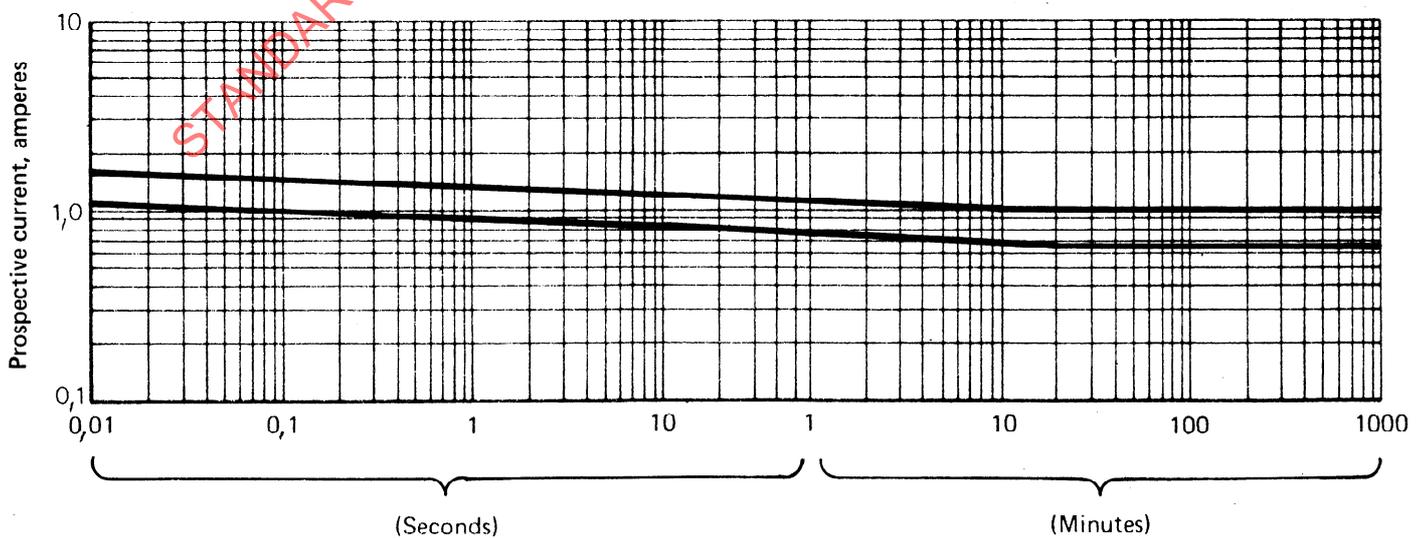
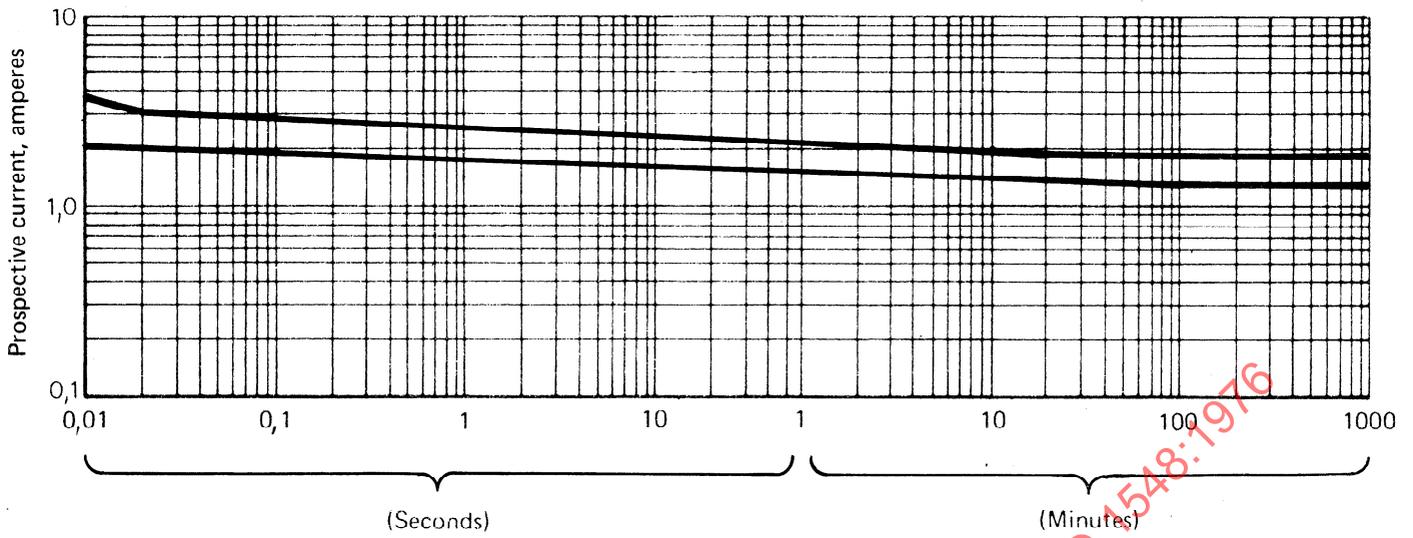
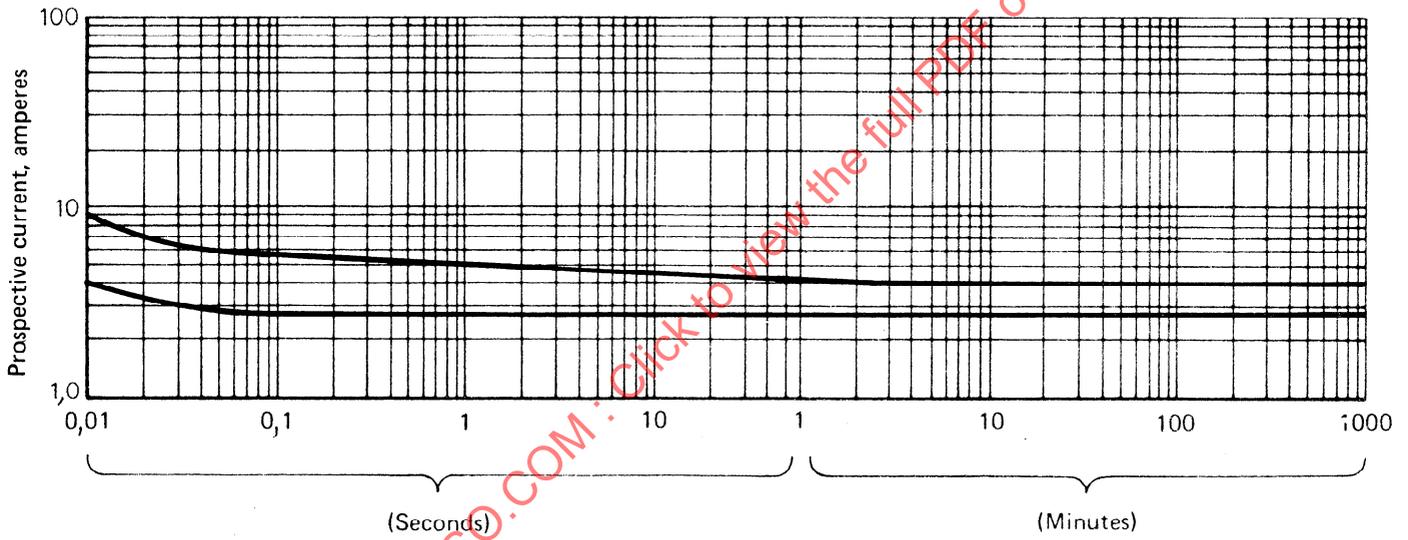


