

COOPER

Bussmann®

Productivity Through Protection™

Circuit Protection Solutions

Full Line Catalog



Table of contents

RED indicates NEW information

Selecting Circuit Protection	2	High Speed Fuses	87
2005 NEC® guide to fuse selection for various applications	2-6	General Applications	88-89
Low Voltage, Branch Circuit Rated Fuses	7	North American fuses & accessories	90-106
Holders & blocks for branch circuit rated fuses	8-10	Square body fuses & accessories	107-180
Dimensions data for branch circuit rated fuses	11-12	British BS 88 fuses & accessories	181-190
CUBEFuse™ Class J fuse & holder system	13-14	Ferrule fuses & accessories	191-212
Low-Peak LPJ_SP Class J fuses	15	IEC & British Standard Fuses	213
Low-Peak LPN-RK_SP & LPS-RK_SP Class RK1 fuses	16-18	Application Data	213-214
Low-Peak LP-CC Class CC fuses	19	CSA Type P & Type D fuses	215
Low-Peak KRP-C_SP & KRP-CL Class L fuses	20-21	Tron HRC Form II Class C fuses	216
Fusetron FRN-R (250V) & FRS-R (600V) Class RK5 fuses	22-23	HRCI industrial ceramic body fuses	217
Limitron JKS Class J fuses	25	HRCI-J fast-acting fuses	218
Limitron KTN-R (250V) & KTS-R (600V) Class RK1 fuses	26-27	HRCI-miscellaneous Type K fuses	219
Limitron KTK-R Class CC fuses	28	HRC Form II current-limiting fuses	220
Limitron KTU & KLU Class L Fuses	29	BS 88 British Standard low voltage fuses	221-222
Dura-Lag DLN-R (250V) & DLS-R (600V) Class RK5 fuses	30	DIN Type D & Neozed low voltage fuses	223
CC-Tron FNO-R Class CC fuses	31	NH HRC fuses	224-225
T-Tron JNN (300V) & JJS (600V) Class T fuses	32-33	NH low voltage fuses	226
SC Class G fuses	34	Class gG/gL & aM IEC industrial ferrule fuses	227-228
NON (250V) & NOS (600V) general purpose Class K5 & H fuses	35	Class aM & gG/gL IEC industrial ferrule fuses with striker	229
Plug fuses (S, T, W, SL and TL), Fusestat fuse adapters	36-37	HRC fuse holders	230
Low Voltage Supplementary Fuses	39	Fuse Holders and Blocks	231
Holders & blocks for supplementary fuses	40-41	Optima fuse holder modules	232-233
Cable (K Series) & Welder (64000/68000 Series) Limiters	42	Optima 3-pole overcurrent protection modules	234-235
$\frac{1}{2}$ " x 1 $\frac{1}{2}$ " (BAF, BAN, KTK & KLM, DCM, FNM & FNO) fuses	43-45	Class J modular fuse holders	236
$\frac{3}{32}$ " x 1 $\frac{3}{8}$ " (BBS & KTO) fuses	46	Safety J™ Class J (finger-safe) fuse holders	237-238
GBA/GLD, MIC & MIN. FNA, MIS & KAZ pin indication fuses	47-48	Global modular fuse holders	239-240
ANN & ANL Limiters	48	SAMI™ fuse covers	241
ATC, ATM & MAX automotive blade-type fuses & holders	49-50	Class H(K) & R 250V & 600V fuse blocks	242-247
GLO & GMQ In-line size rejecting fuses & holders	51	Class J fuse blocks	248-250
GLR & GMF/GRF In-line non- rejecting fuses & holders	52	Class T 300V & 600V fuse blocks	251-254
Electronic - PCB & Small Dimension fuses	53	Add-a-pole Class CC & $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " fuse blocks	255
5 x 15mm ferrule fuses	54	Class CC, Type M & Class G fuse blocks	256
5 x 20mm European (IEC) ferrule fuses	55	Modular fuse blocks	257
5 x 20mm North American (UL) ferrule fuses	56	Box cover units for plug fuses	258
$\frac{1}{4}$ " Diameter x $\frac{3}{8}$ " to 1" length ferrule fuses	57	In-line fuse holders	259-260
$\frac{1}{4}$ " Diameter x 1 $\frac{1}{4}$ " length fast-acting ferrule fuses	58	Tron in-line fuse holders	261-262
$\frac{1}{4}$ " Diameter x 1 $\frac{1}{4}$ " length time-delay ferrule fuses	59	Panel mounted fuse holders (including indicating)	263-269
PC board mount fuse holders	60-61	Fuse blocks for $\frac{1}{4}$ " x 1 $\frac{1}{4}$ " & $\frac{1}{4}$ " x 1" and fuses	270-271
PC board fuseclips for 5mm diameter fuses	62-65	Fuse blocks for $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " fuses	272
Medium Voltage Fuses	67	Rail mount fuse holders	273
Introduction	68	Power Distribution Blocks	275
BBU boric acid fuses	69-70	163 Series	276-277
E-rated fuses: CL-14 & bolt-in	71-72	Series 11675 & 11725	278
E-rated fuses for transformers & feeders	73-76	Series 160, 162, 163 & 165 distribution blocks	278
R-Rated fuses for motor circuit protection	77-79	Series 162, 163 & 165 power stud blocks	279
British Standard IEC fuses for motor circuit protection	80	Series 160, 162, 163 & 165 power splicer blocks	279
DIN IEC fuses for transformers	81	Series 14002 & 14004 terminal blocks	280
Potential transformer fuses	82	Wire Connection Products	281
Fast-acting fuses	83	Rail mount terminal & disconnect terminal blocks	282-286
British Standard IEC fuses for oil filled switchgear	84	Sectional terminal blocks	287-288
EEI-NEMA Type K & T, and Type H & N fuses	85	Quick connect terminal blocks	289
Fuse clips for medium voltage fuses	86	Series TB (100, 200 & 300) double row terminal blocks	290-295
		Marking options & covers for double row terminal blocks	296-297
		Series TB 400 & KU double row terminal blocks	298-299
		Series TS standard, flat & raised base terminal blocks	300-302

Cooper Bussmann circuit protection solutions comply with major industrial standards and agency requirements such as BS, IEC, DIN, UL, NEMA, CSA, CE, C-UL, etc. and are manufactured at facilities that are ISO 9000 certified.

This catalog is intended to present product data and provide technical information that will help the end user with design application. Cooper Bussmann reserves the right, without notice, to change design or construction or any products and to discontinue or limit distribution of any products. Cooper Bussmann also reserves the right to change or update, without notice, any technical information contained in this catalog. Once a product has been selected, it should be tested by the user in all possible applications. Further, Cooper Bussmann takes no responsibility for errors or omissions contained in this catalog, or for mis-application of any Cooper Bussmann product. Extensive product information is available in the Bussmann product data sheets available on line at www.cooperbussmann.com/products/datasheet.asp. ©2005 Cooper Bussmann



Cooper Bussmann Cross Reference & Upgrade

The left column represents Cooper Bussmann and competitors' part numbers. The right column represents the Cooper Bussmann upgrades.

CLASS CC and MIDGET	
Existing Fuse	LOW-PEAK® UPGRADE
A6Y type 2B	LP-CC
ABU	
AGU	
ATDR	
ATM	
ATMR	
ATQ	
BAF	
BAN	
BLF	
BLN	
CCMR	
CM	
CMF	
CNM	
CNQ	
CTK	
CTK-R	
FLM	
FLM	
FLQ	
FNM	
FNQ	
FNW	
GGU	
HCLR	
KLK	
KLK-R	
KTK	
KTK-R	
MCL	
MEN	
MEQ	
MOF	
MOL	
OTM	
TRM	
6JX	LP-CC



The Cooper Bussmann fuse upgrade offers superior performance while reducing the number of SKU's that need to be in stock. Low-Peak® fuses feature a high degree of current limitation, which will provide the best component protection and may reduce the arc-flash hazard. Listings are numerical-alpha by fuse class and fuse catalog symbol. Do you have a part that does not appear in the list? This list is only a consolidated cross-reference to some of our most common products. For a much more extensive database please consult the competitor cross-reference on www.cooperbussmann.com or contact Customer Satisfaction at (636) 527-3877

CLASS R 250V	
Existing Fuse	LOW-PEAK® UPGRADE
A2D	LPN-RK_SP
A2D-R	
A2K	
A2K-R	
A2Y type 1	
AT-DE	
CHG	
CRN-R type 3	
CTN-R	
DEN	
DLN	
DLN-R	
ECN	
ECN-R	
ERN	
FLN	
FLN-R	
FRN	
FRN-R	
FTN-R	
GDN	
HAC-R	
HB	
KLN-R	
KON	
KTN-R	
LENRK	
LKN	
LLN-RK	
LON-RK	
NCLR	
NLN	
NON	
NRN	
OTN	
OTN	
REN	
RFN	
RFN	
RHN	
RLN	
TR	
655	
660	
10KOTN	
50KOTN	LPN-RK_SP



CLASS R 600V	
Existing Fuse	LOW-PEAK® UPGRADE
A6D	LPS-RK_SP
A6K-R	
A6K-R	
A6X type 1	
ATS-DE	
CHR	
CTS-R	
DES	
DES-R	
DLS	
DLS-R	
ECS-R	
ERS	
FLS	
FLS-R	
FRS	
FRS-R	
FTS-R	
GDS	
HA	
KLS-R	
KOS	
KTS-R	
LES	
LES-R	
LES-RK	
LKS	
LLS-RK	
LOS-RK	
NLS	
NOS	
NRS	
OTS	
RES	
RFS	
RHS	
RLS	
SCLR	
TRS	
TRS-R	
656	
10KOTS	
50KOTS	LPS-RK_SP



ATQR	FNQ-R
FNQ-R	FNQ-R
KLDR	FNQ-R

FNQ-R suggested on primary of control transformers

CLASS J	
Existing Fuse	LOW-PEAK® UPGRADE
A4J	LPJ_SP
AJT	
CJ	
CJS	
GF8B	
HRCXXJ	
J	
JA	
JCL	
JDL	
JFL	
JHC	
JKS	
JLS	
JTD	LPJ_SP



CLASS L	
Existing Fuses	LOW-PEAK® UPGRADE
A4BQ	KRP-C_SP
A4BT	
A4BY	
A4BY type 55	
CLASS L	
CLF	
CLL	
CLU	
HRC-L	
KLLU	
KLPC	
KLU	
KTU	
L	
LCL	
LCU	KRP-C_SP



The comparative catalog numbers shown were derived from the latest available published information from various manufacturers. Because competitors' products may differ from Cooper Bussmann products, it is recommended that each application be checked for required electrical and mechanical characteristics before substitutions are made. Cooper Bussmann is not responsible for misapplications of our products.

Overcurrent protection is application dependent. Consult latest catalogs and application literature, or contact our Application Engineering Department at (636) 527-1270.

Cooper Bussmann Products And Technical Support Delivered Worldwide

Customer Assistance

Customer Satisfaction Team

The Cooper Bussmann Customer Satisfaction Team is available to answer questions regarding Cooper Bussmann products and services. Calls should be made between 8:00 a.m. – 4:30 p.m. Central Time for all US time zones.

The Customer Satisfaction Team can be reached via:

- Phone: 636-527-3877
- Toll-free fax: 800-544-2570
- E-mail: fusebox@buss.com

Application Engineering

Application Engineering assistance is available to all customers. The Application Engineering team is staffed by degreed electrical engineers and available by phone with technical and application support Monday – Friday, 8:00 a.m. – 5:00 p.m. Central Time.

Application Engineering can be reached via phone, fax or email:

- Phone: 636-527-1270
- E-mail: fusetech@buss.com

Emergency and After-Hours Orders

To accommodate time-critical needs, Cooper Bussmann offers emergency and after-hours service for next flight out or will call. Customers pay only standard price for the circuit protection device, rush freight charges and a modest emergency fee for this service. Emergency and after-hours orders should be placed through the Customer Satisfaction Team. Call:

- 8:00 a.m.-4:30 p.m. Central Time 636-527-3877
- After hours 314-995-1342

Your Authorized Bussmann Distributor is:



COOPER Lighting



COOPER Crouse-Hinds



COOPER Power Systems



COOPER Wiring Devices



COOPER B-Line



©2005 Cooper Bussmann • St. Louis, MO 63178
636-394-2877 • www.cooperbussmann.com

Printed in USA

COOPER Bussmann
Reorder #1007 7-05-30M

Table of contents

RED indicates **NEW** information

		Page	
Disconnects	303	Catalog Sections	Low Voltage Branch Circuit
Safety Module™ fused disconnect switch	304	Low Voltage, Branch Circuit Rated Fuses	7
Coordination Module™ fused panelboard	305	Low Voltage Supplementary Fuses	39
Power Module™ elevator disconnects	306	Electronic - PC Board and Small Dimension Fuses	53
Overview for fusible disconnects	307	Medium Voltage Fuses and Fuse Links	67
30A Base & rail mount fusible disconnects	308-309	High Speed Fuses	87
60-100A Base & rail mount fusible disconnects	310-311	IEC & British Standard Fuses	213
200-800A Base & rail mount fusible disconnects	312-313	Fuse Holders and Blocks	231
30-800A 2-, 3-, 4- & 6-Pole enclosed fusible disconnects	314-317	Power Distribution Blocks	275
Overview for non-fusible disconnects	318-319	Wire Connection Products	281
16-100A Base & rail mount non-fusible disconnects	320-321	Disconnects	303
16-100A door mounted non-fusible disconnects	322	Telecom Protection Devices	331
400-800A Non-fusible disconnects & accessories	323-324	Surge Suppression Devices	351
16-80A 3-Pole enclosed non-fusible disconnects	325	TVS transient voltage surge suppressors	352
16-3150A 3-Pole enclosed non-fusible disconnects	326	TVSS transient surge suppression limiters	353
16-400A 2-, 4- & 6-Pole enclosed non-fusible disconnects	327-328	Accessories	354
A/C disconnects - fused and non-fused	329	Fuse service kits & assortments	355-357
Fused, dead front disconnect switches	330	Clip clamps & rail adapters (DIN & American)	358
Telecom Protection Devices	331	Spare fuse holders, pullers, testers & cabinets	359
Telpower TPC & TPCDS compact fused disconnect switches	332	Fuse reducers & dummy "neutrals"	360
Telpower TPM & TPMDS miniature fused disconnect switches	333	Application Guide	361
Fused disconnect switches for TPA fuses	334-335	Cooper Bussmann Electrical Safety Services	262
Fused disconnect switches for TPS fuses	336	Fuse technology	363-369
Fused disconnect switches	337-338	Motor circuit branch circuit protection	370
Telpower high-current switch	339	Conductor & termination considerations	371-373
Telpower 70-600A: 170Vdc fuses	340	Glossary	374-376
Telpower 1-600A: 170Vdc fuses	341	Out-of-stock substitution/upgrades	376
Indicating fuses & holders	342-343	Cooper Bussmann electrical trademarks	376
Telpower specialty fuses	344-345	Industrial & commercial fuse applications	377-378
F38, FE2475 & F7036 Series filtered terminal blocks	346-348	Catalog Number Index	379-383
Series C7021 & C7024 power feed thru terminal blocks	349-350	Sales support & manufacturing facilities	384
Surge Suppression Devices	351	Cross reference and Low-Peak® Fuse Stock Consolidation Inside back cover	
Accessories	354		
Application Guide	361		
Index by Part Number	379		

Low Voltage, Branch Circuit Rated Fuses

Selecting circuit protection

The following fuse selection guides are based on the 2005 NEC® and provided fuse recommendations for the various applications listed.

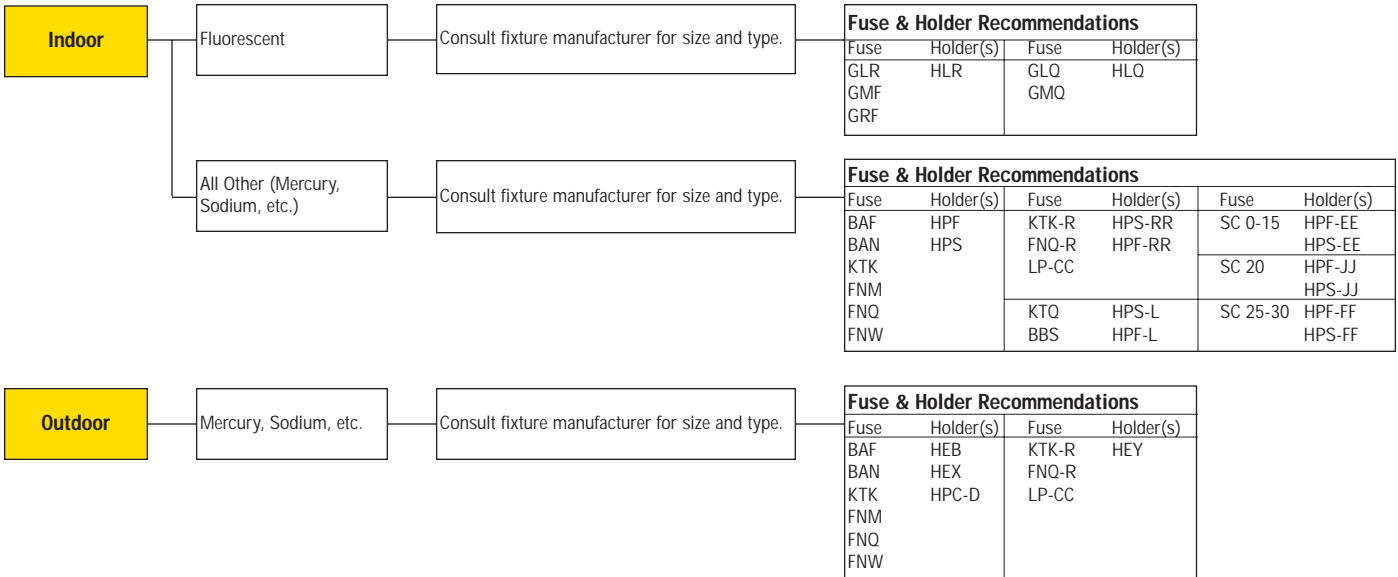
These are only suggestions. Final fuse selection should be performed only by a qualified personnel able to fully assess an application's circuit protection requirements. If you need assistance in selecting a fuse for a particular application, call the Cooper Bussmann Application Engineering team. This

team is staffed by degreed electrical engineers and available by phone for technical and application support Monday – Friday, 8:00 a.m. – 5:00 p.m. Central Time.

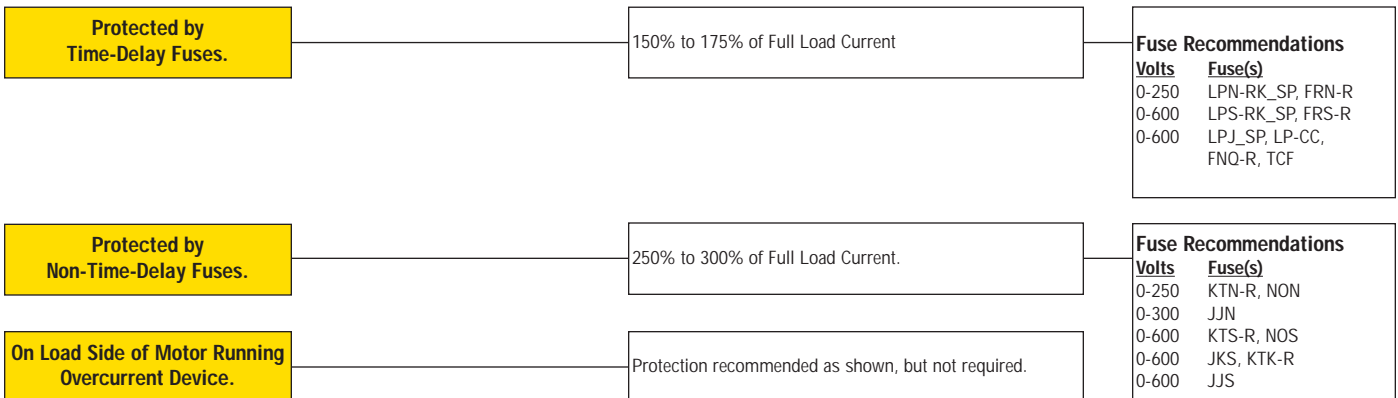
Application Engineering can be reached via phone, fax or e-mail:

- Phone: 636-527-1270
- Fax: 636-527-1607
- E-mail: fusetech@cooperbussmann.com

Ballasts



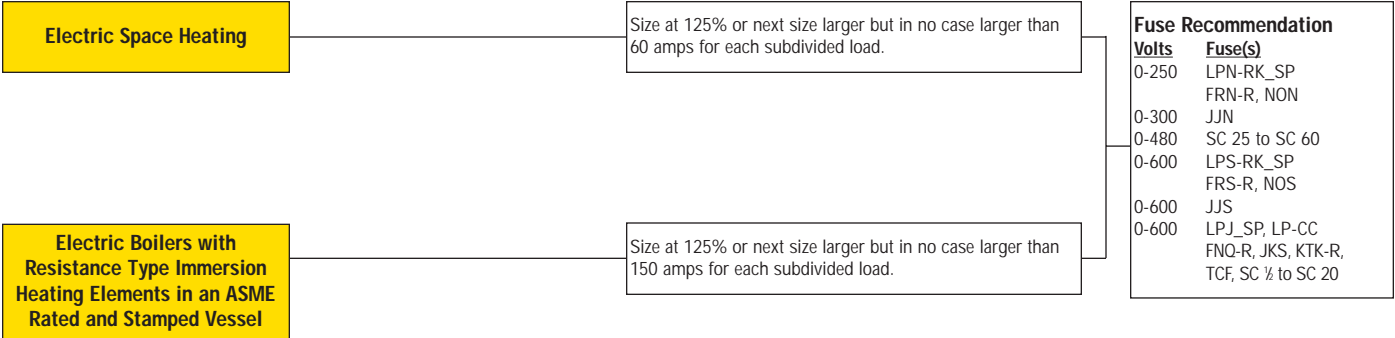
Capacitors (NEC® 460)



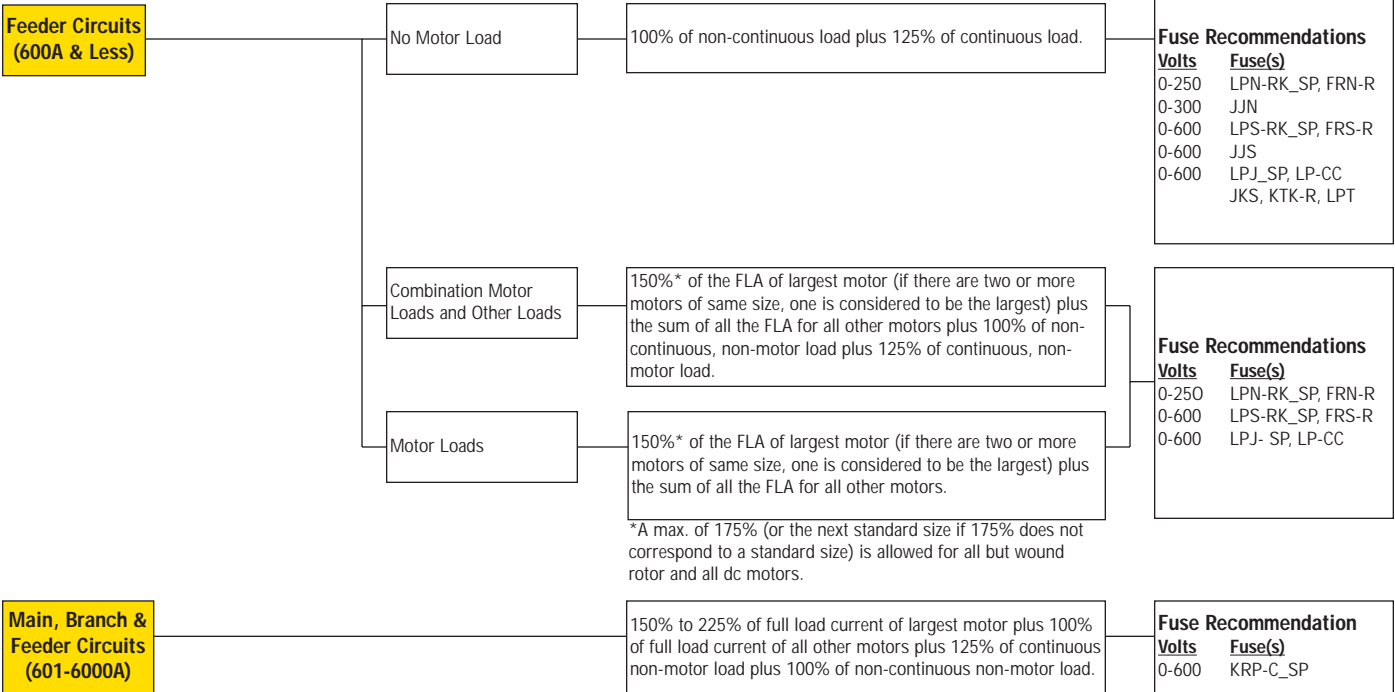
Low Voltage, Branch Circuit Rated Fuses

Selecting circuit protection

Electric Heat (NEC® 424)



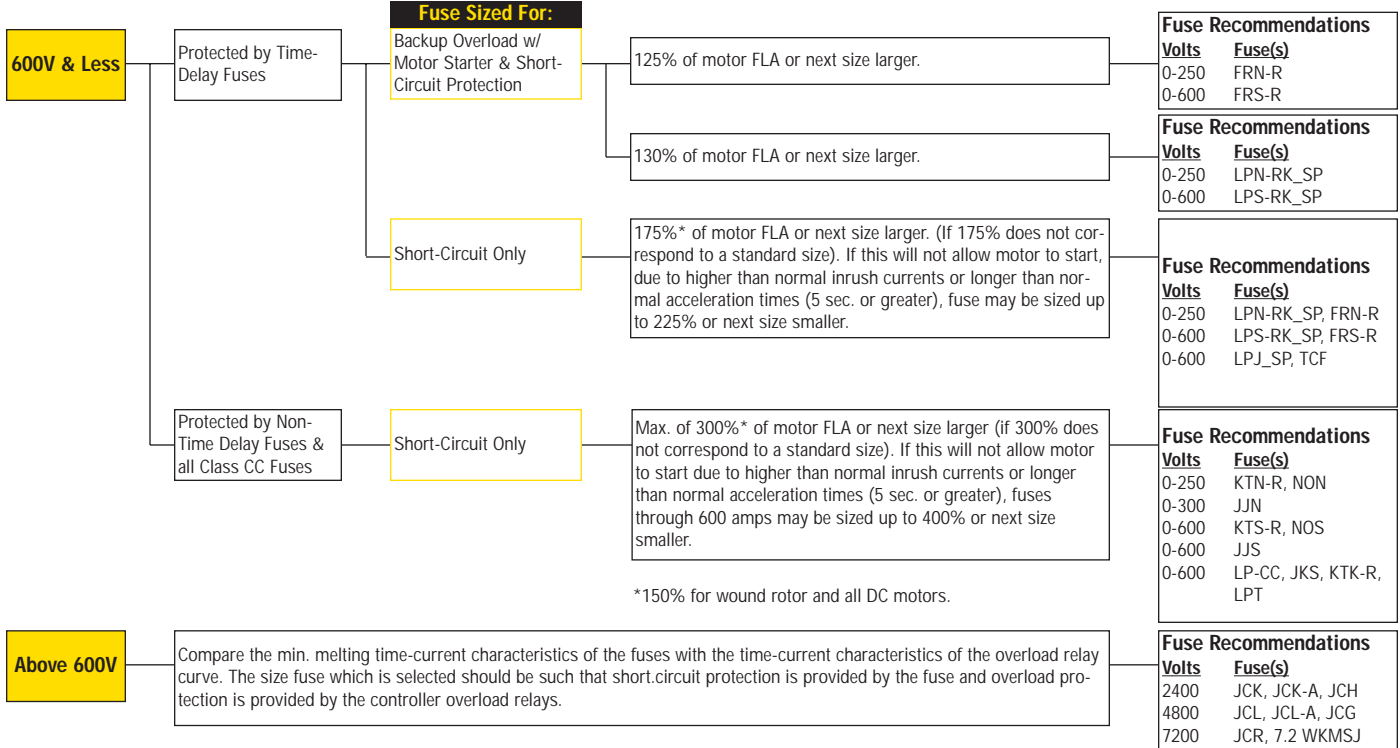
Mains, Feeders, Branches



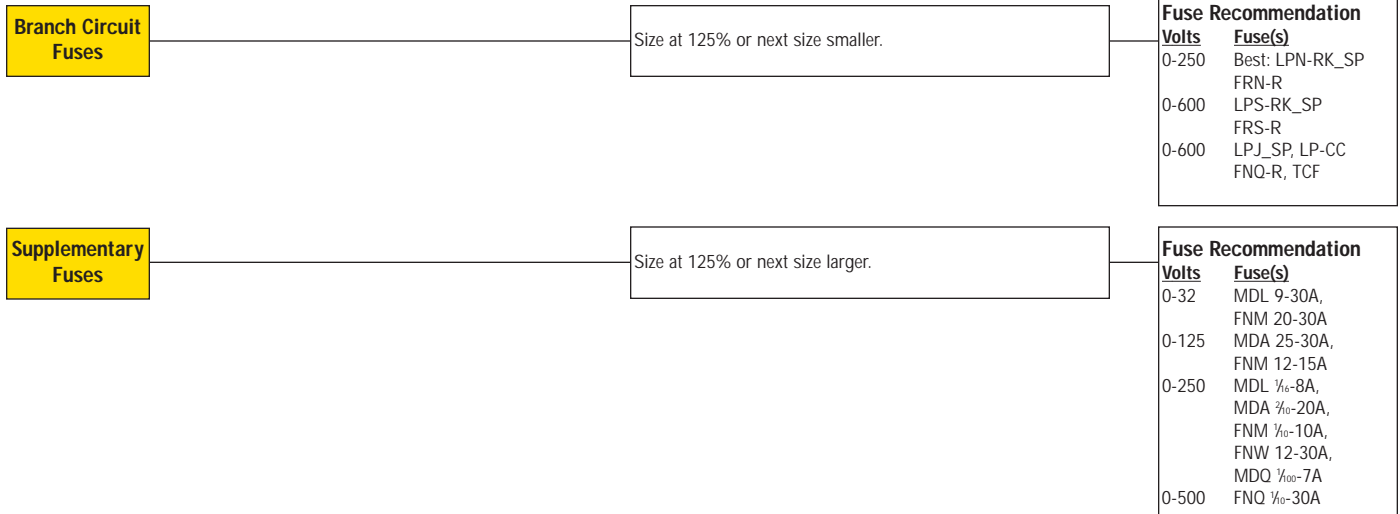
Low Voltage, Branch Circuit Rated Fuses

Selecting circuit protection

Motor Loads (NEC® 430)



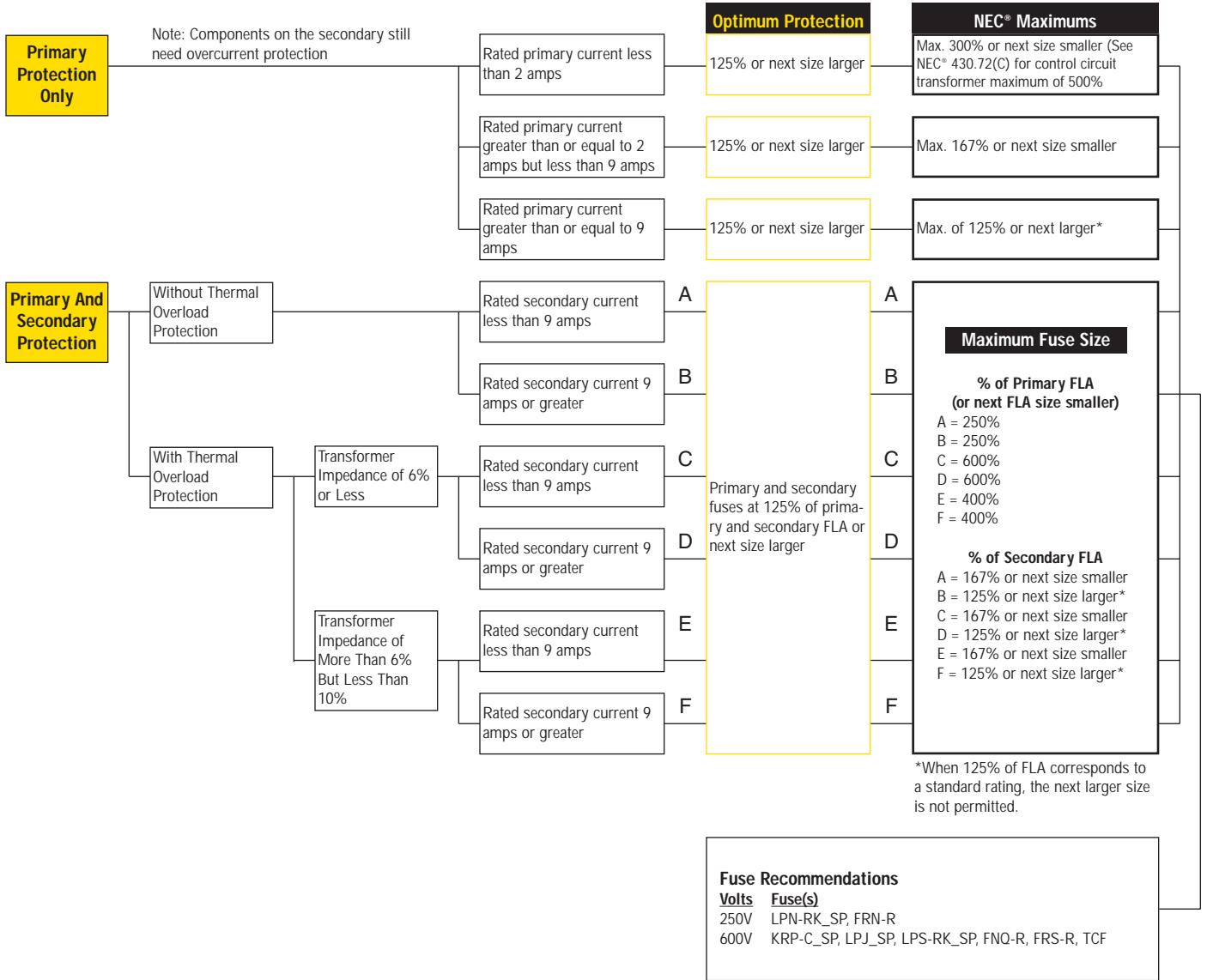
Solenoids (Coils)



Low Voltage, Branch Circuit Rated Fuses

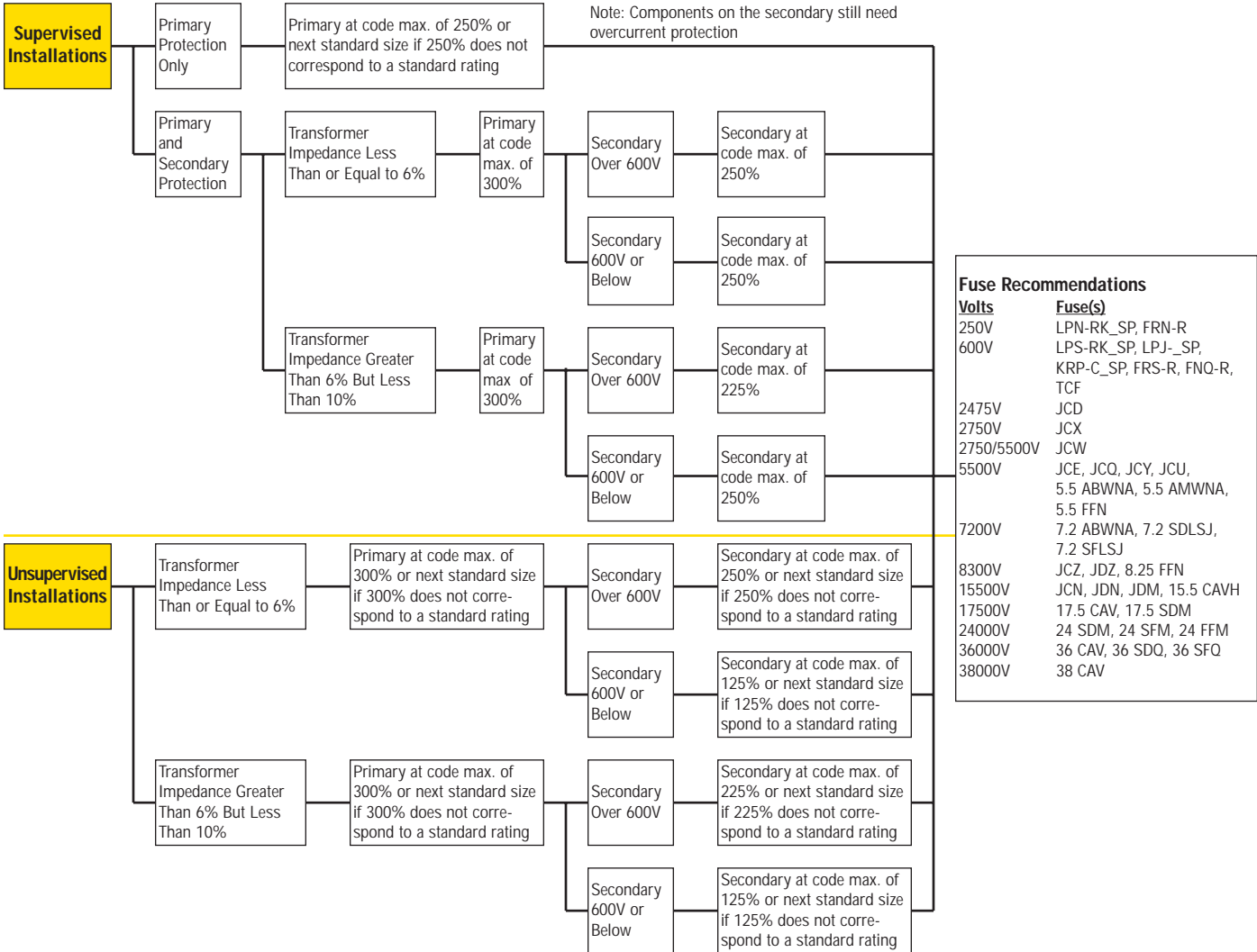
Selecting circuit protection

Transformers 600V Nominal or Less (NEC® 450.3)

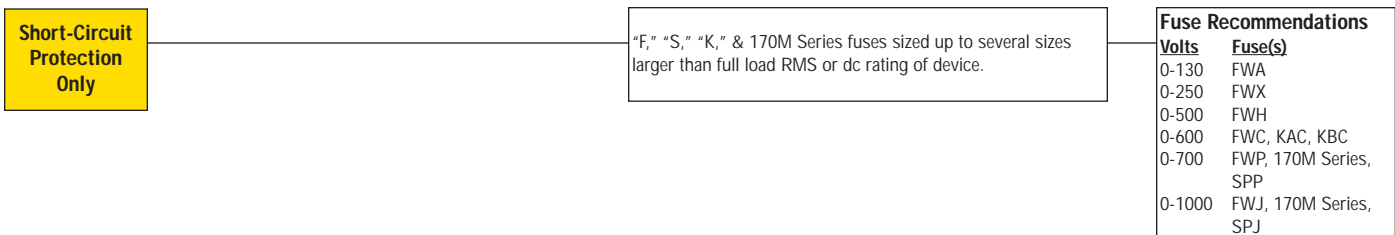


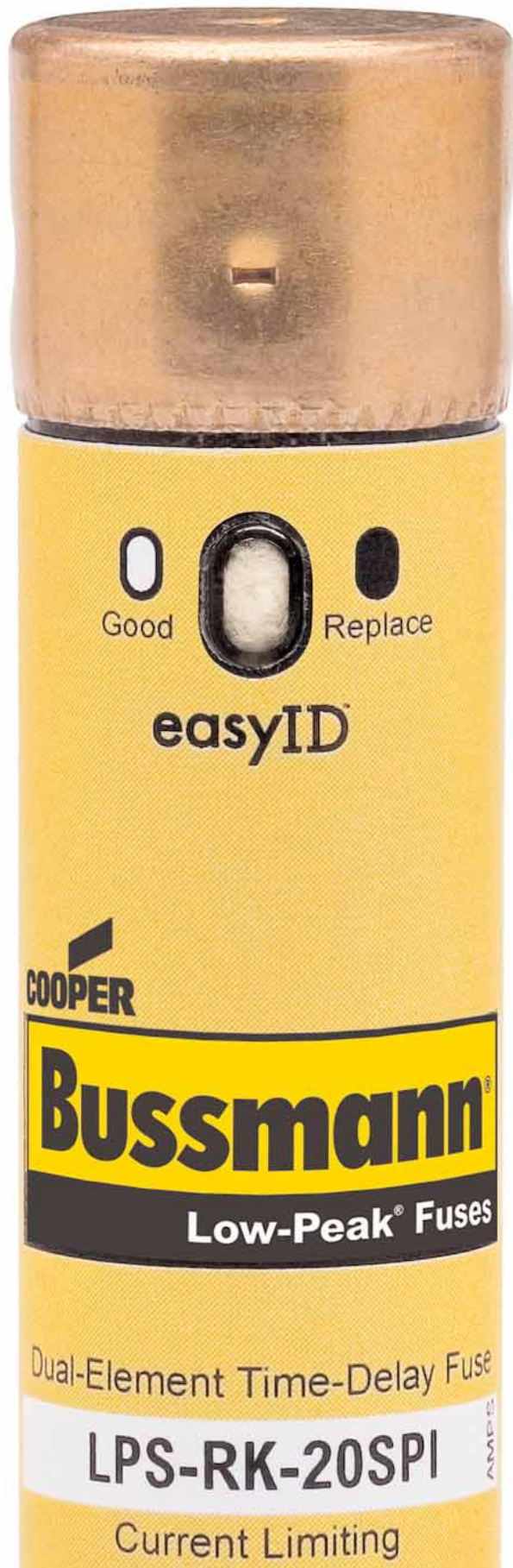
Selecting circuit protection

Transformers Over 600V Nominal (NEC® 450.3)



Solid State Devices (Diodes, SCRs, Triacs, Transistors)





Low Voltage, Branch Circuit Rated Fuses

Fuse Holder & Block Selection Guide	Page 8-10
Class Fuse Dimensions	11-12
Fuses By Fuse Class	

Low Voltage
Branch
Circuit
Fuses

<u>Class</u>	<u>Fuses</u>	<u>Volts</u>		
CC	LP-CC	600V	19	
	FNQ-R	600V	31	
	KTK-R	600V	28	
G	SC	600/480V	34	
J	TCF*	600V	13-14	
	LPJ-SP	600V	15	
	LPJ-SPI indicator	600V	15	
	JKS	600V	25	
<small>*Class J performance</small>				
K5 & H	NON	250V	35	
	NOS	600V	35	
L	KRP-C_SP	600V	20-21	
	KRP-CL	600V	21	
	KLU	600V	29	
	KTU	600V	29	
RK1	LPN-RK_SP	250V	16-18	
	LPN-RK_SPI Indicator	250V	16-18	
	LPS-RK_SP	600V	16-18	
	LPS-RK_SPI Indicator	600V	16-18	
	KTN-R	250V	26	
KTS-R	KTS-R	600V	27	
	RK5	DLN-R	250V	30
		DLS-R	600V	30
		FRN-R	250V	22-23
FRS-R		600V	24	
T	JJN	300V	32	
	JJS	600V	33	
Plug Fuses	W, SL, TL, S and T Series	125V	36-37	

RED indicates NEW information

Low Voltage, Branch Circuit Rated Fuses

Holders & blocks for branch circuit rated fuses

Class	Fuses	Volts	Page
CC	LP-CC	600V	19
	FNQ-R	600V	31
	KTK-R	600V	28

Holders

- OPM-NG-SC3 3-pole, panel/DIN rail mount 234
- OPM-1038R 3-pole, panel/DIN rail mount 233
- OPM-1038RSW 3-pole w/ switch, panel/DIN rail mount .. 232
- CHCC_D 1 to 3-pole, DIN rail mount 239
- HPF-RR, front panel mount 268
- HPS-RR, front panel mount 268

Blocks

- BC Series, panel mount 256

Disconnects

- Open
- CDF30CC_3- & 4-pole, base & DIN rail mount 308
- Enclosed
- EFC30_3-, 4- & 6-pole, NEMA 1, 3, 4, 4X, 7 & 9, 12 314



OPM-NG-SC3



OPM-1038R &
OPM-1038RSW



CHCC_D



HPF-RR



HPS-RR



BC Series



CFD30J3



FD400J3



EFJ30X-3PB6

Class	Fuses	Volts	Page
G	SC	600/480V	34

Holders

- HP Series front panel accessible, front panel mount 268

Blocks

- BG Series, panel/DIN rail with adapters 256
- G Series, panel/DIN rail with adapters 256



HP Series



BG & G Series

Class	Fuses	Volts	Page
K5 & H	NON	250V	35
	NOS	600V	35

Blocks

- Modular Type Fuse Blocks 250/600V, panel mount 257
- H250 Series 1 to 3-pole 250V, panel mount 242
- H600 Series 1 to 3-pole 600V, panel mount 245



Modular Type



H250 Series



H600 Series

Low Voltage, Branch Circuit Rated Fuses

Holders & blocks for branch circuit rated fuses

Low Voltage
Branch
Circuit
Fuses

Class	Fuses	Volts	Page
L	KRP-C_SP	600V	20
	KRP-CL	600V	21
	KLU	600V	29
	KTU	600V	29

Blocks

- 51215 1-pole, panel mount*
- 51235 3-pole, panel mount*

*Call our customer satisfaction team at 636-527-3877 for more information.



FD400J3

51215

51235

Disconnects

Open

FD800L_601-800A, 2-, 3- & 4 pole, base & DIN rail mount . . . 312

Class	Fuses	Volts	Page
RK1	LPN-RK_SP	250V . . . . .	.16
	LPS-RK_SP	600V . . . . .	.16
	KTN-R	250V	26
	KTS-R	600V	27

Blocks

- R250 Series 1 to 3-pole 250V, panel mount242
- R600 Series 1 to 3-pole 600V, panel mount245



R250 Series

R600 Series

Class	Fuses	Volts	Page
RK5	FRN-R	250V	22
	FRS-R	600V	24
	DLN-R	250V	30
	DLS-R	600V	30

Blocks

- R250 Series 1 to 3-pole 250V, panel mount242
- R600 Series 1 to 3-pole 600V, panel mount245



R250 Series

R600 Series

Class	Fuses	Volts	Page
T	JJN	300V	32
	JJS	600V	33

Blocks

- BH Series modular-style, panel mount (<60A) 257
- T300 Series 1 to 4-pole 300V, panel mount 251
- T600 Series 1 to 3-pole 600V, panel mount 253

Disconnects

Open

• CDF30CC_ 3- & 4-pole, base & DIN rail mount 308

Enclosed

• EFC30_ 3-, 4-, & 6-pole, NEMA 1, 3, 4, 4X, 7 & 9, 12 . . . 314



BH Series

T300 Series

T600 Series

Low Voltage, Branch Circuit Rated Fuses

Holders & blocks for branch circuit rated fuses

Class	Fuses	Volts	Page
J	TCF*	600V	13
	LPJ-SP	600V	15
	JKS	600V	25

*Class J performance

Holders

- TCFH CUBEFuse™ holder, panel/DIN rail mount 13-14
- CH Series Class J modular 1 to 3-pole, panel/
DIN rail mount 236
- Safety J™ Series modular holders,
panel/DIN rail mount 237

Blocks

- Modular Type Fuse Blocks 600V, panel mount 257
- J600 Series, panel mount 248
- JP Series pyramid blocks, panel mount 250
- BH Series modular-style open blocks, panel mount 257

Disconnects

- Open
- CFD_ _J_ 0-100A, 3- & 4-pole, base &
DIN rail mount 310
 - FD_00J_ 0-800A, 2-, 3- & 4-pole, base &
DIN rail mount Enclosed 312
- Enclosed
- EFJ_ 0_ _PB_ 0-800A, 3-, 4- & 6-pole,
NEMA 1, 3R, 4, 4X, 7 & 9, 12 314



Class	Fuses	Volts	Page
Plug Fuses	W, SL, TL, S and T Series	125V	36-37

Box Cover Units

- Standard electrical box mounting 258



Fuse Reducers For Class R Fuses 250V

Equipment Fuse Clip Amps	Desired Fuse (Case) Amp Size	Catalog No. (Pairs) 250V
60	30	No. 263-R
100	30	No. 213-R
	60	No. 216-R
200	60	No. 226-R
	100	No. 2621-R
400	100	No. 2641-R
	200	No. 242-R
600	100	No. 2661-R
	200	No. 2662-R
	400	No. 2664-R*

*Single reducer only (pair not required).

Fuse Reducers For Class R Fuses 600V

Equipment Fuse Clip Amps	Desired Fuse (Case) Amp Size	Catalog No. (Pairs) 600V
60	30	No. 663-R
100	30	No. 216-R
	60	No. 616-R
200	60	No. 626-R
	100	No. 2621-R
400	100	No. 2641-R
	200	No. 642-R
600	100	No. 2661-R
	200	No. 2662-R
	400	No. 2664-R*

*Single reducer only (pair not required).

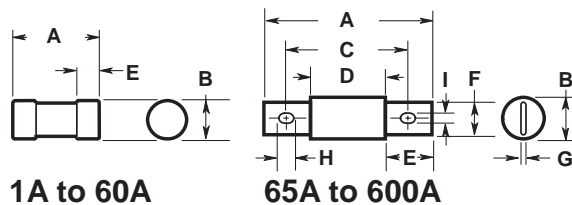
Branch circuit rated fuse dimensions

Low Voltage
Branch
Circuit
Fuses

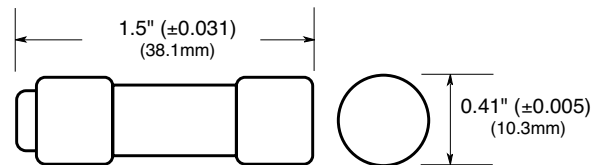
Class J Dimensions - in (mm)

Low-Peak® and Limitron® Fuses
LPJ & JKS — 600V

Amp Range	A	B	C	D	E	F	G	H	I
1-30	2.25 (57.2)	0.81 (20.6)	—	—	0.50 (12.7)	—	—	—	—
35-60	2.38 (60.3)	1.06 (27.0)	—	—	0.63 (15.9)	—	—	—	—
65-100	4.63 (117.5)	1.13 (28.6)	3.63 (92.1)	2.63 (66.7)	1.00 (25.4)	0.75 (28.6)	0.13 (3.2)	0.41 (10.4)	0.28 (7.1)
110-200	5.75 (146.1)	1.63 (41.4)	4.38 (111.1)	3.00 (76.2)	1.38 (34.9)	1.13 (28.6)	0.19 (4.8)	0.38 (9.5)	0.28 (7.1)
225-400	7.12 (181.0)	2.11 (53.6)	5.25 (133.3)	1.51 (38.3)	1.87 (47.6)	1.62 (41.2)	0.25 (6.4)	0.56 (14.2)	0.40 (10.3)
450-600	8.00 (203.2)	2.60 (66.0)	6.00 (152.4)	1.52 (38.6)	2.12 (54.0)	2.00 (50.8)	0.53 (13.5)	0.72 (18.3)	0.53 (13.5)



Class CC

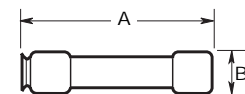


CLASS RK1 & RK5 Dimension - in (mm)

Basic dimensions are same as Class H (formerly NEC) One-Time (NON & NOS) and Superlag Renewable RES & REN fuses.
NOTE: These fuses can be used to replace existing Class H, RK1 and RK5 fuses relating to dimensional compatibility.

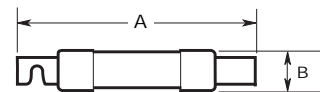
Ferrule Styles

Amp Range	250V		600V	
	A	B	A	B
1/10-30	2 (50.8)	0.56 (14.3)	5.0 (127.0)	0.81 (20.6)
35-60	3 (76.2)	0.81 (20.6)	5.5 (139.7)	1.06 (27.0)



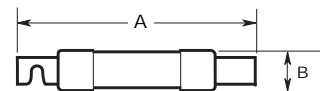
Fusetron® — (FRN-R & FRS-R) & Limitron® — (KTN-R & KTS-R)

Amp Range	250V		600V	
	A	B	A	B
70-100	5.88 (149.2)	1.06 (26.9)	7.88 (200.0)	1.34 (34.0)
110-200	7.13 (181.0)	1.56 (39.6)	9.63 (244.5)	1.84 (46.7)
225-400	8.63 (219.1)	2.06 (52.3)	11.63 (295.3)	2.59 (65.8)
450-600	10.38 (263.5)	2.59 (65.8)	13.38 (339.7)	3.13 (79.5)



Low-Peak® — (LPN-RK & LPS-RK)

Amp Range	250V		600V	
	A	B	A	B
70-100	5.88 (149.2)	1.16 (29.5)	7.88 (200.0)	1.16 (29.5)
110-200	7.13 (181.0)	1.66 (42.2)	9.63 (244.5)	1.66 (42.2)
225-400	8.63 (219.1)	2.38 (60.5)	11.63 (295.3)	2.38 (60.5)
450-600	10.38 (263.5)	2.88 (73.2)	13.38 (339.7)	2.88 (73.2)



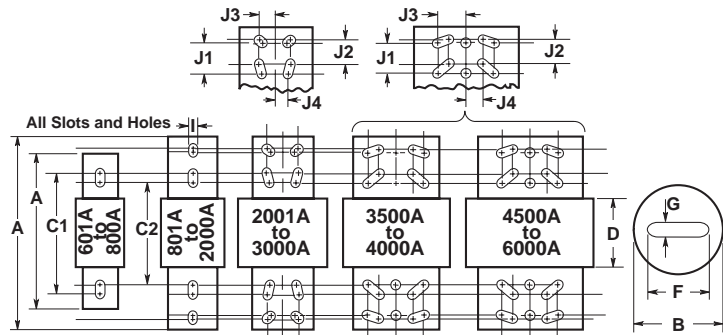
Branch circuit rated fuse dimensions

Class L Dimensions - in (mm)

Low-Peak® and Limitron® Fuses

Amp Range	A	B	C1	C2	D	F	G	I	J1	J2	J3	J4
601-800	8.63 (219.1)	2.40 (61.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.00 (50.8)	0.38 (9.5)	0.63 (15.9)	—	—	—	—
801-1200	10.75 (273.1)	2.40 (61.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.00 (50.8)	0.38 (9.5)	0.63 (15.9)	—	—	—	—
1350-1600	10.75 (273.1)	3.00 (76.2)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.38 (60.3)	0.44 (11.1)	0.63 (15.9)	—	—	—	—
1800-2000	10.75 (273.1)	3.50 (88.9)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.75 (69.9)	0.50 (12.7)	0.63 (15.9)	—	—	—	—
2001-2500	10.75 (273.1)	4.80 (122.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	3.50 (88.9)	0.75 (19.1)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	0.88 (22.2)	0.81 (20.6)
3000	10.75 (273.1)	5.00 (127.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	4.00 (101.6)	0.75 (19.1)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	0.88 (22.2)	0.81 (20.6)
3500-4000	10.75 (273.1)	5.75 (146.1)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	4.75 (120.7)	0.75 (19.1)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	1.63 (41.3)	0.88 (22.2)
4500-5000	10.75 (273.1)	6.25 (158.8)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	5.25 (133.4)	1.00 (25.4)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	1.63 (41.3)	0.88 (22.2)
6000	10.75 (273.1)	7.13 (181.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	5.75 (146.1)	1.00 (25.4)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	1.63 (41.3)	0.88 (22.2)

NOTE: KRP-CL (150A to 600A) fuses have same dimensions as 601-800A case size. KTU (200-600A) have same dimensions, except tube 3" length x 2" diameter (76.2 x 50.8mm); terminal 1 1/8" width x 1 1/4" thick (41.3 x 31.8mm).



Class T Dimensions - in (mm)

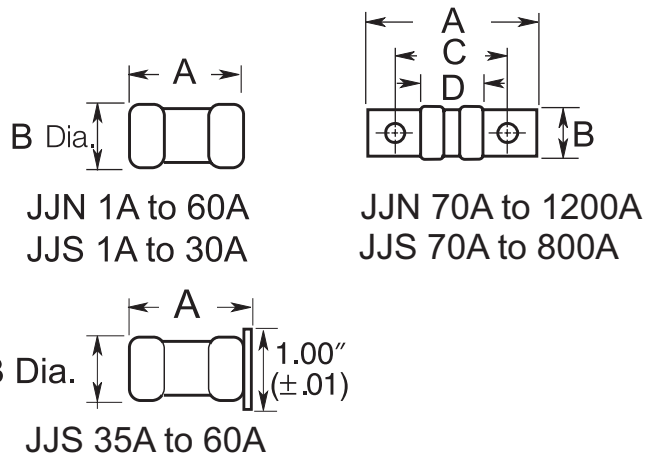
T-Tron® Fuses

JJN — 300V

Amp Range	A	B	C	D
1-30	0.88 (22.2)	0.41 (10.3)	—	—
35-60	0.88 (22.2)	0.56 (14.3)	—	—
70-100	2.16 (54.8)	0.75 (19.1)	1.56 (39.7)	0.84 (21.4)
110-200	2.44 (61.9)	0.88 (22.2)	1.69 (42.9)	0.84 (21.4)
225-400	2.75 (69.9)	1.00 (25.4)	1.84 (46.8)	0.86 (21.8)
450-600	3.06 (77.8)	1.25 (31.8)	2.03 (51.6)	0.88 (22.2)
601-800	3.38 (85.7)	1.75 (44.5)	2.22 (56.4)	0.89 (22.6)
801-1200	4.00 (101.6)	2.00 (50.8)	2.53 (64.3)	1.08 (27.4)

JJS — 600V

Amp Range	A	B	C	D
1-30	1.50 (38.1)	0.56 (14.3)	—	—
35-60	1.56 (39.7)	0.81 (20.6)	—	—
70-100	2.95 (75.0)	0.75 (19.1)	2.36 (59.9)	1.64 (41.7)
110-200	3.25 (82.6)	0.88 (22.2)	2.50 (63.5)	1.66 (42.1)
225-400	3.63 (92.1)	1.00 (25.4)	2.72 (69.1)	1.73 (44.1)
450-600	3.98 (101.2)	1.25 (31.8)	2.96 (75.0)	1.78 (45.2)
601-800	4.33 (109.9)	1.75 (44.5)	3.17 (80.6)	1.88 (47.6)



CUBEFuse™ finger-safe fuse and fuse holder system

Low Voltage
Branch
Circuit
Fuses

TCF (fuse) Class J
TCFH (holder)



Specifications

Description: Finger-safe fuse and fuse holder system; dual-element, time-delay fuse; 10 seconds minimum operating time at 500% rated amps.

Dimensions: See Dimensions illustration.

Construction:

Poles: 1 (gangable to 2- and 3-pole)

Ratings:

- Volts — 600Vac (or less)
 - 300Vdc (or less), 100,000A IR
- Amps — 1-100A
 - IR — 300,000A RMS Sym. (UL)
 - 200,000A RMS Sym. (CSA)

Agency Information: CE, UL Listed Special Purpose Fuse: Guide JFHR, File E56412, CSA Certified Fuse: Class 1422- 02, File 53787, UL Listed Fuse holder: Guide IZND, File E214079, CSA Certified Fuse holder: Class 6225-01, File 47235.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing of high inrush loads linked with Class J current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Smallest footprint of any Class CC, J, T or RK fuse provides substantial space savings and installation flexibility.
- IEC 60529 and IP-20 finger-safe rating provides enhanced workplace safety.

Typical Applications

- Electrical Panelboards
- Machinery Disconnects
- Industrial Control
- Required Finger-Safe Systems

Fuse Catalog Numbers (Amps)

TCF1*	TCF17-½	TCF40	TCF80
TCF3*	TCF20	TCF45	TCF90
TCF6	TCF25	TCF50	TCF100
TCF10	TCF30	TCF60	
TCF15	TCF35	TCF70	

*Minimum 75 Vac/Vdc required for indication.

Fuse Holder Catalog Numbers

Catalog Numbers	Amp Range	Wire Range** Single Wire	Dual Wire
TCFH30	1-30	14 to 8 AWG CU	14 AWG CU
TCFH60	35-60	14 to 4 AWG CU	10 to 6 AWG CU
TCFH100	70-100	10 to 1 AWG CU	6 AWG CU

**75°C minimum CU wire only.

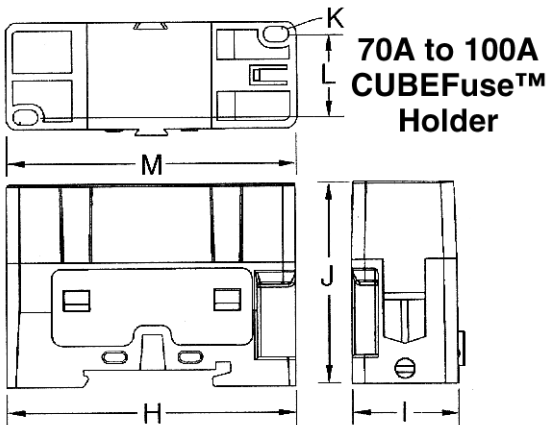
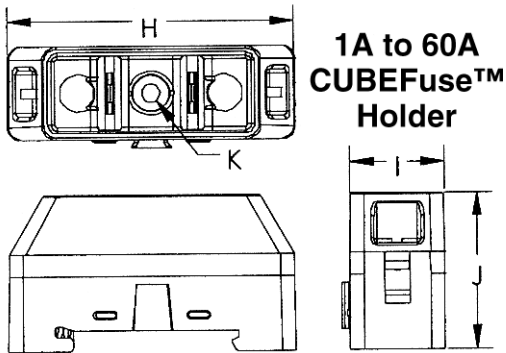
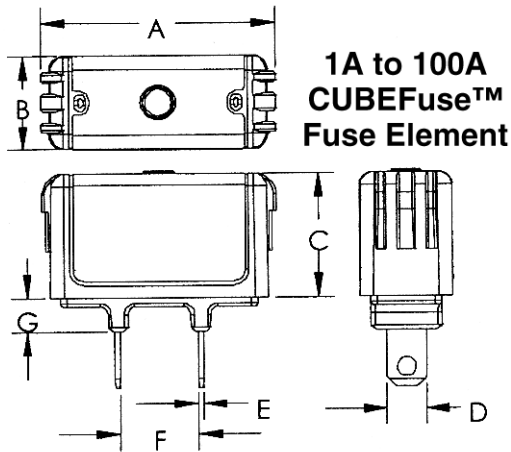
Dimensions - in (mm)

Dimension	30A	60A	100A
A	1.88 (47.75)	2.13 (54.10)	3.01 (76.45)
B	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)
C	1.00 (25.40)	1.13 (28.58)	1.26 (32.00)
D	0.31 (7.94)	0.44 (11.11)	0.57 (14.48)
E	0.04 (1.02)	0.04 (1.02)	0.06 (1.60)
F	0.63 (15.88)	0.63 (15.88)	0.63 (15.88)
G	0.27 (6.86)	0.38 (9.65)	0.39 (9.93)
H	2.30 (58.42)	2.60 (66.04)	2.91 (73.91)
I	0.76 (19.30)	1.03 (26.16)	1.05 (26.75)
J	1.27 (32.18)	1.53 (38.86)	2.01 (51.05)
K	0.15 (3.81)	0.17 (4.32)	0.16 (4.06)
L	N/A	N/A	0.80 (20.32)
M	N/A	N/A	2.51 (63.75)

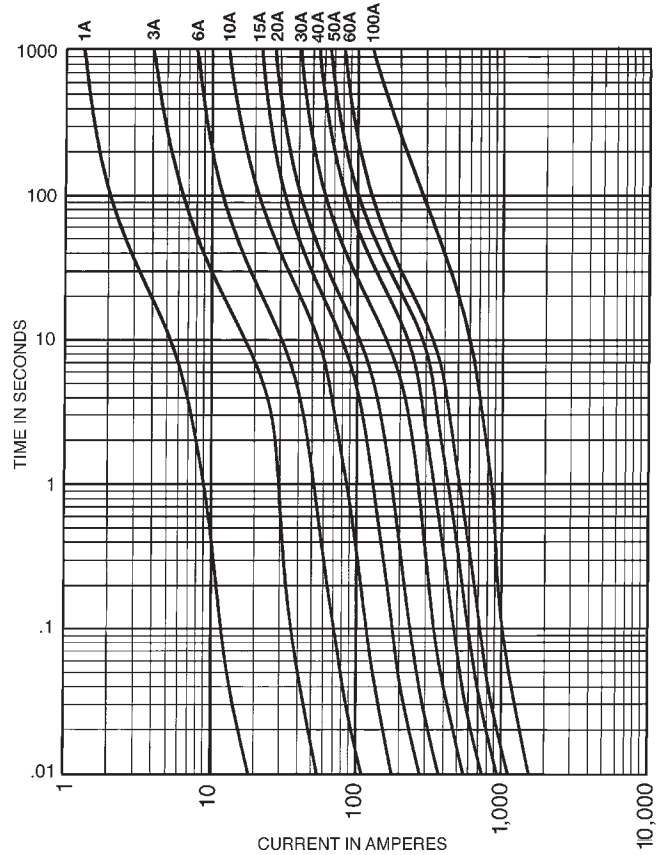
See next page (page 14) for dimensions illustration and curves.

CUBEFuse™ finger-safe fuse and fuse holder system

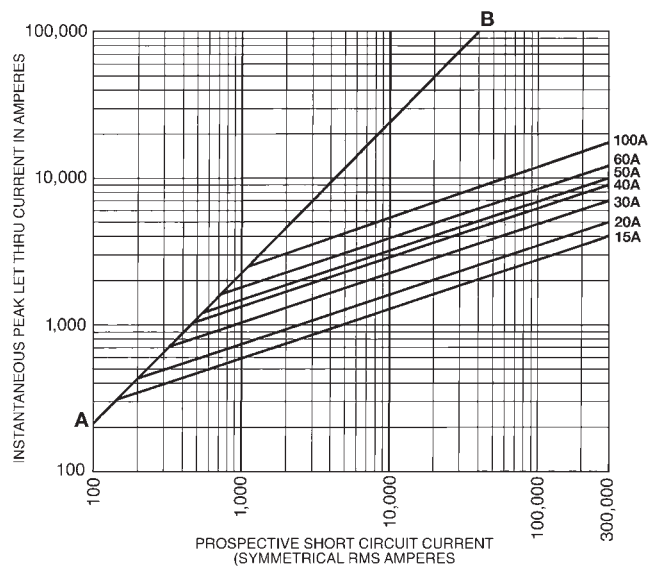
Dimensions for CUBEFuse™ Fuse and Fuse Holder



Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Low Voltage, Branch Circuit Rated Fuses

Low-Peak® dual-element, time-delay fuses

Low Voltage
Branch
Circuit
Fuses

LPJ_SP Class J

**Now Available
With Optional
Indication**



Specifications

Description:

Dual-element, time-delay fuse;
10 seconds (minimum) at 500% rated amps. Now
available with optional permanent indication on
select ratings (see Catalog Numbers table).

Dimensions: See page 11 for Class J dimensions.

Construction: Copper fuse element.

Ratings:

- Volts — 600Vac (or less)
- 300Vdc (or less)
- Amps — 1-600A
- IR — 300,000A RMS Sym.
- 100,000A dc

Agency Information: CE, UL Listed - Special Purpose*,
Guide JFHR, File E56412, CSA Certified (200,000 AIR)
Class J per CSA-22.2 No. 248.8, Class 1422-02, File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing of high inrush loads linked with Class J current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.

Typical Applications

- Power Panelboards
- Branch Circuit Breaker Panelboard Mains
- Machinery Disconnects
- Industrial Control

Catalog Numbers (Amps)

LPJ-1SP	LPJ-4 1/2SP	LPJ-25SP**	LPJ-125SP**
LPJ-1 1/4SP	LPJ-5SP	LPJ-30SP**	LPJ-150SP**
LPJ-1 1/2SP	LPJ-5 5/8SP	LPJ-35SP**	LPJ-175SP**
LPJ-1 3/4SP	LPJ-6SP**	LPJ-40SP**	LPJ-200SP**
LPJ-2SP	LPJ-7SP**	LPJ-45SP**	LPJ-225SP**
LPJ-2 1/2SP	LPJ-8SP**	LPJ-50SP**	LPJ-250SP**
LPJ-2 3/4SP	LPJ-9SP**	LPJ-60SP**	LPJ-300SP**
LPJ-2 5/8SP	LPJ-10SP**	LPJ-70SP**	LPJ-350SP**
LPJ-3SP	LPJ-12SP**	LPJ-80SP**	LPJ-400SP**
LPJ-3 1/2SP	LPJ-15SP**	LPJ-90SP**	LPJ-450SP**
LPJ-3 3/4SP	LPJ-17 1/2SP**	LPJ-100SP**	LPJ-500SP**
LPJ-4SP	LPJ-20SP**	LPJ-110SP**	LPJ-600SP**

*Meets all performance requirements of UL Standard 248-8 for Class J fuses.

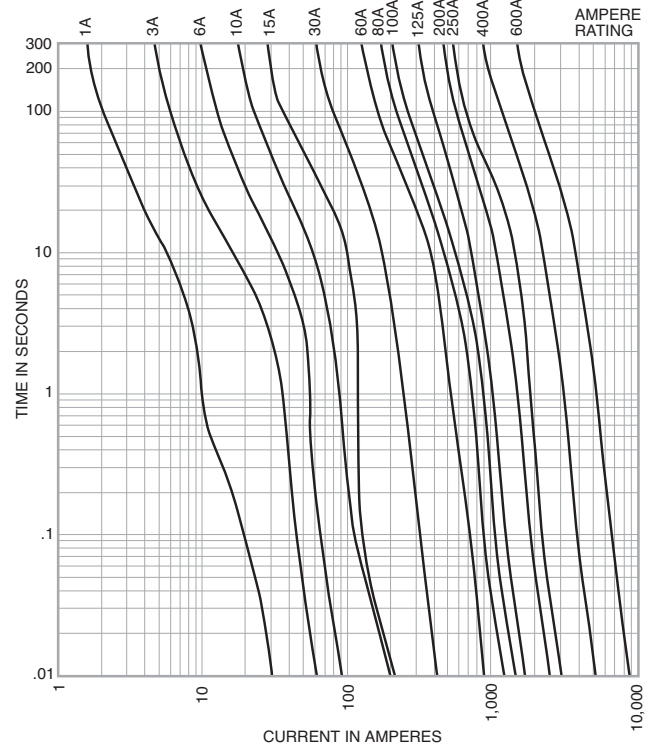
**Available with optional permanent replace fuse indication. To order, place "I" at end of catalog number. Example: LPJ-6SPI.

Available with silver plated terminals. Add SP/ in front of Catalog Number.

