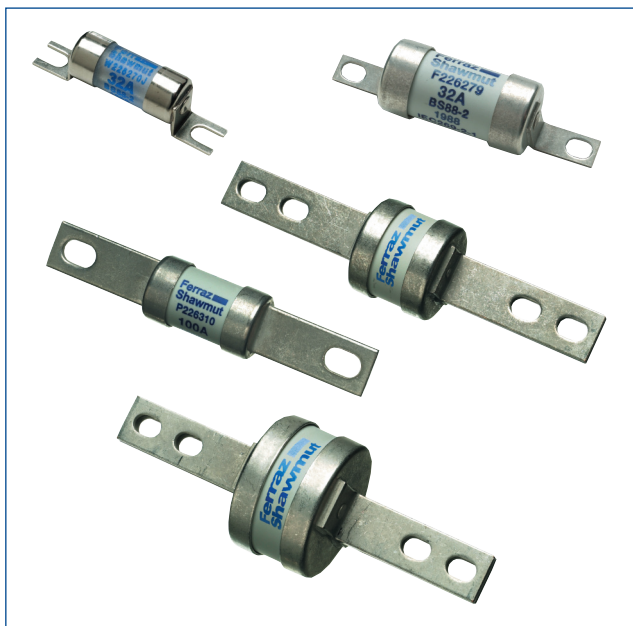


## BS 88 gG and gM Industrial fuses



- The fuse complies with standard EN 60269-2 section II and standard BS 88 part 2.
- These fuses are designed for :
  - "General purpose use" protection (gG type)
  - motor protection (gM type)
- This fuse range insures an excellent current limitation for all overloads on a large range of applications. Their size cannot allow exchange by other fuses of higher rating in their range. They are screwed into fuseholders or bolted directly onto busbars, or in fuse interruptors disconnectors.

### A, B and C types - gG curve

#### Applications

Power cable protection  
 Distribution panel protection  
 Control Panel  
 Main circuit  
 Distribution panel  
 Lighting, heating and electrical equipments  
 Capacitor, Circuit breakers, batteries  
 DC circuit protection.

#### Features

Fast gG curve  
 Very current limiting  
 Tested in DC  
 Voltage 415VAC and 250VDC  
 High breaking capacity :  
 80kA @ 415VAC and 40kA @ 250VDC tested  
 A type : bracket connection,  
 B type : blade with single central fixing hole connection  
 C type : blade with two central fixing hole connection.

#### Approval

Asta  Certified

#### Ratings

##### A type

A1 : from 2A to 32A  
 A2 : from 2A to 32A  
 A3 : from 40A to 100A  
 A4 : from 32A to 100A  
 Overrating till 200A

##### B type

B1 : from 32A to 100A  
 B2 : from 125A to 200A  
 B3 : from 250A to 315A  
 B4 : from 355A to 400A

##### C type

C1 : from 355A to 400A  
 C2 : from 450A to 630A  
 C3 : from 670A to 800A

### A and B types - gM curve

#### Applications

Motor protection  
 Inductive load protections  
 Transient overloads  
 Electrical equipment using motors protection  
 Capacitor

#### Features

Fast curve gM  
 Very current limiting  
 Voltage 415VAC  
 High breaking capacity : 80kA @ 415VAC tested  
 A type : bracket connection,  
 B type : blade with single central fixing hole connection

#### Approval

Asta  Certified

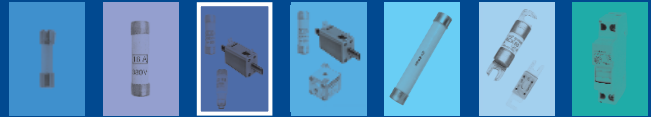
#### Ratings

##### A type

A1 : 20A  
 A2 : 30A  
 A3 : 63A  
 A4 : 100A and 200A

##### B type

B1 : 100A  
 B2 : 200A  
 B3 : 315A



## Standard fuse ampere rating

### A, B and C types - gG curve

#### A type

Type	Rating	Ref. no	Designation	Pack.
A1	2	N226263	2A1	10
A1	4	P226264	4A1	10
A1	6	Q226265	6A1	10
A1	10	R226266	10A1	10
A1	16	S226267	16A1	10
A1	20	T226268	20A1	10
A1	25	V226269	25A1	10
A1	32	W226270	32A1	10
A2	2	Z226273	2A2	10
A2	4	A226274	4A2	10
A2	6	B226275	6A2	10
A2	10	C226276	10A2	10
A2	16	D226277	16A2	10
A2	20	V227833	20A2	10
A2	25	E226278	25A2	10
A2	32	F226279	32A2	10
A3	40	L226284	40A3	10
A3	50	M226285	50A3	10
A3	63	N226286	63A3	10
A3	80	P226287	80A3	10
A3	100	Q226288	100A3	10
A4	32	T226291	32A4	5
A4	40	V226292	40A4	5
A4	50	W226293	50A4	5
A4	63	X226294	63A4	5
A4	80	Y226295	80A4	5
A4	100	Z226296	100A4	5
A4X*	125	D226300	125A4X	5
A4X*	160	E226301	160A4X	5
A4X*	200	F226302	200A4X	5

\* Current ratings additional to BS88.

#### B type

Type	Rating	Ref. no	Designation	Pack.
B1X*	32	J226305	32B1X	10
B1X*	40	K226306	40B1X	10
B1X*	50	L226307	50B1X	10
B1X*	63	M226308	63B1X	10
B1	80	N226309	80B1	5
B1	100	P226310	100B1	5
B2	125	T226314	125B2	5
B2	160	V226315	160B2	5
B2	200	W226316	200B2	5
B3	250	Z226319	250B3	1
B3	315	A226320	315B3	1
B3X*	250	C226322	250B3X	1
B3X*	315	D226323	315B3X	1
B4	355	E226324	355B4	1
B4	400	F226325	400B4	1

#### C type

Type	Rating	Ref. no	Designation	Pack.
C1	355	G226326	355C1	1
C1	400	H226327	400C1	1
C2	450	J226328	450C2	1
C2	500	K226329	500C2	1
C2	560	L226330	560C2	1
C2	630	M226331	630C2	1
C3	670	N226332	670C3	1
C3	710	P226333	710C3	1
C3	750	Q226334	750C3	1
C3	800	R226335	800C3	1