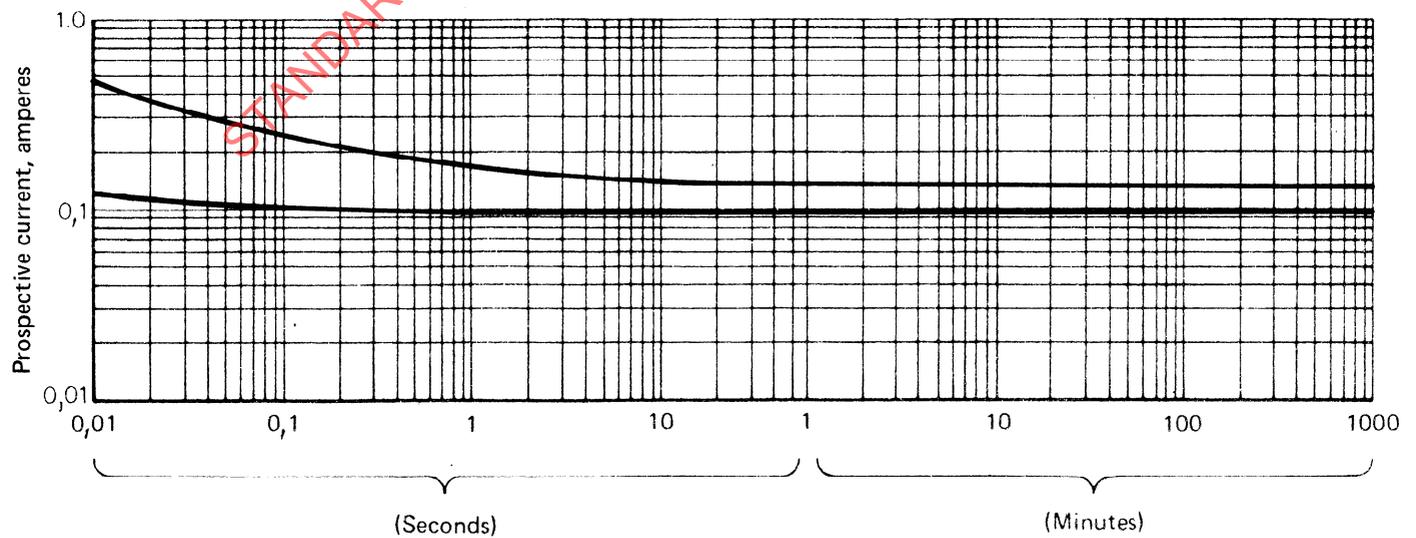
FIGURE 5 — Size 00; 0,5 A



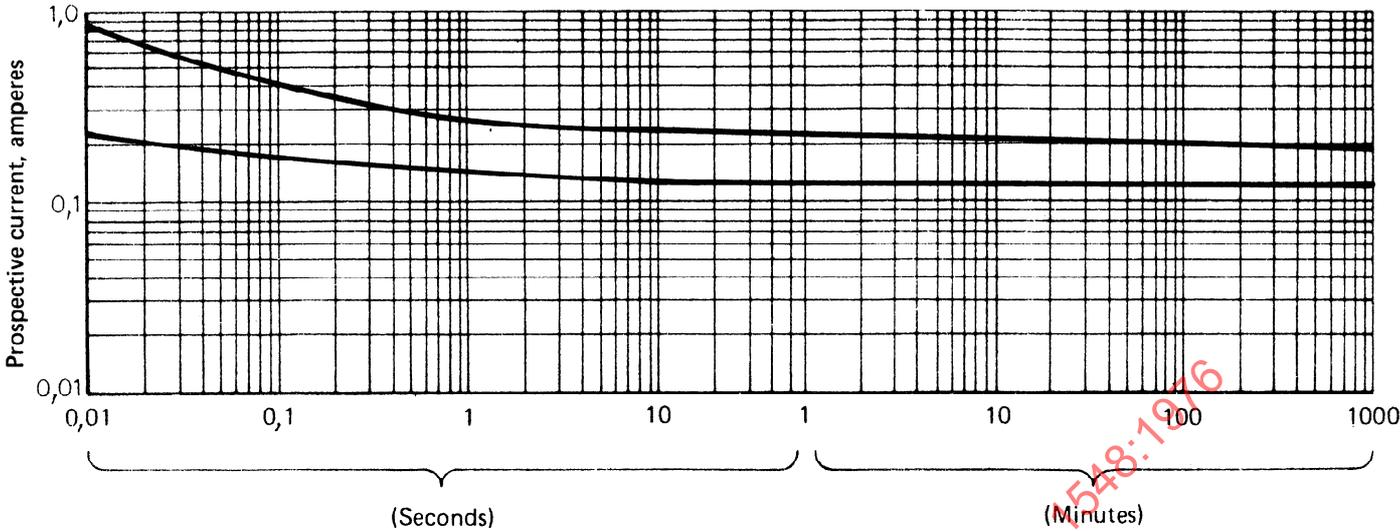
Pre-arcing time
FIGURE 6 – Size 00; 1 A



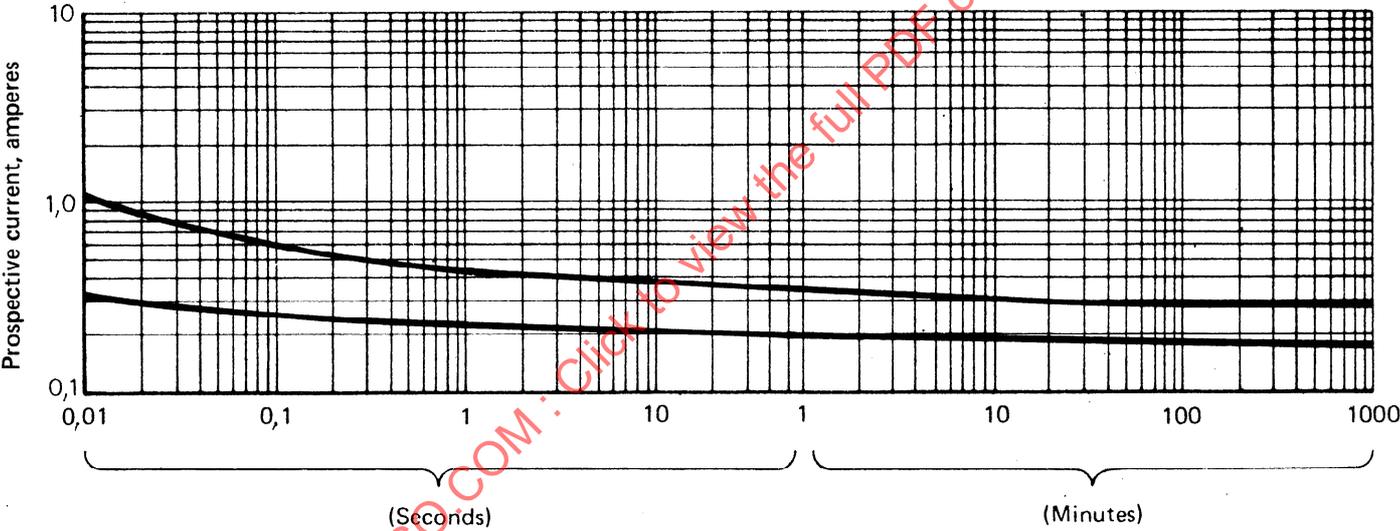
Pre-arcing time
FIGURE 7 – Size 00; 2 A



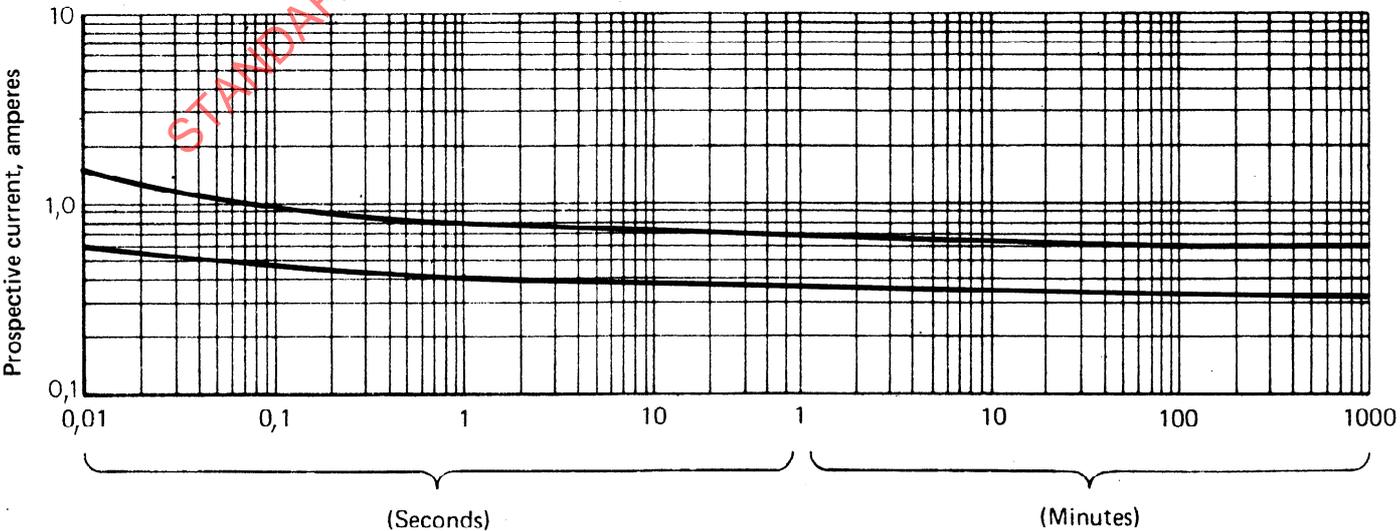
Pre-arcing time
FIGURE 8 – Size 0; 0,06 A



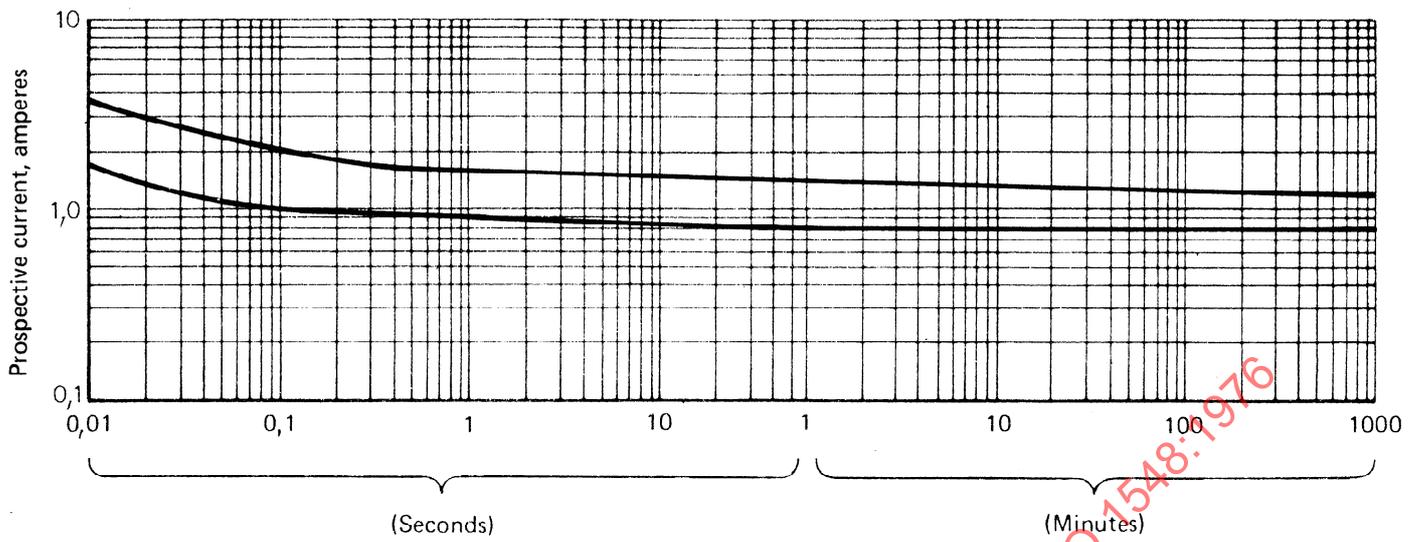
Pre-arcing time
FIGURE 9 – Size 0; 0,1 A