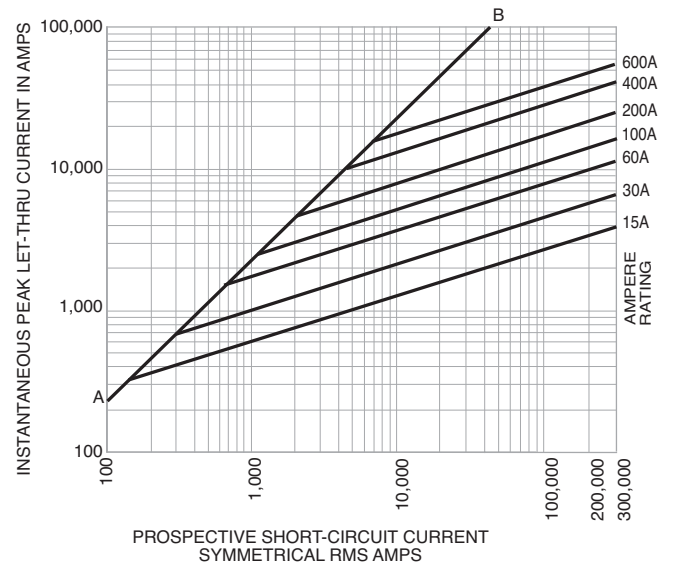
Data Sheets: 1006 (0-60) and 1007 (70-600)

With indication 1062 (6-60) and 1063 (70-600)

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Recommended Fuse Holders & Blocks For Class J 600V Fuses

- See page 10

Low-Peak® dual-element, time-delay fuses

LPN-RK_SP (250V) Class RK1

LPS-RK_SP (600V) Class RK1

**Now Available
With Optional
Indication**



Specifications

Description:

Current-limiting, dual-element, time-delay fuse; 10 seconds (minimum) at 500% rated amps (8 seconds for 0-30A sizes). Now available with optional permanent indication on select ratings (see Catalog Numbers table).

Dimensions: See page 11 for Class RK1 dimensions.

Construction: Copper fuse element.

Ratings:

Volts **LPN-RK:**

- 250Vac (or less)
- 125Vdc (0-60A)
- 250Vdc (70-600A)

LPS-RK:

- 600Vac (or less)
- 300Vdc

Amps — 1/10-600A

- IR — 300,000A RMS Sym.
- 100,000A dc

Agency Information: CE, UL Listed – Special Purpose*, Guide JFHR, File E56412, CSA Certified (200,000 AIR), Class RK1 per CSA C22.2, No. 248.12, Class 1422-02, File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for close sizing of high inrush loads linked with K1 current-limitation and selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents widespread blackouts.
- Inventory consolidation of Class RK1, RK5 and H fuses for reduced SKU investment and minimizing potential for misapplying fuse.
- 300,000A RMS symmetrical interrupting rating provides adequate ratings without obsolescence for all electrical systems, big or small.
- Insulated end caps reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

Data Sheets: LPN-RK — 1003 (0-60) and 1004 (70-600)
 LPN-RK with indication — 1066 (70-600)
 LPS-RK — 1001 (0-60) and 1002 (70-600)
 LPS-RK with indication — 1061 (0-60) and 1064 (70-600)

Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Motor Control Centers
- Machinery Disconnect Switches

LPN Catalog Numbers (Amps) (250Vac/125Vdc)

LPN-RK-1/10SP	LPN-RK-3 1/2SP	LPN-RK-60SP**
LPN-RK-15/100SP	LPN-RK-4SP	LPN-RK-70SP****
LPN-RK-3/10SP	LPN-RK-4 1/2SP	LPN-RK-80SP**
LPN-RK-3/10SP	LPN-RK-5SP	LPN-RK-90SP**
LPN-RK-1/2SP	LPN-RK-5 1/2SP	LPN-RK-100SP**
LPN-RK-1/2SP	LPN-RK-6SP	LPN-RK-110SP**
LPN-RK-5/10SP	LPN-RK-6 1/2SP	LPN-RK-125SP**
LPN-RK-3/10SP	LPN-RK-8SP	LPN-RK-150SP**
LPN-RK-1SP	LPN-RK-9SP	LPN-RK-175SP**
LPN-RK-1 1/2SP	LPN-RK-10SP	LPN-RK-200SP**
LPN-RK-1 1/2SP	LPN-RK-12SP	LPN-RK-225SP**
LPN-RK-1 1/2SP	LPN-RK-15SP	LPN-RK-250SP**
LPN-RK-1 1/2SP	LPN-RK-17 1/2SP	LPN-RK-300SP**
LPN-RK-1 1/2SP	LPN-RK-20SP	LPN-RK-350SP**
LPN-RK-2SP	LPN-RK-25SP	LPN-RK-400SP**
LPN-RK-2 1/2SP	LPN-RK-30SP	LPN-RK-450SP**
LPN-RK-2 1/2SP	LPN-RK-35SP**	LPN-RK-500SP**
LPN-RK-2 1/2SP	LPN-RK-40SP**	LPN-RK-600SP**
LPN-RK-3SP	LPN-RK-45SP**	
LPN-RK-3 1/2SP	LPN-RK-50SP**	

*Meets all performance requirements of UL Standard 248-12 for Class RK1 fuses.

**Available with optional permanent indication. To order, place "I" at end of Catalog Number.

Example: LPN-RK-35SP1.

0-60A fuses available with Nickel plate option. (Ex: LPS-RK30SPNP) 70-600A fuses available with Tin plate option. Example: LPS-RK-100SP-TP.

LPS Catalog Numbers - (Amps) (600Vac/300Vdc)

LPN-RK-1/10SP	LPS-RK-2 1/2SP	LPS-RK-12SP**	LPS-RK-110SP**
LPN-RK-3/10SP	LPS-RK-2 1/2SP	LPS-RK-15SP**	LPS-RK-125SP**
LPN-RK-3/10SP	LPS-RK-3SP	LPS-RK-17 1/2SP**	LPS-RK-150SP**
LPN-RK-1/2SP	LPS-RK-3 1/2SP	LPS-RK-20SP**	LPS-RK-175SP**
LPN-RK-1/2SP	LPS-RK-3 1/2SP	LPS-RK-25SP**	LPS-RK-200SP**
LPN-RK-1/2SP	LPS-RK-4SP	LPS-RK-30SP**	LPS-RK-225SP**
LPN-RK-5/10SP	LPS-RK-4 1/2SP	LPS-RK-35SP**	LPS-RK-250SP**
LPN-RK-1SP	LPS-RK-5SP	LPS-RK-40SP**	LPS-RK-300SP**
LPN-RK-1 1/2SP	LPS-RK-5 1/2SP	LPS-RK-45SP**	LPS-RK-350SP**
LPN-RK-1 1/2SP	LPS-RK-6SP**	LPS-RK-50SP**	LPS-RK-400SP**
LPN-RK-1 1/2SP	LPS-RK-6 1/2SP**	LPS-RK-60SP**	LPS-RK-450SP**
LPN-RK-1 1/2SP	LPS-RK-7SP**	LPS-RK-70SP**	LPS-RK-500SP**
LPN-RK-1 1/2SP	LPS-RK-8SP**	LPS-RK-80SP**	LPS-RK-600SP**
LPN-RK-1 1/2SP	LPS-RK-9SP**	LPS-RK-90SP**	
LPN-RK-2 1/2SP	LPS-RK-10SP**	LPS-RK-100SP**	

*Meets all performance requirements of UL Standard 248-12 for Class RK1 fuses.

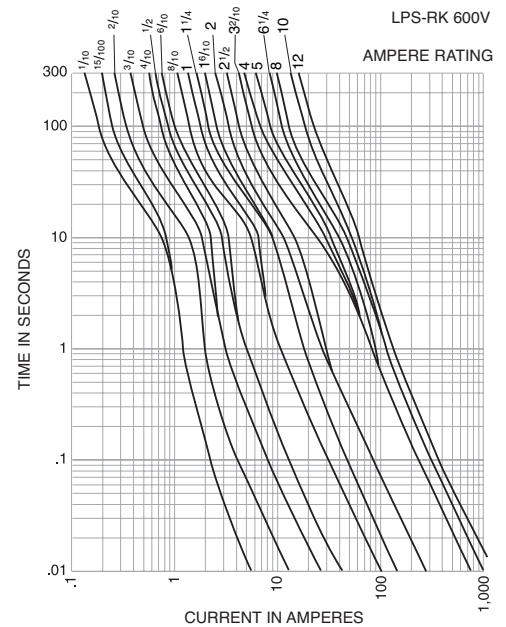
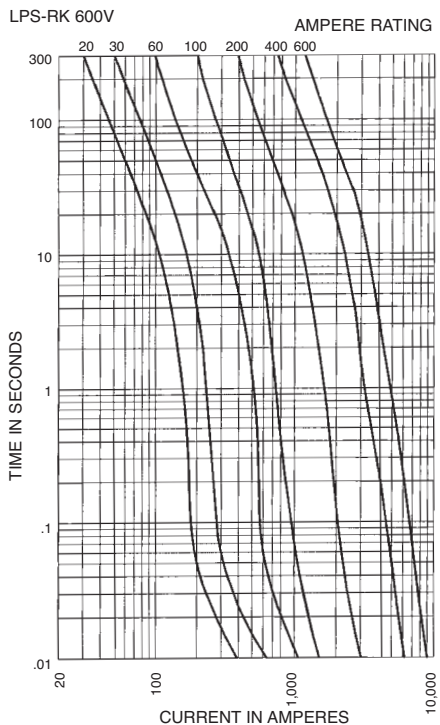
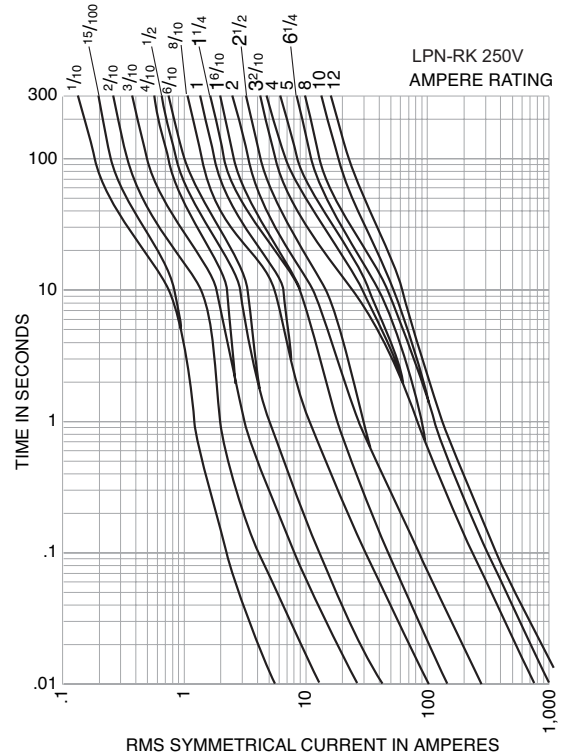
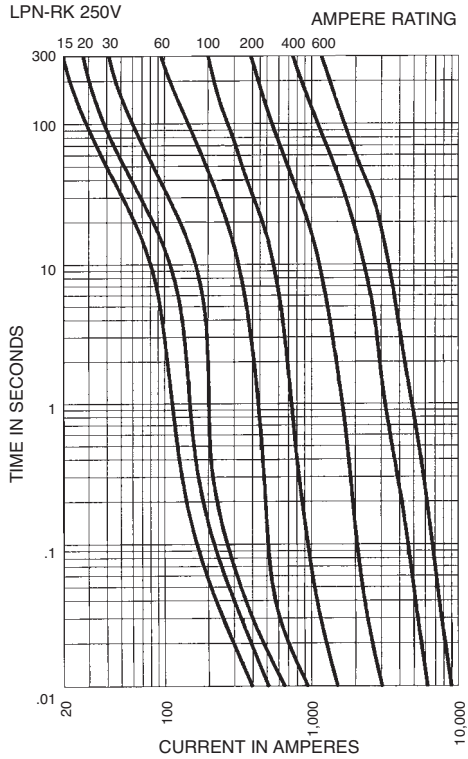
**Available with optional permanent replace fuse indication. To order, place "I" at end of Catalog Number. Example: LPS-RK-15SP1.

Recommended Fuse Holders & Blocks For Class RK1 600V & 250V Fuses

- See page 9

Low-Peak® dual-element, time-delay fuses

Time-Current Characteristic Curves—Average Melt

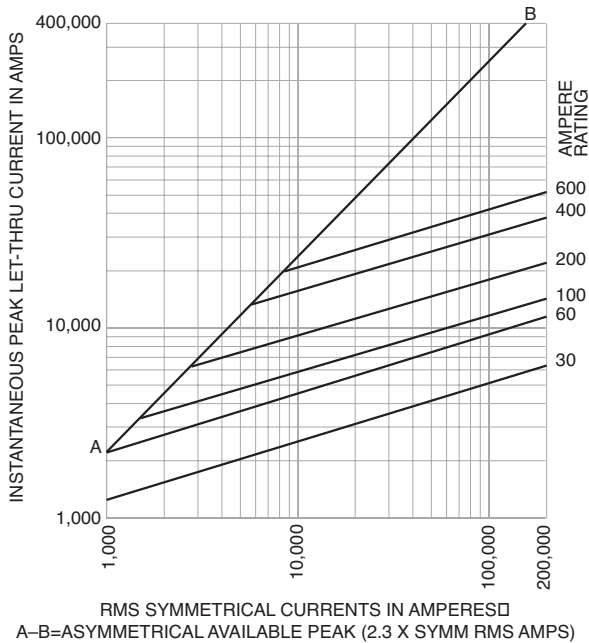


Data Sheets: LPN-RK — 1003 (0-60) and 1004 (70-600)
Data Sheets: LPS-RK — 1001 (0-60) and 1002 (70-600)

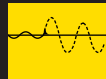
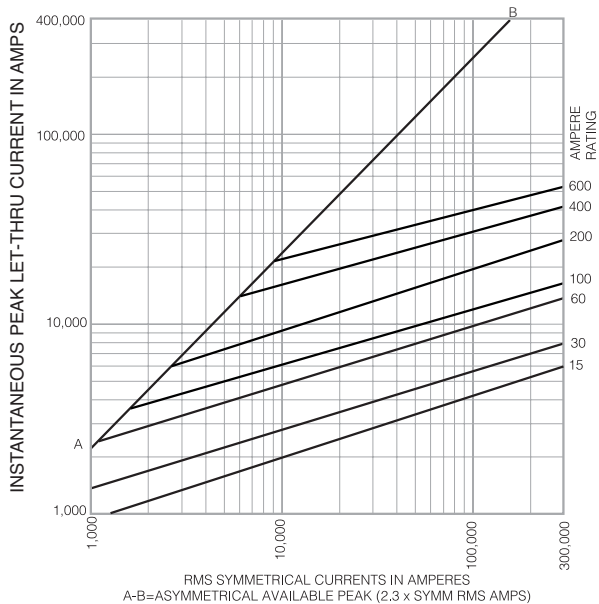
Recommended Fuse Holders & Blocks For Class RK1 600V & 250V Fuses
• See page 9

Low-Peak® dual-element, time-delay fuses

Current Limitation Curves—LPN-RK (250V)



Current Limitation Curves—LPS-RK (600V)



Did You Know?

Manhattan's Biggest Building Project Protected by Cooper Bussmann Low-Peak® Fuses



New York City's landmark AOL Time Warner Center is protected by a vast array of Cooper Bussmann products. The \$1.7 billion, twin-towered, glass-walled complex rises 750 feet and measures 2.8 million square feet. The electrical circuit protection system has 25 switchboards (1200A -

4000A) all containing fusible switches, 500 panelboards (100A – 1600A), 75 plug-in busway switches (100A – 600A), and more than 1900 Cooper Bussmann Class J Low-Peak® fuses. Cooper Bussmann LPJ fuses were used because of the superior series-ratings available using Class J fuses with downstream circuit breaker panels.

Fuses were selected by the consulting engineer for all switchboards, power panels and busway switches because of the high available short circuit currents and the need for selective coordination of overcurrent protective devices (a requirement of the New York City Electrical Code) so the electrical system does not have a "blackouts."

Data Sheets: LPN-RK — 1003 (0-60) and 1004 (70-600)
Data Sheets: LPS-RK — 1001 (0-60) and 1002 (70-600)

Recommended Fuse Holders & Blocks For Class RK1 600V & 250V Fuses
• See page 9

Low-Peak® time-delay, rejection-type fuses

Low Voltage
Branch
Circuit
Fuses

LP-CC Class CC

Specifications

Description: Time-delay, current-limiting, rejection-type fuse – 12 seconds (minimum) at 200% rated amps.

Dimensions: 1 1/2" x 1 1/2" (10.3 x 38.1mm).

Construction: Melamine tube.

Ratings:

- Volts — 600Vac (or less)
- 300Vdc (1/2-2%₀A & 20-30A)
- 150Vdc (3-15A)
- Amps — 1/2-30A
- IR — 200,000A RMS Sym.
- 20,000A dc

Agency Information: CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273, CSA Certified; Class 1422-02, File 53787.

Features and Benefits

- Time delay coupled with Class CC current-limiting response provides close sizing on small motor and relay circuits, and maximum component short-circuit current rating protection.
- 200,000A interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.
- Inventory consolidation of 1 1/2 x 1 1/2 inch supplementary fuses reduces SKU investment and minimizes potential for misapplying fuse.

Typical Applications

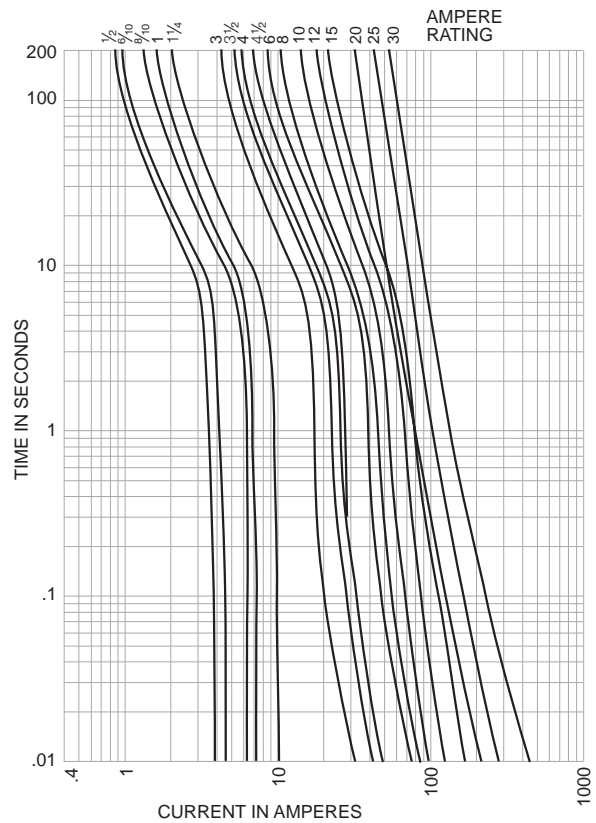
- Specialized Circuits
- Industrial Control
- Isolated, In-Line Fuse Holder

Catalog Numbers (Amps)

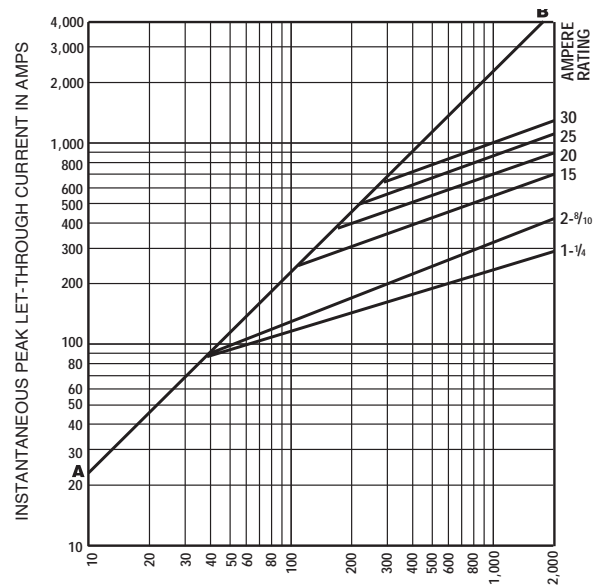
LP-CC-1/2	LP-CC-2 1/2	LP-CC-7 1/2
LP-CC-5/10	LP-CC-2 5/10	LP-CC-8
LP-CC-5/10	LP-CC-3	LP-CC-9
LP-CC-1	LP-CC-3 5/10	LP-CC-10
LP-CC-1 1/8	LP-CC-3 1/2	LP-CC-12
LP-CC-1 1/4	LP-CC-4	LP-CC-15
LP-CC-1 3/10	LP-CC-4 1/2	LP-CC-20
LP-CC-1 1/2	LP-CC-5	LP-CC-25
LP-CC-1 5/10	LP-CC-5 5/10	LP-CC-30
LP-CC-1 8/10	LP-CC-6	
LP-CC-2	LP-CC-6 1/4	
LP-CC-2 1/4	LP-CC-7	



Time Current Characteristics—Average Melt



Current Limitation Curves



PROSPECTIVE SHORT-CIRCUIT CURRENT—SYMMETRICAL RMS AMPS

Recommended Fuse Holders & Blocks For Class CC 600V Fuses

- See page 8

Data Sheet: 1023 (0-30)

Low-Peak® time-delay fuses

KRP-C_SP Class L

Specifications

Description: Time-delay fuse – 4 seconds (minimum) at 500% rated amps.

Dimensions: See page 12 for Class L dimensions.

Construction: Glass melamine tube with silver-plated end bells and blades. High grade silica-sand filler to quench fuse arc. O-ring seals to maximize pressure build-up during current-limiting action and ensure filler retention.

Ratings:

- Volts — 600Vac (or less)
- 300Vdc (601-2000A)
- Amps — 601-6000A
- (use KRP-CL for current ratings under 601A)
- IR — 300,000A RMS Sym.
- 100,000A dc

Agency Information: CE, UL Listed-Special Purpose (meets all performance requirements of UL Standard 248-10 for Class L fuses), Guide JFHR, File E56412, CSA Certified (200,000 AIR), Class 1422-02, File 53787, Class L per CSA C22.2, No. 248.10.

Features and Benefits

- Time delay of four seconds at five times rating allows closer sizing on large motor loads combined with Class L current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Interrupting rating of 300,000A RMS symmetrical provides adequate ratings without obsolescence for all electrical systems, big or small.
- Quality construction, using high-grade materials, provides lower watts loss and operating temperatures with superior arc quenching during current-limiting action.

Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Large Machinery Disconnects

Catalog Numbers (Amps)

KRP-C-601SP	KRP-C-1000SP	KRP-C-1800SP	KRP-C-3500SP
KRP-C-650SP	KRP-C-1100SP	KRP-C-1900SP	KRP-C-3800SP
KRP-C-700SP	KRP-C-1200SP	KRP-C-2000SP	KRP-C-4000SP
KRP-C-750SP	KRP-C-1350SP	KRP-C-2001SP	KRP-C-4500SP
KRP-C-800SP	KRP-C-1400SP	KRP-C-2400SP	KRP-C-5000SP
KRP-C-801SP	KRP-C-1500SP	KRP-C-2500SP	KRP-C-6000SP
KRP-C-900SP	KRP-C-1600SP	KRP-C-3000SP	

Data Sheets: 1008 and 1009





Did You Know?

SKU Reduction Through Productivity Protector™ Program



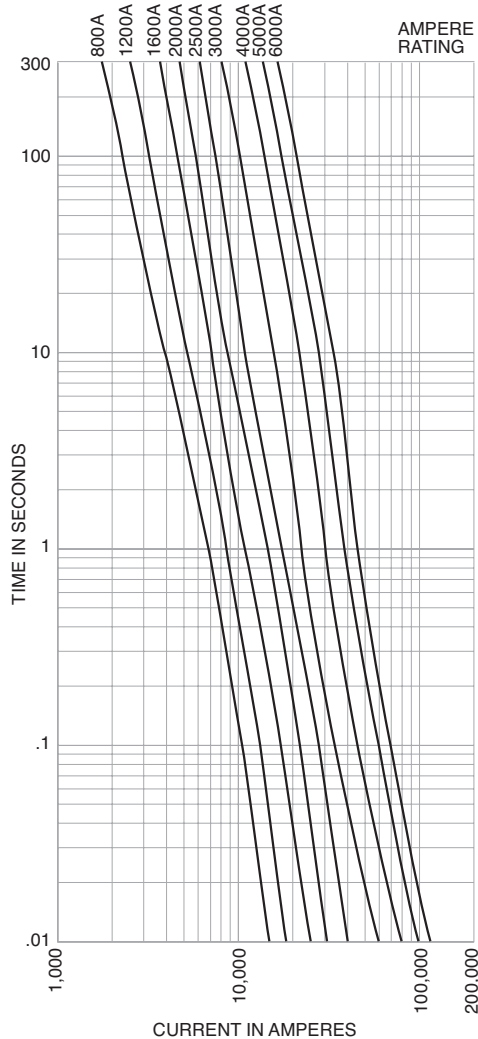
An industrial manufacturing plant in Springfield, Missouri, found that SKUs in its spare fuse inventory were becoming excessive and the plant could not possibly keep a spare for each different fuse type. The Cooper Bussmann district sales engineer applied the new Productivity Protector program, conducting a cross-reference analysis of all fuse SKUs at the facility and producing an upgrade report to identify the recommended Cooper Bussmann Low-Peak® fuses to reduce the plant's inventory. Because more than 47 different types of fuses can be replaced by Low-Peak fuses, the plant was able to reduce its fuse inventory by 25%, resulting in substantial cost savings. The plant also immediately noted it experienced less downtime, crediting the highest degree of current limitation provided by Low-Peak fuse. The sales engineer also provided plant personnel with product application support and safety training.

Recommended Fuse Holders & Blocks For Class L 600V Fuses

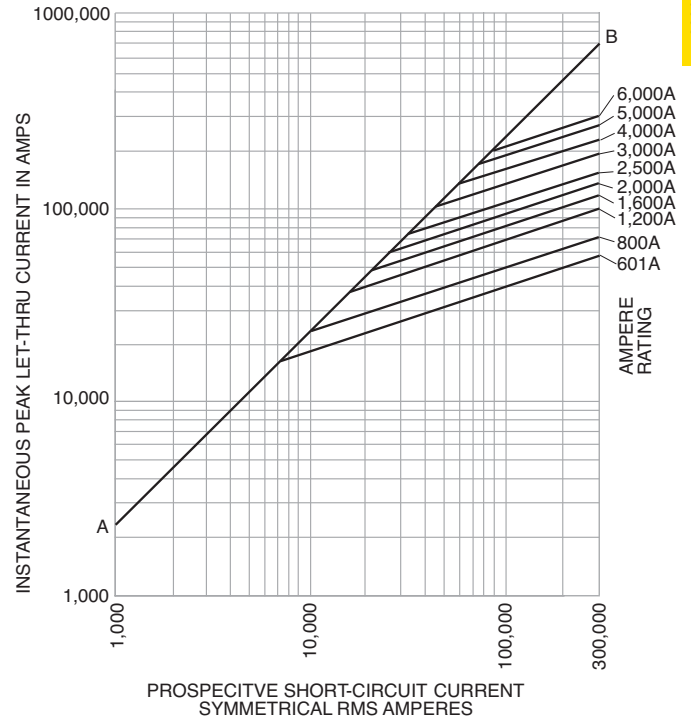
- See page 9

Low-Peak® time-delay fuses

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Low Voltage
Branch
Circuit
Fuses

Data Sheets: 1008 and 1009

KRP-CL Class L Current-limiting, time-delay fuses

Specifications

Description: Current-limiting, time-delay fuse.

Dimensions: See page 12 for Class L dimensional data.

Construction: Glass melamine tube.

Ratings:

Volts — 600Vac (or less)

Amps — 150-600A

IR — 200,000A RMS Sym.

Features and Benefits

- Time delay of four seconds at five times rating allows closer sizing inductive loads coupled with an equivalent Class L current limitation.

- Class L case size for amp ratings from 150A to 600A allows downsize fusing of large Class L fused switches for improved circuit protection.

Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Machinery Disconnects

Catalog Numbers (Amps)

KRP-CL-150	KRP-CL-300	KRP-CL-500
KRP-CL-200	KRP-CL-350	KRP-CL-600
KRP-CL-225	KRP-CL-400	
KRP-CL-250	KRP-CL-450	

Data Sheet: 1016

Recommended Fuse Holders & Blocks For Class L 600V Fuses

- See page 9

Fusetron® dual-element, time-delay fuses

FRN-R (250V) Class RK5

Specifications

Description: Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps.

Dimensions: See page 11 for Class RK5 dimensions.

Construction: Fiberglass tube.

Ratings:

- Volts — 250Vac (or less)
- 125Vdc ($\frac{1}{10}$ -200A)
- 250Vdc (201-600A)
- Amps — $\frac{1}{10}$ -600A
- IR — 200,000A RMS Sym.
- 20,000A dc

Agency Information: CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for 125% of motor FLA sizing, linked with RK5 current limitation.
- 2:1 selective coordination ratio (within the Cooper Bussmann RK5 fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Insulated end caps for 110A-600A fuses reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

Typical Applications

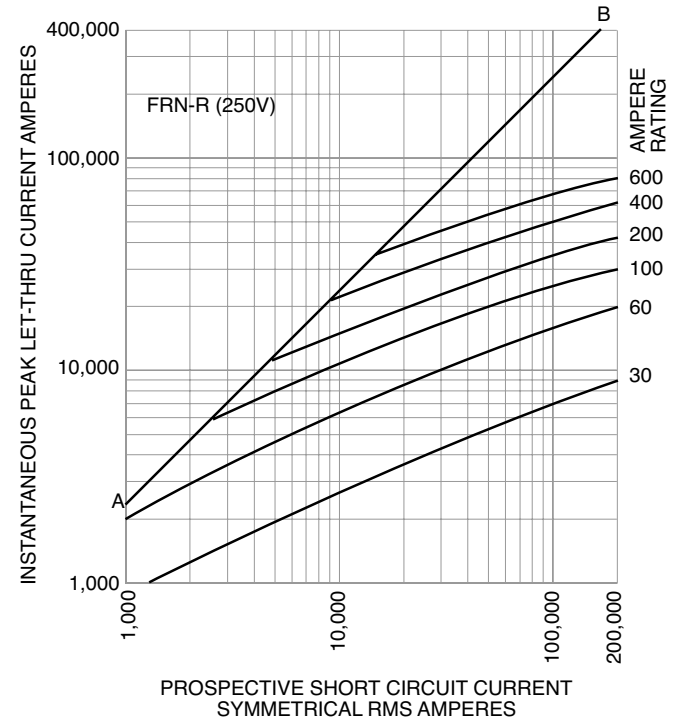
- Power Panelboards
- Motor Control Centers
- Combination Starters
- Machinery Disconnects

Catalog Numbers (Amps)

FRN-R- $\frac{1}{10}$	FRN-R-2	FRN-R-10	FRN-R-100
FRN-R- $\frac{1}{8}$	FRN-R-2 $\frac{1}{4}$	FRN-R-12	FRN-R-110
FRN-R- $\frac{1}{6}$	FRN-R-2 $\frac{1}{2}$	FRN-R-15	FRN-R-125
FRN-R- $\frac{1}{4}$	FRN-R-2 $\frac{3}{4}$	FRN-R-17 $\frac{1}{2}$	FRN-R-150
FRN-R- $\frac{1}{3}$	FRN-R-3	FRN-R-20	FRN-R-175
FRN-R- $\frac{1}{2}$	FRN-R-3 $\frac{1}{2}$	FRN-R-25	FRN-R-200
FRN-R- $\frac{2}{3}$	FRN-R-3 $\frac{3}{4}$	FRN-R-30	FRN-R-225
FRN-R- $\frac{1}{2}$	FRN-R-4	FRN-R-35	FRN-R-250
FRN-R- $\frac{1}{2}$	FRN-R-4 $\frac{1}{2}$	FRN-R-40	FRN-R-300
FRN-R- $\frac{1}{2}$	FRN-R-5	FRN-R-45	FRN-R-350
FRN-R-1	FRN-R-5 $\frac{1}{2}$	FRN-R-50	FRN-R-400
FRN-R-1 $\frac{1}{8}$	FRN-R-6	FRN-R-60	FRN-R-450
FRN-R-1 $\frac{1}{4}$	FRN-R-6 $\frac{1}{4}$	FRN-R-70	FRN-R-500
FRN-R-1 $\frac{1}{3}$	FRN-R-7	FRN-R-75	FRN-R-600
FRN-R-1 $\frac{1}{2}$	FRN-R-7 $\frac{1}{2}$	FRN-R-80	
FRN-R-1 $\frac{1}{2}$	FRN-R-8	FRN-R-85	
FRN-R-1 $\frac{1}{2}$	FRN-R-9	FRN-R-90	



Current Limitation Curves



For superior electrical protection, Cooper Bussmann recommends upgrading FRN-R fuse applications to Low-Peak® LPN-RK fuses See page 16.

Recommended Fuse Holders & Blocks For Class RK5 250V Fuses

- See page 9

Recommended Fuse Reducers For Class R Fuses

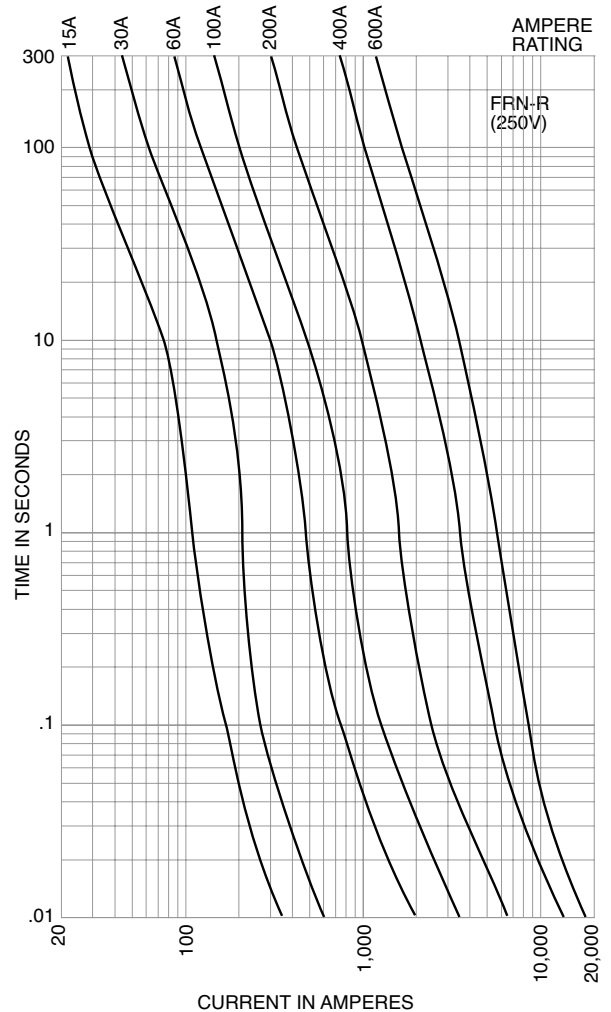
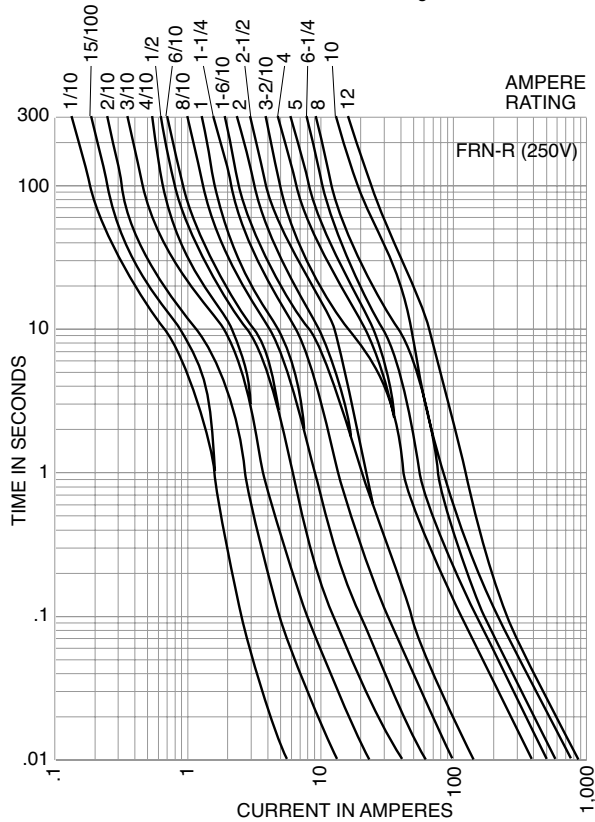
- See page 10

Data Sheets: 1019 (0-60) and 1020 (70-600)

Low Voltage, Branch Circuit Rated Fuses

Fusetron® dual-element, time-delay fuses

Time-Current Characteristic Curves—Average Melt



Low Voltage
Branch
Circuit
Fuses

Did You Know?



Cooper Bussmann fuses keep the lights on and the trams running to the top of the Jefferson National Expansion Memorial 630 foot high Gateway Arch.

For superior electrical protection, Cooper Bussmann recommends upgrading FRN-R fuse applications to Low-Peak LPN-RK fuses See page 16.

Recommended Fuse Holders & Blocks For Class RK5 250V Fuses

- See page 9

Data Sheets: 1019 (0-60) and 1020 (70-600)

Fusetron® dual-element, time-delay fuses

FRS-R (600V) Class RK5

Specifications

Description: Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps.

Dimensions: See page 11 for Class RK5 dimensions.

Construction: Fiberglass tube.

Ratings:

- Volts — 600Vac (or less)
- 300Vdc
- Amps — 1/10-600A
- IR — 200,000A RMS Sym.
- 20,000A @ 300Vdc

Agency Information: CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- 2:1 selective coordination ratio (within RK5 fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Insulated end caps for 70-600A fuses reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

Typical Applications

- Power Panelboards
- Motor Control Centers
- Combination Starters
- Machinery Disconnects

Catalog Numbers (Amps)

FRS-R-1/10	FRS-R-2	FRS-R-10	FRS-R-110
FRS-R-1/8	FRS-R-2 1/4	FRS-R-12	FRS-R-125
FRS-R-15/100	FRS-R-2 1/2	FRS-R-15	FRS-R-150
FRS-R-1/10	FRS-R-2 3/10	FRS-R-17 1/2	FRS-R-175
FRS-R-1/4	FRS-R-3	FRS-R-20	FRS-R-200
FRS-R-3/10	FRS-R-3 3/10	FRS-R-25	FRS-R-225
FRS-R-1/10	FRS-R-3 1/2	FRS-R-30	FRS-R-250
FRS-R-1/2	FRS-R-4	FRS-R-35	FRS-R-275
FRS-R-1/10	FRS-R-4 1/2	FRS-R-40	FRS-R-300
FRS-R-1/10	FRS-R-5	FRS-R-45	FRS-R-325
FRS-R-1	FRS-R-5 1/10	FRS-R-50	FRS-R-350
FRS-R-1 1/8	FRS-R-6	FRS-R-60	FRS-R-400
FRS-R-1 1/4	FRS-R-6 1/4	FRS-R-70	FRS-R-450
FRS-R-1 1/10	FRS-R-7	FRS-R-75	FRS-R-500
FRS-R-1 1/2	FRS-R-7 1/2	FRS-R-80	FRS-R-600
FRS-R-1 3/10	FRS-R-8	FRS-R-90	
FRS-R-1 1/10	FRS-R-9	FRS-R-100	

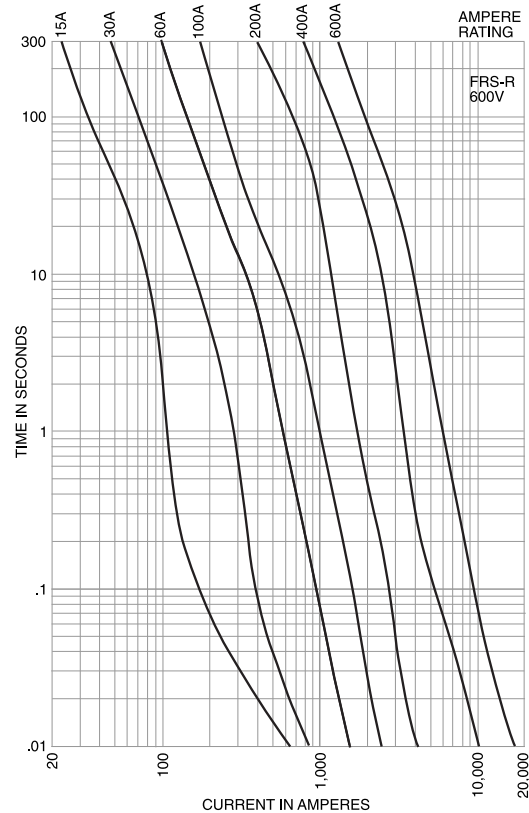
For superior electrical protection, Cooper Bussmann recommends upgrading FRS-R fuse applications to Low-Peak LPS-RK fuses See page 16.

Recommended Fuse Holders & Blocks For Class RK5

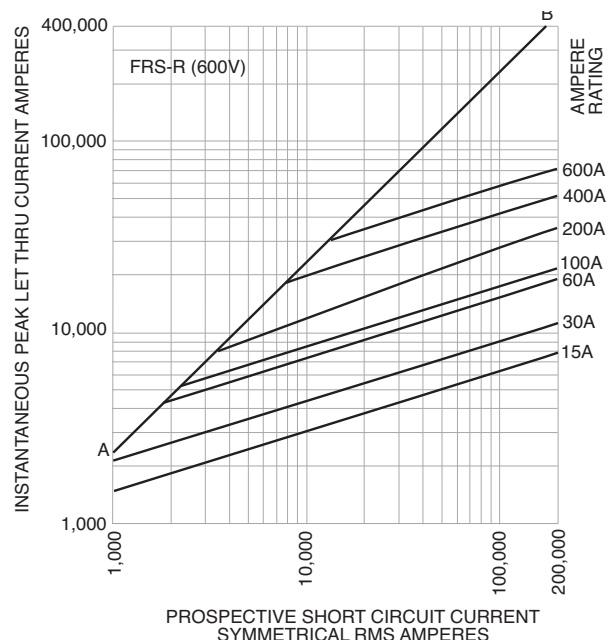
600V Fuses

- See page 9 Data Sheet: 1017 (0-60), 1018 (70-600)

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Recommended Fuse Reducers For Class R Fuses

- See page 10

Limitron® fast-acting fuses

JKS Class J



Specifications

Description: Fast-acting, current-limiting fuse.

Dimensions: See page 11 for Class J dimensions.

Construction: Melamine tube with silver fuse element.

Ratings:

Volts — 600Vac (or less)

Amps — 1-600A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-8, Class J, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Current limitation for non-inductive circuits provides Class J current-limiting response to maximum ground fault and short-circuit conditions.
- 200,000A interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

Typical Applications

- Power Panelboards
- Machinery Disconnects

Catalog Numbers (Amps)

JKS-1	JKS-15	JKS-70	JKS-225
JKS-2	JKS-20	JKS-80	JKS-250
JKS-3	JKS-25	JKS-90	JKS-300
JKS-4	JKS-30	JKS-100	JKS-350
JKS-5	JKS-35	JKS-110	JKS-400
JKS-6	JKS-40	JKS-125	JKS-450
JKS-8	JKS-45	JKS-150	JKS-500
JKS-10	JKS-50	JKS-175	JKS-600
JKS-12	JKS-60	JKS-200	

Fuse Reducers for J Dimension Fuses

Equipment Fuse Clip Amps	Desired Fuse (Case) Amp Size	Catalog No. (Pairs)
60	30	J63
100	30	J13
100	60	J16
200	60	J26
200	100	J21
400	100	J41
400	200	J42
600	200	J62
600	400	J64

Low Voltage
Branch
Circuit
Fuses

Did You Know?

Reduce Downtime with Cooper Bussmann 24/7 Emergency After-Hours Service

When overloads or short circuits open the fuse and there are no spares on the shelf, where do you turn to get the production line back up, the trains running or the elevators operating?

Customers pay only standard price for the required circuit protection device, rush freight charges and a \$75.00 emergency fee for this door-to-door service. No minimum order requirements. No surcharges for drop shipments.

Call us at 314-995-1342 and we will:
Set the Cooper Bussmann Customer Satisfaction team in motion to do what it takes to satisfy your needs.
Next flight out or next day service; your choice.

For superior electrical protection, Cooper Bussmann recommends upgrading JKS fuse applications to Low-Peak LPJ fuses See page 15.

Recommended Fuse Holders & Blocks For Class J 600V Fuses

- See page 10

Limitron® fast-acting fuses

KTN-R (250V) Class RK1

Specifications

Description: Fast-acting, current-limiting fuse.

Dimensions: See page 11 for Class RK1 dimensions.

Construction: Melamine tube with silver fuse element.

Ratings:

- Volts — 250Vac (or less)
- Amps — 1-600A
- IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-12, Class RK1, UL Listed, Guide JDDZ, File E54273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Current limitation for non-inductive circuits provides Class RK1 current-limiting response to maximum ground fault and short-circuit conditions.
- 200,000A interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

Typical Applications

- Panelboards

Catalog Numbers (Amps)

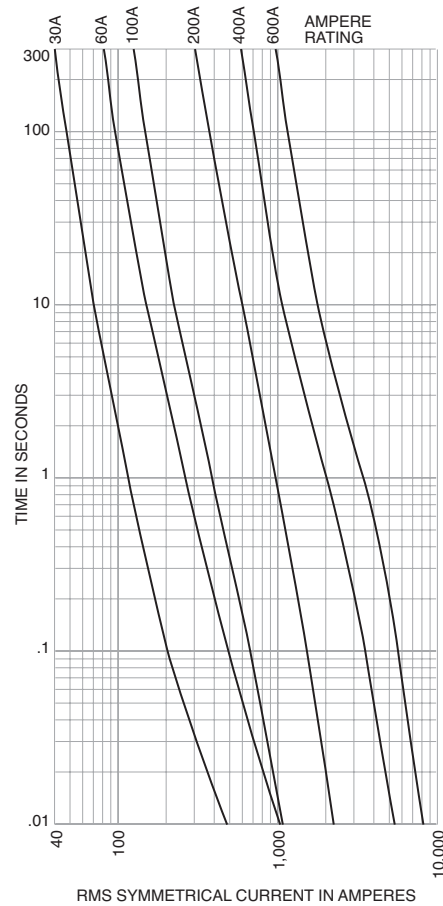
KTN-R-1	KTN-R-30	KTN-R-125
KTN-R-2	KTN-R-35	KTN-R-150
KTN-R-3	KTN-R-40	KTN-R-175
KTN-R-4	KTN-R-45	KTN-R-200
KTN-R-5	KTN-R-50	KTN-R-225
KTN-R-6	KTN-R-60	KTN-R-250
KTN-R-8	KTN-R-70	KTN-R-300
KTN-R-10	KTN-R-75	KTN-R-350
KTN-R-12	KTN-R-80	KTN-R-400
KTN-R-15	KTN-R-90	KTN-R-450
KTN-R-20	KTN-R-100	KTN-R-500
KTN-R-25	KTN-R-110	KTN-R-600

For superior electrical protection, Cooper Bussmann recommends upgrading KTN-R fuse applications to Low-Peak LPN-RK fuses See page 16.

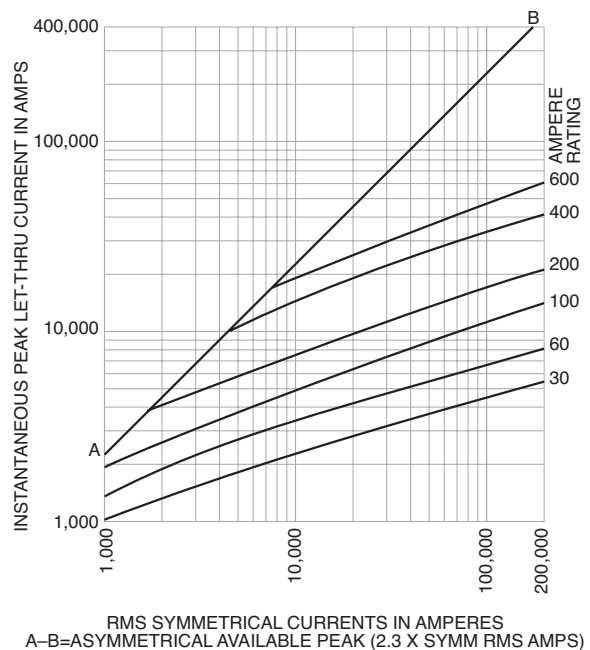
Recommended Fuse Holders & Blocks For Class RK1 250V Fuses

- See page 9

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Limitron® fast-acting fuses

Low Voltage
Branch
Circuit
Fuses

KTS-R (600V) Class RK1

Specifications

Description: Fast-acting, current-limiting fuse.

Dimensions: See page 11 for Class RK1 dimensions.

Construction: Melamine tube with silver fuse element.

Ratings:

Volts — 600Vac (or less)

Amps — 1-600A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-12, Class RK1, UL Listed, Guide JDDZ, File E54273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

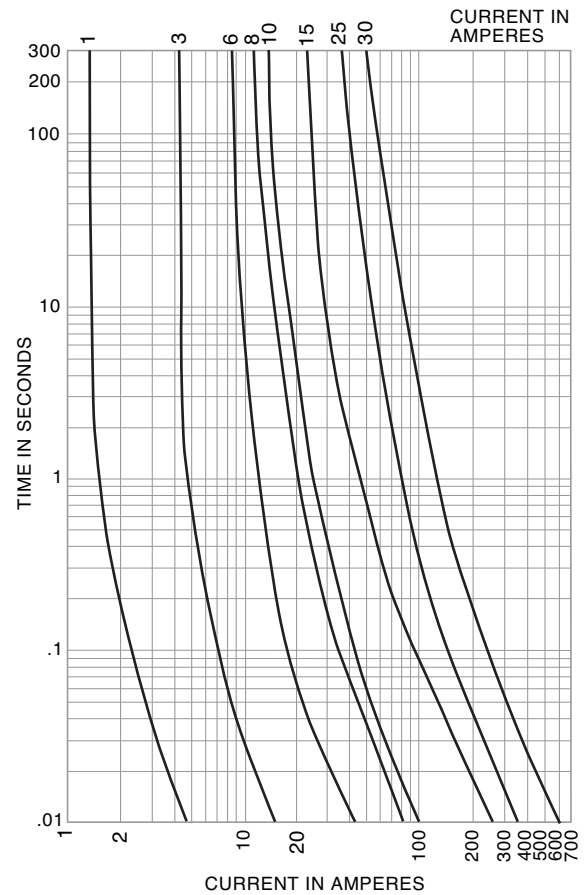
- Current limitation for non-inductive circuits provides Class RK1 current-limiting response to maximum ground fault and short-circuit conditions.
- 200,000A interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

Typical Applications

- Panelboards



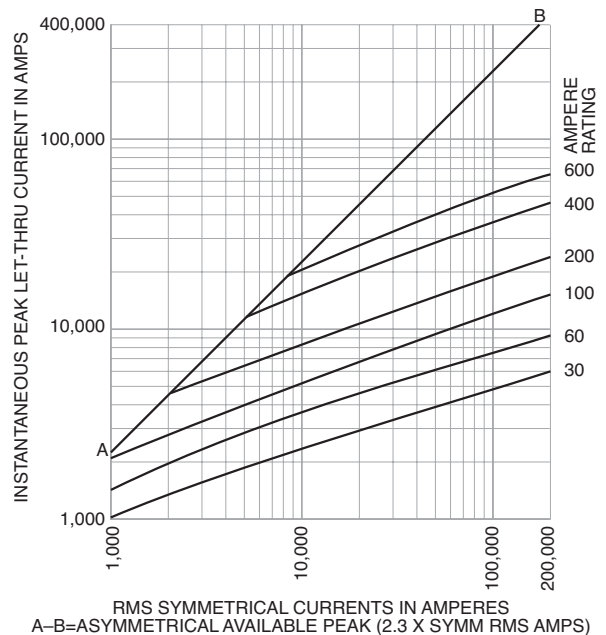
Time-Current Characteristic Curves—Average Melt



Catalog Numbers (Amps)

KTS-R-1	KTS-R-30	KTS-R-125
KTS-R-2	KTS-R-35	KTS-R-150
KTS-R-3	KTS-R-40	KTS-R-175
KTS-R-4	KTS-R-45	KTS-R-200
KTS-R-5	KTS-R-50	KTS-R-225
KTS-R-6	KTS-R-60	KTS-R-250
KTS-R-8	KTS-R-70	KTS-R-300
KTS-R-10	KTS-R-75	KTS-R-350
KTS-R-12	KTS-R-80	KTS-R-400
KTS-R-15	KTS-R-90	KTS-R-450
KTS-R-20	KTS-R-100	KTS-R-500
KTS-R-25	KTS-R-110	KTS-R-600

Current Limitation Curves



For superior electrical protection, Cooper Bussmann recommends upgrading KTS-R fuse applications to Low-Peak LPS-RK fuses See page 16.

Recommended Fuse Holders & Blocks For Class RK1 600V Fuses

- See page 9

Data Sheet: 1044 (0-600)

Limitron® rejection-type fuses

KTK-R Class CC

Specifications

Description: Fast-acting, branch circuit, rejection-type fuse.

Dimensions: 1/2" x 1 1/2" (10.3 x 38.1mm).

Construction: Melamine tube.

Ratings:

Volts — 600Vac (or less)

Amps — 1/10-30A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273 CSA Certified, File 53787, Class 1422-02.

Features and Benefits

- Current limitation at Class CC levels provides maximum component short-circuit current rating protection.
- 200,000A interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.

Typical Applications

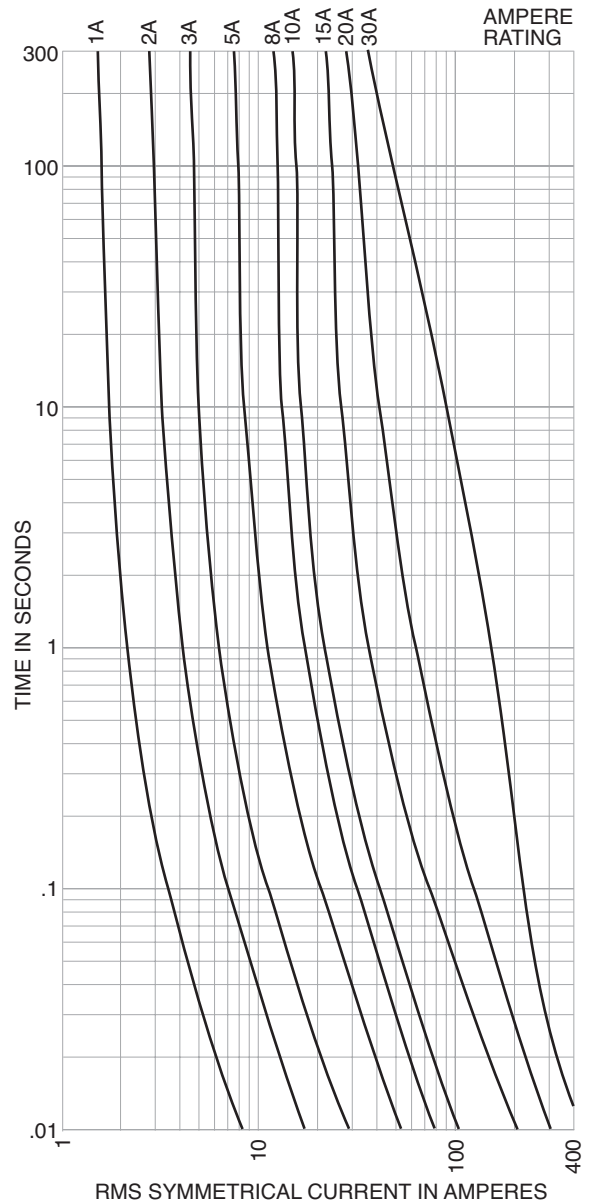
- Specialized Circuits
- Industrial Control
- Isolated, In-Line Fuse Holders (street lighting)

Catalog Numbers (Amps)

KTK-R-1/10	KTK-R-1	KTK-R-7
KTK-R-1/8	KTK-R-1 1/2	KTK-R-8
KTK-R-3/10	KTK-R-2	KTK-R-9
KTK-R-1/4	KTK-R-2 1/2	KTK-R-10
KTK-R-3/10	KTK-R-3	KTK-R-12
KTK-R-1/3	KTK-R-3 1/2	KTK-R-15
KTK-R-1/2	KTK-R-4	KTK-R-20
KTK-R-2/3	KTK-R-5	KTK-R-25
KTK-R-3/4	KTK-R-6	KTK-R-30



Time-Current Characteristic Curves—Average Melt



For superior electrical protection, Cooper Bussmann recommends upgrading KTK-R fuse applications to Low-Peak LP-CC fuses See page 19.

Recommended Fuse Holders & Blocks For Class CC 600V Fuses

- See page 8

Limitron® fuses

Low Voltage
Branch
Circuit
Fuses

KTU Class L

Specifications

Description: Fast-acting, bolt-mount fuse.

Dimensions: See page 12 for Class L dimensions.

Construction:

Ratings:

Volts — 600Vac (or less)

Amps — 601-6000A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-10, Class L, UL Listed, Guide JDDZ, File E4273 CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- 200,000A interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.
- Quality construction using high-grade materials provides lower watts loss and operating temperatures with superior arc quenching during current-limiting action.

Typical Applications

- Large Distribution Switchboards
- Power Panelboards

Catalog Number (Amps)

KTU-601	KTU-1200	KTU-2500
KTU-650	KTU-1350	KTU-3000
KTU-700	KTU-1400	KTU-3001
KTU-750	KTU-1500	KTU-4000
KTU-800	KTU-1600	KTU-4500
KTU-801	KTU-1800	KTU-5000
KTU-900	KTU-2000	KTU-6000
KTU-1100	KTU-2400	



KLU Class L

Specifications

Description: Time-delay, bolt-mount fuse - 5 seconds (minimum) at 500% rated amps. See KRP-CL for amp ratings below 601A.

Dimensions: See page 12 for Class L dimensions.

Construction:

Ratings:

Volts — 600Vac (or less)

Amps — 601-4000A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-10, Class L, UL Listed, Guide JDDZ, File E4273, CSA Certified, CSA Class 1422-02, File 53787.

Features and Benefits

- 200,000A interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high fault circuits.

Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Large Machinery Disconnects

Catalog Numbers (Amps)

KLU-601	KLU-1200	KLU-2500
KLU-650	KLU-1500	KLU-3000
KLU-700	KLU-1600	KLU-4000
KLU-800	KLU-1800	
KLU-1000	KLU-2000	



For superior electrical protection, Cooper Bussmann recommends upgrading KTU fuse applications to Low-Peak KRP-C fuses See page 20.

Recommended Fuse Holders & Blocks For Class L

600V Fuses

- See page 9

For superior electrical protection, Cooper Bussmann recommends upgrading KLU fuse applications to Low-Peak KRP-C fuses See page 20.

Recommended Fuse Holders & Blocks For Class L

600V Fuses

- See page 9

Dura-Lag™ dual-element, time-delay fuses

DLN-R (250V) Class RK5

Specifications

Description: Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps.

Dimensions: See page 11 for Class RK5 dimensions.

Construction: Fiberglass tube.

Ratings:

Volts — 250Vac (or less)

Amps — 1-600A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02 File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for close inductive load sizing, linked with RK5 current limitation.
- 200,000A interrupting rating provides high ratings at all circuit locations.

Typical Applications

- Power Panelboards
- Machinery Disconnects

Catalog Numbers (Amps)

DLN-R-1	DLN-R-15	DLN-R-100
DLN-R-2	DLN-R-20	DLN-R-125
DLN-R-2 ½	DLN-R-25	DLN-R-150
DLN-R-3	DLN-R-30	DLN-R-175
DLN-R-3 ¾	DLN-R-35	DLN-R-200
DLN-R-4	DLN-R-40	DLN-R-225
DLN-R-5	DLN-R-45	DLN-R-250
DLN-R-6	DLN-R-50	DLN-R-300
DLN-R-6 ¾	DLN-R-60	DLN-R-400
DLN-R-8	DLN-R-70	DLN-R-600
DLN-R-10	DLN-R-80	
DLN-R-12	DLN-R-90	

For superior electrical protection, Cooper Bussmann recommends upgrading DLN-R fuse applications to Low-Peak LPN-RK fuses See page 16.

Recommended Fuse Holders & Blocks For Class RK5

250V Fuses

- See page 9

Data Sheet: 1021 (0-600)

DLS-R (600V) Class RK5

Specifications

Description: Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps.

Dimensions: See page 11 for Class RK5 dimensions.

Construction: Fiberglass tube.

Ratings:

Volts — 600Vac (or less)

Amps — 1-600A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02 File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for close inductive load sizing, linked with RK5 current limitation.
- 200,000A interrupting rating provides high ratings at all circuit locations.

Typical Applications

- Power Panelboards
- Machinery Disconnects

Catalog Numbers (Amps)

DLS-R-1	DLS-R-12	DLS-R-100
DLS-R-1 ½	DLS-R-15	DLS-R-110
DLS-R-2	DLS-R-17 ½	DLS-R-125
DLS-R-2 ½	DLS-R-20	DLS-R-150
DLS-R-3	DLS-R-25	DLS-R-175
DLS-R-3 ¾	DLS-R-30	DLS-R-200
DLS-R-4	DLS-R-35	DLS-R-225
DLS-R-5	DLS-R-40	DLS-R-250
DLS-R-6	DLS-R-45	DLS-R-300
DLS-R-6 ¾	DLS-R-50	DLS-R-350
DLS-R-7	DLS-R-60	DLS-R-400
DLS-R-8	DLS-R-70	DLS-R-500
DLS-R-9	DLS-R-80	DLS-R-600
DLS-R-10	DLS-R-90	

For superior electrical protection, Cooper Bussmann recommends upgrading DLS-R fuse applications to Low-Peak LPS-RK fuses See page 16.

Recommended Fuse Holders & Blocks For Class RK5

600V Fuses

- See page 9

Data Sheet: 1022 (0-600)

CC-Tron® rejection-type fuses

Low Voltage
Branch
Circuit
Fuses

FNQ-R Class CC

Specifications

Description: Time-delay, branch circuit, rejection-type fuse.

Dimensions: 1 3/32" x 1 1/2" (10.3 x 38.1mm).

Construction: Melamine tube.

Ratings:

Volts — 600Vac (or less)

Amps — 1/4-30A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273 CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Time delay compatible with inrush characteristic of small control transformers.
- Current limitation at Class CC levels provides maximum component short-circuit current rating protection.
- 200,000A interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.

Typical Applications

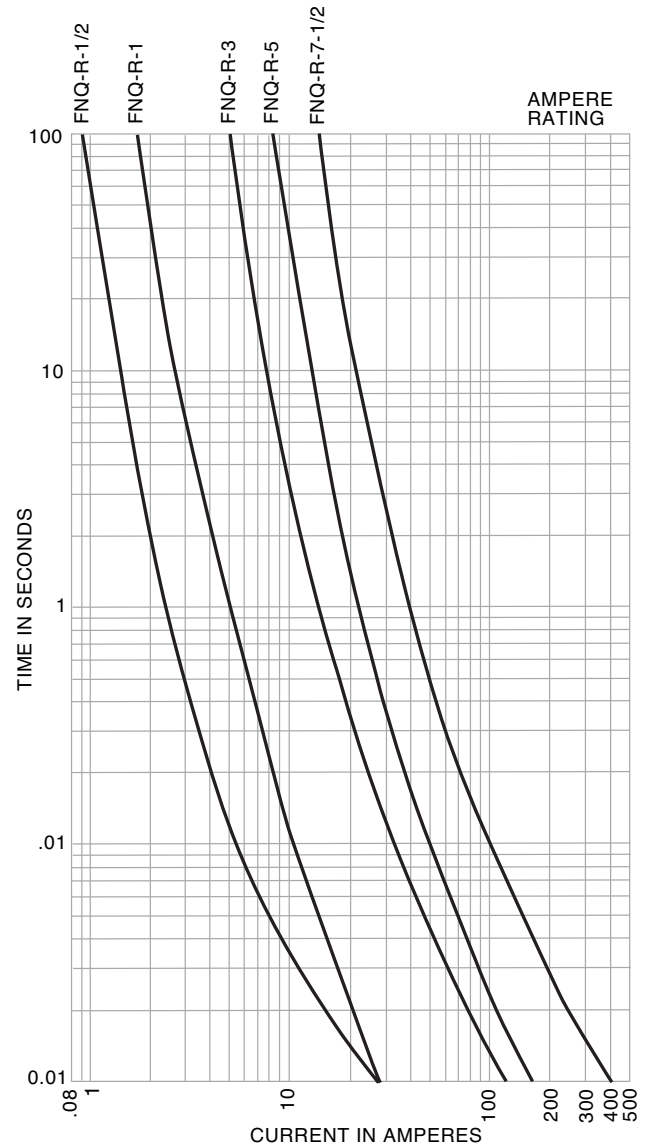
- Specialized Circuits
- Industrial Control
- Isolated, In-Line Fuse Holders
- Line Protection, Small Control Transformers

Catalog Numbers (Amps)

FNQ-R-1/4	FNQ-R-1 3/10	FNQ-R-7
FNQ-R-3/10	FNQ-R-1 1/2	FNQ-R-7 1/2
FNQ-R-3/10	FNQ-R-2	FNQ-R-8
FNQ-R-1/2	FNQ-R-2 1/4	FNQ-R-9
FNQ-R-3/10	FNQ-R-2 1/2	FNQ-R-10
FNQ-R-3/4	FNQ-R-2 3/10	FNQ-R-12
FNQ-R-3/10	FNQ-R-3	FNQ-R-15
FNQ-R-1	FNQ-R-3 3/10	FNQ-R-17 1/2
FNQ-R-1 1/8	FNQ-R-3 1/2	FNQ-R-20
FNQ-R-1 1/4	FNQ-R-4	FNQ-R-25
FNQ-R-1 3/10	FNQ-R-5	FNQ-R-30
FNQ-R-1 3/10	FNQ-R-6	
FNQ-R-1 1/2	FNQ-R-6 1/4	



Time-Current Characteristic Curves—Average Melt



For superior electrical protection, Cooper Bussmann recommends upgrading FNQ-R fuse applications to Low-Peak LP-CC fuses See page 19.

Recommended Fuse Holders & Blocks For Class CC

600V Fuses

- See page 8

T-Tron® fast-acting fuses

JJN Class T

Specifications

Description: Very fast-acting, current-limiting fuse.

Dimensions: See page 12 for Class T dimensions.

Construction: Melamine tube with silver fuse element.

Ratings:

- Volts — 300Vac (or less)
- 160Vdc (15-600A)
- 170Vdc (601-1200A)
- Amps — 1-1200A
- IR — 200,000 RMS Sym.
- 20,000A dc @ 160Vdc
- 100,000A dc @ 170Vdc

Agency Information: CE, Std. 248-15, Class T, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.
- Current limitation for non-inductive circuits provides Class T current-limiting response to maximum ground fault and short-circuit conditions.
- 200,000A interrupting rating provides high ratings at all circuit locations.
- Small footprint allows more efficient use of available space.

Typical Applications

- Large Apartment Complexes
- Multi-Family Meter Stacks
- VFD Line Protection

Catalog Numbers (Amps)

JJN-1	JJN-15	JJN-40	JJN-80	JJN-150	JJN-300	JJN-600
JJN-2	JJN-20	JJN-45	JJN-90	JJN-175	JJN-350	JJN-700
JJN-3	JJN-25	JJN-50	JJN-100	JJN-200	JJN-400	JJN-800
JJN-6	JJN-30	JJN-60	JJN-110	JJN-225	JJN-450	JJN-1000
JJN-10	JJN-35	JJN-70	JJN-125	JJN-250	JJN-500	JJN-1200

Data Sheet: 1025

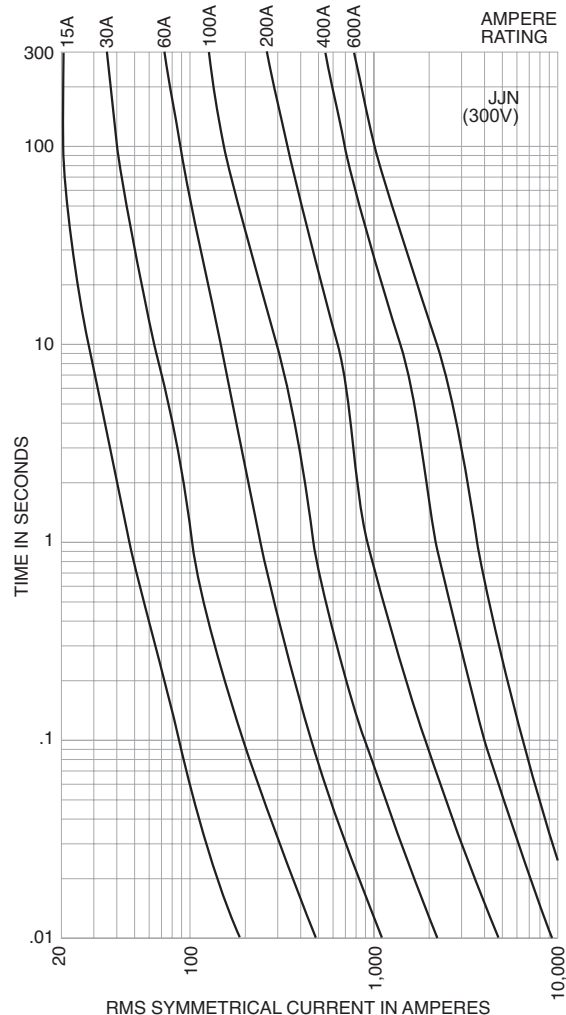
Recommended Fuse Holders & Blocks For Class T

300V Fuses

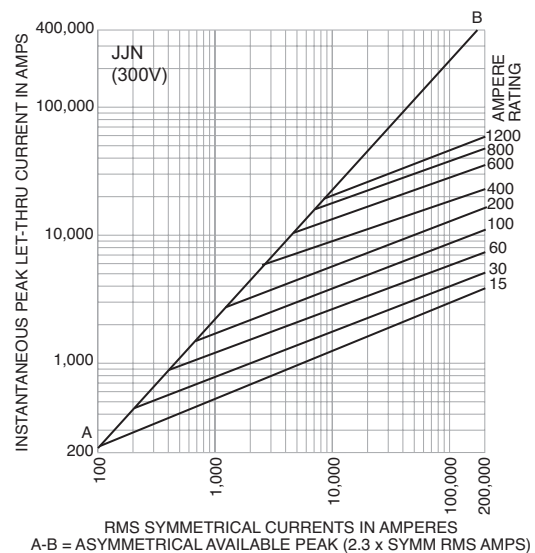
- See page 9



Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



T-Tron® fast-acting fuses

JJS Class T

Specifications

Description: Very fast-acting, current-limiting fuse.

Dimensions: See page 12 for Class T dimensions.

Construction: Melamine tube with silver fuse element.

Ratings:

Volts — 600Vac (or less)

Amps — 1-800A

IR — 200,000A RMS Sym.

Agency Information: CE, Std. 248-15, Class T, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.
- Current limitation for non-inductive circuits provides Class T current-limiting response to maximum ground fault and short-circuit conditions.
- 200,000A interrupting rating provides high ratings at all circuit locations.
- Small footprint allows more efficient use of available space.

