Ferraz Shawmut

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FEEDER PILLARS, FUSE LINKS, ARC FLASH, CABLE ROLLERS, CUT-OUTS

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BS88 LV Fuse Links & Holders Catalogue 2009

Blue Dot

CARBONE LORRAINE

Ferraz Shawmut

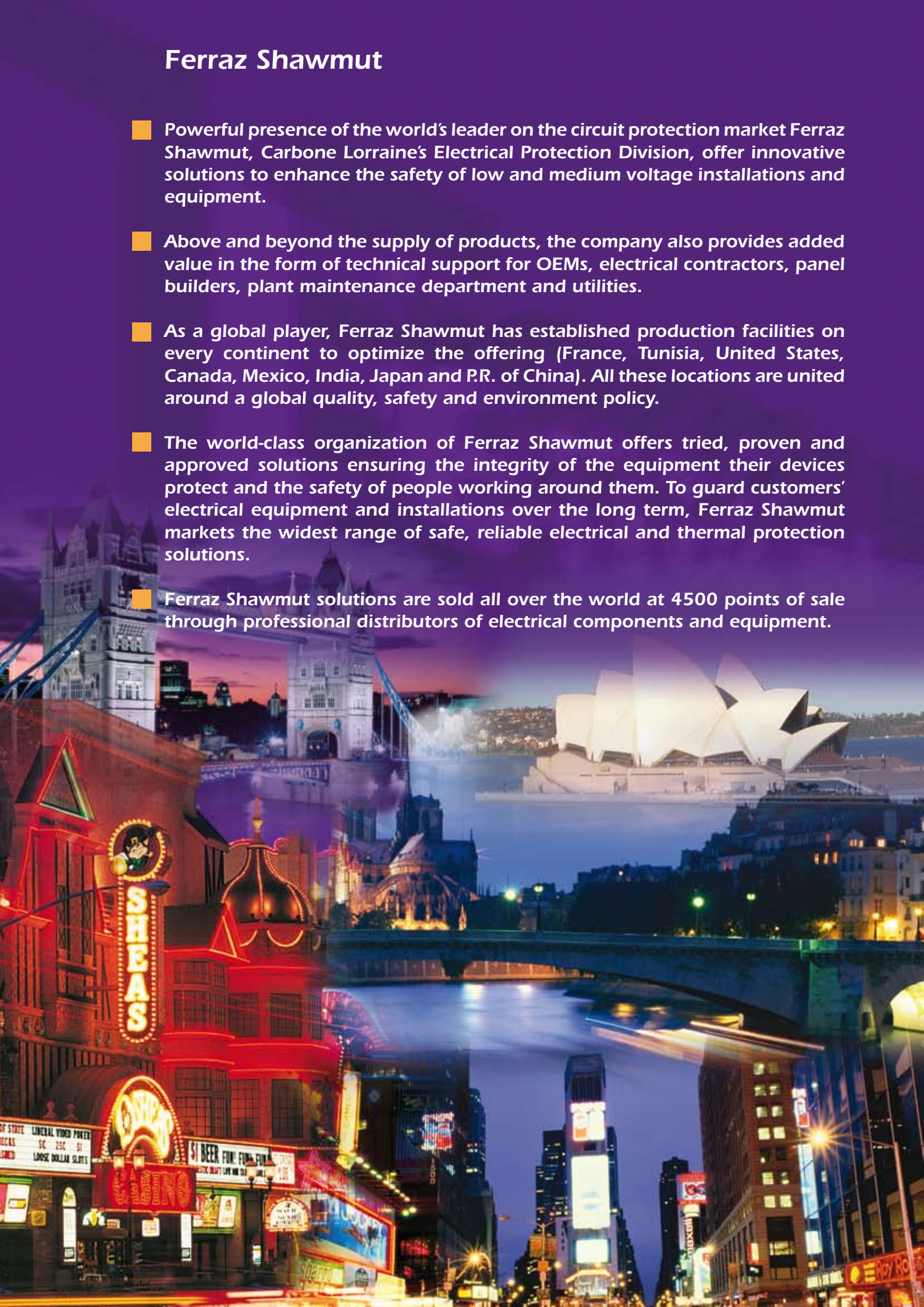
- Powerful presence of the world's leader on the circuit protection market Ferraz Shawmut, Carbone Lorraine's Electrical Protection Division, offer innovative solutions to enhance the safety of low and medium voltage installations and equipment.

- Above and beyond the supply of products, the company also provides added value in the form of technical support for OEMs, electrical contractors, panel builders, plant maintenance department and utilities.

- As a global player, Ferraz Shawmut has established production facilities on every continent to optimize the offering (France, Tunisia, United States, Canada, Mexico, India, Japan and P.R. of China). All these locations are united around a global quality, safety and environment policy.

- The world-class organization of Ferraz Shawmut offers tried, proven and approved solutions ensuring the integrity of the equipment their devices protect and the safety of people working around them. To guard customers' electrical equipment and installations over the long term, Ferraz Shawmut markets the widest range of safe, reliable electrical and thermal protection solutions.

- Ferraz Shawmut solutions are sold all over the world at 4500 points of sale through professional distributors of electrical components and equipment.



Blue Dot is the brand name of the Ferraz Shawmut's BS88 General Purpose Fuse and Fusegear range of products.

Blue Dot brand provides you with high-quality products designed and manufactured by Ferraz Shawmut in compliance with ISO 9001 Standard.

All the Fuse and Fuse gear product featured in this catalogue are ASTA 20 certified and comply with the RoHS European Directive.

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Offset Bolted Tag Fuse Links (A-type)

Offset Bolted Tag Fuses Links (A-type) - 415V ac

Reference data

Rated Voltage: 415V ac
Breaking Capacity: 80kA

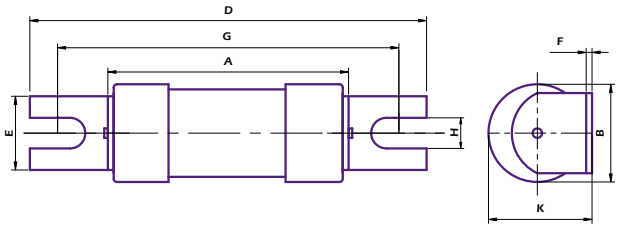
Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	BS Type Ref	Std. Pack.
415	2	BNIT42V2	BS88-2	IEC60269-2	A1	10
	4	BNIT42V4	BS88-2	IEC60269-2	A1	10
	6	BNIT42V6	BS88-2	IEC60269-2	A1	10
	10	BNIT42V10	BS88-2	IEC60269-2	A1	10
	16	BNIT42V16	BS88-2	IEC60269-2	A1	10
	20	BNIT42V20	BS88-2	IEC60269-2	A1	10
	25	BNIT42V25	BS88-1	IEC60269-1	A1	10
	32	BNIT42V32	BS88-1	IEC60269-1	A1	10
	25	BNIT42V20M25	BS88-2	IEC60269-2	A1	10
	32	BNIT42V20M32	BS88-2	IEC60269-2	A1	10
415	2	BTIA42V2	BS88-2	IEC60269-2	A2C	10
	4	BTIA42V4	BS88-2	IEC60269-2	A2C	10
	6	BTIA42V6	BS88-2	IEC60269-2	A2C	10
	10	BTIA42V10	BS88-2	IEC60269-2	A2C	10
	16	BTIA42V16	BS88-2	IEC60269-2	A2C	10
	20	BTIA42V20	BS88-2	IEC60269-2	A2C	10
	25	BTIA42V25	BS88-2	IEC60269-2	A2C	10
	32	BTIA42V32	BS88-2	IEC60269-2	A2C	10
	40	BTIA42V32M40	BS88-2	IEC60269-2	A2	10
	50	BTIA42V32M50	BS88-2	IEC60269-2	A2	10
	63	BTIA42V32M63	BS88-2	IEC60269-2	A2	10
415	40	BTIS42V40	BS88-2	IEC60269-2	A3C	10
	50	BTIS42V50	BS88-2	IEC60269-2	A3C	10
	63	BTIS42V63	BS88-2	IEC60269-2	A3C	10
	80	BTIS42V80	BS88-1	IEC60269-1	A3	10
	100	BTIS42V100	BS88-1	IEC60269-1	A3	10
	80	BTIS42V63M80	BS88-2	IEC60269-2	A3	10
	100	BTIS42V63M100	BS88-2	IEC60269-2	A3	10
415	32	BTCP42V32	BS88-2	IEC60269-2	A4C	5
	40	BTCP42V40	BS88-2	IEC60269-2	A4C	5
	50	BTCP42V50	BS88-2	IEC60269-2	A4C	5
	63	BTCP42V63	BS88-2	IEC60269-2	A4C	5
	80	BTCP42V80	BS88-2	IEC60269-2	A4C	5
	100	BTCP42V100	BS88-2	IEC60269-2	A4C	5
	125	BTCP42V100M125	BS88-2	IEC60269-2	A4	5
	160	BTCP42V100M160	BS88-2	IEC60269-2	A4	5
	200	BTCP42V100M200	BS88-2	IEC60269-2	A4	5
415	125	BTFP42V125	BS88-1	IEC60269-1	A4X	5
	160	BTFP42V160	BS88-1	IEC60269-1	A4X	5
	200	BTFP42V200	BS88-1	IEC60269-1	A4X	5
	250	BTFP42V200M250	BS88-1	IEC60269-1	A4X	5
	315	BTFP42V200M315	BS88-1	IEC60269-1	A4X	5

Note :

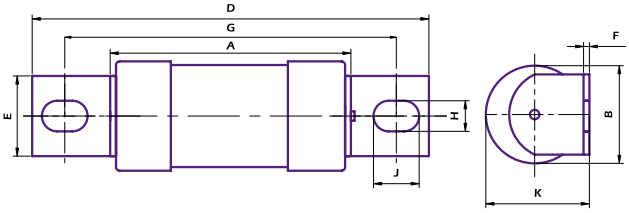
1. A2C, A3C, A4C represents compact dimensions with respect to BS88 / IEC60269 standards specified dimensions.
2. A4X represents extended rating with respect to BS88 / IEC60269 specified ratings.

Offset Bolted Tag Fuses Links (A-type)

Dimensions



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	H nom	K max
A1	BNIT	2,4,6,10,16,20,25,32,20M25,20M32	35.5	13.5	56.0	11.2	0.8	44.5	4.8	14.5
A3C	BTIS	40,50,63	57.0	21.9	88.5	13.0	1.2	73.0	5.5	23.5
A3	BTIS	80,100,63M80,63M100	57.0	26.9	88.5	13.0	1.2	73.0	5.5	28



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	J nom	H nom	K max
A2C	BTIA	2,4,6,10,16,20,25,32	35.5	13.5	86.0	9.2	0.8	73.0	8.0	5.5	14.5
A2	BTIA	32M40,32M50,32M63	56.5	21.9	86.0	9.2	1.2	73.0	8.0	5.5	23.5
A4C	BTCP	32,40,50,63,80,100	59.5	26.9	111.0	19.5	2.4	94.0	11.0	8.7	28.5
A4	BTCP	100M125,100M160,100M200	67.0	36.1	111.0	19.5	3.2	94.0	11.0	8.7	38.5
A4X	BTFP	125,160,200	67.0	36.1	111.0	19.5	3.2	94.0	11.0	8.7	38.5
A4X	BTFP	200M250,200M315	76.0	41.9	111.0	19.5	3.2	94.0	11.0	8.7	44.0

Electrical characteristics

Fuse Type	Rating (A)	Curve	I^2t (Ampere² seconds) Pre Arcing	Total	Watts Loss
BNIT/BTIA	2	gG	1	3.5	0.9
BNIT/BTIA	4	gG	7.6	26	1.5
BNIT/BTIA	6	gG	28	100	1.8
BNIT/BTIA	10	gG	70	315	1.2
BNIT/BTIA	16	gG	120	540	1.6
BNIT/BTIA	20	gG	250	1125	1.7
BNIT/BTIA	25	gG	420	1890	2.0
BNIT	20M25	gM	420	1890	1.3
BNIT/BTIA	32	gG	670	3000	2.9
BNIT	20M32	gM	670	3000	1.1
BTCP	32	gG	700	3000	3.6
BTIS/BTCP	40	gG	1300	5850	4.0
BTIA	32M40	gM	1300	5850	2.6
BTIS/BTCP	50	gG	2600	11700	4.8
BTIA	32M50	gM	2600	11700	2.0
BTIS/BTCP	63	gG	4000	17500	5.9
BTIA	32M63	gM	4000	17500	1.6
BTIS/BTCP	80	gG	8500	38250	6.5
BTIS	63M80	gM	8500	38250	4.0
BTIS/BTCP	100	gG	14000	65000	7.5
BTIS	63M100	gM	14000	65000	3.0
BTFP	125	gG	28000	78400	11.3
BTCP	100M125	gM	28000	78400	7.2
BTFP	160	gG	60000	168000	14.0
BTCP	100M160	gM	60000	168000	5.5
BTFP	200	gG	105000	293000	16.2
BTCP	100M200	gM	105000	293000	4.1
BTFP	200M250	gM	190000	532000	15.4
BTFP	200M315	gM	270000	756000	12.5

Offset Bolted Tag Fuses Links (A-type)

Central Bolted Tag Fuse Links (B & C-Type)

Central Bolted Tag Fuse Links (B & C-Type)

Reference data

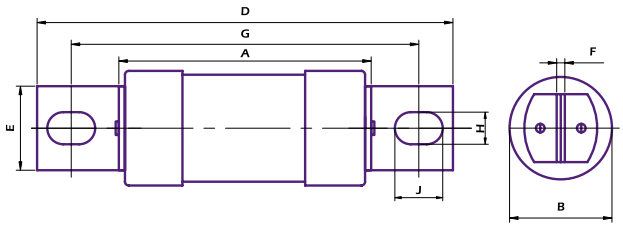
Rated Voltage: 415V ac
Breaking Capacity: 80kA

Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	BS Type Ref	Std. Pack.
415	32	BTBC42V32	BS88-2	IEC60269-2	B1C	10
	40	BTBC42V40	BS88-2	IEC60269-2	B1C	10
	50	BTBC42V50	BS88-2	IEC60269-2	B1C	10
	63	BTBC42V63	BS88-2	IEC60269-2	B1C	10
415	80	BTC42V80	BS88-2	IEC60269-2	B1C	5
	100	BTC42V100	BS88-2	IEC60269-2	B1C	5
	125	BTC42V100M125	BS88-2	IEC60269-2	B1	5
	160	BTC42V100M160	BS88-2	IEC60269-2	B1	5
	200	BTC42V100M200	BS88-2	IEC60269-2	B1	5
415	125	BTF42V125	BS88-2	IEC60269-2	B2C	5
	160	BTF42V160	BS88-2	IEC60269-2	B2C	5
	200	BTF42V200	BS88-2	IEC60269-2	B2C	5
	250	BTF42V200M250	BS88-2	IEC60269-2	B2	1
	315	BTF42V200M315	BS88-2	IEC60269-2	B2	1
415	250	BTKF42V250	BS88-2	IEC60269-2	B3	1
	315	BTKF42V315	BS88-2	IEC60269-2	B3	1
	400	BTKF42V315M400	BS88-1	IEC60269-1	B3	1
415	250	BTKM42V250	BS88-1	IEC60269-1	B3X	1
	315	BTKM42V315	BS88-1	IEC60269-1	B3X	1
415	355	BTMF42V355	BS88-2	IEC60269-2	B4	1
	400	BTMF42V400	BS88-2	IEC60269-2	B4	1
415	355	BTM42V355	BS88-2	IEC60269-2	C1	1
	400	BTM42V400	BS88-2	IEC60269-2	C1	1
415	450	BTTM42V450	BS88-2	IEC60269-2	C2	1
	500	BTTM42V500	BS88-2	IEC60269-2	C2	1
	560	BTTM42V560	BS88-2	IEC60269-2	C2	1
	630	BTTM42V630	BS88-2	IEC60269-2	C2	1
415	670	BTLM42V670	BS88-2	IEC60269-2	C3	1
	710	BTLM42V710	BS88-2	IEC60269-2	C3	1
	750	BTLM42V750	BS88-2	IEC60269-2	C3	1
	800	BTLM42V800	BS88-2	IEC60269-2	C3	1

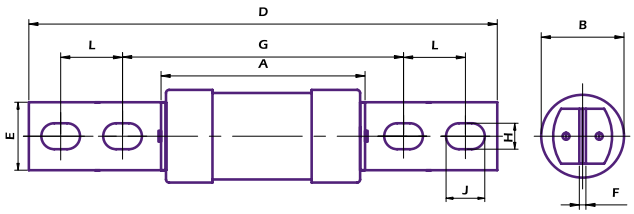
Note :

1. B1C, B2C, represents compact dimensions with respect to BS88 / IEC60269 standards specified dimensions.
2. B3X represents extended rating with respect to BS88 / IEC60269 specified ratings.

Dimensions



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	H nom	J nom
B1C	BTC/BTBC	32,40,50,63,80,100	57.0	26.9	137.0	19.5	3.2	111.0	8.7	14.0
B1	BTC	100M125,100M160,100M200	63.0	36.1	137.0	19.5	3.2	111.0	8.7	14.0
B2C	BTF	125A,160A,200A	63.0	36.1	137.0	19.5	3.2	111.0	8.7	14.0
B2	BTF	200M250,200M315	73.0	41.9	138.0	19.5	3.2	111.0	8.7	14.0
B3	BTKF	250,315	73.0	41.9	138.0	19.5	3.2	111.0	8.7	14.0
B3	BTKF	315M400	75.0	59.1	138.0	26.0	4.8	111.0	8.7	14.0
B3X	BTKM	250,315	73.0	41.9	159.0	26.0	3.2	133.0	10.3	14.0
B4	BTMF	355,400	75.0	59.1	138.0	26.0	4.8	111.0	8.7	14.0



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	H nom	J nom	L nom
C1	BTM	355,400	75.0	59.1	212.0	26.0	4.8	133.0	10.3	16.0	25.4
C2	BTTM	450,500,560,630	83.0	74.4	212.0	26.0	6.3	133.0	10.3	16.0	25.4
C3	BTLM	670,710,750,800	86.0	82.4	212.0	26.0	9.5	133.0	10.3	16.0	25.4

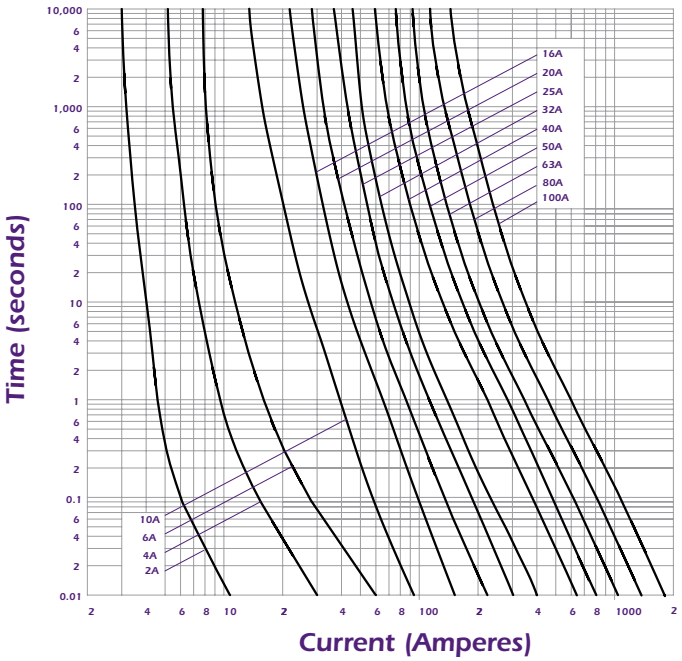
Electrical characteristics

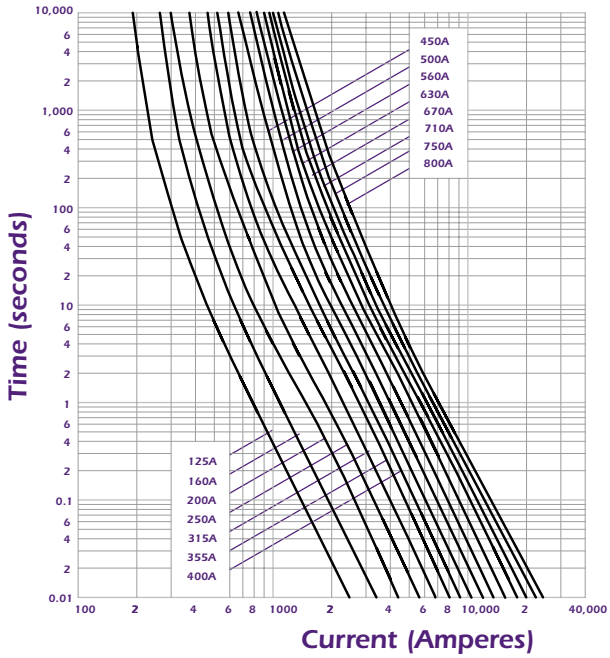
Fuse Type	Rating (A)	Curve	I²t (Ampere² seconds) Pre Arcing	Total	Watts Loss
BTBC	32	gG	700	3000	3.6
BTBC	40	gG	1300	5850	4.0
BTBC	50	gG	2600	11700	4.8
BTBC	63	gG	4000	17500	5.9
BTC	80	gG	8500	38250	6.5
BTC	100	gG	14000	65000	7.5
BTF	125	gG	28000	78400	11.3
BTC	100M125	gM	28000	78400	7.2
BTF	160	gG	60000	168000	14.0
BTC	100M160	gM	60000	168000	5.5
BTF	200	gG	105000	293000	16.2
BTC	100M200	gM	105000	293000	4.1
BTKF/BTKM	250	gG	190000	532000	24.0
BTF	200M250	gM	190000	532000	15.4
BTKF/BTKM	315	gG	270000	756000	31.0
BTF	200M315	gM	270000	756000	12.5
BTMF/BTM	355	gG	395000	1106000	32.0
BTMF/BTM	400	gG	505000	1414000	38.0
BTKF	315M400	gM	505000	1414000	23.5
BTTM	450	gG	650000	1820000	42.0
BTTM	500	gG	850000	2380000	48.0
BTTM	560	gG	1200000	3360000	50.0
BTTM	630	gG	1546000	4437000	54.0
BTLM	670	gG	1950000	5460000	60.0
BTLM	710	gG	2400000	6720000	62.0
BTLM	750	gG	3000000	8400000	65.0
BTLM	800	gG	3769000	10900000	68.0