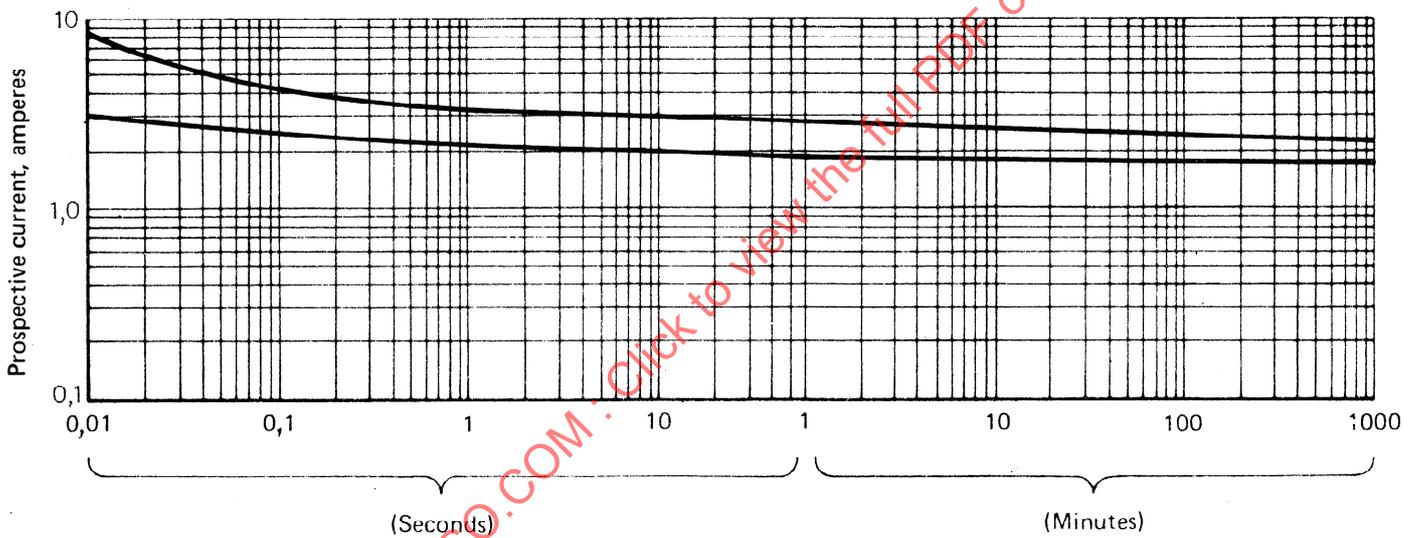
Pre-arcing time
FIGURE 10 – Size 0; 0,15 A



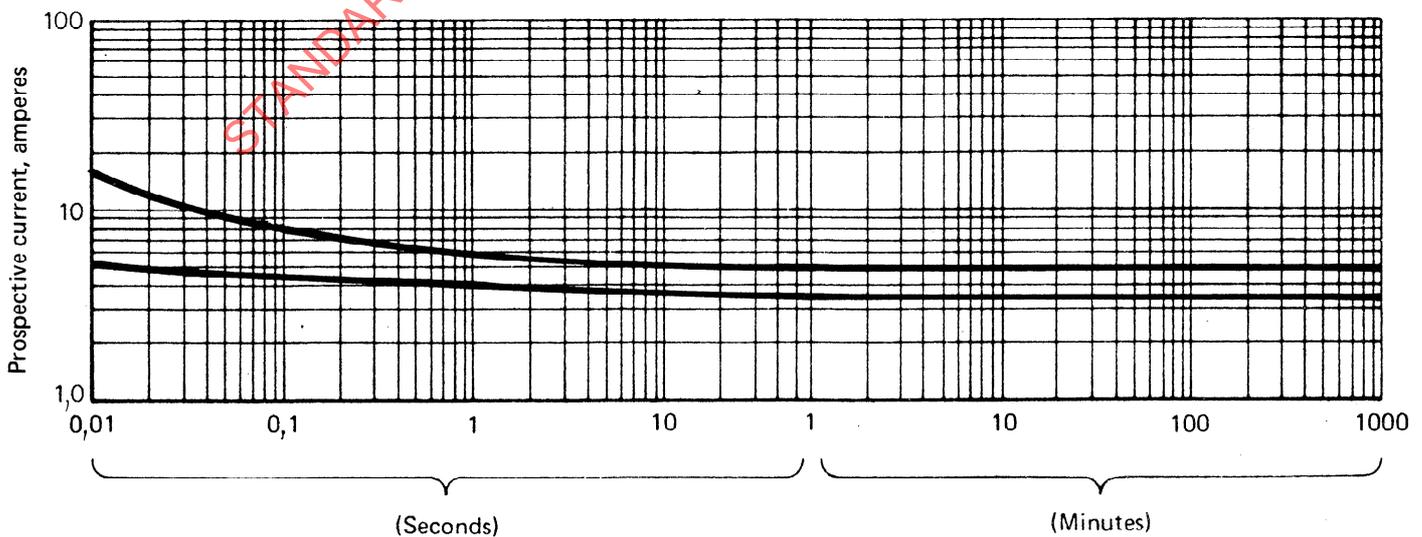
Pre-arcing time
FIGURE 11 – Size 0; 0,25 A



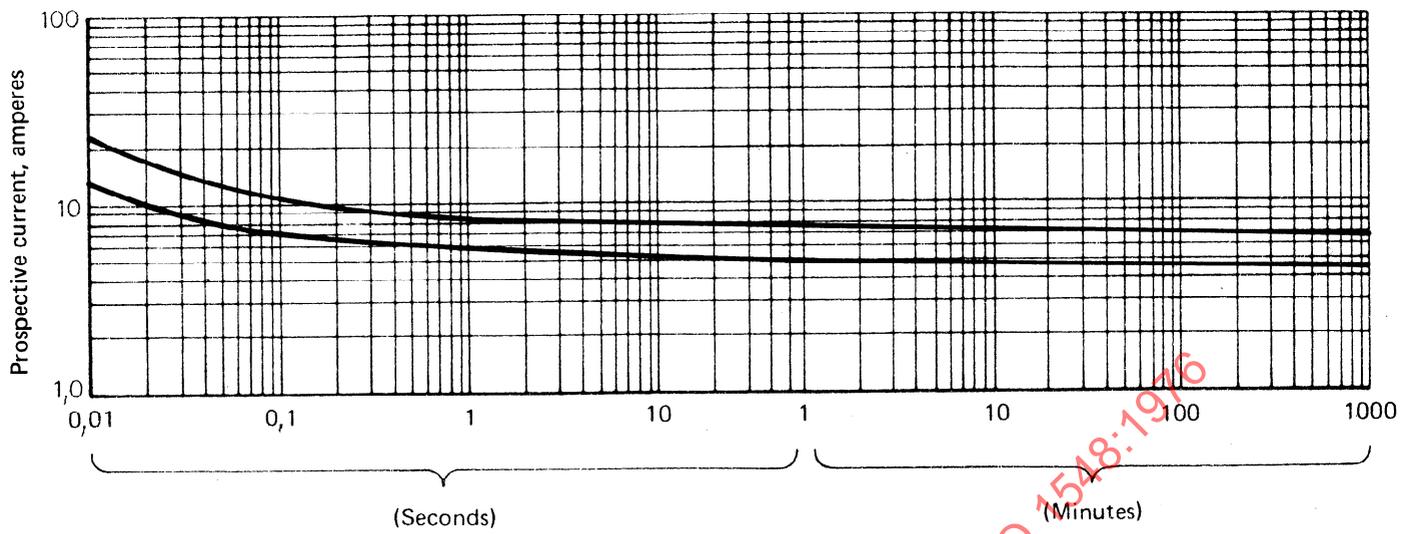
Pre-arcing time
FIGURE 12 – Size 0; 0,5 A