Typical Applications

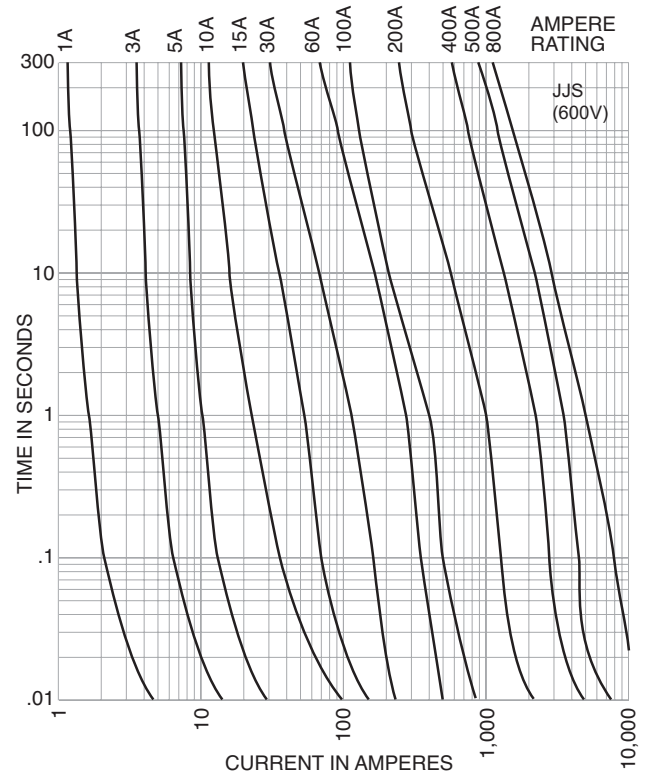
- Large Apartment Complexes
- Multi-Family Meter Stacks
- VFD Line Protection

Catalog Numbers (Amps)

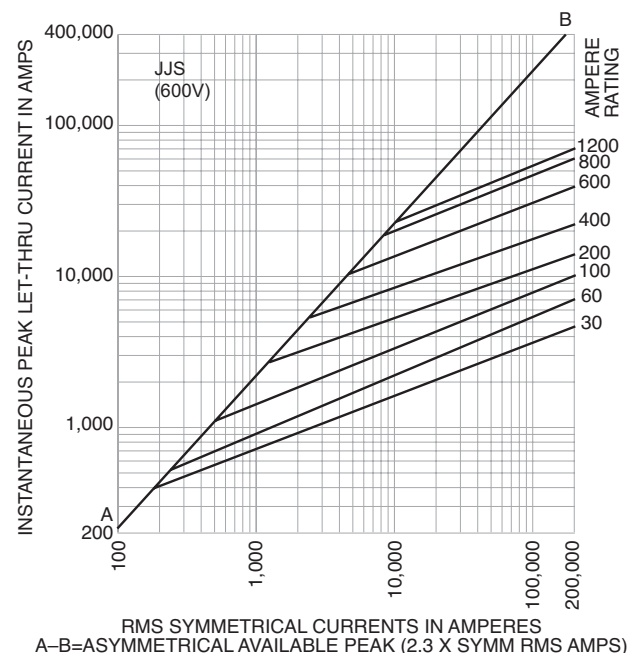
JJS-1	JJS-15	JJS-40	JJS-80	JJS-150	JJS-300	JJS-600
JJS-2	JJS-20	JJS-45	JJS-90	JJS-175	JJS-350	JJS-800
JJS-3	JJS-25	JJS-50	JJS-100	JJS-200	JJS-400	
JJS-6	JJS-30	JJS-60	JJS-110	JJS-225	JJS-450	
JJS-10	JJS-35	JJS-70	JJS-125	JJS-250	JJS-500	



Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Data Sheet: 1029

Recommended Fuse Holders & Blocks For Class T

600V Fuses

- See page 9

Time-delay fuses

SC Class G

Specifications

Description: Fast-acting ($\frac{1}{2}$ -6A), time-delay (7-60A) fuse.

Dimensions: See Dimensions illustration.

Construction: Melamine tube.

Ratings:

- Volts — 600Vac ($\frac{1}{2}$ -20A)
- 480Vac (25-60A)
- 170Vdc ($\frac{1}{2}$ -20A)
- 300Vdc (30 & 60A only)
- Amps — $\frac{1}{2}$ -60A
- IR — 100,000A RMS Sym.
- 10,000A dc

Agency Information: CE, Std. 248-5, Class G, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Current limiting for component protection, providing Class G energy-limitation for branch circuit protection.
- 100,000A interrupting rating provides cost-effective branch circuit fusing.
- Variations in length help prevent overfusing.

Typical Applications

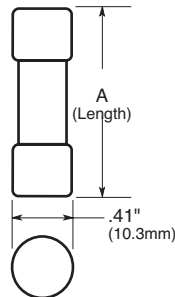
- Fusible Branch Panelboards
- HVAC Branch Circuit Protection

Catalog Numbers (Amps)

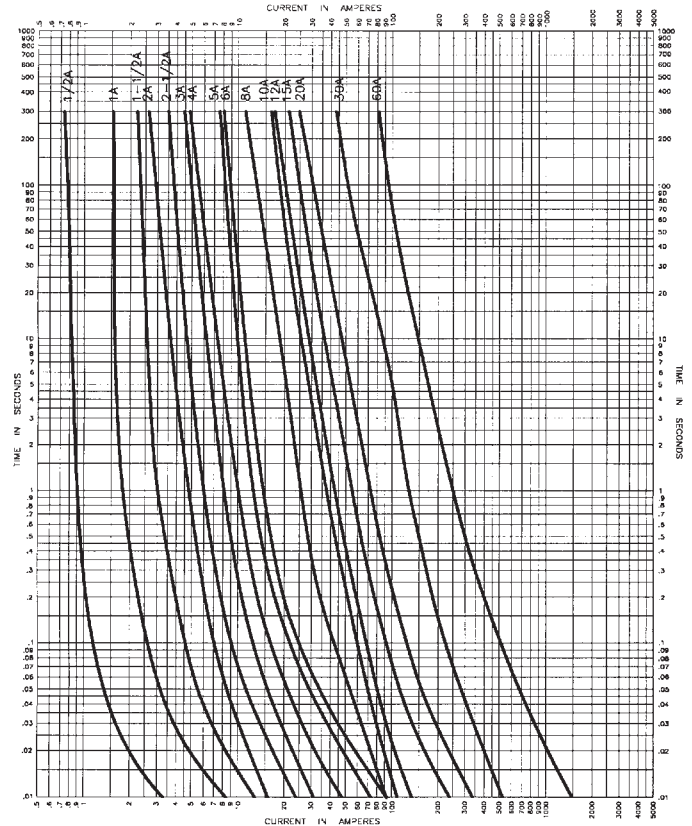
SC- $\frac{1}{2}$	SC-2 $\frac{1}{2}$	SC-6	SC-10	SC-25	SC-45
SC-1	SC-3	SC-7	SC-12	SC-30	SC-50
SC-1 $\frac{1}{2}$	SC-4	SC-8	SC-15	SC-35	SC-60
SC-2	SC-5	SC-9	SC-20	SC-40	

Dimensions -in (mm)

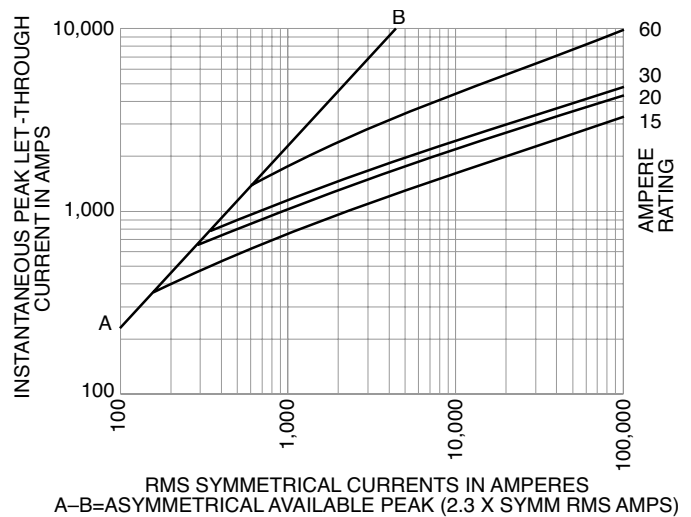
Fuse Amps	Length	Diameter
SC- $\frac{1}{2}$ to -15	1.31 (33.3)	0.41" (10.4)
SC-20	1.41 (35.8)	0.41" (10.4)
SC-25 to -30	1.62 (41.2)	0.41" (10.4)
SC-35 to -60	2.25 (57.1)	0.41" (10.4)



Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



One-time general purpose fuses

Low Voltage
Branch
Circuit
Fuses

NON (250Vac/125Vdc) Class K5 & H

NOS (600Vac) Class K5 & H

Specifications

Description: General purpose, non-current-limiting fuses.

Dimensions: See page 11 for dimensions.

Ratings:

- Volts — **NON:**
- 250Vac
 - 125Vdc (0-100A)
- **NOS:**
- 600Vac
- Amps — $\frac{1}{8}$ -600A
- IR — 50,000A RMS Sym. (NON & NOS Class K5 0-60A)
 - 10,000A RMS Sym. (NON & NOS Class H 65-600A)
 - 50,000A @ 125Vdc (NON Class K5 0-60A)
 - 10,000A @ 125Vdc (NON Class H 65-100A)



Agency Information: CE, UL Listed – 250V: Class K5 (0-60A), Std. 248-9, Class H (65-600A), Std. 248-6, (125Vdc: NON 0-100), 600V: Class K5 (0-60A), Std. 248-9, Class H (70-600A), Std. 248-6, Guide JDDZ, File E4273, CSA Certified – 250V: (0-12, 65-600)†, 600V: (0-600), Class 1421-01, File 53787.

† For CSA Certified 15-60A Ratings, see PON Data Sheet 4126

Features and Benefits

- Original fuse providing circuit protection.

Typical Applications

- Light Duty Circuit Locations

NON (250Vac) Catalog Numbers (Amps)

NON- $\frac{1}{8}$	NON-5	NON-40	NON-175
NON- $\frac{1}{4}$	NON-6	NON-45	NON-200
NON- $\frac{3}{8}$	NON-6 $\frac{1}{4}$	NON-50	NON-225
NON- $\frac{1}{2}$	NON-7	NON-60	NON-250
NON-1	NON-8	NON-65	NON-300
NON-1 $\frac{1}{4}$	NON-9	NON-70	NON-350
NON-1 $\frac{1}{2}$	NON-10	NON-75	NON-400
NON-1 $\frac{3}{8}$	NON-12	NON-80	NON-450
NON-2	NON-15	NON-90	NON-500
NON-2 $\frac{1}{2}$	NON-20	NON-100	NON-600
NON-3	NON-25	NON-110	
NON-3 $\frac{3}{8}$	NON-30	NON-125	
NON-4	NON-35	NON-150	

NOS (600Vac) Catalog Numbers (-Amps)

NOS-1	NOS-12	NOS-70	NOS-200
NOS-2	NOS-15	NOS-75	NOS-225
NOS-3	NOS-20	NOS-80	NOS-250
NOS-4	NOS-25	NOS-90	NOS-300
NOS-5	NOS-30	NOS-100	NOS-350
NOS-6	NOS-35	NOS-110	NOS-400
NOS-7	NOS-40	NOS-125	NOS-450
NOS-8	NOS-45	NOS-150	NOS-500
NOS-9	NOS-50	NOS-175	NOS-600
NOS-10	NOS-60		

Recommended Fuse Reducers

250V Fuse Amp Size	Clip Amp Size	Catalog Number (Pair)	600V Fuse Amp Size	Clip Amp Size	Catalog Number (Pair)
30	60	263	30	60	No. 663
30	100	213	30	100	No. 216
60	100	216	60	100	No. 616
60	200	226	60	200	No. 626
100	200	2621	100	200	No. 2621
100	400	2641	100	400	No. 2641
200	400	2642	200	400	No. 2642
100	600	2661	100	600	No. 2661
200	600	2662	200	600	No. 2662
400	600	2664	400	600	No. 2664

For superior electrical protection, Cooper Bussmann recommends upgrading NON (250Vac) and NOS (600Vac) fuse applications to Low-Peak LPN-RK (250Vac) and LPS-RK (600Vac) fuses See page 16.

Recommended Fuse Holders & Blocks For Class K5 & H 250V & 600V Fuses

- See page 8

Plug fuses

W Series

Specifications

Description: Fast-acting plug fuse.

Dimensions: Edison base plug.

Construction: Brass threads with ceramic body.

Ratings:

Volts — 125Vac

Amps — ½-12A

IR — 10,000A RMS Sym.

Agency Information: CE, Std. 248-11, UL Listed, Guide JEFV, File E12112.

Features and Benefits

- Dependable, fast-acting circuit protection with 10,000A interrupting rating for added safety when applied to existing plug fuse systems and 125-volt single-phase control circuits.

Typical Applications

- Replacement only in existing systems.
- For general purpose circuit protection
- Use for lighting and other non-motor circuits

Catalog Numbers* (Amps)

W-½	W-2 ½	W-6	W-10
W-1	W-3	W-6 ½	W-12
W-1 ¾	W-4	W-7	
W-2	W-5	W-8	

*W-15, W-20, W-25, and W-30 plug fuses obsoleted. Suggest replacing with either T-(Amp) or TL-(Amp) plug fuses.

Data Sheet: 1036

Recommended Fuse Holders For W Series Plug Fuses

- See page 10

SL and TL Series

Specifications

Description: Time-delay, loaded link plug fuse.

Dimensions:

SL — Rejection base

TL — Edison base

Construction:

SL — Ceramic base with rejection threads

TL — Brass threads with ceramic body

Ratings:

Volts — 125Vac

Amps — 15-30A

IR — 10,000A RMS Sym.

Agency Information: CE, Std. 248-11, UL Listed, Guide JEFV, File E12112.

Features and Benefits

- Time-delay loaded link TL Series Edison base plug fuses pass motor overload starting currents without opening and allow closer sizing to motor load for added protection.
- Time-delay loaded link SL Series fuses provide a rejection feature (when used alone or with Fustat adapters to retrofit Edison base holders) to help prevent overfusing.

Typical Applications

- Small motor and inductive load circuits with high in-rush current levels.
- Used with box cover units to provide equipment protection.
- Applications benefiting from fuse rejection (SL Series only)

Catalog Numbers (Amps)

Type SL	Type TL
SL-15	TL-15
SL-20	TL-20
SL-25	TL-25
SL-30	TL-30

Data Sheets: 1033 (SL) & 1035 (TL)

Recommended Fuse Holders For SL & TL Series Plug Fuses

- See page 10
- See page 37 for Fustat adapters for use with SL Series



Plug fuses

Low Voltage
Branch
Circuit
Fuses

S and T Series

Specifications

Description:

Dual-element, time-delay plug fuse.

Dimensions:

- S — Rejection base
- T — Edison base

Construction:

- S — Ceramic base with rejection threads
- T — Brass threads with ceramic body

Ratings:

- Volts — 125Vac
- Amps — S Series: ¼-30A
- T Series: ⅓-30A
- IR — 10,000A RMS Sym.

Agency Information: CE, Std. 248-11, Type S and T: UL Listed (0-6¼) Guide JFHR, File E56412 (7-30A) Guide JEFV, File E12112; CSA Certified, Class 1423-01, File 53787.

Features and Benefits

- Time-delay, dual-element T Series Edison base plug fuses provide small motor overload protection when used with box cover units.
- Time-delay, dual-element S Series plug fuses provide a rejection feature (when used alone or with Fustat adapters to retrofit Edison base holders) to prevent overfusing of branch circuits.

Typical Applications

- S Series — Residential Load Centers
- T Series — Box Cover Units for small motor overload protection
- Applications benefiting from fuse rejection (S Series only)

Catalog Numbers (Amps)

S Series

S-¼	S-1	S-2	S-3 ⅓	S-6 ¼	S-14
S-⅓	S-1 ⅓	S-2 ¼	S-3 ½	S-7	S-15
S-½	S-1 ½	S-5 ⅓	S-4	S-8	S-20
S-⅔	S-1 ⅔	S-2 ½	S-4 ½	S-9	S-25
S-⅞	S-1 ⅞	S-2 ⅞	S-5	S-10	S-30
S-⅞	S-1 ⅞	S-3	S-6	S-12	

T Series

T-⅓	T-1 ⅓	T-2 ¼	T-4	T-7	T-15
T-½	T-1 ½	T-2 ½	T-4 ½	T-8	T-20
T-⅔	T-1 ⅔	T-2 ⅔	T-5	T-9	T-25
T-⅞	T-1 ⅞	T-3	T-5 ⅞	T-10	T-30
T-⅞	T-1 ⅞	T-3 ⅞	T-6	T-12	
T-1	T-2	T-3 ½	T-6 ¼	T-14	

Data Sheet: 1032 (S) & 1034 (T)

Recommended Fuse Holders For S & T Series Plug Fuses

- See page 10
- See page 37 for Fustat adapters for use with S Series



Fustat Fuse Adapters



Specifications

Description: Adapters for using Type S and SL rejection fuses in Edison base fuse sockets.

Features and Benefits

- Fustat adapters screw into the “Edison” thread fuse sockets of standard fuse boxes making it easy to retrofit existing fuse installations
- Available in various amp ratings to cover a wide range of rating requirements

Typical Applications

- Plug fuse installations where it is desirable to restrict fuse amp ratings

Catalog Numbers (Amps)

SA-1*	SA-3 ⅓*	SA-10*
SA-1 ¼*	SA-4*	SA-15**
SA-1 ⅓*	SA-5*	SA-20**
SA-2*	SA-6 ⅓*	SA-30**
SA-2 ½*	SA-8*	

ENA (Edison base neutral)

EDA (Edison base dummy)

* Single motor circuits.

** Branch circuits.

Fustat® Adapters for Small Motor Protection*

Adapter	Accepts Fuses
SA-1	S-1 or smaller
SA-1 ¼	S-1 ¼ or smaller
SA-1 ⅓	S-1 ⅓ or smaller
SA-2	S-2 or S-1 ⅓
SA-2 ½	S-2 ½ to S-1 ⅓
SA-3 ⅓	S-3 ⅓ to S-1 ⅓
SA-4	S-4 to S-3 ½
SA-5	S-5 to S-3 ½
SA-6 ⅓	S-6 ⅓ to S-3 ½
SA-8	S-8 to S-7
SA-10	S-10 to S-7
SA-15	S-15 to S-7
SA-20	S-20
SA-30	S-30 to S-20

* Both motor running and short-circuit protection.

Fustat® Adapters for Branch Circuit Protection

Adapter	Accepts Fuses
SA-15	S-15 to S-7
SA-20	S-20
SA-30	S-25
SA 30	S-30 to S-20

COOPER Bussmann

Now 100A Protection,
And The Smallest
Footprint, Too!



Cooper Bussmann CUBEFuse™ Provides Class J Performance, Saves Space, Improves Safety.

- ▶ Modular -- the 30A fuse can be inserted into a 60A or 100A base, while the 60A fuse can be inserted into a 100A base, eliminating fuse reducers.
- ▶ Finger-safe (IP-20) design advances personal safety.
- ▶ Ratings from 1 to 100A meet most applications.
- ▶ Smallest footprint in its class saves panel space.
- ▶ Open-fuse indication speeds diagnosis and reduces downtime.
- ▶ DIN-rail mount for easy installation.



COOPER

The Power Behind The Brands.

To learn more about the Cooper Bussmann CUBEFuse and fuse holder package, contact your nearest authorized distributor or visit www.cooperbussmann.com today.



COOPER Lighting



COOPER Crouse-Hinds



COOPER Power Systems



COOPER Wiring Devices



COOPER B-Line

Low Voltage Supplementary Fuses

Section Contents

	Page
Fuse Holder & Block Selection Guide	40-41
Cable limiters & welder limiters	
K Series cable limiters 600V	42
64000 & 68000 welder limiters . . . 600V	42
$1\frac{3}{32}$" x $1\frac{1}{2}$" fast acting supplementary fuses	
BAF 250V	43
BAN 250V	43
KTK 600V	43
KLM 500V	43
DCM 600Vac/dc	44
$1\frac{3}{32}$" x $1\frac{1}{2}$" time-delay supplementary fuses	
FNM 250V	45
FNQ 500V	45
$1\frac{3}{32}$" x $1\frac{3}{8}$" fast acting supplementary fuses	
BBS 600V	46
KTQ 600V	46
Pin indication fuses and actuator	
GBA 125V	47
GLD 125V	47
MIC 250V fast acting	47
MIN 250V fast acting	47
FNA 250V time-delay	47
MIS 600V	48
KAZ 600V	48
Limiters	
ANN 125V fast acting	48
ANL 80Vdc time-delay	48
Automotive blade-type fuses	
ATC 32Vdc	49
ATM 32Vdc	49
MAX 32Vdc	49
Automotive blade-type fuse holders	
HHC, HHD, HHF, HHG for ATC fuses	50
HHL, HHM for ATM fuses	50
HHX for MAX fuses	50
In-line size rejecting fuses and fuse holders	
GLQ 300V	51
GMQ 300V	51
In-line non-rejecting fuses and fuse holders	
GLR 300V	52
GMF 300V	52
GRF 300V	52



Low Voltage Supplementary Fuses

Holders & blocks for low voltage supplementary fuses

Limiters

Catalog Number	Volts	Page
K Series	600V	42
68000 Series	600V	42
64000 Series	600V	42
ANN Fast acting limiter	125Vac/80Vdc	48
ANL Time-delay limiter	80Vdc	48

64000 Series Holders

- CH Series Class J modular 1 to 3-pole, panel/DIN rail mount . . .236
- Safety J™ Series modular holders, panel/DIN rail mount237

68000 Series Blocks

- Modular Type Fuse Blocks 250/600V, panel mount257
- H250 Series 1 to 3-pole 250V, panel mount242
- H600 Series 1 to 3-pole 600V, panel mount245

64000 Series Blocks

- Modular Type Fuse Blocks 600V, panel mount257
- J600 Series, panel mount248
- JP Series pyramid blocks, panel mount250
- BH Series modular-style open blocks, panel mount257

ANN & ANL Blocks

- 4164 & 4164-FR (not shown in catalog)*
- *Call our customer satisfaction team at 636-527-3877 for more information.



¹³/₁₆" X 1 ¹/₂" Fuses

Catalog Number	Volts	Page
BAF	250V	43
BAN	250V	43
KTK	600V	43
KLM	500Vac/600Vdc	43
DCM	600Vac/dc	44
FNM	250V	45
FNQ	500V	45

Holders

- OPM-NG-SC3 3-pole, panel/DIN rail mount234
- OPM-1038R 3-pole, panel/DIN rail mount233
- OPM-1038RSW 3-pole w/ switch, panel/DIN rail mount232
- CH Series Global 1 to 3-pole, DIN rail mount239
- HPG Panel mount fuse holder268
- HPC-D Panel mount fuse holder269
- HPM Panel mount fuse holder269
- HPS Series Panel mount fuse holder268
- HPF Series Panel mount fuse holder268
- HEB Series 1-Pole in-line fuse holder261
- HEX & HEY Series 2-Pole in-line fuse holders261
- NDNF1-WH Rail mount fuse holder273

Blocks

- BM Series, panel/DIN rail with adapters256
- 3723, 3742 and 3743 multi-pole Add-on fuse blocks272



Low Voltage Supplementary Fuses

Holders & blocks for low voltage supplementary fuses

1³/₃₂" X 1³/₈" Fuses

Catalog Numbers	Volts	Page
BBS	600V	46
KTO	600V	46

Holder

- HPS-L Panel mount holder268

Blocks

- BM Series, panel/DIN rail with adapters256
- 3723, 3742 and 3743 multi-pole Add-on fuse blocks272



HPS-L



BM Series

Low Voltage
Supplementary
Fuses

Pin Indicating Fuses

1/4" X 1 1/4" Fuse Catalog Numbers	Volts	Page
GBA 1/4" X 1 1/4"	125V	47
GLD 1/4" X 1 1/4"	125V	47
MIC 1 ³ / ₃₂ " X 1 1/2"	250V	47
MIN 1 ³ / ₃₂ " X 1 1/2"	250V	47
FNA 1 ³ / ₃₂ " X 1 1/2"	250V	47
MIS 1 ³ / ₃₂ " X 2"	600V	48
KAZ 1 ³ / ₃₂ " X 2"	600V	48



HLD



HK Series

Holders

- 1/4" X 1 1/4": HLD Panel mount visual indication267
- 1/4" X 1 1/4": HK Series Panel mount lamp indicating267

Blocks

- 1/4" X 1 1/4": Series 8000 For visual indication270
- 1³/₃₂" X 1 1/2": 1-Pole signal block cat. # 3839 (not shown in catalog)*
- 1³/₃₂" X 2": 1-Pole signal block cat. # 2778 (not shown in catalog)*
- 1³/₃₂" X 2": 2-Pole signal block cat. # 2837 (not shown in catalog)*
- 1³/₃₂" X 2": 3-Pole signal block cat. # 2838 (not shown in catalog)*

*Call our customer satisfaction team at 636-527-3877 for more information.



Series 8000

Automotive Blade-type Fuses

Catalog Numbers	Volts	Page
ATC	32Vdc	49
ATM	32Vdc	49
MAX	32Vdc	49

Holders

- ATC: HHC, HHD, HHF & HHG In-line holders50
- ATM: HHL & HHM In-line holders50
- MAX: HHX In-line holders50



HHC, HHD, HHF & HHG



HHL & HHM



HHX

In-Line Rejecting and Non-Rejecting Fuses

Catalog Number	Volts	Page
GLQ rejecting fuse	300V	51
GMQ rejecting fuse	300V	51
GLR non-rejecting fuse	300V	52
GMF non-rejecting fuse	300V	52
GRF non-rejecting fuse	300V	52

Holders

- GLQ & GMQ: HLO Rejection holder51
- GLR, GMF & GRF: HLR Non-rejection holder52



HLO³ Fuse Holders



HLR Fuse Holder

Low Voltage Supplementary Fuses

Cable limiters & welder limiters

K Series

Specifications

Description: Cable limiters.

Ratings:

Volts — 600Vac
IR — 200,000A RMS Sym.
@ 600Vac

Agency Information:

UL
Listing: KDM, KDR, KDP and
KFM, KCM, KCM-B and KCR.

Features and Benefits

- Sizes and ratings available to meet many applications.

Typical Applications

- Protecting low voltage distribution and service entrance cables against short-circuit currents.

Catalog Numbers

Copper Cable Limiter — 600 Volts

Catalog Number	Cable Size	Catalog Number	Cable Size
Tubular Terminals			
KCY	#4	KCF	4/0
KCZ	#3	KCH	250 MCM
KCA	#2	KCJ ²	350 MCM
KCB	#1	^{2, 3} KCM ¹ , KCM-B ¹	500 MCM
KCC	1/0	KCV	600 MCM
KCD ²	2/0	KCR ^{1, 2}	750 MCM
KCE	3/0	KCS	1000 MCM

Tubular Terminal and Offset Bolt-Type Terminal

KQV	#12	KDD	2/0
KQT	#10	KDE	3/0
KFZ	#8	KDF	4/0
KIG	#6	KDH	250 MCM
KDY	#4	KDJ ²	350 MCM
KDA	#2	KDM ^{1, 2, 3}	500 MCM
KDB	#1	KDU	600 MCM
KDC	1/0	KDR ^{1, 2}	750 MCM

Compression Connector Rod and Tubular Terminals

KEX	4/0	KQO	350 MCM
KFH-A	250 MCM	KDT ²	500 MCM

*Center Bolt-Type Terminal and Off-Set Bolt-Type Terminal

KPF	4/0	KDP ¹	500 MCM
KFT	250 MCM	KFM ¹	750 MCM
KEW	350 MCM		

²Copper or aluminum cable; sizes of all other limiters pertain to copper only.

¹UL Listed (File E90818).

³Available with shrink tube "V" suffix.

²Available with molded rubber boots. Add "-B" to end of part number.

Accessories

Boots can be purchased separately.

• KCM: Catalog # - _____ Boot-KCM • KDM: Catalog # - _____ Boot-KDM

Installation tools can be purchased separately from Thomas and Betts

• Crimp Tool: TBM-14M • Die: 15506 KDM/15515 KDR

Recommended Fuse Blocks For K Series limiters

- See page 40

Data Sheet: 1042

64000 & 68000 Series

Specifications

Description: Welder limiters.

Construction: Melamine tube with silver fuse element.

Ratings:

Volts — 600Vac (or less)
IR — 200,000A RMS Sym.

Features and Benefits

- Current-limiting devices designed specially for use on welder circuits only
- Time-current characteristics are designed to hold on the intermittent overloading encountered in welder operation, while providing short-circuit protection to the circuit and equipment
- Welder limiters have excess current capacity in the operating range as needed for this type of service

Typical Applications

- Welder circuits
- Because welder limiters have special characteristics, they are not intended for application on general-use circuits

Catalog Numbers

Catalog Numbers	Fuse Holder Type	Nominal Amp Rating
68150	Class H	150
68200	Class H	200
68300	Class H	300
68400	Class H	400
68600	Class H	600
64200	Class J	200
64300	Class J	300
64400	Class J	400
64600	Class J	600

Recommended Fuse Blocks For 68000 & 64000 Series limiters

- See page 40

Data Sheet: 1045



Low Voltage Supplementary Fuses

1³/₃₂" x 1¹/₂" Fast-acting fuses

BAF



Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.
Dimensions: 1³/₃₂" x 1 1/2" (10.3 x 38.1mm).
Construction: Fibre cartridge; nickel plated brass endcaps.

Ratings:
 Volts — 250Vac (1/2-15A)
 — 125Vac (20-30A)
 Amps — 1-6A
 IR — 10,000A @ 125Vac (1/2-30A)
 — 35A (1/2-1A @ 250Vac)
 — 100A (1 1/2-6A @ 250Vac)
 — 200A (6 1/2-10A @ 250Vac)
 — 750A (12A- 15A @ 250Vac)

Agency Information: CE, Std. 248-14, UL 0-15/250V, Guide JDYX, File E19180 CSA Certified, 0-15/250V, Class 1422-01, File 53787.

Features and Benefits

- Low cost supplemental protection of 125V and 250V non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards. (and minimize potential for misapplying fuse.)

Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

BAF-1/10	BAF-2	BAF-8
BAF-1/4	BAF-2 1/2	BAF-9
BAF-1/2	BAF-3	BAF-10
BAF-3/10	BAF-4	BAF-12
BAF-1/10	BAF-5	BAF-15
BAF-1	BAF-6	BAF-20
BAF-1 1/2	BAF-6 1/4	BAF-25
BAF-1 1/10	BAF-7	BAF-30

*All have interrupting rating of 10,000A at 125V.

Data Sheet: 2011 (0-30)

BAN



Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.
Dimensions: 1³/₃₂" x 1 1/2" (10.3 x 38.1mm).
Construction: Fibre tube.

Ratings:
 Volts — 250Vac (1/2-15A)
 Amps — 1-30A
 IR — 35A (1.1-3.5A)
 — 100A (3.6-10A)
 — 200A (10.1-15A)
 — 750A (15.1-30A)

Features and Benefits

- Low cost supplemental protection of 125V and 250V non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards. (and minimize potential for misapplying fuse.)

Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

BAN-1	BAN-5	BAN-12	BAN-30
BAN-2	BAN-6	BAN-15	
BAN-3	BAN-8	BAN-20	
BAN-4	BAN-10	BAN-25	

Recommended Fuse blocks 1/10 to 30A

Catalog Numbers

Terminal Type	Pressure Plate w/ Quick Connect	Box Lug	Poles
Screw with Quick Connect	Pressure Plate w/ Quick Connect	Box Lug	Poles
BM6031SQ	BM6031PQ	BM6031B	1
BM6032SQ	BM6032PQ	BM6032B	2
BM6033SQ	BM6033PQ	BM6033B	3

Data Sheet: 2046 (0-30)

For superior electrical protection, Cooper Bussmann recommends upgrading BAF, BAN and KTK fuse applications to Low-Peak LP-CC fuses See page 19.

Recommended fuse blocks/fuse holders for 1³/₃₂" x 1¹/₂" fuses
 • See page 40

KTK & KLM



Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.

Dimensions: 1³/₃₂" x 1 1/2" (10.3 x 38.1mm).

Construction: Melamine tube; nickel plated brass endcaps.

Ratings:

Volts — KTK: 600Vac (or less)
 — KLM: 500Vac/600Vdc (1/10A to 1/2A)
 — 500Vac/dc (1/10-10A)
 — 500Vac/600Vdc (12-30A)
 Amps — 1/10-30A
 IR — KTK: 100,000A RMS Sym. (UL)
 — KLM: 10,000A RMS Sym. (UL)

Agency Information: CE, Std. 248-14, KTK-UL Listed, Guide JDYX, File E19180, KLM-UL Recognized, Guide JFHR2, File E56412, CSA Certified, File 53787, Class 1422-01, HRC-Misc.

Features and Benefits

- Low cost supplemental protection of 600V or less non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards.

Typical Applications

- Control Circuits
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

600Vac - UL Listed and CSA			
KTK-1/10	KTK-1/4	KTK-4	KTK-12
KTK-1/8	KTK-1	KTK-5	KTK-15
KTK-1/10	KTK-1 1/4	KTK-6	KTK-20
KTK-1/4	KTK-1 1/2	KTK-7	KTK-25
KTK-1/10	KTK-2	KTK-7 1/2	KTK-30
KTK-1/10	KTK-2 1/2	KTK-8	
KTK-1/2	KTK-3	KTK-9	
KTK-1/10	KTK-3 1/2	KTK-10	
*500Vac/dc - UL Recognized and CSA.			
KLM-1/10	KLM-1/4	KLM-5	KLM-20
KLM-1/8	KLM-1	KLM-6	KLM-25
KLM-1/10	KLM-1 1/2	KLM-8	KLM-30
KLM-1/4	KLM-2	KLM-10	
KLM-1/10	KLM-3	KLM-12	
KLM-1/2	KLM-4	KLM-15	

*KLM-(1/10-1/2A & 12-30A): 500Vac/600Vdc.

Data Sheets: KTK-1011 KLM-2020

Low Voltage
Supplementary
Fuses

Low Voltage Supplementary Fuses

1³/₃₂" x 1¹/₂" Fast-acting fuses

DCM

Specifications

Class: Supplemental

Description: Full range, fast-acting, dc midget fuse.

Dimensions: 1³/₃₂" x 1¹/₂"
(10.3 X 38.1mm).

Construction: Melamine tube with silver fuse element and nickel-plated brass endcaps.

Ratings:

Volts — 600Vac/dc

Amps — 1/10-30A

IR — 100,000A ac

— 50,000A dc

Agency Information: CE, UL Listed: STD. 248-14, (FILE #E19180, GUIDE #JDYX), CSA Certified, C22.2 NO. 248. 14 (CLASS #1422-01, FILE #53787).

Features and Benefits

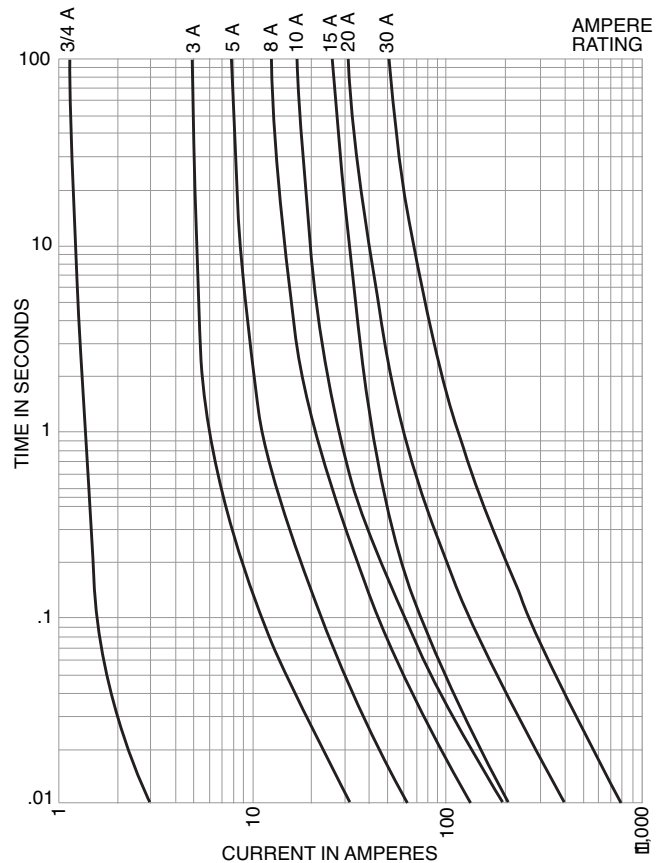
- Full range, fast-acting, 600Vac/dc midget fuse.
- Interrupting ratings of 100,000A, AC.
- Interrupting ratings of 50,000A, DC.
- Minimum interrupting rating of 200% rated current at 600Vdc.

Typical Applications

- DC Control Circuits Requiring Fast-Acting Fuses.



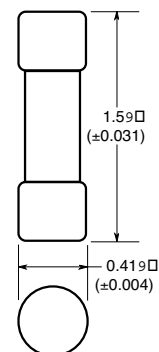
Time-Current Characteristic Curves—Total Clearing



Catalog Numbers (Amps)

DCM-1/10	DCM-1/8	DCM-2	DCM-6	DCM-12
DCM-1/4	DCM-3/8	DCM-2 1/2	DCM-7	DCM-15
DCM-3/16	DCM-1	DCM-3	DCM-8	DCM-20
DCM-1/2	DCM-1 1/4	DCM-4	DCM-9	DCM-25
DCM-3/8	DCM-1 1/2	DCM-5	DCM-10	DCM-30

Dimensions — in



Did You Know?



The power supply for the Plasma Fusion Center at MIT is protected by Cooper Bussmann high speed fuses, 2500V, 1200A.

Recommended fuse blocks and fuse holders for

1³/₃₂" x 1¹/₂" fuses

- See page 40

Low Voltage Supplementary Fuses

1³/₃₂" x 1¹/₂" Time-delay fuses

FNM

Specifications

Class: Supplemental

Description: Time-delay supplementary fuse.

Dimensions: 1³/₃₂" x 1¹/₂" (10.3 x 38.1mm).

Construction: Fiber tube.

Ratings:

Volts — 250Vac (or less)

Amps — 1/10-30A

IR — 35A (1/10-1A @ 250Vac)

— 100A (1¹/₂-3¹/₂A @ 250Vac)

— 200A (4-10A @ 250Vac)

— 10,000A (1/10-15A @ 125Vac)

— N/A (20-30A @ 32Vac)

NOTE: For 250V applications from 12-30A use FNW.

Agency Information: CE, Std. 248-14, UL Listed, 0-10/250V; 12-15/125V; File E19180, Guide JDYX, CSA Certified, 1-10/250V; Class 1422-01, 12-15/125V; File 53787.

Features and Benefits

- Low cost supplemental protection of 125V and 250V inductive circuits.

Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits
- Upgrading to LP-CC product will reduce SKU investment and minimize potential for misapplying fuse.

Catalog Numbers (Amps)

FNM-1/10	FNM-1/8	FNM-1 1/2	FNM-3k	FNM-6	FNM-15
FNM-1/6	FNM-5/10	FNM-1 3/10	FNM-3 3/10	FNM-6 1/4	FNM-20
FNM-15/100	FNM-3/4	FNM-1 9/10	FNM-3 1/2	FNM-7	FNM-25
FNM-2/10	FNM-1	FNM-2	FNM-4	FNM-8	FNM-30
FNM-1/4	FNM-1 1/8	FNM-2 1/4	FNM-4 1/2	FNM-9	
FNM-3/10	FNM-1 1/4	FNM-2 1/2	FNM-5	FNM-10	
FNM-1/10	FNM-1 1/10	FNM-2 1/10	FNM-5 1/10	FNM-12	



FNQ

Specifications

Class: Supplemental

Description: Time-delay supplementary fuse.

Dimensions: 1³/₃₂" x 1¹/₂" (10.3 x 38.1mm).

Construction: Fiber tube.

Ratings:

Volts — 500Vac (or less)

Amps — 1/10-30A

IR — 10,000A RMS Sym.

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180 CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Low cost supplemental protection of transformers and relays at 500V or less.

Typical Applications

- Control Transformer 480V Primary Protection
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

FNQ-1/10	FNQ-1/8	FNQ-1 1/2	FNQ-3 1/2	FNQ-7	FNQ-20
FNQ-1/6	FNQ-1/2	FNQ-1 3/10	FNQ-4	FNQ-8	FNQ-25
FNQ-15/100	FNQ-3/4	FNQ-2	FNQ-4 1/2	FNQ-9	FNQ-30
FNQ-2/10	FNQ-1 1/10	FNQ-2 1/4	FNQ-5	FNQ-10	
FNQ-3/10	FNQ-1	FNQ-2 1/2	FNQ-5 1/10	FNQ-12	
FNQ-1/4	FNQ-1 1/8	FNQ-3	FNQ-6	FNQ-14	
FNQ-3/10	FNQ-1 1/4	FNQ-3 3/10	FNQ-6 1/4	FNQ-15	



Low Voltage Supplementary Fuses

1³/₃₂" x 1³/₈" Fast-acting fuses

BBS

Specifications

Class: Supplemental

Description: Fast-acting supplementary fuse.

Dimensions: 1³/₃₂" x 1³/₈"
(10.3 x 34.9mm).

Construction: Fiber cartridge.

Ratings:

Volts — 600Vac (1/0-5A)
— 250Vac (6 - 10A)
— 48Vac (12-30A)

Amps — 1/0-30A

IR — 10,000A RMS Sym.

Agency Information: CE, Std. 248-14, UL Listed, 0-5A/600V, Guide JDYX, File E19180, CSA Certified, 0-5A/600V, Class 1422-01, File 53787.

Features and Benefits

- Low cost supplemental protection of non-inductive circuits
- Reduced interchangeability with other supplemental fuses minimizes misapplication

Typical Applications

- Control Circuits
- Lighting Ballasts
- Meter Circuits

Catalog Numbers (Amps)

BBS-1/0	BBS-1/2	BBS-4	BBS-15
BBS-1/2	BBS-1	BBS-5	BBS-20
BBS-1/4	BBS-1 1/2	BBS-6	BBS-25
BBS-1/0	BBS-1 1/0	BBS-7	BBS-30
BBS-1/2	BBS-1 1/2	BBS-8	
BBS-1/0	BBS-2	BBS-10	
BBS-1/4	BBS-3	BBS-12	



KTQ

Specifications

Class: Supplemental

Description: Fast-acting supplementary fuse.

Dimensions: 1³/₃₂" x 1³/₈"
(10.3 x 34.9mm).

Construction: Fiber cartridge.

Ratings:

Volts — 600Vac
Amps — 1-6A
IR — 10,000A RMS Sym.

Agency Information: CE, Std. 248-14, UL Recognized, 4-6A, Guide JDYX2, File E19180.

Features and Benefits

- Low cost supplemental protection of non-inductive circuits
- Rated for application in circuits at 600V or less.
- Reduced interchangeability with other supplemental fuses minimizes misapplication

Typical Applications

- Control Circuits
- Lighting Ballasts
- Meter Circuits

Catalog Numbers (Amps) (600Vac)

KTQ-1	KTQ-3	KTQ-6
KTQ-1 1/0	KTQ-4	
KTQ-2	KTQ-5	



Did You Know?

Japan's Rada Koncar 3759 HP locomotive is protected by Cooper Bussmann high speed fuses, 1000V, 800A.

Recommended fuse blocks/fuse holders for 1³/₃₂" x 1³/₈" fuses
• Page 41

Pin indication Fuses

GBA

GLD

Specifications

Class: Supplemental

Description: Fast-acting, pin indication fuse.

Dimensions: ¼" x 1 ¼"
(6.6 x 31.7mm) 3AG.

Construction: Fiber tube

Ratings:

Volts — See Agency Info below

Amps — ½-15A

IR — See Agency Info below

Agency Information: CE, Std. 248-14, UL Listed, 0-5A/125Vac, 10,000 AIC, Guide JDYX, File E19180, UL Recognized, 6A/125Vac, 1000AIC 8-15A/50Vac/dc, 300 AIC Guide JDYX2, File E19180, CSA Certified: 0-5A/125Vac, 10,000 AIC Class 1422-01, File 53787.

Features and Benefits

- Type GBA has a "red" pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type GLD has an Abaloy-plated pin to activate transmitting a(n) (electrical) signal to indicate(ing) location of failed circuits, resulting in faster (reduced) troubleshooting (downtime).

Typical Applications

- Control Circuits
- Electronic Circuits

GLD Catalog Numbers (Amps)

GLD-½	GLD-2	GLD-6
GLD-¾	GLD-3	GLD-10
GLD-1	GLD-4	GLD-12
GLD-1 ½	GLD-5	GLD-15

GBA Catalog Numbers (Amps)

GBA-½	GBA-2	GBA-8
GBA-¾	GBA-3	GBA-10
GBA-1	GBA-4	GBA-15
GBA-1 ½	GBA-5	

Recommended fuse blocks/fuse holders for ¼" x 1¼" indicating fuses

• Page 41

Data Sheet: 2012

MIC & MIN

Specifications

Class: Supplemental

Description: Fast-acting, pin indication fuse.

Dimensions: 1 ½" x 1 ½" (10.3 x 38.1mm) 5AG.

Construction:

Fiber tube

Ratings:

Volts — 250Vac (1-15A)

— 32V (20-30A)

Amps — 1-30A

IR — 35A (1A @250Vac)

— 100A (2-3A @250Vac)

— 200A (5-10A @250Vac)

— 750A (15A @250Vac)

— 10,000A (20-30A @32V)

— 35A (1A @250Vac)

Agency Information: CE, Std. 248-14, MIC—0-15A UL Listed, Guide JDYX, File E19180, MIN—1-5A CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Type MIN has a "red" pin indicator providing visual identification of failed circuits, resulting in faster trouble shooting (reduced circuit downtime).
- Type MIC has silver-plated pin transmitting an electrical signal indicating location of a failed circuit, resulting in faster troubleshooting (reduced circuit downtime).

Typical Applications

- Control Circuits
- PLC Circuits
- Electronic Circuits

MIC Catalog Numbers (Amps)

MIC-1	MIC-5	MIC-20
MIC-2	MIC-10	MIC-25
MIC-3	MIC-15	MIC-30

MIC - (1-15)UL Listed 125Vac / IR = 10kA

MIN Catalog Numbers (Amps)

MIN-1	MIN-5	MIN-20
MIN-2	MIN-10	MIN-25N

Recommended signal block for 1 ½" x 1 ½" indicating fuses

• Page 41

Data Sheet: 2047

FNA

Specifications

Class: Supplemental

Description: Time-delay, pin indication fuse.

Dimensions: 1 ½" x 1 ½"
(10.3 x 38.1mm).

Construction: Fiber tube

Ratings:

Volts — 250Vac (¼-¾A)

— 125Vac (1-15A)

— 32V (20-30A)

Amps — ¼-30A

IR — 35A (¼-¾A @ 250Vac)

— 10,000A (¼-15A @ 125Vac)

— 1000A (20-30A @ 32V)

Agency Information: CE, Std. 248-14, UL Listed ¼-¾A, IR 35A@ 250V, IR 10kA@ 125V, 1-15A, IR 10kA@ 125V, Guide JDYX, File 19180, CSA Certified, 0-¾A/250V, 1-10A/125V, Class 1422-01, File 53787.

Features and Benefits

- FNA has a pin indicator providing visual identification of failed circuits, resulting in reduced circuit downtime.
- Time-delay response allows close sizing on control transformers and relays

Typical Applications

- Control Circuits
- Electronic Circuits

Catalog Numbers (Amps)

FNA-¼	FNA-¾	FNA-2 ½	FNA-6 ¼
FNA-½	FNA-1	FNA-2 ¾	FNA-7
FNA-1 ¼	FNA-1 ½	FNA-3	FNA-8
FNA-1 ¾	FNA-1 ¾	FNA-3 ¾	FNA-9
FNA-2 ¼	FNA-1 ¾	FNA-3 ½	FNA-10
FNA-2 ¾	FNA-1 ½	FNA-4	FNA-12*
FNA-3 ¼	FNA-1 ¾	FNA-4 ½	FNA-15*
FNA-3 ¾	FNA-1 ¾	FNA-5	FNA-20*
FNA-4 ¼	FNA-2	FNA-5 ¾	FNA-25*
FNA-4 ¾	FNA-2 ¼	FNA-6	FNA-30

*12-30A versions are dual-tube construction

Recommended signal block for

1 ½" x 1 ½" indicating fuses

• Page 41

Data Sheet: 2029

Pin indication fuse and actuator, and limiters

MIS

Specifications

Class: Supplemental

Description: Non time-delay pin indication fuse.

Dimensions: 1/2" x 2"
(10.3 x 50.8mm).

Construction:
Melamine tube.

Ratings:

Volts — 600Vac

Amps — 1-12A

IR — 200,000A

Features and Benefits

- Type MIS has a pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type MIS can be used in circuits rated 600V or less.
- Type MIS has an interrupting rating of 200,000A.

Typical Applications

- 480V Control Circuits
- PLC Circuits

Catalog Numbers (Amps)

MIS-1	MIS-4	MIS-10
MIS-2	MIS-5	MIS-12
MIS-3	MIS-8	

Test Specifications

Fuse	Load	Opening Time
All	110%	0 4 hrs. (min.)
1-5A	150%	0 6 min. (max.)
6-12A	150%	12 min. (max.)

Recommended signal block for
1/2" x 2" indicating fuses

- Page 41



KAZ

Specifications

Description: Non-Fuse actuator.

Dimensions: 1/2" x 2"
(10.3 x 50.8mm).

Construction: Melamine tube.

Ratings:

Volts — 600Vac

Amps — N/A

IR — 200,000A

Agency Information: CE, UL Listed, Guide JDVS, File E58836.

Features and Benefits

- Bussmann signal blocks 2778, 2837 or 2838 with KAZ actuators mounted in parallel with fuses having a rating of 50A or larger to provide blown fuse dropout of shunt-trip fused switches.
- Type KAZ can be used in circuits rated 600V or less.
- Type KAZ has an interrupting rating of 200,000A.

Typical Applications

- Large, Shunt-Trip Fused Switches
- Fuse Protected Circuits Rated 50A or Larger With Shunt-Trip Devices.

Catalog Number: KAZ

Recommended signal block for
1/2" x 2" indicating fuses

- Page 41



ANN & ANL Limiters

Specifications

Description: Circuit limiters.

ANN: Very fast-acting limiter.

ANL: Time-delay limiter.

Dimensions: 7/8" x 3 3/16"
(22.2 x 81.0mm).

Ratings:

ANN:

Volts — 125Vac

— 80Vdc

Amps — 10-800A

IR — 2500A @ 125Vac

— 2700A @ 80Vdc

ANL:

Volts — 80Vdc

Amps — 35-750A

IR — 2700A @ 80Vdc

Agency Information:

ANN: 35-400A @ 125Vac, IR=2500A and 500A @ 80Vdc, IR=2700A: UL Recognized Guide JFHR2, File E56412; CSA Certified Class 1422-30, File 53787, CE for 35-400A.

ANL: UL Recognized, CSA Certified, 35-750A @ 80Vdc, IR = 2700A, Guide JFHR2, File E56412, Class 1422-30, File 53787, SAE J1171.

Features and Benefits

- Fast-acting circuit protection (ANN).
- Time-delay sizing for inductive circuits (ANL).
- Small footprint saves space.
- Window shows limiter status.

Typical Applications

- Fork lifts, Marine, Aviation

ANN Catalog Numbers (Amps)

ANN-10	ANN-90	ANN-225	ANN-400
ANN-35	ANN-100	ANN-250	ANN-500
ANN-40	ANN-125	ANN-275	ANN-600
ANN-50	ANN-150	ANN-300	ANN-700
ANN-60	ANN-175	ANN-325	ANN-800
ANN-80	ANN-200	ANN-350	

ANL Catalog Numbers (Amps)

ANL-35	ANL-125	ANL-250	ANL-500
ANL-40	ANL-130	ANL-275	ANL-600
ANL-50	ANL-150	ANL-300	ANL-675
ANL-60	ANL-175	ANL-325	ANL-750
ANL-80	ANL-200	ANL-350	
ANL-100	ANL-225	ANL-400	

Recommended block for ANN/ANL Limiters
• Page 40

Data Sheets: 2023 (ANN), 2024 (ANL)



Automotive blade-type fuses

ATC® Blade-type fuse



(Actual Size)

Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

Volts — 32Vdc
Amps — 1-40A
IR — 1000A

Agency Information: UL Recognized, (3-40A) (Guide JFHR2, File E56412), SAE Standard J1284.

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

Catalog Numbers	Color
ATC-1	Black
ATC-2	Gray
ATC-3	Violet
ATC-4	Pink
ATC-5	Tan
ATC-7 ½	Brown
ATC-10	Red
ATC-15	Blue
ATC-20	Yellow
ATC-25	Clear
ATC-30	Green
ATC-40	Orange

Refer to page 50 for in-line fuse holders for blade-type fuses.

Recommended in-line fuse holder for blade type fuses

- Page 41

Data Sheet: 2009

ATM Mini-Fuse®



(Actual Size)

Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

Volts — 32Vdc
Amps — 2-30A
IR — 1000A

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

Catalog Numbers	Color
ATM-2	Gray
ATM-3	Violet
ATM-4	Pink
ATM-5	Tan
ATM-7 ½	Brown
ATM-10	Red
ATM-15	Blue
ATM-20	Yellow
ATM-25	Clear
ATM-30	Green

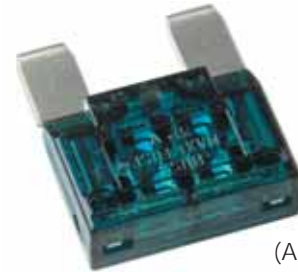
Refer to page 50 for in-line fuse holders for blade-type fuses.

Recommended in-line fuse holder for blade type fuses

- Page 41

Data Sheet: 2048

MAX Maxi-Fuse®



(Actual Size)

Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

Volts — 32Vdc
Amps — 20-80A
IR — 1000A

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

Catalog Numbers	Color
MAX-20	Yellow
MAX-30	Green
MAX-40	Orange
MAX-50	Red
MAX-60	Blue
MAX-70	Tan
MAX-80	Clear

Refer to page 50 for in-line fuse holders for blade-type fuses.

Recommended in-line fuse holder for blade type fuses

- Page 41

Data Sheet: 2049

Automotive blade-type fuse holders

HHC, HHD, HHF and HHG



Specifications

Description: In-line fuse holders for ATC® Blade-Type fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 32Vdc

Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

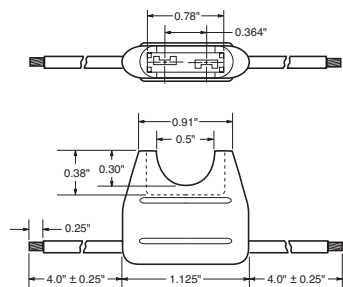
Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHC	Yellow	3-20	#16 black leadwire
HHD	Black	3-30	#12 yellow leadwire
HHD-C	HHD Cover only	—	Clear polycarbonate
HHF	Black w/ cover	3-20	#16 yellow leadwire
HHG	Black w/ cover	3-30	#12 yellow leadwire

Bulk Products (Quantity - 1000 Pieces)

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
BK/HHC-R	Yellow	3-20	#16 red leadwire
BK/HHF-B	Black w/ cover	3-20	#16 black leadwire

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

Dimensions



Data Sheet: 2107

HHL and HHM



Specifications

Description: In-line fuse holders for ATM MINI-Fuses®.

Ratings:

Volts: — 32Vdc

Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

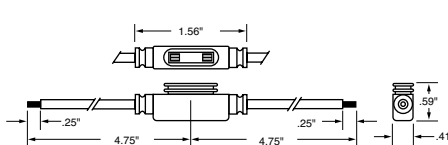
Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHL	Black w/ cover	2-20	#16 black leadwire, 4" length stripped to ¼"
HHL-B	Black – body only	2-20	#16 black leadwire, 4" length stripped to ¼"
HHM	Black w/ cover	2-30	#12 red leadwire, 4" length stripped to ¼"
HHM-B	Black – body only	2-30	#12 red leadwire, 4" length stripped to ¼"
HHM-C	Black - cover only	—	—

Bulk Products (Quantity - 1000 Pieces)

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
BK/HHL-R	Black – body only	2-20	#16 red leadwire, 4" length stripped to ¼"

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

Dimensions



Data Sheet: 2128

HHX



Specifications

Description: In-line fuse holders for MAXI-Fuses™.

Ratings:

Volts: — 32Vdc

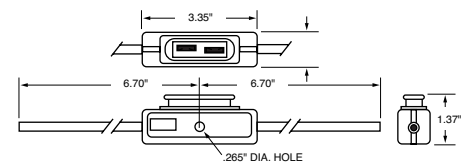
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHX	Black w/ cover	20-60	#6 red leadwire, 5" with blunt ends
HHX-B	Black – body only	20-60	#6 red leadwire, 5" with blunt ends
HHX-C	Black cover only	—	—

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

Dimensions



Data Sheet: 2129

In-line size rejecting fuses and fuse holders

GLQ

Specifications

Class: Supplemental

Description: Fast-acting, size-rejecting in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — 1-10A

IR — 10,000A

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

Features and Benefits

- In-Line, fast acting circuit protection.
- Rejection feature prevents overfusing.

Typical Applications

- In-line Lighting Ballast Protection

Catalog Numbers (Amps) and Rejection Holders

Fuse	Holder ^{3, 4}	Fuse	Holder ^{3, 4}
GLQ-1	HLO-1 $\frac{1}{16}$ "	GLQ-3	HLO-3 $\frac{3}{16}$ "
GLQ-1 $\frac{1}{2}$ "	HLO-1 $\frac{1}{8}$ "	GLQ-4	HLO-5
GLQ-1 $\frac{1}{4}$ "	HLO-1 $\frac{1}{16}$ "	GLQ-5	HLO-5
GLQ-2	HLO-3 $\frac{3}{16}$ "	GLQ-9	HLO-10
GLQ-2 $\frac{1}{2}$ "	HLO-3 $\frac{3}{8}$ "	GLQ-10	HLO-10

3) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.

4) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

- Do not put tension on line (rear) terminal of fuse holder.



GMO

Specifications

Class: Supplemental

Description: Time-delay, size-rejecting in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — $\frac{1}{2}$ -6 $\frac{1}{4}$ A

IR — 10,000A

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787)

Features and Benefits

- In-line, fast-acting circuit protection.
- Rejection feature prevents overfusing.

Typical Applications

- In-Line Lighting Ballast Protection

Catalog Numbers (Amps) and Rejection Holders

Fuse	Holders ^{3, 4}	Fuse	Holders ^{3, 4}
GMO- $\frac{1}{2}$ "	HLO- $\frac{1}{2}$ "	GMO-2 $\frac{1}{2}$ "	HLO-3 $\frac{3}{16}$ "
GMO- $\frac{3}{16}$ "	HLO-1 $\frac{1}{16}$ "	GMO-3	HLO-3 $\frac{3}{16}$ "
GMO- $\frac{1}{4}$ "	HLO-1 $\frac{1}{16}$ "	GMO-3 $\frac{3}{16}$ "	HLO-3 $\frac{3}{16}$ "
GMO-1	HLO-1 $\frac{1}{8}$ "	GMO-4	HLO-5
GMO-1 $\frac{1}{2}$ "	HLO-1 $\frac{1}{8}$ "	GMO-6	HLO-8
GMO-1 $\frac{3}{4}$ "	HLO-1 $\frac{1}{8}$ "	GMO-6 $\frac{1}{2}$ "	
GMO-2	HLO-3 $\frac{3}{16}$ "		

3) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.

4) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

- Do not put tension on line (rear) terminal of fuse holder.



Low Voltage
Supplementary
Fuses



HLO³ Fuse Holders
for both GLQ & GMO fuses.

Low Voltage Supplementary Fuses

In-line non-rejecting fuses and fuse holders

GLR

Specifications

Class: Supplemental

Description: Fast-acting, non-rejection, in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — $\frac{3}{16}$ -15A

IR — 10,000A

Agency Information: CE, Std. 248-14, UL Listed, 0-15A/300Vac (Guide JDYX, File E19180), CSA Certified, 0-10A/300V (Class 1422-01, File 53787).

Features and Benefits

- In-line, fast-acting circuit protection.

Typical Applications

- In-Line Lighting Ballast Protection



GMF

GRF

Specifications

Class: Supplemental

Description: Time-delay, non-rejection, in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — $\frac{3}{10}$ -10A

IR — 10,000A

Agency Information: CE, Std. 248-14 0-10A, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

Features and Benefits

- In-line, time-delay circuits protection.

Typical Applications

- In-Line Lighting Ballast Protection



Catalog Numbers (Amps) and Non-Rejection Holders

Fuse	Holder ^{1, 2}	Fuse	Holder ^{1, 2}
GLR- $\frac{3}{16}$	HLR	GLR-5	HLR
GLR- $\frac{1}{2}$	HLR	GLR-6	HLR
GLR-1	HLR	GLR-7	HLR
GLR-1 $\frac{1}{2}$	HLR	GLR-8	HLR
GLR-1 $\frac{3}{10}$	HLR	GLR-9	HLR
GLR-2	HLR	GLR-10	HLR
GLR-3	HLR	GLR-12	HLR
GLR-4	HLR	GLR-15	HLR-2A

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

* For two leads order HLR-2A, 15A, 300V

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.

Catalog Numbers (-Amps) and Non-Rejection Holders

Fuse	Holder ^{1, 2}	Fuse	Holder ^{1, 2}
GMF- $\frac{3}{10}$	HLR	GMF-3	HLR
GMF- $\frac{1}{2}$	HLR	GMF-3 $\frac{3}{10}$	HLR
GMF- $\frac{3}{10}$	HLR	GMF-4	HLR
GMF- $\frac{3}{10}$	HLR	GMF-5*	HLR
GMF-1	HLR	GMF-6 $\frac{1}{4}$	HLR
GMF-1 $\frac{1}{4}$	HLR	GMF-10	HLR
GMF-1 $\frac{3}{10}$	HLR	GRF-7	HLR
GMF-2	HLR	GRF-8	HLR
GMF-2 $\frac{1}{2}$	HLR	GRF-10	HLR
GMF-2 $\frac{3}{10}$	HLR		

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

*For two leads order HLR-2A, 15A, 300V

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.



*HLR Fuse Holder
for both GMF & GRF fuses.

Electronic fuses

Section Contents

	Page
5 x 15mm ferrule fuses	54
5 x 20mm European (IEC) ferrule fuses	55
5 x 20mm North American (UL) ferrule fuses	56
¼" Dia. x ½" to 1" length ferrule fuses	57
¼" Dia. x 1¼" length fast-acting ferrule fuses	58
¼" Dia. x 1¼" length time-delay ferrule fuses	59
PCB mount fuse holders	60-61
PCB fuseclips for 5mm dia. fuses	62
PCB fuseclips for ¼" dia. fuses	63
PCB fuseclips for 13/32" dia. and ATC® fuses	64
PCB fuseclips for ¼", 9/32", 13/32" & 5/16" fuses	65



5 x 15mm ferrule fuses

C515 (axial leads)

C519

Specifications
Description:
Time-delay fuse.

Dimensions:
5 x 15mm
(0.197" X 0.591").

Construction:
Glass tube.

Ratings:

- Volts — 125Vac (3.5-7A)
- 250Vac (125mA-3A)
- Amps — 125mA-7A
- IR — 35A (125mA-1A @ 250Vac, p.f. = 0.7-0.8)
- 10kA (125mA-3A @ 125Vac, p.f. = 0.7-0.8)
- 25A (350mA @ 600V, p.f. = 0.7-0.8)
- 100A (1.25-3A @ 250Vac, p.f. = 0.7-0.8)
- 400A (3.5-7A @ 125Vac, p.f. = 1.0)

Agency Information: CE, UL Listing File E19180, Guide JDYX 125mA-250mA and 375mA-3A CSA Certification File LR65063, Class 1422-01, 125mA-250mA and 375mA-3A, UL Recognized, File E19180, Guide JDYX2, 350mA and 3.5A-7A.

Features and Benefits

- Time-delay for closer sizing on inductive circuits.

Typical Application

- Electronic Circuits
- Printed Circuit Boards

Catalog Numbers (Amps)

With Axial Leads

C515-125-R	C515-750-R	C515-2.25-R
C515-250-R	C515-1-R	C515-3-R
C515-350-R	C515-1.25-R	C515-3.5-R
C515-375-R	C515-1.5-R	C515-4-R
C515-500-R	C515-1.6-R	C515-5-R
C515-600-R	C515-2-R	C515-7-R

Without Axial Leads

C519-125-R	C519-750-R	C519-2.25-R
C519-250-R	C519-1-R	C519-3-R
C519-350-R	C519-1.25-R	C519-3.5-R
C519-375-R	C519-1.5-R	C519-4-R
C519-500-R	C519-1.6-R	C519-5-R
C519-600-R	C519-2-R	C519-7-R

Data Sheet: 2006 (C515) & 2007 (C519)

C518 (axial leads)

C520

Specifications
Description:
Fast-acting fuse.

Dimensions:
5 x 15mm
(0.197" X 0.591").

Construction:
Glass tube.

Ratings:

- Volts — 250Vac
- Amps — 100mA-5A
- IR — 35A (100mA-750mA @ 250V, p.f. = 0.7-0.8)
- 10kA (100mA-5A @ 125V, p.f. = 0.7-0.8)
- 100A (1-3.5A @ 250V, p.f. = 0.7-0.8)
- 200A (4-5A @ 250V, p.f. = 0.7-0.8)

Agency Information: CE, UL Listing File E19180, Guide JDYX CSA Certification File LR65063, Class 1422-01.

Features and Benefits

- Small footprint saves space in equipment.
- Fast-acting for maximum component protection.
- Available in clip mount and solder-in configurations

Typical Applications

- Electronic Circuits
- Printed circuit Boards

Catalog Numbers (Amps)

With Axial Leads

C518-100-R	C518-750-R	C518-3-R
C518-125-R	C518-1-R	C518-3.5-R
C518-250-R	C518-1.5-R	C518-4-R
C518-375-R	C518-2-R	C518-5-R
C518-500-R	C518-2.5-R	

Without Axial Leads

C520-100-R	C520-750-R	C520-3-R
C520-125-R	C520-1-R	C520-3.5-R
C520-250-R	C520-1.5-R	C520-4-R
C520-375-R	C520-2-R	C520-5-R
C520-500-R	C520-2.5-R	

Data Sheet: 2026 (C518) & 2027 (C520)

C517 (axial leads)

Specifications

Description: Fast-acting fuse.

Dimensions: 5 x 15mm
(0.197" X 0.591").

Construction: Glass tube.

Ratings:

- Volts — 350Vac*
- Amps — 3A
- IR — 100A @ 350Vac, p.f. = 1.0
- 100A @ 250Vac, p.f. = 0.7-0.8
- 10kA @ 125Vac, p.f. = 0.7-0.8

*350Vac/100A is UL Recognized

Agency Information: CE, UL Listing File E19180, Guide JDYX CSA Certification File LR65063, Class 1422-01 UL Recognized, File E19180, Guide JDYX2.

- Small footprint saves space in equipment.
- Fast-acting for maximum component protection.
- 350Vac rating for 277V ballast circuit protection.

Typical Applications

- Electronic Circuits
- Printed Circuit Boards
- Electronic Ballast Protection

Catalog Number (Amps)

With Axial Leads
C517-3



5 x 20mm European (IEC) ferrule fuses

GDA-V (axial leads)

GDA

Specifications

Description: Fast-acting, high-breaking capacity fuse.

Dimensions:
5 x 20mm.

Construction:
Ceramic tube, nickel-plated brass endcaps.

Ratings:

Volts — 250Vac (or less)
Amps — 50mA-6.3A
IR — 1500A @ 250Vac

Agency Information: CE, UL Recognized, Guide JDYX2, File E19180, 50mA and 315mA-6.3A SEMKO Approval 50mA, 200mA and 315mA-6.3A, IEC 60127-Sheet I, VDE Approval 1.25A-6.3A.

Features and Benefits

- Fast-acting for maximum protection.
- High break capacity for use in higher fault energy electronic circuitry.
- Conforming to IEC standards.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

Catalog Numbers	I^2t	Max Voltage Drop (mV)
GDA-50mA	0.0017	9000
GDA-63mA	0.0005	3300
GDA-80mA	0.0011	2600
GDA-100mA	0.0018	2300
GDA-125mA	0.0037	1900
GDA-160mA	0.008	1600
GDA-200mA	0.020	1350
GDA-250mA	0.027	1300
GDA-315mA	0.010	1400
GDA-400mA	0.018	1200
GDA-500mA	0.038	1050
GDA-630mA	0.064	1200
GDA-800mA	0.097	490
GDA-1	0.480	230
GDA-1.25	0.9	200
GDA-1.6	1.9	180
GDA-2	2.0	205
GDA-2.5	3.9	190
GDA-3.15	8.1	160
GDA-4	14	160
GDA-5	25	155
GDA-6.3	48	150

Ordering Axial Leads

To order axial leads, place "V" in the catalog number.

Example: GDA-V-3.15.

Data Sheet: 2014

GDB-V (axial leads)

GDB

Specifications

Description: Fast-acting, low-breaking capacity fuse.

Dimensions:
5 x 20mm.

Construction:
Glass tube, nickel-plated brass endcaps.

Ratings:

Volts — 250Vac (or less)
Amps — 32mA-16A
IR — 35A @ 250Vac

Agency Information: CE, Designed to IEC 60127-Sheet II British Standard Approval SEMKO Approval VDE Approval, IMQ UL Recognized, Guide JDYX2, File E19180, 32mA-6.3A.

Features and Benefits

- Fast-acting for maximum protection, conforms to IEC standards.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

Catalog Numbers	I^2t	Max Voltage Drop (mV)
GDB-32mA	0.000047	10000
GDB-40mA	0.00011	8000
GDB-50mA	0.00020	3200
GDB-63mA	0.00057	2500
GDB-80mA	0.0012	2200
GDB-100mA	0.003	2100
GDB-125mA	0.005	2000
GDB-160mA	0.008	1950
GDB-200mA	0.016	1600
GDB-250mA	0.028	1400
GDB-315mA	0.058	1150
GDB-400mA	0.018	950
GDB-500mA	0.018	220
GDB-630mA	0.035	220
GDB-800mA	0.067	180
GDB-1	0.60	200
GDB-1.25	0.84	200
GDB-1.6	1.6	190
GDB-2	4.2	160
GDB-2.5	6.1	145
GDB-3.15	13	130
GDB-4	22	120
GDB-5	42	115
GDB-6.3	69	110
GDB-8*	—	—
GDB-10*	—	—
GDB-12*	—	—
GDB-16*	—	—

*IEC Standard 127 Sheet II does not include ratings above 6.3A.

Ordering Axial Leads

To order axial leads, place "V" in the catalog number. Example: GDB-V-1.25.

Data Sheet: 2015

GDC-V (axial leads)

GDC

Specifications

Description: Time-delay, low-breaking capacity fuse.

Dimensions:
5 x 20mm.

Construction:
Glass tube, nickel-plated brass endcaps.

Ratings:

Volts — 250Vac (or less)
Amps — 32mA-6.3A
IR — 35A @ 250Vac

Agency Information: CE, Designed to IEC 60127-Sheet III British Standard Approval SEMKO Approval VDE Approval, IMQ UL Recognized, Guide JDYX2, File E19180, 32mA-6.3A.