Curves Set for A, B & C Type

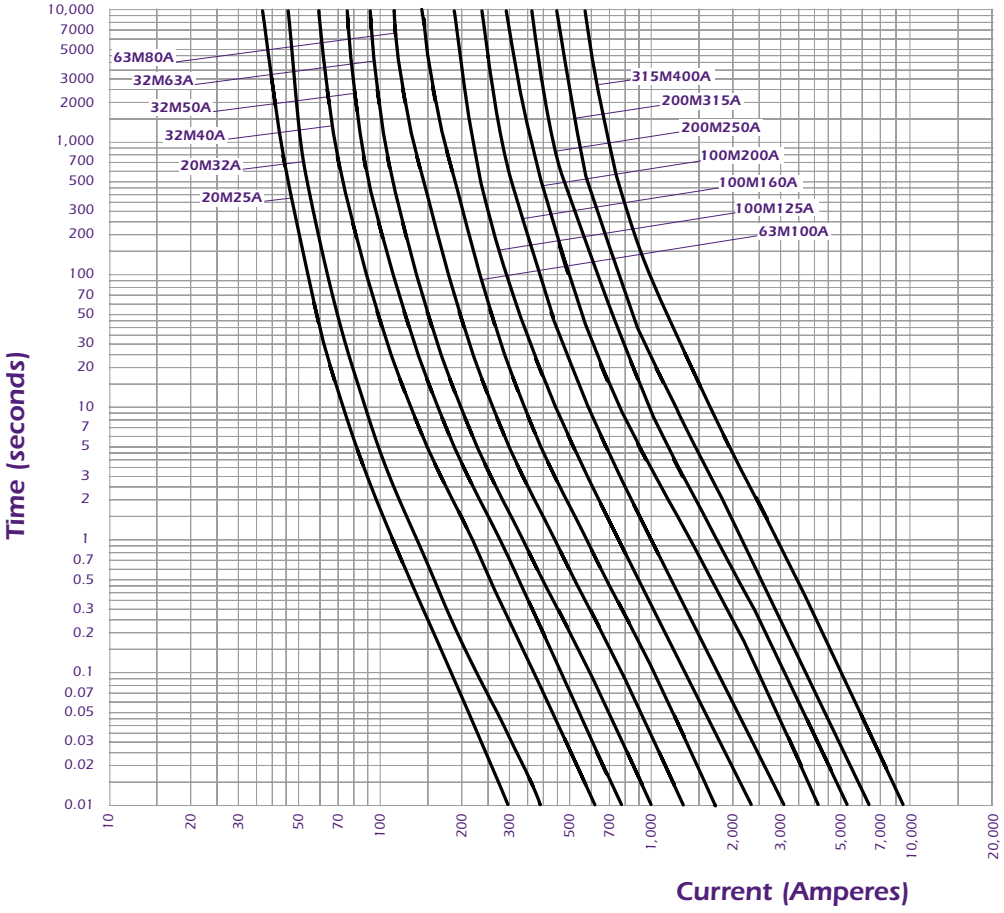
Time vs. Current characteristics

gG curves - 2 to 800A - 415VAC





gM curves - 20M25 to 315M400A - 415VAC



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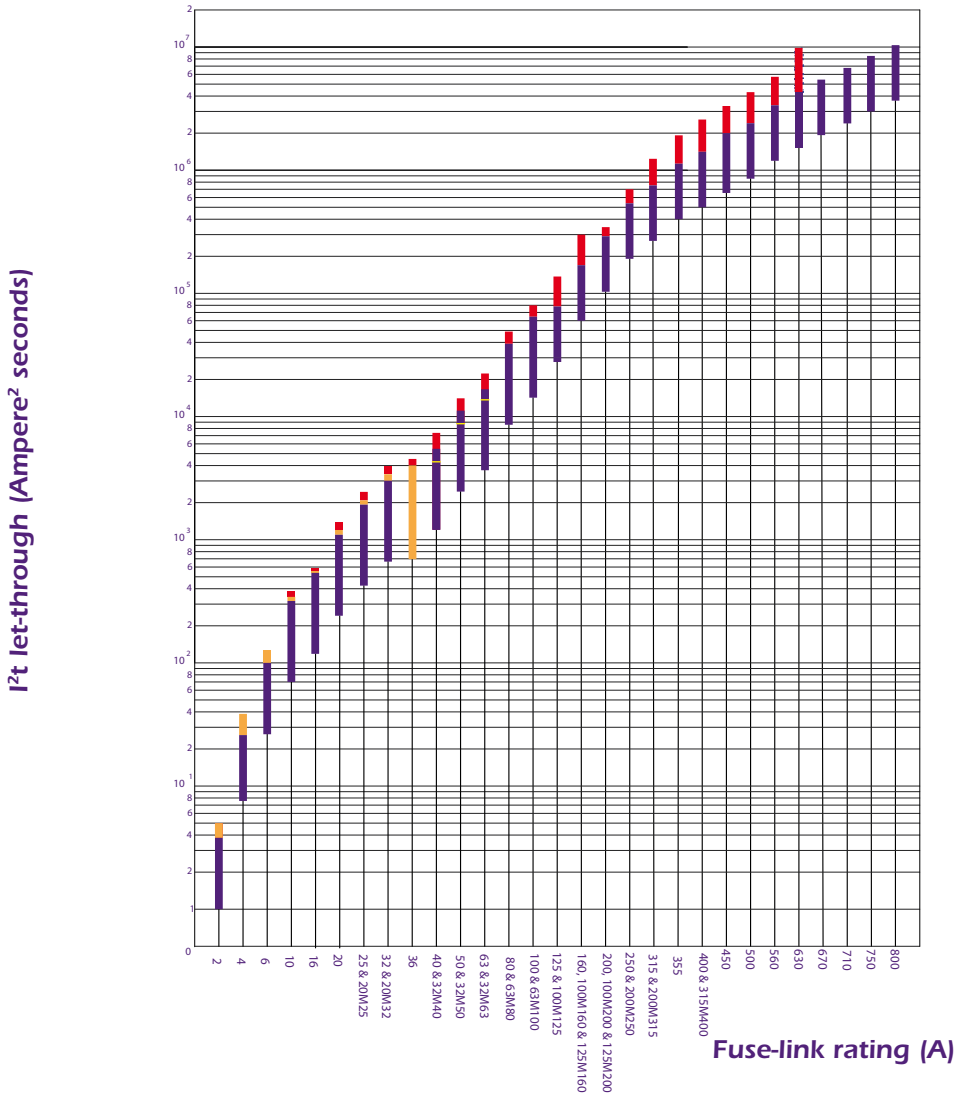
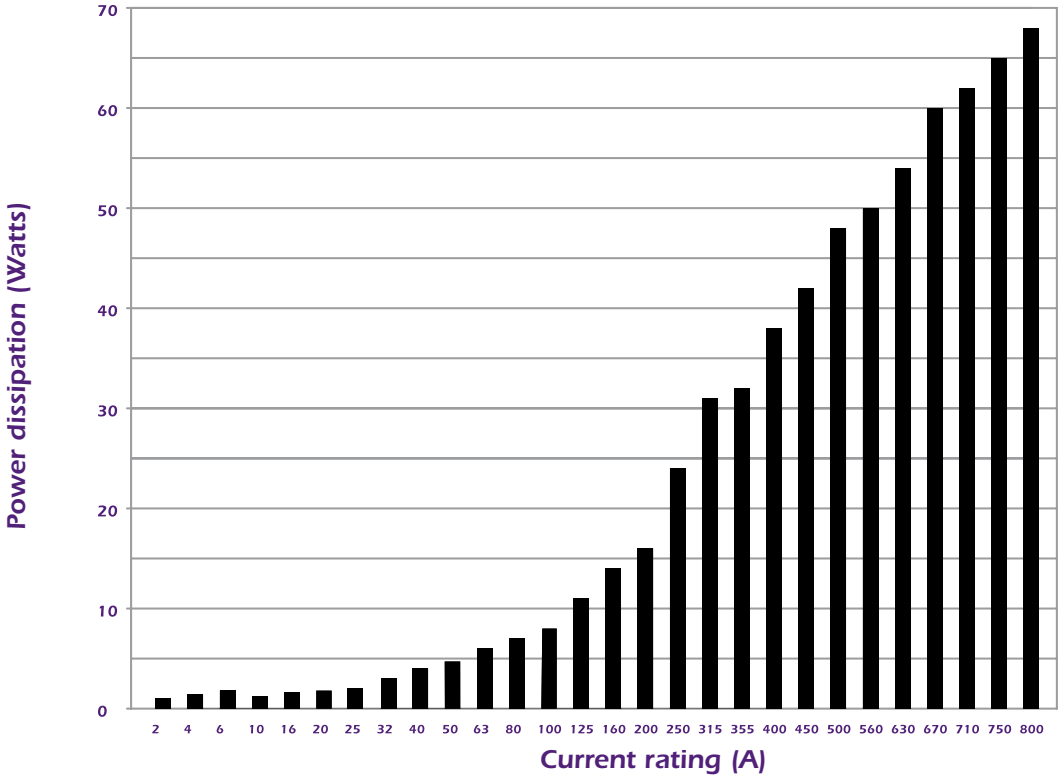
I^2t characteristics



*total I^2t value will vary for the same Amp rating having different dimensions.

Power dissipation chart



Curves Set for A, B, C & F Type

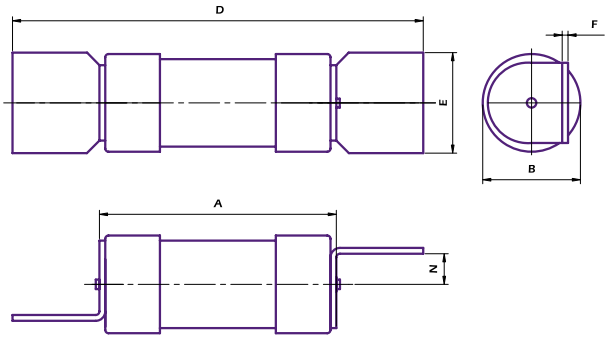
Offset Blade Tag Fuse Links (F-Type) - 415V ac

Reference data

Rated Voltage: 415V ac - Breaking Capacity: 80kA

Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	BS Type Ref	Std. Pack.
415	2	BNS42V2	BS88-6	IEC60269-2	F1	10
	4	BNS42V4	BS88-6	IEC60269-2	F1	10
	6	BNS42V6	BS88-6	IEC60269-2	F1	10
	10	BNS42V10	BS88-6	IEC60269-2	F1	10
	16	BNS42V16	BS88-6	IEC60269-2	F1	10
	20	BNS42V20	BS88-6	IEC60269-2	F1	10
	25	BNS42V25	BS88-6	IEC60269-2	F1	10
	32	BNS42V32	BS88-6	IEC60269-2	F1	10
	25	BNS42V20M25	BS88-6	IEC60269-2	F1	10
	32	BNS42V20M32	BS88-6	IEC60269-2	F1	10
415	10	BES42V10	BS88-6	IEC60269-2	F2	10
	16	BES42V16	BS88-6	IEC60269-2	F2	10
	20	BES42V20	BS88-6	IEC60269-2	F2	10
	25	BES42V25	BS88-6	IEC60269-2	F2	10
	32	BES42V32	BS88-6	IEC60269-2	F2	10
	40	BES42V40	BS88-6	IEC60269-2	F2	10
	50	BES42V50	BS88-6	IEC60269-2	F2	10
	63	BES42V63	BS88-6	IEC60269-2	F2	10

Dimensions



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	N nom
F1	BNS	2,4,6,10,16,20,25,32,20M25,20M32	35.5	13.5	61.0	12.7	0.8	3.5
F2	BES	10,16,20,25,32,40,50,63	39.5	17.1	69.0	15.2	1.2	3.5

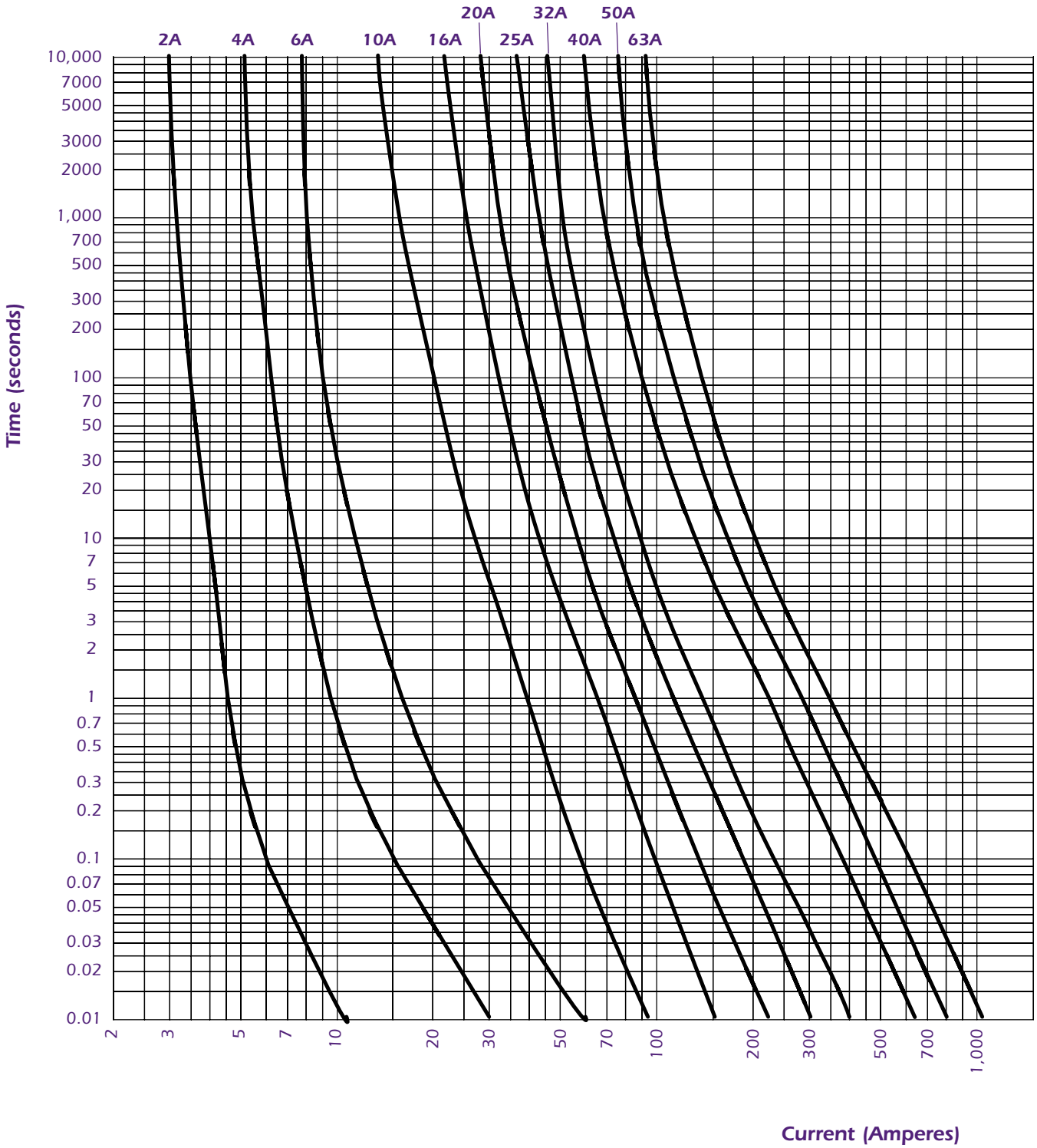
Electrical characteristics

Fuse Type	Rating (A)	Curve	I^2t (Ampere² seconds) Pre Arcing	Total	Watts Loss
BNS	2	gG	1	3.5	0.9
BNS	4	gG	7.6	26	1.5
BNS	6	gG	28	100	1.8
BNS/BES	10	gG	70	315	1.2
BNS/BES	16	gG	120	540	1.6
BNS/BES	20	gG	250	1125	1.7
BNS/BES	25	gG	420	1890	2.0
BNS	20M25	gM	420	1890	1.3
BNS/BES	32	gG	670	3000	2.9
BNS	20M32	gM	670	3000	1.1
BES	40	gG	1300	4200	3.0
BES	50	gG	2600	8750	3.6
BES	63	gG	4000	13900	4.7