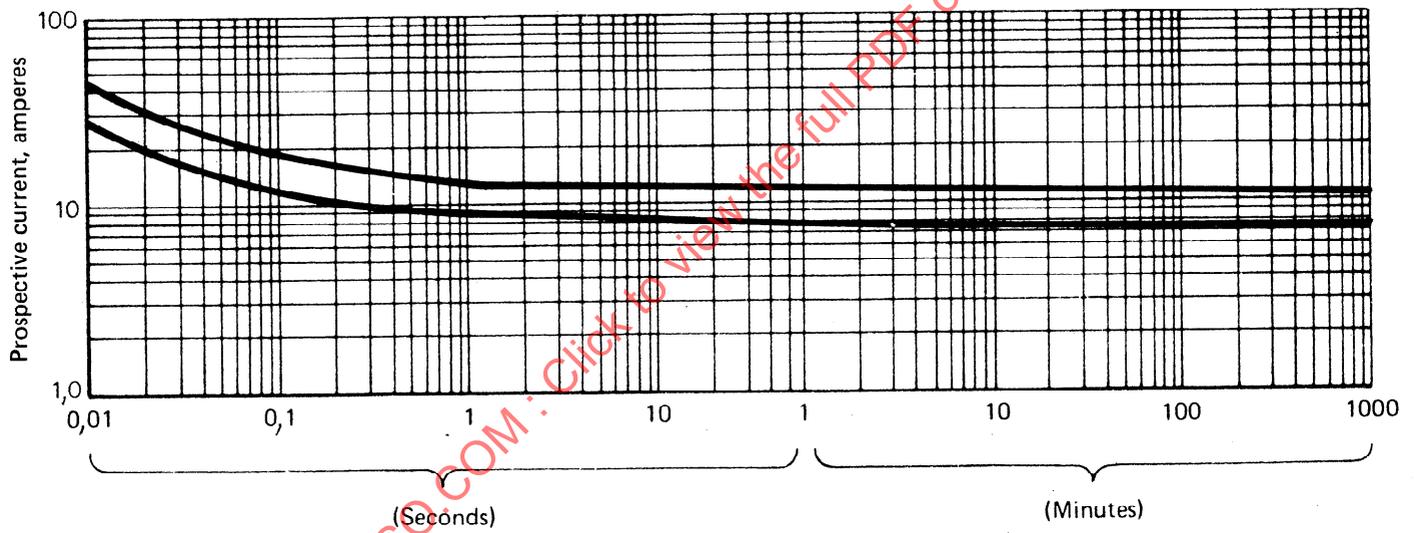
Pre-arcing time
FIGURE 13 – Size 0; 1 A



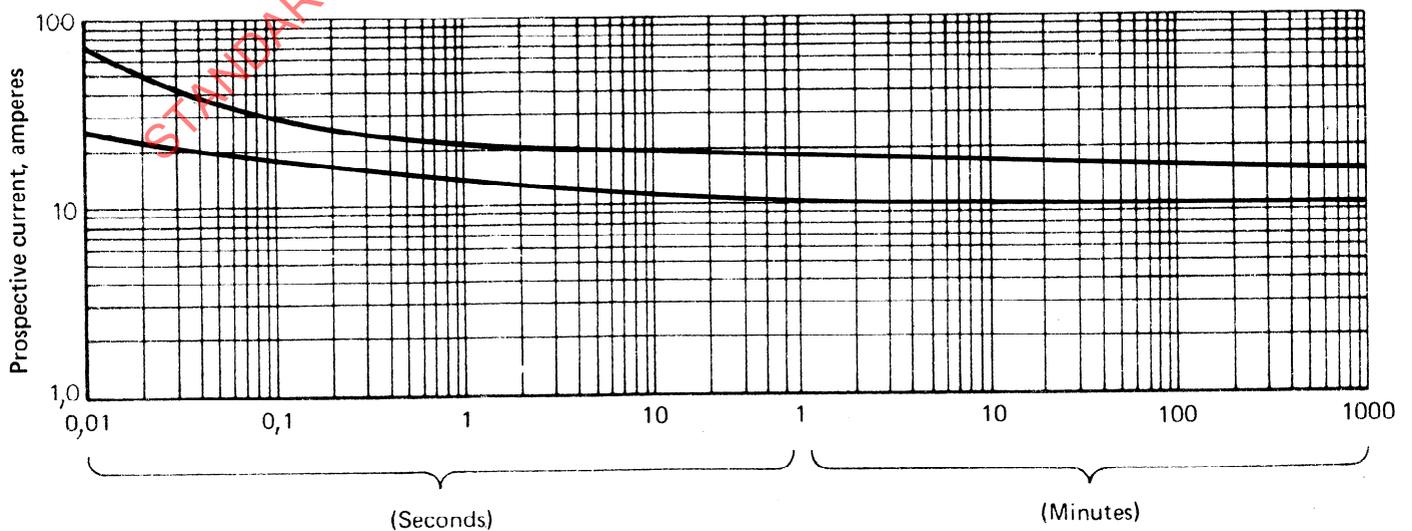
Pre-arcing time
FIGURE 14 – Size 0; 2 A



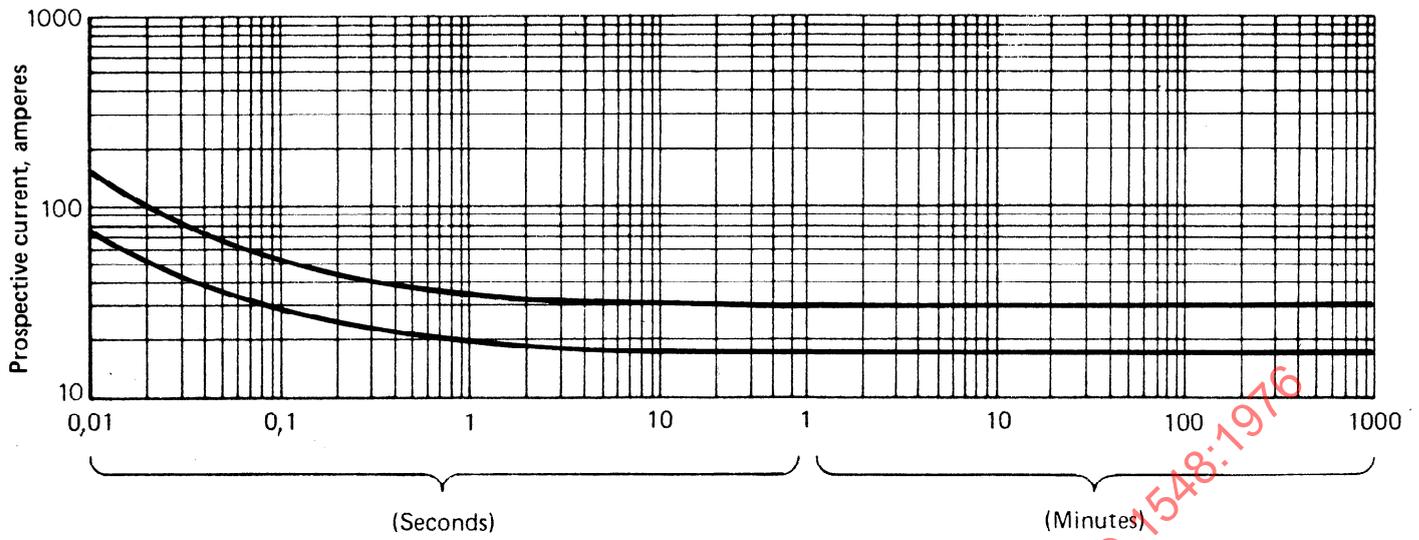
Pre-arcing time
 FIGURE 15 – Size 0; 3 A



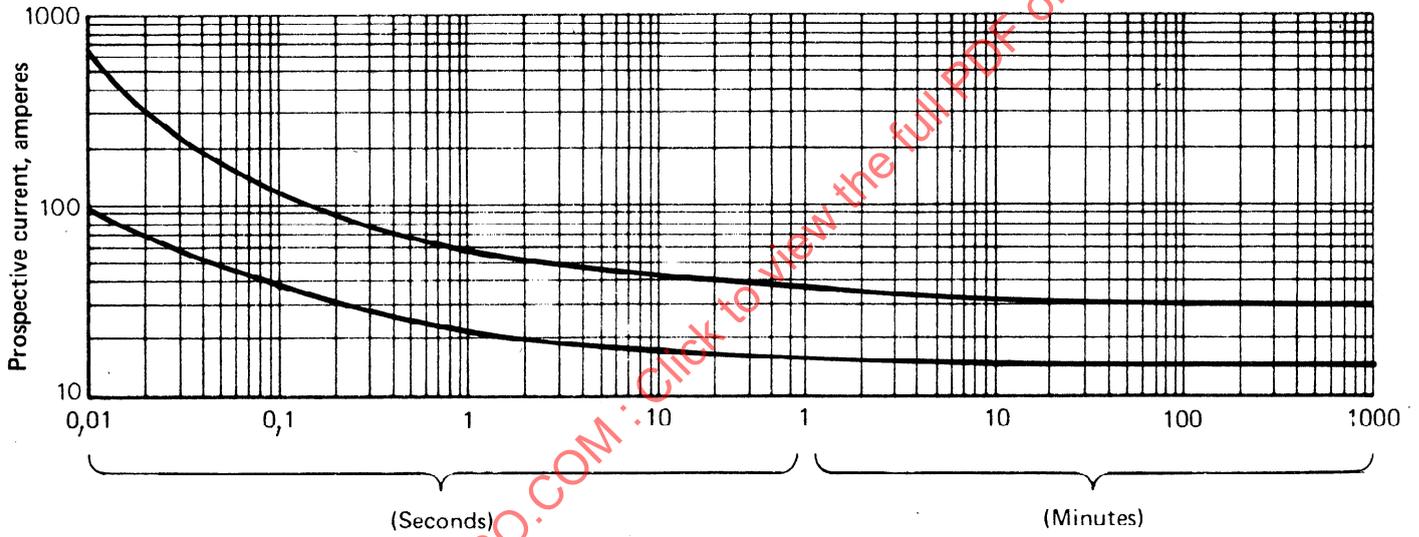
Pre-arcing time
 FIGURE 16 – Size 0; 5 A



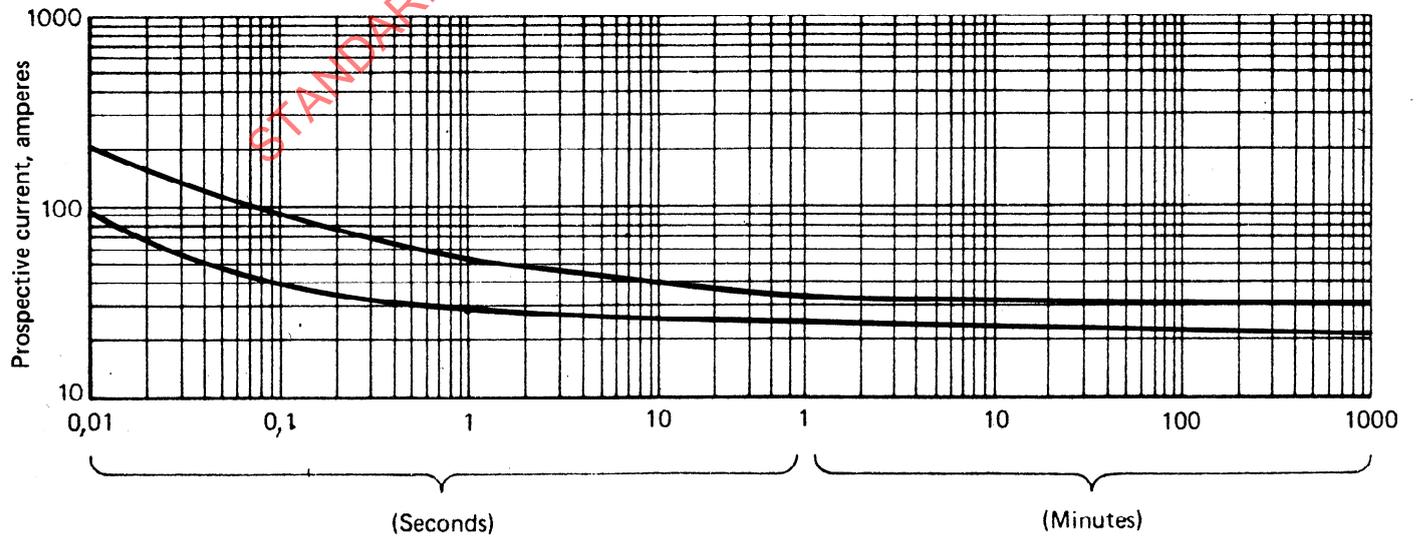
Pre-arcing time
 FIGURE 17 – Size 0; 7 A