### A and B types - gM curve

#### A type

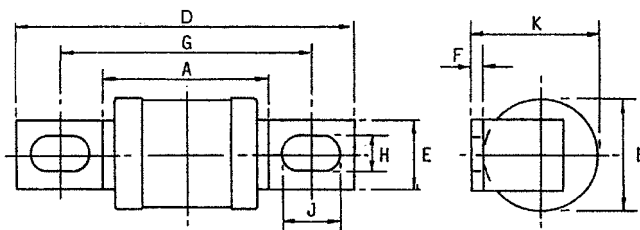
Type	Rating	Ref. no	Designation	Pack.
A1	20M25	X226271	20M25A1	10
A1	20M32	Y226272	20M32A1	10
A2	32M40	G226280	32M40A2	10
A2	32M50	H226281	32M50A2	10
A2	32M63	K226283	32M63A2	10
A3	63M80	R226289	63M80A3	10
A3	63M100	S226290	63M100A3	10
A4	100M125	A226297	100M125A4	5
A4	100M160	B226298	100M160A4	5
A4	100M200	C226299	100M200A4	5
A4X	200M250	G226303	200M250A4X	1
A4X	200M315	H226304	200M315A4X	1

#### B type

Type	Rating	Ref. no	Designation	Pack.
B1	100M125	Q226311	100M125B1	5
B1	100M160	R226312	100M160B1	5
B1	100M200	S226313	100M200B1	5
B2	200M250	X226317	200M250B2	1
B2	200M315	Y226318	200M315B2	1
B3	315M400	B226321	315M400B3	1



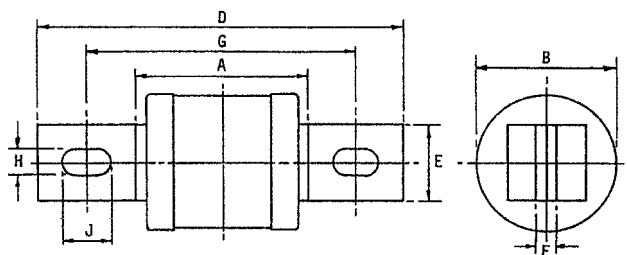
## Dimensions



### A type

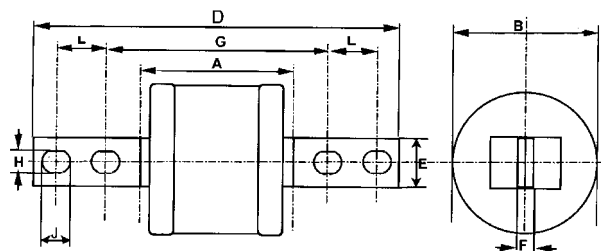
Ref. BS 88	Current ratings (A)		Dimensions (mm & In)								
			A max	B max	D max	E max	F nom	G nom	H nom	J nom	K max
A1	2, 4, 6, 10, 16, 20, 25*, 32*, 20M25, 20M32	mm In	33 1-1/4	12,7 1/2	56 2-3/16	9,5 3/8	0,8 1/32	44,25 1-3/4	4,8 3/16	couteau ouvert	14,3 9/16
A2	2, 4, 6, 10, 16, 20, 25, 32, 32M40, 32M50, 32M63	mm In	49 1-15/16	22 7/8	86 3-3/8	9 11/32	1,2 3/64	73 2-7/8	5,5 7/32	8 5/16	24 15/16
A3	40, 50, 63	mm In	49 1-15/16	22 7/8	89 3-1/2	13 1/2	1,2 3/64	73 2-7/8	5,5 7/32	couteau ouvert	24 15/16
A3	80*, 100*, 63M80, 63M100	mm In	49 1-15/16	26 1-1/32	89 3-1/2	13 1/2	1,2 3/64	73 2-7/8	5,5 7/32	couteau ouvert	28 1-3/32
A4	32, 40, 50, 63	mm In	51 2	22 7/8	110 4-5/16	20 3/4	2,4 3/32	94 3-11/16	8,7 11/32	11 7/16	25,4 1
A4	80, 100	mm In	51 2	26 1-1/32	110 4-5/16	20 3/4	2,4 3/32	94 3-11/16	8,7 11/32	11 7/16	29 1-1/8
A4X	125, 160, 200, 100M125, 100M160, 100M200	mm In	51 2	35 1-3/8	110 4-5/16	20 3/4	2,4 3/32	94 3-11/16	8,7 11/32	11 7/16	38 1-1/2
A4X	200M250*, 200M315*	mm In	51 2	41 1-5/8	110 4-5/16	20 3/4	2,4 3/32	94 3-11/16	8,7 11/32	11 7/16	45 1-3/4

\* Current ratings additional to BS88.



### B type

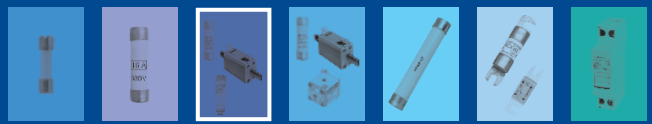
Ref. BS 88	Current ratings (A)		Dimensions (mm & In)							
			A max	B max	D max	E max	F nom	G nom	H nom	I nom
B1X	32, 40, 50, 63	mm in	45 1-3/4	22 7/8	137 5-3/8	15 9/16	1,4 3/64	111 4-3/8	8,7 11/32	14 9/16
B1	80, 100	mm in	45 1-3/4	26 1/32	137 5-3/8	20 3/4	3,2 1/8	111 4-3/8	8,7 11/32	14 9/16
B1	100M125, 100M160, 100M200	mm in	45 1-3/4	35 1-3/8	137 5-3/8	20 3/4	3,2 1/8	111 4-3/8	8,7 11/32	14 9/16
B2	125, 160, 200	mm in	45 1-3/4	35 1-3/8	137 5-3/8	20 3/4	3,2 1/8	111 4-3/8	8,7 11/32	14 9/16
B2	200M250, 200M315	mm in	45 1-3/4	41 1-5/8	137 5-3/8	26 1-1/32	3,2 1/8	111 4-3/8	8,7 11/32	14 9/16
B3	250, 315	mm in	45 1-3/4	41 1-5/8	137 5-3/8	26 1-1/32	3,2 1/8	111 4-3/8	8,7 11/32	14 9/16
B3	315M400	mm in	45 1-3/4	51 2	137 5-3/8	26 1-1/32	6,4 1/4	111 4-3/8	8,7 11/32	14 9/16
B3X	250, 315	mm in	45 1-3/4	41 1-5/8	159 6-1/4	26 1-1/32	3,2 1/8	133 5-1/4	10,3 13/32	14 9/16
B4	355, 400	mm in	52 2-1/16	51 2	137 5-3/8	26 1-1/32	6,4 1/4	111 4-3/8	8,7 11/32	16 5/8