Ferraz Shawmut

Time vs. Current characteristics

gG curves - 2 to 63A - 415VAC

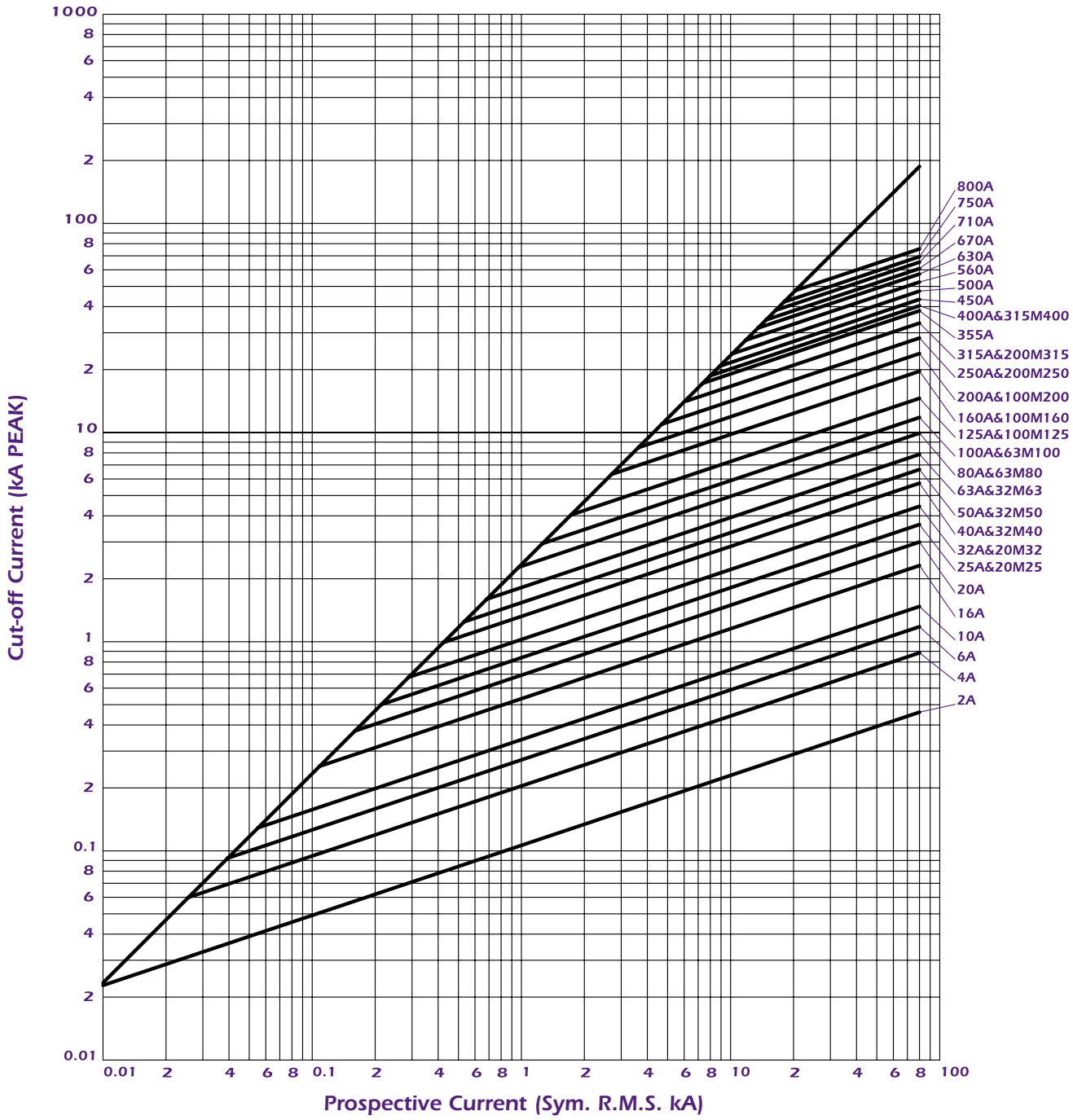


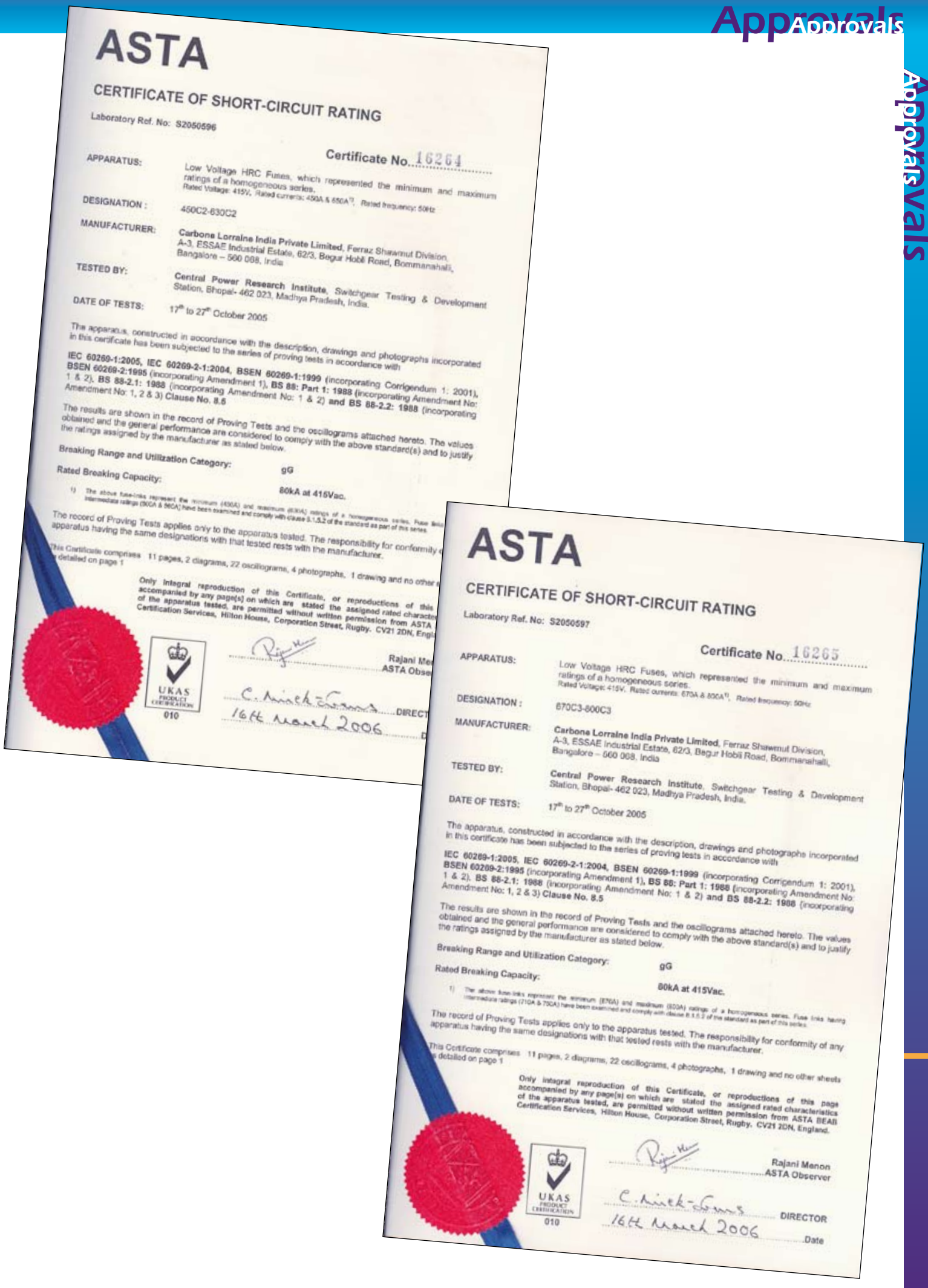
Curves Set F Type

Cut-off Current Characteristics

Cut-off Current Characteristics

Cut-off Current Characteristics A,B,C & F Type





ASTA

CERTIFICATE OF SHORT-CIRCUIT RATING

Laboratory Ref. No: S2050596

Certificate No. 16264

APPARATUS: Low Voltage HRC Fuses, which represented the minimum and maximum ratings of a homogeneous series.
Rated Voltage: 415V, Rated currents: 450A & 650A[1], Rated frequency: 50Hz

DESIGNATION : 450C2-630C2

MANUFACTURER: **Carbone Lorraine India Private Limited**, Ferraz Shawmut Division, A-3, ESSAE Industrial Estate, 62/3, Begur Hobli Road, Bommanahalli, Bangalore – 560 068, India

TESTED BY: **Central Power Research Institute**, Switchgear Testing & Development Station, Bhopal- 462 023, Madhya Pradesh, India.

DATE OF TESTS: 17th to 27th October 2005

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 60269-1:2005, IEC 60269-2-1:2004, BSEN 60269-1:1999 (incorporating Corrigendum 1: 2001), **BSEN 60269-2:1995** (incorporating Amendment 1), **BS 88: Part 1: 1988** (incorporating Amendment No: 1 & 2), **BS 88-2.1: 1988** (incorporating Amendment No: 1, 2 & 3) **Clause No. 8.5** and **BS 88-2.2: 1988** (incorporating

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as stated below.

Breaking Range and Utilization Category: gG

Rated Breaking Capacity: 80kA at 415Vac.

1) The above fuse-links represent the minimum (450A) and maximum (630A) ratings of a homogeneous series. Fuse links having intermediate ratings (500A & 560A) have been examined and comply with clause 8.1.5.2 of the standard as part of this series.

The record of Proving Tests applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the manufacturer.

This Certificate comprises 11 pages, 2 diagrams, 22 oscillograms, 4 photographs, 1 drawing and no other sheets as detailed on page 1

Only integral reproduction of this Certificate, or reproductions of this page accompanied by any page(s) on which are stated the assigned rated characteristics of the apparatus tested, are permitted without written permission from ASTA BEAB Certification Services, Hilton House, Corporation Street, Rugby. CV21 2DN, England.

UKAS PRODUCT CERTIFICATION 010

Rajani Menon
ASTA Observer

C. Mack-Grant
DIRECTOR

16th March 2006
Date

ASTA

CERTIFICATE OF SHORT-CIRCUIT RATING

Laboratory Ref. No: S2050597

Certificate No. 16265

APPARATUS: Low Voltage HRC Fuses, which represented the minimum and maximum ratings of a homogeneous series.
Rated Voltage: 415V, Rated currents: 670A & 800A[1], Rated frequency: 50Hz

DESIGNATION : 670C3-800C3

MANUFACTURER: **Carbone Lorraine India Private Limited**, Ferraz Shawmut Division, A-3, ESSAE Industrial Estate, 62/3, Begur Hobli Road, Bommanahalli, Bangalore – 560 068, India

TESTED BY: **Central Power Research Institute**, Switchgear Testing & Development Station, Bhopal- 462 023, Madhya Pradesh, India.

DATE OF TESTS: 17th to 27th October 2005

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 60269-1:2005, IEC 60269-2-1:2004, BSEN 60269-1:1999 (incorporating Corrigendum 1: 2001), **BSEN 60269-2:1995** (incorporating Amendment 1), **BS 88: Part 1: 1988** (incorporating Amendment No: 1 & 2), **BS 88-2.1: 1988** (incorporating Amendment No: 1, 2 & 3) **Clause No. 8.5** and **BS 88-2.2: 1988** (incorporating

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as stated below.

Breaking Range and Utilization Category: gG

Rated Breaking Capacity: 80kA at 415Vac.

1) The above fuse-links represent the minimum (670A) and maximum (800A) ratings of a homogeneous series. Fuse links having intermediate ratings (710A & 750A) have been examined and comply with clause 8.1.5.2 of the standard as part of this series.

The record of Proving Tests applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the manufacturer.

This Certificate comprises 11 pages, 2 diagrams, 22 oscillograms, 4 photographs, 1 drawing and no other sheets as detailed on page 1

Only integral reproduction of this Certificate, or reproductions of this page accompanied by any page(s) on which are stated the assigned rated characteristics of the apparatus tested, are permitted without written permission from ASTA BEAB Certification Services, Hilton House, Corporation Street, Rugby. CV21 2DN, England.

UKAS PRODUCT CERTIFICATION 010

Rajani Menon
ASTA Observer

C. Mack-Grant
DIRECTOR

16th March 2006
Date

Offset Bolted Tag Fuse Links (A-type)

Offset Bolted Tag Fuses Links (A-type) 550V / 690V ac

Reference data

Rated Voltage: 550V ac / 690V ac
Breaking Capacity: 80kA

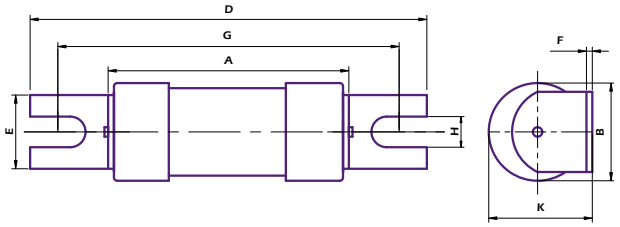
Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	BS Type Ref	Std. Pack
550	2	BNIT55V2	BS88-2	IEC60269-2	A1	10
	4	BNIT55V4	BS88-2	IEC60269-2	A1	10
	6	BNIT55V6	BS88-2	IEC60269-2	A1	10
690	10	BTIS69V10	BS88-2	IEC60269-2	A3	10
	16	BTIS69V16	BS88-2	IEC60269-2	A3	10
	20	BTIS69V20	BS88-2	IEC60269-2	A3	10
	25	BTIS69V25	BS88-2	IEC60269-2	A3	10
	32	BTIS69V32	BS88-2	IEC60269-2	A3	10
	36	BTIS69V36	BS88-2	IEC60269-2	A3	10
	40	BTIS69V40	BS88-2	IEC60269-2	A3	10
	50	BTIS69V50	BS88-2	IEC60269-2	A3	10
	63	BTIS69V63	BS88-2	IEC60269-2	A3	10
690	40	BTIS69V32M40	BS88-2	IEC60269-2	A3	10
	50	BTIS69V32M50	BS88-2	IEC60269-2	A3	10
	63	BTIS69V32M63	BS88-2	IEC60269-2	A3	10
690	10	BTCP69V10	BS88-2	IEC60269-2	A4C	5
	16	BTCP69V16	BS88-2	IEC60269-2	A4C	5
	20	BTCP69V20	BS88-2	IEC60269-2	A4C	5
	25	BTCP69V25	BS88-2	IEC60269-2	A4C	5
	32	BTCP69V32	BS88-2	IEC60269-2	A4C	5
	36	BTCP69V36	BS88-2	IEC60269-2	A4C	5
	40	BTCP69V40	BS88-2	IEC60269-2	A4C	5
	50	BTCP69V50	BS88-2	IEC60269-2	A4C	5
	63	BTCP69V63	BS88-2	IEC60269-2	A4C	5
690	80	BTCP69V80	BS88-2	IEC60269-2	A4	5
	100	BTCP69V100	BS88-2	IEC60269-2	A4	5
690	80	BTCP69V63M80	BS88-2	IEC60269-2	A4	5
	100	BTCP69V63M100	BS88-2	IEC60269-2	A4	5

Note :

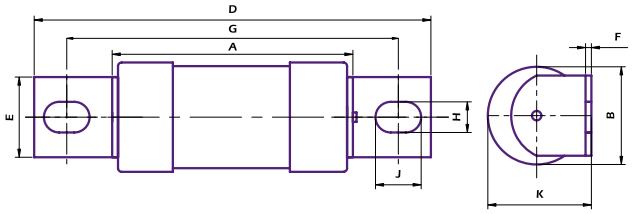
1. A4C represents compact dimensions with respect to BS88 / IEC60269 standards specified dimensions.