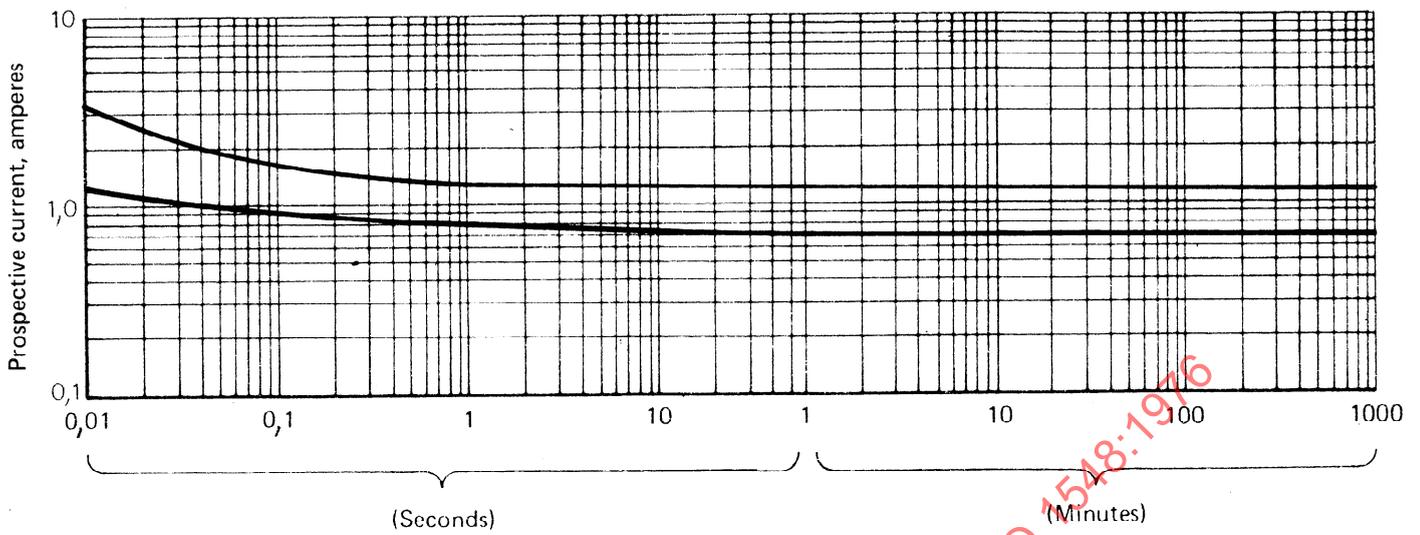
Pre-arcing time
FIGURE 18 – Size 0; 10 A



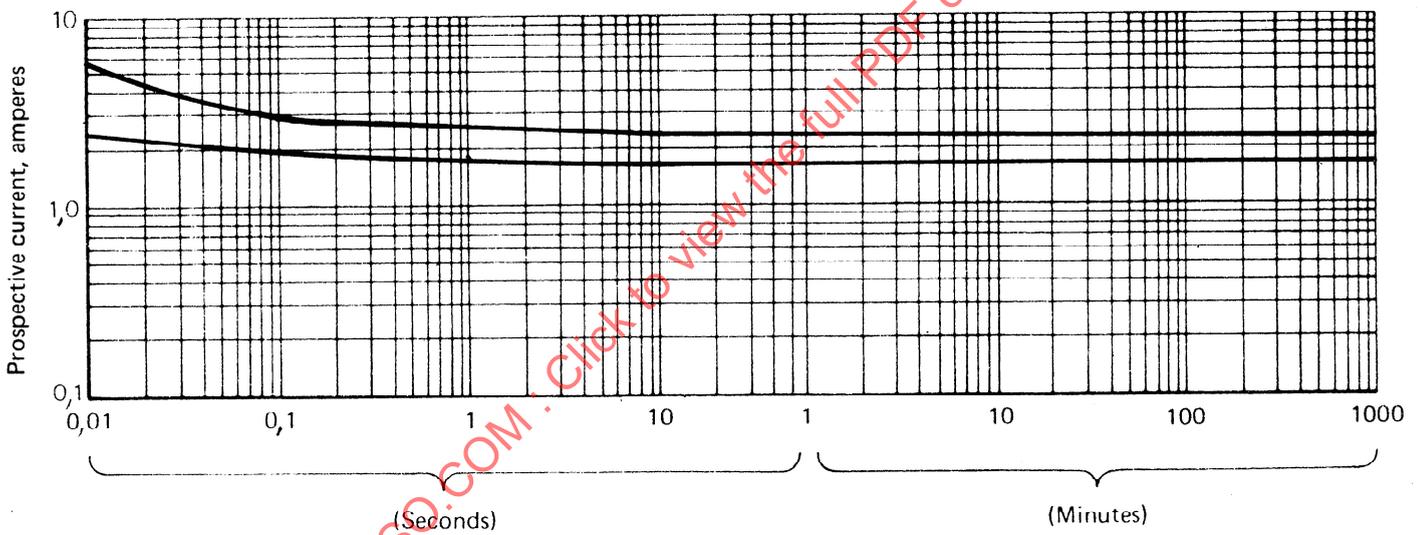
Pre-arcing time
FIGURE 19 – Size 0; 15 A



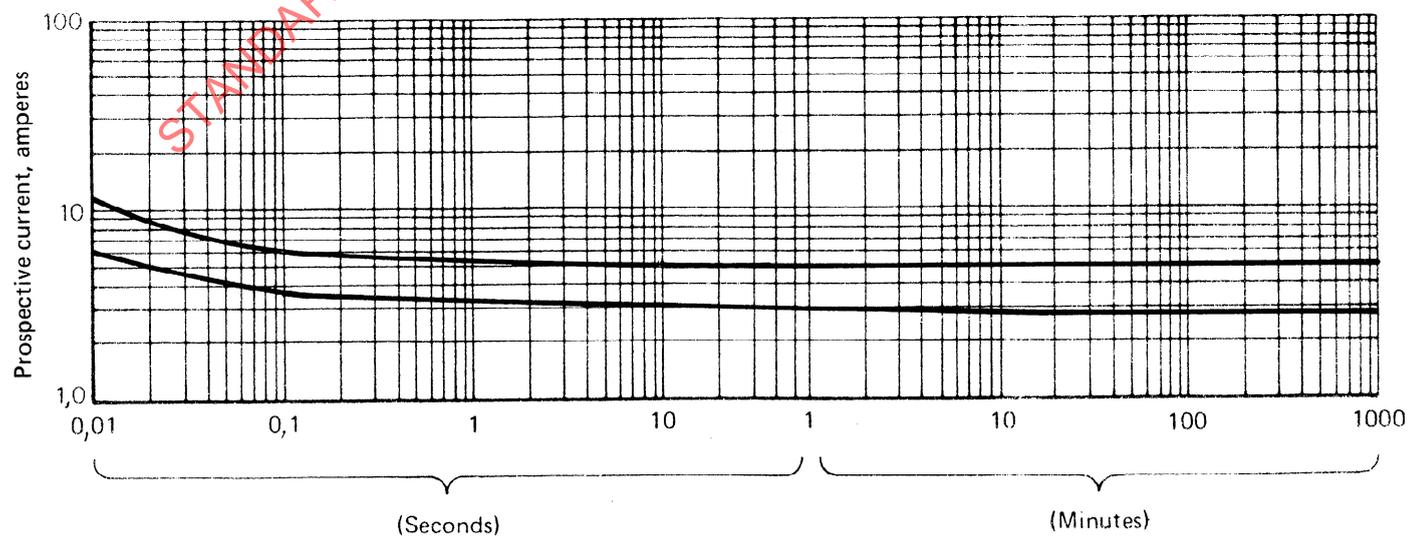
Pre-arcing time
FIGURE 20 – Size 0; 20 A



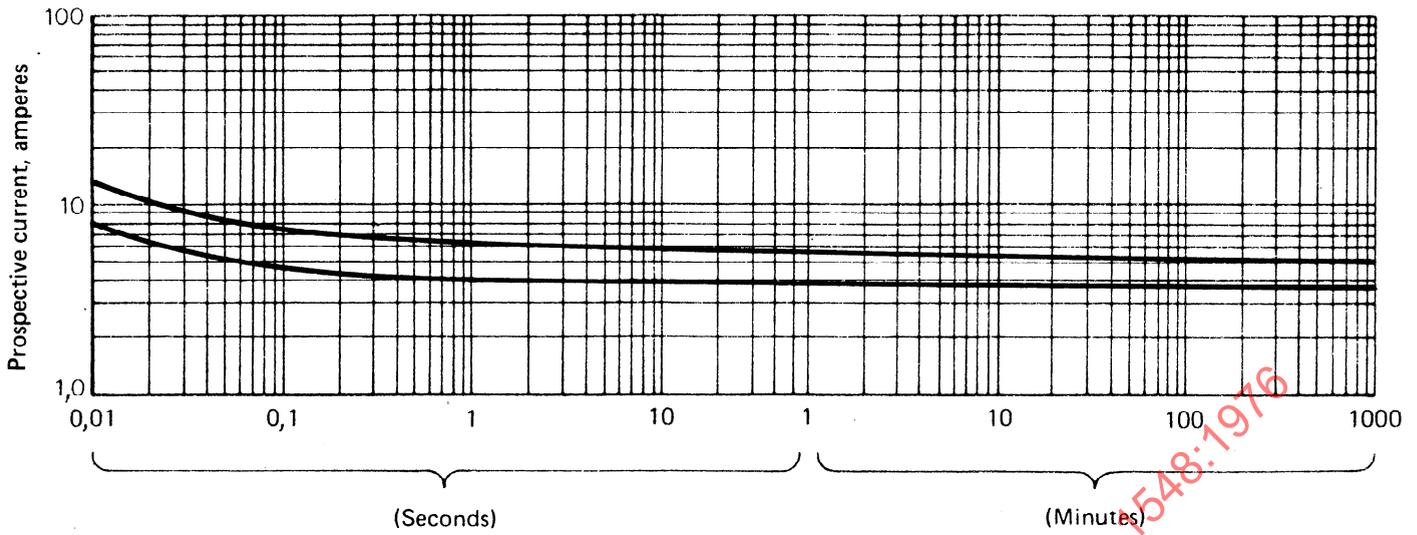
Pre-arcing time
FIGURE 21 – Size 1; 0,5 A