Features and Benefits

- Time-delay compatibility for inductive circuits.
- Conforming to IEC standards.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

Catalog Numbers	I^2t	Max Voltage Drop (mV)
GDC-32mA	0.0014	1050
GDC-40mA	0.0034	920
GDC-50mA	0.006	800
GDC-63mA	0.012	760
GDC-80mA	0.015	580
GDC-100mA	0.022	490
GDC-125mA	0.034	390
GDC-160mA	0.052	320
GDC-200mA	0.078	340
GDC-250mA	0.17	270
GDC-315mA	0.41	250
GDC-400mA	0.61	210
GDC-500mA	0.75	168
GDC-630mA	1.3	158
GDC-800mA	3.1	132
GDC-1	3.6	85
GDC-1.25	7	80
GDC-1.6	10	80
GDC-2	17	80
GDC-2.5	34	80
GDC-3.15	56	75
GDC-4	91	75
GDC-5	133	75
GDC-6.3	270	65

Ordering Axial Leads

To order axial leads, place "V" in the catalog number.

Example: GDC-V-630mA.

Data Sheet: 2016

5 x 20mm North American (UL) ferrule fuses

GMA-V (axial leads)

GMA

Specifications
Description:
Fast-acting fuse.

Dimensions:
5 x 20mm
(0.197" x 0.788").

Construction:
Glass tube,
nickel-plated brass endcaps.

Ratings:

- Volts — 250Vac (63mA-2.5A)
- 125Vac (3.15-15A)
- Amps — 63mA-15A
- IR — 35A (63mA- 1A @ 250Vac, p.f. = 0.7-0.8)
- 10kA (63mA-6A @ 125Vac, p.f. = 0.7-0.8)
- 100A (1.25-2.5A @ 250Vac, p.f. = 0.7-0.8)
- 200A (7-8A @ 125Vac, p.f. = 1.0)
- 150A (10-15A @ 125Vac, p.f. = 1.0)

Agency Information: CE, Std. 248-14 UL Listed Guide JDYX, File E19180, 0-6A, UL Recognized, Guide JDYX2, File E19180, 7-15A, CSA Certified, Class 1422-01, File E65063, 0-6.

Features and Benefits

- Fast-acting for maximum protection.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

GMA-V-63-R	GMA-V-800-R	GMA-V-4-R
GMA-V-100-R	GMA-V-1-R	GMA-V-5-R
GMA-V-125-R	GMA-V-1.25-R	GMA-V-6-R
GMA-V-200-R	GMA-V-1.5-R	GMA-V-7-R
GMA-V-250-R	GMA-V-1.6-R	GMA-V-8-R
GMA-V-300-R	GMA-V-2-R	GMA-V-10-R
GMA-V-500-R	GMA-V-2.5-R	GMA-V-15-R
GMA-V-600-R	GMA-V-3.15-R	
GMA-V-750-R	GMA-V-3.5-R	

Without Axial Leads

GMA-63-R	GMA-800-R	GMA-4-R
GMA-100-R	GMA-1-R	GMA-5-R
GMA-125-R	GMA-1.25-R	GMA-6-R
GMA-200-R	GMA-1.5-R	GMA-7-R
GMA-250-R	GMA-1.6-R	GMA-8-R
GMA-300-R	GMA-2-R	GMA-10-R
GMA-500-R	GMA-2.5-R	GMA-15-R
GMA-600-R	GMA-3.15-R	
GMA-750-R	GMA-3.5-R	

Data Sheet: 2017

GMC-V (axial leads)

GMC

Specifications
Description: Medium time-delay fuse.

Dimensions: 5 x 20mm
(0.197" x 0.788").

Construction: Glass tube, nickel-plated brass endcaps.

Ratings:

- Volts — 250Vac (63mA-3.15A)
- 125Vac (3.5-10A)
- Amps — 63mA-10A
- IR — 35A (63mA- 1A @ 250Vac, p.f. = 0.7-0.8)
- 10kA (63mA-6A @ 125Vac, p.f. = 0.7-0.8)
- 100A (1.25-3.15A @ 250Vac, p.f. = 0.7-0.8)
- 200A (6.3-10A @ 125Vac, p.f. = 1.0)

Agency Information: CE, Std. 248-14, UL Listed Guide JDYX, File E19180, 0-6.3A, UL Recognized, Guide JDYX2, File E19180, 7-8A, CSA Certified, Class 1422-01, File 65063, 0-6.3A.

Features and Benefits

- Conforming to UL standards.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

GMC-V-63-R	GMC-V-500-R	GMC-V-2.5
GMC-V-80-R	GMC-V-600-R	GMC-V-3.15
GMC-V-100-R	GMC-V-630-R	GMC-V-3.5
GMC-V-125-R	GMC-V-750-R	GMC-V-4
GMC-V-150-R	GMC-V-800-R	GMC-V-5
GMC-V-200-R	GMC-V-1-R	GMC-V-6
GMC-V-250-R	GMC-V-1.25-R	GMC-V-6.3
GMC-V-300-R	GMC-V-1.5-R	GMC-V-7
GMC-V-315-R	GMC-V-1.6-R	GMC-V-8
GMC-V-400-R	GMC-V-2-R	GMC-V-10

Without Axial Leads

GMC-63mA	GMC-500-R	GMC-2.5-R
GMC-80mA	GMC-600-R	GMC-3.15-R
GMC-100mA	GMC-630-R	GMC-3.5-R
GMC-125mA	GMC-750-R	GMC-4-R
GMC-150mA	GMC-800-R	GMC-5-R
GMC-200mA	GMC-1-R	GMC-6-R
GMC-250mA	GMC-1.25-R	GMC-6.3-R
GMC-300mA	GMC-1.5-R	GMC-7-R
GMC-315mA	GMC-1.6-R	GMC-8-R
GMC-400mA	GMC-2-R	GMC-10-R

Data Sheet: 2018

GMD-V (axial leads)

GMD

Specifications
Description: Time-delay fuse.

Dimensions:
5 x 20mm
(0.197" x 0.788").

Construction:
Glass tube, nickel-plated brass endcaps.

Ratings:

- Volts — 250Vac
- Amps — 125mA-4A
- IR — 10kA (125mA-3A @ 125Vac, p.f. = 0.7-0.8)
- 10kA (4A @ 125Vac, p.f. = 1.0)
- 100A (125mA-3A @ 250Vac, p.f. = 0.7-0.8)
- 200A (4A @ 250Vac, p.f. = 1.0)

Agency Information: CE, Std. 248-14, UL Listed Guide JDYX, File E19180, 0-3A, UL Recognized, Guide JDYX2, File E19180, 4A, CSA Certified, Class 1422-01, File 65063, 0-3A.

Features and Benefits

- Time-delay compatibility for inductive circuits.
- Conforming to UL standards.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

GMD-V-125-R	GMD-V-500-R	GMD-V-1.5-R
GMD-V-150-R	GMD-V-630-R	GMD-V-1.6-R
GMD-V-200-R	GMD-V-750-R	GMD-V-2-R
GMD-V-250-R	GMD-V-800-R	GMD-V-2.5-R
GMD-V-300-R	GMD-V-1-R	GMD-V-3-R
GMD-V-315-R	GMD-V-1.2-R	GMD-V-4-R
GMD-V-400-R	GMD-V-1.25-R	

Without Axial Leads

GMD-125-R	GMD-500-R	GMD-1.5-R
GMD-150-R	GMD-630-R	GMD-1.6-R
GMD-200-R	GMD-750-R	GMD-2-R
GMD-250-R	GMD-800-R	GMD-2.5-R
GMD-300-R	GMD-1-R	GMD-3-R
GMD-315-R	GMD-1.2-R	GMD-4-R
GMD-400-R	GMD-1.25-R	

Data Sheet: 2019

1/4" Dia. x 5/8" to 1" length ferrule fuses

AGA-V (axial leads)

AGA

Specifications
Description: Fast-acting fuse.

Dimensions:
1/4" x 5/8"
(6.4 x 15.9mm).

Construction:
Glass tube.

Ratings:
Volts — 125Vac (or less)

Amps — 1/6-30A
IR — 10,000 (1/6-1 1/2A @ 125Vac)
— 200A (2-5A @ 125Vac)
— 1000A (6-30A @ 32Vac)

Agency Information: CE, Std. 248-14, UL File E19180, UL Listed, Guide JDYX 0-1 1/2A UL Recognized, Guide JDYX2 2-12A.

Features and Benefits

- Fast-acting for maximum protection.
- Size rejects insertion of other fuse types.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads*

AGA-V-1/6	AGA-V-1	AGA-V-7 1/2
AGA-V-1/10	AGA-V-1 1/2	AGA-V-10
AGA-V-1/6	AGA-V-2	AGA-V-15
AGA-V-1/4	AGA-V-2 1/2	AGA-V-20
AGA-V-3/8	AGA-V-3	AGA-V-25
AGA-V-1/2	AGA-V-5	AGA-V-30
AGA-V-2/3	AGA-V-6	
AGA-V-3/4	AGA-V-7	

Without Axial Leads

AGA-1/6	AGA-1	AGA-7 1/2
AGA-1/10	AGA-1 1/2	AGA-10
AGA-1/6	AGA-2	AGA-15
AGA-1/4	AGA-2 1/2	AGA-20
AGA-3/8	AGA-3	AGA-25
AGA-1/2	AGA-5	AGA-30
AGA-2/3	AGA-6	
AGA-3/4	AGA-7	

*AGA-V is UL Listed 0-5A, UL Recognized 6-12A.



AGW

Specifications
Description: Fast-acting fuse.

Dimensions: 1/4" x 7/8"
(6.4 x 22.2mm).

Construction: Glass tube.

Ratings:

Volts — 32Vac
Amps — 1-30A
IR — 100A

Features and Benefits

- Fast-acting for maximum protection.
- Size rejects insertion of other fuse types.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

AGW-1	AGW-4	AGW-15
AGW-1 1/2	AGW-5	AGW-20
AGW-2	AGW-6	AGW-25
AGW-2 1/2	AGW-7 1/2	AGW-30
AGW-3	AGW-10	



AGX-V (axial leads)

AGX

Specifications
Description: Fast-acting fuse.

Dimensions: 1/4" x 1"
(6.4 x 25.4mm).

Construction: Glass tube.

Ratings:

Volts — 250Vac (1/600-2A)
— 125Vac (2 1/2-7A)
— 32V (8-30A)
Amps — 1/600-30A
IR — 35A (1/600-2A @ 250Vac)
— 10,000A (2 1/2-7A @ 125Vac)
— 1000A (8-30A @ 32V)

Agency Information: CE, Std. 248-14, UL File E19180 UL Listed, Guide JDYX, 0-5A UL Recognized, Guide JDYX2, 6-20A CSA File 47233; Class 1422-01, 0-5A.

Features and Benefits

- Size rejects insertion of other fuse types.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads**

AGX-V-1/600	AGX-V-3/8	AGX-V-5
AGX-V-1/200	AGX-V-1/10	AGX-V-6
AGX-V-1/100	AGX-V-1/2	AGX-V-7
AGX-V-1/25	AGX-V-3/4	AGX-V-8
AGX-V-1/6	AGX-V-1	AGX-V-10
AGX-V-1/10	AGX-V-1 1/4	AGX-V-15
AGX-V-1/6	AGX-V-1 1/2	AGX-V-20
AGX-V-3/8	AGX-V-2	AGX-V-25
AGX-V-7/10	AGX-V-2 1/2	AGX-V-30
AGX-V-1/4	AGX-V-3	
AGX-V-3/10	AGX-V-4	

Without Axial Leads

AGX-1/600	AGX-3/8	AGX-5
AGX-1/200	AGX-1/10	AGX-6
AGX-1/100	AGX-1/2	AGX-7
AGX-1/25	AGX-3/4	AGX-8
AGX-1/6	AGX-1	AGX-10
AGX-1/10	AGX-1 1/4	AGX-15
AGX-1/6	AGX-1 1/2	AGX-20
AGX-3/8	AGX-2	AGX-25
AGX-7/10	AGX-2 1/2	AGX-30
AGX-1/4	AGX-3	
AGX-3/10	AGX-4	

**AGX-V is UL Recognized from 6-20A @ 32Vac



Electronic
Fuses

1/4" Dia. x 1 1/4" length fast-acting ferrule fuses

AGC-V (axial leads)

AGC

Specifications

Description: Fast-acting fuse.

Dimensions: 1/4" x 1 1/4"
(6.4 x 31.7mm).

Construction: Glass tube with nickel-plated brass endcaps.

Ratings:

Volts — 250Vac (1/20-10A)
— 32Vac (15-30A)

Amps — 1/20-30A

IR* — 35A (1/20-1A @ 250Vac)
— 100A (1 1/4-3A @ 250Vac)
— 200A (4-10A @ 250Vac)
— 1000A (15-30A @ 32Vac)

*Interrupting ratings were measured at 70% – 80% power factor on AC, and at a time constant described in UL 248.

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180, 0-10A UL Recognized, Guide JDYX2, File E19180, 15-30A CSA Certification, Class 1422-01, File 53787.

Features and Benefits

- Original electronic glass tube fuse.
- Fast-acting for maximum protection.
- Wide amp/volt ratings allow versatility of protecting electronic circuits.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

AGC-V-1/20	AGC-V-1/2	AGC-V-5
AGC-V-1/16	AGC-V-3/4	AGC-V-6
AGC-V-1/10	AGC-V-1	AGC-V-7
AGC-V-1/8	AGC-V-1 1/4	AGC-V-8
AGC-V-3/16	AGC-V-1 1/2	AGC-V-9
AGC-V-1/4	AGC-V-2	AGC-V-10
AGC-V-3/8	AGC-V-2 1/4	AGC-V-15
AGC-V-1/2	AGC-V-2 1/2	AGC-V-20
AGC-V-3/4	AGC-V-3	AGC-V-25
AGC-V-1/100	AGC-V-4	AGC-V-30

Without Axial Leads

AGC-1/20	AGC-1/2	AGC-5
AGC-1/16	AGC-3/4	AGC-6
AGC-1/10	AGC-1	AGC-7
AGC-1/8	AGC-1 1/4	AGC-8
AGC-3/16	AGC-1 1/2	AGC-9
AGC-1/4	AGC-2	AGC-10
AGC-3/8	AGC-2 1/4	AGC-15
AGC-1/2	AGC-2 1/2	AGC-20
AGC-3/4	AGC-3	AGC-25
AGC-1/100	AGC-4	AGC-30



ABC-V (axial leads)

ABC

Specifications

Description: Fast-acting fuse.

Dimensions: 1/4" x 1 1/4"
(6.4 x 31.7mm).

Construction: Ceramic tube with nickel-plated brass endcaps.

Ratings:

Volts — 250Vac/125Vdc (1/4-20A)
— 125Vac/125Vdc (25-30A)

Amps — 1/4-30A

IR** — 35A (1/4-1A @ 250Vac)
— 10kA (1/4-20A @ 250Vdc)
— 100A (1 1/2-3A @ 250Vac)
— 200A (4-10A @ 250Vac)
— 750A (15A @ 250Vac)
— 400A (20A @ 250Vac)
— 400A (25-30A @ 250Vdc)
— 1kA (25-30A @ 125Vdc)

**Interrupting ratings were measured at 70% – 80% power factor on AC, and at a time constant described in UL 248.

Agency Information: CE, Std. 248-14 UL Listed, Guide JDYX File E19180, 0-15A UL Recognized, Guide JDYX2, File E19180, 20-25A CSA Certification, Class 1422-01, File 53787, 0-15A, Class 1422-30, File 53787, 20-25A.

Features and Benefits

- Ceramic body allows for higher amp/volt rating combinations.
- Consolidate inventory by replacing AGC fuses for reduced SKU investment and minimizing potential for misapplying fuse.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

ABC-V-1/4	ABC-V-2 1/2	ABC-V-8
ABC-V-1/2	ABC-V-3	ABC-V-10
ABC-V-3/4	ABC-V-4	ABC-V-15
ABC-V-1	ABC-V-5	ABC-V-20
ABC-V-1 1/2	ABC-V-6	ABC-V-25
ABC-V-2	ABC-V-7	ABC-V-30

Without Axial Leads

ABC-1/4	ABC-2 1/2	ABC-8
ABC-1/2	ABC-3	ABC-10
ABC-3/4	ABC-4	ABC-15
ABC-1	ABC-5	ABC-20
ABC-1 1/2	ABC-6	ABC-25
ABC-2	ABC-7	ABC-30



GBB-V (axial leads)

GBB

Specifications

Description: Very fast-acting fuse.

Dimensions: 1/4" x 1 1/4"
(6.4 x 31.7mm).

Construction: Ceramic cartridge with nickel-plated brass endcaps.

Ratings:

Volts — 250Vac/125Vdc

Amps — 1-30A

IR — 200A @ 250Vac
— 200A (20-30A @ 125Vac/dc)
— 10,000A (1A -15A @ 125Vac/dc)

Agency Information: CE, Std. 248-14, UL Recognized, 1-30, 125Vdc/250Vac, File E56412, Guide JFHR2, CSA Certified, 1-10, 125Vdc/250Vac, File 53787, Class 1422-01.

Features and Benefits

- Very fast-acting performance allows protection of highly sensitive electronic circuitry.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

GBB-V-1	GBB-V-6	GBB-V-15
GBB-V-1 1/4	GBB-V-7	GBB-V-20
GBB-V-2	GBB-V-8	GBB-V-25
GBB-V-3	GBB-V-9	GBB-V-30
GBB-V-4	GBB-V-10	
GBB-V-5	GBB-V-12	

Without Axial Leads

GBB-1	GBB-6	GBB-15
GBB-1 1/4	GBB-7	GBB-20
GBB-2	GBB-8	GBB-25
GBB-3	GBB-9	GBB-30
GBB-4	GBB-10	
GBB-5	GBB-12	



1/4" Dia. x 1 1/4" length time-delay ferrule fuses

MDL-V (axial leads)

MDL

Specifications
Description: Time-delay fuse.

Dimensions: 1/4" x 1 1/4"
(6.4 x 31.7mm).

Construction: Glass tube with nickel-plated brass endcaps.

Ratings:

- Volts — 250Vac (1/6-8A)
- 32Vac (9-30A)
- Amps — 1/6-30A
- IR* — 35A (1/6-1A @ 250Vac)
- 100A (1 1/4-3A @ 250Vac)
- 200A (4-8A @ 250Vac)
- 1000A (9-30A @ 32Vac)

*Interrupting ratings were measured at 70% – 80% power factor on ac, and at a time constant described in UL 198L.

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180; 1/6-8A CSA Certification Class 1422-01, File 53787, 1/6-8A, UL Recognized, Guide JDYX2, File E19180, 8.1-30A.

Features and Benefits

- Time-delay allows close sizing on inductive circuits.
- Broad amp size range allows improved compatibility between fuse and circuit operating characteristics.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

MDL-V-1/6	MDL-V-1	MDL-V-7
MDL-V-1/10	MDL-V-1 1/4	MDL-V-8
MDL-V-1/6	MDL-V-1 1/2	MDL-V-9
MDL-V-7/10	MDL-V-2	MDL-V-10
MDL-V-3/4	MDL-V-2 1/4	MDL-V-12
MDL-V-1/4	MDL-V-2 1/2	MDL-V-15
MDL-V-7/10	MDL-V-3	MDL-V-20
MDL-V-3/6	MDL-V-4	MDL-V-25
MDL-V-1/2	MDL-V-5	MDL-V-30
MDL-V-3/4	MDL-V-6	

Without Axial Leads

MDL-1/6	MDL-1	MDL-7
MDL-1/10	MDL-1 1/4	MDL-8
MDL-1/6	MDL-1 1/2	MDL-9
MDL-7/10	MDL-2	MDL-10
MDL-3/4	MDL-2 1/4	MDL-12
MDL-1/4	MDL-2 1/2	MDL-15
MDL-7/10	MDL-3	MDL-20
MDL-3/6	MDL-4	MDL-25
MDL-1/2	MDL-5	MDL-30
MDL-3/4	MDL-6	

Data Sheet:2004

MDQ-V (axial leads)

MDQ

Specifications
Description: Dual-element, time-delay fuse.

Dimensions: 1/4" x 1 1/4"
(6.4 x 31.7mm).

Construction: Glass tube with nickel-plated brass endcaps.

Ratings:

- Volts — 250Vac (1/100-7A)
- 32Vac (7 1/2-7A)
- Amps — 1/100-15A
- IR — 35A (1/100-1A @ 250Vac)
- 100A (1 1/4-3A @ 250Vac)
- 200A (4-7A @ 25Vac)
- 1000A (7 1/2-12A @ 32Vac)

Agency Information: CE, Std. 248-14, UL Listed, File E19180; Guide JDYX, 1/6-7A CSA Certification, File 47233, Class 1422-01, 1/6-7A, UL Recognized, Guide JDYX2, File E19180, 7.1-30A.

Features and Benefits

- Dual-element design allows closer sizing to inductive circuits than any other fuses.

Typical Applications

- Electronic Relay and Control Circuits

Catalog Numbers (Amps)

With Axial Leads

MDQ-V-1/100	MDQ-V-7/10	MDQ-V-1 1/2	MDQ-V-5
MDQ-V-1/52	MDQ-V-3/6	MDQ-V-1 3/10	MDQ-V-6
MDQ-V-1/6	MDQ-V-7/10	MDQ-V-1 3/10	MDQ-V-6 1/4
MDQ-V-7/10	MDQ-V-1/2	MDQ-V-2	MDQ-V-7
MDQ-V-1/6	MDQ-V-7/10	MDQ-V-2 1/4	MDQ-V-7 1/2
MDQ-V-15/100	MDQ-V-3/4	MDQ-V-2 1/2	MDQ-V-8
MDQ-V-175/1000	MDQ-V-7/10	MDQ-V-2 3/10	MDQ-V-9
MDQ-V-3/6	MDQ-V-1	MDQ-V-3	MDQ-V-10
MDQ-V-7/10	MDQ-V-1 1/10	MDQ-V-3 3/10	MDQ-V-12
MDQ-V-3/4	MDQ-V-1 1/4	MDQ-V-4	MDQ-15

Without Axial Leads

MDQ-7/100	MDQ-3/10	MDQ-1 1/2	MDQ-5
MDQ-1/52	MDQ-3/6	MDQ-1 3/10	MDQ-6
MDQ-7/6	MDQ-7/10	MDQ-1 3/10	MDQ-6 1/4
MDQ-7/10	MDQ-1/2	MDQ-2	MDQ-7
MDQ-1/6	MDQ-7/10	MDQ-2 1/4	MDQ-7 1/2
MDQ-15/100	MDQ-3/4	MDQ-2 1/2	MDQ-8
MDQ-175/1000	MDQ-7/10	MDQ-2 3/10	MDQ-9
MDQ-3/6	MDQ-1	MDQ-3	MDQ-10
MDQ-7/10	MDQ-1 1/10	MDQ-3 3/10	MDQ-12
MDQ-3/4	MDQ-1 1/4	MDQ-4	MDQ-15

Data Sheet: 2044

MDA-V (axial leads)

MDA

Specifications
Description: Time-delay fuse.

Dimensions: 1/4" x 1 1/4"
(6.4 x 31.7mm).

Construction: Ceramic tube with nickel-plated brass endcaps.

Ratings:

- Volts — 250Vac (or less)
- 125Vdc (20A- 30A)
- Amps — 7/10-30A
- IR** — 35A (7/10-1A @ 250Vac)
- 100A (2 1/2-3A @ 250Vac)
- 200A (4-10A @ 250Vac)
- 1500A (15-30A @ 250Vac)
- 10,000A (20-30A @ 125Vdc)

**Interrupting ratings were measured at 70% – 80% power factor on ac, and at a time constant described in UL 248.

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180, 0-15A CSA Certification, Class 1422-01, File 53787, 0-15A.

Features and Benefits

- Ceramic body allows for higher amp/volt rating combinations.
- Inventory consolidation by replacing MDL fuses allows for reduced SKU investment and minimizing potential for misapplying fuse.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

MDA-V-7/10	MDA-V-2 1/2	MDA-V-10
MDA-V-1/4	MDA-V-3	MDA-V-12
MDA-V-1/2	MDA-V-4	MDA-V-15
MDA-V-3/4	MDA-V-5	MDA-V-20
MDA-V-1	MDA-V-6	MDA-V-25
MDA-V-1 1/2	MDA-V-7	MDA-V-30
MDA-V-2	MDA-V-8	

Without Axial Leads

MDA-3/10	MDA-2 1/2	MDA-10
MDA-1/4	MDA-3	MDA-12
MDA-1/2	MDA-4	MDA-15
MDA-3/4	MDA-5	MDA-20
MDA-1	MDA-6	MDA-25A
MDA-1 1/2	MDA-7	MDA-30A
MDA-2	MDA-8	

Data Sheet: 2002

Electronic
Fuses

PC board mount fuse holders

HTC-45M



PCB Vertical Mount

Specifications

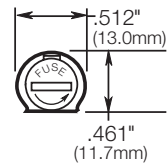
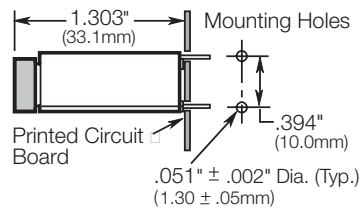
Description: PCB vertical mount bayonet cap and fuse holder.

Dimensions: See Dimensions illustration.

Ratings:

See Specifications table.

Dimensions



Data Sheet 2110

HTC-50M



PCB Horizontal Mount

Specifications

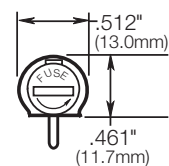
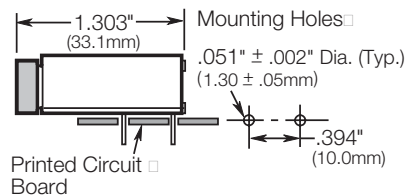
Description: PCB horizontal mount bayonet cap and fuse holder.

Dimensions: See Dimensions illustration.

Ratings:

See Specifications table.

Dimensions



Data Sheet 2110

HTC-60M, HTC-65M



PCB Stand-Off Mount

Specifications

Description: Two-leg (HTC-60M) and four-leg (HTC-65M) PCB stand-off fuse holder.

Dimensions: See Dimensions illustration.

Construction: Valox DR48 body material, phosphor bronze terminals.

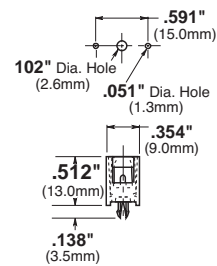
Ratings:

Volts: — 250V

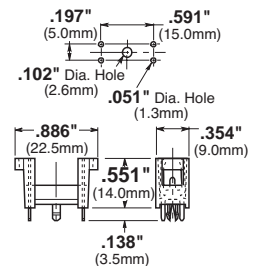
Amps: — 6.3A

Dimensions

HTC-60M (2-leg)



HTC-65M (4-Leg)



Data Sheet 2110

Specifications

Volts: 250V

Amps: 6.3A

Terminals: For HTC-45M, HTC-50M Tin-plated.

Molded Materials: High temperature thermoplastic that meets the flammability ratings of UL 94V0; Glow Wire Test: 960°C per IEC 60695-2-1.

Solderability: In accordance with IEC 68-2-20.

Electrical: Contact Resistance: ≤ 10mΩ; Insulation Resistance: ≥ 10mΩ; Dielectric Strength ≥ 2000 Vac.

Shock Safety: PC2 (fuse holders).

Agency Information: CE, HTC-45M, HTC-50M UL Recognized, (Guide IZLT2, File E14853; 6.3A, 250V; CSA Certified, (Class 6225-01, File 47235; 6.3A, 250V) SEMKO: (9226032; 6.3A, 250V).

Packaging: Standard Qty 10 (No Prefix), Bulk Qty 100 (Prefix Catalog Number with BK/).

PC board mount fuse holders

HBH-I (for ¼" x 1¼" fuses)

HBH-M (for 5 x 20mm fuses)

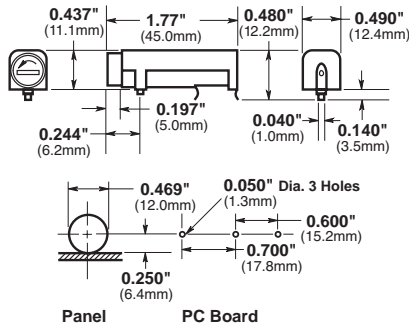
PCB Horizontal Mount

Specifications
Description: PCB horizontal mount fuse holder.

Dimensions: See Dimensions illustration.

Ratings:
See Specifications table.

Dimensions



Data Sheet: 2118

HBV-I (for ¼" x 1¼" fuses)

HBV-M (for 5 x 20mm fuses)

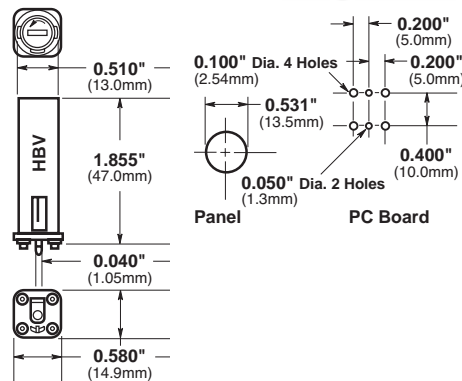
PCB Vertical Mount with Stability Pins

Specifications
Description: PCB vertical mount fuse holder with stability pins.

Dimensions: See Dimensions illustration.

Ratings:
See Specifications table.

Dimensions



Data Sheet: 2118

HBW-I (for ¼" x 1¼" fuses)

HBW-M (for 5 x 20mm fuses)

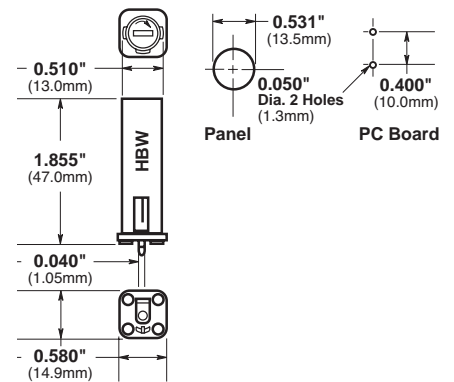
PCB Vertical Mount without Stability Pins

Specifications
Description: PCB vertical mount fuse holder without stability pins.

Dimensions: See Dimensions illustration.

Ratings:
See Specifications table.

Dimensions



Data Sheet: 2118



FBI



FBM

Fuse Holder Caps (Fit all three shown above)

Specifications

Electrical Ratings: UL — 16A @ 250V; CSA — 12A @ 250V; VDE — 6.3A @ 250V; SEMKO — 10A @ 250V
Insulation resistance — 10,000 megohm at 500Vdc. Contact resistance — less than 0.005 ohms @ 20mV. Dielectric strength — over 200V/mil.

Molded Material: High dielectric molded phenolic with a UL 94VO flammability rating.

Fuse Carrier & Knob: Spring-loaded, bayonet-type. Tin plated brass. Screwdriver slotted.

Mounting: "Kicked" terminals (all models) and stabilizer pins on HBV model for increased stability.

Environmental: Maximum operating temperature — (-40°C to +85°C).

Agency Information: CE, UL Recognized — Guide IZLT2, File EI4853;
CSA Certified — Class 6225-01, File 47235
VDE — 41421
SEMKO — 9308147 (HBH, HBV) 9222106 (HBW)

PC board fuseclips for 5mm diameter fuses

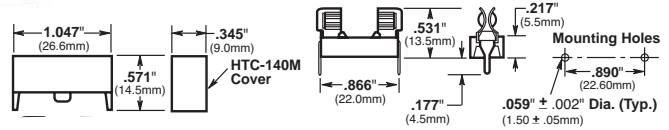
HTC-15M, HTC-140M

PCB Mounted Fuse Holder & Snap-On Cover

Voltage Rating: 250V, 6.3A, 1.6W

HTC-15M (fuse holder), HTC-140M (natural cover),
HTC-150M* (transparent cover)

*Available in bulk only. Use this format: BK/HTC-150M
Data Sheet: 2110



HTC-200M

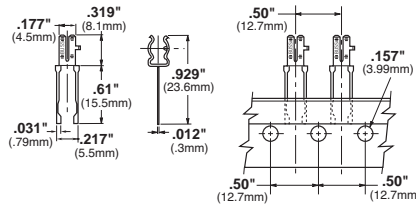
PCB Mounted Fuseclip

Construction: Tin-plated bronze

Tape and Fan Fold packed

Ammo Pack (AP/HTC-200M) 1000 pieces per box

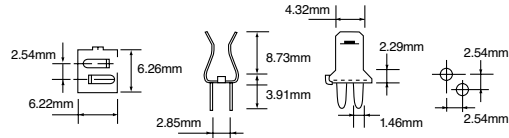
Data Sheet: 2110



HTC-210M

PCB Mounted Fuseclip with End Stops

Data Sheet: 2110



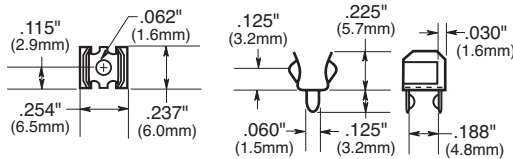
1A3399 Series

PCB Fuseclips with End Stops & Straight Leads

Catalog Numbers	Clip Material*	Finish
1A3399-01	Beryllium copper*	Silver
1A3399-04	Beryllium copper*	Bright tin
1A3399-10	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15 amps (1/2" clips).

Data Sheet: 2131



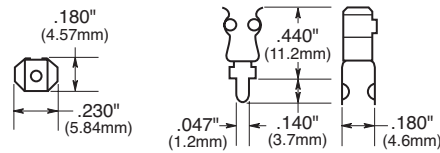
1A5018 Series

PCB High Profile Fuseclips with End Stops & Straight Leads

Catalog Numbers	Clip Material*	Finish
1A5018-7	Spring bronze	Silver
1A5018-10	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15 amps (1/2" clips).

Data Sheet: 2131

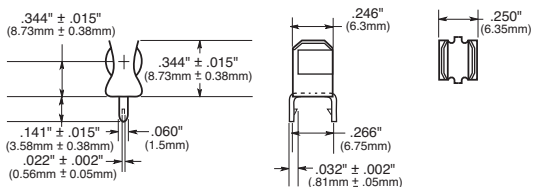


1A5601 Series

PCB Fuseclips (0-7A)

Catalog Number	Clip Material	Finish
1A5601	Cartridge brass	Bright tin

Data Sheet: 2131

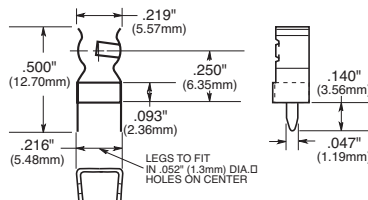


1A5602 Series

PCB Fuseclips (0-7A)

Catalog Number	Clip Material	Finish
1A5602	Cartridge brass	Bright tin

Data Sheet: 2131



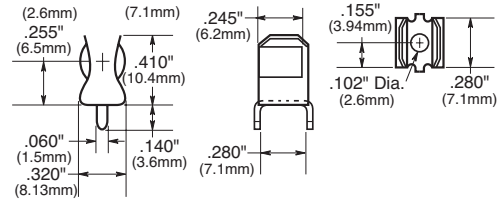
PC board fuseclips for 1/4" diameter fuses

1A3398 Series

PCB Fuseclips without End Stops or Straight Leads

Catalog Numbers	Clip Material	Finish
1A3398-07	Cartridge brass	Bright tin
1A3398-08	Spring bronze	Bright tin

Data Sheet: 2131



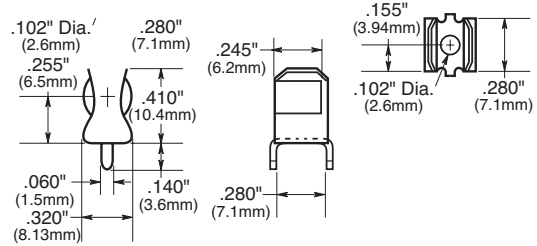
1A1907 Series

PCB Fuseclips with End Stops & Straight Leads

Catalog Numbers	Clip Material*	Finish
1A1907-02	Cartridge brass	None/bright dipped
1A1907-03	Beryllium copper*	Bright tin
1A1907-05	Beryllium copper*	Silver
1A1907-06	Cartridge brass	Bright tin
1A1907-08	Spring bronze	None/bright dipped
1A1907-09	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15A (1/2" clips).

Data Sheet: 2131



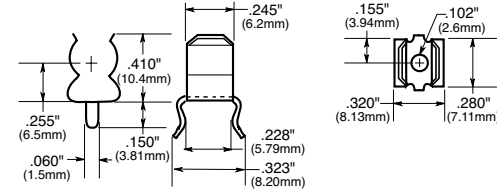
1A4533 Series

PCB Fuseclips without End Stops or Angled Out Leads

Catalog Numbers	Clip Material*	Finish
1A4533-01	Beryllium copper*	Bright tin
1A4533-06	Cartridge brass	Bright tin
1A4533-07	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15A (1/2" clips).

Data Sheet: 2131



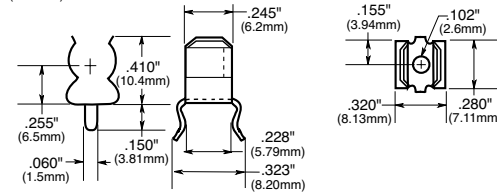
1A4534 Series

PCB Fuseclips with End Stops & Angled Out Leads

Catalog Numbers	Clip Material*	Finish
1A4534-01	Beryllium copper*	Bright tin
1A4534-06	Cartridge brass	Bright tin
1A4534-07	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15A (1/2" clips).

Data Sheet: 2131



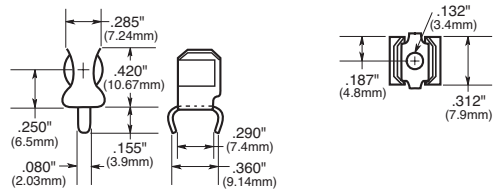
1A1119 Series

Fuseclips with End Stops & Angled In Leads

Catalog Numbers	Clip Material*	Finish
1A1119-04	Beryllium copper*	Bright tin
1A1119-05	Beryllium copper*	Silver
1A1119-10	Cartridge brass	Bright tin
1A1119-13	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15A (1/2" clips).

Data Sheet: 2131



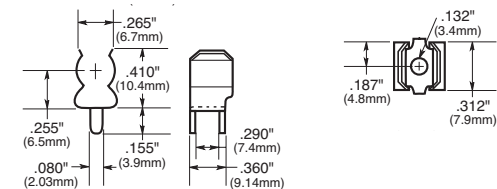
1A1120 Series

PCB Fuseclips without End Stops or Angled In Leads

Catalog Numbers	Clip Material*	Finish
1A1120-02	Cartridge brass	None/bright dipped
1A1120-05	Beryllium copper*	Silver
1A1120-06	Beryllium copper*	Bright tin
1A1120-09	Cartridge brass	Bright tin
1A1120-11	Spring bronze	None/bright dipped
1A1120-12	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15A (1/2" clips).

Data Sheet: 2131



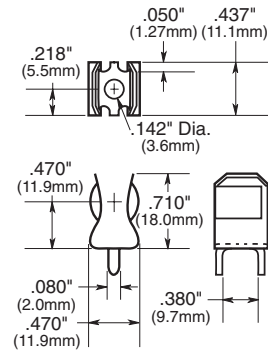
PC Board fuseclips for $1\frac{3}{32}$ " diameter and ATC® fuses

1A3400 Series

PCB Fuseclips for $1\frac{3}{32}$ " diameter fuses with End Stops & Straight Leads

Catalog Number	Amp Rating	Clip Material	Finish
1A3400-09	20A Max.	Spring bronze	Bright tin

Data Sheet 2131

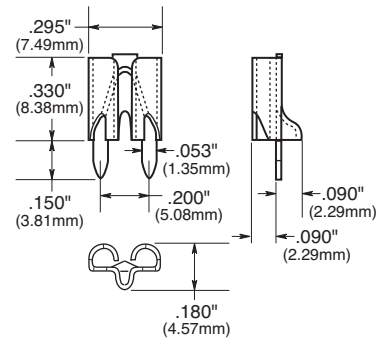


1A5600 Series

PCB Fuseclips for ATC® Fuses (0-20A)

Catalog Number	Clip Material	Finish
1A5600	Brass	Satin finish tin

Data Sheet 2131



Did You Know?

The POWER of Cooper Bussmann Branded Merchandising

The Cooper Bussmann brand name is recognized as the leader in circuit protection products by the majority of electrical end-users. Just like our circuit protection products, our branded merchandise is the highest quality. You can now find everything you need, from apparel to sporting goods at www.BussShop.com.

Shopping on-line will also give you:

- Up-to-date inventory counts
- Seasonally updated merchandise
- Immediate e-mail order acknowledgment and shipping notification
- Buss@Shop special pricing on sale items

PC Board fuseclips for 1/4", 3/32", 13/32" and 9/16" diameter fuses

Electronic Fuses

5681 & 5682 Series

PCB Fuseclips with Mounting Holes For 1/4" Diameter Fuses

Catalog Numbers

Catalog Numbers	End Stop	Clip Mat.**	Finish	Dimensions (in)				Hole Dia.	Fig. Ref.
				B (To End Stop)	C (Contact)	D (Height)	E (Width)		
5681-08	No	Spg. Br.	Nickel	†	0.265	0.410	0.320	0.132	2
5681-15		Spg. Br.	Bright tin						
5682-01		BeCU	Silver	0.106					
5682-02	Yes	BeCU	Silver	0.132					
5682-41		Spg. Br.	Bright tin	0.106	0.260	0.410	0.320	0.132	1
5682-44		Spg. Br.	Bright tin	0.132					

**Spg. Br. — Spring Bronze; BeCU — Beryllium Copper.
†Hole in center of both clip and contact area.

Data Sheet: 2132

5672 & 5674 Series

PCB Fuseclips with Mounting Holes For 3/32" Diameter Fuses

Catalog Numbers	End Stop	Clip Mat.**	Finish	Dimensions (in)				Hole Dia.	Fig. Ref.
				B (To End Stop)	C (Contact)	D (Height)	E (Width)		
5672-11	No	Spg. Br.	Bright tin	†	0.362	0.520	0.380	0.172	2
5674-01		BeCU	Silver						
5674-10	Yes	BeCU	Bright tin	0.168	0.356	0.520	0.380	0.172	1
5674-41		Spg. Br.	Bright tin						

**Spg. Br. — Spring Bronze; BeCU — Beryllium Copper.
†Hole in center of both clip and contact area.

Data Sheet: 2132

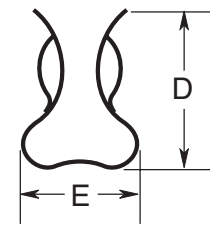
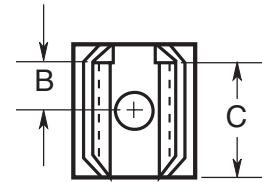


FIGURE 1

5956 & 5960 Series

PCB Fuseclips with Mounting Holes For 13/32" Diameter Fuses

Catalog Numbers	End Stop	Clip Mat.**	Finish	Dimensions (in)				Hole Dia.	Fig. Ref.
				B (To End Stop)	C (Contact)	D (Height)	E (Width)		
5956-16	No	Spg. Br.	Bright tin	†					2
5960-07		BeCU	Silver	0.168				0.196	
5960-09		BeCU	Silver	0.200				0.172	
5960-51	Yes	Spg. Br.	Bright dip*	0.168	0.389	0.710	0.470	0.196	1
5960-53		Spg. Br.	Bright dip*	0.200				0.172	
5960-61		Spg. Br.	Bright tin	0.168				0.196	
5960-62		Spg. Br.	Bright tin	0.168				0.132	
5960-63		Spg. Br.	Bright tin	0.200				0.172	
5960-64		Spg. Br.	Bright tin	0.200				0.128	

*Bright dip is actually treated bare metal with no plating.
**Spg. Br. = Spring Bronze; BeCU = Beryllium Copper.
†Hole in center of both clip and contact area.

Data Sheet: 2132

5591 & 5592 Series

PCB Fuseclips with Mounting Holes For 9/16" Diameter Fuses

Catalog Number	End Stop	Clip Mat.**	Finish	Dimensions (in)				Hole Dia.	Fig. Ref.
				B (To End Stop)	C (Contact)	D (Height)	E (Width)		
5591-42	Yes	Spg. Br.	Bright dip*	0.260	0.510	0.890	0.600	0.172	1
5592-01		BeCU	Silver					0.200	
5592-11	No	Spg. Br.	Silver	†	0.505	0.890	0.600	0.200	2
5592-33		Spg. Br.	Bright dip*					0.172	

*Bright Dip is actually treated bare metal with no plating.
**Spg. Br. — Spring Bronze; BeCU — Beryllium Copper.
†Hole in center of both clip and contact area.

Data Sheet: 2132

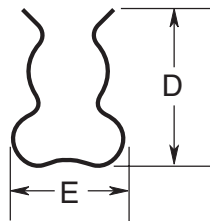
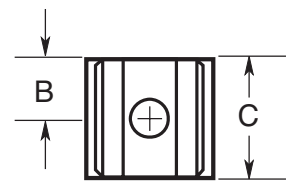


FIGURE 2

COOPER Bussmann



**Imagine Being in the Shoes
of the Person Who Doesn't
Give Serious Thought to
Circuit Protection.**

The burning question is: "Why would anyone forego circuit protection when Cooper Bussmann makes it so simple?"

With the industry's widest range of safety-enhanced products, expert technical support and safety programs, Cooper Bussmann provides everything you need to keep your systems, your personnel and yourself far from harm's way.

Simply contact your nearest Cooper Bussmann distributor or visit us at www.bussmann.com.

COOPER

The Power Behind The Brands.



COOPER Lighting



COOPER Crouse-Hinds



COOPER Power Systems



COOPER Wiring Devices



COOPER B-Line

Medium voltage fuses



Section Contents

	Page
Introduction	68
BBU Boric acid fuses	69-70
E-Rated Fuses	
CL-14 & bolt-in	71
CL-14	72
For transformers & feeders	73
For potential & small power transformers	74
For transformer & feeder protection	75-76
R-Rated fuses for motor circuit protection . . .	77-79
British IEC fuses for motor circuit protection . . .	80
DIN IEC fuses for transformer protection	81
Potential transformer fuses	82
Fast acting fuses	83
British IEC fuses for oil-filled switchgear	84
EEl-NEMA Type K & T and Type H & N fuses . . .	85
Fuseclips for medium and high voltage fuses . . .	86

Medium voltage fuses

Worldwide Circuit Protection Solutions

Copper Bussmann is a world-leading supplier of fuses and fusible protection systems. Each product is backed by an efficient worldwide distribution network with unrivaled service and technical support. Cooper Bussmann circuit protection solutions comply with major international standards: BS, IEC, DIN and UL.

Cooper Bussmann medium voltage fuses have absorbed and embodied the expertise and experience of the thirteen most prestigious manufacturers and offer an unbeatable range of products in terms of technical excellence, performance and quality.

Cooper Bussmann offers a wider range of medium voltage fuses than any other manufacturer, with types available to meet most service applications. With over 50 years experience in design and manufacture, Cooper Bussmann has supplied fuses to more than 90 countries worldwide.

Cooper Bussmann medium voltage fuses are extremely effective in preventing damage to a system in the event of a fault, due to considerable limitation of let-through current in DIN and British Standard designs to the latest IEC requirements.

Cooper Bussmann was a pioneer in the development of full-range medium and high voltage fuses and is consequently the market leader in this field offering genuine full-range characteristics.

The Cooper Bussmann team of specialist engineers plays a leading role in international standardization of medium voltage fuses, offering a comprehensive service of advice on application and selection of medium voltage fuses.

With a continual commitment to meet our customers' needs, with innovative, high quality products with ISO 9001, ISO 9002 and ISO 14000 "approved systems," Cooper Bussmann is the supplier of choice for medium voltage circuit protection solutions.

Features and Benefits

- **Cool Running:** A small mass of special low melting point alloy called M-effect applied on each fuse element has the effect of drastically reducing the temperature of the fuse during operation. The larger cross section of the fuse elements made possible by use of M-effect ensures cooler running and lower power dissipation under normal service conditions.
- **Cool Operation:** When a Cooper Bussmann fuse operates under low fault conditions, the maximum temperature rise of the fuse is held well within the no damage temperature limits for all insulated fuse switchgear typically about 160°C. The fuse carrier contacts remain unimpaired.

- **Non-Deterioration:** High purity silver is used as element material and the use of M-effect ensures against the possibility of long term grain growth by keeping the running temperature of the element material well within safe limits.
- **Surge Current Withstand:** The use of M-effect allows use of a somewhat larger element cross section for a given current rating. This improves withstand capability against transient over currents such as those due to transformer magnetizing inrush current or lightning surge.
- **Short Circuit Interrupting Performance:** Cooper Bussmann fuses are tested to IEC standards and are designed to limit peak let-through current and energy to exceptionally low values; thus ensuring maximum protection to associated transformer, cables or switchgear.
- **Construction:** The mechanical construction ensures against damage or deterioration in normal service. All electrical connections within the fuse are made by welded or brazed joints thus avoiding any risk of long term poor or intermittent internal contact.
- **Quality:** Cooper Bussmann operates a rigorous and intensive quality control system. All fuses are X-rayed, examined and electrically tested prior to packing and a manufacturing date number allocated to aid identification in the unlikely event of a subsequent query.

Medium Voltage Fuse Construction

- **Silver Elements:** High purity silver is used to make the conducting elements. The high conductivity of silver along with a larger element cross section is used in conjunction with the M-effect to provide low power dissipation and non-deterioration for the life time of the fuse. Most medium voltage fuses have elements connected in parallel wound around a star shape ceramic core, but for motor fuses the elements are passed straight through allowing up to 24 elements in one fuse.
- **Striker Mechanism:** The striker can provide the user with visual indication that the fuse has operated. However, it is most commonly used to trip associated switchgear to allow 3-phase disconnection, whatever the fault condition.
- **Oil Seals:** The Cooper Bussmann range of oil tight fuses are designed for use in oil-filled switchgear. A unique triple seal ensures against long-term deterioration.
- **Fixing Arrangement:** Cooper Bussmann fuses come with a variety of tags, studs and collars, which provide the user with easy installation. Higher current ratings can be obtained by bolting two or more fuses together and special fixing arrangements are available for this purpose.
- **Granular Quartz Filler:** All Cooper Bussmann current-limiting fuses are filled with "sand" where the quality, grain size and compaction are all critical in providing a filler which acts as an arc-quenching medium during fuse operation.

BBU Boric acid fuses

BBU

Specifications

Description: Boric acid fuses for power transformers, feeder circuits, distribution transformers, metal-enclosed and pad-mounted switchgear

Construction:

Principle parts of the replaceable BBU fuse unit are shown in the cross section views. A glass epoxy tube encloses the assembly containing the silver fuse element, arcing rod, boric acid cylinder and spring. Using a pure silver element and nichrome wire strain element makes the BBU less susceptible to failure caused by vibration, corona corrosion and fuse element aging. The components are housed in a fiberglass reinforced resin tube with plated copper contacts. BBU fuses can directly replace competitive equivalent units.



Element Melts

Rod withdraws, elongating arc and vaporizing Boric Acid

Vapor quenches arc at first current zero

Operation: The BBU fuse uses boric acid to create the de-ionizing action to interrupt the arc. At high temperatures, boric acid decomposes to produce a blast of water vapor and inert boric anhydride. Fault interruption is achieved by an arcing rod and a charged spring that

elongate the arc through a boric acid chamber upon release by the fuse element to interrupt short circuits within one-half cycle and prevent the arc from re-striking after a current zero.

BBU End Fittings: BBU end fittings complete the electrical connection between the fuse unit and the fuse mounting. Positioned on the top and bottom of the fuse, unit end fittings can be used over again if they remain undamaged. They are completely interchangeable with other manufacturers' equivalent fuse units and mountings.

Indoor Fittings: The indoor end fittings are made of high-impact plastic and high-conducting copper alloy. The blown fuse indicator, located on the top end fitting, provides visual indication of a faulted fuse unit. When engaged into the mounting, the spring-loaded plastic mounting handle actuates the latch mechanism and readily accepts a hook-stick to install or remove the assembled fuse unit.

The bottom indoor fitting is threaded to accept a muffler constructed of a plated steel housing, containing copper mesh screening, that absorbs and contains the noise and exhaust materials during a fault condition, and prevents contamination of indoor components and mechanisms located within the switchgear. Containment also prevents accidental flash-over from phase-to-phase or phase-to-ground by limiting airborne particles and gases.

BBU Melt Curve Constructions: The BBU fuse is offered in three constructions to meet specific melt curves for an application. The construction is designated in the Catalog Number suffix as follows;

- E (Standard)
- K (Fast), and
- SE (Slow)

The curves for the SE construction are less inverse and allow for more of a time-delay at high currents. Consult Cooper Bussmann for application assistance.

Ratings:

Volts: — The maximum voltage rating of the BBU fuse is the highest RMS voltage at which the fuse is designed to operate. Its dielectric withstand level corresponds to insulation levels of power class equipment, thus the name "power fuse." Maximum voltage ratings for BBU fuses are: 17kV, 27kV and 38kV.

Amps:— The continuous amp rating of a BBU fuse should equal or exceed the maximum load current where the fuse is applied. They are designed to carry their rated continuous current without exceeding the temperature rise outlined in NEMA and ANSI standards. The BBU is available with continuous current ratings up to 200 amps. The current ratings carry an "E" designation as defined by ANSI and NEMA. For example, the current responsive element rated 100E amps or below will melt in 300 seconds at an RMS current within the range of 200 to 240 percent of the continuous current ratings. Above 100E amps, melting takes place in 600 seconds at an RMS current within the range of 220 to 264 percent of the continuous current rating.

IR:— BBU fuses have interrupting capabilities from 10kA to 14kA symmetrical.

Features and Benefits

- Voltage ratings of up to 38kV coupled with ratings to 200A provide a wide range of circuit protection.
- Time-current characteristics allow for easier coordination with downstream devices.
- Provides replacement of a variety of existing systems.

Typical Applications

- Power and Distribution Transformer Protection
- Medium Voltage Feeder Circuit Protection
- Distribution Transformers
- Medium Voltage Metal-enclosed Switchgear
- Medium Voltage Pad-mounted Switches

Medium Voltage Fuses

BBU Boric acid fuses for indoor use

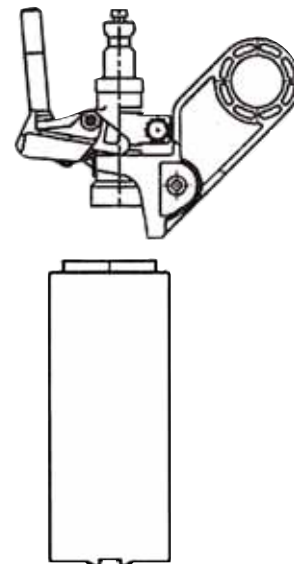
Catalog Numbers*	Amps	Fuse Type	Voltage kV	Max Int. kA Sym.	Catalog Numbers*	Amps	Fuse Type	Voltage kV	Max Int. kA Sym.	Catalog Numbers	Amps	Fuse Type	Voltage kV	Max Int. kA Sym.
BBU17-3K	3	K	17	14	BBU27-3K	3	K	27	12.5	BBU38-3K	3	K	38	10
BBU17-6K	6				BBU27-6K	6				BBU38-6K	6			
BBU17-8K	8				BBU27-8K	8				BBU38-8K	8			
BBU17-10K	10				BBU27-10K	10				BBU38-10K	10			
BBU17-12K	12				BBU27-12K	12				BBU38-12K	12			
BBU17-15K	15				BBU27-15K	15				BBU38-15K	15			
BBU17-20K	20				BBU27-20K	20				BBU38-20K	20			
BBU17-25K	25				BBU27-25K	25				BBU38-30K	30			
BBU17-30K	30				BBU27-30K	30				BBU38-40K	40			
BBU17-40K	40				BBU27-40K	40				BBU38-50K	50			
BBU17-50K	50				BBU27-50K	50				BBU38-65K	65			
BBU17-65K	65				BBU27-65K	65				BBU38-80K	80			
BBU17-80K	80				BBU27-80K	80				BBU38-100K	100			
BBU17-100K	100				BBU27-100K	100				BBU38-140K	140			
BBU17-140K	140				BBU27-140K	140				BBU38-200K	200			
BBU17-200K	200				BBU27-200K	200				BBU38-5E	5			
BBU17-5E	5				BBU27-5E	5				BBU38-7E	7			
BBU17-7E	7				BBU27-7E	7				BBU38-10E	10			
BBU17-10E	10				BBU27-10E	10				BBU38-13E	13			
BBU17-13E	13				BBU27-13E	13				BBU38-15E	15			
BBU17-15E	15	BBU27-15E	15	BBU38-20E	20									
BBU17-20E	20	BBU27-20E	20	BBU38-25E	25									
BBU17-25E	25	BBU27-25E	25	BBU38-30E	30									
BBU17-30E	30	BBU27-30E	30	BBU38-40E	40									
BBU17-40E	40	BBU27-40E	40	BBU38-50E	50									
BBU17-50E	50	BBU27-50E	50	BBU38-65E	65									
BBU17-65E	65	BBU27-65E	65	BBU38-80E	80									
BBU17-80E	80	BBU27-80E	80	BBU38-100E	100									
BBU17-100E	100	BBU27-100E	100	BBU38-125E	125									
BBU17-125E	125	BBU27-125E	125	BBU38-150E	150									
BBU17-150E	150	BBU27-150E	150	BBU38-175E	175									
BBU17-175E	175	BBU27-175E	175	BBU38-200E	200									
BBU17-200E	200	BBU27-200E	200	BBU38-15SE	15									
BBU17-15SE	15	BBU27-15SE	15	BBU38-20SE	20									
BBU17-20SE	20	BBU27-20SE	20	BBU38-25SE	25									
BBU17-25SE	25	BBU27-25SE	25	BBU38-30SE	30									
BBU17-30SE	30	BBU27-30SE	30	BBU38-40SE	40									
BBU17-40SE	40	BBU27-40SE	40	BBU38-50SE	50									
BBU17-50SE	50	BBU27-50SE	50	BBU38-65SE	65									
BBU17-65SE	65	BBU27-65SE	65	BBU38-80SE	80									
BBU17-80SE	80	BBU27-80SE	80	BBU38-100SE	100									
BBU17-100SE	100	BBU27-100SE	100	BBU38-125SE	125									
BBU17-125SE	125	BBU27-125SE	125	BBU38-150SE	150									
BBU17-150SE	150	BBU27-150SE	150	BBU38-175SE	175									
BBU17-175SE	175	BBU27-175SE	175	BBU38-200SE	200									
BBU17-200SE	200	BBU27-200SE	200											

* **BBU Melt Curve Constructions:** The BBU fuse is offered in three constructions to meet specific melt curves for an application. The construction is designated in the Catalog Number suffix: E (Standard), K (Fast) and SE (Slow). Contact Cooper Bussmann for application details.

Application Notes

Low currents, usually referred to as overload currents, must be considered as BBU fuses have a rather low thermal capacity. They cannot carry overloads of the same magnitude/duration as motors and transformers of equal continuous currents. For this reason, the BBU fuse must be sized with the full load current in mind so the fuse does not open on otherwise acceptable overloads and inrush conditions. Coordination should be considered to help determine what type of fuse is applied. The BBU fuse interrupts at a natural current zero in the current wave and allows a minimum of a half-cycle of fault current to flow before the fault is cleared. The time-current characteristics associated with a BBU fuse has a rather gradual slope making it easier to coordinate with downstream equipment. In addition, the BBU is ideal for higher voltage (up to 38kV) and high current applications (up to 200A). It is important to examine the minimum melting and total clearing time-current characteristics of this fuse.

End Fitting Detail



*Note: Muller can be ordered separately. Order Catalog number BBU-MFLR.

Medium Voltage Fuses

E-rated fuses: CL-14 & bolt-In

ECL055 & EBI055

Specifications

Description: E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

Construction: Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

Ratings:

Volts: — 5.5 kV

Amps: — 10-900A

IR: — 63kA Sym. Max

Agency Information: Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

Features and Benefits

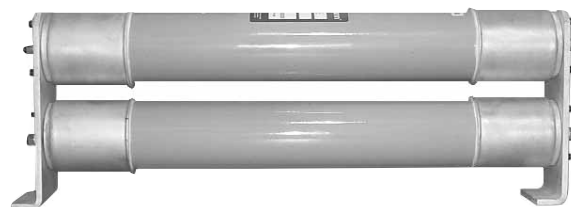
- Clip-lock and bolt-in style available in double and triple barrel fuse designs for application flexibility
- The filament wound, glass epoxy fuse tube provides UV and moisture protection, making these medium voltage fuses suitable for both indoor and outdoor applications
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60 Hz operating frequency make these fuses applicable world-wide

Typical Applications

- 5.0 kV Transformer Primary Protection
- 5.0 kV Feeder Circuit Protection
- 5.0 kV Voltage Switches
- 5.0 kV Metal-enclosed Switchgear

Current-limiting medium voltage fuses are classified into three categories:

1. Full Range - defined by ANSI as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the minimum continuous current that causes melting of the fusible element(s), when the fuse is applied at the maximum ambient temperature specified by the manufacturer.” It is able to interrupt any normal 60 cycle current that will melt its element.
2. General Purpose - defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the current that causes melting of the fusible element in one hour.” Not all currents fall within this range. It is possible to receive an overcurrent lower than the value given by the one hour criterion.
3. Back-up - defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the rated minimum interrupting current.” The minimum rated interrupting current is the lowest current that the fuse will be able to clear properly. This creates a need to place a low current interrupting device in series with the back-up rated fuse.



Catalog Numbers

Catalog Numbers	Amp Rating	Voltage	IR Max Sym.	# of Barrels	Style
ECL055-10E	10	5.5kV	63kA	1	Clip-Lock
ECL055-15E	15	—			
ECL055-20E	20	—			
ECL055-25E	25	—			
ECL055-30E	30	—			
ECL055-40E	40	—			
ECL055-50E	50	—			
ECL055-65E	65	—			
ECL055-80E	80	—			
ECL055-100E	100	—			
ECL055-125E	125	—			
ECL055-150E	150	—			
ECL055-200E	200	—			
ECL055-250E	250	—			
ECL055-300E	300	—			
ECL055-400E	400	—			
ECL055-450E	450	—			
ECL055-500E	500	—			
ECL055-600E	600	—			
ECL055-750E	750	—		3	Bolt-In
ECL055-900E	900	—			

Medium Voltage Fuses

Catalog Number Construction (Example)

Catalog Number	Voltage Rating	Ampere Rating
ECL	055	500E
	055 = 5.5 kV	

Catalog Number Cross Reference

Cooper Catalog Numbers	Bussmann Catalog Numbers	Ferraz-Shawmut New Catalog #	Ferraz-Shawmut Old Catalog #
ECL055-10E	A055C1DORO-10E	225-007-937	
ECL055-15E	A055C1DORO-15E	225-007-938	
ECL055-20E	A055C1DORO-20E	225-007-939	
ECL055-25E	A055C1DORO-25E	225-007-940	
ECL055-30E	A055C1DORO-30E	225-007-941	
ECL055-40E	A055C1DORO-40E	225-007-942	
ECL055-50E	A055C1DORO-50E	225-007-943	
ECL055-65E	A055C1DORO-65E	225-007-944	
ECL055-80E	A055C1DORO-80E	225-007-945	
ECL055-100E	A055C1DORO-100E	225-007-946	
ECL055-125E	A055C1DORO-125E	225-007-947	
ECL055-150E	A055C1DORO-150E	225-007-948	
ECL055-200E	A055C1DORO-200E	225-007-949	
ECL055-250E	A055C1DORO-250E	225-007-950	
ECL055-300E	A055C1DORO-300E	225-007-951	
ECL055-400E	A055C1DORO-400E	225-007-952	
ECL055-450E	A055C2DORO-450E	225-007-953	
ECL055-500E	A055C2DORO-500E	225-007-954	
ECL055-600E	A055C2DORO-600E	225-007-955	
ECL055-750E	A055B3DORO-750E	A055X750E-4	
ECL055-900E	A055B3DORO-900E	A055X900E-4	

Data Sheet: 9002

E-rated fuses: CL-14

ECL155

Specifications

Description: E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

Construction: Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

Ratings:

Volts: — 15.5kV

Amps: — 10-300A

IR: — 63kA Sym. (10-200A)

— 50kA Sym. (250-300A)

Agency Information: Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

Features and Benefits

- Clip-lock double barrel fuse design assures positive installation
- The filament wound, glass epoxy fuse tube provides UV and moisture protection, making these medium voltage fuses suitable for both indoor and outdoor applications
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60 Hz operating frequency make these fuses applicable world-wide

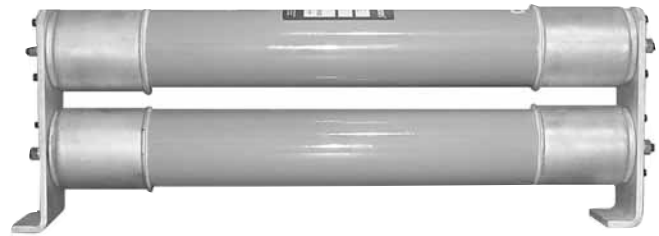
Typical Applications

- 15.0 kV Transformer Primary Protection
- 15.0 kV Feeder Circuit Protection
- 15.0 kV Voltage Switches
- 15.0 kV Metal-enclosed Switchgear

Current-limiting medium voltage fuses are classified into three categories:

1. Full Range - defined by ANSI as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the minimum continuous current that causes melting of the fusible element(s), when the fuse is applied at the maximum ambient temperature specified by the manufacturer.” It is able to interrupt any normal 60 cycle current that will melt its element.

2. General Purpose - defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the current that causes melting of the fusible element in one hour.” Not all currents fall within this range. It is possible to receive an overcurrent lower than the value given by the one hour criterion.



3. Back-up - defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the rated minimum interrupting current.” The minimum rated interrupting current is the lowest current that the fuse will be able to clear properly. This creates a need to place a low current interrupting device in series with the back-up rated fuse.

Catalog Numbers

Catalog Numbers	Amp Rating	Voltage	IR Voltage Max Sym.	# of Barrels	Style
ECL155-10E	10	15.5kV	63kA	1	Clip-Lock
ECL155-15E	15				
ECL155-20E	20				
ECL155-25E	25				
ECL155-30E	30				
ECL155-40E	40				
ECL155-50E	50				
ECL155-65E	65				
ECL155-80E	80				
ECL155-100E	100				
ECL155-125E	125	50kA		2	Clip-Lock
ECL155-150E	150				
ECL155-200E	200				
ECL155-250E	250				
ECL155-300E	300				

Catalog Number Construction (Example)

Catalog Number	Voltage Rating	Ampere Rating
ECL	155	300E
	155 = 15.5 kV	

Catalog Number Cross Reference

Cooper Bussmann Catalog Numbers	Ferraz-Shawmut New Catalog #	Ferraz-Shawmut Old Catalog #
ECL155-10E	A155C1DORO-10E	225-007-967
ECL155-15E	A155C1DORO-15E	225-007-968
ECL155-20E	A155C1DORO-20E	225-007-969
ECL155-25E	A155C1DORO-25E	225-007-970
ECL155-30E	A155C1DORO-30E	225-007-971
ECL155-40E	A155C1DORO-40E	225-007-972
ECL155-50E	A155C1DORO-50E	225-007-973
ECL155-65E	A155C1DORO-65E	225-007-974
ECL155-80E	A155C1DORO-80E	225-007-975
ECL155-100E	A155C1DORO-100E	225-007-976
ECL155-125E	A155C2DORO-125E	225-007-977
ECL155-150E	A155C3DORO-150E	225-007-978
ECL155-200E	A155C3DORO-200E	225-007-979
ECL155-250E	A155C3DORO-250E	225-007-980
ECL155-300E	A155C3DORO-300E	225-007-981

Medium Voltage Fuses

E-rated fuses for transformers and feeders

MV055 and MV155



Specifications

Description: E-rated medium, voltage current-limiting fuses: for transformer and feeder protection.

Dimensions: See Catalog Numbers table.

Construction: Silver ribbon element surrounded by silica filler housed in a fiberglass tube and plated endcaps. An epoxy paint protects the fuse tube from the surrounding environment.

Ratings:

Volts: — 5.5kV (5-450A)

— 15.5kV (5-200A)

Amps: — 5-450A (5.5kV)

— 5-200A (15.5kV)

IR: — 50kA Sym. Max

Agency Information: Meets E requirements per ANSI C37.46, Meets full range requirements per ANSI C37.40.

MV055 Features and Benefits

- Standard clip center distance of 12 inches with 2 and 3 inch barrel diameters for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range rating with 50,000 Interrupting Rating
- Double pulsed at 90% of minimum I²t to establish manufacturing reliability

MV055 Typical Applications

- 5.0 kV Transformer Primary Protection
- 5.0 kV Feeder Circuit Protection
- 5.0 kV Voltage Switches
- 5.0 kV Metal-enclosed Switchgear

MV155 Features and Benefits

- Standard clip center distance of 12 inches with 2 and 3 inch barrel diameters for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range rating with 50,000 Interrupting Rating
- Double pulsed at 90% of minimum I²t to establish manufacturing reliability

MV155 Typical Applications

- 15.0 kV Transformer Primary Protection
- 15.0 kV Feeder Circuit Protection
- 15.0 kV Voltage Switches
- 15.0 kV Metal-enclosed Switchgear

5.5kV Catalog Numbers

Catalog Numbers	Amp Rating	Min Melt I ² t	Max Clear I ² t	Dimensions (in)*			
				Length	Dia.	Clip Center	Barrels
MV055F1CAX5E	5	180	2,400	15.75	2	12	1
MV055F1CAX7E	7	850	8,000				
MV055F1CAX10E	10	850	8,000				
MV055F1CAX15E	15	2,070	11,000				
MV055F1CAX20E	20	2,370	23,000				
MV055F1CAX25E	25	4,650	31,000				
MV055F1CAX30E	30	9,490	45,000		3	12	1
MV055F1CAX40E	40	9,490	45,000				
MV055F1CAX50E	50	13,600	90,000				
MV055F1CAX65E	65	30,700	181,000				
MV055F1DAX10E	10	850	8,000				
MV055F1DAX15E	15	2,070	12,000				
MV055F1DAX20E	20	2,370	23,000	15.75	2	12	1
MV055F1DAX25E	25	4,650	31,000				
MV055F1DAX30E	30	9,490	45,000				
MV055F1DAX40E	40	9,490	45,000				
MV055F1DAX50E	50	13,600	90,000				
MV055F1DAX65E	65	30,700	181,000				
MV055F1DAX80E	80	54,600	270,000		3	12	1
MV055F1DAX100E	100	116,200	580,000				
MV055F1DAX125E	125	167,400	600,000				
MV055F1DAX150E	150	218,700	786,000				
MV055F1DAX175E	175	227,900	1,100,000				
MV055F1DAX200E	200	297,600	1,520,000				
MV055F2DAX250E	250	669,600	2,400,000	3	12	2	
MV055F2DAX300E	300	874,800	3,149,000				
MV055F2DAX350E	350	911,600	4,376,000				
MV055F2DAX400E	400	1,190,400	6,071,000				
MV055F2DAX450E	450	1,555,000	9,796,000				

1" = 25.4mm

Data Sheet: 6700

15.5kV Catalog Numbers

Catalog Numbers	Amp Rating	Min Melt I ² t	Max Clear I ² t	Dimensions*			
				Length	Dia.	Clip Center	Barrels
MV155F1CBX5E	5	180	2,900	18.75	2	15	1
MV155F1CBX7E	7	850	8,000				
MV155F1CBX10E	10	850	8,000				
MV155F1CBX15E	15	2,070	12,000				
MV155F1CBX20E	20	2,370	23,000				
MV155F1CBX25E	25	4,650	31,000				
MV155F1CBX30E	30	9,490	45,000		3	15	1
MV155F1DBX10E	10	850	8,000				
MV155F1DBX15E	15	2,070	12,000				
MV155F1DBX20E	20	2,370	23,000				
MV155F1DBX25E	25	4,650	31,000				
MV155F1DBX30E	30	9,490	45,000				
MV155F1DBX40E	40	9,490	45,000	3	15	1	
MV155F1DBX50E	50	13,600	90,000				
MV155F1DBX65E	65	30,700	181,000				
MV155F1DBX80E	80	54,600	270,000				
MV155F1DBX100E	100	116,200	600,000				
MV155F2DBX125E	125	123,000	677,000				
MV155F2DBX150E	150	218,700	1,287,000	3	18	2	
MV155F2DBX175E	175	314,700	1,689,000				
MV155F2DBX200E	200	465,100	2,405,000				
MV155F1DCX65E	65	30,700	181,000				
MV155F1DCX80E	80	54,600	270,000				
MV155F1DCX100E	100	116,200	600,000				
MV155F2DCX125E	125	123,000	677,000	21.75	18	1	
MV155F2DCX150E	150	218,700	1,287,000				
MV155F2DCX175E	175	314,700	1,689,000				
MV155F2DCX200E	200	465,100	2,405,000				

*1" = 25.4mm.