Offset Bolted Tag Fuses Links (A-type) - 550V / 690V ac

Dimensions



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	H nom	K max
A1	BNIT	2,4,6	35.5	13.5	56.0	11.2	0.8	44.5	4.8	14.5
A3	BTIS	10,16,20,25,32,36,40,50,63	57.0	26.9	88.5	13.0	1.2	73.0	5.5	28
A3	BTIS	32M40, 32M50, 32M63	57.0	26.9	88.5	13.0	1.2	73.0	5.5	28



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	J nom	H nom	K max
A4C	BTCP	10,16,20,25,32,36,40,50,63	59.5	26.9	111.0	19.5	2.4	94.0	11.0	8.7	28.5
A4	BTCP	80,100	67.0	36.1	111.0	19.5	3.2	94.0	11.0	8.7	38.5
A4	BTCP	63M80, 63M100	67.0	36.1	111.0	19.5	3.2	94.0	11.0	8.7	38.5

Electrical characteristics

Fuse Type	Rating (A)	Curve	I^2t (Ampere² seconds) Pre Arcing	Total	Watts Loss
BNIT	2	gG	1	5	0.9
BNIT	4	gG	7.6	38	1.5
BNIT	6	gG	28	140	1.8
BTIS/BTCP	10	gG	70	380	1.2
BTIS/ BTCP	16	gG	120	580	1.6
BTIS/ BTCP	20	gG	250	1450	1.7
BTIS/ BTCP	25	gG	420	2500	2.0
BTIS/ BTCP	32	gG	670	3900	2.9
BTIS/BTCP	36	gG	700	4500	3.6
BTIS/ BTCP	40	gG	1300	7400	4.0
BTIS/ BTCP	50	gG	2600	15000	4.8
BTIS/ BTCP	63	gG	4000	23000	5.9
BTIS	32M40	gM	1300	7400	2.6
BTIS	32M50	gM	2600	15000	2.0
BTIS	32M63	gM	4000	23000	1.6
BTCP	80	gG	8500	48500	6.5
BTCP	100	gG	14000	80000	7.5
BTCP	63M80	gM	8500	48500	4.0
BTCP	63M100	gM	14000	80000	3.0

Central Bolted Tag Fuse Links (B & C-Type)

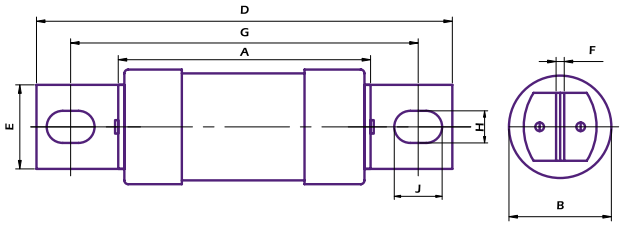
Reference data

Rated Voltage: 690V ac
Breaking Capacity: 80kA

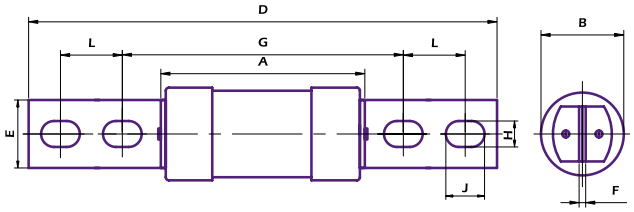
Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	BS Type Ref	Std. Pack
690	50	BTC69V50	BS88-2	IEC60269-2	B1	5
	63	BTC69V63	BS88-2	IEC60269-2	B1	5
	80	BTC69V80	BS88-2	IEC60269-2	B1	5
	100	BTC69V100	BS88-2	IEC60269-2	B1	5
690	80	BTC69V63M80	BS88-2	IEC60269-2	B1	5
	100	BTC69V63M100	BS88-2	IEC60269-2	B1	5
690	125	BTF69V125	BS88-2	IEC60269-2	B2	5
	160	BTF69V160	BS88-2	IEC60269-2	B2	5
	200	BTF69V200	BS88-2	IEC60269-2	B2	5
690	160	BTF69V125M160	BS88-2	IEC60269-2	B2	1
	200	BTF69V125M200	BS88-2	IEC60269-2	B2	1
690	250	BTMF69V250	BS88-2	IEC60269-2	B4	1
	315	BTMF69V315	BS88-2	IEC60269-2	B4	1
	355	BTMF69V355	BS88-1	IEC60269-2	B4	1
	400	BTMF69V400	BS88-1	IEC60269-1	B4	1
690	400	BTMF69V315M400	BS88-1	IEC60269-1	B4	1
690	250	BTM69V250	BS88-2	IEC60269-1	C1	1
	315	BTM69V315	BS88-2	IEC60269-2	C1	1
	355	BTM69V355	BS88-2	IEC60269-2	C1	1
	400	BTM69V400	BS88-2	IEC60269-2	C1	1
690	450	BTTM69V450	BS88-2	IEC60269-2	C2	1
	500	BTTM69V500	BS88-2	IEC60269-2	C2	1
	560	BTTM69V560	BS88-2	IEC60269-2	C2	1
	630	BTTM69V630	BS88-2	IEC60269-2	C2	1

Central Bolted Tag Fuse Links (B & C-Type) - 690V ac

Dimensions



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	H nom	J nom
B1	BTC	50,63,80,100	63.0	36.1	137.0	19.5	3.2	111.0	8.7	14.0
B1	BTC	63M80,63M100	63.0	36.1	137.0	19.5	3.2	111.0	8.7	14.0
B2	BTF	125A,160A,200A	73.0	41.9	138.0	19.5	3.2	111.0	8.7	14.0
B2	BTF	125M160, 125M200	73.0	41.9	138.0	19.5	3.2	111.0	8.7	14.0
B4	BTMF	250,315,355,400	75.0	59.1	138.0	26.0	4.8	111.0	8.7	14.0
B4	BTMF	315M400	75.0	59.1	138.0	26.0	4.8	111.0	8.7	14.0



BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	G nom	H nom	J nom	L nom
C1	BTM	250,315,355,400	75.0	59.1	212.0	26.0	4.8	133.0	10.3	16.0	25.4
C2	BTTM	450,500,560,630	83.0	74.4	212.0	26.0	6.3	133.0	10.3	16.0	25.4

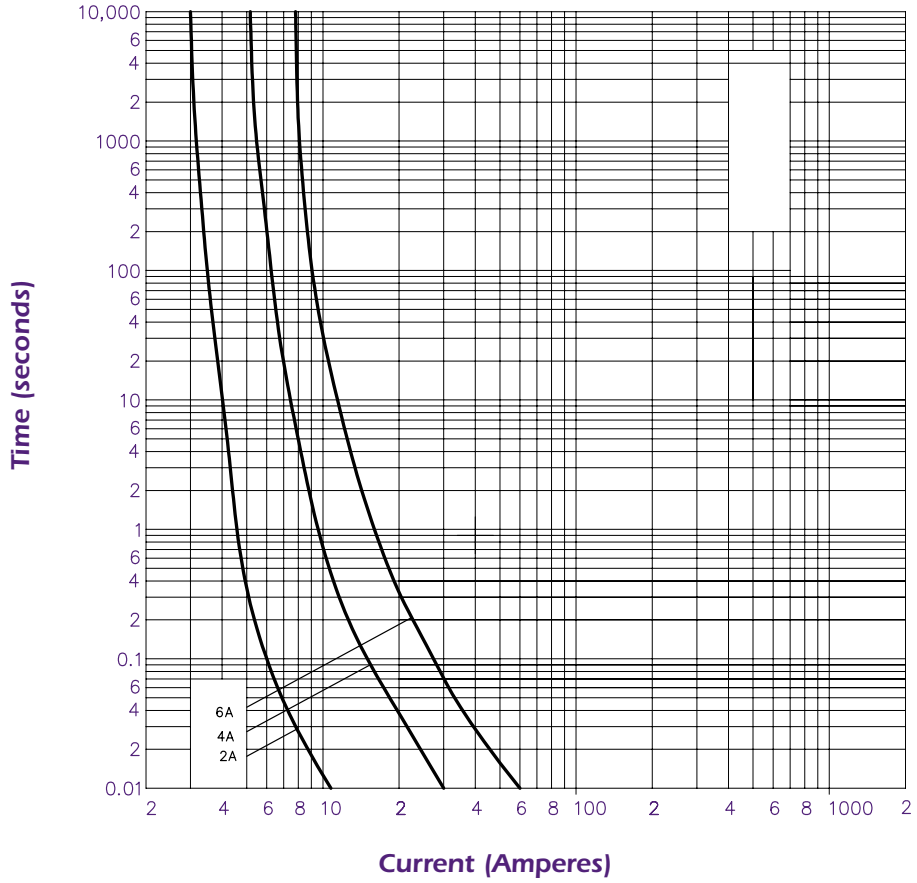
Electrical characteristics

Fuse Type	Rating (A)	Curve	I^2t (Ampere^2 seconds) Pre Arcing	Total	Watts Loss
BTC	50	gG	2600	15000	4.8
BTC	63	gG	4000	23000	5.9
BTC	80	gG	8500	48500	6.5
BTC	100	gG	14000	80000	7.5
BTC	63M80	gM	8500	48500	4.0
BTC	63M100	gM	14000	80000	3.0
BTF	125	gG	28000	140000	11.3
BTF	160	gG	60000	300000	14.0
BTF	200	gG	105000	350000	16.2
BTF	125M160	gM	60000	300000	8.5
BTF	125M200	gM	105000	350000	6.3
BTMF/BTM	250	gG	190000	700000	24
BTMF/BTM	315	gG	270000	1350000	31
BTMF/BTM	355	gG	395000	1975000	32
BTMF/BTM	400	gG	505000	2525000	38
BTMF	315M400	gM	505000	2525000	23.5
BTTM	450	gG	650000	3300000	42
BTTM	500	gG	850000	4250000	48
BTTM	560	gG	1200000	5800000	50
BTTM	630	gG	1546000	9800000	54

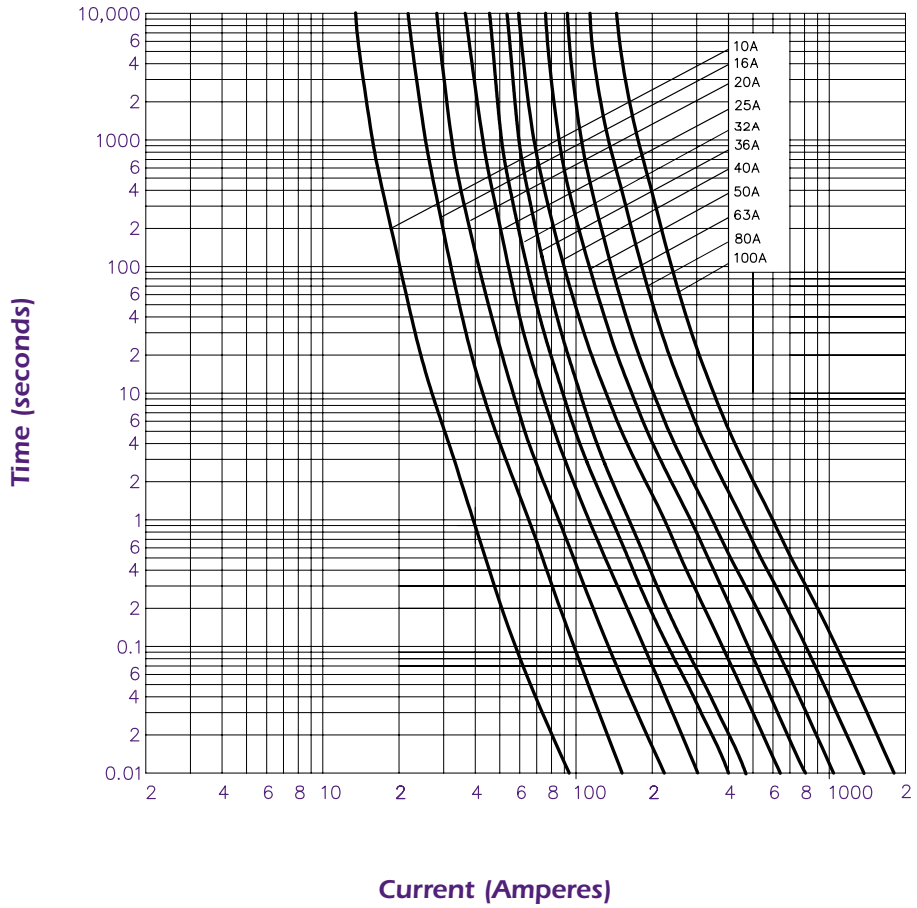
Central Bolted Tag Fuse Links (B & C-Type) - 690V ac