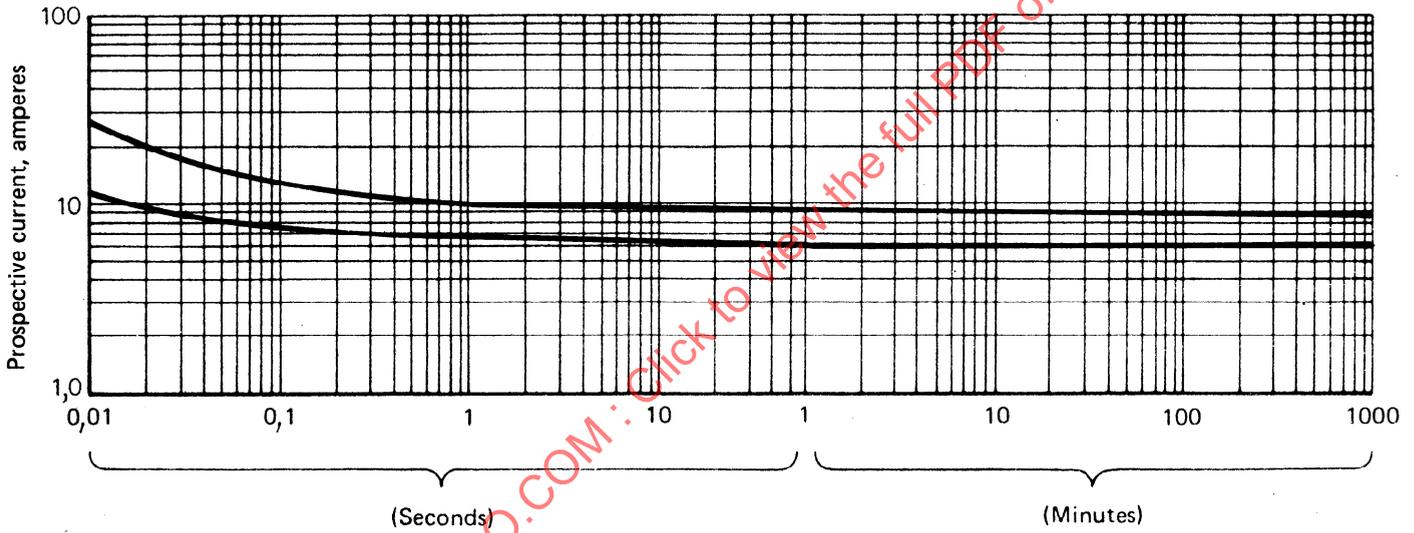
Pre-arcing time
FIGURE 22 – Size 1; 1 A



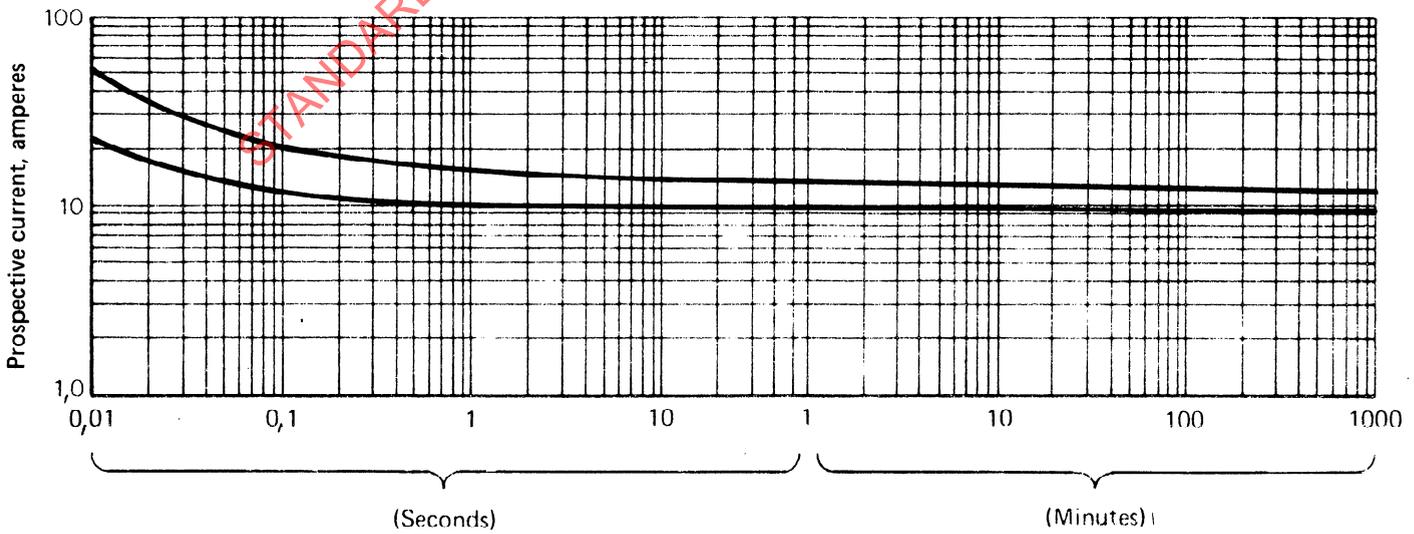
Pre-arcing time
FIGURE 23 – Size 1; 2 A



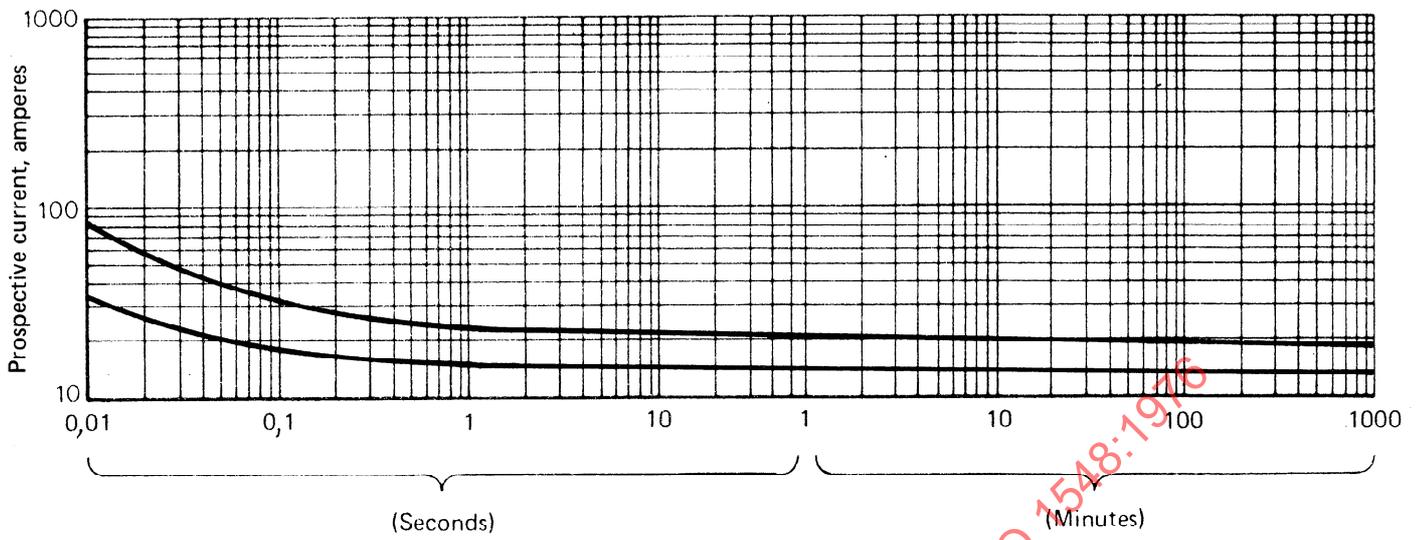
Pre-arcing time
FIGURE 24 – Size 1; 3 A



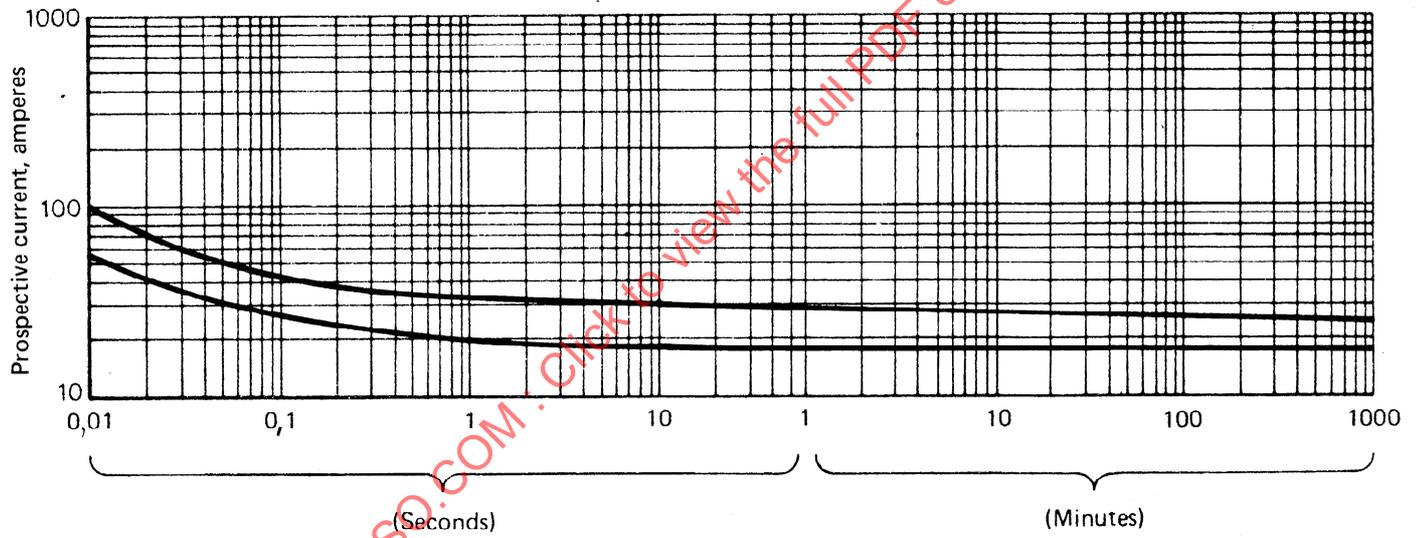