### C type

Ref. BS 88	Current ratings (A)		Dimensions (mm & In)								
			A max	B max	D max	E max	F nom	G nom	H nom	J nom	L nom
C1	355*, 400	mm In	52 2-1/16	51 2	210 8-1/4	26 1-1/32	6,3 1/4	133 5-1/4	10,3 13/32	16 5/8	25,4 1
C2	450*, 500, 560*, 630	mm In	54 2-1/8	61 2-3/8	210 8-1/4	26 1-1/32	7,8 5/16	133 5-1/4	10,3 13/32	16 5/8	25,4 1
C3	670*, 710, 750*, 800	mm In	56 2-1/16	73 2	210 8-1/4	26 1-1/32	9,5 3/8	133 5-1/4	10,3 13/32	16 5/8	25,4 1

\* Current ratings additional to BS88.



## gG and gM fuse-link selection

### Fuse-link selection for 3 phase 415 V AC induction motor circuit

kW	Motor rating		Direct-on-line start (7 x FLC for 10 sec) Fuse-link rating (amperes)		Assisted start (3,5 x FLC for 20 sec) Fuse-link rating (amperes)	
	HP	In	gG	gM	gG	gM
0,75	1	2	6	-	4	-
1,1	1,5	2,5	10	-	6	-
1,5	2	3,5	10	-	6	-
2,2	3	5	16	-	10	-
3	4	6,5	20	-	16	-
4	5	8	25	20M25	16	-
5,5	7,5	11	32	20M32	20	-
7,5	10	14	40	32M40	25	20M25
10	13,5	19	50	32M50	32	20M32
11	15	21	50	32M50	32	-
15	20	28	63	32M63	40	32M40
18,5	25	35	80	63M80	50	-
22	30	41	100	63M100	50	-
26	35	48	100	63M100	63	-
30	40	55	125	100M125	80	63M80
33	45	62	160	100M160	80	63M80
37	50	69	160	100M160	100	-
45	60	83	200	100M200	100	-
53	70	97	200	100M200	125	100M125
55	75	100	200	100M200	125	100M125
60	80	110	250	200M250	160	-
67	90	120	250	200M250	160	-
75	100	135	250	200M250	160	-
90	120	160	315	200M315	200	-
93	125	170	355*	315M400*	200	-
110	150	200	400	315M400*	250	200M250
130	175	230	400	315M400*	315	-
150	200	260	450*	400M500*	315	-
160	215	280	500	400M500*	355*	315M400*
170	225	290	500	400M500*	355*	315M400*
180	250	320	560*	-	400	-
200	270	350	630	-	400	-
220	300	380	670*	-	450	400M500*
250	335	420	710*	-	500	-
260	350	450	750*	-	560*	-
300	400	500	800	-	630	-

\* Current ratings additional to BS88.