Time vs. Current characteristics

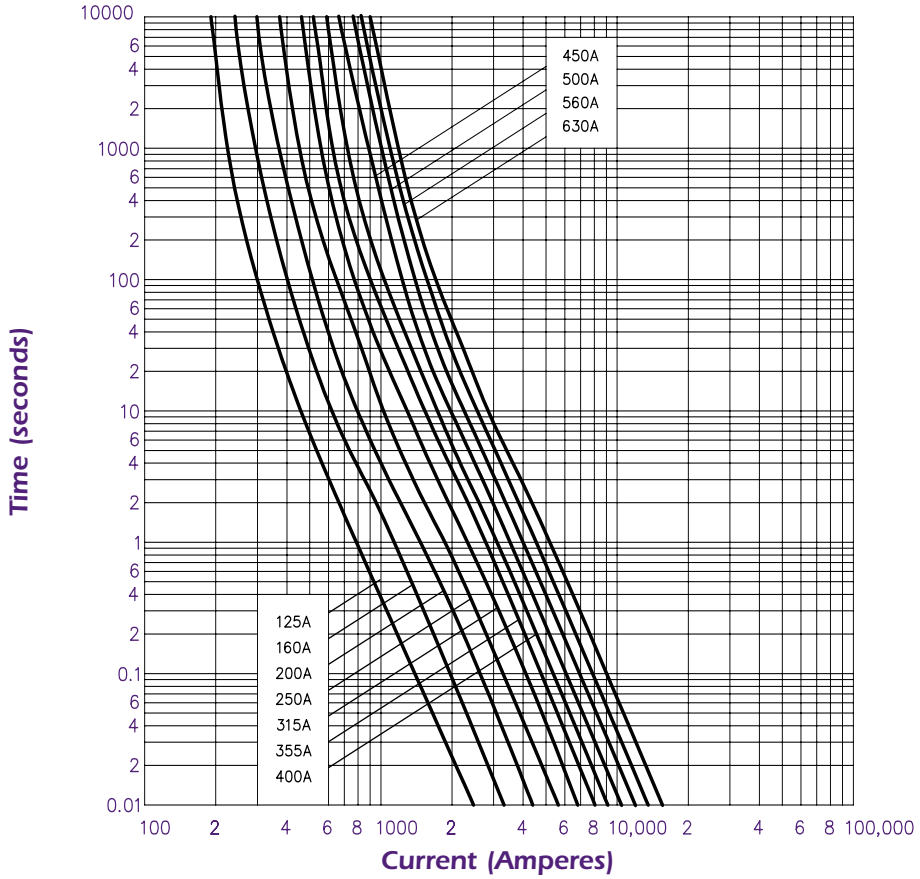
gG curves - 2 to 6A - 550V ac



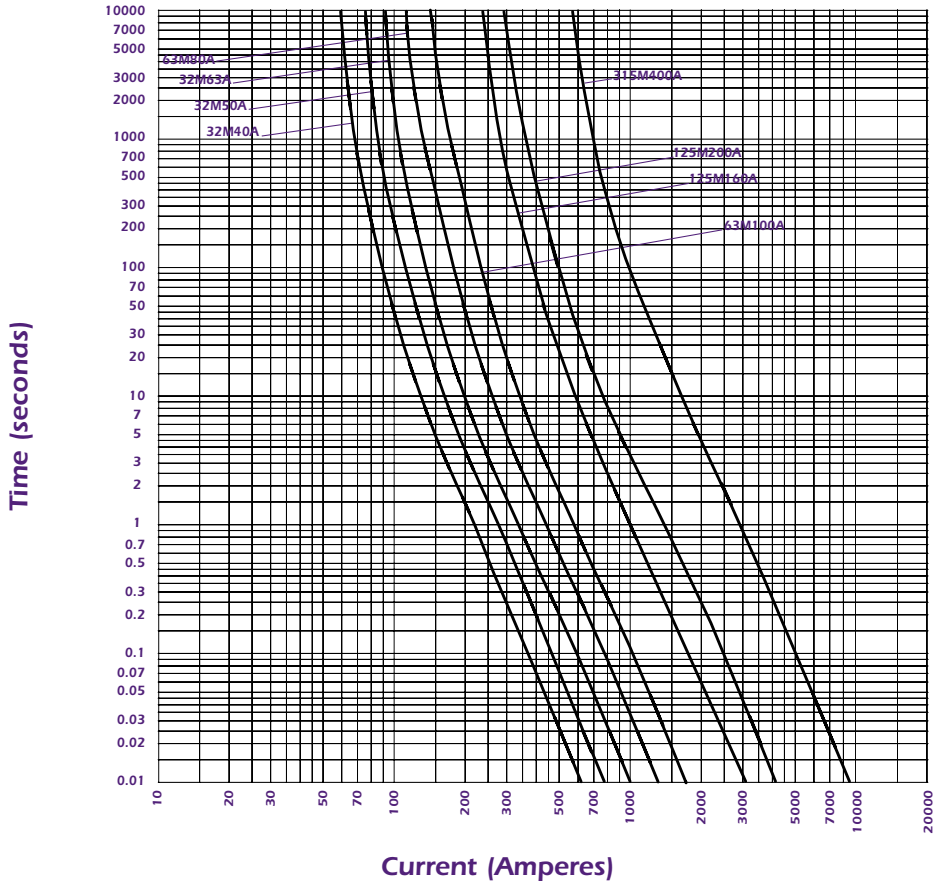
gG curves - 10 to 100A - 690V ac



gG curves - 125 to 630A - 690V ac



gM curves - 32M40 to 315M400A - 690V ac



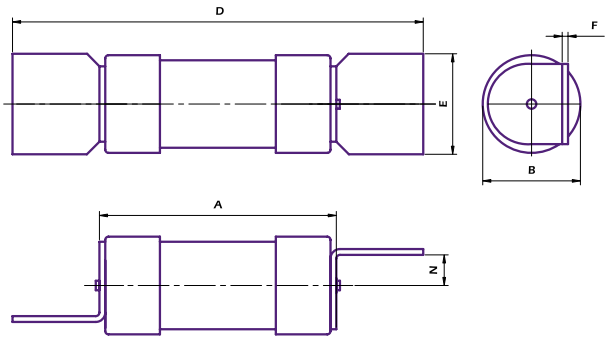
Offset Blade Tag Fuse Links (F-Type)

Reference data

Rated Voltage: 550V ac - Breaking Capacity: 80kA

Voltage (V)	Rating (A)	Catalog Number	BS Standard Reference	IEC Standard Reference	BS Type Ref	Std. Pack.
550	2	BNS55V2	BS88-6	IEC60269-2	F1	10
	4	BNS55V4	BS88-6	IEC60269-2	F1	10
	6	BNS55V6	BS88-6	IEC60269-2	F1	10
550	10	BES55V10	BS88-6	IEC60269-2	F2	10
	16	BES55V16	BS88-6	IEC60269-2	F2	10
	20	BES55V20	BS88-6	IEC60269-2	F2	10
	25	BES55V25	BS88-6	IEC60269-2	F2	10
	32	BES55V32	BS88-6	IEC60269-2	F2	10
	36	BES55V36	BS88-6	IEC60269-2	F2	10

Dimensions



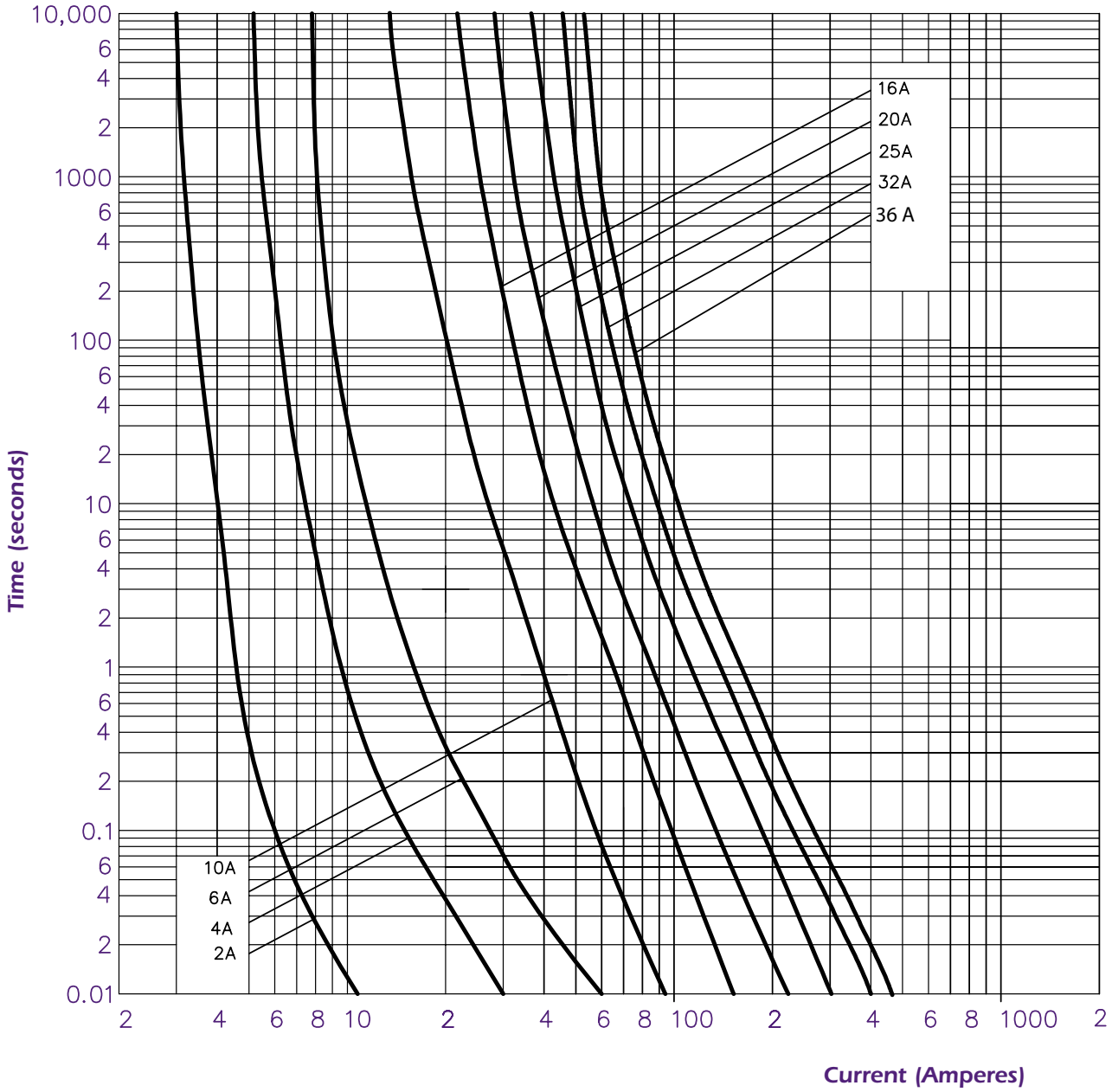
BS Ref	Fuse Type	Current Rating (A)	Dimensions (mm) A max	B max	D max	E max	F nom	N nom
F1	BNS	2,4,6	35.5	13.5	61.0	12.7	0.8	3.5
F2	BES	10,16,20,25,32,36	39.5	17.1	69.0	15.2	1.2	3.5

Electrical characteristics

Fuse Type	Rating (A)	Curve	I^2t (Ampere^2 seconds) Pre Arcing	Total	Watts Loss
BNS	2	gG	1	5	0.9
BNS	4	gG	7.6	38	1.5
BNS	6	gG	28	140	1.8
BES	10	gG	70	350	1.2
BES	16	gG	120	550	1.6
BES	20	gG	250	1250	1.7
BES	25	gG	420	2100	2.0
BES	32	gG	670	3350	2.9
BES	36	gG	700	4000	3.0

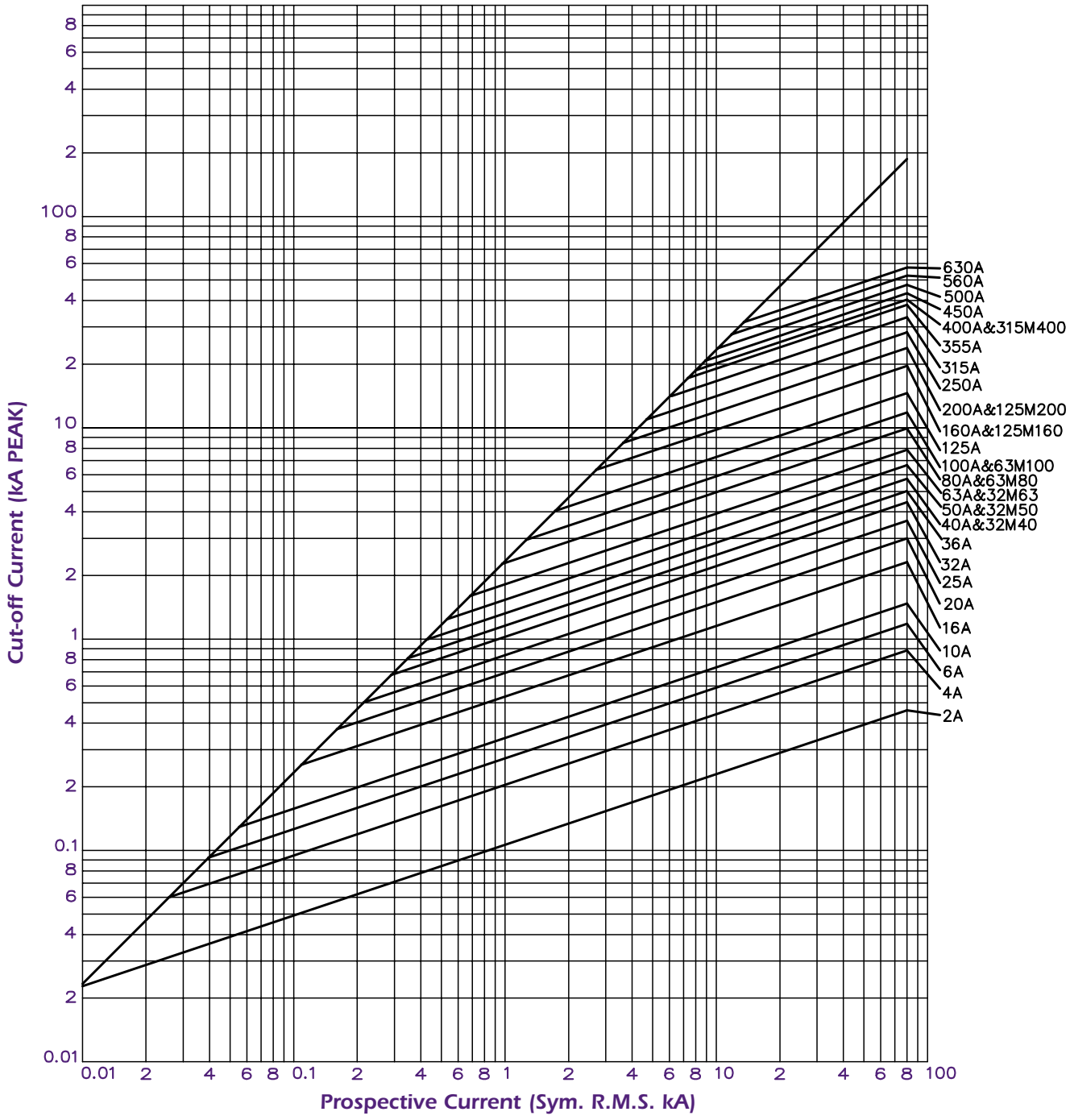
Time vs. Current characteristics

gG curves - 2 to 36A - 550V ac



Curves set for F-Type - 550V ac

Cut-off Current Characteristics A,B,C & F Type



Voltage rating selection

BS 88 fuses comply with IEC 60269 standards. They are tested under a voltage at least 10% higher than the fuse rated voltage.