Pre-arcing time
FIGURE 25 – Size 1; 5 A



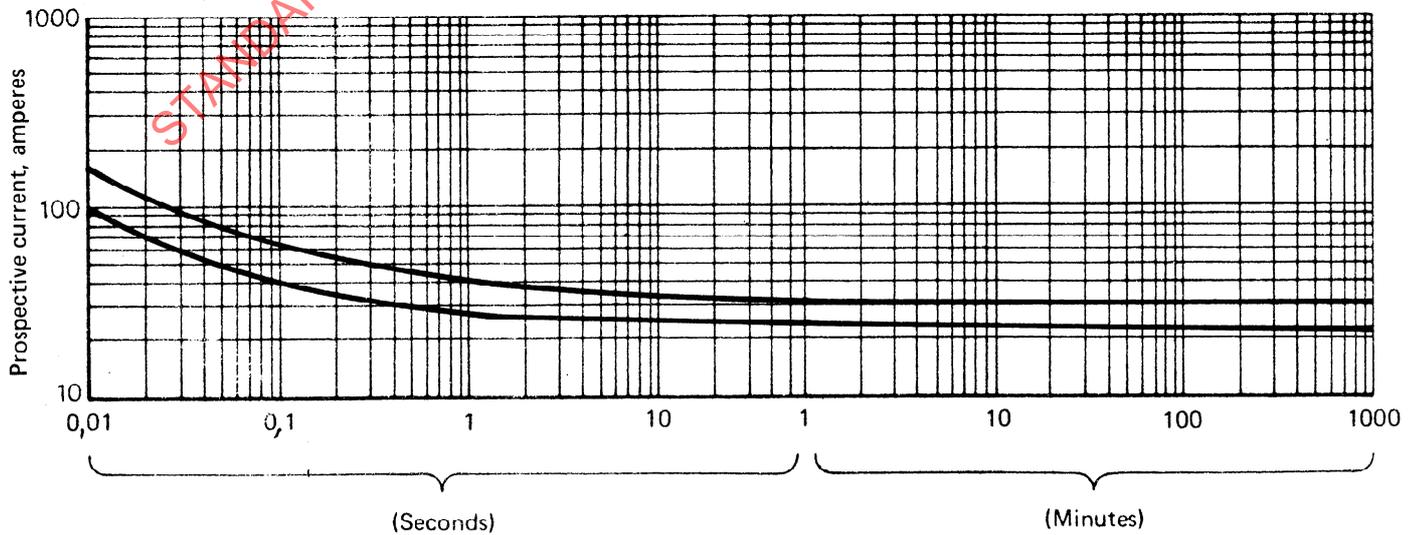
Pre-arcing time
FIGURE 26 – Size 1; 7 A



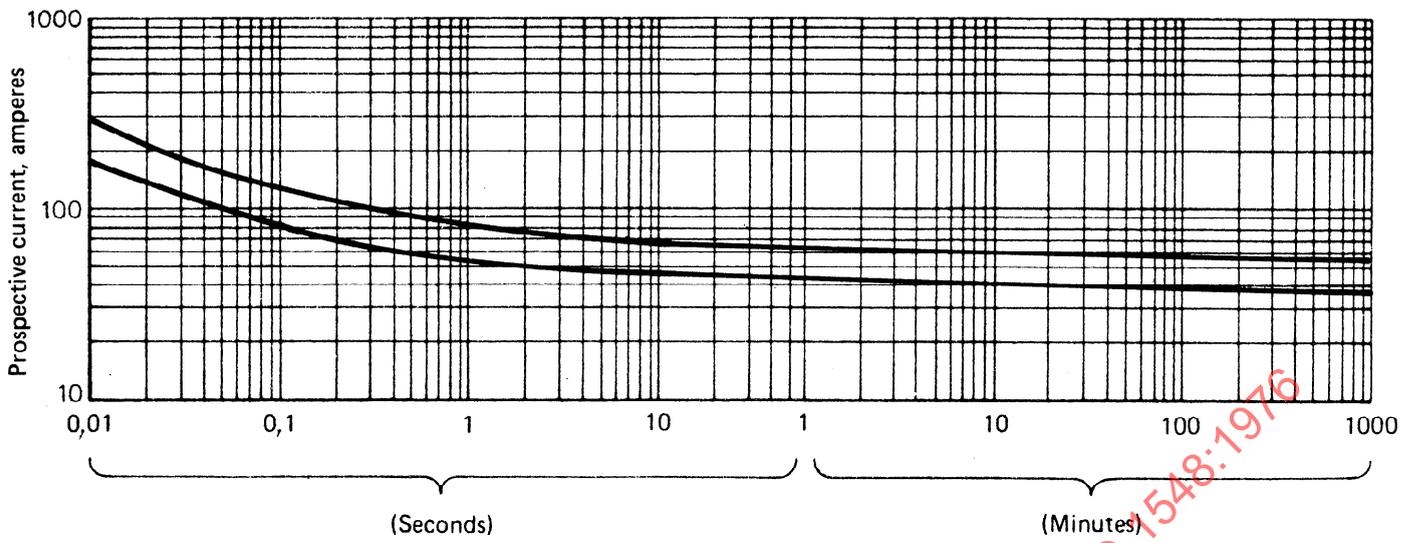
Pre-arcing time
 FIGURE 27 – Size 1; 10 A



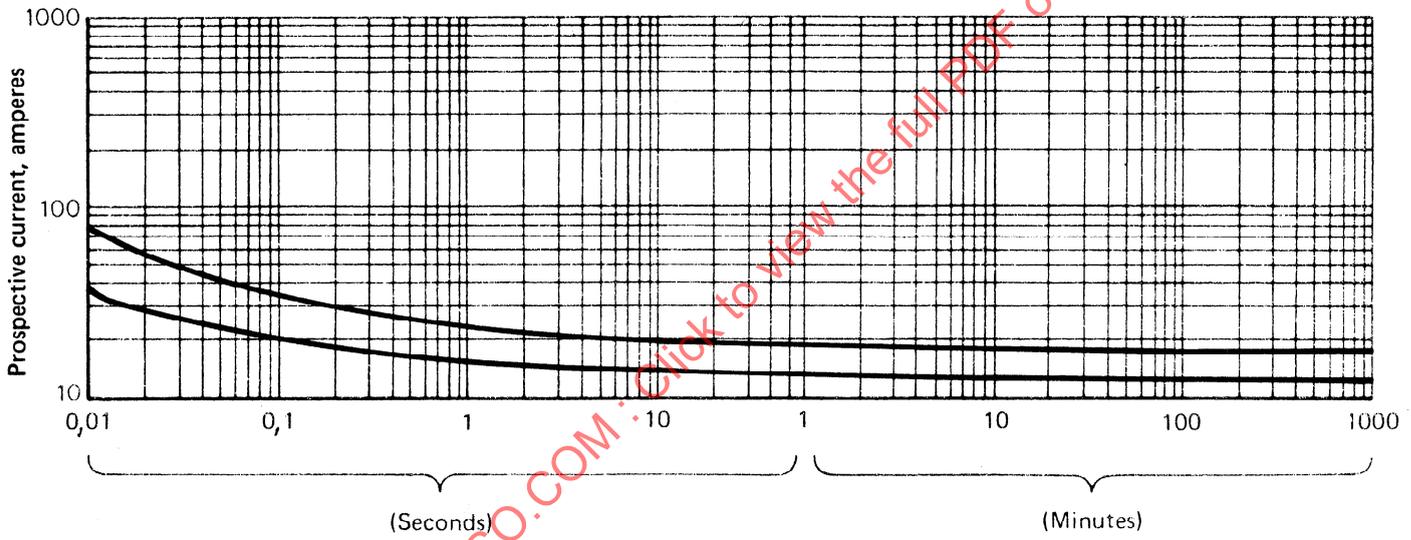
Pre-arcing time
 FIGURE 28 – Size 1; 15 A