Data Sheet: 6701

Medium Voltage Fuses

E-rated fuses for potential & small power transformers

JCD, JCW, JCE, JCQ, JCI & JCT

Specifications

Description: Indicating and non-indicating E-rated medium voltage, current-limiting fuses for potential & small power transformers.

Dimensions: See Catalog Numbers table.

Construction: plated ferrules.

Ratings:

Volts: — 2.4-15.5kV (See Catalog Numbers table for details)

Amps: — ½-10A



IR: — 25-80kA Sym

— 40-130kA ASYM

— See Catalog Numbers table for details

Features and Benefits

- Sized for retrofitting in existing hardware
- Space saving size

Typical Applications

- Primary protection of medium voltage potential transformers
- Primary protection of small medium voltage service transformers
- Primary protection of small medium voltage control transformers

Catalog Numbers

Catalog Numbers	Amp Rating	Maximum Design Voltage	Construction	Maximum Interrupting Capacity		Dimensions - in (mm)	
				Amps (Asym.)	Amps (Sym.)	Length	Diameter
2400V; E-Rated Fuse; Indicating							
JCD-½E	0.5	2750	Single	100,000	63,000	4.50 (114)	0.80 (20.32)
JCD-1E	1	2750	Single	63,000	40,000	4.50 (114)	0.80 (20.32)
JCD-2E	2	2750	Single	63,000	40,000	4.50 (114)	0.80 (20.32)
JCD-5E	5	2750	Single	40,000	25,000	4.50 (114)	0.80 (20.32)
2450/5500V; E-Rated Fuse; Non-Indicating							
JCW-½E	0.5	2750/5500	Single	60,000	40,000	7.312 (185.72)	1.563 (39.70)
JCW-1E	1	2750/5500	Single	60,000	40,000	7.312 (185.72)	1.563 (39.70)
JCW-2E	2	2750/5500	Single	60,000	40,000	7.312 (185.72)	1.563 (39.70)
JCW-3E	3	2750/5500	Single	60,000	40,000	7.312 (185.72)	1.563 (39.70)
JCW-4E	4	2750/5500	Single	60,000	40,000	7.312 (185.72)	1.563 (39.70)
JCW-5E	5	2750/5500	Single	60,000	40,000	7.312 (185.72)	1.563 (39.70)
5500V; E-Rated Fuse; Non-Indicating							
JCE-½E	0.5	5500	Single	60,000	50,000	5.625 (142.88)	0.81 (20.32)
JCE-1E	1	5500	Single	60,000	50,000	5.625 (142.88)	0.81 (20.32)
JCE-2E	2	5500	Single	60,000	50,000	5.625 (142.88)	0.81 (20.32)
JCE-3E	3	5500	Single	60,000	50,000	5.625 (142.88)	0.81 (20.32)
JCE-4E	4	5500	Single	60,000	50,000	5.625 (142.88)	0.81 (20.32)
JCE-5E	5	5500	Single	60,000	50,000	5.625 (142.88)	0.81 (20.32)
5500V; E-Rated Fuse; Indicating							
JCQ-½E	0.5	5500	Single	130,000	80,000	9.5 (241.3)	1.6 (40.64)
JCQ-1E	1	5500	Single	130,000	80,000	9.5 (241.3)	1.6 (40.64)
JCQ-1½/2E	1.5	5500	Single	130,000	80,000	9.5 (241.3)	1.6 (40.64)
JCQ-3E	3	5500	Single	130,000	80,000	9.44 (239.78)	1.6 (40.64)
JCQ-5E	5	5500	Single	130,000	80,000	9.5 (241.3)	1.6 (40.64)
JCQ-10E	10	5500	Single	130,000	80,000	9.5 (241.3)	1.6 (40.64)
8300V; E-Rated Fuse; Indicating							
JCI-½E	0.5	8300	Single	130,000	80,000	9.5 (241.3)	1.6 (40.64)
JCI-3E	3	8300	Single	130,000	80,000	12.88 (327.15)	1.6 (40.64)
JCI-5E	5	8300	Single	130,000	80,000	12.88 (327.15)	1.6 (40.64)
JCI-10E	10	8300	Single	130,000	80,000	12.88 (327.15)	1.6 (40.64)
15,500V; E-Rated Fuse; Indicating							
JCT-½E	0.5	15500	Single	130,000	80,000	12.93 (328.42)	1.6 (40.64)
JCT-1E	1	15500	Single	130,000	80,000	12.93 (328.42)	1.6 (40.64)
JCT-1½/2E	1.5	15500	Single	130,000	80,000	12.93 (328.42)	1.6 (40.64)
JCT-3E	3	15500	Single	130,000	80,000	17.5 (444.5)	1.6 (40.64)
JCT-5E	5	15500	Single	130,000	80,000	17.5 (444.5)	1.6 (40.64)
JCT-10E	10	15500	Single	130,000	80,000	17.5 (444.5)	1.6 (40.64)

Fuse clip for 1.6 inch Diameter Fuses - 1A0835.
Fuse clip for 0.81 inch Diameter Fuses - 1A1837.

Data Sheet: 6002

E-rated fuses for transformer & feeder protection

JCX, JCY, JCU, JCZ and JDZ

Specifications

Description: Indoor/enclosure E-rated medium voltage, current-limiting fuses for potential & small power transformers with blown fuse indication.

Dimensions: See Catalog Numbers table.

Construction: plated ferrules.

Ratings:

Volts: — 2750-8300V (See Catalog Numbers table for details)

Amps: — ½-750A

IR: — 40-63kA Sym

— 60-100kA ASYM

— See Catalog Numbers table for details



Features and Benefits

- Physically dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range ANSI classification

Typical Applications

- Medium Voltage Transformer Primary Protection
- Medium Voltage Feeder Circuit Protection
- Medium Voltage Switches
- Medium Voltage Metal-enclosed Switchgear

Medium Voltage Fuses

Catalog Numbers

Catalog Numbers	Amp Rating	Maximum Design Voltage	Construction	Maximum Interrupting Capacity		Dimensions - in (mm)	
				Amps (Asym.)	Amps (Sym.)	Length	Diameter
2400V; E-Rated; Indoor/Enclosure							
JCX-½E	0.5	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-1E	1	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-2E	2	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-3E	3	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-5E	5	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-7E	7	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-10E	10	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-15E	15	2750	Single	80,000	50,000	9.5 (241.3)	2.1 (53.34)
JCX-20E	20	2750	Single	80,000	50,000	9.5 (241.3)	2.1 (53.34)
JCX-25E	25	2750	Single	80,000	50,000	9.5 (241.3)	2.1 (53.34)
JCX-30E	30	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-40E	40	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-50E	50	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-65E	65	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-80E	80	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-100E	100	2750	Single	80,000	40,000	10.81 (276.35)	3 (76.2)
JCX-125E	125	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-150E	150	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-200E	200	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-225E	225	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-250E/280X	250/280	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-300E/325X	300/325	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-350X	350	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-400X	400	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-450X	450	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
5500V; E-Rated; Indoor/Enclosure							
JCY-½E	0.5	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-1E	1	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-2E	2	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-3E	3	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-5E	5	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-7E	7	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-10E	10	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-15E	15	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-20E	20	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-25E	25	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)

Contact Cooper Bussmann for the latest product information on E-Rated Fuses for Transformer and feeder protection.
Recommended Fuse Clips: 39 - 1A0065, 9078A67G04, A3354730

E-rated fuses for transformer & feeder protection

Catalog Numbers: E-Rated; Indoor/Enclosure

Catalog Numbers	Amp Rating	Maximum Design Voltage	Construction	Maximum Interrupting Capacity		Dimensions - in (mm)	
				Amps. (Asym.)	Amps. (Sym.)	Length	Diameter
5500V; E-Rated; Indoor/Enclosure							
JCU-10E	10	5500	Single	80,000	50,000	17.81 (452.4)	3 (76.2)
JCU-15E	15	5500	Single	80,000	50,000	12.88 (327.0)	2.1 (53.34)
JCU-20E	20	5500	Single	80,000	50,000	12.88 (327.0)	2.1 (53.34)
JCU-25E	25	5500	Single	80,000	50,000	12.88 (327.0)	2.1 (53.34)
JCU-30E	30	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-40E	40	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-50E	50	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-65E	60	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-80E	80	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-100E	100	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-125E	125	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-150E	150	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-175E	175	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-200E	200	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-250E	250	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-300E	300	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-350E	350	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-400E	400	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-450E	450	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.2)
JCU-600E	600	5500	*	80,000	50,000	28.81 (731.77)	4 (101.60)
JCU-750E	750	5500	*	80,000	50,000	28.81 (731.77)	4 (101.60)
8300V; E-Rated; Indoor/Enclosure							
JCZ-15E	15	8300	Single	80,000	50,000	15.51 (393.95)	2.1 (53.34)
JCZ-20E	20	8300	Single	80,000	50,000	15.51 (393.95)	2.1 (53.34)
JCZ-25E	25	8300	Single	80,000	50,000	15.51 (393.95)	2.1 (53.34)
JCZ-30E	30	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-40E	40	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-50E	50	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-65E	65	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-80E	80	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-100E	100	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-125E	125	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-150E	150	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-200E	200	8300	Double	80,000	50,000	17.88 (454.15)	3 (76.2)
JDZ-20E	20	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-25E	25	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-30E	30	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-40E	40	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-50E	50	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-65E	65	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-80E	80	8300	Double	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-100E	100	8300	Double	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-125E	125	8300	Double	80,000	50,000	15.88 (403.2)	3 (76.2)

Recommended Fuse Clips: 39 - 1A0065, 9078A67G04, A3354730

General Notes:

1. All fuses are fitted with a striker pin which can be used for indication or tripping purposes.
2. The fuses are suitable for use either indoors or outdoors.
3. These fuses are interchangeable with corresponding fuses produced by most other leading North American manufacturers.

Contact Cooper Bussmann for the latest product information on E-Rated Fuses for Transformer and feeder protection.

*Bolt on mounting

R-rated fuses for motor circuit protection

JCK, JCK-A, JCK-B, JCH, JCL, JCL-A, JCL-B, JCG, JCR-A, & JCR-B



Specifications

Description: Indoor/enclosure R-rated medium voltage, current-limiting fuses for motor circuit protection.

Dimensions: See Dimensions illustrations.

Ratings:

- Volts: — 2.4-7.2kV (See Catalog Numbers table for details)
- Amps: — 25-450A (See Catalog Numbers table for details)
- IR: — 50kA Sym

- 80kA ASYM
- See Catalog Numbers table for details

Agency Information: UL Recognized: 2540Vac — JCK, JCK-A, 5080Vac — JCL, JCL-A, UL Recognized (Guide #MSSS2, File #E96676).

Features and Benefits

- Physically dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Available with optional Cutler Hammer hookeye for ease of insertion and removal
- Classified as back-up fuses for current-limited protection of medium voltage motor controllers

Typical Applications

- Medium Voltage Motor Controllers

Medium Voltage Fuses

Dimensions

Figure 1

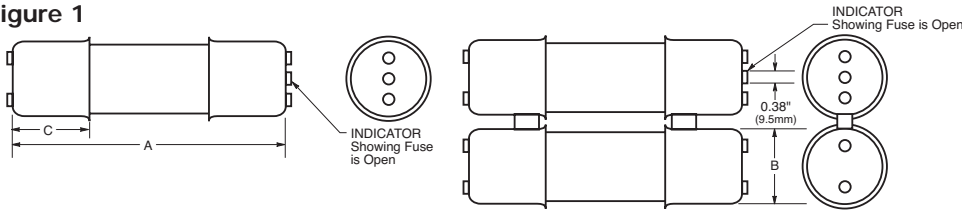


Figure 2

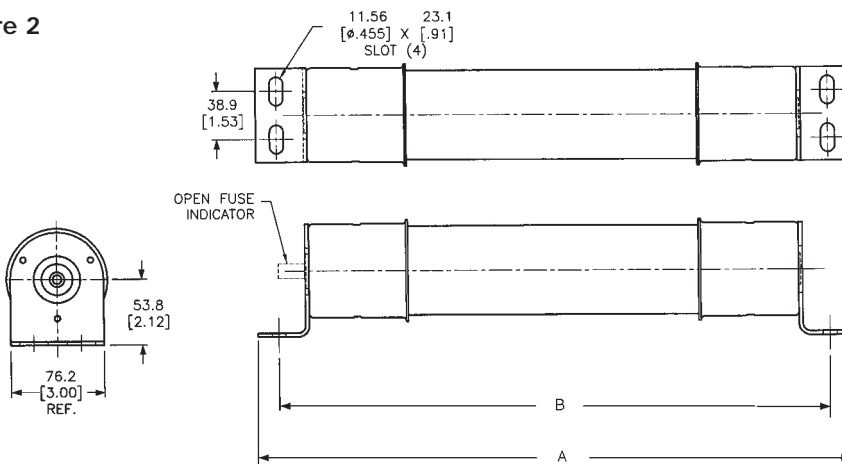
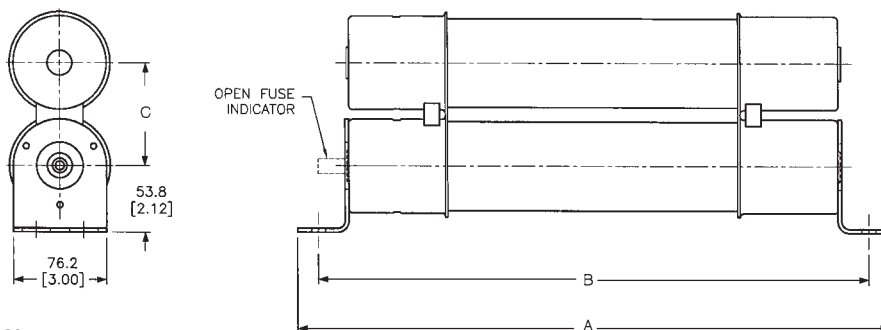


Figure 3



Data Sheet 6001

Medium Voltage Fuses

R-rated fuses for motor circuit protection

Catalog Numbers: R-Rated; Indoor/Enclosure

Catalog Numbers	Amp Ratings	Maximum Design Voltage	Dimensions - in (mm)*			Construction	Max Int. Cap. Amps (Asym.)	Amps (Sym.)	Min Int. Cap. Amps (Sym.)
			A	B	C				
2400V (See Figure 1)									
JCK-2R	70	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCK-3R	100	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCK-4R	130	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCK-5R	150	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCK-6R	170	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCK-9R	200	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCK-12R	230	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCK-18R	390	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCK-24R	450	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880

2400V — With Westinghouse Ampguard Hookeye (See Figure 1)

JCK-A-2R	70	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCK-A-3R	100	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCK-A-4R	130	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCK-A-5R	150	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCK-A-6R	170	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCK-A-9R	200	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCK-A-12R	230	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCK-A-18R	390	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCK-A-24R	450	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880

2400V — Bolt-On (See Figure 2)

JCK-B-30	25	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	90
JCK-B-2R	70	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	170
JCK-B-3R	100	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	245
JCK-B-4R	130	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	340
JCK-B-5R	150	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	430
JCK-B-6R	170	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	500
JCK-B-9R	200	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	1,000
JCK-B-12R	230	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	1,250
JCK-B-18R	390	2540	14.18 (360.2)	12.81 (325.4)	3.56 (90.4)	Double	80,000	50,000	1,700
JCK-B-24R	450	2540	14.18 (360.2)	12.81 (325.4)	3.56 (90.4)	Double	80,000	50,000	1,210

2400V — Hermetically Sealed, For Use with Ampguard Motor Starters (See Figure 1)

JCH-30	25	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	90
JCH-2R	70	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	170
JCH-3R	100	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	245
JCH-4R	130	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	340
JCH-5R	150	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	430
JCH-6R	170	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	500
JCH-9R	200	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,000
JCH-12R	230	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,250
JCH-18R	390	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,700
JCH-24R	450	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	2,100

4800V (See Figure 1)

JCL-2R	70	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCL-3R	100	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCL-4R	130	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCL-5R	150	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCL-6R	170	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCL-9R	200	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCL-12R	230	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCL-18R	390	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCL-24R	450	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880

* See previous page Figure 2 for single construction and Figure 3 for double construction information.

Medium Voltage Fuses

R-rated fuses for motor circuit protection

Medium
Voltage
Fuses

Catalog Numbers: R-Rated; Indoor/Enclosure

Catalog Numbers	Amp Ratings	Maximum Design Voltage	Dimensions - in (mm)			Construction	Max Int. Cap. Amps (Asym.)	Amps (Sym.)	Min Int. Cap. Amps (Sym.)
			A	B	C				
4800V — With Westinghouse Ampguard Hookeye (See Figure 1)									
JCL-A-2R	70	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCL-A-3R	100	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCL-A-4R	130	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCL-A-5R	150	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCL-A-6R	170	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCL-A-9R	200	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCL-A-12R	230	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCL-A-18R	390	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCL-A-24R	450	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880

4800V — Bolt-On (See Figure 2)

JCL-B-30	30	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	95
JCL-B-2R	70	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	180
JCL-B-3R	100	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	270
JCL-B-4R	130	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	350
JCL-B-5R	150	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	450
JCL-B-6R	170	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	540
JCL-B-9R	200	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	700
JCL-B-12R	230	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	1,000
JCL-B-18R	390	5080	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	1,450
JCL-B-24R	450	5080	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	2,000

4800V — Hermetically Sealed, For Use with Ampguard Motor Starters (See Figure 1)

JCG-30	30	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	95
JCG-2R	70	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	180
JCG-3R	100	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	270
JCG-4R	130	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	350
JCG-5R	150	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	450
JCG-6R	170	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	540
JCG-9R	200	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	700
JCG-12R	230	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,000
JCG-A-18R	390	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,450
JCG-A-24R	450	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	2,000

7200V — With Ampguard Hookeye (See Figure 1)

JCR-A-2R	70	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	160
JCR-A-3R	100	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	250
JCR-A-4R	130	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	325
JCR-A-5R	150	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	390
JCR-A-6R	170	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	500
JCR-A-9R	200	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	750
JCR-A-12R	230	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,000
JCR-A-18R	390	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,450
JCR-A-24R	450	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	2,500

7200V — Bolt-On (See Figure 2)

JCR-B-2R	70	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	160
JCR-B-3R	100	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	250
JCR-B-4R	130	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	325
JCR-B-5R	150	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	390
JCR-B-6R	170	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	500
JCR-B-9R	200	7200	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	750
JCR-B-12R	230	7200	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	1,000
JCR-B-18R	390	7200	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	1,450
JCR-B-24R	450	7200	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	2,500

Data Sheet: 6001

Medium Voltage Fuses

British Standard dimensioned IEC fuses for motor circuit protection

The Cooper Bussmann range of motor fuses are designed to meet the specific requirements necessary for motor protection. During the starting cycle of direct on-line motors, the fuse elements will reach a considerably higher temperature than during normal operation; (this is due to the high amount of current the motor will draw as it starts, typically, 6 times its normal load current value). This results in expansion and contraction of the fuse elements and could cause premature operation of the fuse.

Cooper Bussmann motor fuses encompass an advanced design to minimize this effect. This therefore, negates the need to over specify the fuse rating due to high values of motor starting current.

Cooper Bussmann motor fuses operate extremely quickly under heavy fault currents, resulting from the time / current characteristic. Low power dissipation ensures low temperature rise, important in multi-tier starters for example. Switching (Arc), voltages are lower than permitted values, therefore, 5.5kV fuses are also suitable for 4.8kV and 2.4kV circuits.



Table of Ratings

Basic Cat. Number	Volts	Breaking Capacity	Amp Ratings	Dimensions - in (mm)		Dimensional Standard
				Length	Diameter	
WJON6	3.6kV	50kA	5, 6.3, 10, 16, 20, 25, 31.5, 40, 50	7.56 (192)	1.4 (35.6)	BS 2692 (TA1) Interchangeable with GEC type K2 PA
WDOH6	3.6kV	50kA	50, 63, 80, 100, 125	7.56 (192)	2 (50.8)	BS 2692 (TA1) or DIN 43625
WFOH6	3.6kV	50kA	160, 200	11.5 (292.1)	3 (76.2)	BS 2692 (TA1) or DIN 43625
WDLSJ	3.6kV	50kA	50, 63, 80, 100, 125	11.5 (292.1)	2 (50.8)	DIN 43625
WFLSJ	3.6kV	50kA	160, 200	11.5 (292.1)	3 (76.2)	DIN 43625
WDFHO	3.6kV	50kA	50, 63, 80, 100, 125	10 (254)	2 (51mm)	BS 2692 (TA2)
WFFHO	3.6kV	50kA	160, 200	10 (254)	3 (76.2)	BS 2692 (TA2)
WKFHO	3.6kV	50kA	250, 315, 355, 400	10 (254)	3 (76.2)	BS 2692 (TA2)
VFNHA	5.5kV	60kA	2R-6R	15.86 (402.8)	3 (76.2)	N. American Practice
VKNHA	5.5kV	60kA	9R-24R	15.86 (402.8)	3 (76.2)	N. American Practice
WFNHO	7.2kV	40kA	25, 31.5, 40, 50, 63, 80, 100, 125, 160	15.86 (402.8)	3 (76.2)	BS 2692 (TA4)
WKNHO	7.2kV	40kA	200, 224, 250, 315	15.86 (402.8)	3 (76.2)	BS 2692 (TA4)
WFMSJ	7.2kV	40kA	25, 31.5, 40, 50, 63, 80, 125, 160	17.40 (442)	3 (76.2)	DIN 43625
WKMSJ	7.2kV	40kA	200, 224, 250, 315, 355	17.40 (442)	3 (76.2)	DIN 43625

Catalog Number Build-A-Code

kV Basic Catalog Number Amps
 --- --- ---

Medium Voltage Fuses

DIN dimensioned IEC fuses for transformer protection

DIN Dimension Fuses

To Spec. DIN 43625



Specifications

Catalog Symbol: See Basic Catalog Numbers table.

Description: DIN dimension fuses to Specification DIN 43625 covering current-limiting fuses with performance in compliance with IEC 60282-1. These are in accordance with the R10 and, in some cases, the R20 series of preferred numbers.

Dimensions: See Basic Catalog Numbers table.

Volts: — See voltage associated with the Basic Catalog Numbers in the table.

Amps: — See amp rating associated with the Basic Catalog Numbers in the table.

IR: — See IR associated with the Basic Catalog Numbers in the table.

Agency Information: The spring operated striker pin has a travel and energy output in compliance with the requirements of DIN 43625 and IEC 60282-1. Complies with IEC 60282-1 and VDE 0670 Part 4.

Features and Benefits

- DIN dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Designed for use in IEC equipment

Typical Applications

- Medium Voltage IEC designed equipment

Catalog Number Build-A-Code

kV Basic Catalog Number Amps

--- --- ---

Basic Catalog Numbers

Basic Cat. Number	Voltage	Amp Ratings	Dimensions - in (mm)		DIN Series	IR RMS Sym.
			Diameter	Length		
ADOSJ	3.6kV	6.3, 16, 20, 25, 31.5, 40	2.00 (51)	7.56 (192)	3.6/7.2	50kA
WDOSJ	3.6kV	50, 63, 80, 100, 125	2.00 (51)	7.56 (192)	3.6/7.2	50kA
WFOSJ	3.6kV	160, 200	3.00 (76)	7.56 (192)	3.6/7.2	50kA
ADLSJ	3.6kV	6.3, 10, 16, 20, 25, 31.5,	2.00 (51)	11.50 (292)	10/12	50kA
WDLSJ	3.6kV	40, 50, 63, 80, 100, 125	2.00 (51)	11.50 (292)	10/12	50kA
WFLSJ	3.6kV	160	2.00 (51)	11.50 (292)	10/12	50kA
WFLSJ	3.6kV	200	3.00 (76)	11.50 (292)	10/12	50kA
WKLSJ	3.6kV	250	3.00 (76)	11.50 (292)	10/12	50kA
WKLSJ	3.6kV	315, 400	3.00 (76)	11.50 (292)	10/12	50kA
SDLSJ	7.2kV	6.3, 10, 16, 20, 25, 31.5	2.00 (51)	11.50 (292)	10/12	40kA
SDLSJ	7.2kV	40, 50, 63	2.00 (51)	11.50 (292)	10/12	40kA
SFLSJ	7.2kV	80	3.00 (76)	11.50 (292)	10/12	40kA
SFLSJ	7.2kV	100	3.00 (76)	11.50 (292)	10/12	40kA
SFLSJ	7.2kV	125	3.00 (76)	11.50 (292)	10/12	40kA
SFLSJ	7.2kV	160	3.00 (76)	11.50 (292)	10/12	40kA
WKMSJ	7.2kV	200	3.00 (76)	17.41 (442)	20/24	40kA
WKMSJ	7.2kV	250, 315, 355	3.00 (76)	17.41 (442)	20/24	40kA
SDLSJ	12kV	6.3, 10, 16, 20, 25	2.00 (51)	11.50 (292)	10/12	50kA
SDLSJ	12kV	31.5, 40	2.00 (51)	11.50 (292)	10/12	50kA
SDLSJ	12kV	50, 63	2.00 (51)	11.50 (292)	10/12	50kA
SFLSJ	12kV	63, 80	3.00 (76)	11.50 (292)	10/12	50kA
SFLSJ	12kV	100	3.00 (76)	11.50 (292)	10/12	50kA
SKLSJ	12kV	125, 160, 200	3.00 (76)	11.50 (292)	10/12	50kA
SDLSJ	17.5kV	6.3, 10, 16	2.00 (51)	11.50 (292)	10/12	35.5kA
SDLSJ	17.5kV	20, 25	2.00 (51)	11.50 (292)	10/12	35.5kA
SDLSJ	17.5kV	40	2.00 (51)	11.50 (292)	10/12	35.5kA
SFLSJ	17.5kV	31.5	3.00 (76)	11.50 (292)	10/12	35.5kA
SFLSJ	17.5kV	40, 50	3.00 (76)	11.50 (292)	10/12	35.5kA
SDMSJ	17.5kV	6.3, 10, 16	2.00 (51)	17.41 (442)	20/24	35.5kA
SDMSJ	17.5kV	20, 25, 31.5	2.00 (51)	17.41 (442)	20/24	35.5kA
SDMSJ	17.5kV	40	2.00 (51)	17.41 (442)	20/24	35.5kA
SFMSJ	17.5kV	50	3.00 (76)	17.41 (442)	20/24	35.5kA
SFMSJ	17.5kV	63, 80	3.00 (76)	17.41 (442)	20/24	35.5kA
SFMSJ	15.5kV	100	3.00 (76)	17.41 (442)	20/24	25kA
SKMSJ	15.5kV	125	3.00 (76)	17.41 (442)	20/24	25kA
SDMSJ	24kV	6.3, 16	2.00 (51)	17.41 (442)	20/24	50kA
SDMSJ	24kV	20, 25, 31.5	2.00 (51)	17.41 (442)	20/24	50kA
SDMSJ	24kV	40*	2.00 (51)	17.41 (442)	20/24	50kA
SFMSJ	24kV	40, 50	3.00 (76)	17.41 (442)	20/24	50kA
SFMSJ	24kV	63	3.00 (76)	17.41 (442)	20/24	50kA
SFMSJ	24kV	71*	3.00 (76)	17.41 (442)	20/24	50kA
SDQSJ	36kV	3.15, 6.3, 10, 16, 20, 25, 31.5	2.00 (51)	21.16 (442)	30/36	35.5kA
SFQSJ	36kV	31.5, 40, 50, 56	3.00 (76)	21.16 (537)	30/36	35.5kA

*24kV application only.

Recommended fuse clips for DIN style fuses: Cooper Bussmann catalog number 270303

Medium Voltage Fuses

Potential transformer fuses

AB, AM and CAV



Specifications

Description: British Standard VT fuses with low current ratings for use in voltage transformers or operating transformers to provide isolation of the associated system in the event of faults in the transformer circuit.

Dimensions: See Basic Catalog Numbers table.

Ratings:

E-Rated: — See single asterisk in Basic Catalog Numbers table

Volts: — 3.6-38kV (See Basic Catalog Numbers table)

Amps: — 2-15A (See Basic Catalog Numbers table)

IR: — 25-80kA (See Basic Catalog Numbers table)

Agency Information: BS2692-1 and IEC60282-1

Features and Benefits

- Physically dimensioned for retrofitting in existing hardware.
- Space saving size.

Typical Applications

- Medium Voltage Potential Transformers
- Small Medium Voltage Service Transformers

Basic Catalog Numbers for "AB" & "AM" Series

Basic Cat. Numbers	Volts	Amp Ratings	Type	Dimensions - in (mm)		IR
				Length	Diameter	
ABWNA	3.6kV	3.15, 6.3	AB	5.6 (142.2)	1 (25.4)	50KA
ABCNA	3.6kV	3.15, 6.3, 10	AB	7.69 (195.3)	1 (25.4)	50KA
ABWNA*	5.5kV	0.5, 1, 2, 3, 5	AB	5.6 (142.2)	1 (25.4)	50KA
AMWNA*	5.5kV	0.5, 1.0, 2.0, 3.0, 4.0, 5.0	AM	5.6 (142.2)	0.81 (20.6)	50KA
ABWNA	7.2kV	3.15, 6.3	AB	5.6 (142.2)	1 (25.4)	45KA
ABCNA	7.2kV	3.15, 6.3	AB	7.69 (195.3)	1 (25.4)	45KA
ABCNA	12.0kV	3.15	AB	7.69 (195.3)	1 (25.4)	45KA
ABFNA	15.5kV	3.15	AB	10.00 (254)	1 (25.4)	32KA
ABGNA	17.5kV	3.15	AB	14.13 (358.9)	1 (25.4)	35KA
ABGNA	24.0kV	3.15	AB	14.13 (358.9)	1 (25.4)	25KA
ABGNA**	36.0kV	3.15	AB	14.13 (358.9)	1 (25.4)	31.5KA

Recommended fuse clip for 1 diameter fuses – A3354705.

Basic Catalog Numbers for "CAV" Series

Basic Cat. Number	Volts	Amp Ratings	Dimensions - in (mm)		IR
			Length	Diameter	
CAV	3.6kV	2	8.66 (220)	1.63 (41.4)	50KA
CAV*	5.5kV	15	7.375 (187.3)	1.63 (41.4)	50KA
CAVH*	5.5kV	0.5, 1, 2	7.375 (187.3)	1.63 (41.4)	50KA
CAV	7.2kV	2, 10	8.66 (220)	1.63 (41.4)	40KA
CAV	12kV	2	8.66 (220)	1.63 (41.4)	40KA
CAV*	15.5kV	0.5, 1, 2, 3, 7	12.87 (326.9)	1.63 (41.4)	80KA
CAVH*	15.5kV	0.5, 1, 2	12.87 (326.9)	1.63 (41.4)	80KA
CAV	17.5kV	2, 4, 6, 10	8.66 (220)	1.63 (41.4)	40KA
CAV	24kV	2, 3, 4	13.39 (340.1)	1.63 (41.4)	40KA
CAV	36kV	2, 4	17.32 (439.9)	1.63 (41.4)	40KA
CAVH	36kV	2	17.32 (439.9)	1.63 (41.4)	40KA
CAV*	38kV	4	17.32 (439.9)	1.63 (41.4)	40KA
CAVH*	38kV	0.5, 1, 2	17.32 (439.9)	1.63 (41.4)	40KA

Type CAVH are fitted with a striker pin for indication.

* E-Rated fuses

**For clean indoor applications only.

Catalog Number Build-A-Code

kV Basic Catalog Number Amps

--- --- ---

Recommended Fuse Clips: 1" dia. - A3354705, 1.63" dia. - 1A0835, .819 dia. - 1A1837
Contact Cooper Bussmann for complete specifications on Potential Transformer Fuses

Medium Voltage Fuses

Fast-acting fuses

HVA, HVB,
HVJ, HVL,
HVR, HVT,
HVU, HVW &
HVX



Test Specifications

Basic Catalog Numbers	Load / Opening Time
HVA, HVB, HVJ, HVL	110% / 4 Hours (min) 135% / 1 Hour (max)
HVR, HVT, HVU, HVW, HVX	100% / 4 Hours (min) 150% / 1 Hour (max)

Specifications

Description: Medium voltage, non-time delay, fast-acting fuses.

Dimensions: See Basic Catalog Numbers table.

Ratings:

Volts: — 1-10kV (See Basic Catalog Numbers table)

Amps: — 1/6-2A (See Basic Catalog Numbers table)

Features and Benefits

- Physical size varies with electrical rating of fuse to prevent over-fusing.
- Space saving size.

Typical Applications

- Medium voltage instrument protection
- Medium voltage circuit protection



Fuse blocks: 4528, 4529, 4530 & 2960

Voltage Rating: 1000 to 10,000V

Basic Catalog Numbers	Fuse Block Catalog Number
HVA, HVR	4528
HVB, HVT	4529
HVJ, HVU	4530
HVL, HVX	2960

Use #8 screws on blocks 4528 and 4529.
Use #10 screws on blocks 4530 and 2960.

Basic Catalog Number	kV	Amp Ratings	Maximum S.C.	Dimensions - in (mm)	
				Diameter	Length
HVA	1	1/6, 1/10, 1/8, 3/10, 1/4, 3/10, 3/8, 1/2, 3/4, 1, 1 1/2, 2, 3, 4, 6, 10	20kW dc/30kVA ac	0.41 (10.4)	3 (76.1)
HVB	2.5	1/2, 3/4, 1, 1 1/2, 2, 3	20kW dc/30kVA ac	0.41 (10.4)	4.5 (114.2)
HVJ	5	1/6, 1/8, 1/4, 1/2, 3/4, 1, 1 1/2, 2, 4, 6, 10	20kW dc/30kVA ac	0.81 (20.6)	5 (126.9)
HVL	10	1/6, 1/8, 1/4, 1/2, 1, 1 1/2, 2, 3	20kW dc/30kVA ac	0.81 (20.6)	10 (254)
HVR	1	1/2, 1, 2, 3, 4, 5	kVA-500 ac only	0.41 (10.4)	3 (76.2)
HVW	1.2	1, 2, 3, 4, 5, 8	kVA-12,000 ac only	0.41 (10.4)	2.25 (57.1)
HVT	2.5	1/2, 1, 2, 3, 5	kVA-1250 ac only	0.41 (10.4)	4.5 (114.2)
HVU	5	1/2, 1, 2, 3, 4, 5	kVA-2500 ac only	0.81 (20.6)	5 (126.9)
HVX	10	1/2, 1, 3, 5	kVA-5,000 ac only	0.41 (10.4)	10.0 (253.8)

Catalog Number	Build-A-Code	
kV	Basic Catalog Number	Amps
---	-----	---

Medium Voltage Fuses

British Standard IEC fuses for use in oil filled distribution switchgear

OEFMA

Specifications

Description: BS 2692-1 medium voltage fuses for use on the primary circuit of three-phase 50Hz transformers in oil field switchgear. Fitted with powerful pyrotechnic striker pin.

Ratings:

Volts: — 3.6-24kV

Amps: — 6.3-200A

IR: — 25-50kA (See Catalog Number table below)

Agency Information: Fuses comply with IEC 60282-1, BS2692-1 and ESI Standard 12-8. 7.2 and 12kV fuses tested at highest system voltage and approved by the UK Electricity Association approvals panel.

Features and Benefits

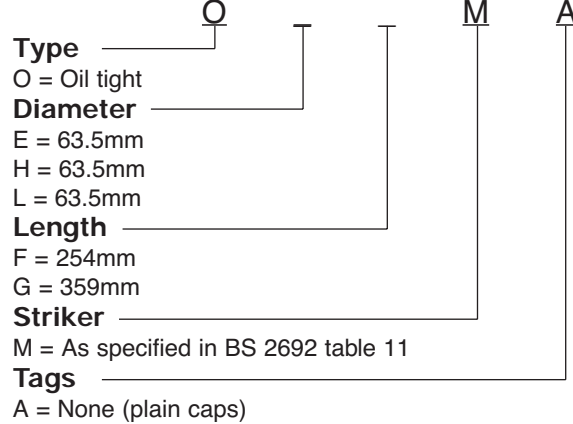
- Physically sized for replacement of British Standard fuse links

Typical Applications

- Medium Voltage BS designed equipment

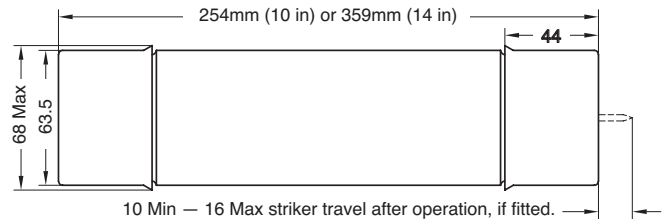


Code Number Reference



Dimensions:

Current-limiting fuse for use in oil switchgear
Fuse types: OEF, OEG, OHF, OHG, OLG



Catalog Numbers

Transformer	Catalog Numbers			
	Transformer Primary Voltage			
kVA	3.3kV	6.6kV	11kV/ESI 12-8 Ref.	13.8kV
200	3.6kV OEFMA 63	12kV OEFMA 31.5	12kV OEFMA 25/01	15.5kV OEFMA 16
250	3.6kV OEFMA 80	12kV OEFMA 40	12kV OEFMA 25/—	15.5kV OEFMA 20
300/315	3.6kV OEFMA 100	12kV OEFMA 50	12kV OEFMA31.5/02	15.5kV OEFMA 25
400	3.6kV OEFMA 125	12kV OEFMA 63	12kV OEFMA 40/—	15.5kV OEFMA 31.5
500	3.6kV OEFMA 160	12kV OHFMA 71	12kV OEFMA 50/03	15.5kV OEFMA 40
630	3.6kV OEFMA 200	7.2kV OEFMA 100	12kV OEFMA 63/—	15.5kV OEFMA 50
750/800	3.6kV OLGMA 250	7.2kV OHGMA 125	12kV OHFMA 80/04	15.5kV OEFMA 63
1000	3.6kV OLGMA 250*	7.2kV OHGMA 140	12kV OHGMA 90**/05	15.5kV OHGMA 71
1250	—	7.2kV OHGMA 160*	12kV OHGMA 100/—	15.5kV OHGMA 90
1600	—	—	12kV OLGMA 125*/—	15.5kV OLGMA 100*

This Catalog Number selection table is based upon the following criteria:

1. Withstand against magnetizing inrush current taken as 12 times full-load current for 0.1 second.
2. Withstand against 150% permissible overload current. Recommendations marked with asterisks have the following significance:-
*Limited to permissible overloads of 130%.
**Permits use of a 12kV OHFMA 80A fuse with a 100kVA transformer where permissible overload does not exceed 130%.
3. For 6.6kV systems, 12kV fuses are recommended where possible in the interests of standardization.
4. Wherever possible, 10 inch long FO1 fuses are offered rather than equivalent 14 inch FO2 types.
5. The above recommendations are not generally applicable to transformers feeding motor circuits with starting currents in excess of the transformer full load current. In this event, please consult Cooper Bussmann.

Catalog Numbers

Basic Cat. Number	Voltage	Dimensional Ref. BS 2692	Amp Ratings	Breaking Capacity (kA)
OEFMA	3.6kV	FO1	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200	50
OEGMA	3.6kV	FO2	100, 125, 160, 200	50
OLGMA	3.6kV	FO2	250	50
OEFMA	7.2kV	FO1	80, 100, 112	45
OHGMA	7.2kV	FO2	125, 140, 160	45
OEFMA	12.0kV	FO1	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63	40
OHFMA	12.0kV	FO1	71, 80	40
OHGMA	12.0kV	FO2	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63, 71, 80, 90, 100	40
OLGMA	12.0kV	FO2	125	40
OEFMA	15.5kV	FO1	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63	40
OHGMA	15.5kV	FO2	71, 80, 90	40
OLGMA	15.5kV	FO2	100	40
OHGMA	17.5kV	FO2	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63, 80	35
OEGMA	24.0kV	FO2	6.3, 10, 16, 20, 25, 31.5, 40, 50	25

Contact Cooper Bussmann for complete specifications on medium voltage fuses.

Catalog Number Build-A-Code

kV Basic Catalog Number Amps

EEI-NEMA Type K & T and Type H & N

FL: Type H and EEI-NEMA Type K & T Fuses



Specifications

Description: Medium voltage fuses: Type H (high surge), EEI-NEMA Type K (fast-acting), EEI-NEMA Type T (slow-acting).

Ratings:

Amps: — 1-200A
(See Catalog Numbers tables)

Features and Benefits

- Wide range of EEI-NEMA type fuse links for use in open fuse cutouts
- Voltage ratings up to 27kV.
- Can be coordinated with other overcurrent protective devices for sectionalizing to isolate feeder branches.

Typical Applications

- Medium Voltage Fused Cutouts

High-Surge Type H Fuses

High-surge, Type H fuses are manufactured in ratings of 1, 2, 3, 5, and 8A. They have been developed principally for primary fusing of small-sized transformers. Type H links are manufactured in the universal buttonhead design.

Type N Fuses

Type N fuses conform to previous NEMA standards and have been superseded by Type K and T links. Type N fuses are manufactured in the universal button design in ratings of 5 through 200A for use in NEMA standard dimensioned cutouts rated through 27kV.

Catalog Numbers

EEI-NEMA and High-Surge Universal Tin Element

Fuses for Cutouts — Rated to 27kV

Non-Removable Button-Head For Standard Open Or Enclosed Cutouts

Catalog Numbers			
Type H (High Surge)	EEI-NEMA Type K (Fast)	EEI-NEMA Type T (Slow)	Amps
FL11H1	FL11K1	FL11T1	1
FL11H2	FL11K2	FL11T2	2
FL11H3	FL11K3	FL11T3	3
FL11H5	FL11K5	FL11T5	5
—	FL11K6	FL11T6	6
FL11H8	FL11K8	FL11T8	8
—	FL11K10	FL11T10	10
—	FL11K12	FL11T12	12
—	FL11K15	FL11T15	15
—	FL11K20	FL11T20	20
—	FL11K25	FL11T25	25
—	FL11K30	FL11T30	30
—	FL11K40	FL11T40	40
—	FL11K50	FL11T50	50
—	FL11K65	FL11T65	65
—	FL11K80	FL11T80	80
—	FL11K100	FL11T100	100
—	FL11K140	FL11T140	140
—	FL11K200	FL11T200	200

Removable Button-Head For Cutouts Requiring Removable-Button Links*

Catalog Numbers		
EEI-NEMA Type K (Fast)	EEI-NEMA Type T (Slow)	Amps
FL3K1	FL3T1	1
FL3K2	FL3T2	2
FL3K3	FL3T3	3
FL3K5	FL3T5	5
FL3K6	FL3T6	6
FL3K8	FL3T8	8
FL3K10	FL3T10	10
FL3K12	FL3T12	12
FL3K15	FL3T15	15
FL3K20	FL3T20	20
FL3K25	FL3T25	25
FL3K30	FL3T30	30
FL3K40	FL3T40	40
FL3K50	FL3T50	50
FL3K65	FL3T65	65
FL3K80	FL3T80	80
FL3K100	FL3T100	100
FL3K140	FL3T140	140
FL3K200	FL3T200	200

*Adapter-type removable-button links with ferrule adapter to convert to double-leader links are available in K and T types. Order by description.

EEI-NEMA Type K Universal Silver-Element Fuses for Cutouts — Rated through 27kV

Non-Removable Button-Head For Standard Open Or Enclosed Cutouts

Catalog Numbers	
EEI-NEMA Type K	Amps
FL12K8	8
FL12K10	10
FL12K12	12
FL12K15	15
FL12K25	25
FL12K50	50

Medium Voltage Fuses

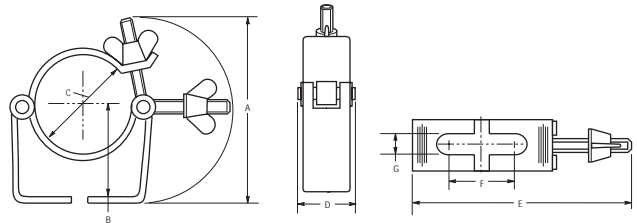
Medium Voltage Fuses

Fuseclips for medium & high voltage fuses

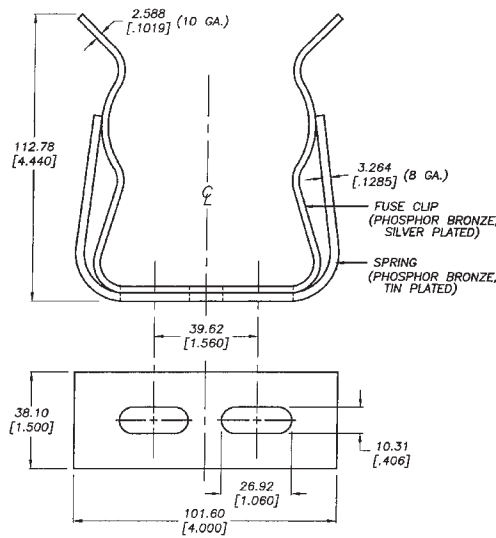
Recommended Fuseclips for Medium Voltage Fuses

Catalog Numbers	Fuse Diameter	Clip Dimensions (in)						
		A	B	C	D	E	F	G
A3354710	2	3.749	1.979	2.009	1.189	4.539	1.509	0.399
A3354730	3	4.139	2.449	3.009	1.189	5.639	1.509	0.399

Fuse clips are for single barrel applications only. Are not sold in pairs.

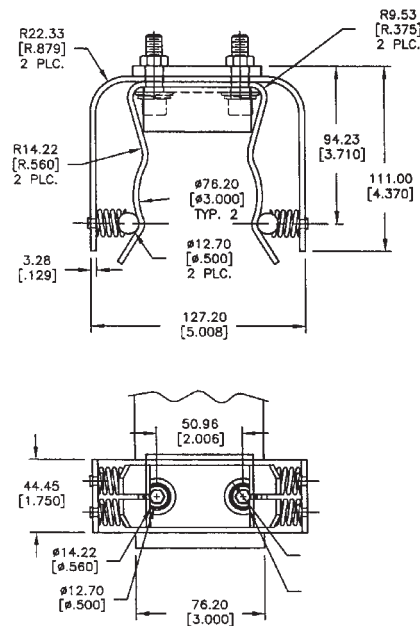


1A0065 3" Diameter Clip



2 CLIP ASSEMBLIES PER PACKAGE.
DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

9078A67G04 3" Diameter Clip



2 Clip assemblies per package.
Dimensions shown are for reference only.

High Speed fuses

Section Contents

	Page
General Applications	88-89
North American fuses & accessories	90-106
Square Body fuses & accessories	107-180
BS 88 fuses & accessories	181-190
Ferrule fuses & accessories	191-212



General applications

Rated Voltage

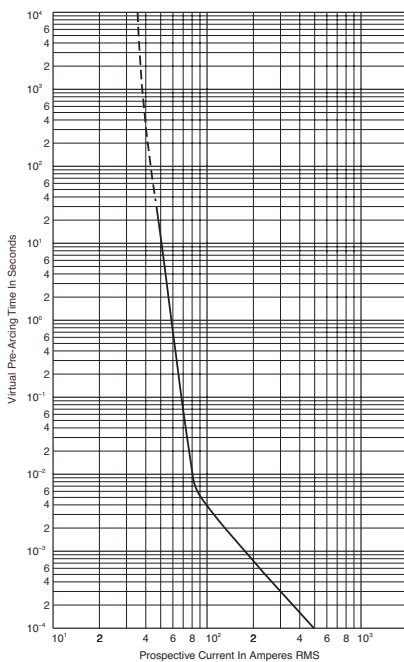
The ac voltage rating of Cooper Bussmann fuses is given in volts rms. Fuses tested to IEC are tested at 10% above their rated voltage. British Style BS 88 fuses are tested at 5% above its rated voltage. UL recognition tests are performed at the rated voltage.

Rated Current

Rated current is given in amperes rms. Cooper Bussmann fuses can continuously carry the rated current.

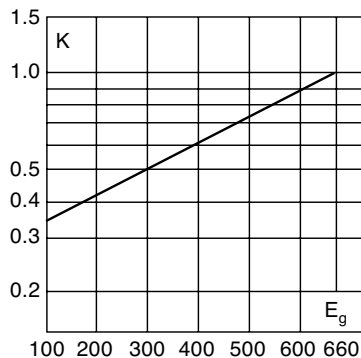
Melting Characteristic

The melting characteristic shows the virtual melting time in seconds as a function of the prospective current in amperes rms. The fuses are specially constructed for short-circuit protection against high level fault currents. Loading and operation of the fuse in the non-continuous/dashed section of the melt curve must be avoided. The curve can also be read as the real melting time as a function of the RMS value of the pre-arc current.

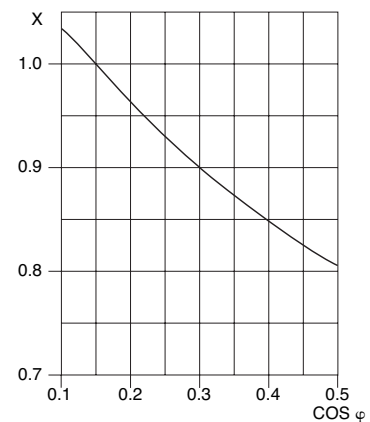


Clearing Integrals

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).

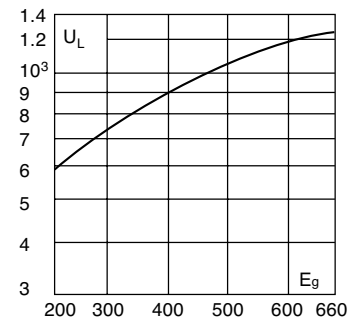


For other power factor values, the total clearing integral can be calculated as a multiple of the clearing integrals, the correction factor K and the correction factor X.



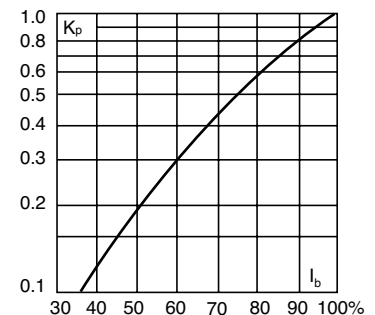
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



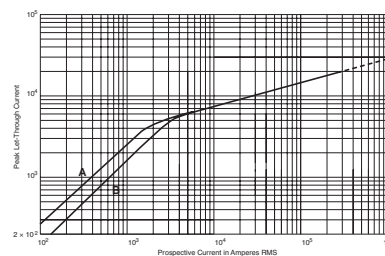
Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Cut-Off Current

A fuse operation relating to short-circuits only. When a fuse operates in its current-limiting range, it will clear a short-circuit in less than 1/2 cycle. Also, it will limit the instantaneous peak let-through current to a value substantially less than that obtainable in the same circuit if that fuse were replaced with a solid conductor of equal impedance.



A asymmetrical current
B symmetrical current

General applications

Parallel Connection

When fuses are connected in parallel it is recommended that the applied voltage does not exceed 0.9 U_N (the rated voltage of the fuse). This is due to the fact that the energy released within the fuses may be unevenly shared between the parallel connected barrels.

When fuses are connected in parallel, one must take into account that the current sharing is not necessarily equal. And it must be checked, that the maximum load current is not exceeded.

Series Connection

Fuses in series may not equally divide the applied voltage. It is recommended that series connected fuses should only be operated at fault currents that yield melting times less than 10 ms and a recovery voltage per fuse of less than or equal to 0.9 U_N (the rated voltage of the fuse).

Mounting Guidance

The recommendations below have to be followed when mounting a Cooper Bussmann fuse with end plate threaded holes.

1. Screw in studs: 5 N•m Max, 3 N•m Min
2. Attachment of the fuse to buss-bar by means of nut and washer:

Thread Configuration	Torque (N•m)*	
	Max	Min
5/16" - 18, M8	25	20
3/8" - 16, M10	45	40
1/2" - 24	45	40
5/8" - 13, M12	65	50
3/4" - 20	65	50

*1 N•m = 0.7375 lb-ft

Overloads

The design of Cooper Bussmann fuses is such that they can be operated under rather severe operating conditions imposed by overloads (any load current in excess of the maximum permissible load current).

In applications, there will be a maximum overload current, I_{max} , which can be imposed on the fuse with a corresponding duration and frequency of occurrence.

Time durations fall into two categories:

1. Overloads longer than one second
2. Overloads less than one second termed "impulse" loads.

The following table gives general application guidelines which, in the expression $I_{max} < (\% \text{ factor}) \times I_t$. I_t is the melting current corresponding to the time "t" of the overload duration as read from the time-current curve of the fuse. The guidelines in the table below determine the acceptability of the selected fuses for a given I_{max} .

Frequency of Occurrence	Overloads (> 1 sec)	Impulse Loads (< 1 sec)
Less than once per month	$I_{max} < 80\% \times I_t$	$I_{max} < 70\% \times I_t$
Less than twice per week	$I_{max} < 70\% \times I_t$	$I_{max} < 60\% \times I_t$
Several times per day	$I_{max} < 60\% \times I_t$	—

When impulse loads are an intrinsic/normal parameter of the load current either as single pulse or in trains of pulses or when their level is higher than the melting current at 0.01 seconds (per time-current curve), contact Cooper Bussmann for application assistance.

In addition to the parameters set forth in the preceding table, the RMS value of the load current as calculated for any period of 10 minutes or more should not exceed the maximum permissible load current.

Furthermore, it is important that a fuse should not be applied in the non-continuous/dashed portion of the associated time-current curve.

Any time-current combination point which falls in the non-continuous/dashed portion of the time-current curve is beyond the capability of the fuse to operate properly.

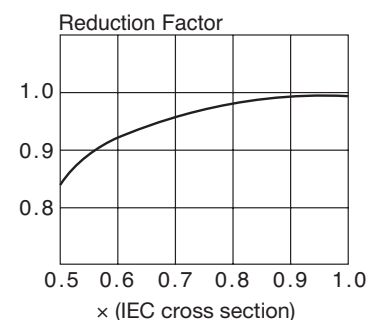
DC Operation

Depending upon the short-circuit time constant and the magnitude of the prospective short-circuit current, the dc voltage at which a fuse can be applied may be less than its ac rating. Long time constants require a lower dc voltage. Conversely, however, higher available prospective short-circuit currents result in faster fuse openings and thus permit a fuse to be operated at a higher dc voltage.

Consult Cooper Bussmann for additional information and application assistance when fuses have to operate under dc conditions.

Load Current Versus Conductor Cross Section

Reduction of permissible load current when the conductor cross section is less than that given in IEC Publication 269-1 & 4 valid for Cooper Bussmann semiconductor fuses.



Application Assistance

If you have application problems or need a fuse outside our standard program, please contact the nearest Cooper Bussmann representative. Phone numbers are shown on the back cover.

High Speed Fuses

North American fuses



Introduction

North American Contents

Catalog Number	Volts	Amp Range	Page
FWA	130	1000-4000	91-92
FWA	150	70-1000	93-94
FWX	250	35-2500	95-96
FWH	500	35-1600	97-98
KAC	600	1-1000	99
KBC	600	35-800	100
FWP	700	5-1200	101-103
FWJ	1000	35-2000	104-105

Accessories

Fuse Bases 106

North American Fuse Ranges

Amps	Volts	AC	DC
1000-4000	130	X	X
70-1000	150	X	X
35-2500	250	X	X
35-1600	500	X	X
1-1000	600	X	—
5-1200	700	X	X
40-600	800	—	X
35-2000	1000	X	—

General Information

Cooper Bussmann offers a complete range of North American blade and flush-end style fuses and accessories. Their design and construction were optimized to provide:

- Low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability
- Low arc voltage
- Excellent dc performance

North American style fuses provide an excellent solution for medium power applications. While there are currently no published standards for these fuses, the industry has standardized on mounting centers that accept Cooper Bussmann fuses.

Voltage Rating

All Cooper Bussmann North American style fuses are tested at their rated voltage. Cooper Bussmann should be consulted for applications exceeding those values.

Accessories

External and internal open fuse indication is available for selected portions of the North American line. Fuse blocks are available for most applications.

North American — FWA 130V: 1000-4000A

FWA

Specifications

Description: North American style flush-end high speed fuses.

Dimensions: See Dimensions illustrations.

Ratings:

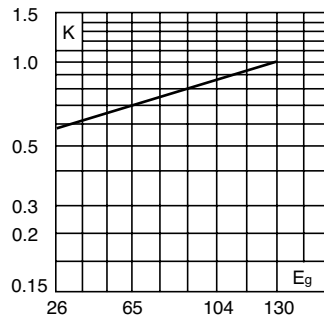
- Volts: — 130Vac
- Amps: — 1000-4000A
- IR: — 200kA RMS Sym.
- 50kA @130Vdc

Agency Information: CE, UL Recognized on 1000-2000A fuses

Electrical Characteristics

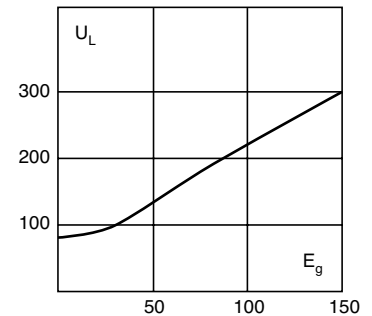
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



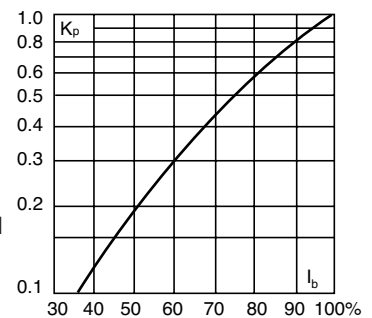
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Catalog Numbers

Catalog Numbers	Electrical Characteristics			
	Rated Current RMS-Amps	I^2t (A ² Sec)		Watts Loss
		Pre-arc	Clearing at 130V	
FWA-1000AH	1000	170000	460000	60
FWA-1200AH	1200	270000	730000	70
FWA-1500AH	1500	520000	1400000	78
FWA-2000AH	2000	860000	2400000	108
FWA-2500AH	2500	1500000	4100000	130
FWA-3000AH	3000	2100000	5700000	150
FWA-4000AH	4000	3400000	9200000	257

• Watts loss provided at rated current.
• See accessories on page 106.

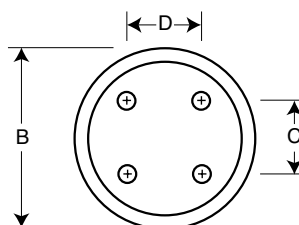
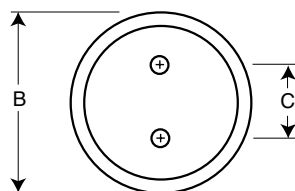
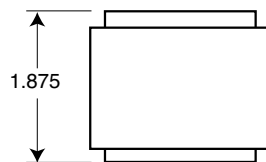
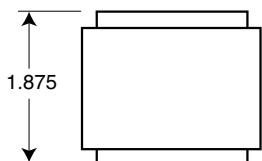
Dimensions (in)

Catalog Number	Fig.	B	C	D	Thread Depth
FWA-1000AH-2000AH	1	2.0	1.0	—	Tapped $\frac{3}{8}$ "-24 x $\frac{1}{2}$ "
FWA-2500AH-3000AH	1	3.0	1.5	—	Tapped $\frac{1}{2}$ "-20 x $\frac{1}{2}$ "
FWA-4000AH	2	3.5	1.5	1.5	Tapped $\frac{1}{2}$ "-20 x $\frac{1}{2}$ "

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 1000-3000A

Fig. 2: 4000A



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

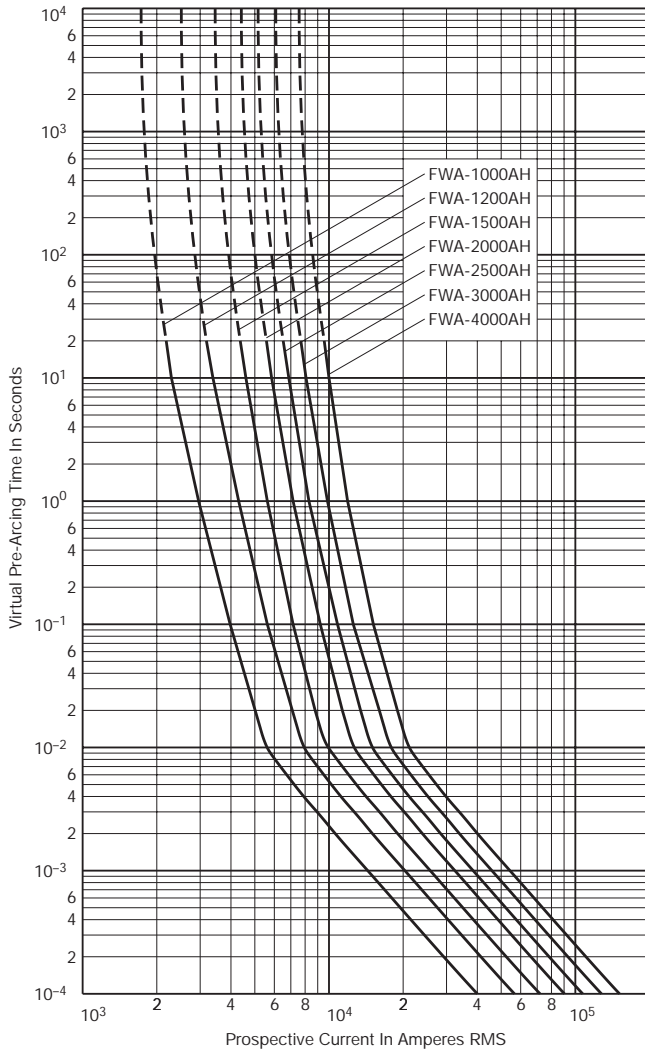
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

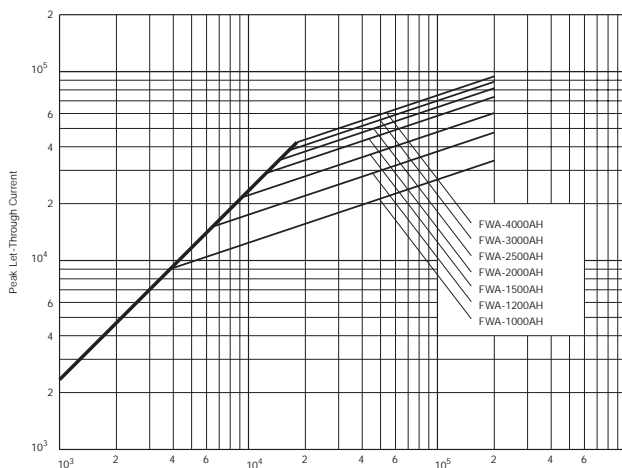
North American — FWA 130V: 1000-4000A

FWA 1000-4000A: 130V

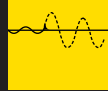
Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785301



Did You Know?

Protect Against Downtime with Technical Training, and Earn CEUs at the Same Time

Our application engineering team offers two training seminars at the Cooper Bussmann St. Louis headquarters Technical Center for end-user customers. These two-day seminars provide participants 1.6 Continuing Education Units (CEUs). Attendees are responsible for their own airfare and hotel costs; meals and ground transportation are provided.

Industrial Machinery

This two-day seminar highlights overcurrent protection considerations for industrial machinery and industrial control panels, design standards as well as a review of various overcurrent protective devices. The seminar is offered to:

- Engineers for industrials who specify equipment
- Electrical panel builders
- Machinery builders
- Electrical designers

Commercial and Industrial Power Systems

This two-day seminar provides a comprehensive review of the proper overcurrent protection of building power distribution systems including elevator protection, ground fault protection and compliance with industry standards. The seminar is targeted to:

- Consulting engineers
- Plant engineers
- Electrical contractors
- Electrical designers
- Inspectors

Contact your local district sales engineer or representative, or call our application engineering team for more information: **636-527-1270**. Check at www.cooperbussmann.com for schedules and seminar cost.

North American — FWA 150V: 70-1000A

FWA

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 150Vac

Amps: — 70-1000A

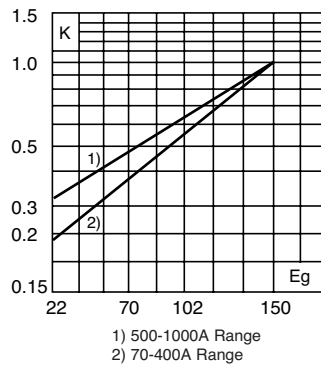
- IR: — 100kA Sym. (70-400A)
- 200kA Sym. (450-1000A)
- 20kA @150Vdc (70-800A)
- 100kA @ 80Vdc (70-400A)

Agency Information: CE, UL Recognized

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dimensions (in)

Fig. 1: 70-400A

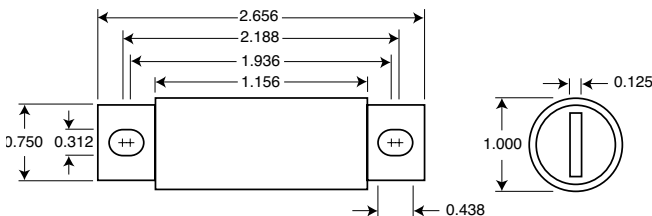
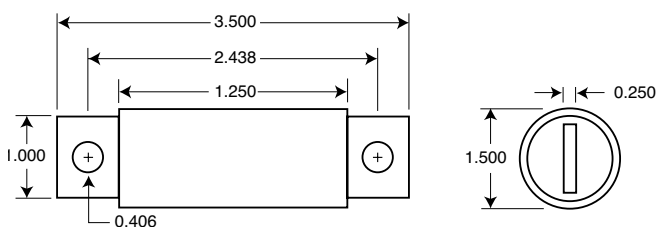


Fig. 2: 500-1000A

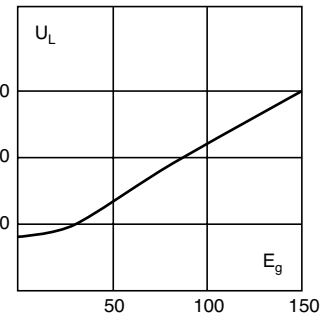


1mm = 0.0394" / 1" = 25.4mm



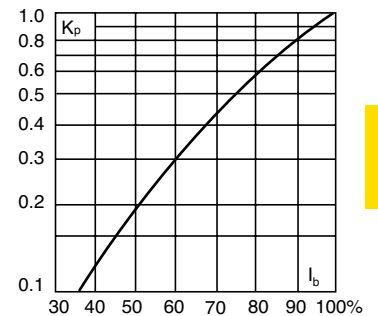
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Number	Rated Current RMS-Amps	Electrical Characteristics		
		I ² t (A ² Sec)		Watts Loss
		Pre-arc	Clearing at 150V	
FWA-70B	70	470	4000	6.9
FWA-80B	80	670	6000	7.7
FWA-100B	100	1200	12000	9.0
FWA-125B	125	1870	18000	11.2
FWA-150B	150	2700	26000	13.5
FWA-200B	200	4780	45000	17.6
FWA-250B	250	7470	70000	22.5
FWA-300B	300	10760	100000	27.0
FWA-350B	350	15700	140000	30.6
FWA-400B	400	20300	180000	35.2
FWA-500A	500	39000	120000	35.0
FWA-600A	600	46000	140000	47.0
FWA-700A	700	75000	220000	49.0
FWA-800A	800	92000	280000	58.0
FWA-1000A	1000	170000	510000	60.0

• Watts loss provided at rated current.
• See accessories on page 106.

Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

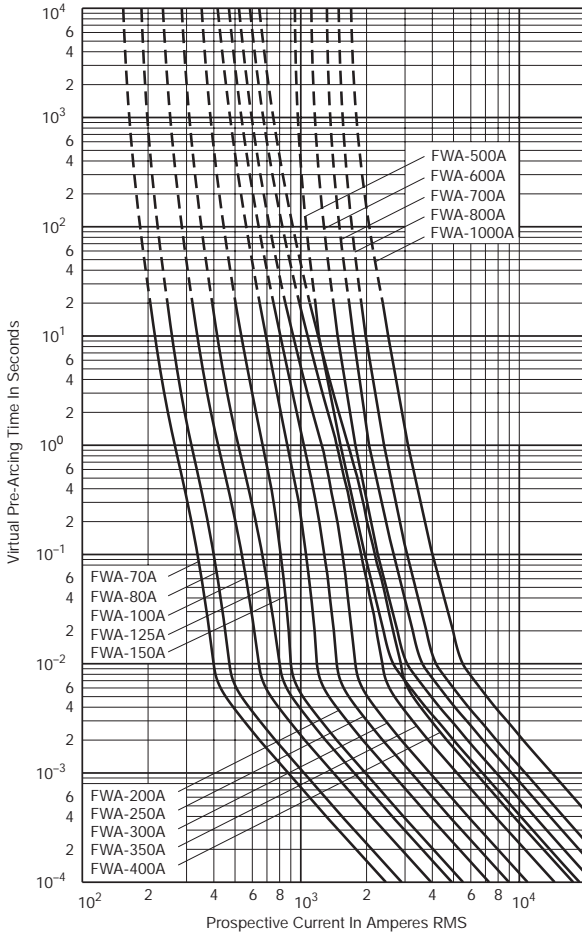
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

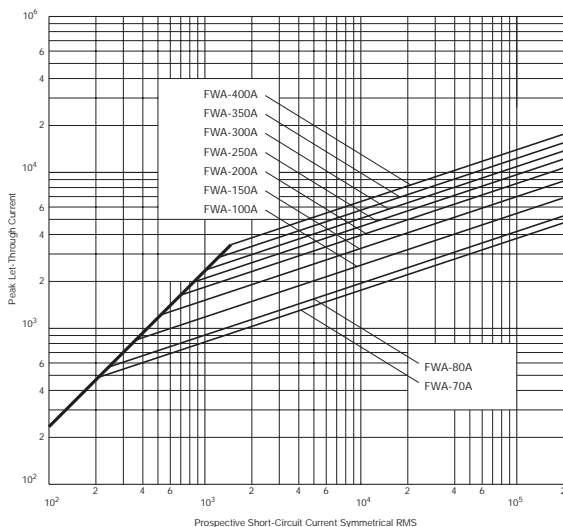
North American — FWA 150V: 70-1000A

FWA 70-1000A: 150V

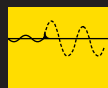
Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785310



Did You Know?