### Maximum full load current starting capability

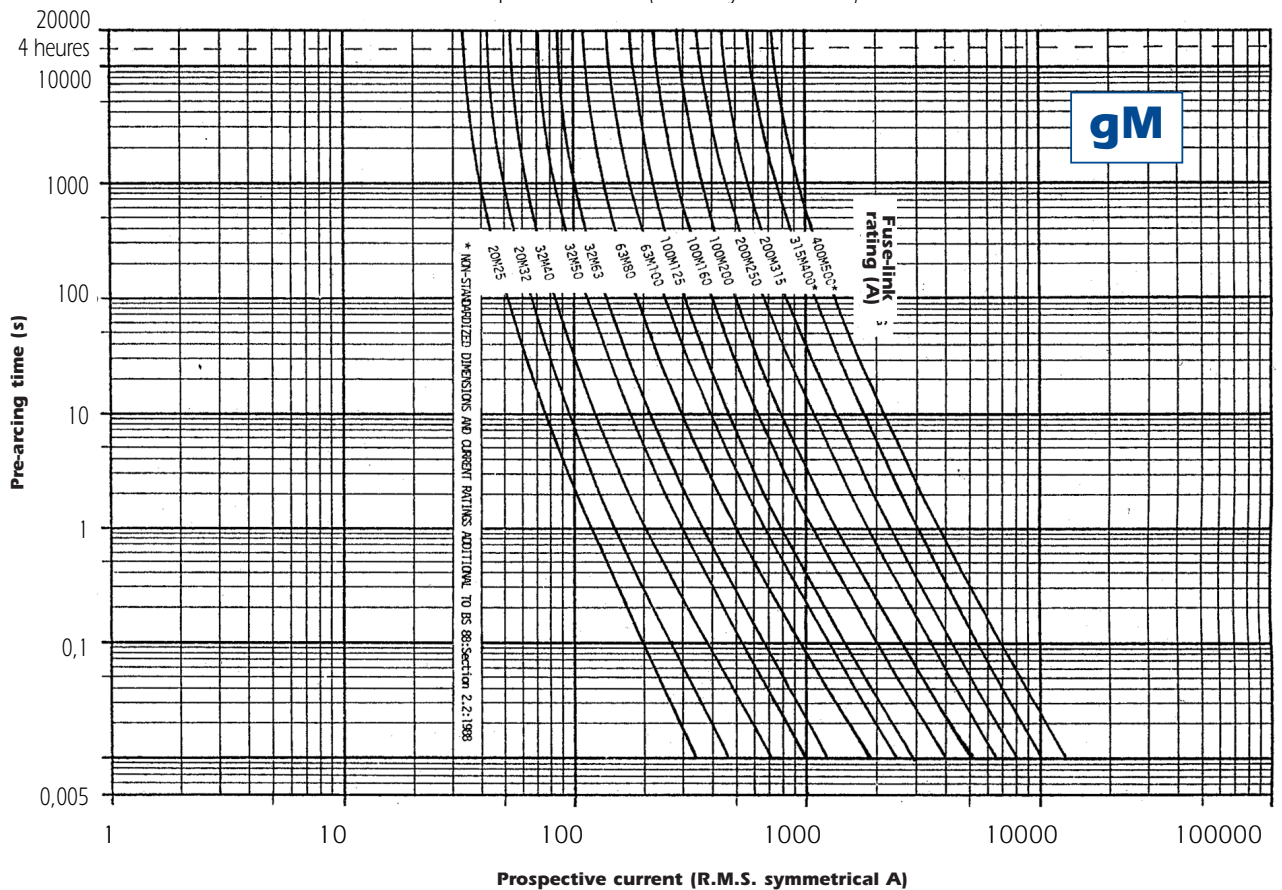
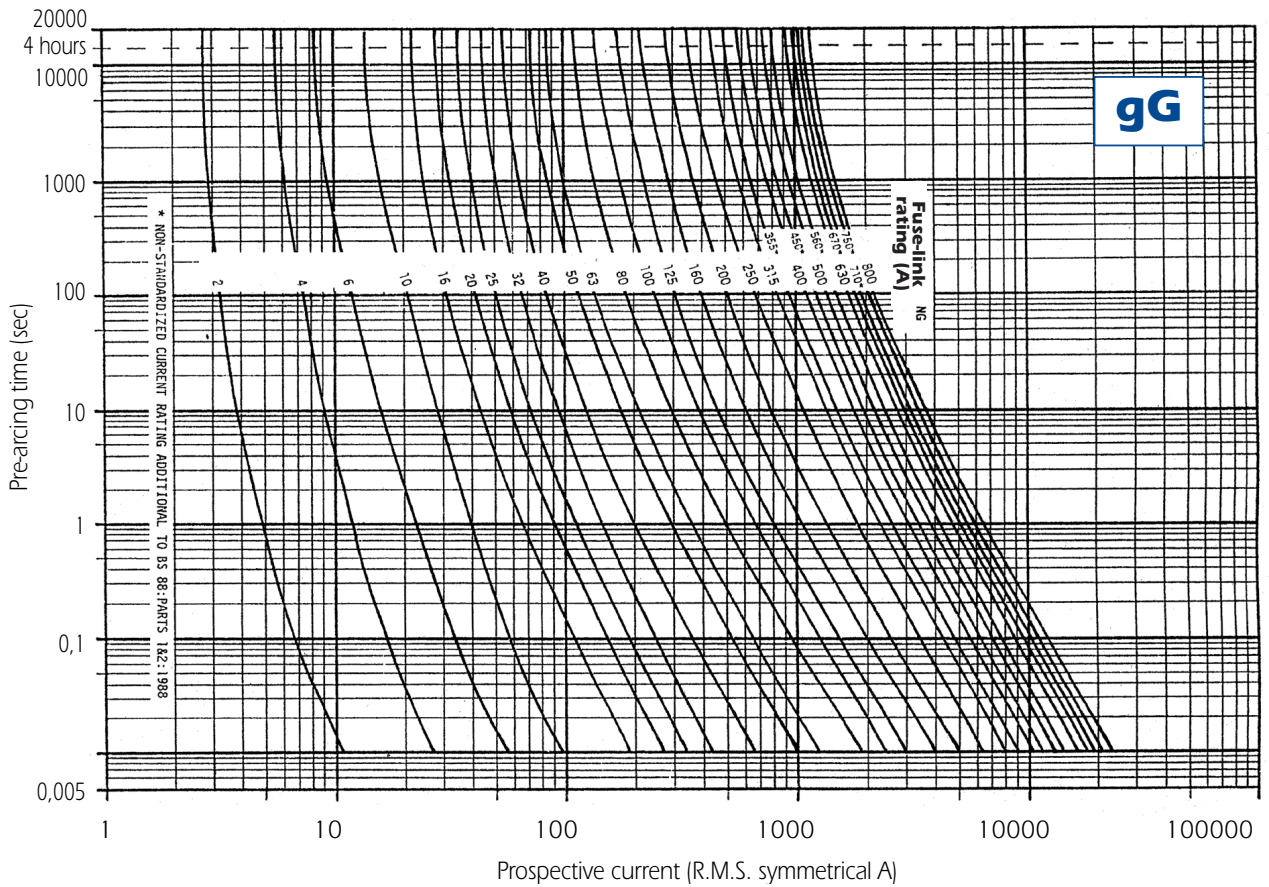
Direct-on-line start (7 x FLC for 10 sec)			Assisted start (3,5 x FLC for 20 sec)		
Fuse-link rating (amperes)		Maximum motor In	Fuse-link rating (amperes)		Maximum motor In
gG	gM		gG	gM	
2	-	0,6	2	-	1,3
4	-	1,3	4	-	2,4
6	-	2,3	6	-	4,3
10	-	4,1	10	-	6,4
16	-	6,0	16	-	11
20	-	7,9	20	-	14
25	20M25	10	25	20M25	19
32	20M32	13	32	-	24
40	32M40	18	40	32M40	31
50	32M50	26	50	-	46
63	32M63	30	63	-	51
80	63M80	40	80	-	69
100	63M100	54	100	-	94
125	100M125	61	125	-	110
160	100M160	82	160	-	150
200	-	110	200	-	180
250	200M250	150	250	-	220
315	200M315	170	315	-	250
355*	315M400*	200	355*	-	310
400	315M400*	240	400	-	340
450*	400M500*	280	450*	400M500*	380
500	400M500*	310	500	-	430
560*	-	350	560*	-	460
630	-	380	630	-	500
670*	-	420	670*	-	530
710*	-	450	710*	-	550
750*	-	480	750*	-	570
800	-	510	800	-	600

\* Current ratings additional to BS88.