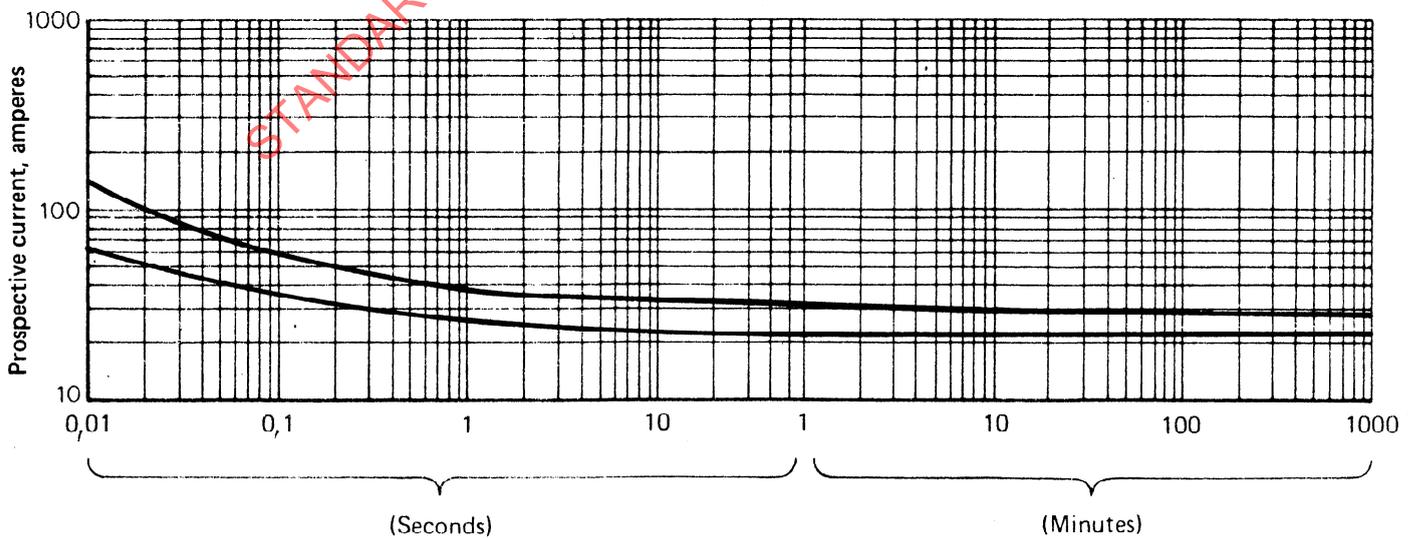
Pre-arcing time
 FIGURE 29 – Size 1; 20 A



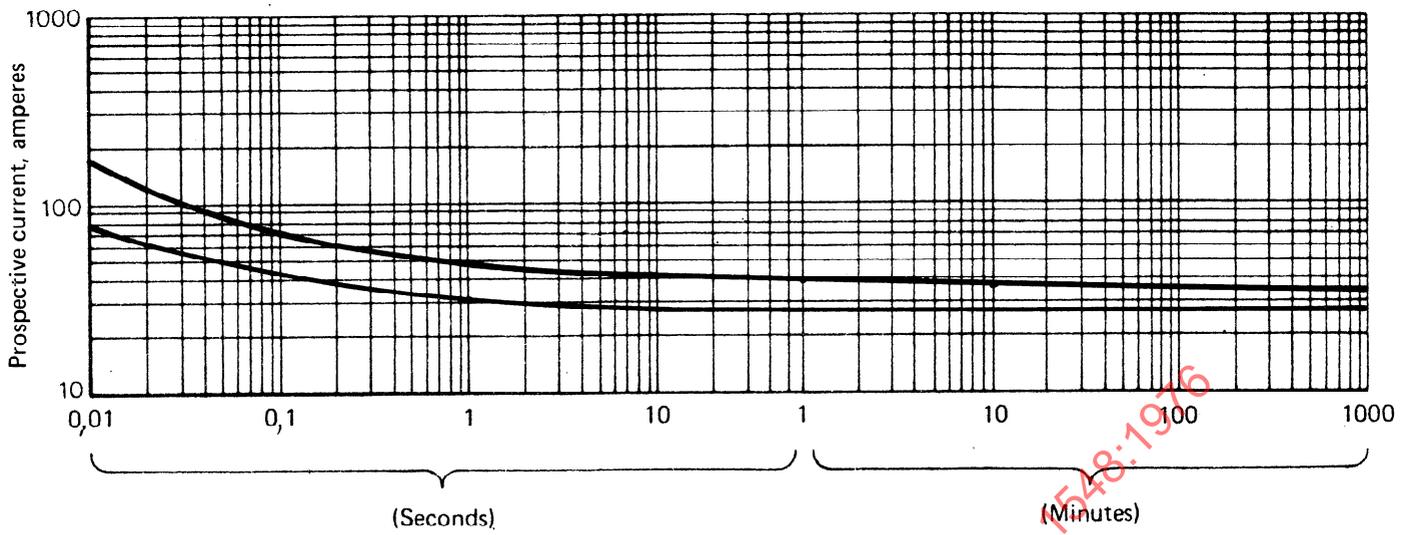
Pre-arcing time
FIGURE 30 – Size 1; 30 A



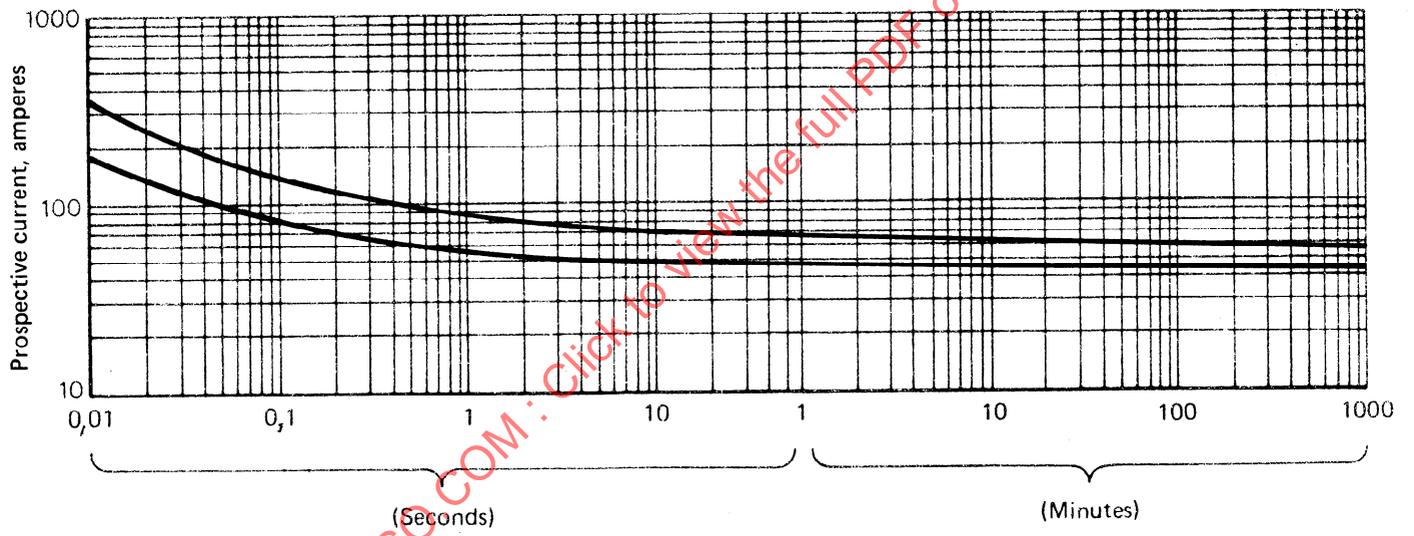
Pre-arcing time
FIGURE 31 – Size 2; 10 A



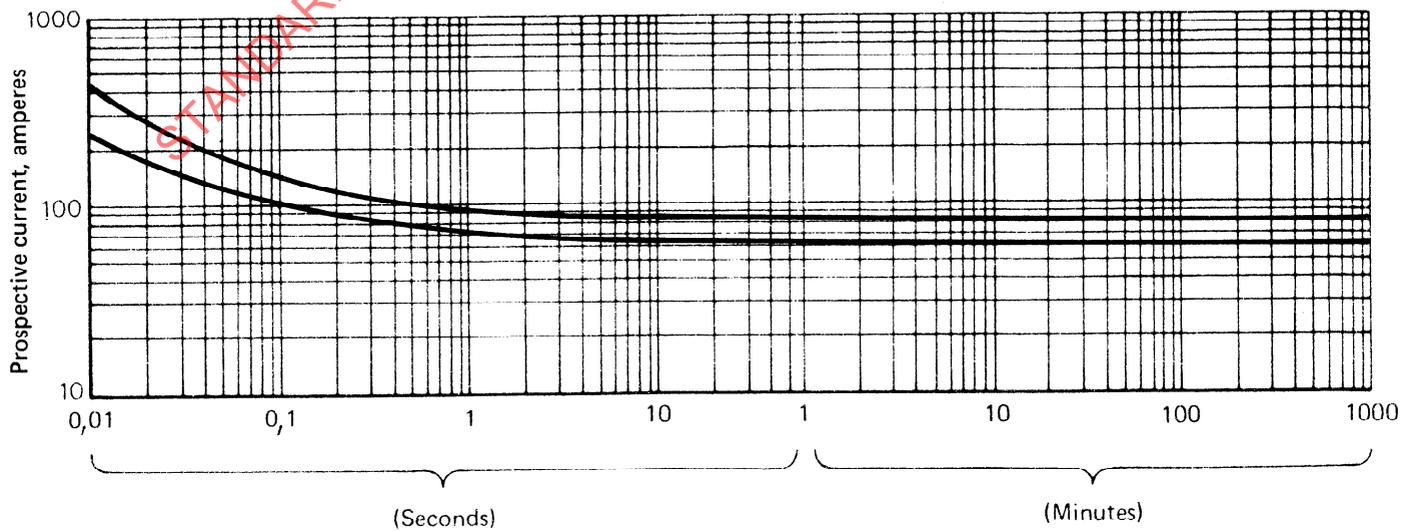
Pre-arcing time
FIGURE 32 – Size 2; 15 A



Pre-arcing time
FIGURE 33 – Size 2; 20 A



Pre-arcing time
FIGURE 34 – Size 2; 30 A



Pre-arcing time
FIGURE 35 – Size 2; 40 A