Cooper Bussmann Equipped Solar Car Wins American Solar Challenge Race



The University of Missouri-Rolla Solar Car Team won the prestigious American Solar Challenge Race recently with

circuit protection provided by Cooper Bussmann FWX series 80 amp semiconductor fuses.

The grueling endurance test pitted UM-Rolla's "Solar Miner IV" against race teams from some of the most famous engineering schools in the nation. By driving approximately 2,300 miles from Chicago to Claremont (a suburb of Los Angeles), in just 51 hours, 47 minutes and 39 seconds, they set a race record by more than four hours.

North American — FWX 250V: 35-2500A

FWX

Specifications

Description: North American style stud-mount and flush-end fuses.

Dimensions: See Dimensions illustrations.

Ratings:

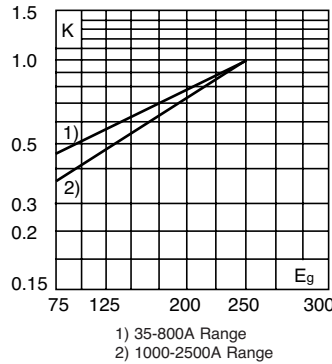
- Volts: — 250Vac
- Amps: — 35-2500A
- IR: — 200kA RMS Sym.

Agency Information: CE, UL Recognized & CSA Component Acceptance on 35-800A fuses (20kA IR @250Vdc).

Electrical Characteristics

Total Clearing I²t

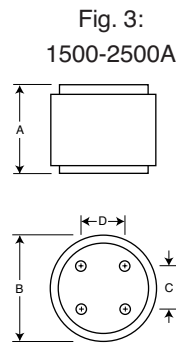
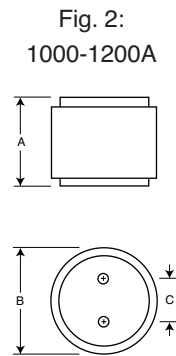
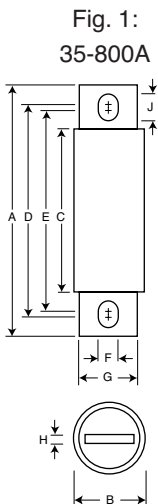
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dimensions (in)

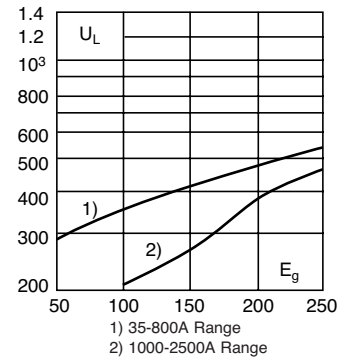
Amp Range	Fig. A	B	C	D	E	F	G	H	J	Tapped Thread Depth
35-60	1	3.19	0.81	1.59	2.59	2.25	0.34	0.63	0.13	0.52
70-200	1	3.13	1.22	1.59	2.44	2.19	0.34	1.00	0.19	0.47
225-600	1	3.84	1.50	1.59	2.94	2.25	0.41	1.00	0.25	0.75
700-800	1	3.84	2.00	1.59	3.03	2.28	0.41	1.50	0.25	0.78
1000-1200	2	2.59	3.00	1.50	—	—	—	—	—	3/16"-24 x 1/2"
1500-2500	3	2.59	3.50	1.50	1.50	—	—	—	—	3/16"-24 x 1/2"

1mm = 0.0394" / 1" = 25.4mm



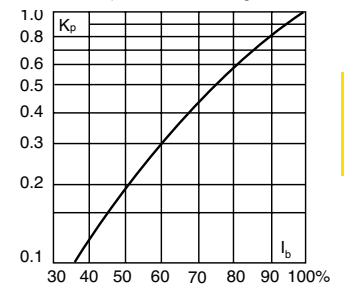
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Number	Electrical Characteristics			
	Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
		Pre-arc	Clearing at 250V	
FWX-35A	35	50	230	4.2
FWX-40A	40	60	310	5.2
FWX-45A	45	80	390	5.7
FWX-50A	50	100	520	6.0
FWX-60A	60	140	740	8.1
FWX-70A	70	330	1400	7.2
FWX-80A	80	430	1850	8.1
FWX-90A	90	570	2450	9.0
FWX-100A	100	740	3150	10.0
FWX-125A	125	1130	4850	12.5
FWX-150A	150	1620	6950	15.7
FWX-175A	175	2170	9300	18.5
FWX-200A	200	2790	12000	22
FWX-225A	225	3210	14700	24
FWX-250A	250	3960	18100	27
FWX-275A	275	4720	21600	31
FWX-300A	300	6000	27300	32
FWX-350A	350	10600	48600	39
FWX-400A	400	14500	66100	44
FWX-450A	450	22100	101000	49
FWX-500A	500	28000	128000	54
FWX-600A	600	41100	188000	62
FWX-700A	700	48800	190000	72
FWX-800A	800	59000	230000	84
FWX-1000AH	1000	44000	360000	100
FWX-1200AH	1200	92000	750000	103
FWX-1500AH	1500	120000	880000	140
FWX-1600AH	1600	160000	1200000	140
FWX-2000AH	2000	320000	2300000	151
FWX-2500AH	2500	670000	4700000	163

* Watts loss provided at rated current. * See accessories on page 106.

Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Superior cycling capability

Typical Applications

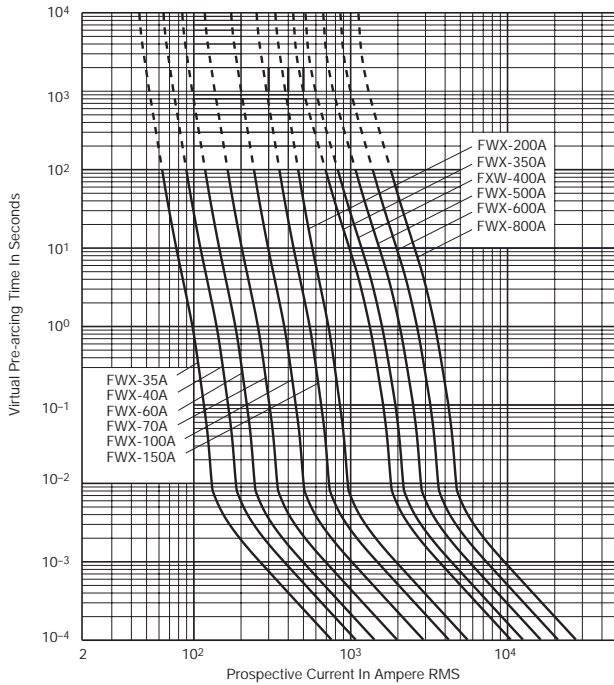
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

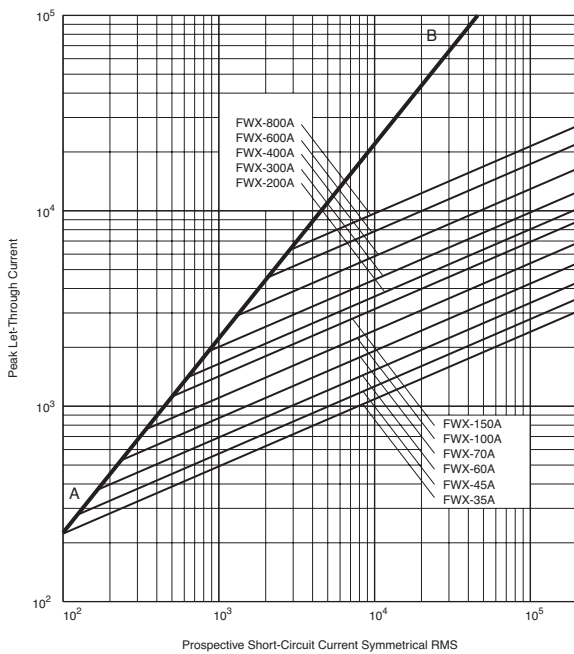
North American — FWX 250V: 35-2500A

FWX 35-800A: 250V

Time-Current Curve



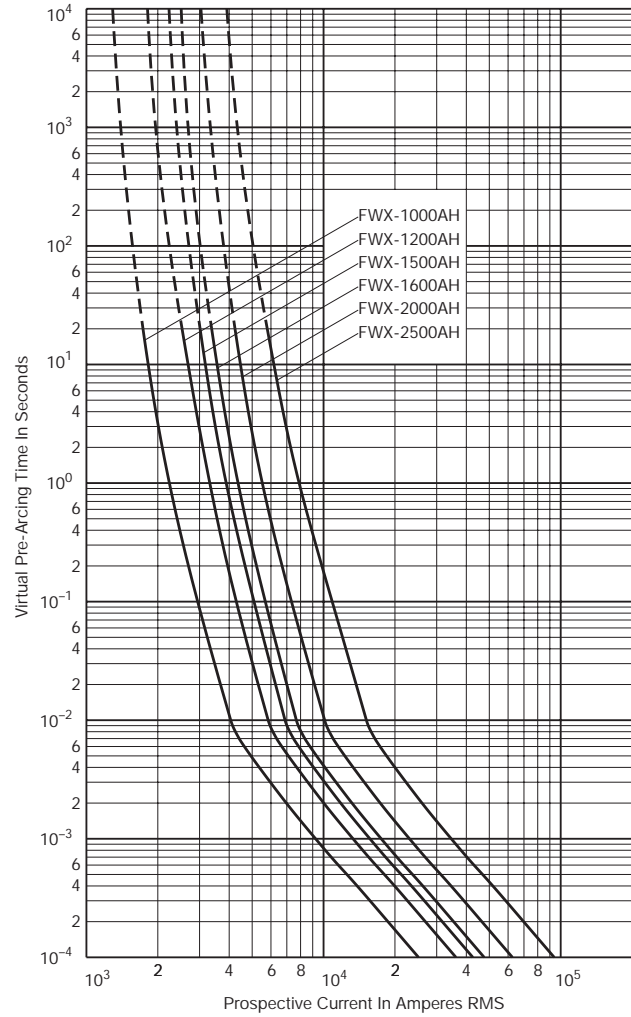
Peak Let-Through Curve



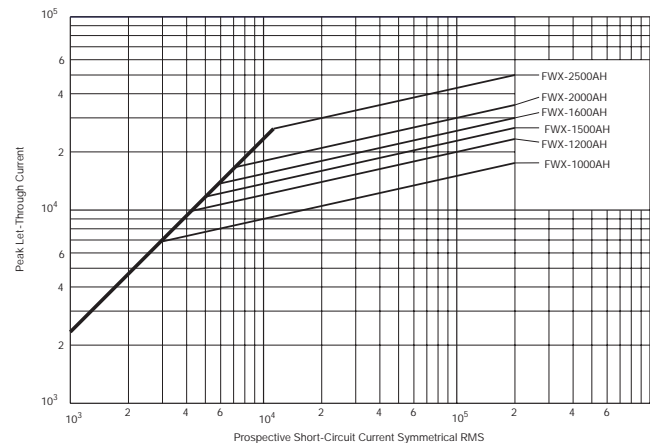
Data Sheet: 359

FWX 1000-2500A(H): 250V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785299

North American — FWH 500V: 35-1600A

FWH

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 500Vac

Amps: — 35-1600A

IR: — 200kA Sym.

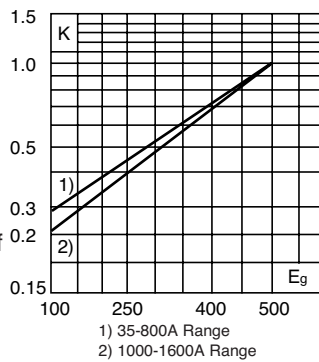
— 50kA @ 500Vdc

Agency Information: CE, UL Recognition & CSA Component Acceptance on 35-800A only (50kA IR@500Vdc). UL Recognition on 35-1200A only, CSA Component Acceptance: 35-1600A.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dimensions (in)

Amp Range	Fig.	A	B	C	D	E	F	G	H	J
35-60	1	3.188	0.813	1.593	2.541	2.193	0.344	0.719	0.125	0.518
70-100	1	3.625	0.947	1.736	2.853	2.807	0.352	0.750	0.125	0.375
125-200	1	3.625	1.156	1.836	2.892	2.768	0.344	1.000	0.188	0.406
225-400	1	4.340	1.500	2.090	3.440	2.750	0.410	1.000	0.250	0.750
450-600	1	4.340	2.000	2.090	3.530	2.780	0.410	1.500	0.250	0.780
700-800	1	6.340	2.500	2.090	4.970	3.440	0.530	2.000	0.380	1.300
1000-1200	1	6.969	3.000	3.219	5.465	4.475	0.625	2.375	0.438	1.120
1400-1600	2	See Drawing								

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-1200A

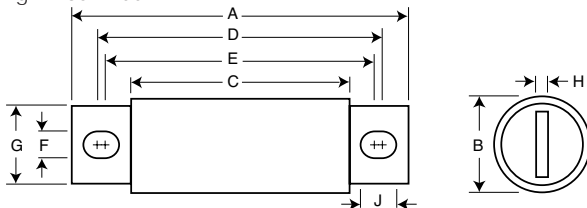
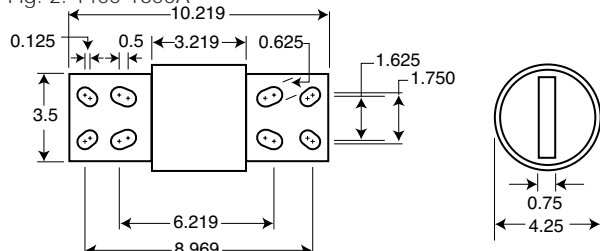
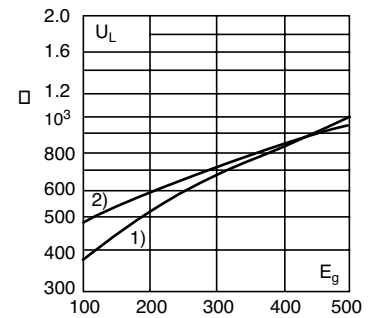


Fig. 2: 1400-1600A



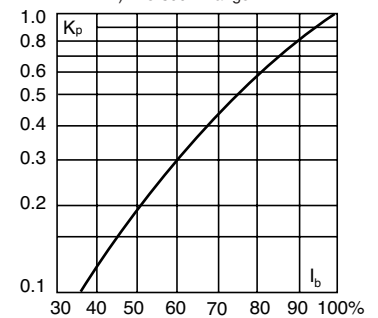
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Rated Current RMS-Amps	Electrical Characteristics		
		I ² t (A ² Sec)		Watts Loss
		Pre-arc	Clearing at 500V	
FWH-35B	35	34	150	8
FWH-40B	40	76	320	7.5
FWH-45B	45	105	450	7.5
FWH-50B	50	135	670	7.5
FWH-60B	60	210	900	9.9
FWH-70B	70	210	900	10.6
FWH-80B	80	305	1400	12.7
FWH-90B	90	360	1600	15
FWH-100B	100	475	2000	17
FWH-125B	125	800	3500	25
FWH-150B	150	1100	4600	30
FWH-175B	175	1450	6200	35
FWH-200B	200	1900	8500	40
FWH-225A	225	4600	23300	39
FWH-250A	250	6300	32200	41
FWH-275A	275	7900	40300	46
FWH-300A	300	9800	49800	51
FWH-325A	325	13700	63800	53
FWH-350A	350	14500	72900	58
FWH-400A	400	19200	96700	65
FWH-450A	450	24700	127000	74
FWH-500A	500	29200	149000	84
FWH-600A	600	41300	206000	108
FWH-700A	700	55000	298000	120
FWH-800A	800	76200	409000	129
FWH-1000A	1000	92000	450000	145
FWH-1200A	1200	122000	600000	180
FWH-1400A	1400	200000	1000000	210
FWH-1600A	1600	290000	1400000	230

*Watts loss provided at rated current.

• See accessories on page 106.

Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

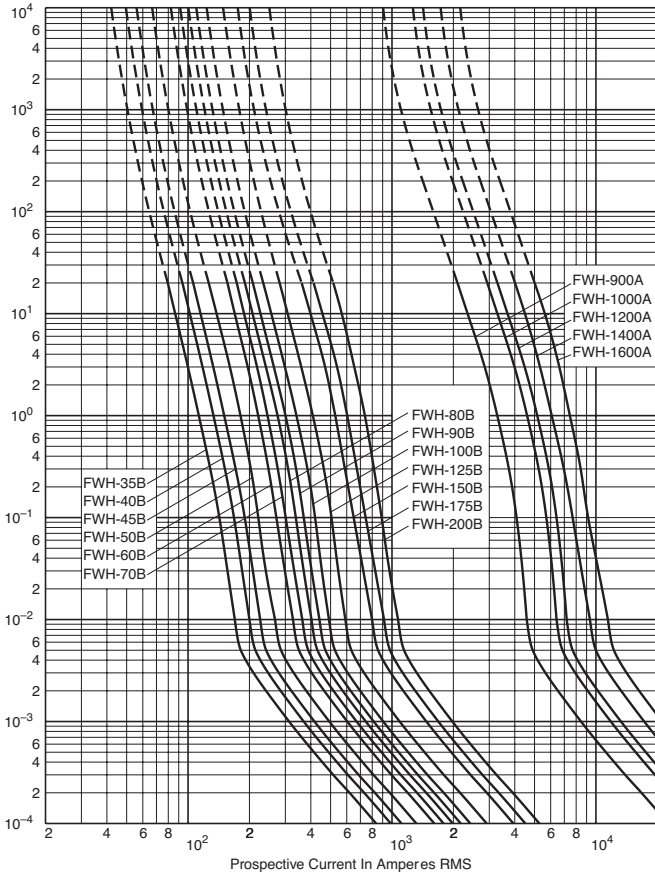
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

North American — FWH 500V: 35-1600A

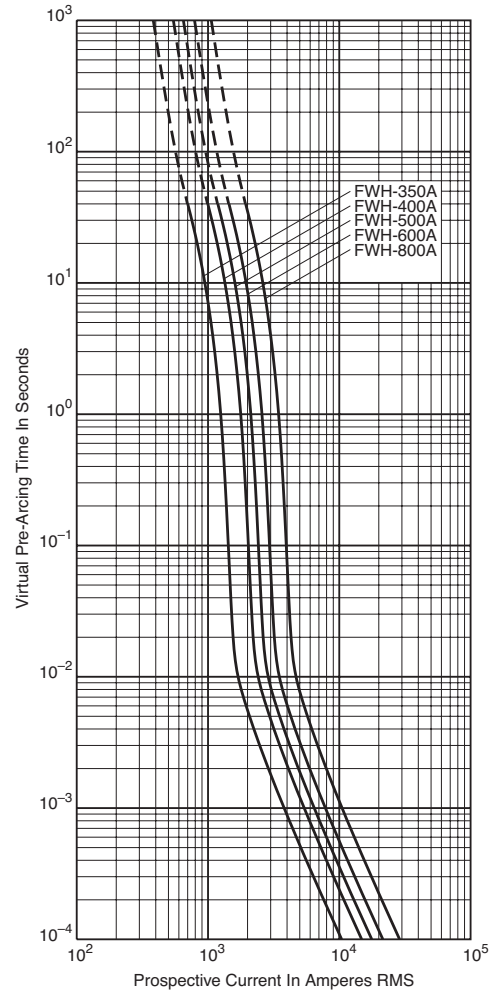
FWH 35-200A(B) & 900-1600A(A): 500V

Time-Current Curve

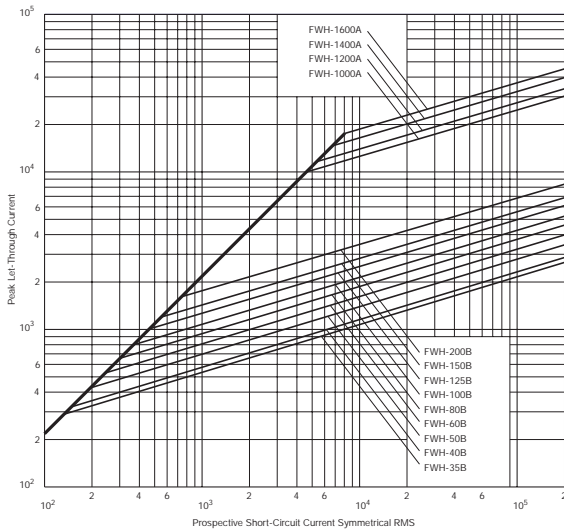


FWH 225-800A: 500V

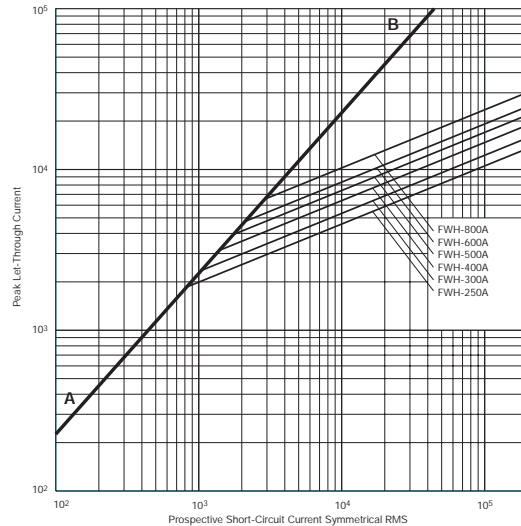
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



North American — KAC 600V: 1-1000A

KAC

Specifications

Description: North American style stud-mount fuses. These 600V fuses are supplied as replacements only. For new installations, Cooper Bussmann recommends the 700V FWP series fuse.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac

Amps: — 1-1000A

IR: — 200kA RMS Sym.

Agency Information: CE, UL Recognition on 1-600A only.



Catalog Numbers (-amps)

KAC-1	KAC-25	KAC-175
KAC-2	KAC-30	KAC-200
KAC-3	KAC-35	KAC-225
KAC-4	KAC-40	KAC-250
KAC-5	KAC-45	KAC-300
KAC-6	KAC-50	KAC-350
KAC-7	KAC-60	KAC-400
KAC-8	KAC-70	KAC-450
KAC-9	KAC-80	KAC-500
KAC-10	KAC-90	KAC-600
KAC-12	KAC-100	KAC-700
KAC-15	KAC-110	KAC-800
KAC-17.5	KAC-125	KAC-1000
KAC-20	KAC-150	

• Consult Cooper Bussmann for dc ratings.
• See accessories on page 106.

Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

Dimensions (in)

Amp Range	Fig.	A	B1	B2	B3	C	D	E	F	G	H
1-30A	1	2.875	2.500	—	—	1.875	0.406	—	0.563	0.063	0.257
35-60A	2	4.375	—	3.750	3.500	2.750	0.625	0.343	0.813	0.094	0.468
70-100A	2	5.000	—	4.063	3.656	2.750	0.750	0.406	1.000	0.125	0.609
110-200A	2	5.140	—	4.390	3.766	2.906	1.000	0.406	1.500	0.188	0.718
225-400A	2	6.182	—	4.815	4.565	3.000	1.625	0.562	2.000	0.250	0.687
450-800A	1	6.250	4.750	—	—	3.063	2.000	—	2.500	0.250	0.563
1000A	1	7.250	4.750	—	—	3.063	2.750	—	3.500	0.375	0.563

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 1-30 & 450-1000A

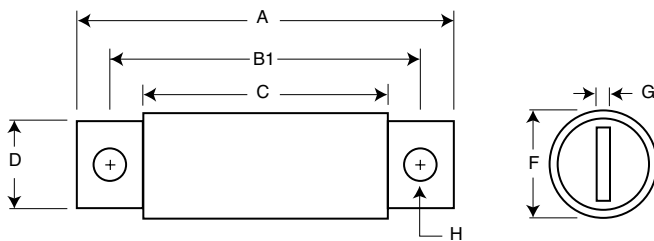
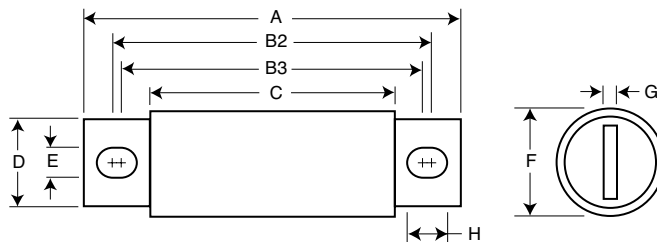


Fig. 2: 35-400A



North American — KBC 600V: 35-800A

KBC

Specifications

Description: North American style stud-mount and flush-end fuses. These 600V fuses are supplied as replacements only. For new installations, Cooper Bussmann recommends the 700V FWP series fuse.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac

Amps: — 35-800A

IR: — 200kA RMS Sym.

Agency Information: CE, UL Recognition on 35-600A only.



Catalog Numbers (-amps)

KBC-35	KBC-100	KBC-300
KBC-40	KBC-110	KBC-350
KBC-45	KBC-125	KBC-400
KBC-50	KBC-150	KBC-450
KBC-60	KBC-175	KBC-500
KBC-70	KBC-200	KBC-600
KBC-80	KBC-225	KBC-800
KBC-90	KBC-250	

- Consult Cooper Bussmann for dc ratings.
- See accessories on page 106.

Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (in)

Amp Range	Fig.	A	B	C	D	E	F	G	H	I	
35-60A	1	4.375	3.750	3.500	2.750	0.343	0.625	0.813	0.094	0.468	
70-100A	2	See Drawing									
110-200A	1	4.406	3.719	3.594	2.906	0.312	0.875	1.219	0.187	0.375	
225-400A	1	5.125	4.188	3.563	2.906	0.406	1.000	1.500	0.250	0.719	
450-600A	1	5.125	4.389	3.687	2.875	0.406	1.500	2.000	0.250	0.757	
800A	3	See Drawing									

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-60 and 110-600A

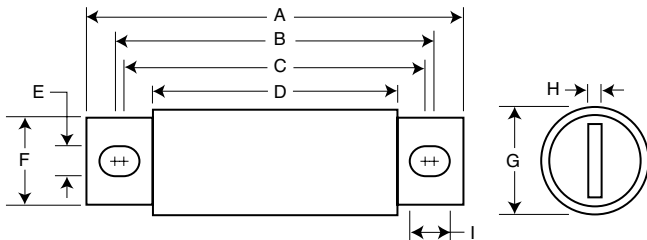


Fig. 2: 70-100A

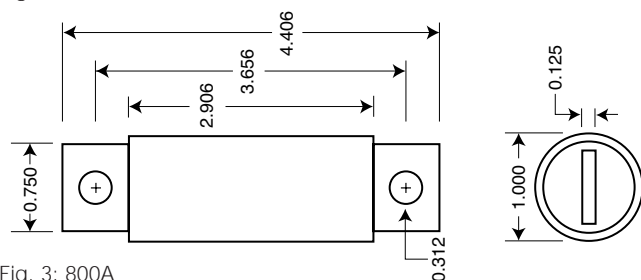
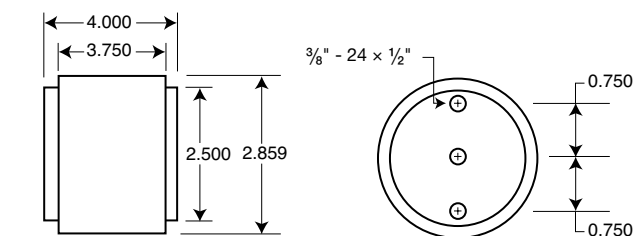


Fig. 3: 800A



Did You Know?

Cooper Bussmann Gubany Center Receives Prestigious ASTA Accreditation

The Cooper Bussmann Paul P. Gubany Center in St. Louis is certified by Britain's prestigious ASTA (Associated Short Circuit Testing Authority) to perform short testing of its own devices designed to operate to ASTA requirements which are closely tied to IEC requirements. The Gubany Center is the only testing facility available in North or South America for this product certification.

The Gubany Center has equipment capable of generating 300,000A of current at 600V AC three-phase, and 100,000A DC at 170V, under carefully controlled conditions. It offers a wider range of current voltage and frequency configurations than any other facility of its kind in the world, and is built to exceed the short circuit capacity of today's high power electrical distribution systems.

North American — FWP 700V: 5-1200A

FWP

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 700Vac

Amps: — 5-1200A

IR: — 200kA RMS Sym.

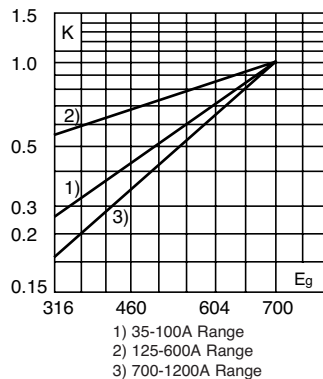
— 50kA @700Vdc

Agency Information: CE, UL Recognition & CSA Component Acceptance on 5-800A

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dimensions (in)

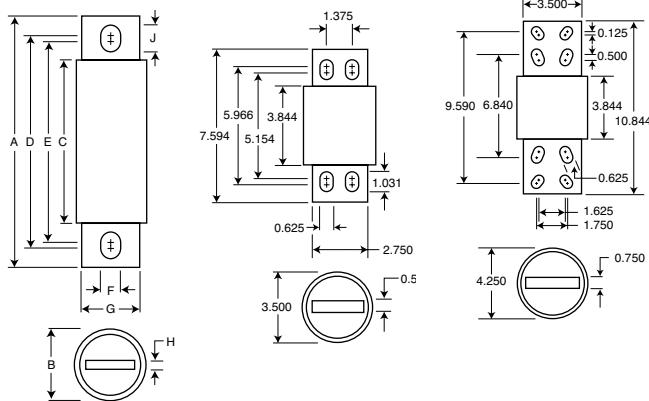
Amp Range	Fig.	A	B	C	D	E	F	G	H	I
5-30	1	2.870	0.563	1.855	2.477	2.477	0.250	0.405	0.063	0.250
35-60	1	4.375	0.813	2.750	3.708	3.312	0.344	0.725	0.125	0.542
70-100	1	4.406	0.947	2.594	3.625	3.563	0.344	0.750	0.125	0.375
125-200	1	5.090	1.500	2.840	4.190	3.500	0.410	1.000	0.250	0.750
225-400	1	5.090	2.000	2.840	4.280	3.530	0.410	1.500	0.250	0.780
450-600	1	7.090	2.500	2.840	5.720	4.190	0.530	2.000	0.380	1.300
700-800	1	6.630	2.000	2.844	5.562	5.062	0.625	1.500	0.250	0.875
900-1000	2	See Drawing								
1200	3	See Drawing								

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 5-800A

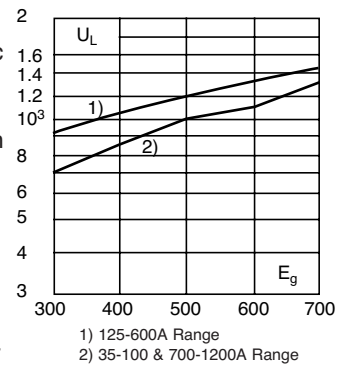
Fig. 2: 900-1000A

Fig. 3: 1200A



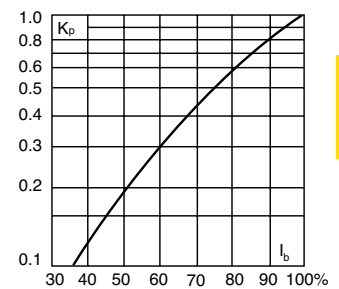
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Rated Current RMS-Amps	Electrical Characteristics		
		I ² t (A ² Sec)		Watts Loss
		Pre-arc	Clearing at 700V	
FWP-5B	5	1.6	10	1.5
FWP-10B	10	3.6	20	4
FWP-15B	15	10	75	5.5
FWP-20B	20	26	180	6
FWP-25B	25	44	340	7
FWP-30B	30	58	450	9
FWP-35B	35	34	160	12
FWP-40B	40	76	320	12
FWP-50B	50	135	600	12
FWP-60B	60	210	950	15.5
FWP-70B	70	305	2000	18
FWP-80B	80	360	2400	21
FWP-90B	90	415	2700	25
FWP-100B	100	540	3500	27
FWP-125A	125	1800	7300	28
FWP-150A	150	2900	11700	32
FWP-175A	175	4200	16700	35
FWP-200A	200	5500	22000	43
FWP-225A	225	7700	31300	45
FWP-250A	250	10500	42500	48
FWP-300A	300	17600	71200	58
FWP-350A	350	23700	95600	65
FWP-400A	400	31000	125000	78
FWP-450A	450	36400	137000	94
FWP-500A	500	45200	170000	107
FWP-600A	600	66700	250000	122
FWP-700A	700	54000	300000	125
FWP-800A	800	78000	450000	140
FWP-900A	900	91500	530000	150
FWP-1000A	1000	120000	600000	170
FWP-1200A	1200	195000	1100000	190

• Watts loss provided at rated current.
• See accessories on page 106.

Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Superior cycling capability

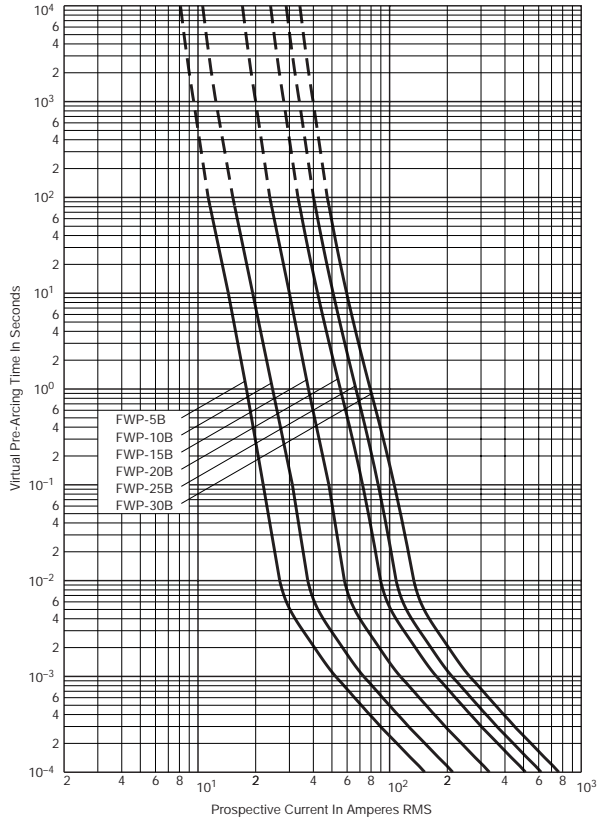
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

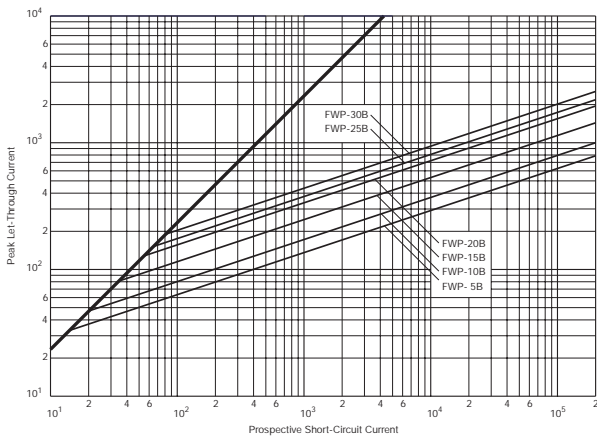
North American — FWP 700V: 5-1200A

FWP 5-30A(B): 700V

Time-Current Curve



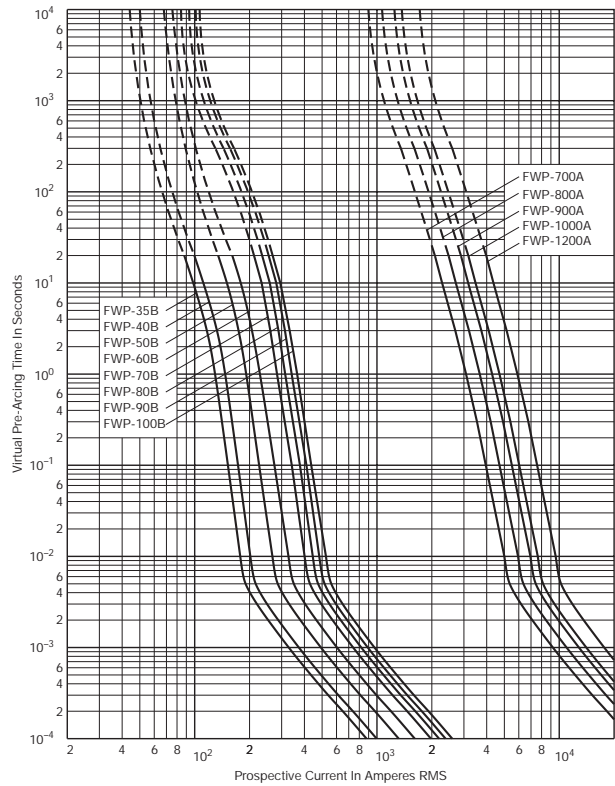
Peak Let-Through Curve



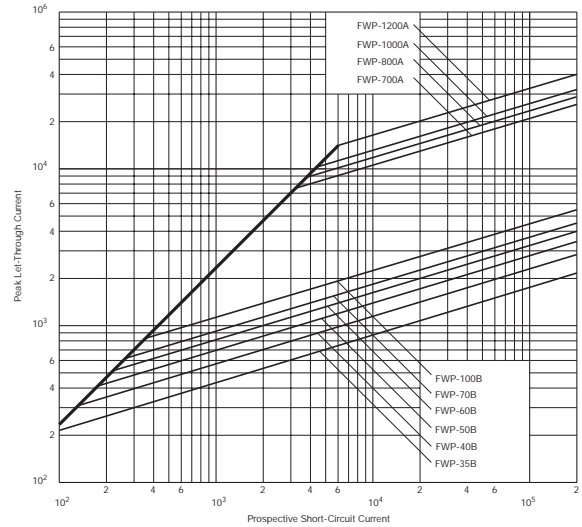
Data Sheet: 35785316

FWP 35-100A(B) & 700-1200A(A): 700V

Time-Current Curve



Peak Let-Through Curve

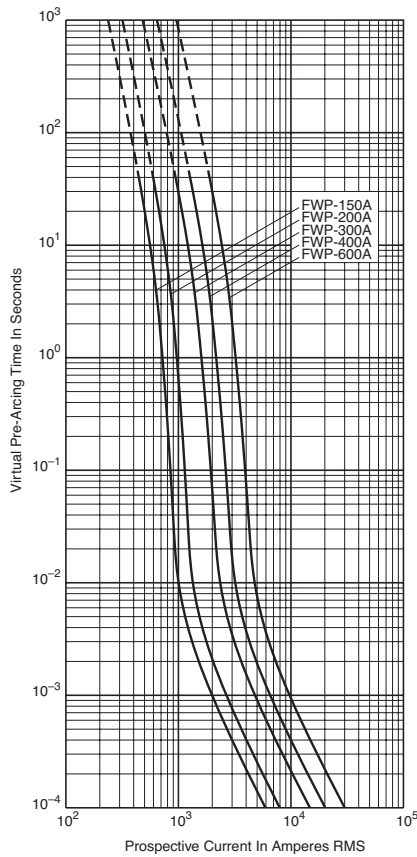


Data Sheet: 35785308

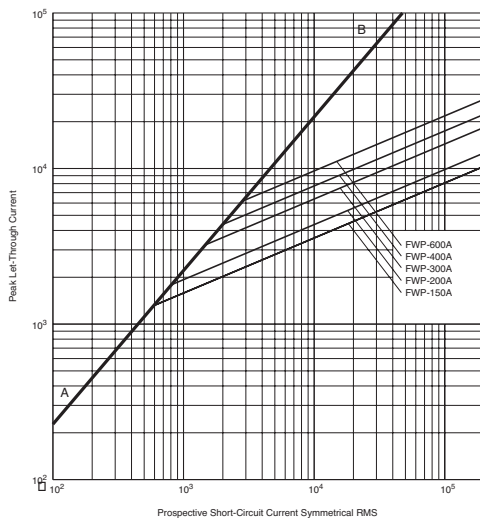
North American — FWP 700V: 5-1200A

FWP 125-600A: 700V

Time-Current Curve



Peak Let-Through Curve



Did You Know?

Cooper Bussmann Named First in Fuses by Readers of Plant Services Magazine

Cooper Bussmann has been named as the vendor offering the highest value in electrical fuses in a recent fill-in-the-blank survey of nearly 40,000 qualified readers of Plant Services Magazine. A full 70 percent of survey respondents said Cooper Bussmann was their number one choice. The nearest competitor weighed in at only 7 percent. The 63 percent spread was the widest of all 63 product categories, ranging from aerial work platforms to welding equipment. According to Plant Services editors, the products chosen are those “that deliver the combination of functionality, durability and low maintenance that add up to the lowest estimated life-cycle cost”—those offering the very best value in their product category.

High Speed Fuses

High Speed Fuses

North American — FWJ 1000V: 35-2000A

FWJ

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 1000Vac

Amps: — 35-200A

IR: — 25kA (35-200A)

— 100kA (250-2000A)

— 50kA @ 800Vdc (450-600A)

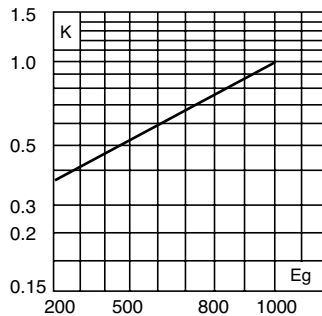
Agency Information: CE, UL Recognition on 35-600A only.



Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

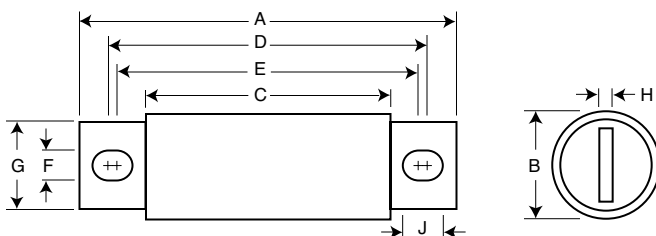


Dimensions (in)

Amp Range	Fig.	A	B	C	D	E	F	G	H	I
35-60	1	5.000	0.940	3.110	4.235	4.180	0.352	0.750	0.125	0.380
70-100	1	4.932	1.125	3.085	4.266	4.156	0.352	1.000	0.188	0.407
125-200	1	5.685	1.526	3.261	4.803	4.055	0.445	1.000	0.250	0.819
250-400	1	5.768	2.000	3.500	4.811	4.150	0.433	1.500	0.250	0.764
500-600	1	7.201	2.500	3.465	5.984	4.706	0.562	2.000	0.375	1.201
800-2000	1	6.811	3.500	3.312	5.472	4.962	0.625	2.750	0.500	0.880

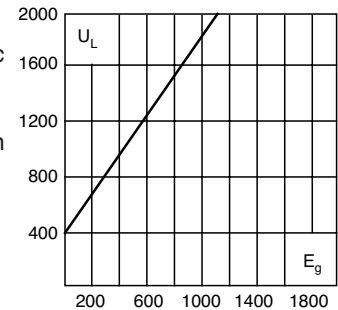
1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-2000A



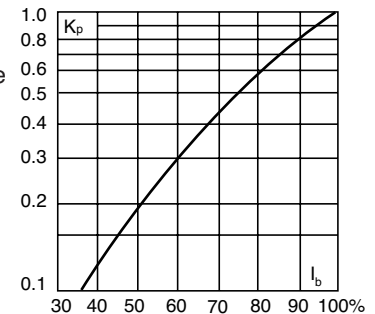
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Rated Current RMS-Amps	Electrical Characteristics		
		I ² t (A ² Sec)		Watts Loss
		Pre-arc	Clearing at 1000V	
FWJ-35A	35	210	2000	7
FWJ-40A	40	300	2500	8
FWJ-50A	50	470	3500	10
FWJ-60A	60	670	5000	11
FWJ-70A	70	1100	6900	12
FWJ-80A	80	1550	9700	13
FWJ-90A	90	1900	12000	14
FWJ-100A	100	2800	17500	15
FWJ-125A	125	4800	35000	16
FWJ-150A	150	6300	45000	25
FWJ-175A	175	7500	65000	30
FWJ-200A	200	11700	80000	32
FWJ-250A	250	16000	112000	50
FWJ-300A	300	23500	164000	56
FWJ-350A	350	33000	231000	62
FWJ-400A	400	47000	330000	67
FWJ-500A	500	39500	329000	95
FWJ-600A	600	61000	520000	105
FWJ-800A	800	87000	500000	182
FWJ-1000A	1000	190000	1100000	206
FWJ-1200A	1200	370000	2100000	240
FWJ-1400A	1400	470000	2700000	248
FWJ-1600A	1600	700000	4000000	267
FWJ-1800A	1800	925000	5300000	239
FWJ-2000A	2000	1330000	7600000	244

• Watts loss provided at rated current.
• See accessories on page 106.

Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

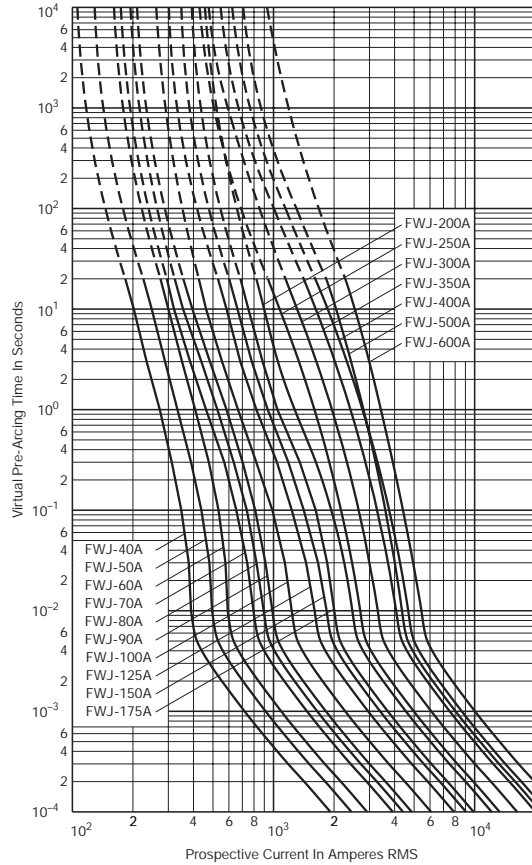
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

North American — FWJ 1000V: 35-2000A

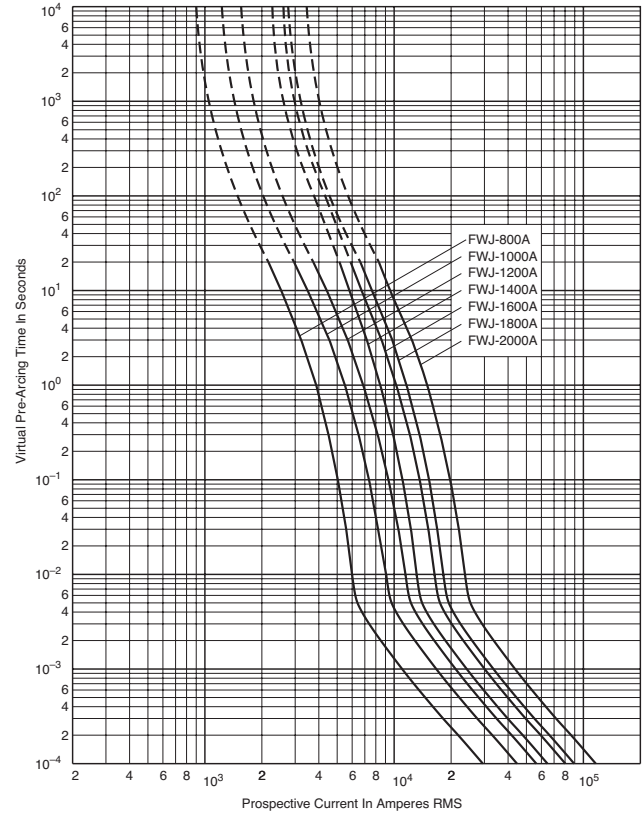
FWJ 35-600A: 1000V

Time-Current Curve



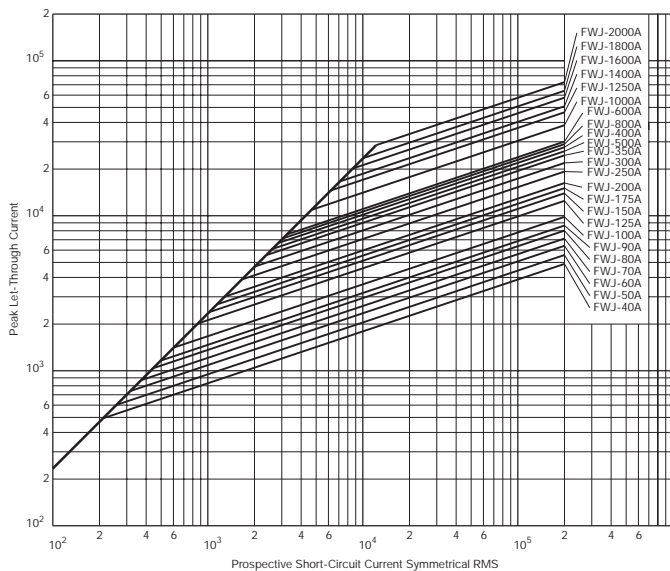
FWJ 800-2000A: 1000V

Time-Current Curve

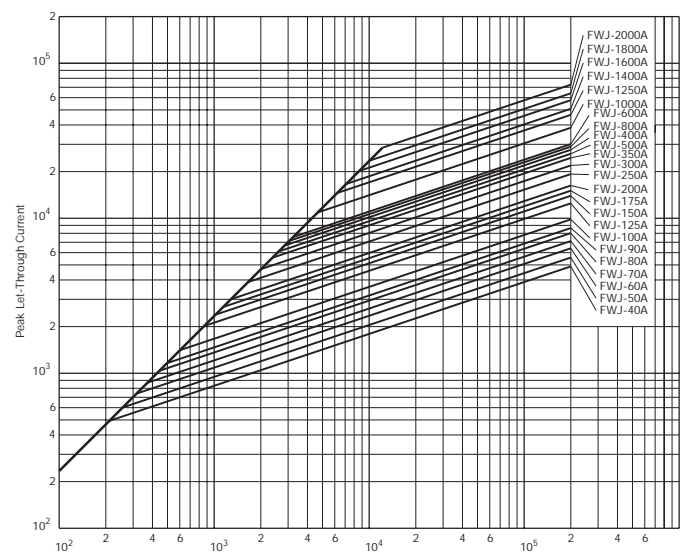


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 35785303

Data Sheet: 35785309

North American fuse accessories

Fuse Bases (Blocks)

Modular Style

Cooper Bussmann offers a comprehensive line of fuse bases that provide the user with design and manufacturing flexibility. Two identical half bases make up a Cooper Bussmann modular fuse base. These “split” units can be panel mounted any distance apart to accommodate any length fuse.

Stud Type

The simpler design is the C5268 series modular fuse base. With this design, the fuse terminal and cable (with termination) are mounted on the same stud, minimizing labor needed for installation. The stud type base is available in the configuration shown in the table below.

Catalog Number	Max Fuse Amp Rating	Stud Height (in)	Stud Dia. & Threads
C5268-1	200	1.00	5/16"-18
C5268-2	200	1.75	5/16"-18
C5268-3	200	0.75	5/16"-18
C5268-4	100	1.00	1/4"-20
C5268-5	100	1.75	1/4"-20

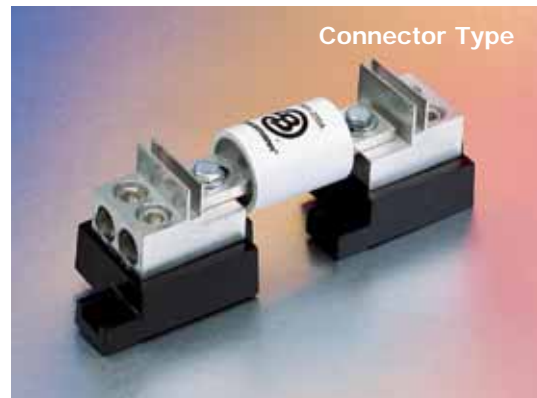
Connector Type

Cooper Bussmann also offers a modular style fuse base that utilizes a tin-plated connector (for wire termination and heat dissipation) and a plated-steel stud (for fuse mounting). The connector type fuse base is available in the configurations shown below. Consult Cooper Bussmann for additional product details.

Modular Base Style	Max Voltage	Max Fuse Amp Rating	Data Sheet Number
1BS101	600	100	1206
1BS102	600	400	1207
1BS103	600	400	1208
1BS104	600	600	1209
BH-0xxx	700	100	1200
BH-1xxx	2500	400	1201
BH-2xxx	5000	400	1202
BH-3xxx	1250	700	1203

Fixed Center Base Style

Cooper Bussmann offers a comprehensive line of fixed mount style fuse bases under the trademark TRON® rectifier fuse blocks. The cable and fuse connections are similar to the stud type fuse base — both are mounted on the same stud. Consult Cooper Bussmann for complete product details.



Square body fuses



High Speed Fuses

Introduction

Square Body Contents

Application Information		Page
Fuse Style	Volts	108-109
DIN 43 653	690/700	110-121
	1000	122-127
	1250/1300	128-135
DIN 43 620	690	136-144
	1000	145-146
Flush End Contact	690	147-154
	1000	155-158
	1250/1300	159-162
French Style	690/700	163-166
	1000	171-174
US Style	690/700	167-170
	1250/1300	175-178

Accessories

Indicator System	179
Fuse Bases	180

Square Body Fuse Ranges

Amps	Volts	AC	DC
10-7500	690	X	--
50-1400	1250	X	--

General Information

Designed and tested to:

- IEC 60269: Part 4
- UL Recognized

Cooper Bussmann offers a complete range of Square Body style fuses and accessories. Their unique design and construction provide:

- Minimal energy let-through (I²t)
- Low operating temperature
- Low watts loss

Square Body style fuses are a very attractive solution for high power applications which require a compact design with superior performance. The construction and design of Square Body style fuses make it easy for Cooper Bussmann to manufacture custom products. Our cataloged offering provides only a sample of the wide variety of product which is available.

Each Square Body style fuse is available with a number of different end fittings. Options include:

- DIN 43 653
- DIN 43 620
- Flush End (Metric/U.S.)
- French Style
- US Style

Voltage Rating

All Cooper Bussmann Square Body style fuses are tested to IEC 60269: Part 4. This standard requires a test voltage which is 5% higher than the rated voltage. In North America, fuses are required to clear only their rated voltage.

Accessories

Square Body style fuses are available with three different open fuse indicator systems. Options include visual indication and indication utilizing a microswitch. Fuse blocks are also available for most applications.

Square body applications

Maximum Permissible Load Current

The rated current value of Cooper Bussmann fuses is based on the ambient temperature in the space immediately below the fuse of 20°C. The following graph gives correction factors (k) for a range of temperatures (-40°C to +80°C). Maximum permissible continuous load currents can be calculated by applying the following formula:

$$I_b \leq I_n \approx k \approx (1 + 0.05 V) \times K_b$$

where

I_b = Maximum permissible continuous load current

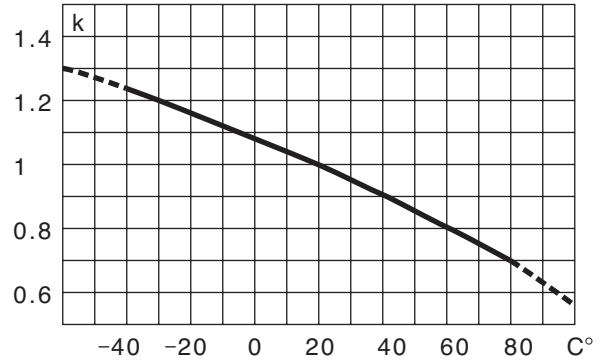
I_n = Rated current of fuse

k = Temperature correction factor

v = Velocity of cooling air in m/s (max. 5 m/s).

K_b = Fuse load constant 1.0

Temperature Correction Curve



The maximum permissible continuous load current I_b of a fuse can be checked empirically (i.e., by satisfying the formula below) by making simple voltage and temperature measurements under actual operating conditions after the fuse has been installed in its operating location and loaded at the calculated I_b value:

$$\frac{E_2}{E_1} \approx (0.92 + 0.004t) \leq N$$

where

E_1 = Voltage drop across fuse after 5 seconds

E_2 = Voltage drop across fuse after 2 hours

t = Air temperature at start of test (°C)

N = Constant

Fuse Rated Voltage (IEC) N	
690	1.5
1250	1.6

Body Cross Section

Standard fuse program includes barrels with different cross sections.

Size	000	00	1*	1	2	3	4
Maximum Cross-section (mm)	21 × 36	30 × 47	45 × 45	53 × 53	61 × 61	76 × 76	105 × 105

Square body applications

Example Application of Square Body High Speed Fuses Subject to Overload and Impulse Loading

Select a short-blade indicating fuse with indicator/adaptor to permit the use of a single-pole microswitch for remote indication and determine if the fuse selected will meet the following application parameters.

Application Parameters

Load Currents Expected

Load Type	Duration	Frequency of Occurrence	Amps
(1) Normal	Continuous	—	300A
(2) Overload	60 Seconds	Once Per Hour	500A
(3a) Overload	10 Seconds	2-3 Times Per Week	700A
(3b) Overload	20 Seconds (max.)	Once Per Month	700A
(4) Impulse	0.5 Seconds	Less Than Once Per Month	1100A

Voltage Data

(5) Voltage Applied to Fuse During Fault Conditions (+10%)	400V
--	------

Temperature Data

(6) Temperature Inside Cubicle in Which Fuse is Located (Natural Convection Cooling Only)	60°C
---	------

Thyristor Data

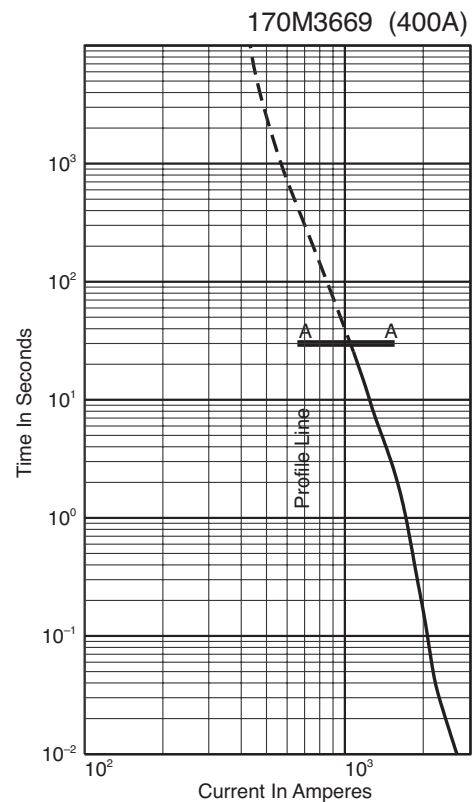
(7) Thyristor Peak Voltage Withstand	1000V
(8) Thyristor I^2t Withstand at 10 Milliseconds*	90,000A ² s

*Note: The I^2t withstand of the thyristor may be given for other impulse durations (i.e., 1.5 ms, 3.5 ms, or 8.3 ms); however, the stated fuse I^2t is valid for all impulse durations of 10 ms or less.

Application Procedure

Step	Procedure	Remarks
(1) Select a short-blade fuse to permit mounting of microswitch MSW710-1S or 170H0069	1.1 Taking into consideration only the continuous load current and ambient temperature, from Table on page 12 of our application guide tentatively select fuse 170M3519 page 52, 400A, 690V).	—
(2) Determine I^2t (total clearing) at 440V.	2.1 See Table, page 53. Note I^2t is 105,000A ² s at rated voltage of 690V. 2.2 From the figure on page 55, note that correction factor $K = 0.65$. 2.3 $I^2t_{660V} \times K = I^2t_{440V}$ $105,000 \times 0.65 = 68,250$	OK
(3) Determine maximum arc voltage at 440V	3.1 From the figure on page 53, note that maximum voltage at 440V is 900V	OK
(4) Determine maximum permissible continuous load current I_b	4.1 Per page 15 data, $I_b = I_n \times k \times (1 + 0.05V) \times K_D$ $I_b = 400A \times 0.8 \times (1 + 0) \times 1$ $I_b = 320A$	—
(5) Plot a "line profile" showing the expected load and overload currents. Determine that overload and impulse load currents do not exceed their maximum permissible values.	5.0 Calculate I_{max} per Table, page 16, for each overload and impulse load.	—
(Item 2)	5.1 $I_{max} < 60\% \times I_t$ $500A < 60\% \times 950A$ $500A < 570A$	OK
(Item 3a)	5.2 $I_{max} < 60\% \times I_t$ $700A < 60\% \times 1360A$ $700A < 780A$	OK
(Item 3b)	5.3 $I_{max} < 70\% \times I_t$ $700A < 70\% \times 1150A$ $700A < 805A$	OK
(Item 4)	5.4 $I_{max} < 70\% \times I_t$ $1100A < 70\% \times 1800A$ $1100A < 1260A$	OK

The tentatively selected fuse 170M3519 with microswitch 170H0069 meets all application parameters; no further selection would be necessary.



Calculation of Watt Loss

From the Table on page 53, watt loss at 400 amperes is 60 watts. The continuous load current of 300A is 75% of rated current (400A). From page 53, the correction factor $K_p = 0.5$.

$$\begin{aligned} \text{Watt Loss } 75\% &= \text{Watt Loss } 100\% \times K_p \\ &= 60W \times 0.5 \\ &= 30 \text{ watts} \end{aligned}$$

Special Fuses

Other high speed fuses are available from Cooper Bussmann with voltage ratings of 380 to 10,000V and current ratings up to 10,000A in a single unit configuration. Fuses can be supplied with open fuse, "pin" indicators. Various types of microswitches are also available (see page 179).

Square body DIN 43 653 — 690V/700V (IEC/UL): 10-400A

690V/700V (IEC/UL) 10-400A

Specifications

Description: Square body DIN 43-653 stud mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 10-400A

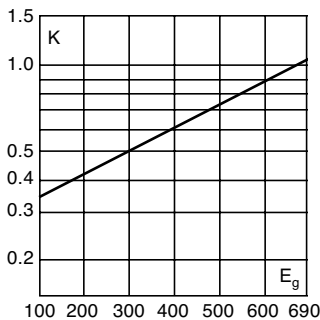
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. UL Recognition/CSA Component Acceptance on Size 000.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dimensions (mm)

Type -U/80, -/80, -TN/80

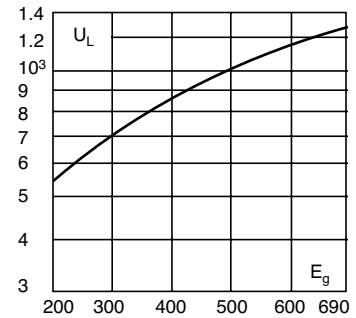
Size	D	E	F	G	H	K
000	40	21	20	51	8	2
00	51	30	28	67	10	2

1mm = 0.0394" / 1" = 25.4mm



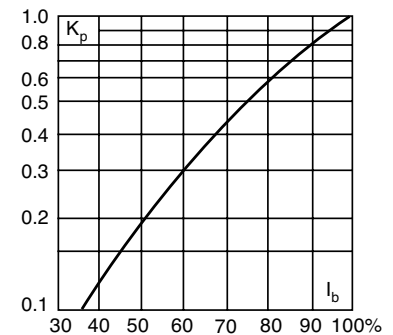
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

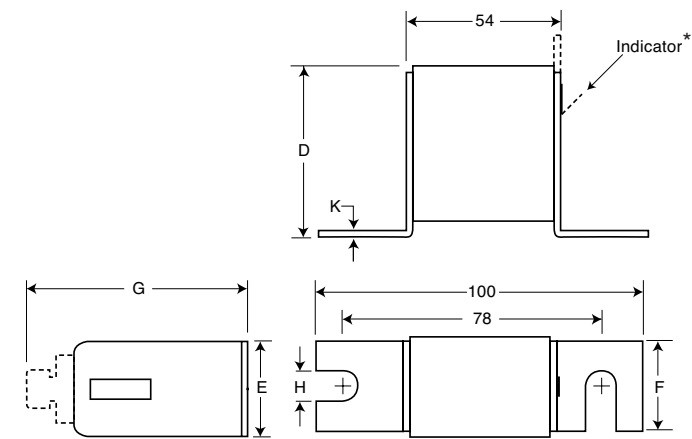


Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters



* Indication for Size 00 fuses is a red pin.

High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 10-400A

Catalog Numbers

Catalog Numbers			Size	Electrical Characteristics				
-U/80 Without Indicator	-/80 Visual Indicator	-TN/80 Type T Indicator for Micro		Rated Current RMS-Amps	I2t (A2 Sec)		Watts Loss	
					Pre-arc	Clearing at 660V		
170M1308	170M1358	170M1408	000	10	3.8	25.5	3.0	
170M1309	170M1359	170M1409		16	7.2	48	5.5	
170M1310	170M1360	170M1410		20	11.5	78	7	
170M1311	170M1361	170M1411		25	19	130	9	
170M1312	170M1362	170M1412		32	40	270	10	
170M1313	170M1363	170M1413		40	69	460	12	
170M1314	170M1364	170M1414		50	115	770	15	
170M1315	170M1365	170M1415		63	215	1450	16	
170M1316	170M1366	170M1416		80	380	2550	19	
170M1317	170M1367	170M1417		100	695	4650	24	
170M1318	170M1368	170M1418		125	1200	8500	28	
170M1319	170M1369	170M1419		160	2300	16000	32	
170M1320	170M1370	170M1420		200	4200	28000	37	
170M1321	170M1371	170M1421		250	7750	51500	42	
170M1322	170M1372	170M1422		315	12000	80500	52	
	170M2608	170M2658		00	25	19	130	6
	170M2609	170M2659			32	28.5	195	7
	170M2610	170M2660	40		50	360	9	
	170M2611	170M2661	50		95	640	10	
	170M2612	170M2662	63		170	1200	12	
	170M2613	170M2663	80		310	2100	15	
	170M2614	170M2664	100		620	4150	20	
	170M2615	170M2665	125		1000	6950	25	
	170M2616	170M2666	160		1900	13000	30	
	170M2617	170M2667	200		3400	23000	35	
	170M2618	170M2668	250		6250	42000	45	
	170M2619	170M2669	315		10000	68500	55	
	170M2620	170M2670	350		13500	91500	60	
	170M2621	170M2671	400		18000	125000	70	

• Watts loss provided at rated current.
 • Microswitch indicator ordered separately.
 • See accessories on pages 179-180.

High Speed Fuses



Did You Know?

**Cooper Bussmann Gubany Center
Now Has DC Testing Capability**

Cooper Bussmann Paul P. Gubany Center (high-power testing) and Product Development Center (low-power testing) in St. Louis offers DC power short-circuit testing up to 100,000A over a voltage range of 100 to 1000. Applications include telecommunications products, (UPS) uninterruptible power supplies and any DC photovoltaic uses.

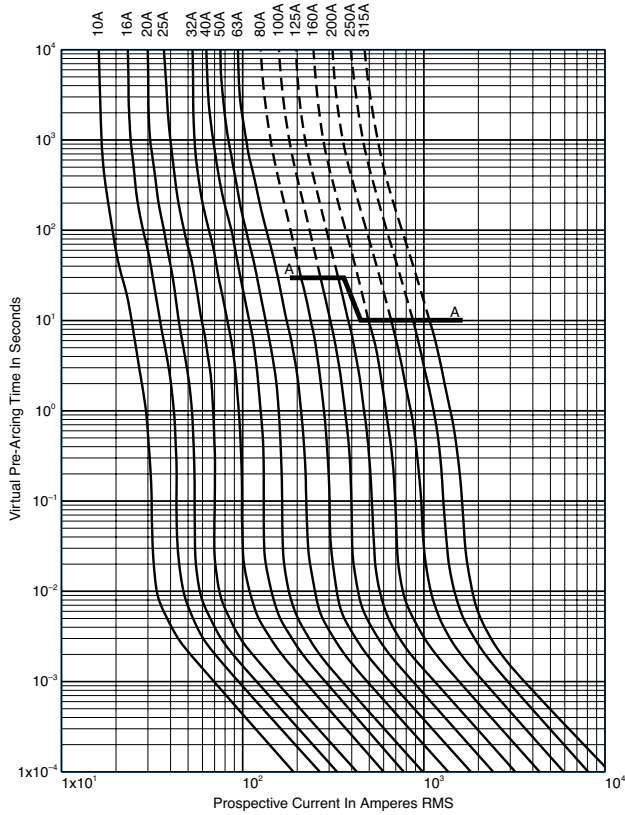
The Gubany Center also offers AC testing for UL, CSA, ASTA and ANCE standards. It has equipment capable of generating 300,000A of current at 600V AC three-phase, under carefully controlled conditions. It offers a wider range of current voltage and frequency configurations than any other facility of its kind in the world, and is built to exceed the short circuit capacity of today's high power electrical distribution systems.

High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 10-400A

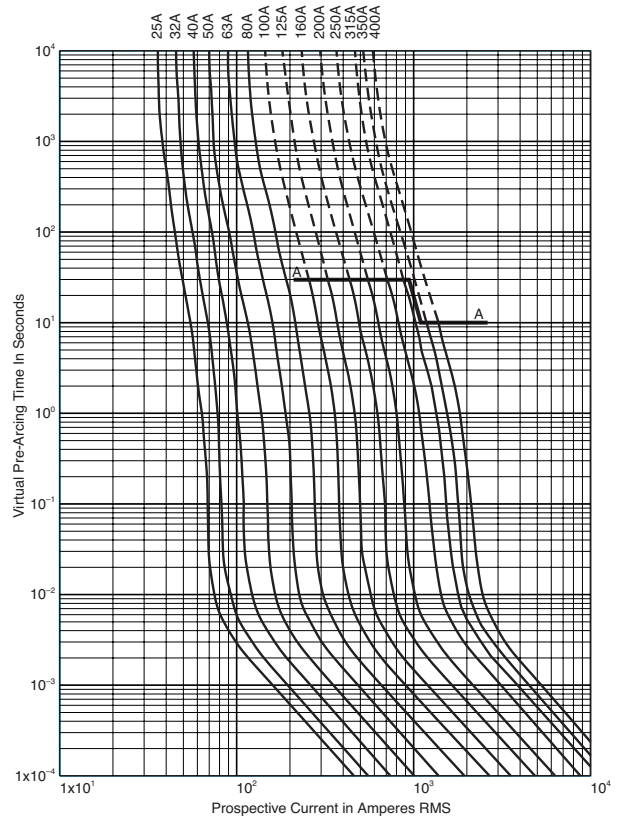
Size 000 — 10-315A: 690V

Time-Current Curve

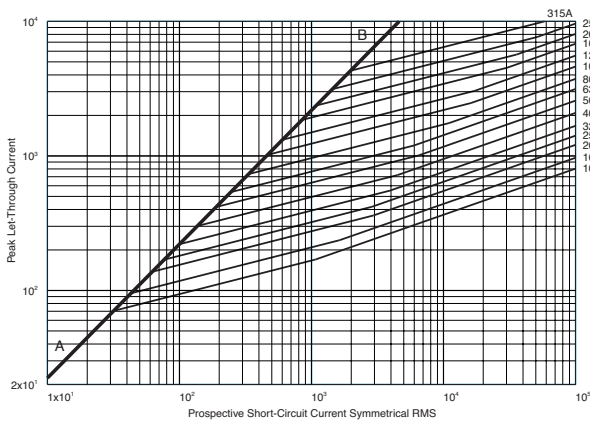


Size 00 — 25-400A: 690V

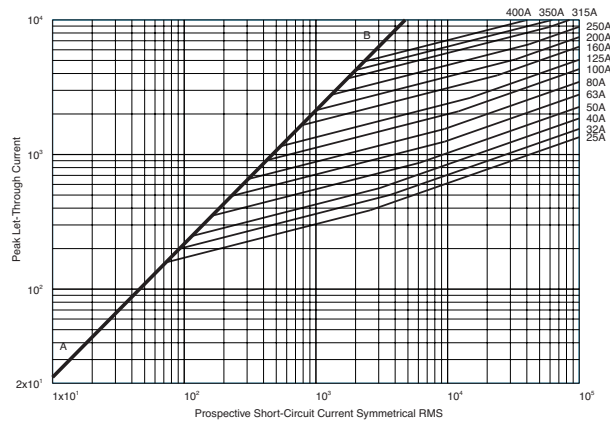
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

690V/700V (IEC/UL) 40-2000A

Specifications

Description: Square body DIN 43 653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-2000A

IR: — 200kA RMS Sym.