# BS 88 industrial fuses - gG and gM curves



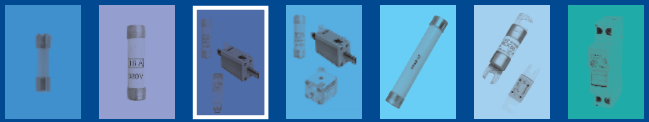
## Time/current data



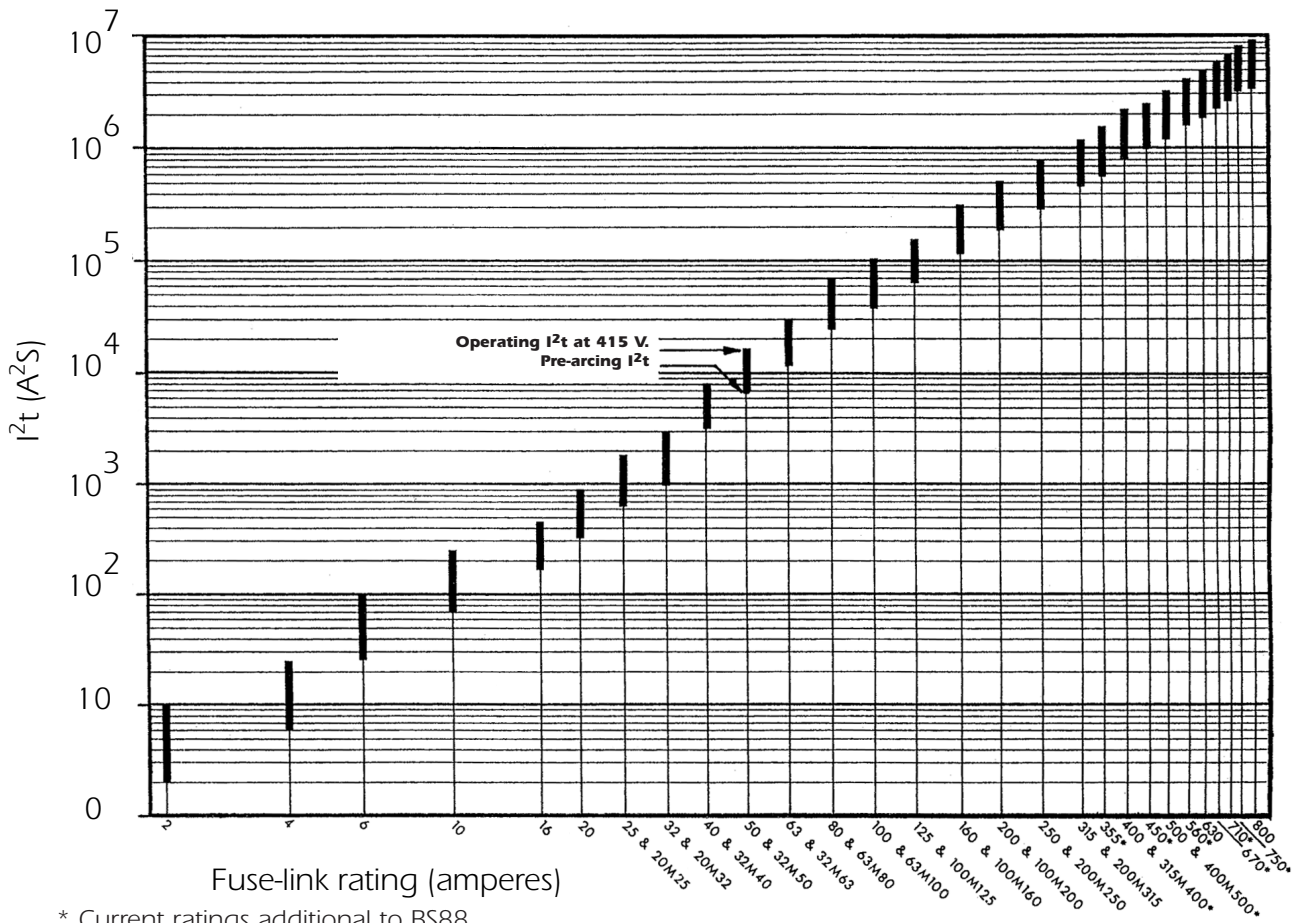
Curves from BS88 standard part 1 and 2 (sections 2.1 and 2.2) of 1988.

Voltage rating : 415 V. Interrupting rating : 80 kA under 415 V.

\* Current ratings additional to BS88.