Ambient Temperature

Above an ambient of 40°C a general de-rating of 0.5% of the fuse-link rated current per excess degree centigrade is recommended

Cable protection

gG fuses protect cables against both overload and short circuit current. The cable is protected when the following conditions are fulfilled:

$$I_B \leq I_N \leq I_Z$$
$$I_F \leq 1.45\ I_Z$$

I_B : operating current of the cable
I_Z : maximum current carrying capacity of the cable
I_N : rated current of the fuse
I_F : conventional fusing current of the fuse

Capacitor circuit protection

The fuse selection must take into account:
- the inrush current occurring when the capacitor is switched on
- the harmonic currents during the normal operation of the network
- Capacitor tolerances

The fuse link should be chosen with a current rating greater than 1.7 times the rated capacitor current. Correction for ambient temperature higher than 40°C must be added.

Transformer protection

Fuses must be fitted both in the primary and the secondary of the transformer. The fuse selection must take into account the high transient inrush current in the primary of the transformer. Consequently the normal current rating of the fuse links on the primary side of transformers should be at least twice the nominal transformer primary current. The normal I_N value of the fuse links on the secondary side of transformers is at least equal to the nominal transformer secondary current when the temperature does not exceed 40°C.

Motor circuit protection

The motor starters manufacturer generally recommend the fuse link rating to be used in conjunction with the motor starter. Type 2 co-ordination is easily obtained with FERRAZ SHAWMUT fuses in view of having the pre arcing I2t values closer to the lower limit of the specified limits of the standard. The gM fuse selection as for an aM fuse requires the melt current at 5s is 7 times the fuse rating.

Protection against electrical shock

The rule is to disconnect within a time specified by local standards. Generally wiring regulations require a disconnecting time not exceeding 5 seconds for a distribution circuit. It will be less than 1 second in many other cases. The maximum value of each fault loop impedeance (Z_s) for gG fuse link to BS88; Part 2 & 6 are as shown below :

Rating (A)	Z_s (Ohms)	Rating (A)	Z_s (Ohms)
6	14	100	0.44
10	7.7	125	0.35
16	4.3	160	0.27
20	3.0	200	0.20
25	2.4	250	0.16
32	1.9	315	0.13
40	1.4	400	0.092
50	1.1	500	0.067
63	0.86	630	0.056
80	0.60	800	0.035

for more information,
please contact our
Technical Support :
ts@fr.ferrazshawmut.com

BS88 Fuse Holders for Offset Blade Tag Fuse Links

BS88 Fuse Holders for Offset Blade Tag Fuse Links

Blue Dot fuse holders from Ferraz Shawmut comply with BS88 – 1 and BS88 – 6: 1988. The Blue Dot holders are designed to prevent direct contact with live parts when being inserted or removed, preventing any likelihood of inadvertent contact with live metal. Also, cable terminals within the fuse base are fully shrouded when holder is removed (Product is IP2X Classified).

Type of connection

BFF
Front wire connected (Front - front) 3 connection styles possible: Mounting on board with cable upstream and downstream

BBB
Back stud connected (Back-back) Mounting on board with two cables on the back (connection via lug, see table)

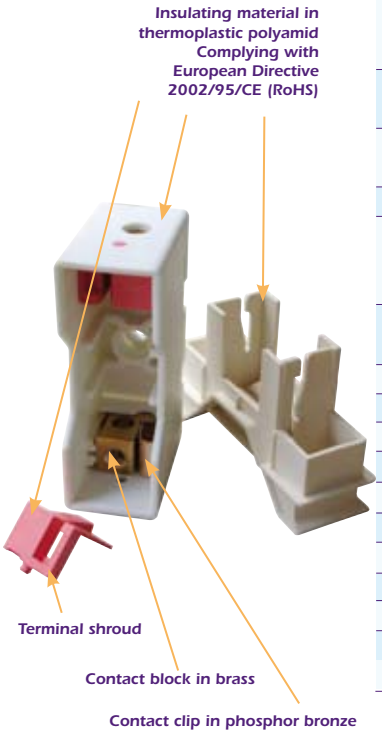
BFB
Front-back (busbar) stud connected

Mounting on board with upstream or downstream cable and back cable

Front wire connected

Blue Dot fuse holders are designed to be mounted on DIN rails 35mm.

Technical characteristics



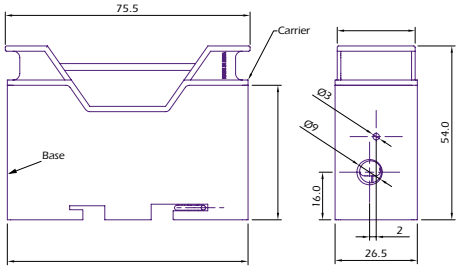
Specifications	for F1 Fuse links	for F2 Fuse links
3 kinds of electrical connections in Black,White & Green		
Front connected	BFF32F1	BFF63F2
Back connected	BBB32F1	BBB63F2
Bus bar/Front connected	BFB32F1	BFB63F2
Cable cross-section for front connection		
Min: 1 or 2 cables	1 mm²	1mm²
Max: 1 cable	16 mm²	25 mm²
Max: 2 Cables	10 mm²	16 mm²
Type of wire to be used: Copper Multi strand or single strand **Note:** Multistrand cable with maximum 17 strands. For more than 17 strands a circular sleeve at the end of cable is compulsary		
Lug diameter of the cable for Back & Bus bar Connection Terminal dia (refer **Note**)	M6	M8
DIN Rail Mounting for all kinds of connections	35 mm DIN Rail	
Whether the plastic material complies with RoHS	Thermoplastic Polyamid, RoHS compliant & Fire retardent	
Diameter of the screw to be used for panel mounting Deep base = 4 mm	M5 screw (Pan head /Cheese head)	
Max torque for the mounting screw on the panel	3.5 Nm	4 Nm
Max torque for the grub screw (back & bus bar connections)	3.5 Nm	4 Nm
ASTA Certificate number	16526	
Rated voltage	550V ac	550V ac
Rated current	32 A	63A
Rated peak withstand current @ 550V	80 kA	
Tool specification for tightening		
Electric Screw driver / Manual secrew driver - Max Torque setting	3.5 Nm	4 Nm
Screwdriver bit	Diameter 6 x 100mm	
with working edge thickness of 1mm and width of 7mm	0.8 x 4.8 mm	1 x 6 mm
U imp according IEC 60269-1	8 KV	

Ferraz Shawmut

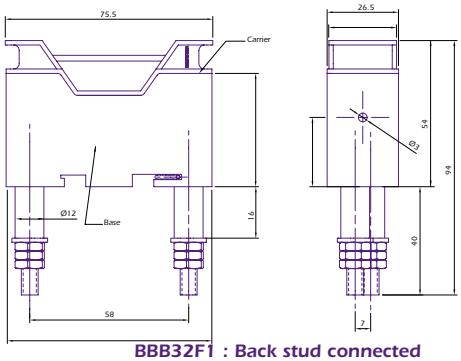
Blue Dot offering

BS Type Ref	Nominal Current	Color	Connection	Catalog Number	Standard Pack
F1	32	Black	front-front	BFF32F1	6
F1	32	Black	back-back	BBB32F1	6
F1	32	Black	front-back	BFB32F1	6
F1	32	White	front-front	BFF32F1W	6
F1	32	White	back-back	BBB32F1W	6
F1	32	White	front-back	BFB32F1W	6
F1	32	Green	front-front	BFF32F1G	6
F1	32	Green	back-back	BBB32F1G	6
F1	32	Green	front-back	BFB32F1G	6
F1	32	-	-	BNEUTRALF1	10
F2	63	Black	front-front	BFF63F2	6
F2	63	Black	back-back	BBB63F2	6
F2	63	Black	front-back	BFB63F2	6
F2	63	White	front-front	BFF63F2W	6
F2	63	White	back-back	BBB63F2W	6
F2	63	White	front-back	BFB63F2W	6
F2	63	Green	front-front	BFF63F2G	6
F2	63	Green	back-back	BBB63F2G	6
F2	63	Green	front-back	BFB63F2G	6
F2	63	-	-	BNEUTRALF2	10

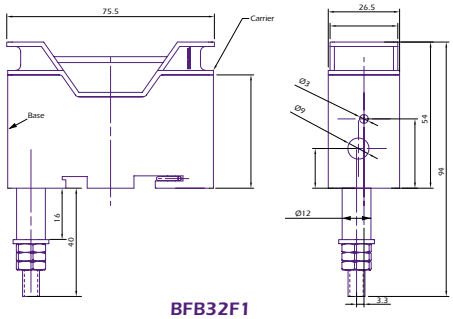
Dimensions - For F1 fuse range



BFF32F1 : Front wire connected

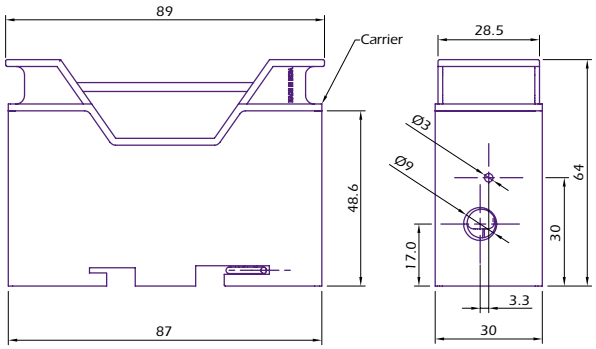


BBB32F1 : Back stud connected

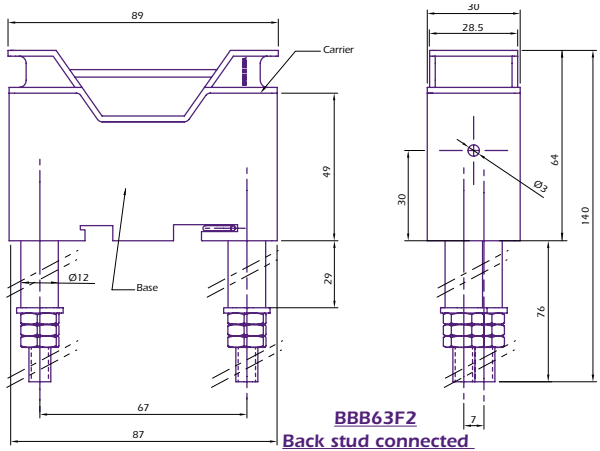


BFB32F1
Front-back (busbar) stud connected

For F2 fuse range

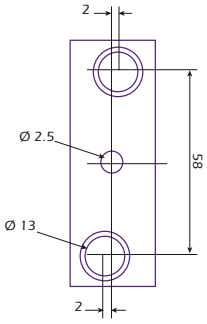


BFF63F2
Front wire connected

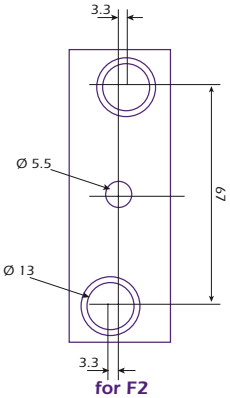


BBB63F2
Back stud connected

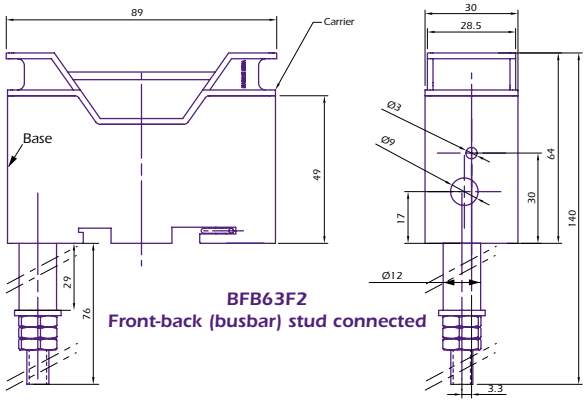
Panel Drilling Dimensions



for F1



for F2



BFB63F2
Front-back (busbar) stud connected

Comparison chart for BS88 LV Fuse links

Competitors		FERRAZ SHAWMUT	Ratings
NS-415 V	–	BNS42Vxx	2 - 32A
–	NSD-550V	BNS55Vxx	2 - 6A
ES-415V	–	BES42Vxx	10 - 63A
–	ESD-550V	BES55Vxx	10 - 36A
NIT-415V	–	BNIT42Vxx	2 - 32A
–	NITD-550V	BNIT55Vxx	2 - 6A
TSA-415V	–	BTIA42Vxx	2 - 32A
TSS-415V	–	BTIS42Vxx	40 - 63A
TSDS-415V	–	BTIS42Vxxx	80 - 100A
TSD-415V	–	BTCP42Vxxx	32 - 100A
TSFP-415V	DEO-415V	BTFP42Vxxx	125 - 200A
TSDC-415V	CD-415V	BTC42Vxxx	80 - 100A
TSF-415V	DD-415V	BTF42Vxxx	125 - 200A
TSK-415V	ED-415V	BTKF42Vxxx	250 - 315A
–	EFS-415V	BTKM42Vxxx	250 - 315A
TSM-415V	EF-415V	BTM42Vxxx	355 - 400A
TSMS-415V	–	BTMF42Vxxx	355 - 400A
TST / TSL-415V	–	BTTM42Vxxx	450 - 630A
TSL-415V	–	BTLM42Vxxx	670 - 800A
–	AAO-550V	BTIS69Vxx	10 - 63A
–	BAO-550V		
TIS-660V	–		
–	CEO-550V	BTCP69Vxxx	10 - 100A
–	OSD-550V		
TCP-660V	L14-690V		
–	BD-550V	BTC69Vxxx	50 - 100A
TC-660V	LO9-690V		
TF-660V	M09-690V	BTF69Vxxx	125 - 200A
TKF-660V	NO9/PO9-690V	BTMF69Vxxx	250 - 400A
TM-660	P11-690V	BTM69Vxxx	250 - 400A
–	FF-550V	BTTM69Vxxx	450 - 630A
TTM	R11-690V		