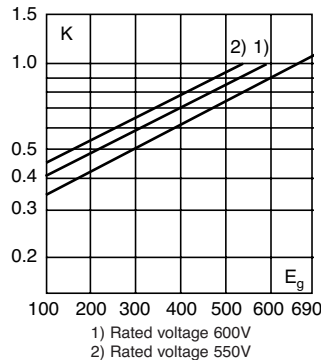
Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition/CSA Component Acceptance status.



Electrical Characteristics

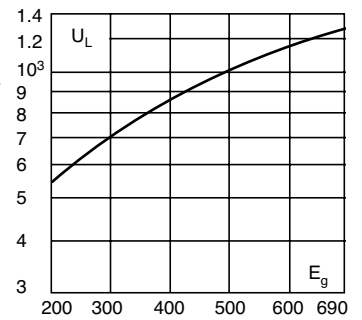
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



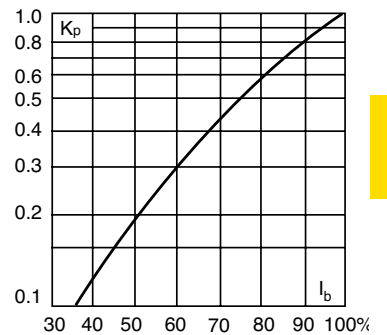
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

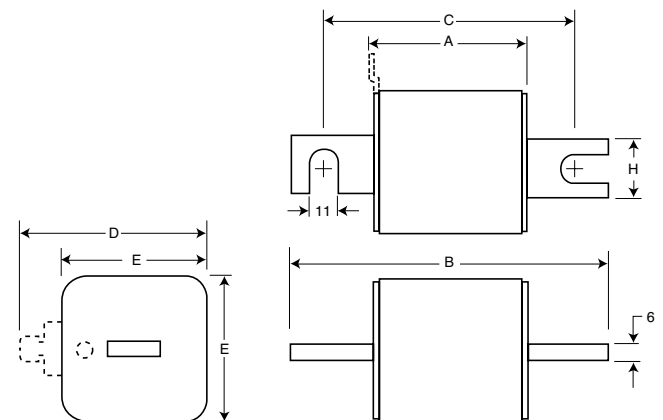
Type -/80, -TN/80, -/110, -TN/110.

Size	A	B	B**	C	C**	D***	E	H
1*	50	104	134	78	108	58	45	22
1	50	108	138	78	108	66	53	25
2	50	108	138	78	108	75	61	25
3	51	109	139	78	108	90	76	30

**Valid for fuses type -/110, -TN/110.

***Microswitch.

1mm = 0.0394" / 1" = 25.4mm



Did You Know?



Cooper Bussmann fuses are used in all kinds of oil-well drilling equipment around the world.

High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

Catalog Numbers

Catalog Numbers				Size	Electrical Characteristics				
-/80 Visual Watts Indicator	-TN/80 Type T Indicator for Micro	-/110 Visual Indicator	-TN/110 Type T Indicator for Micro		Rated RMS-Amps	I ² t (A ² Sec)		Clearing Loss	
						Current Pre-arc	at 660V		
170M3008	170M3058	170M3158	170M3208	1*	40	40	270	9	
170M3009	170M3059	170M3159	170M3209		50	77	515	11	
170M3010	170M3060	170M3160	170M3210		63	115	770	14	
170M3011	170M3061	170M3161	170M3211		80	185	1250	18	
170M3012	170M3062	170M3162	170M3212		100	360	2450	21	
170M3013	170M3063	170M3163	170M3213		125	550	3700	26	
170M3014	170M3064	170M3164	170M3214		160	1100	7500	30	
170M3015	170M3065	170M3165	170M3215		200	2200	15000	35	
170M3016	170M3066	170M3166	170M3216		250	4200	28500	40	
170M3017	170M3067	170M3167	170M3217		315	7000	46500	50	
170M3018	170M3068	170M3168	170M3218		350	10000	68500	55	
170M3019	170M3069	170M3169	170M3219		400	15000	105000	60	
170M3020	170M3070	170M3170	170M3220		450	21000	140000	65	
170M3021	170M3071	170M3171	170M3221		500	27000	180000	70	
170M3022	170M3072	170M3172	170M3222		550	34000	230000	75	
170M3023	170M3073	170M3173	170M3223		630	48500	325000	80	
170M4008	170M4058	170M4158	170M4208		1	200	1650	11500	45
170M4009	170M4059	170M4159	170M4209			250	3100	21000	55
170M4010	170M4060	170M4160	170M4210			315	6200	42000	58
170M4011	170M4061	170M4161	170M4211	350		8500	59000	60	
170M4012	170M4062	170M4162	170M4212	400		13500	91500	65	
170M4013	170M4063	170M4163	170M4213	450		17000	120000	70	
170M4014	170M4064	170M4164	170M4214	500		25000	170000	72	
170M4015	170M4065	170M4165	170M4215	550		34000	230000	75	
170M4016	170M4066	170M4166	170M4216	630		52000	350000	80	
170M4017	170M4067	170M4167	170M4217	700		69500	465000	85	
170M4018	170M4068	170M4168	170M4218	800		105000	725000	95	
170M4019	170M4069	170M4169	170M4219	±900	155000	±850000	100		
170M5008	170M5058	170M5158	170M5208	2	400	11000	74000	65	
170M5009	170M5059	170M5159	170M5209		450	15500	105000	70	
170M5010	170M5060	170M5160	170M5210		500	21500	145000	75	
170M5011	170M5061	170M5161	170M5211		550	28000	190000	80	
170M5012	170M5062	170M5162	170M5212		630	41000	275000	90	
170M5013	170M5063	170M5163	170M5213		700	60500	405000	95	
170M5014	170M5064	170M5164	170M5214		800	86000	575000	105	
170M5015	170M5065	170M5165	170M5215		900	125000	840000	110	
170M5016	170M5066	170M5166	170M5216		1000	180000	1250000	115	
170M5017	170M5067	170M5167	170M5217		1100	245000	1600000	120	
170M5018	170M5068	170M5168	170M5218	1250	365000	2400000	130		
170M6008	170M6058	170M6158	170M6208	3	500	14000	95000	95	
170M6009	170M6059	170M6159	170M6209		550	19500	135000	100	
170M6010	170M6060	170M6160	170M6210		630	31000	210000	105	
170M6011	170M6061	170M6161	170M6211		700	44500	300000	110	
170M6012	170M6062	170M6162	170M6212		800	69500	465000	115	
170M6013	170M6063	170M6163	170M6213		900	100000	670000	120	
170M6014	170M6064	170M6164	170M6214		1000	140000	945000	125	
170M6015	170M6065	170M6165	170M6215		1100	190000	1300000	130	
170M6016	170M6066	170M6166	170M6216		1250	290000	1950000	140	
170M6017	170M6067	170M6167	170M6217		1400	370000	2450000	155	
170M6018	170M6068	170M6168	170M6218		1500	460000	3100000	160	
170M6019	170M6069	170M6169	170M6219		1600	580000	3900000	160	
170M6020	170M6070	170M6170	170M6220		†1800	880000	†5250000	165	
170M6021	170M6071	170M6171	170M6221		‡2000	1150000	‡6350000	175	

†Rated voltage (IEC) 600V.

‡Rated voltage (IEC) 550V.

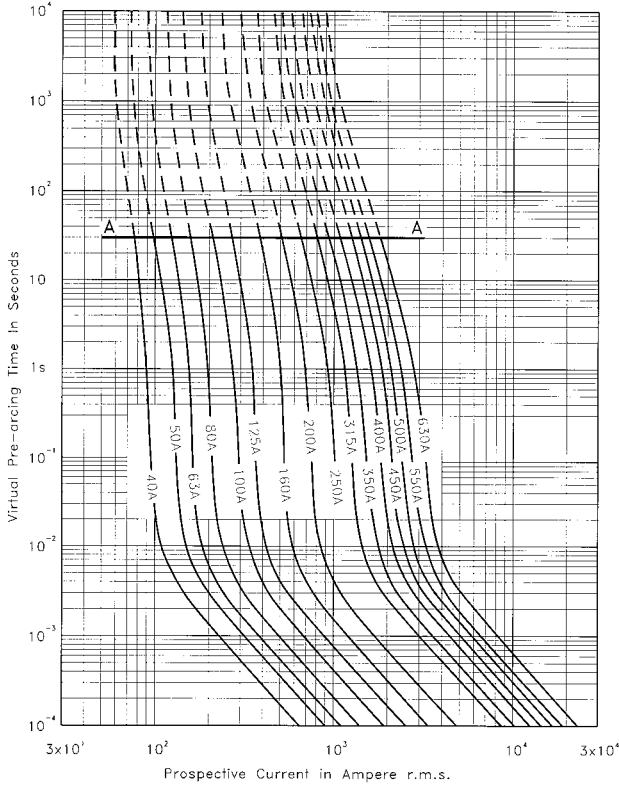
•Watts loss provided at rated current.

•Microswitch indicator ordered separately. See accessories on pages 179-180.

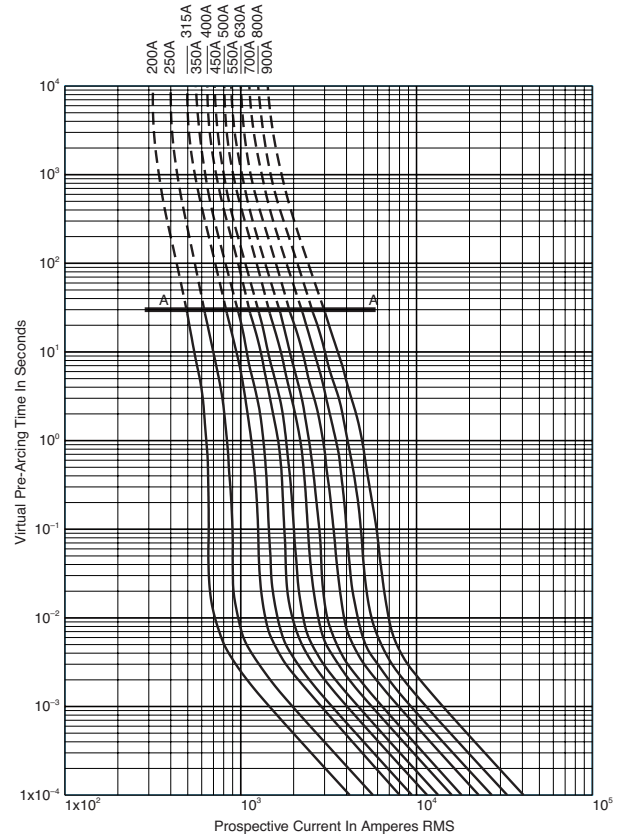
High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

Size 1* — 40-630A: 690V
Time-Current Curve

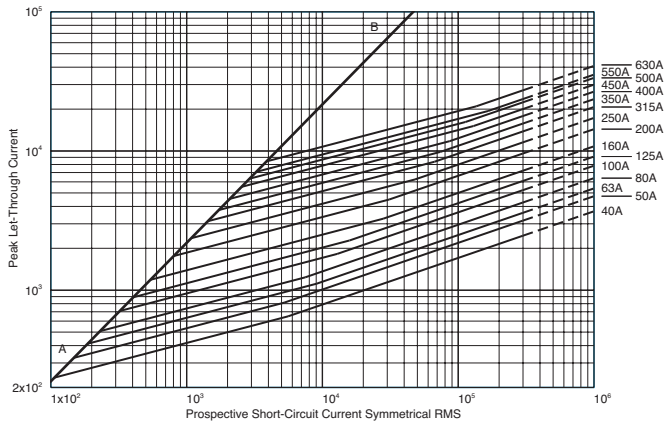


Size 1 — 200-900A: 690V
Time-Current Curve

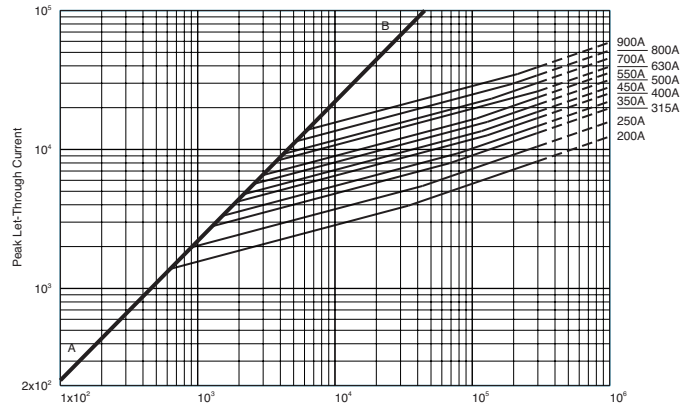


High Speed
Fuses

Peak Let-Through Curve



Peak Let-Through Curve



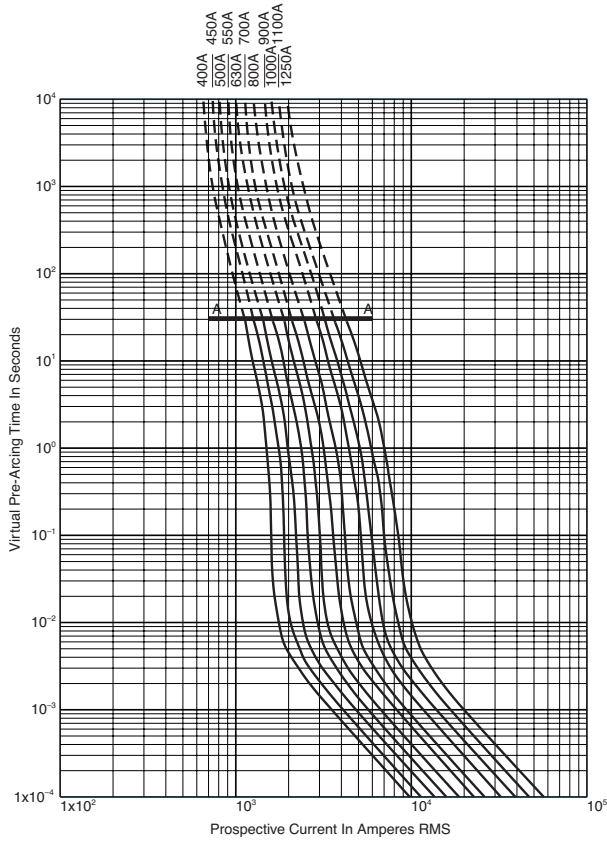
900 amp fuse is derated to 550V (IEC).

High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

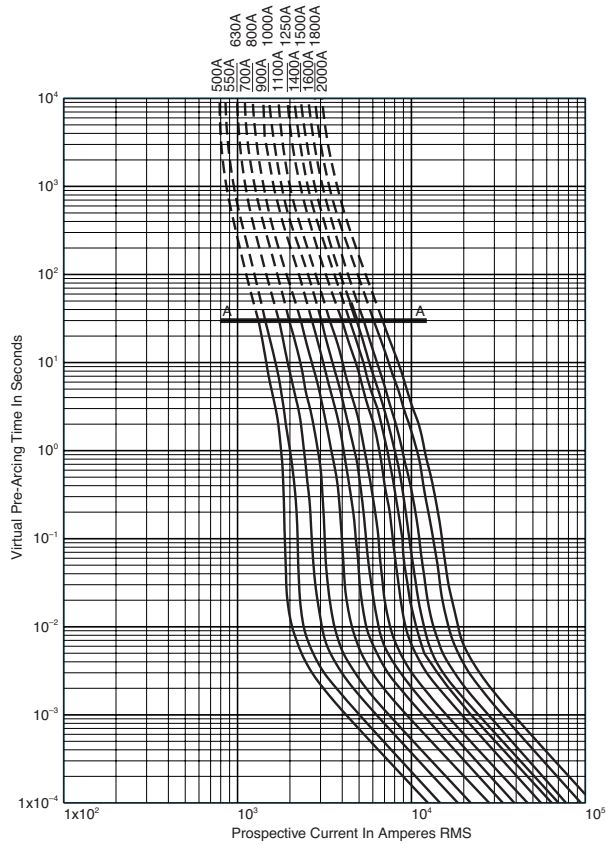
Size 2 — 400-1250A: 690V

Time-Current Curve

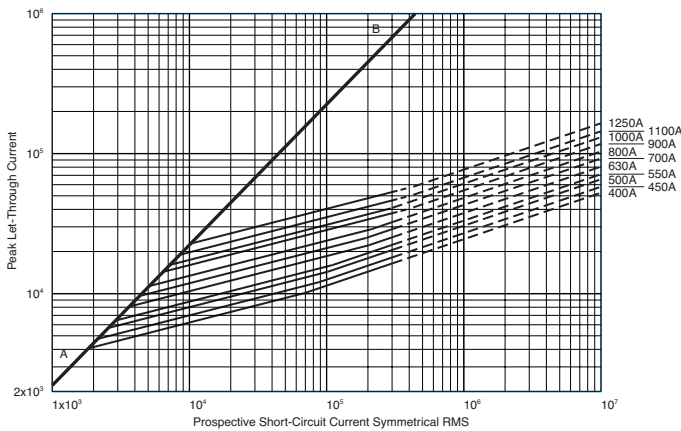


Size 3 — 500-2000A: 690V

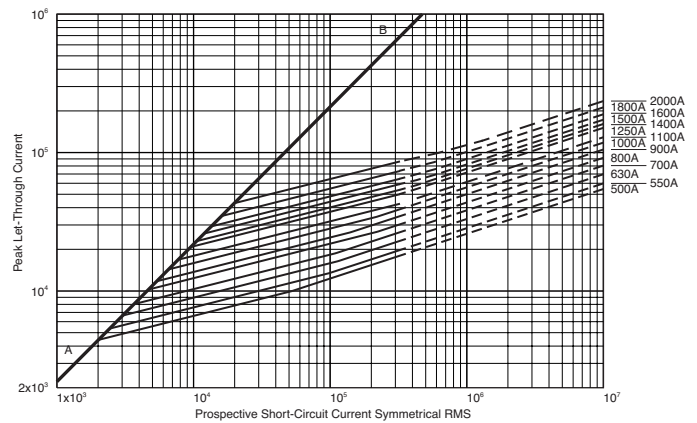
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve

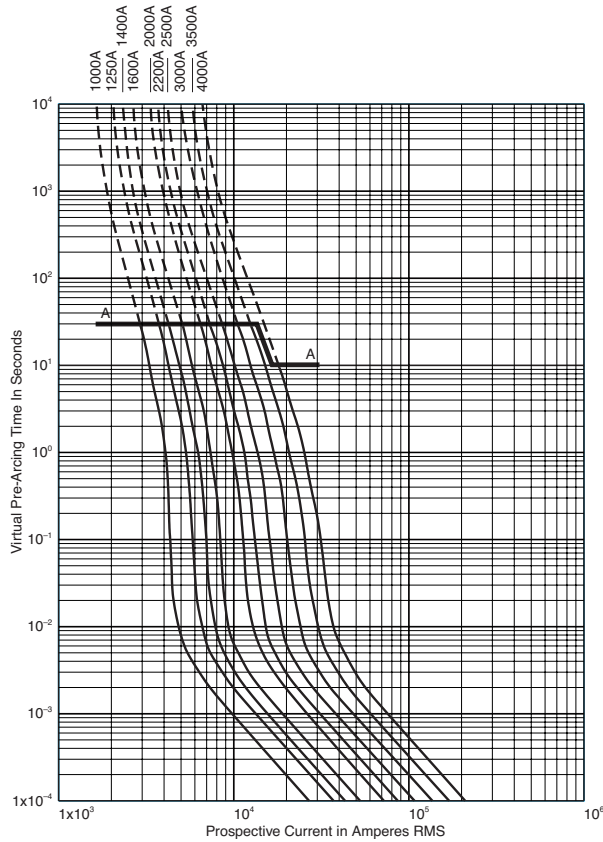


1800A fuse is derated to 600V (IEC).
2000A fuse is derated to 550V (IEC).

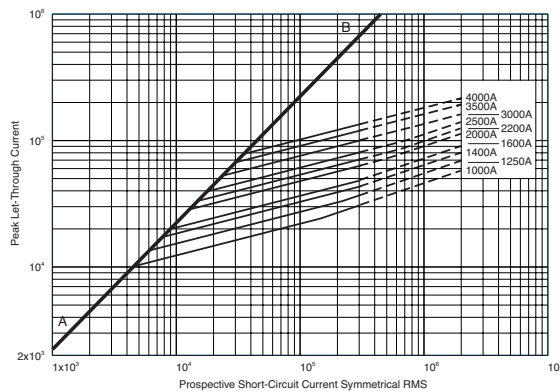
High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

Size 4 — 1000-4000A: 690V
Time-Current Curve



Peak Let-Through Curve



4000A fuse is derated to 500V (IEC).

Data Sheet: 17056328

Did You Know?

Cooper Bussmann Customer Satisfaction Minimizes Downtime Caused by the 2003 North American Northeast Coast Blackout

An enormous power failure blacked out population centers from New York City to Toronto on Thursday, August 14, 2003. As power slowly came back on, surges and spikes began to “blow” existing fuses. Airports reopened Friday.

The Cooper Bussmann Customer Satisfaction team handled 11 emergency phone calls that weekend, including:

- A Michigan-based utility required a large fuse order to protect its control switches before it could reactivate electrical power to thousands of customers. Ordered Friday, 8:27 p.m. Order delivered Saturday, 12:30 p.m.
- An Indiana steel mill required specialized fuses. A Cooper Bussmann engineer was called to assist. Ordered Sunday, 1:46 p.m. Order delivered same day, 11:00 p.m.
- A pharmaceutical plant in New Jersey needed to get its line back up. Ordered Saturday 10:36 a.m. Order delivered Sunday, 4:00 a.m.
- An Ontario utility required more than 100 Cooper Bussmann FUSETRON® FRNR-200 fuses. Ordered Saturday, 11:01 a.m.. Order delivered Sunday, 9:00 a.m. including customs processing.

High Speed Fuses

High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

690V/700V (IEC/UL) 40-2000A

Specifications

Description: Square body DIN 43-653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-2000A

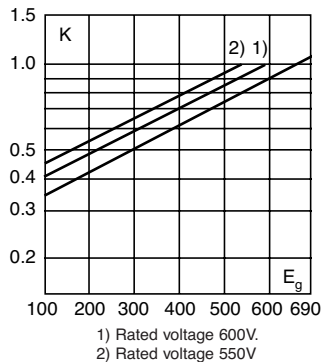
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition/CSA Component Acceptance status.

Electrical Characteristics

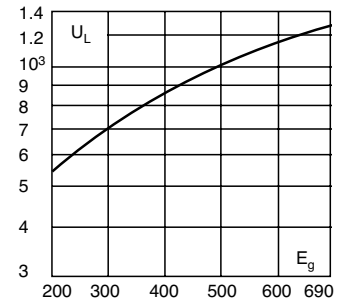
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



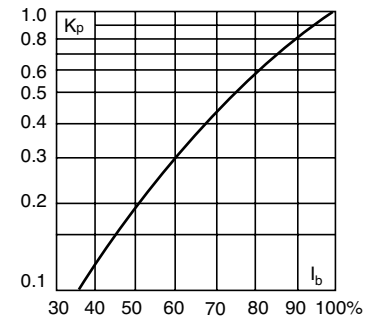
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

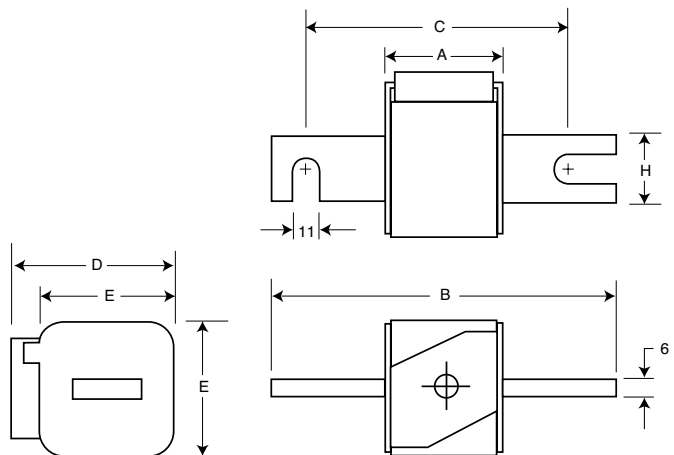
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type -KN/80, -KN/110

Size	A	B	B**	C	C**	D	E	H
1*	50	104	134	78	108	59	45	22
1	50	108	138	78	108	69	53	25
2	50	108	138	78	108	77	61	25
3	51	109	139	78	108	92	76	30

**Valid for fuse type -KN/110.
1mm = 0.0394" / 1" = 25.4mm



High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

High Speed
Fuses

Catalog Numbers		Size	Electrical Characteristics			
-KN/80 Type K Indicator for Micro	-KN/110 Type K Indicator for Micro		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
				Pre-arc	Clearing at 660V	
170M3108	170M3258	1*	40	40	270	9
170M3109	170M3259		50	77	515	11
170M3110	170M3260		63	115	770	14
170M3111	170M3261		80	185	1250	18
170M3112	170M3262		100	360	2450	21
170M3113	170M3263		125	550	3700	26
170M3114	170M3264		160	1100	7500	30
170M3115	170M3265		200	2200	15000	35
170M3116	170M3266		250	4200	28500	40
170M3117	170M3267		315	7000	46500	50
170M3118	170M3268		350	10000	68500	55
170M3119	170M3269		400	15000	105000	60
170M3120	170M3270		450	21000	140000	65
170M3121	170M3271	500	27000	180000	70	
170M3122	170M3272	550	34000	230000	75	
170M3123	170M3273	630	48500	325000	80	
170M4108	170M4258	1	200	1650	11500	45
170M4109	170M4259		250	3100	21000	55
170M4110	170M4260		315	6200	42000	58
170M4111	170M4261		350	8500	59000	60
170M4112	170M4262		400	13500	91500	65
170M4113	170M4263		450	17000	120000	70
170M4114	170M4264		500	25000	170000	72
170M4115	170M4265		550	34000	230000	75
170M4116	170M4266		630	52000	350000	80
170M4117	170M4267		700	69500	465000	85
170M4118	170M4268		800	105000	725000	95
170M4119	170M4269	±900	155000	±850000	100	
170M5108	170M5258	2	400	11000	74000	65
170M5109	170M5259		450	15500	105000	70
170M5110	170M5260		500	21500	145000	75
170M5111	170M5261		550	28000	190000	80
170M5112	170M5262		630	41000	275000	90
170M5113	170M5263		700	60500	405000	95
170M5114	170M5264		800	86000	575000	105
170M5115	170M5265		900	125000	840000	110
170M5116	170M5266		1000	180000	1250000	115
170M5117	170M5267		1100	245000	1600000	120
170M5118	170M5268	1250	365000	2400000	130	
170M6108	170M6258	3	500	14000	95000	95
170M6109	170M6259		550	19500	135000	100
170M6110	170M6260		630	31000	210000	105
170M6111	170M6261		700	44500	300000	110
170M6112	170M6262		800	69500	465000	115
170M6113	170M6263		900	100000	670000	120
170M6114	170M6264		1000	140000	945000	125
170M6115	170M6265		1100	190000	1300000	130
170M6116	170M6266		1250	290000	1950000	140
170M6117	170M6267		1400	370000	2450000	155
170M6118	170M6268		1500	460000	3100000	160
170M6119	170M6269		1600	580000	3900000	160
170M6120	170M6270		†1800	880000	†5250000	165
170M6121	170M6271		‡2000	1150000	‡6350000	175

†Rated voltage (IEC) 600V.

‡Rated voltage (IEC) 550V.

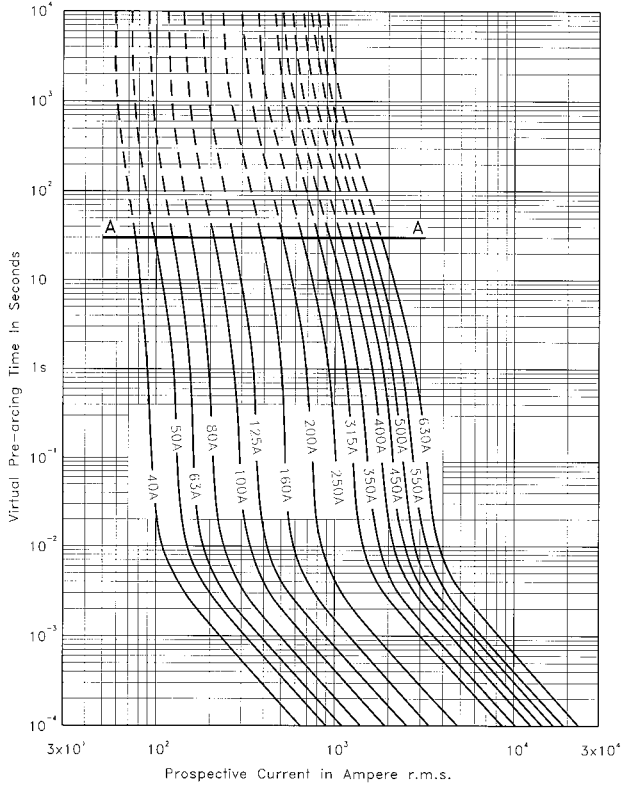
• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 179-180.

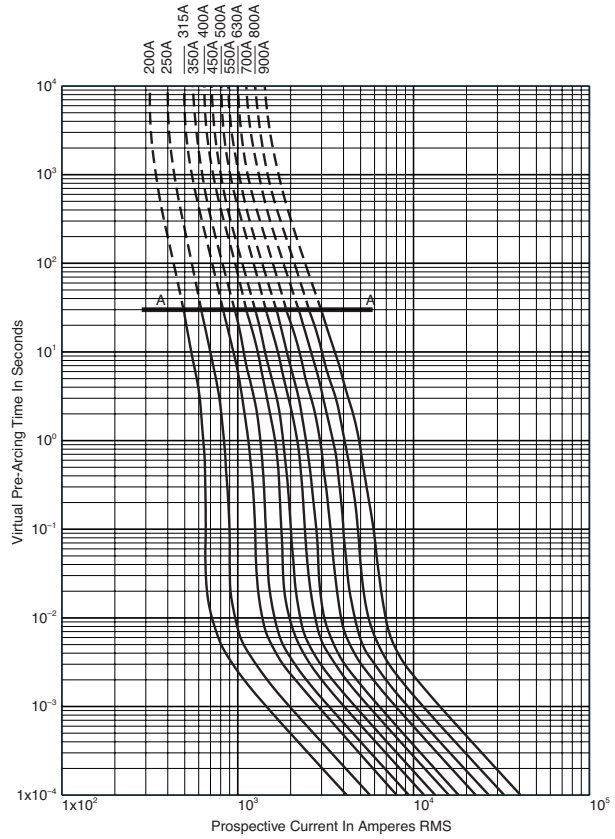
High Speed Fuses

**Square body DIN 43 653 — 690V/700V (IEC/UL):
40-2000A**

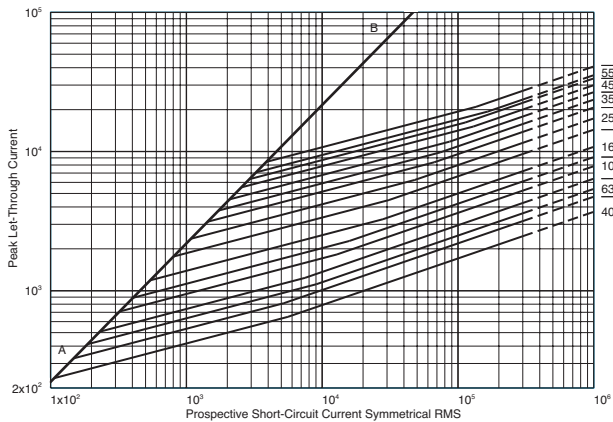
Size 1* — 40-630A: 690V
Time-Current Curve



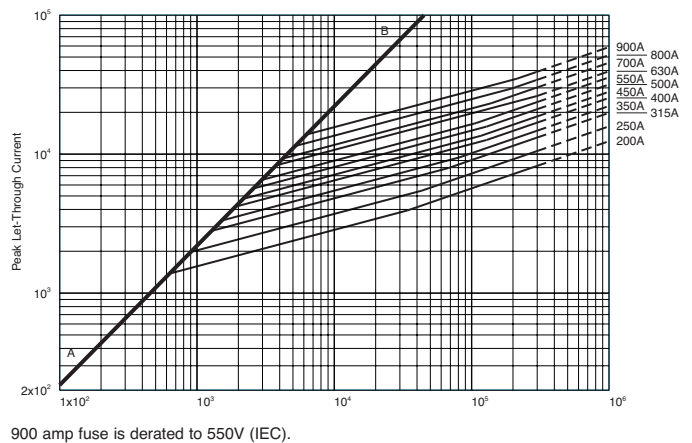
Size 1 — 200-900A: 690V
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve

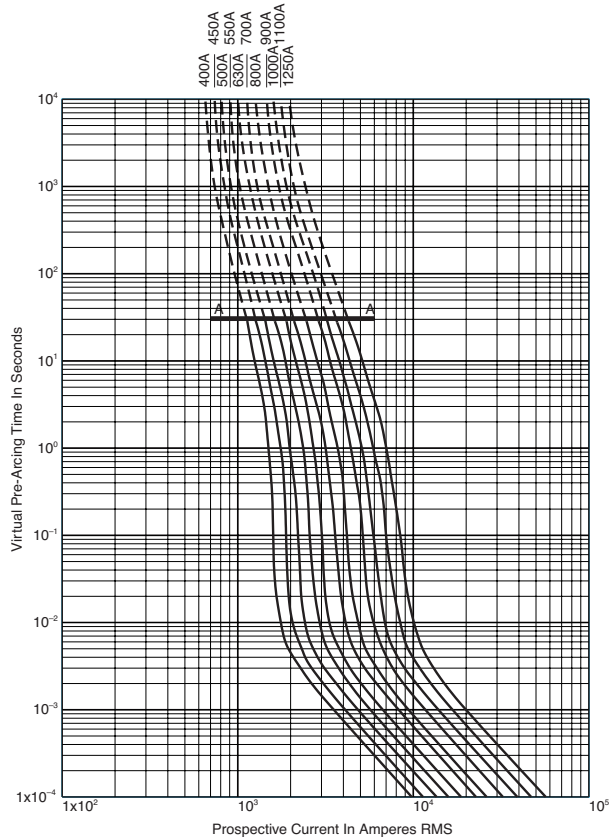


High Speed Fuses

Square body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

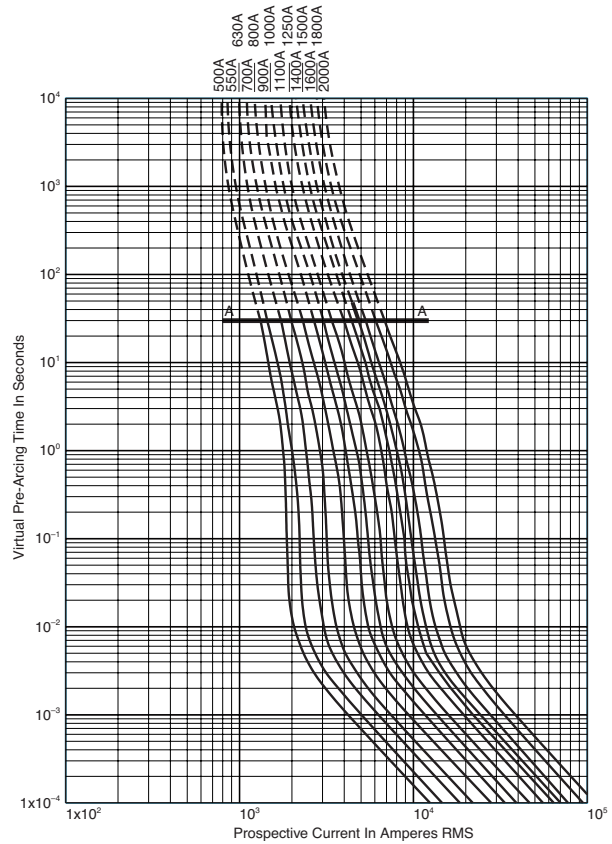
Size 2 — 400-1250A: 690V

Time-Current Curve



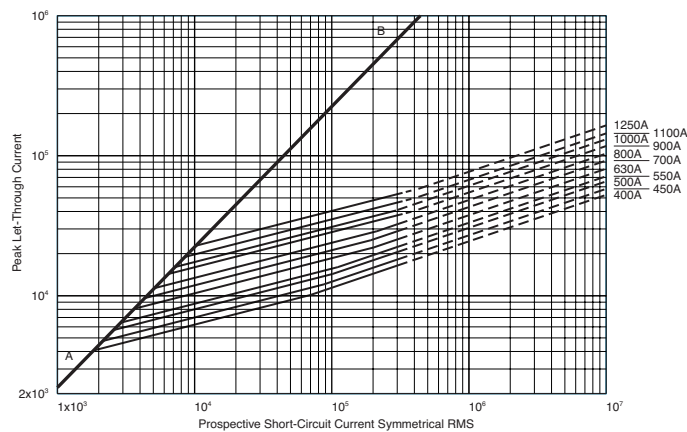
Size 3 — 500-2000A: 690V

Time-Current Curve

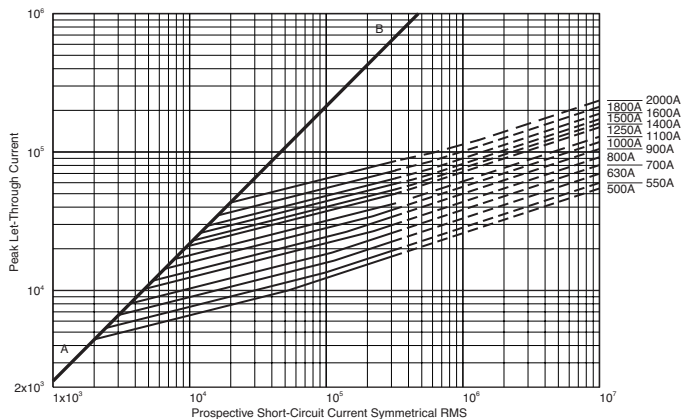


High Speed
Fuses

Peak Let-Through Curve



Peak Let-Through Curve



1800A fuse is derated to 600V (IEC).
2000A fuse is derated to 550V (IEC).

Data Sheet: 17056318

Data Sheet: 17056320

Square body DIN 43 653 — 1000V (IEC): 20-315A

1000V (IEC) 20-315A

Specifications

Description: Square body DIN 43 653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts — 1000Vac (20-250A)
— 900Vac (315A)

Amps — 20-315A

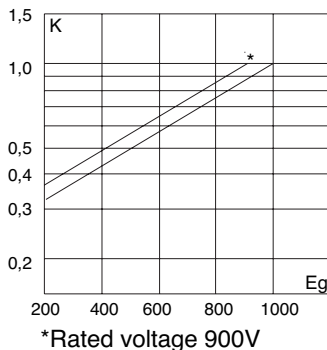
IR — 150kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

Total clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dimensions (mm)

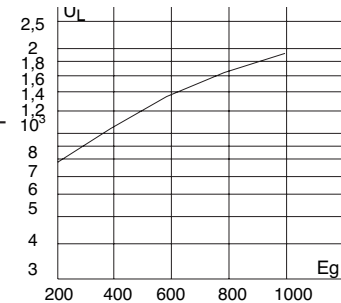
Type 00TN/80 – 00/80

Size	Max A	B	C	D	Max E	F	G	H
00/80	54	98	78	51	30	28	67	10
00TN/80	54	98	78	51	30	28	67	10

1mm = 0.0394" / 1" = 25.4mm

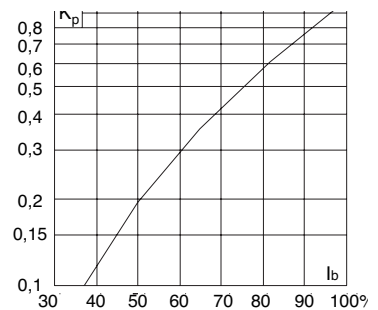
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

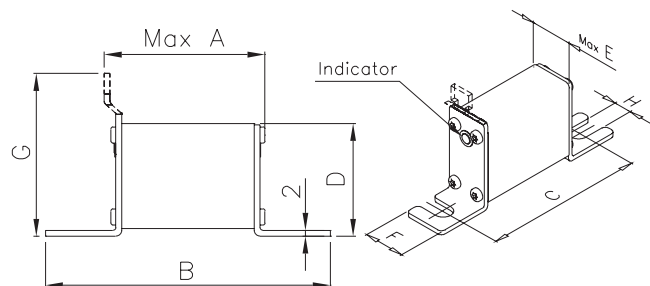


Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters



Square body DIN 43 653 — 1000V (IEC): 20-315A

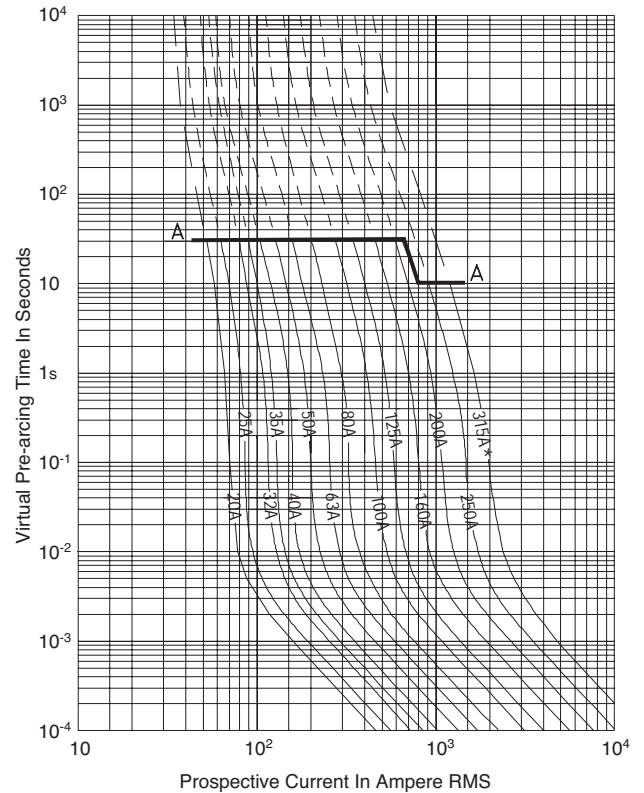
Catalog Numbers

Catalog Numbers		Size	Electrical Characteristics				
00/80 Visual Indicator for Micro	00TN/80 Type T Indicator for Micro		Rated Voltage	Rated Current RMS Amps	I ² t (A ² Sec)		Watts Loss
					Pre-arc	Clearing at Rated Voltage	
170M4802	170M4822	00	1000	20	20	140	5
170M4803	170M4823		1000	25	30	210	7
170M4804	170M4824		1000	32	55	390	9
170M4805	170M4825		1000	35	69	500	10
170M4806	170M4826		1000	40	100	690	11
170M4807	170M4827		1000	50	170	1200	13
170M4808	170M4828		1000	63	280	2000	18
170M4809	170M4829		1000	80	500	3500	22
170M4810	170M4830		1000	100	950	6850	25
170M4811	170M4831		1000	125	1500	11500	33
170M4812	170M4832		1000	160	3000	22000	37
170M4813	170M4833		1000	200	5600	40500	40
170M4814	170M4834		1000	250	10000	74000	48
170M4815	170M4835		900	315	18000	115000	58

• Watts loss provided at rated current.
 • Microswitch ordered separately. See accessories on page 179-180.

Size 00 — 20-315A: 1000V

Time-Current Curve



High Speed Fuses



Did You Know?

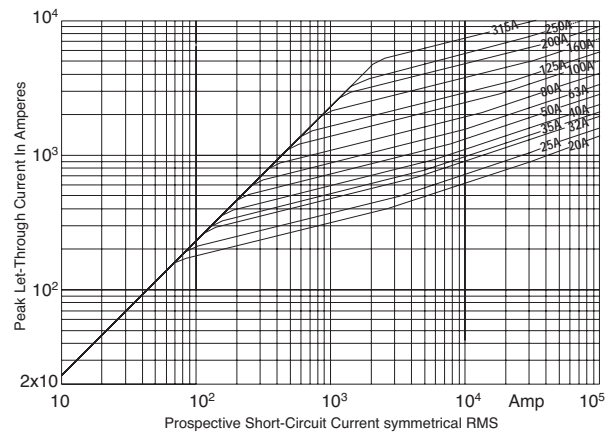
Protect the Promise of Customer Satisfaction

Our customer satisfaction team answers your calls 8:00 a.m. – 4:30 p.m. for all US time zones, receiving and responding to an average of 1600 calls and 700 emails every day.

We also offer emergency after-hours service.

Phone: 636-527-3877
email: busscustsat@cooperbussmann.com
Toll-free fax: 800-544-2570
Emergency after-hour phone: 314-995-1342

Peak Let-Through Curve



* 315A fuse is derated to 900V

Data Sheet: 17058504

Square body DIN 43 653 — 1000V (IEC): 50-1400A

1000V (IEC) 50-1400A

Specifications

Description: Square body mount high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 1000Vac.

Amps: — 50-1400A

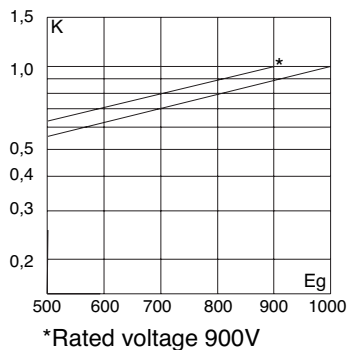
IR: — 150kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



*Rated voltage 900V

Dimensions (mm)

Type -KN/110

Size	A	B	C	Max D1	E	G	H	I
1*KN/110	80	138	108	61	43	6	22	11
1KN/110	80	138	108	69	51	6	25	11
2KN/110	80	138	108	77	59	6	25	11
3KN/110	81	139	108	92	74	6	30	11

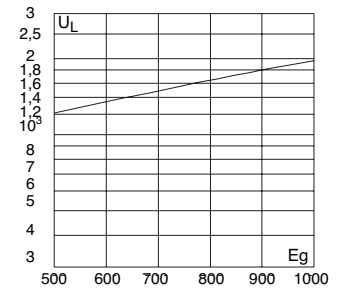
Type -TN/110

Size	A	B	C	Max D2	E	G	H	I
1*TN/110	80	138	108	61	43	6	22	11
1TN/110	80	138	108	69	51	6	25	11
2TN/110	80	138	108	75	59	6	25	11
3TN/110	81	139	108	90	74	6	30	11

1mm = 0.0394" / 1" = 25.4mm

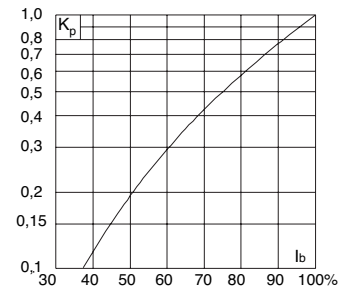
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



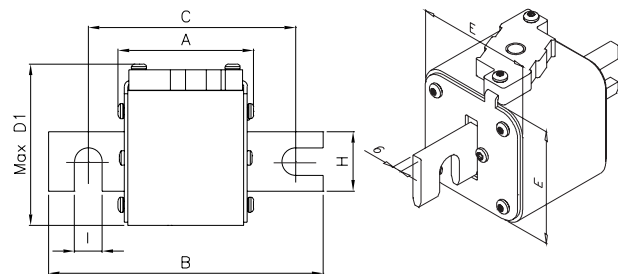
Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

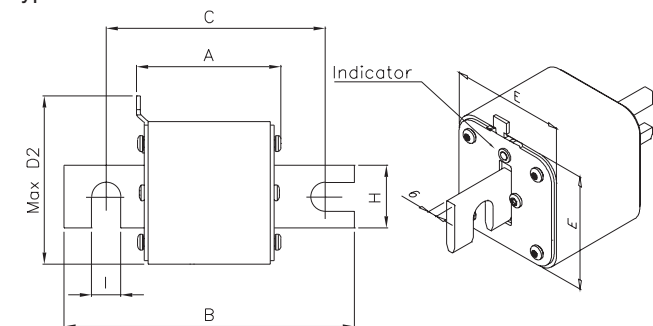
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Type-KN/110



Type-TN/110



High Speed Fuses

Square body DIN 43 653 — 1000V (IEC): 50-1400A

High Speed
Fuses

Catalog Numbers

Catalog Numbers		Electrical Characteristics						
-KN/110 Type K Indicator for Micro	-TN/110 Type T Indicator for Micro	Size	Rated Voltage	Rated Current RMS Amps	I ² t (A ² Sec)		Watts Loss	
					Pre-arc	Clearing at Rated Voltage		
170M3965	170M3981	1*	1000	50	135	815	20	
170M3966	170M3982		1000	63	215	1300	25	
170M3967	170M3983		1000	80	460	2750	30	
170M3968	170M3984		1000	100	860	5100	35	
170M3969	170M3985		1000	125	1450	8600	40	
170M3970	170M3986		1000	160	2850	17500	45	
170M3971	170M3987		1000	200	4950	29500	48	
170M3972	170M3988		1000	250	9550	57000	50	
170M3973	170M3989		1000	315	21500	130000	60	
170M3974	170M3990		1000	350	29000	175000	65	
170M3975	170M3991		1000	400	42000	250000	70	
170M4965	170M4980		1	1000	160	2200	13500	40
170M4966	170M4981			1000	200	4150	24500	45
170M4967	170M4982	1000		250	7750	46000	52	
170M4968	170M4983	1000		315	16500	98500	60	
170M4969	170M4984	1000		350	21500	130000	65	
170M4970	170M4985	1000		400	31000	185000	70	
170M4971	170M4986	1000		450	44500	265000	80	
170M4972	170M4987	1000		500	63000	375000	85	
170M4973	170M4988	1000		550	84500	500000	90	
170M4974	170M4989	1000		630	125000	755000	98	
170M5966	170M5981	2	1000	250	6750	40000	65	
170M5967	170M5982		1000	315	13500	81500	75	
170M5968	170M5983		1000	350	16500	99000	80	
170M5969	170M5984		1000	400	26000	155000	85	
170M5970	170M5985		1000	450	35500	210000	90	
170M5971	170M5986		1000	500	49500	295000	95	
170M5972	170M5987		1000	550	66000	390000	100	
170M5973	170M5988		1000	630	93500	555000	110	
170M5974	170M5989		1000	700	130000	770000	115	
170M5975	170M5990		1000	800	195000	1200000	125	
170M8614	170M8629	3	1000	315	9200	54500	90	
170M8615	170M8630		1000	350	13000	77500	95	
170M8616	170M8631		1000	400	19000	115000	105	
170M8617	170M8632		1000	450	27000	160000	107	
170M8618	170M8633		1000	500	37500	225000	110	
170M8619	170M8634		1000	550	52000	310000	115	
170M8620	170M8635		1000	630	82500	490000	120	
170M8621	170M8636		1000	700	115000	700000	125	
170M8622	170M8637		1000	800	170000	1050000	135	
170M8623	170M8638		1000	900	250000	1500000	145	
170M8624	170M8639		1000	1000	340000	2050000	150	
170M8625	170M8640		1000	1100	460000	2750000	155	
170M8626	170M8641		1000	1250	575000	3400000	175	
170M8627	170M8642		900	1400	795000	4200000	185	

* Watts loss provided at rated current.
• Microswitch ordered separately. See accessories on page 179-180.

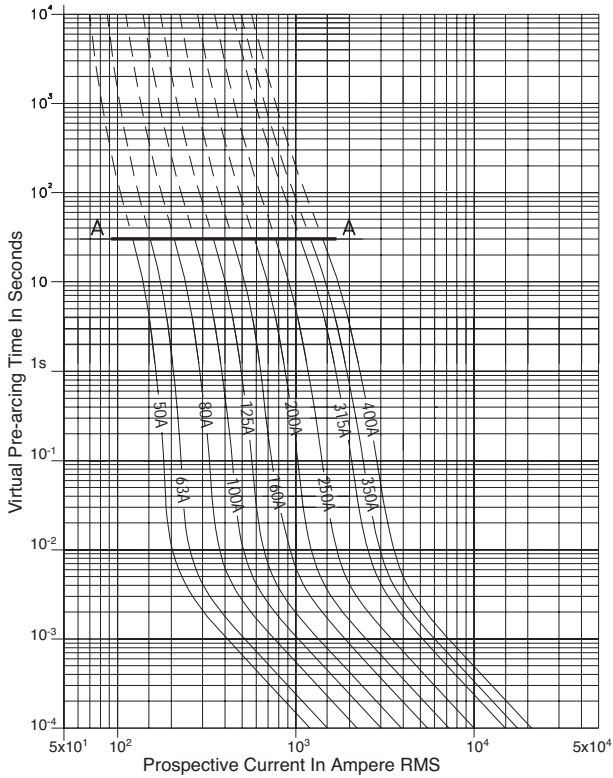
Did You Know?

Inverters in the world's strongest icebreaker ships in Finland and in Russia are protected with Cooper Bussmann high speed fuses, 12000V, 500A.

Square body DIN 43 653 — 1000V (IEC): 50-1400A

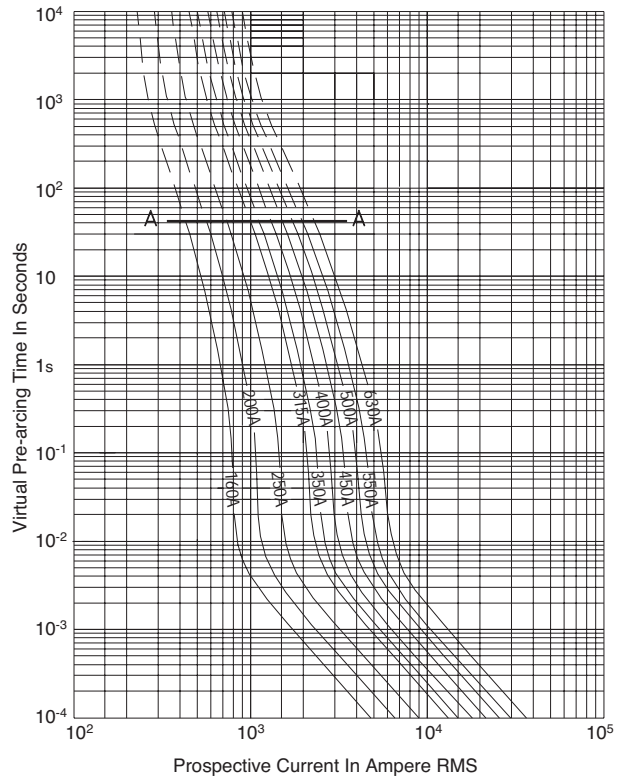
Size 1* — 50-400A: 1000V

Time-Current Curve

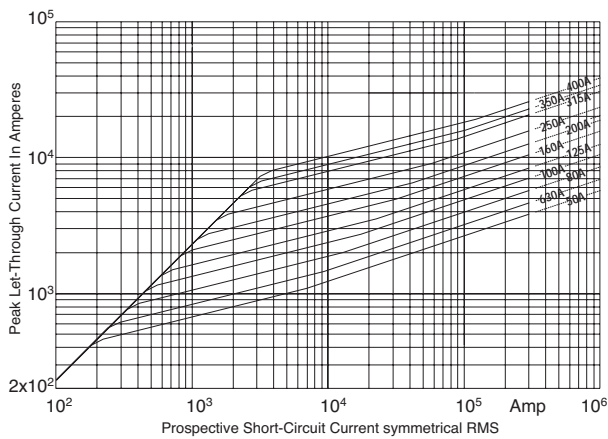


Size 1 — 160-630A: 1000V

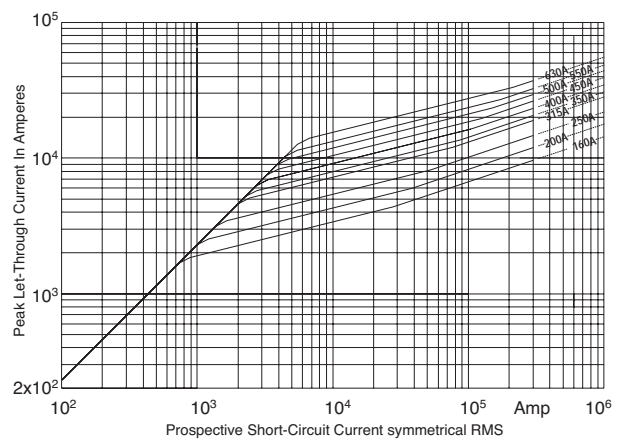
Time-Current Curve



Peak Let-Through Curve

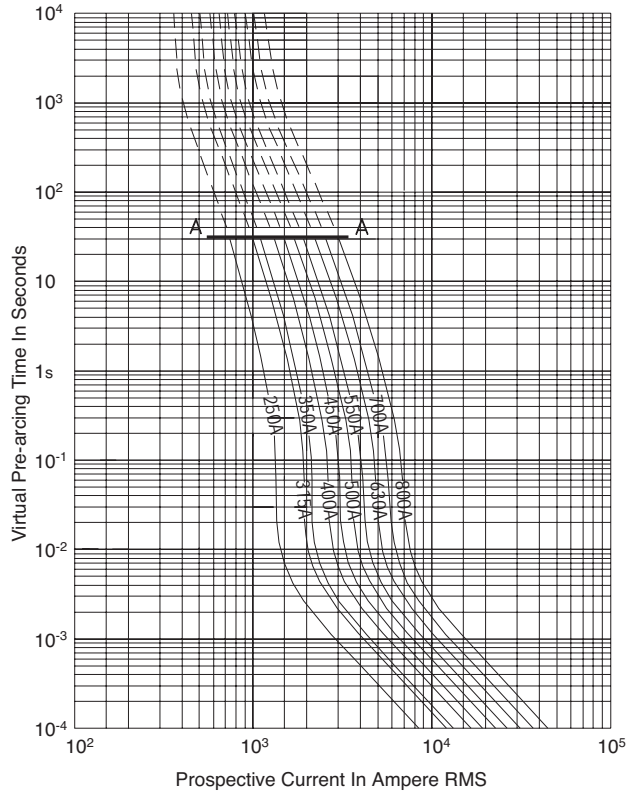


Peak Let-Through Curve

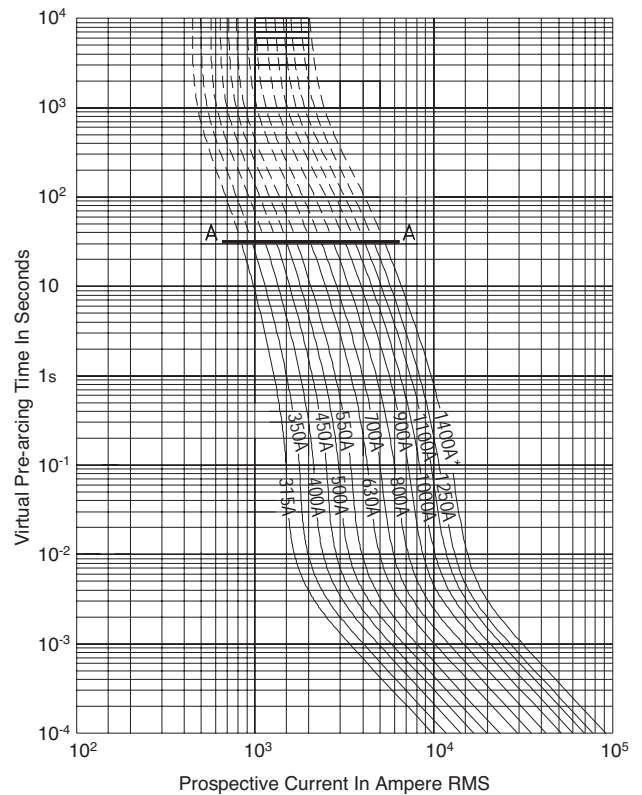


Square body DIN 43 653 — 1000V (IEC): 50-1400A

Size 2 — 250-800A: 1000V
Time-Current Curve

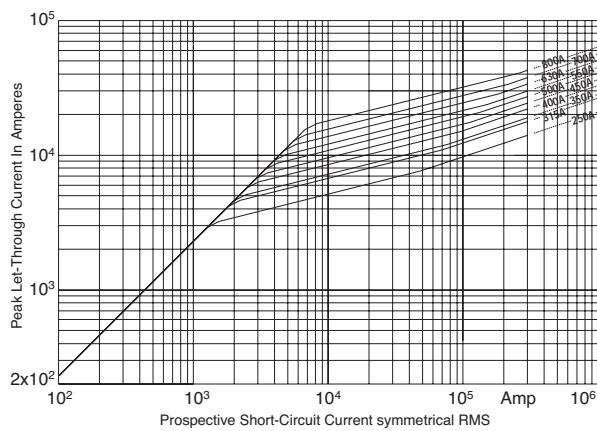


Size 3 — 315-1400A: 1000V
Time-Current Curve

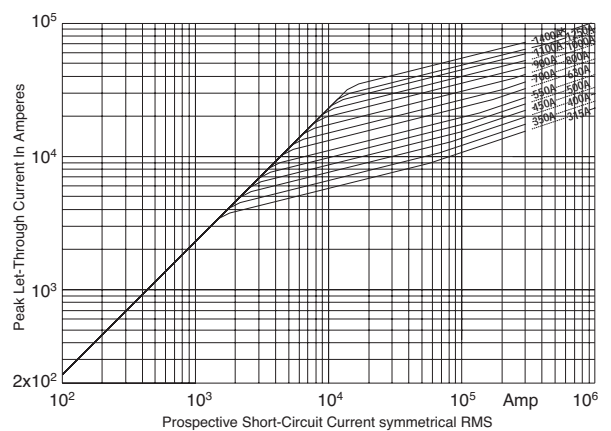


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



* 1400A fuses are derated to 900V

High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

1250V/1300V (IEC/UL) 50-1400A

Specifications

Description: Square body DIN 43 653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1250Vac (IEC)
— 1300Vac (UL)

Amps: — 50-1400A

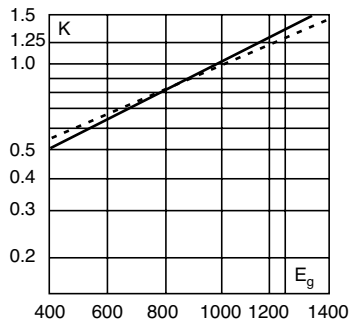
IR: — 100kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition/CSA Component Acceptance status.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



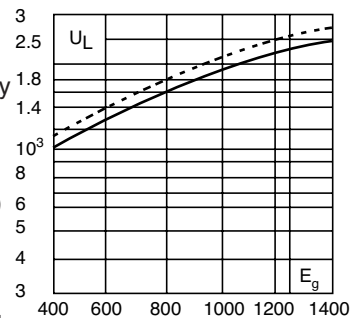
Dashed lines (-----) apply to the following amperages:..

Size	Amps.
1*	400A
1	500-630A
2	630-1000A
3	800-1400A



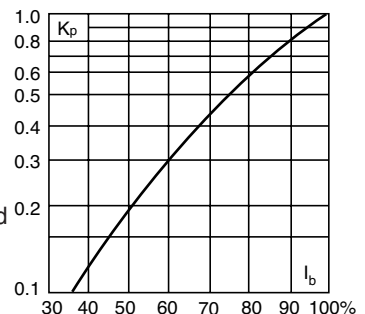
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

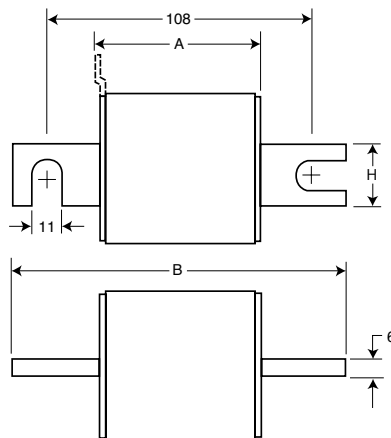
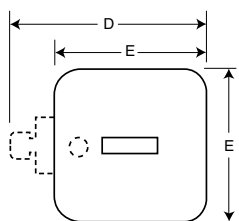
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type -/110, -TN/110

Size	A	B	D**	E	H
1*	80	138	58	45	20
1	80	138	66	53	25
2	80	138	75	61	25
3	81	139	90	76	30

**Microswitch.
1mm = 0.0394" / 1" = 25.4mm



High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

Catalog Numbers

Catalog Numbers		Electrical Characteristics						
-/110 Visual Indicator	-TN/110 Type T Indicator for Micro	Size	Rated Current RMS-Amps	I ² t (A ² Sec)			Watts Loss	
				Pre-arc	Clearing at 1000V	Clearing at 1250V		
170M3138	170M3188	1*	50	135	815	1100	15	
170M3139	170M3189		63	215	1300	1750	20	
170M3140	170M3190		80	420	2500	3350	25	
170M3141	170M3191		100	750	4450	5950	30	
170M3142	170M3192		125	1450	9000	11500	35	
170M3143	170M3193		160	2600	16000	21000	40	
170M3144	170M3194		200	5150	31000	41000	45	
170M3145	170M3195		250	9200	54500	73000	55	
170M3146	170M3196		315	18500	115000	150000	60	
170M3147	170M3197		350	27000	165000	220000	65	
170M3148	170M3198		400	53000	265000	335000	70	
170M4138	170M4188		1	160	1900	11500	15500	45
170M4139	170M4189			200	3800	22500	30000	50
170M4140	170M4190			250	7750	46000	61500	60
170M4141	170M4191	315		15000	90000	120000	65	
170M4142	170M4192	350		20000	125000	165000	70	
170M4143	170M4193	400		29500	175000	235000	75	
170M4144	170M4194	450		42000	250000	335000	80	
170M4145	170M4195	500		69500	340000	435000	85	
170M4146	170M4196	550		95000	465000	590000	95	
170M4147	170M4197	†630		130000	660000		100	
170M5138	170M5188	2	250	6500	38500	51500	65	
170M5139	170M5189		280	9350	55500	74500	70	
170M5140	170M5190		315	13000	77500	105000	75	
170M5141	170M5191		350	16500	97500	135000	80	
170M5142	170M5192		400	23000	140000	180000	85	
170M5143	170M5193		450	34000	205000	270000	90	
170M5144	170M5194		500	48000	285000	380000	95	
170M5145	170M5195		550	62000	370000	495000	100	
170M5146	170M5196		630	115000	575000	730000	110	
170M5147	170M5197		700	160000	795000	1050000	115	
170M5148	170M5198		800	245000	1200000	1550000	120	
170M5149	170M5199		†900	360000	1750000		125	
170M5150	170M5200		†1000	480000	2350000		135	
170M6138	170M6188		3	315	9500	58000	77500	85
170M6139	170M6189	350		13500	81500	110000	90	
170M6140	170M6190	400		19500	120000	160000	95	
170M6141	170M6191	450		31000	185000	245000	100	
170M6142	170M6192	500		39000	235000	310000	105	
170M6143	170M6193	550		55000	325000	435000	110	
170M6144	170M6194	630		83500	495000	665000	115	
170M6145	170M6195	700		115000	705000	940000	120	
170M6146	170M6196	‡800		205000	995000	1300000	125	
170M6147	170M6197	‡900		305000	1500000	1900000	130	
170M6148	170M6198	‡1000		450000	2150000	2750000	135	
170M6149	170M6199	‡1100		575000	2800000	3600000	140	
170M6150	170M6200	†1250		810000	3950000		145	
170M6151	170M6201	†1400		1250000	6000000		150	

†Rated voltage (IEC) 1100V.

‡Rated voltage (IEC) 1250V.

•Watts loss provided at rated current.

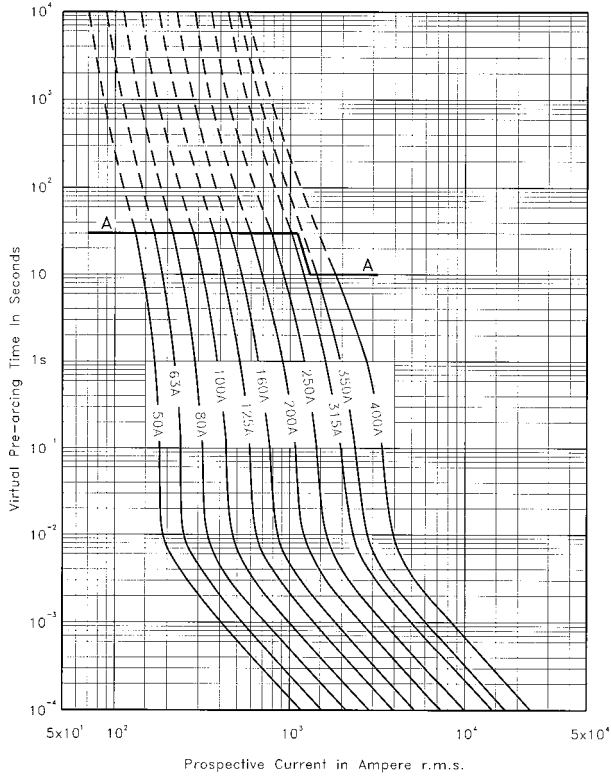
•Microswitch indicator ordered separately. See accessories on pages 179-180.