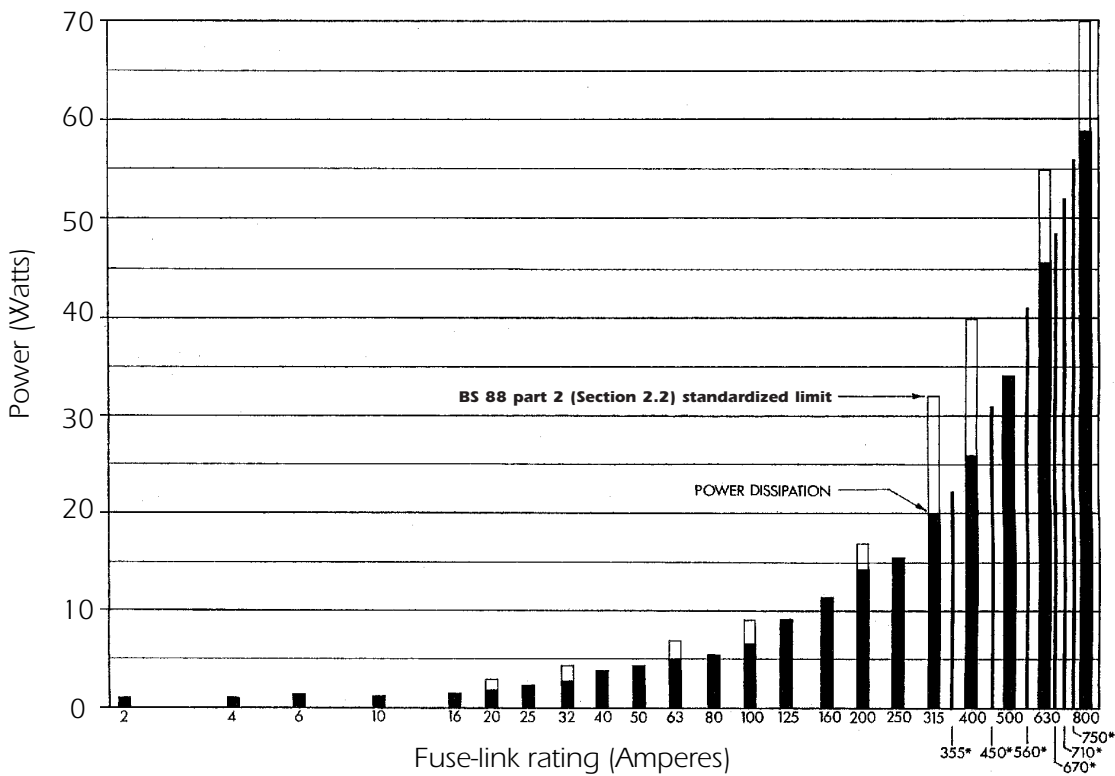


## I<sup>2</sup>t characteristics

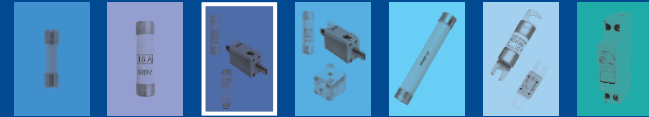


\* Current ratings additional to BS88

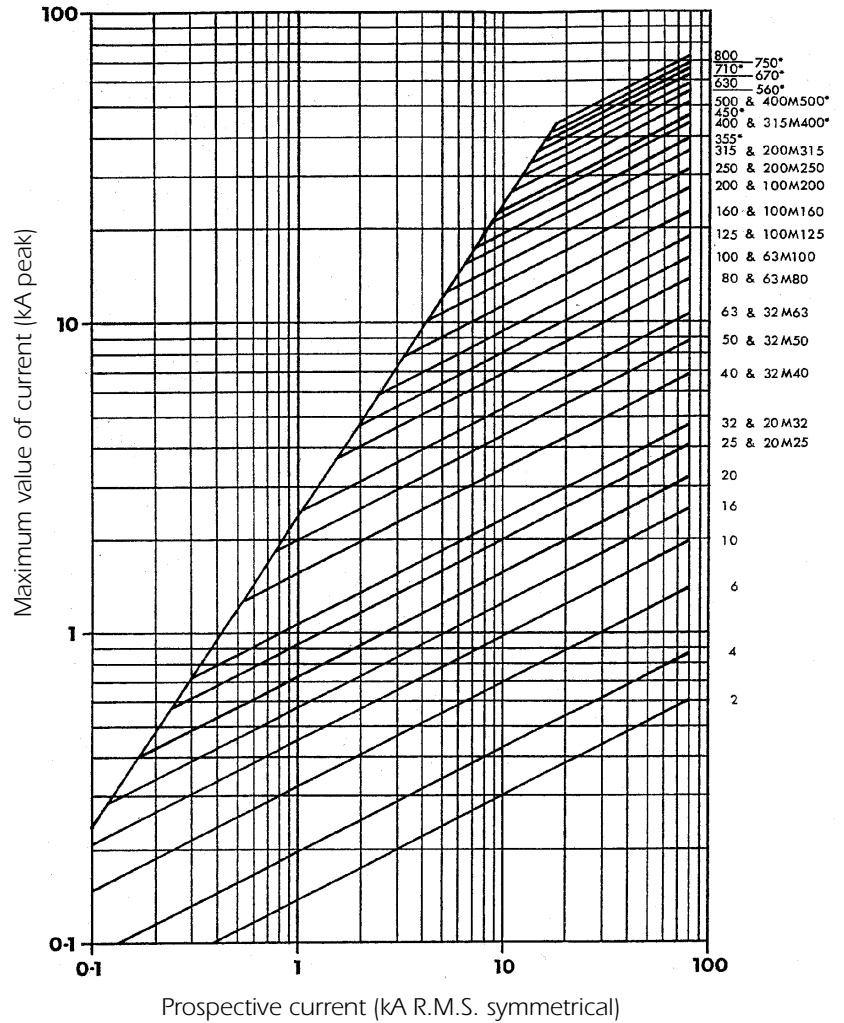
## Dissipated power



\* Current ratings additional to BS88



## Peak let-through current



## Nominal current derating by temperature

Fuse-link rating (A)	Current carrying capability (in amperes) at elevated temperatures									
	40°C	45°C	50°C	55°C	60°C	65°C	70°C	75°C	80°C	
2, 4, 6, 10										
16										15
20										18 16
25										23 21 19
32										31 30 29
40										39 38 37
50										49 48 47
63										61 59 57
80										79 78 76
100										98 96 94
125										122 119 116
160										155 150 145 140
200										195 190 185 180 175
250										240 230 220 210 200
315										310 300 290 270 250
355*										345 335 320 300 280
400										390 380 370 350 330 310
450*										445 430 410 390 370 350
500										490 480 460 440 420 400
560*										550 530 510 490 470 450
630	620	610	590	570	550	530	510	490		
670*	660	640	620	600	580	560	540	520		
710*	700	680	660	640	620	600	580	560		
750*	740	730	710	690	670	650	630	600		
800	780	760	740	720	700	680	660	640		

**FUSE-LINKS FULLY RATED**

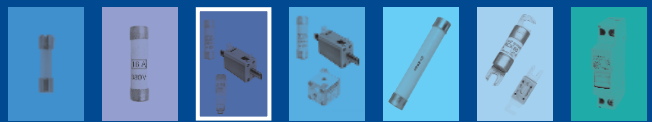
Curves and derating comply with BS88 standard part 1 and 2 sections 2.1 and 2.2 of 1988.

\* Derating also applies, to additional current ratings.

- When the fuse-link is mounted in the open, the elevated temperature is the ambient air temperature ( $T_a$ ).
- When the fuse-link is mounted in an enclosure, the elevated temperature is the internal "fluid environment temperature" ( $T_e$ ) within the enclosure. When it is not known, it should be assumed to be 15°C higher than the ambient air temperature external to the enclosure, i.e.  $T_e = T_a + 15^\circ\text{C}$ .