This list is intended for guidance only. Ferraz Shawmut do not guarantee identical performance for the comparative types. It is essential that the performance characteristics / dimensions are checked to ensure compatibility

Ferraz Shawmut Numbering System

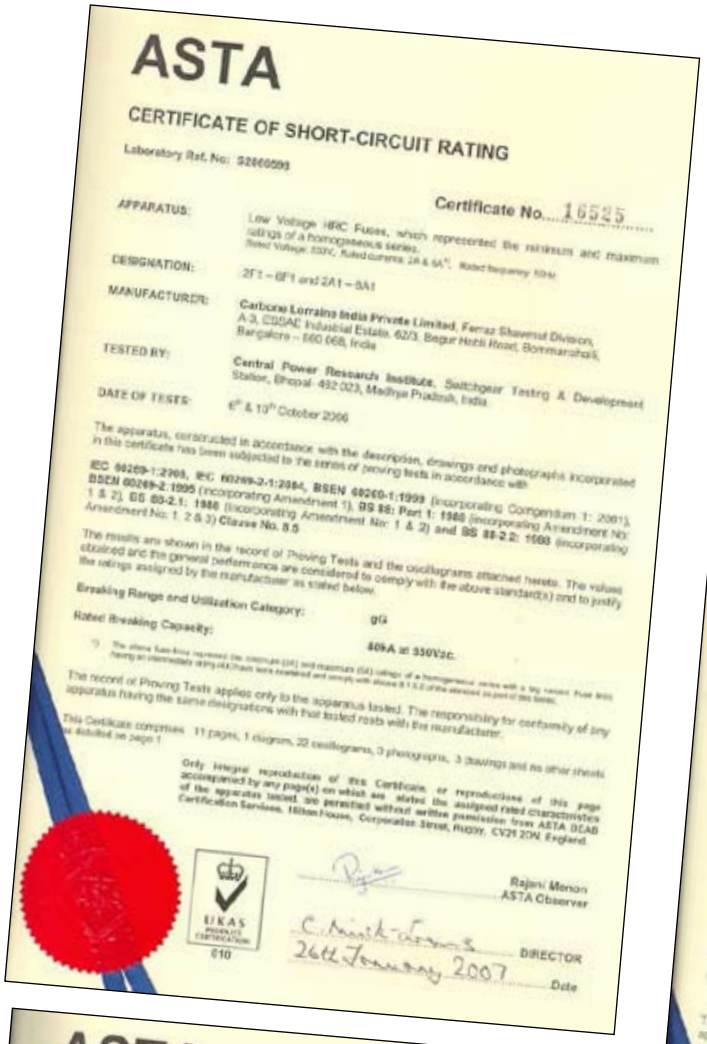
BS88 LV Industrial fuse links

General Purpose Application

B	TIS	69V	xxx
BS88	Part Number	Rated Voltage (690V AC)	Current Rating

Motor Application

B	TIA	42V	xxMxx
BS88	Part Number	Rated Voltage (415V AC)	Current Rating



ASTA

CERTIFICATE OF SHORT-CIRCUIT RATING

Laboratory Ref. No: 32060593

Certificate No. 16525

APPARATUS: Low Voltage HRC Fuses, which represented the minimum and maximum ratings of a homogeneous series.

DESIGNATION: 2F1 – 6F1 and 2A1 – 8A1

MANUFACTURER: Carbone Lorraine India Private Limited, Ferraz Shawmut Division, A-3, ESSAE Industrial Estate, 62/3, Begur Hobli Road, Bommanahalli, Bangalore – 560 068, India

TESTED BY: Central Power Research Institute, Switchgear Testing & Development Station, Bhopal- 462 023, Madhya Pradesh, India.

DATE OF TESTS: 6th & 13th October 2006

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 60269-1:2005, IEC 60269-2-1:2004, BSEN 60269-1:1999 (incorporating Corrigendum 1: 2001), BSEN 60269-2:1995 (incorporating Amendment 1), BS 88: Part 1: 1988 (incorporating Amendment No: 1 & 2), BS 88-2.1: 1988 (incorporating Amendment No: 1 & 2) and BS 88-2.2: 1988 (incorporating Amendment No: 1, 2 & 3) Clause No. 8.5

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as stated below.

Breaking Range and Utilization Category: gG

Rated Breaking Capacity: 80kA at 550Vac.

The record of Proving Tests applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the manufacturer.

This Certificate comprises 11 pages, 1 diagram, 22 oscillograms, 3 photographs, 3 drawings and no other sheets as detailed on page 1

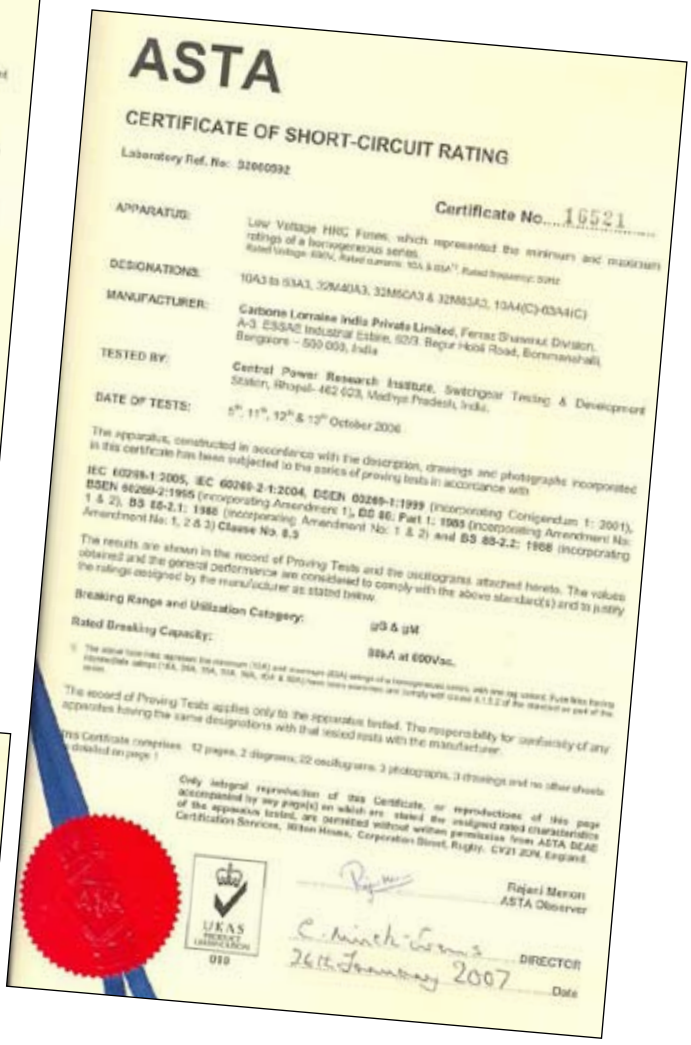
Only integral reproduction of this Certificate, or reproductions of this page accompanied by any page(s) on which are stated the assigned rated characteristics of the apparatus tested, are permitted without written permission from ASTA BEAB Certification Services, Hilton House, Corporation Street, Rugby, CV21 2DN, England.

UKAS PRODUCT CERTIFICATION 010

Rajani Menon
ASTA Observer

DIRECTOR

26th January 2007 Date



ASTA

CERTIFICATE OF SHORT-CIRCUIT RATING

Laboratory Ref. No: 32060592

Certificate No. 16521

APPARATUS: Low Voltage HRC Fuses, which represented the minimum and maximum ratings of a homogeneous series.

DESIGNATIONS: 10A3 to 63A3, 32M40A3, 32M63A3 & 32M63A3, 10A4(C)-63A4(C)

MANUFACTURER: Carbone Lorraine India Private Limited, Ferraz Shawmut Division, A-3, ESSAE Industrial Estate, 62/3, Begur Hobli Road, Bommanahalli, Bangalore – 560 068, India

TESTED BY: Central Power Research Institute, Switchgear Testing & Development Station, Bhopal- 462 023, Madhya Pradesh, India.

DATE OF TESTS: 5th, 11th, 12th & 13th October 2006

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 60269-1:2005, IEC 60269-2-1:2004, BSEN 60269-1:1999 (incorporating Corrigendum 1: 2001), BSEN 60269-2:1995 (incorporating Amendment 1), BS 88: Part 1: 1988 (incorporating Amendment No: 1 & 2), BS 88-2.1: 1988 (incorporating Amendment No: 1 & 2) and BS 88-2.2: 1988 (incorporating Amendment No: 1, 2 & 3) Clause No. 8.5

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as stated below.

Breaking Range and Utilization Category: gG & gM

Rated Breaking Capacity: 80kA at 690Vac.

The record of Proving Tests applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the manufacturer.

This Certificate comprises 12 pages, 2 diagrams, 22 oscillograms, 3 photographs, 3 drawings and no other sheets as detailed on page 1

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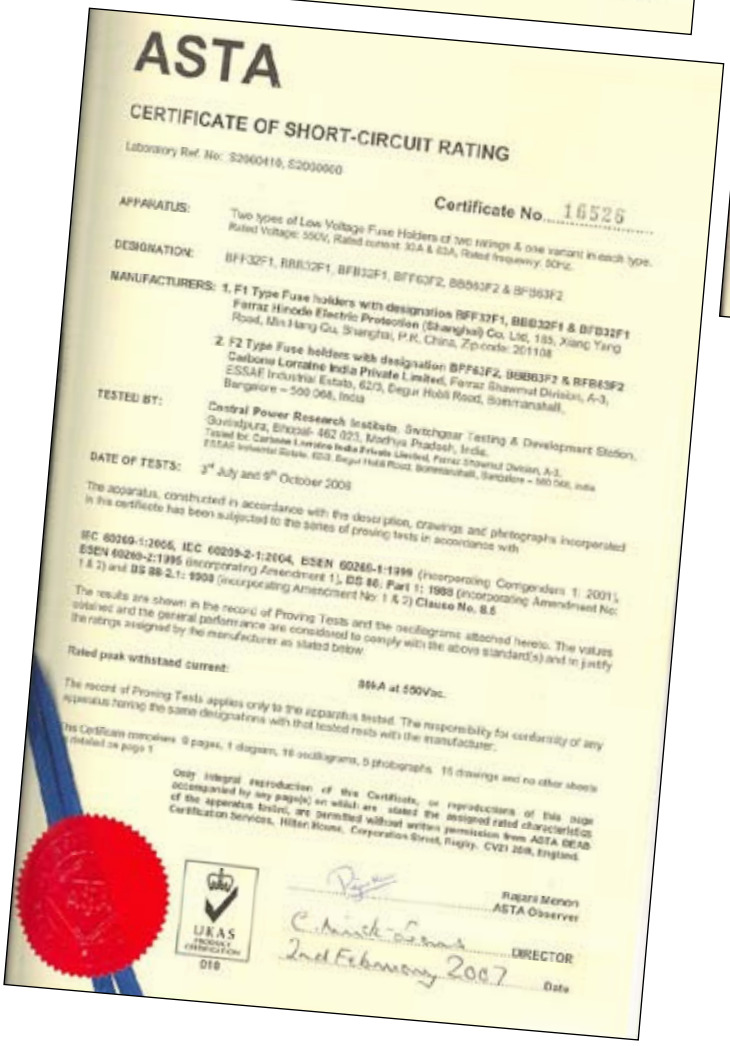
UKAS PRODUCT CERTIFICATION 010

Rajani Menon
ASTA Observer

DIRECTOR

26th January 2007 Date



ASTA

CERTIFICATE OF SHORT-CIRCUIT RATING

Laboratory Ref. No: S2060416, S2060060

Certificate No. 16525

APPARATUS: Two types of Low Voltage Fuse Holders of two ratings & one variant in each type. Rated Voltage: 550V, Rated current: 80A & 63A, Rated frequency: 50Hz.

DESIGNATION: BFF32F1, BBB32F1, BFB32F1, BFF63F2, BBB63F2 & BFB63F2

MANUFACTURERS: 1. F1 Type Fuse holders with designations BFF32F1, BBB32F1 & BFB32F1
Ferraz Hinode Electric Protection (Shanghai) Co. Ltd, 185, Xiang Yang Road, Min Hang Qu, Shanghai, P.R. China, Zip code: 201108

2. F2 Type Fuse holders with designation BFF63F2, BBB63F2 & BFB63F2
Carbone Lorraine India Private Limited, Ferraz Shawmut Division, A-3, ESSAE Industrial Estate, 62/3, Begur Hobli Road, Bommanahalli, Bangalore – 560 068, India

TESTED BY: Central Power Research Institute, Switchgear Testing & Development Station, Govindpura, Bhopal- 462 023, Madhya Pradesh, India.
Tested for: Carbone Lorraine India Private Limited, Ferraz Shawmut Division, A-3, ESSAE Industrial Estate, 62/3, Begur Hobli Road, Bommanahalli, Bangalore – 560 068, India

DATE OF TESTS: 3rd July and 9th October 2006

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 60269-1:2005, IEC 60269-2-1:2004, BSEN 60269-1:1999 (incorporating Corrigendum 1: 2001), BSEN 60269-2:1995 (incorporating Amendment 1), BS 88: Part 1: 1988 (incorporating Amendment No: 1 & 2) and BS 88-2.1: 1988 (incorporating Amendment No: 1 & 2) Clause No. 8.5

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as stated below.

Rated peak withstand current: 80kA at 550Vac.

The record of Proving Tests applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the manufacturer.

This Certificate comprises 9 pages, 1 diagram, 16 oscillograms, 5 photographs, 16 drawings and no other sheets as detailed on page 1

Only integral reproduction of this Certificate, or reproductions of this page accompanied by any page(s) on which are stated the assigned rated characteristics of the apparatus tested, are permitted without written permission from ASTA BEAB Certification Services, Hilton House, Corporation Street, Rugby, CV21 2DN, England.

UKAS PRODUCT CERTIFICATION 010

Rajani Menon
ASTA Observer

DIRECTOR

2nd February 2007 Date