Examples :

- 100 fuse-link mounted in the open at an ambient air temperature of 65°C. Current carrying capability = 100A.
- 200A fuse-link mounted in the open at an ambient air temperature of 60°C. Current carrying capability = 195A.
- 400A fuse-link mounted in an enclosure having an internal temperature of 65°C. Current carrying capability = 370A.
- 800A fuse-link mounted in an enclosure with an unknown internal temperature and an external ambient air temperature of 40°C. Assume the internal temperature is 55°C (40°C + 15°C). Current carrying temperature = 740A.



## Industrial fuses BS 88 gG and gM - F1 and F2 types



- The fuse comply with standard EN 60269-2 section II and standard BS88 part 2.
- This fuses are designed for :
  - "general purpose use" protection, (gG type)
  - motor protection (gM type)
- This fuse range insures an excellent current limitation for all overloads on a large range of applications. Their size cannot allow exchange by other fuses of higher rating in the F type range. They are compact and can be connected with clips.

### Applications

Power cable protection  
 Distribution panel protection  
 Control panel  
 Main circuit  
 Lighting, heating and electrical equipments  
 Capacitor, batteries  
 Can be used with circuit breakers.

### Features

Compact design  
 Curve gG and gM  
 Very current limiting  
 Tested in DC  
 Voltage 415VAC  
 High breaking capacity : 80kA @ 415VAC  
 Connection by clips or appropriate fuse holders.

### Ratings

F1 type  
 from 2A to 32A

F2 type  
 from 10A to 63A

### Approval

Asta  Certified

## Fuses designations and ratings

### F1 type

Type	Rating	Ref. no	Designation	Pack.
F1	2	S226336	2F1	10
F1	4	T226337	4F1	10
F1	6	V226338	6F1	10
F1	10	W226339	10F1	10
F1	16	X226340	16F1	10
F1	20	Y226341	20F1	10
F1	25	Z226342	25F1	10
F1	32	A226343	32F1	10
F1*	20M25	B226344	20M25F1	10
F1*	20M32	C226345	20M32F1	10

### F2 type

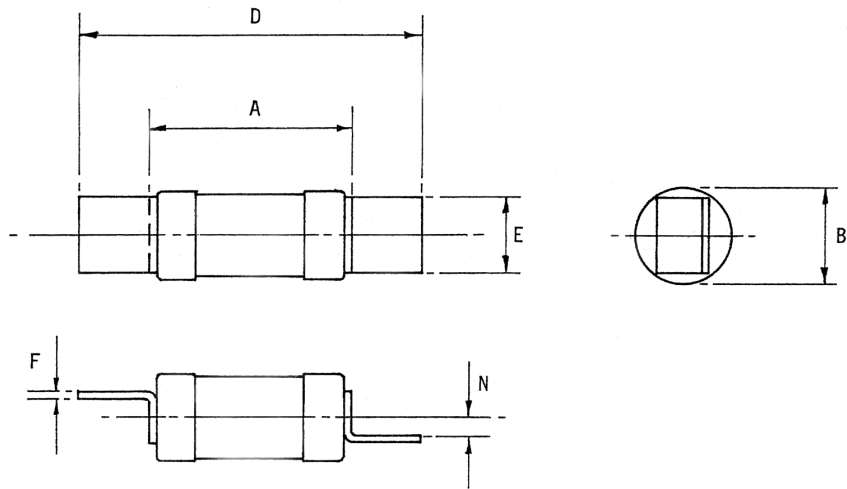
Type	Rating	Ref. no	Designation	Pack.
F2	10	D226346	10F2	10
F2	16	E226347	16F2	10
F2	20	F226348	20F2	10
F2	25	G226349	25F2	10
F2	32	H226350	32F2	10
F2	40	J226351	40F2	10
F2	50	K226352	50F2	10
F2	63	L226353	63F2	10

\* Selection table for gM fuses : refer to A, B and C types





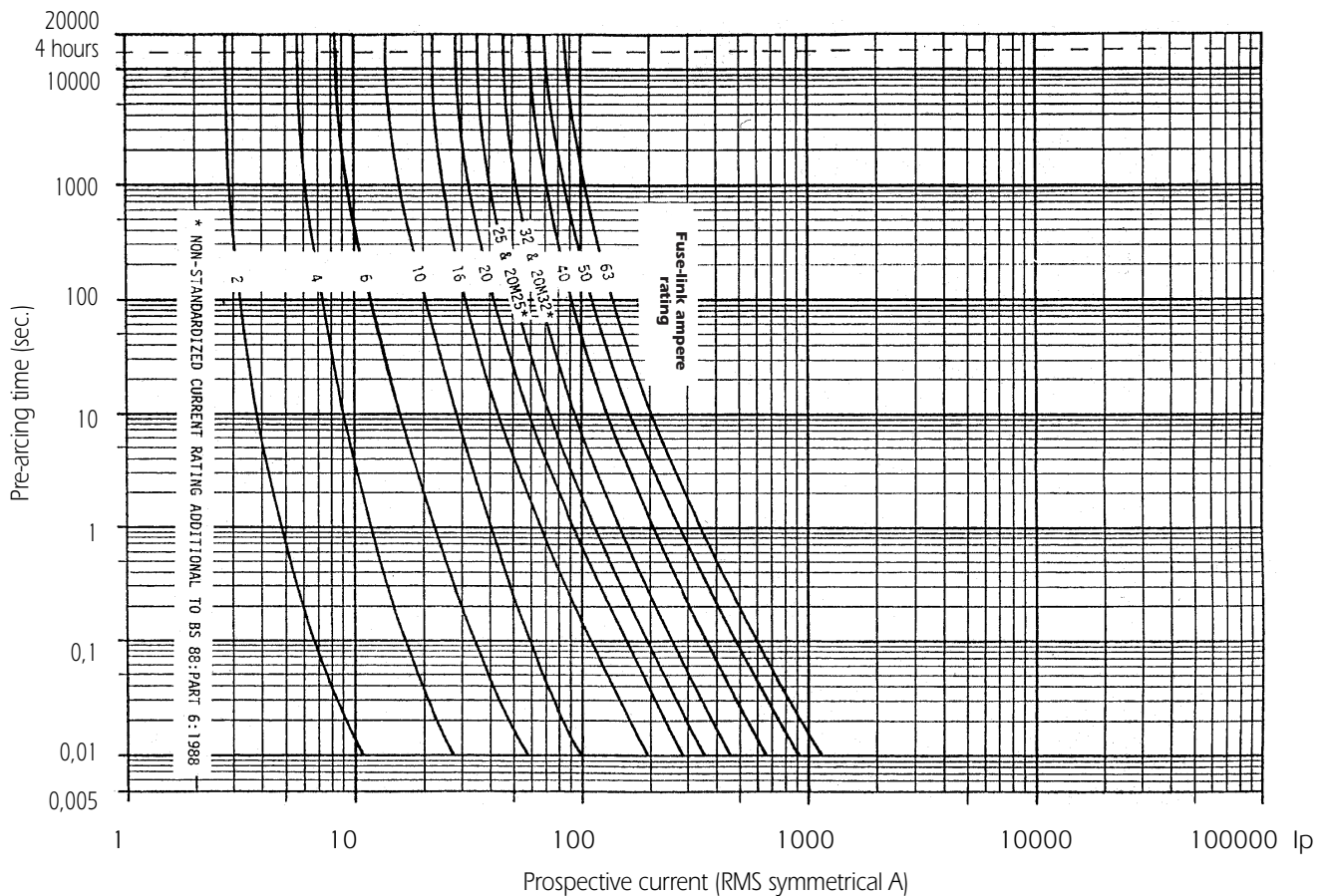
## Dimensions



Ref. BS 88	Voltage (Vac)	Current ratings (A)	Dimensions (mm)						
			A max	B max	D max	E max	F nom	N nom	
F1	415V	2, 4, 6, 10, 16, 20, 25, 32, 20M25*, 20M32*	mm	35,5	14,3	62	11,5	0,8	3,5
			in	1-2/5	9/16	2-7/16	9/20	1/32	1/8
F2	415V	10, 16, 20, 25, 32, 40, 50, 63	mm	39	17,5	69	15	1,4	3,5
			In	1-7/13	11/16	2-13/8	9/16	1/18	1/8

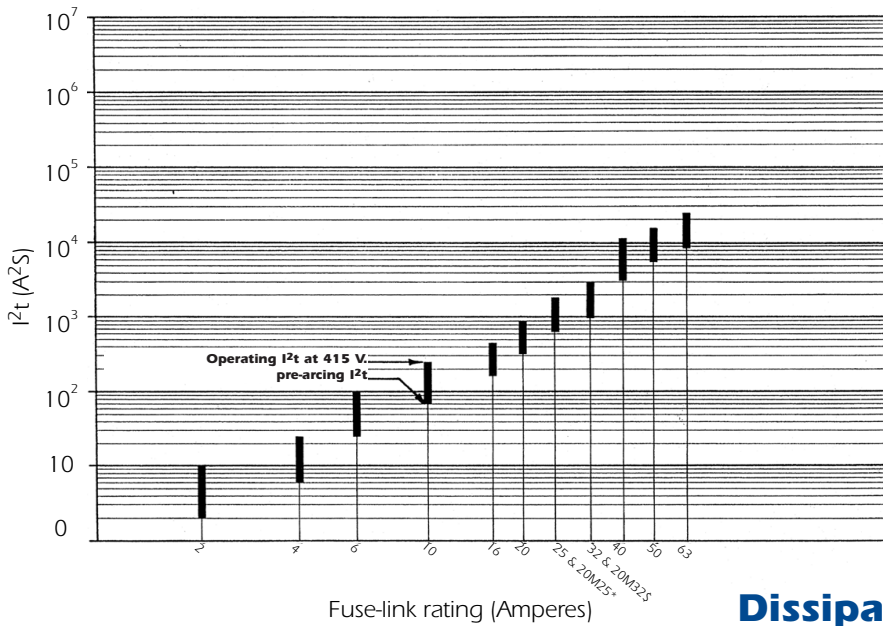
\* Current ratings additional to BS88 also comply to the BS 88 standard part 6 of 1988.

## Time/current data





## I<sup>2</sup>t characteristics



Curves from BS88 standard part 6 of 1988.

Voltage rating : 415 VAC.  
Interrupting rating : 40 kA  
under 415 VAC.

ASTA 20 certified

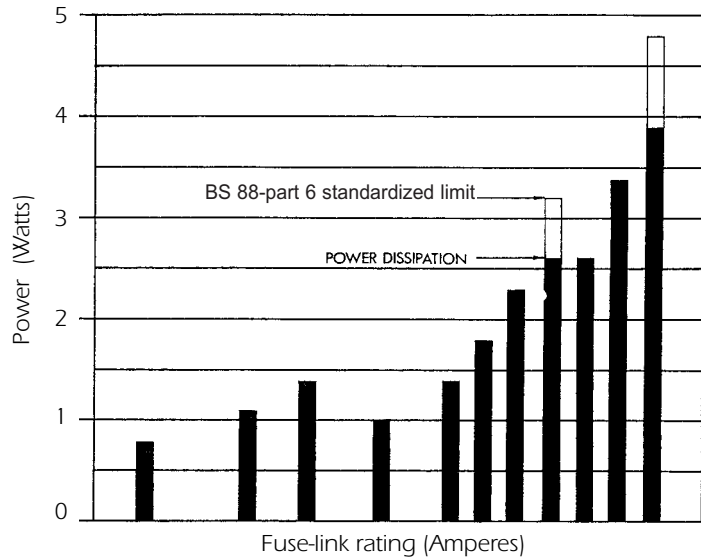
\* Current ratings additional to BS88 also comply to the BS 88 standard part 6 of 1988.

Curves from BS88 standard part 6 of 1988.

Voltage rating : 415 VAC.  
Interrupting rating : 40 kA  
under 415 VAC.

\* Current ratings additional to BS88 also comply to the BS 88 standard part 6 of 1988.

## Dissipated power



Curves from BS88 standard part 6 of 1988.

Voltage rating : 415 VAC.  
Interrupting rating : 40 kA  
under 415 VAC.

\* Current ratings additional to BS88 also comply to the BS 88 standard part 6 of 1988.

## Peak let-through current