High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

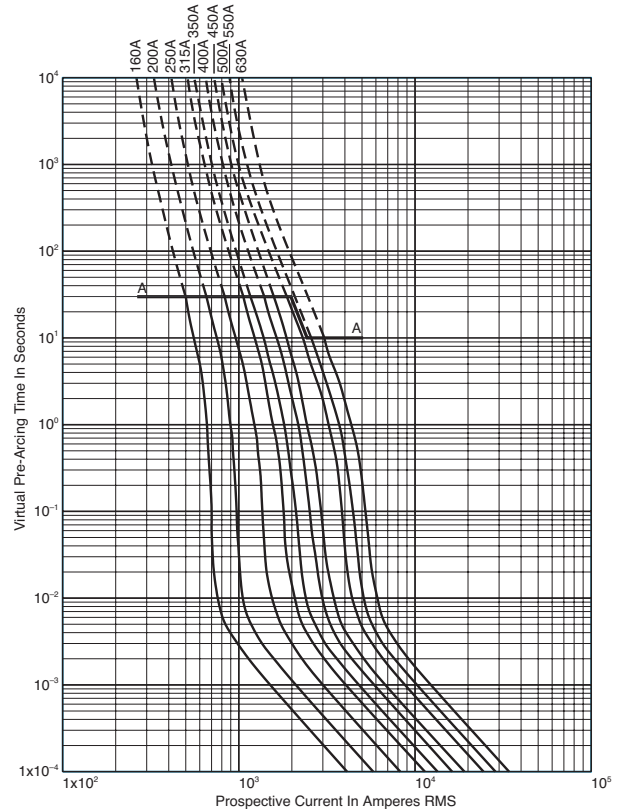
Size 1* — 50-400A:1250V

Time-Current Curve

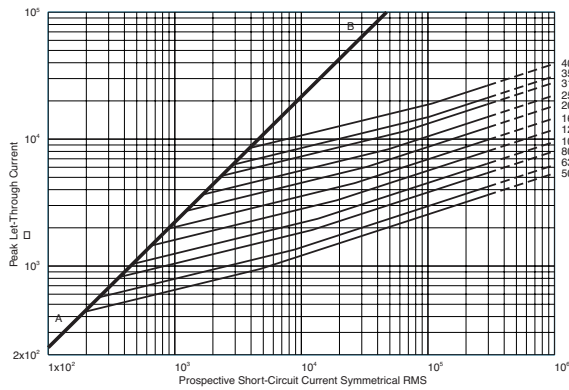


Size 1 — 160-630A: 1250V

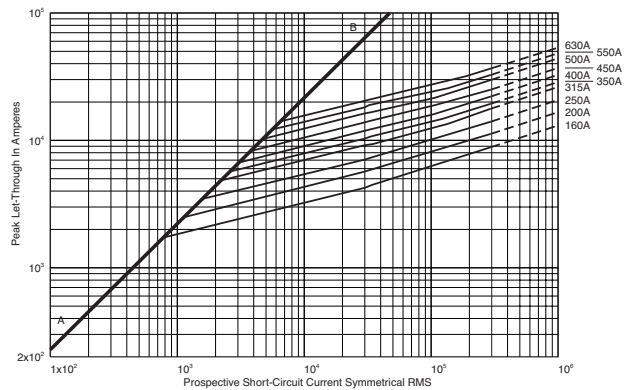
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve

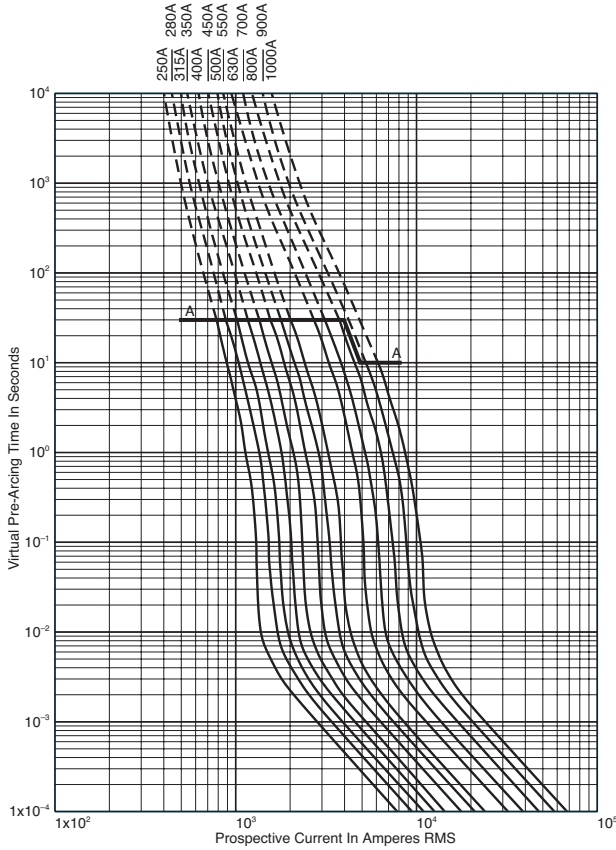


630A fuse is derated to 1100V (IEC).

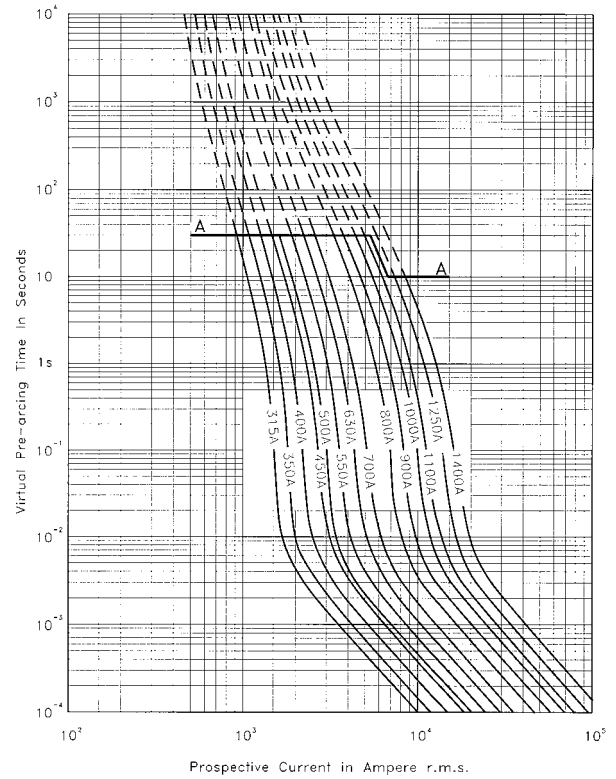
High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

Size 2 — 250-1000A: 1250V
Time-Current Curve

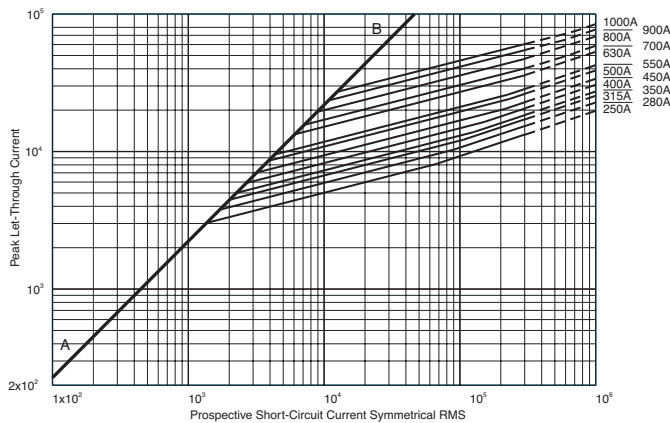


Size 3 — 315-1400A: 1250V
Time-Current Curve



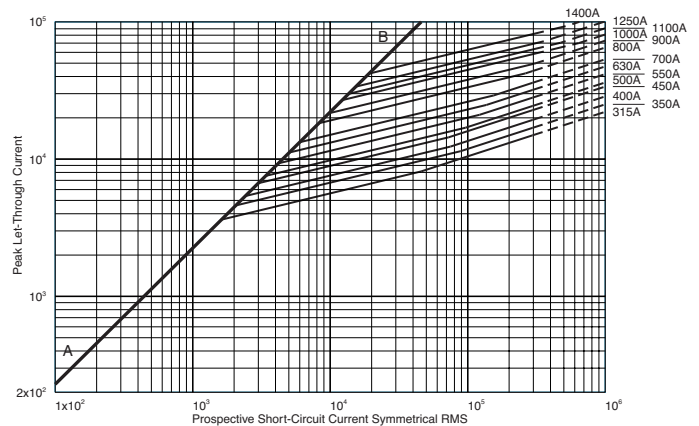
High Speed Fuses

Peak Let-Through Curve



900-1000A fuses are derated to 1100V (IEC).

Peak Let-Through Curve



1250-1400A fuses are derated to 1100V (IEC).

Data Sheet: 17056634

Data Sheet: 17056636

High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

1250V/1300V (IEC/UL) 50-1400A

Specifications

Description: Square body DIN 43 653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

- Volts: — 1250Vac (IEC)
- 1300Vac (UL)

Amps: — 50-1400A

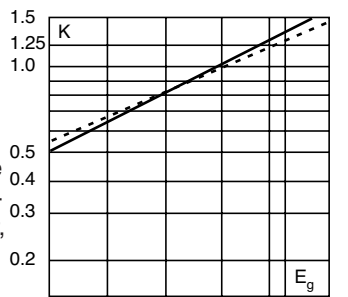
IR: — 100kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition/CSA Component Acceptance status.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



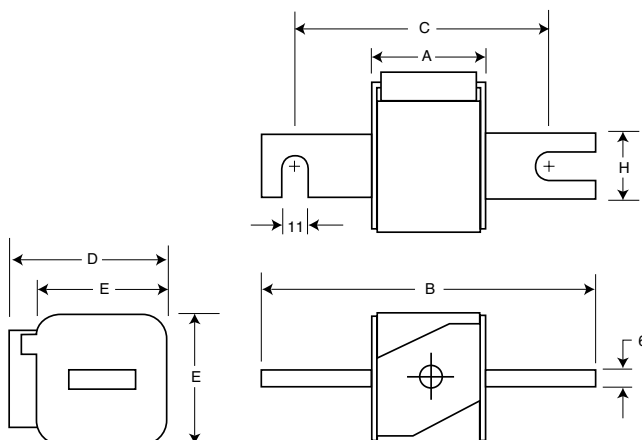
Dashed lines (- - - - -) apply to the following amperages:
 Size Amps.
 1* 400A
 1 500-630A
 2 630-1000A
 3 800-1400A

Dimensions (mm)

Type -KN/110.

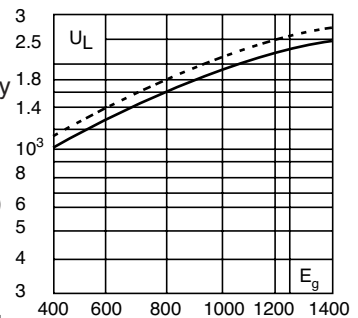
Size	A	B	D	E	H
1*	80	138	58	45	20
1	80	138	66	53	25
2	80	138	75	61	25
3	81	139	90	76	30

1mm = 0.0394" / 1" = 25.4mm



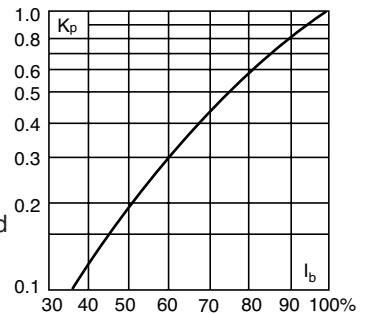
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL):
50-1400A

Catalog Numbers

Catalog Numbers -KN/110 Type K Visual Indicator for Micro	Size	Electrical Characteristics				
		Rated Current RMS-Amps	I ² t (A ² Sec)			Watts Loss
			Pre-arc	Clearing at 1000V	Clearing at 1250V	
170M3238	1*	50	135	815	1100	15
170M3239		63	215	1300	1750	20
170M3240		80	420	2500	3350	25
170M3241		100	750	4450	5950	30
170M3242		125	1450	9000	11500	35
170M3243		160	2600	16000	21000	40
170M3244		200	5150	31000	41000	45
170M3245		250	9200	54500	73000	55
170M3246		315	18500	115000	150000	60
170M3247		350	27000	165000	220000	65
170M3248		400	53000	265000	335000	70
170M4238	1	160	1900	11500	15500	45
170M4239		200	3800	22500	30000	50
170M4240		250	7750	46000	61500	60
170M4241		315	15000	90000	120000	65
170M4242		350	20000	125000	165000	70
170M4243		400	29500	175000	235000	75
170M4244		450	42000	250000	335000	80
170M4245		500	69500	340000	435000	85
170M4246		550	95000	465000	590000	95
170M4247		†630	130000	660000		100
170M5238	2	250	6500	38500	51500	65
170M5239		280	9350	55500	74500	70
170M5240		315	13000	77500	105000	75
170M5241		350	16500	97500	135000	80
170M5242		400	23000	140000	180000	85
170M5243		450	34000	205000	270000	90
170M5244		500	48000	285000	380000	95
170M5245		550	62000	370000	495000	100
170M5246		630	115000	575000	730000	110
170M5247		700	160000	795000	1050000	115
170M5248		800	245000	1200000	1550000	120
170M5249		†900	360000	1750000		125
170M5250		†1000	480000	2350000		135
170M6238	3	315	9500	58000	77500	85
170M6239		350	13500	81500	110000	90
170M6240		400	19500	120000	160000	95
170M6241		450	31000	185000	245000	100
170M6242		500	39000	235000	310000	105
170M6243		550	55000	325000	435000	110
170M6244		630	83500	495000	665000	115
170M6245		700	115000	705000	940000	120
170M6246		†800	205000	995000	1300000	125
170M6247		†900	305000	1500000	1900000	130
170M6248		†1000	450000	2150000	2750000	135
170M6249		†1100	575000	2800000	3600000	140
170M6250		†1250	810000	3950000		145
170M6251		†1400	1250000	6000000		150

†Rated voltage (IEC) 1100V.

‡Rated voltage (IEC) 1250V.

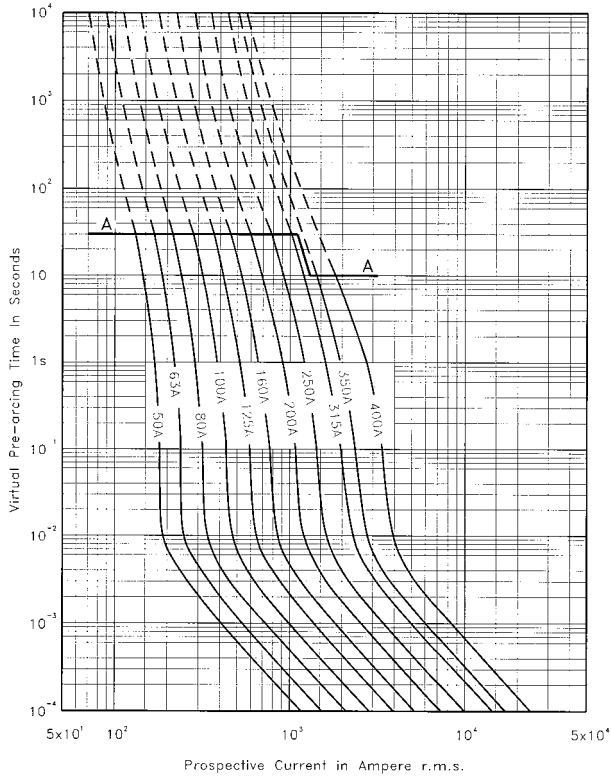
• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 179-180.

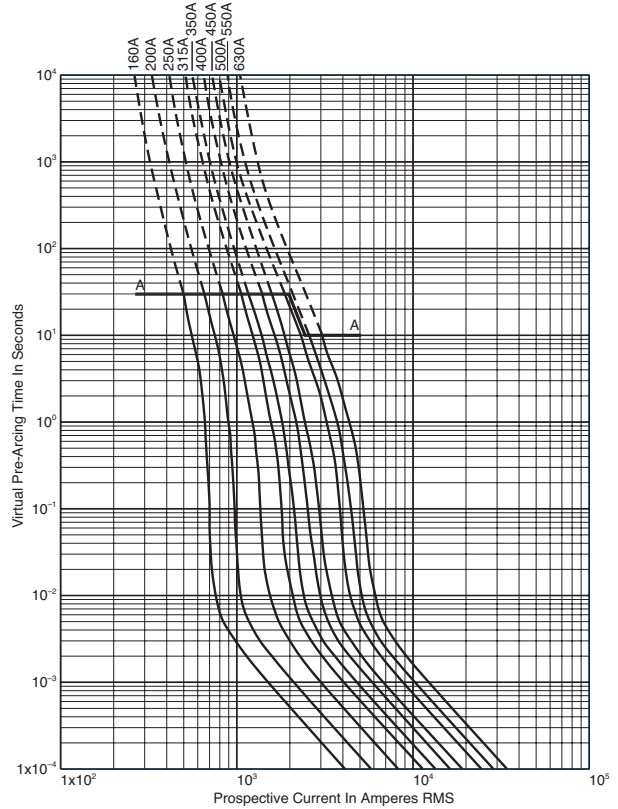
High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

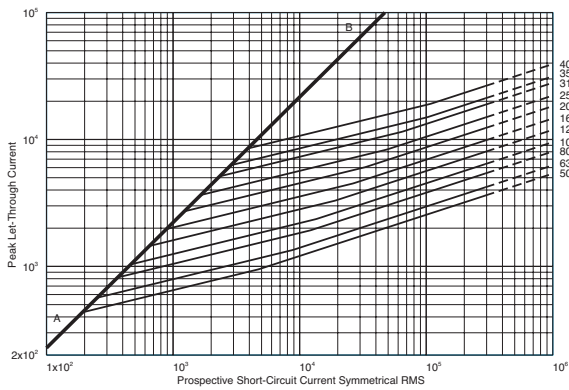
Size 1* — 50-400A:1250V
Time-Current Curve



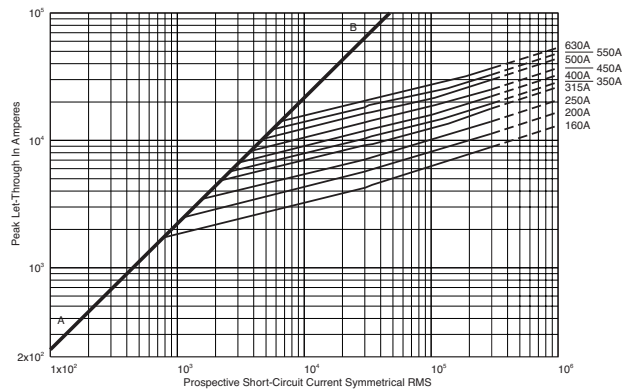
Size 1 — 160-630A: 1250V
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve

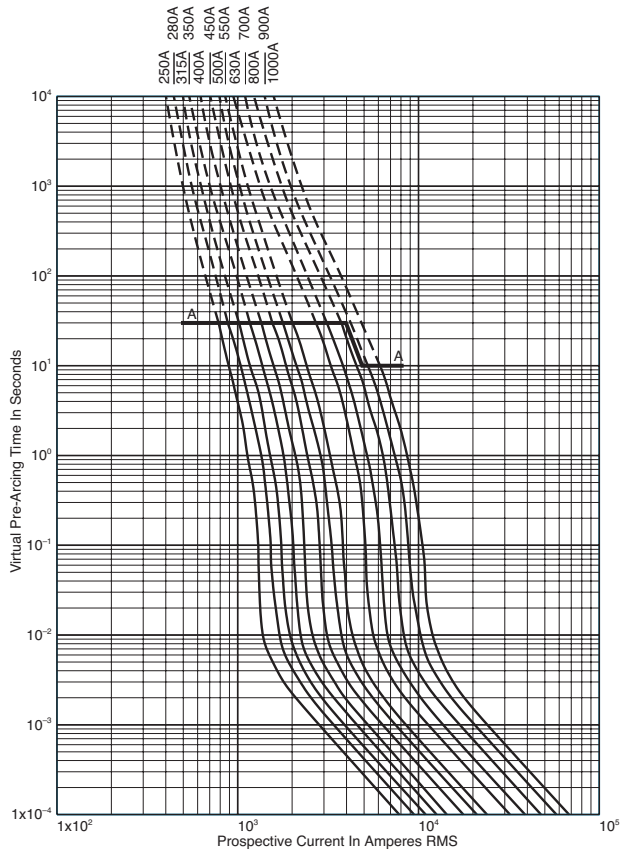


630A fuse is derated to 1100V (IEC).

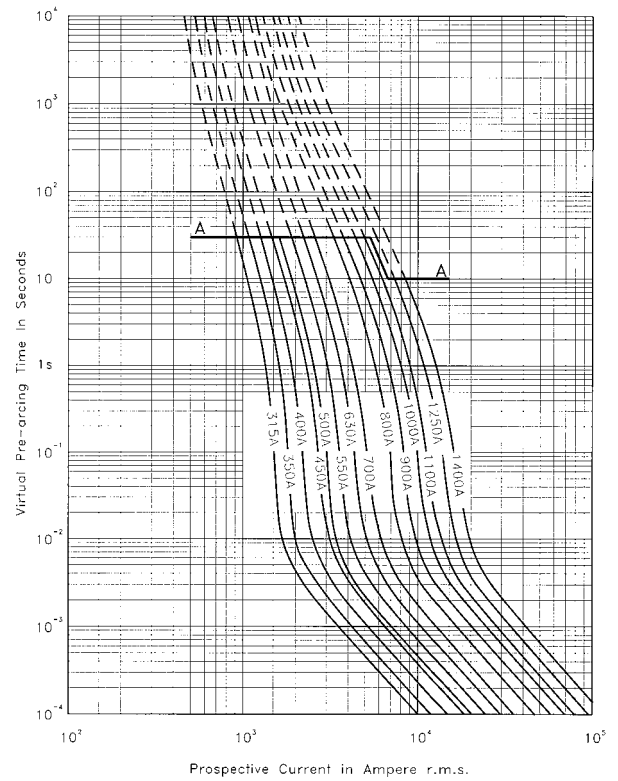
High Speed Fuses

Square body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

Size 2 — 250-1000A: 1250V
Time-Current Curve

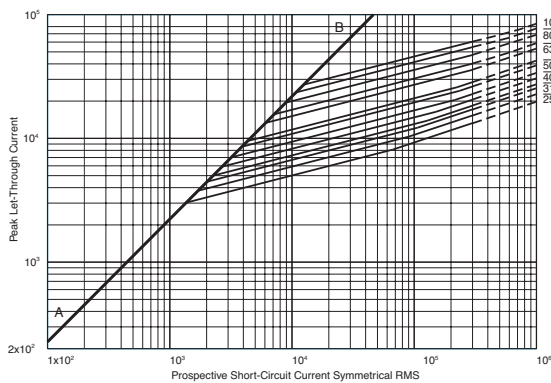


Size 3 — 315-1400A: 1250V
Time-Current Curve



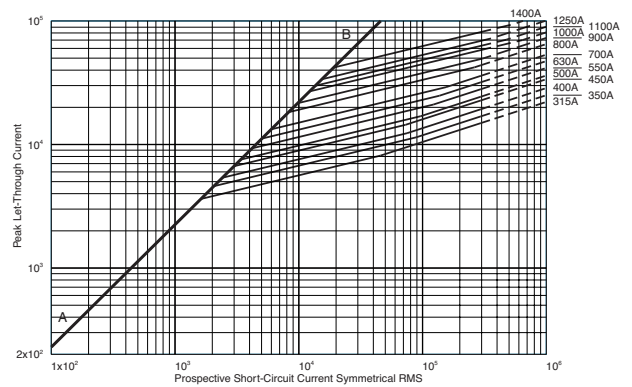
High Speed
Fuses

Peak Let-Through Curve



900-1000A fuses are derated to 1100V (IEC).

Peak Let-Through Curve



1250-1400A fuses are derated to 1100V (IEC).

Square body DIN 43 620 — 690V (IEC/UL): 10-315A

690V (IEC/UL) 10-315A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac

Amps: — 10-315A

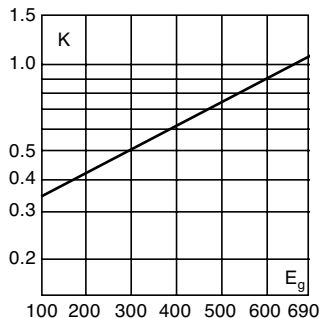
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

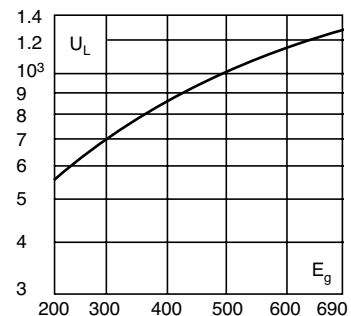
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



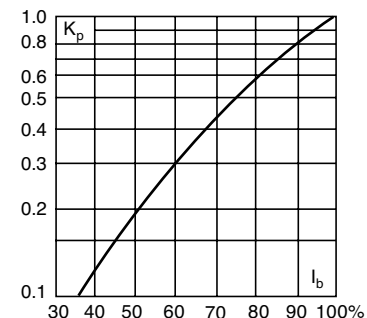
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

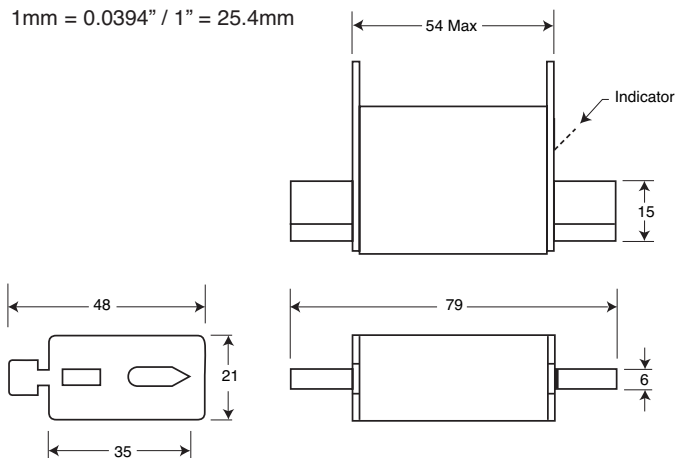
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

DIN 000 Type T

1mm = 0.0394" / 1" = 25.4mm



Square body DIN 43 620 — 690V (IEC/UL): 10-315A

Catalog Numbers

Catalog Numbers DIN 000 Type T Indicator for Micro	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 660V	
170M1558	000	10	3.8	25.5	3.0
170M1559		16	7.2	48	5.5
170M1560		20	11.5	78	7
170M1561		25	19	130	9
170M1562		32	40	270	10
170M1563		40	69	460	12
170M1564		50	115	770	15
170M1565		63	215	1450	16
170M1566		80	380	2550	19
170M1567		100	695	4650	24
170M1568		125	1200	8500	28
170M1569		160	2300	16000	32
170M1570		200	4200	28000	37
170M1571		250	7750	51500	42
170M1572		315	12000	80500	52

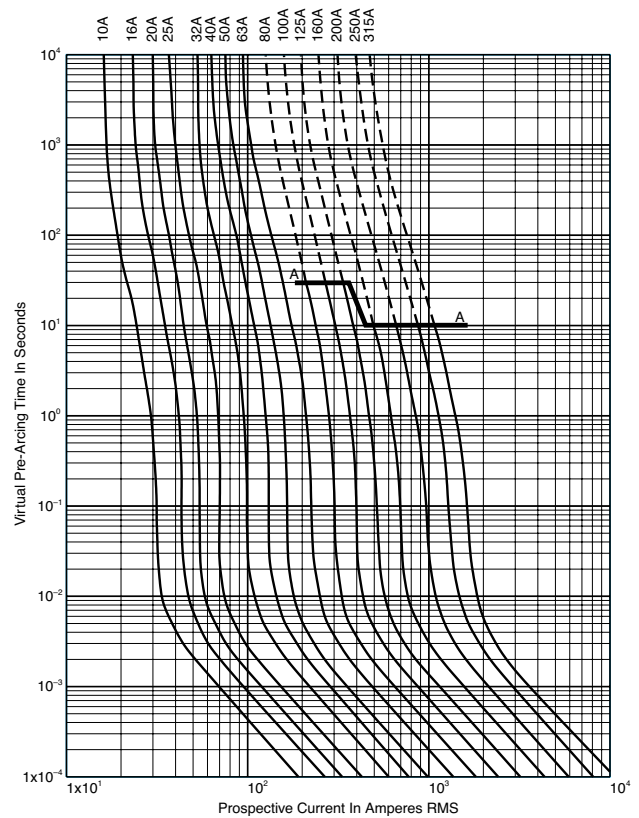
- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 179-180.

Rated Current

The rated current of this fuse range has been given with copper conductors that have a current density of 1.3 A/mm² (IEC 60269-4). For conductor cross section according to IEC 60269-1, the fuses with a rated current higher than 125A must be derated. Please contact Cooper Bussmann for application assistance.

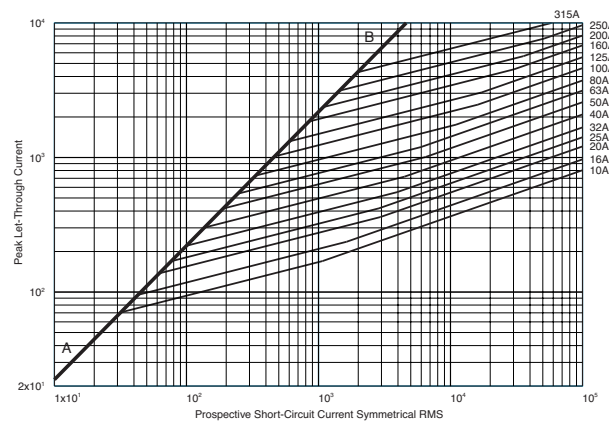
Size 000 — 10-315A: 690V

Time-Current Curve



High Speed Fuses

Peak Let-Through Curve



High Speed Fuses

Square body DIN 43 620 — 690V/700V (IEC/UL): 40-1000A

690V/700V (IEC/UL) 40-1000A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-1000A

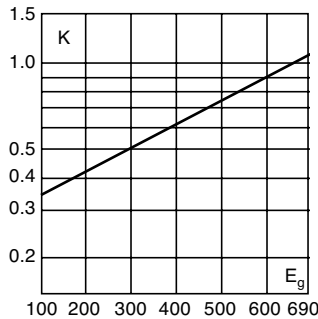
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

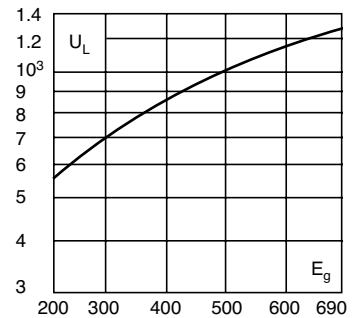
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



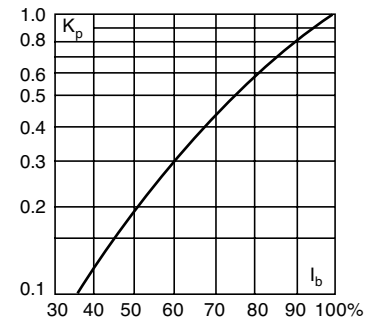
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

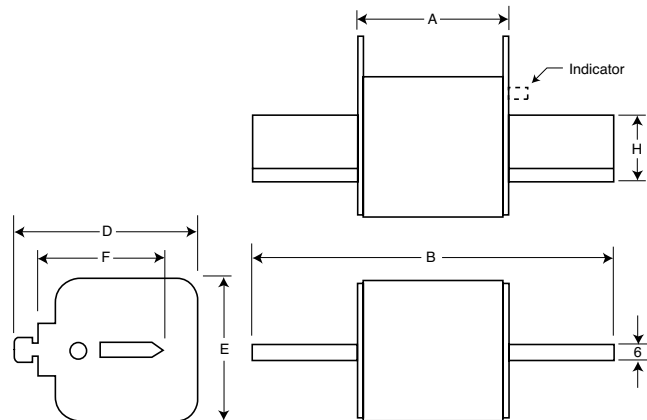
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type DIN 1*, DIN 2, DIN 3

Size	A	B	D	E	F	H
1*	69	135	58	45	40	20
2	69	150	71	55	48	26
3	68	150	88	76	60	33

1mm = 0.0394" / 1" = 25.4mm



High Speed Fuses

Square body DIN 43 620 — 690V/700V (IEC/UL): 40-1000A

Catalog Numbers

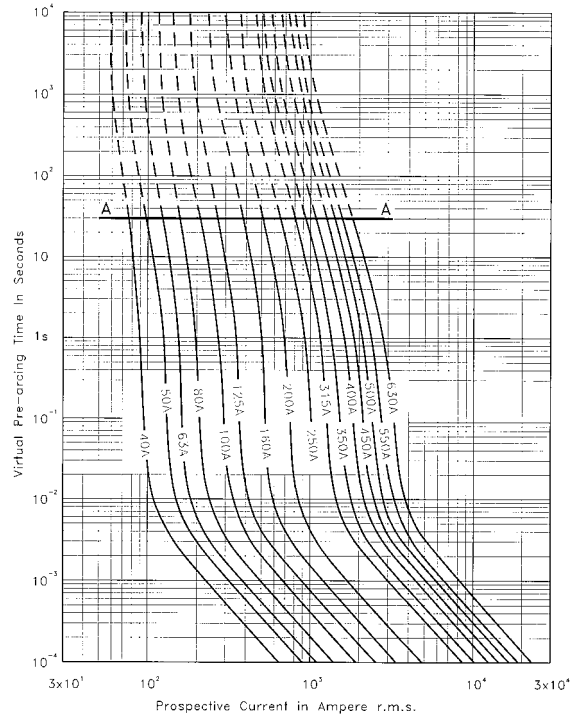
Catalog Numbers DIN Type T Indicator for Micro	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 660V	
170M3808	1*	40	40	270	9
170M3809		50	77	515	11
170M3810		63	115	770	14
170M3811		80	185	1250	18
170M3812		100	360	2450	21
170M3813		125	550	3700	26
170M3814		160	1100	7500	30
170M3815		200	2200	15000	35
170M3816		250	4200	28500	40
170M3817		315	7000	46500	50
170M3818	350	10000	68500	55	
170M3819	400	15000	105000	60	
170M5808	2	400	11000	74000	65
170M5809		450	15500	105000	70
170M5810		500	21500	145000	75
170M5811		550	28000	190000	80
170M5812		630	41000	275000	90
170M5813		700	60500	405000	95
170M6808	3	500	14000	95000	95
170M6809		550	19500	135000	100
170M6810		630	31000	210000	105
170M6811		700	44500	300000	110
170M6812		800	69500	465000	115
170M6813		900	100000	670000	120
170M6814		1000	140000	945000	125

*Watts loss provided at rated current.
*Microswitch indicator ordered separately. See accessories on pages 179-180.

Rated Current

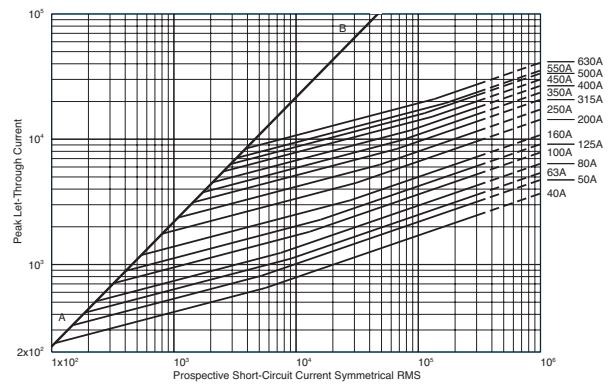
The rated current of this fuse range has been given with copper conductors that have a current density of 1.3 A/mm² (IEC 60269-4). For conductor cross section according to IEC 60269-1, the fuses must be derated. Please contact Cooper Bussmann for application assistance.

Size 1* — 40-630A: 690V Time-Current Curve



High Speed
Fuses

Peak Let-Through Curve

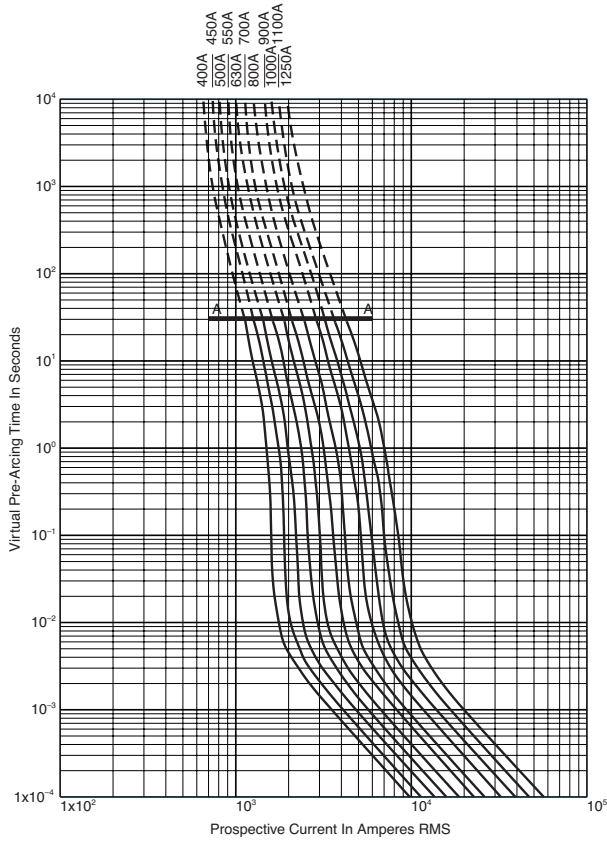


High Speed Fuses

Square body DIN 43 620 — 690V/700V (IEC/UL): 40-1000A

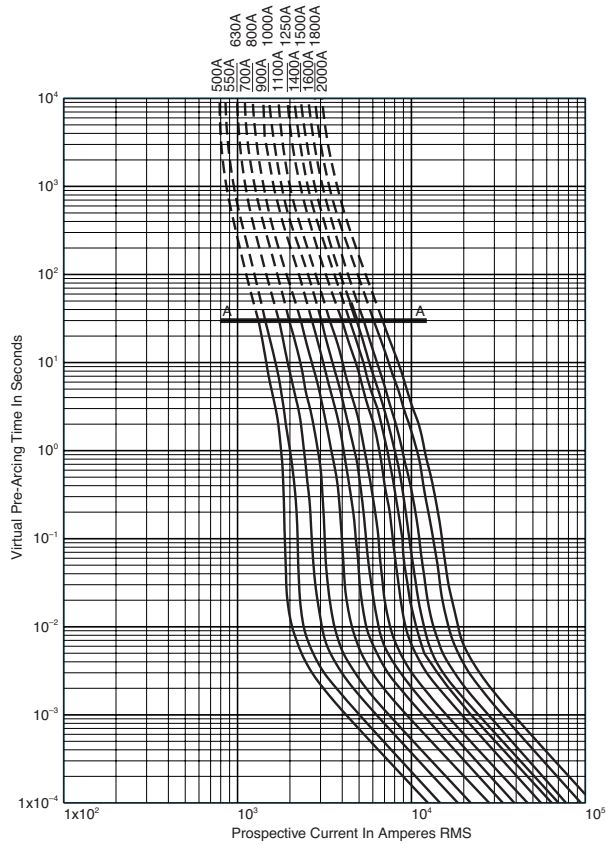
Size 2 — 400-1250A: 690V

Time-Current Curve

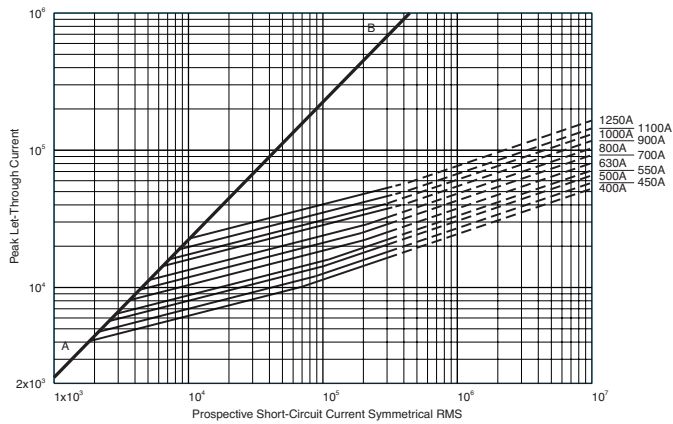


Size 3 — 500-2000A: 690V

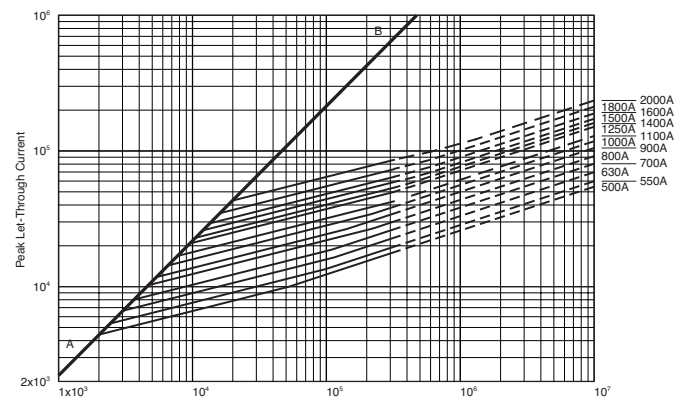
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



1800A fuse is derated to 600V (IEC).
2000A fuse is derated to 550V (IEC).

Square body DIN 43 620 — 690V (IEC): 10-800A

690V (IEC) 10-800A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)

Amps: — 10-800A

IR: — 300kA RMS Sym.

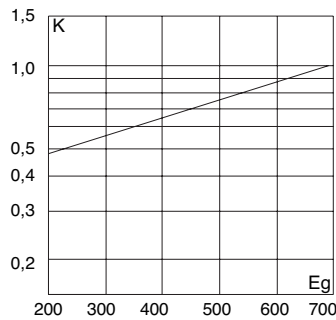
Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical

Characteristics

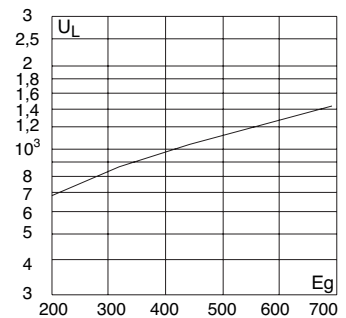
Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



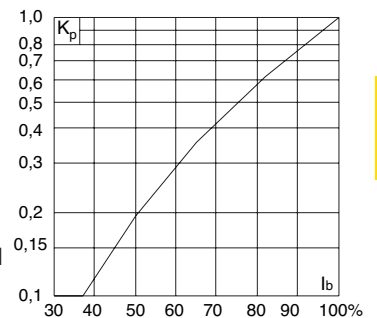
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

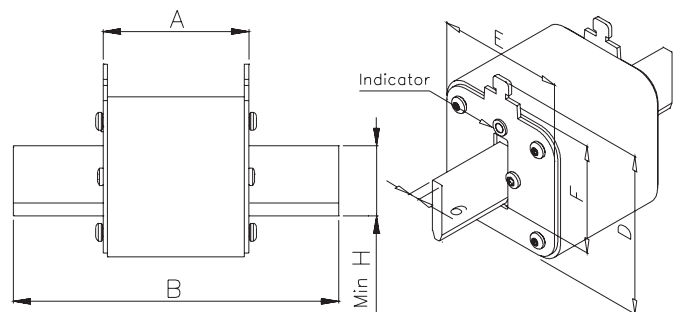
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type DIN 00, DIN 1, DIN 2, DIN 3

Size	A	B Max	D Max	E	F Min	H
00	49	78.5	60	30	35	15
1	68	135	66	52	40	20
2	68	150	74	60	48	25
3	68	150	89	75	60	32

1 mm = 0.0394" 1" = 25.4 mm



Square body DIN 43 620 — 690V (IEC): 10-800A

Catalog Numbers

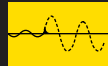
Catalog Numbers	Size	Electrical Characteristics			
		RMS Amp Rating*	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 600V	
170M2691	00	10	3.8	20	3.5
170M2692		16	7.2	38	5.5
170M2693		20	13	70	6
170M2694		25	24	125	8
170M2695		32	53	275	9
170M2696		40	95	490	10
170M2697		50	185	1000	11
170M2698		63	345	1800	14
170M2699		80	695	3600	16
170M2700		100	1250	6650	19
170M2701	125	2300	12000	23	
170M2702	160	4350	22500	29	
170M4176	1	50	135	705	12
170M4177		63	245	1300	15
170M4178		80	500	2600	17
170M4179		100	950	4850	20
170M4180		125	1850	9500	23
170M4181		160	3450	18000	28
170M4182		200	6750	34500	31
170M4183		250	13500	70500	35
170M4184		315	26000	135000	41
170M4185		350	34000	175000	45
170M4186	400	48500	250000	48	
170M5881	2	200	5650	29000	33
170M5882		250	10000	52500	40
170M5883		315	19500	105000	46
170M5884		350	26000	135000	50
170M5885		400	39500	205000	53
170M5886		450	55500	290000	59
170M5887		500	73000	375000	66
170M5888		550	100000	515000	70
170M5889		630	150000	770000	79
170M6080	3	350	23000	120000	55
170M6081		400	34000	175000	59
170M6082		450	48500	250000	62
170M6083		500	64000	330000	67
170M6084		550	84500	435000	70
170M6085		630	125000	645000	85
170M6086		700	160000	840000	93
170M6087		800	245000	1300000	99

*The RMS amp rating of this fuse range is given with open fuse bases connected to copper conductors according to IEC 60269, Part 1, table 10. When used in enclosed fuse bases/disconnects, derating factors have to be observed.

Please contact Cooper Bussmann for application assistance.

• Watts loss provided at rated current.

• Microswitch ordered separately. See accessories on page 179-180.



Did You Know?

On-Site Customer Training Seminars

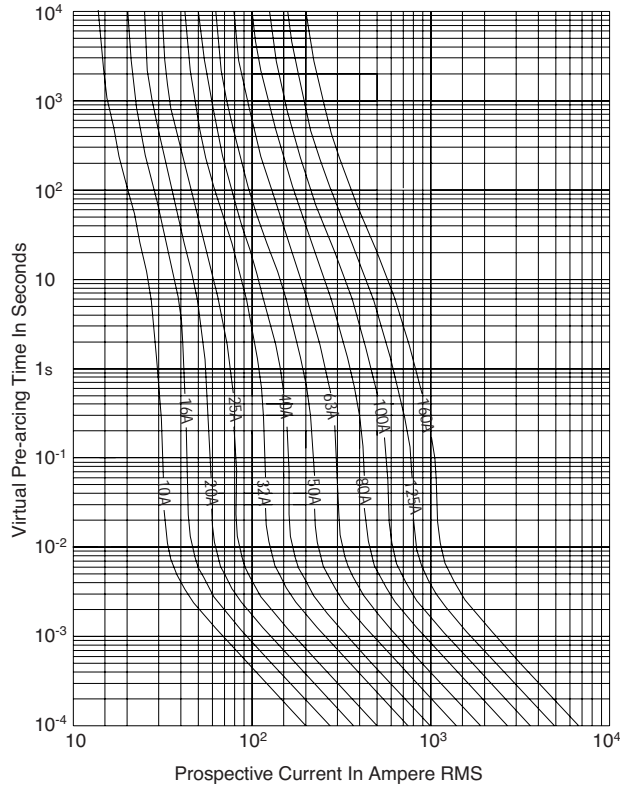
Your Cooper Bussmann district sales engineer or rep will work with you to present a technical seminar program for end-user customers. There is no charge for these services. Distributors may use marketing funds to cover costs incurred for attendee meals and door prizes.

- Seminar #1: National Electrical Code® -- Changes Dealing with Overcurrent Protection
- Seminar #2: Safety BASICS™
- Seminar #3: Motor Protection
- Seminar #4: NEC® 110.9 and 240.86 on Interrupting Rating
- Seminar #5: Selective Coordination
- Seminar #6: Meeting Elevator Disconnect Requirements
- Seminar #7: Current Limitation and Component Protection
- Seminar #8: Industrial Machinery NFPA79 2002 Requirements
- Seminar #9: Electrical Safety NFPA70E Changes

Square body DIN 43 620 — 690V (IEC): 10-800A

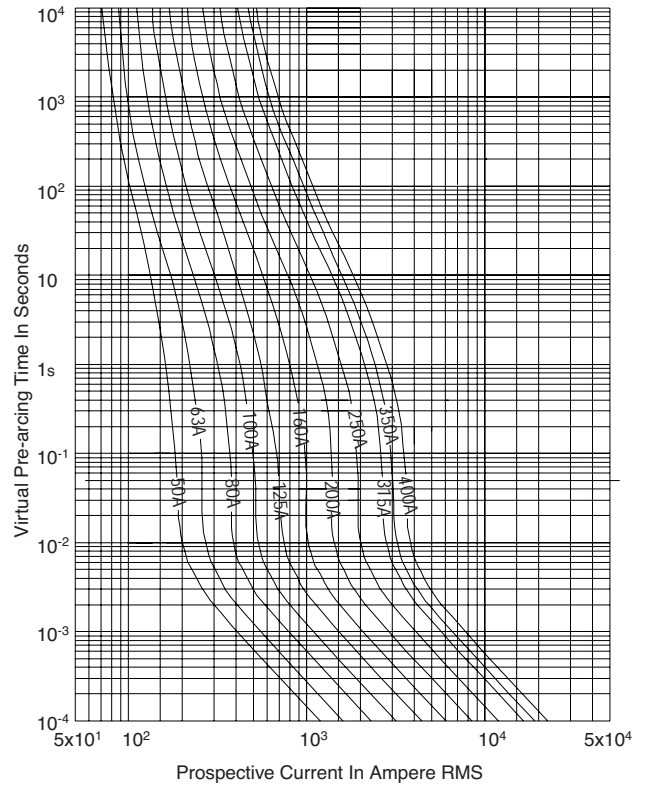
Size 00 — 10-160A: 690V

Time-Current Curve



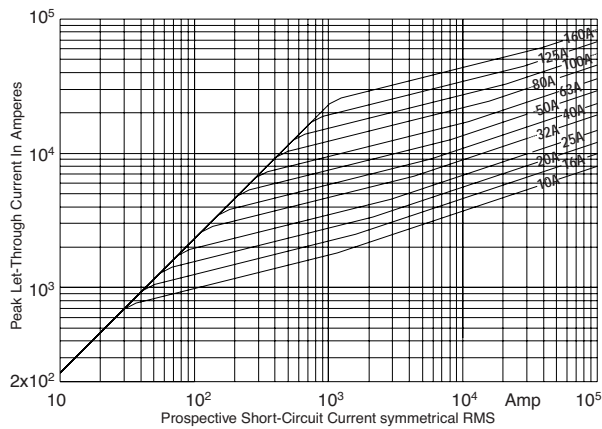
Size 1 — 50-400A: 690V

Time-Current Curve

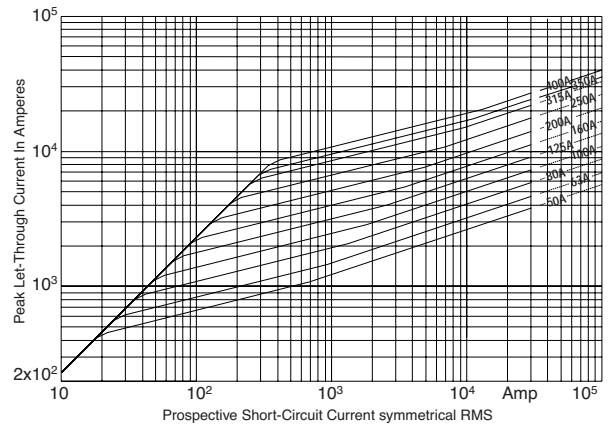


High Speed Fuses

Peak Let-Through Curve



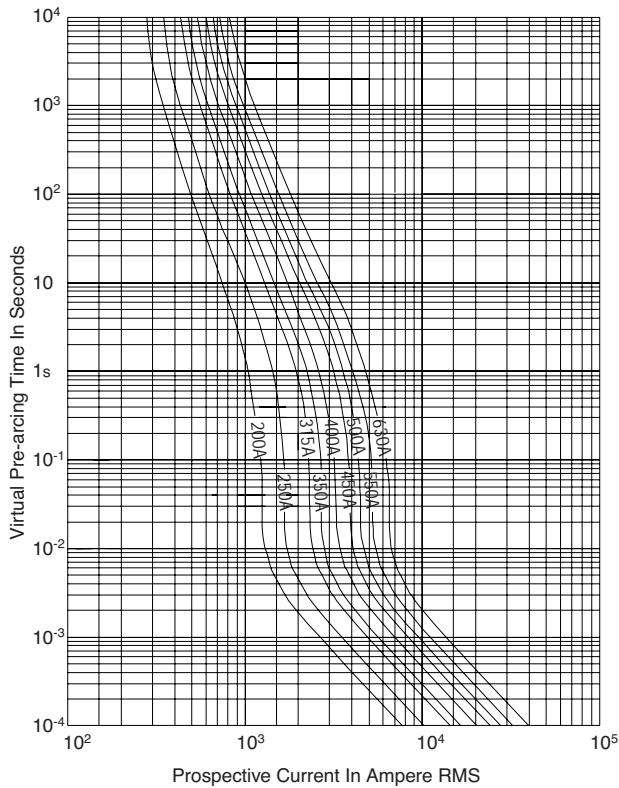
Peak Let-Through Curve



Square body DIN 43 620 — 690V (IEC): 10-800A

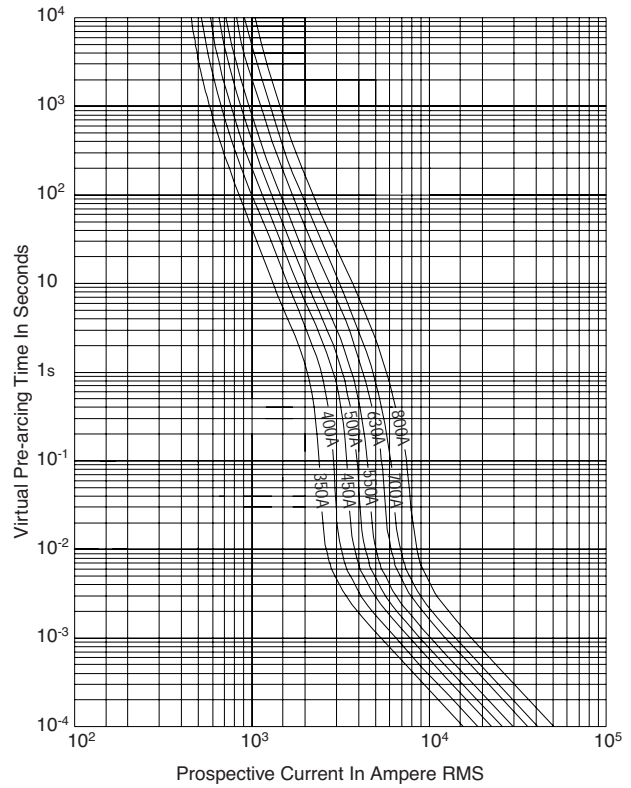
Size 2 — 200-630A: 690V

Time-Current Curve

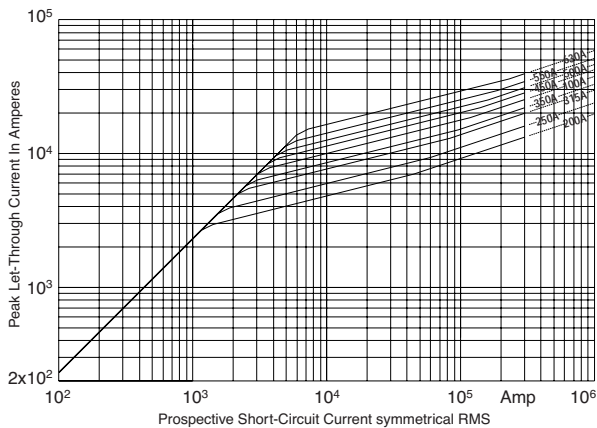


Size 3 — 350-800A: 690V

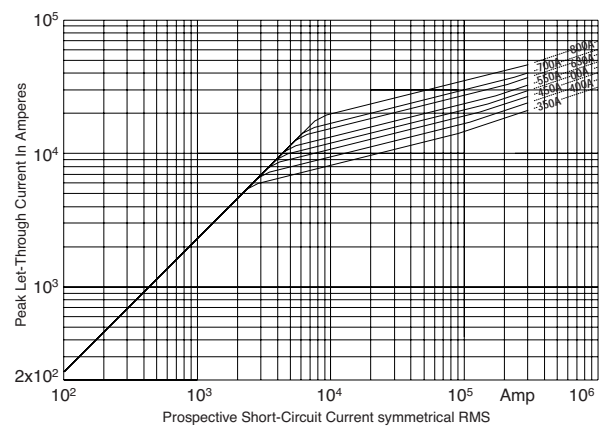
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



Square body DIN 43 620 — 1000V (IEC): 20-225A

1000V (IEC) 20-225A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac

Amps: — 20-225A

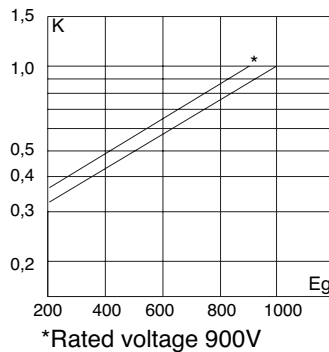
IR: — 150kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

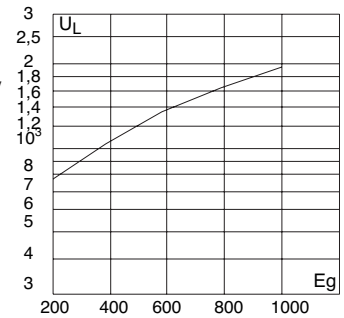
Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



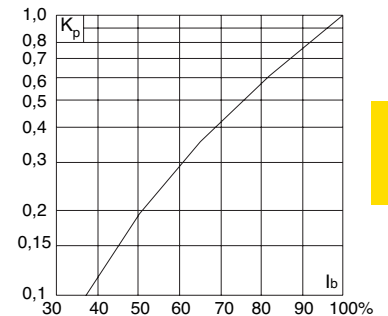
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

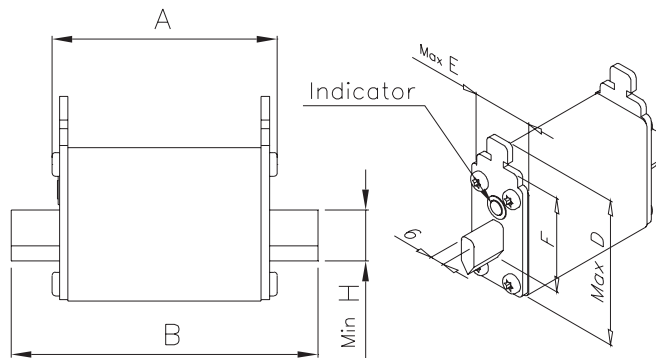
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type T

Size	A	B	Max D	Max E	F	G	Min H
DIN 00	49	78.5	60	30	35	6	15

1mm = 0.0394" / 1" = 25.4mm



High Speed Fuses

Square body DIN 43 620 — 1000V (IEC): 20-225A

Catalog Numbers

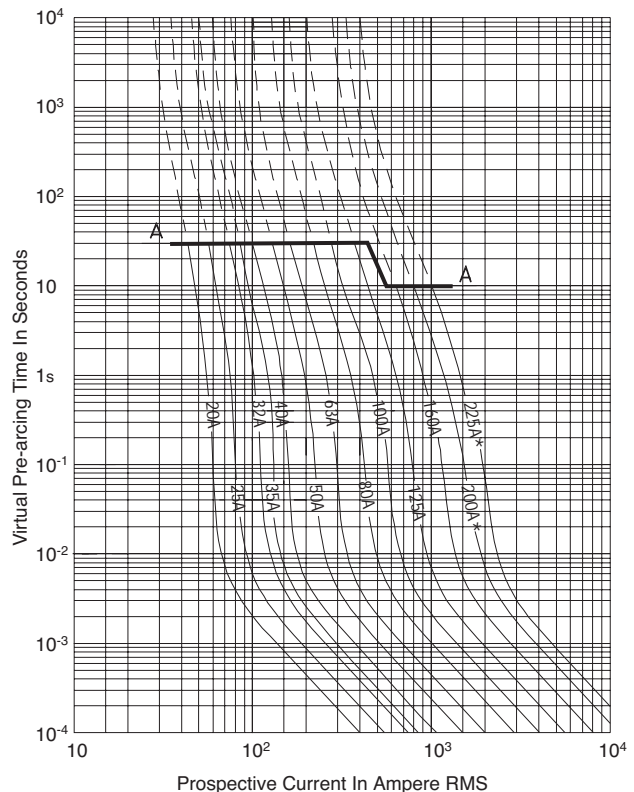
Catalog Numbers		Electrical Characteristics				
Type T Indicator for Micro	Size	Rated Voltage	Rated Current RMS Amps	I ² t (A ² Sec)		Watts Loss
				Pre-arc	Clearing at Rated Voltage	
170M2673	00	1000	20	15	110	8.5
170M2674		1000	25	28.5	210	9.5
170M2675		1000	32	53	390	11
170M2676		1000	35	69	500	12
170M2677		1000	40	105	760	13
170M2678		1000	50	215	1550	14
170M2679		1000	63	380	2750	16
170M2680		1000	80	815	5900	18
170M2681		1000	100	1550	11500	21
170M2682		1000	125	3000	22000	23
170M2683		1000	160	6250	45000	26
170M2684		900	200	12000	86500	31
170M2685		900	225	18000	115000	33

• Watts loss provided at rated current.
• Microswitch indicator ordered separately. See accessories on page 179-180.

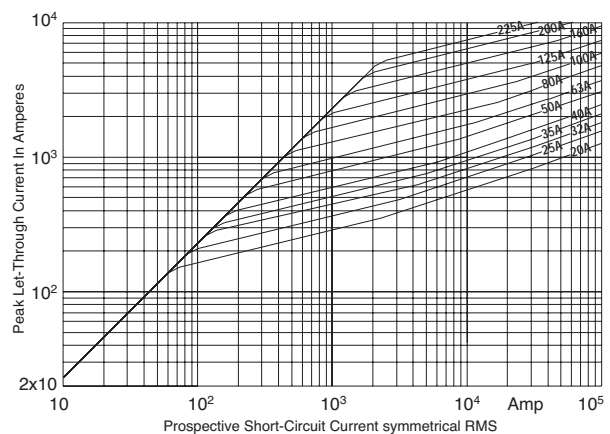
Rated Current

The rated current of this fuse range is given with open fuse bases connected to copper conductors according to IEC 60269 Part 1, table 10. When used in enclosed fuse bases/disconnects, derating factors have to be observed. Please contact Cooper Bussmann for application assistance.

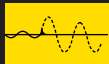
Size 00 — 20-225A: 1000V Time-Current Curve



Peak Let-Through Curve



* 200-225A fuses are derated to 900V



Did You Know?

Cooper Bussmann Helps Ford Motor Company Implement Electrical Safety Program

All of the Ford Motor Company facilities in the U.S., Canada and Mexico recently completed a safety upgrade to their electrical systems using Cooper Bussmann current limiting fuses. The automaker initiated a proactive program to enhance worker safety when working on electrical equipment.

The program not only included the fuse change out, but also a short circuit current study, arc flash hazard analysis, affixing safety labels to equipment, and providing safety training and personal protective equipment (PPE) to workers, as needed. By using Cooper Bussmann current-limiting fuses in potential arc-flash situations the amount of electrical energy released is considerably less, thereby helping to reduce the risk of potential injury.

Square body flush end contact — 690V (IEC): 25-400A

690V (IEC) 25-400A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac.

Amps: — 25-400A

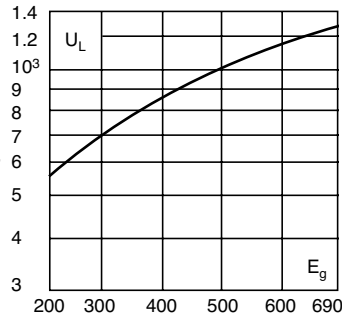
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

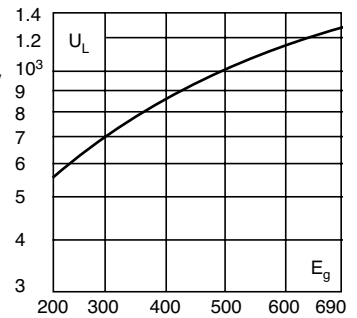
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



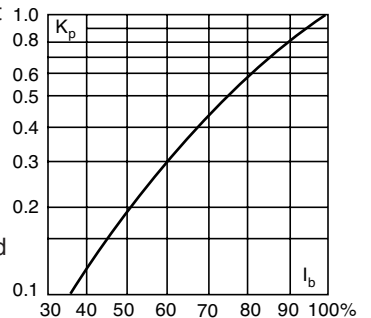
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

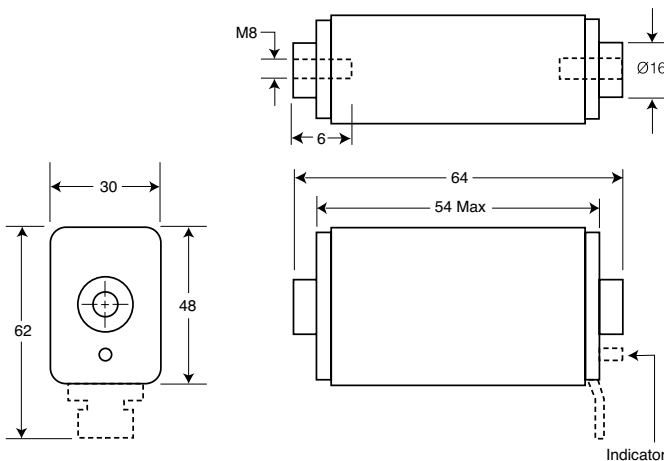
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type 00B/60, 00BTN/60

1mm = 0.0394" / 1" = 25.4mm



Did You Know?

The world's largest hydroelectric station at Itaipu on the borderline between Brazil & Paraguay is protected by Cooper Bussmann high speed fuses, 3000V, 400A.

High Speed Fuses

Square body flush end contact — 690V (IEC): 25-400A

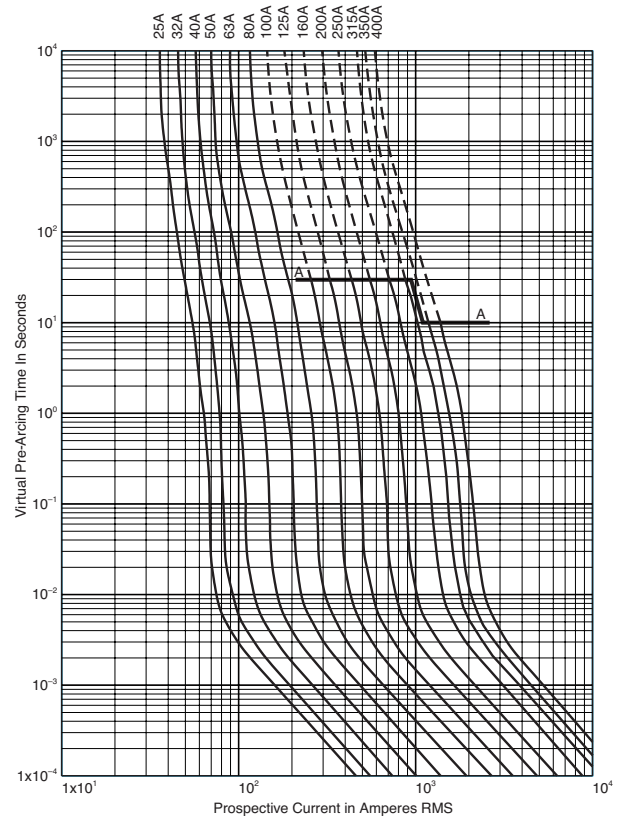
Catalog Numbers

Catalog Numbers		Size	Electrical Characteristics			
00B/60 Visual Indicator	00BTN/60 Type T Indicator for Micro		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
				Pre-arc	Clearing at 660V	
170M2708	170M2758	00	25	19	130	6
170M2709	170M2759		32	28.5	195	7
170M2710	170M2760		40	50	360	9
170M2711	170M2761		50	95	640	10
170M2712	170M2762		63	170	1200	12
170M2713	170M2763		80	310	2100	15
170M2714	170M2764		100	620	4150	20
170M2715	170M2765		125	1000	6950	25
170M2716	170M2766		160	1900	13000	30
170M2717	170M2767		200	3400	23000	35
170M2718	170M2768		250	6250	42000	45
170M2719	170M2769		315	10000	68500	55
170M2720	170M2770		350	13500	91500	60
170M2721	170M2771		400	18000	125000	70

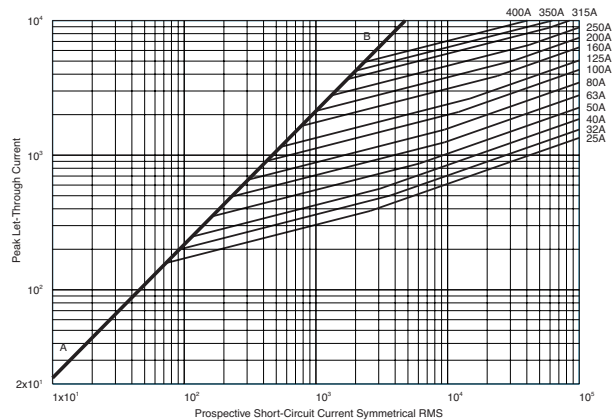
- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 179-180.

Size 00 — 25-400A: 690V

Time-Current Curve



Peak Let-Through Curve



Did You Know?

Easy Internet Access to Product and Technical Information

All of the following functions are available on-line at www.cooperbussmann.com:

- Product cross-reference
- Product catalogs
- Technical specification sheets
- Current events/news releases
- Training seminar schedule
- Training modules
- Technical software solutions

High Speed Fuses

Square body flush end contact — 690V/700V (IEC/UL): 40-2000A

690V/700V (IEC/UL) 40-2000A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-2000A

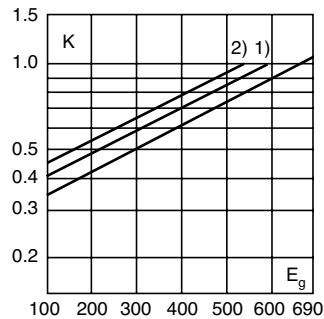
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition / CSA Component Acceptance Status.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) Rated voltage 600V.
2) Rated voltage 550V

Dimensions (mm)

Type -B/-, -BKN/-, -G/-, -GKN/-

Size	A	B	D	E	F	F** (in)	G	H
1*	50	51	59	45	M8	5/16" - 18 UNC-2B	5	ø17
1	50	51	69	53	M8	5/16" - 18 UNC-2B	8	ø20
2	50	51	77	61	M10	3/8" - 16 UNC-2B	10	ø24
3	51	53	92	76	M12	1/2" - 13 UNC-2B	10	ø30

**Valid for fuses type -G/- & -GKN/-.

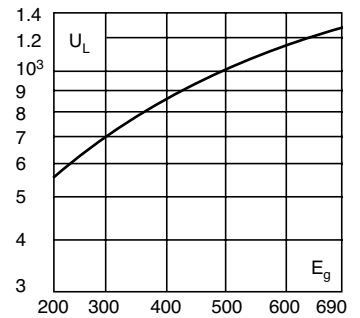
NB: B = 65 for: Size 2, 1100-1250A
Size 3, 1600-2000A

1mm = 0.0394" / 1" = 25.4mm



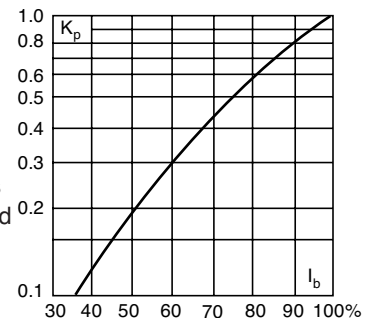
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

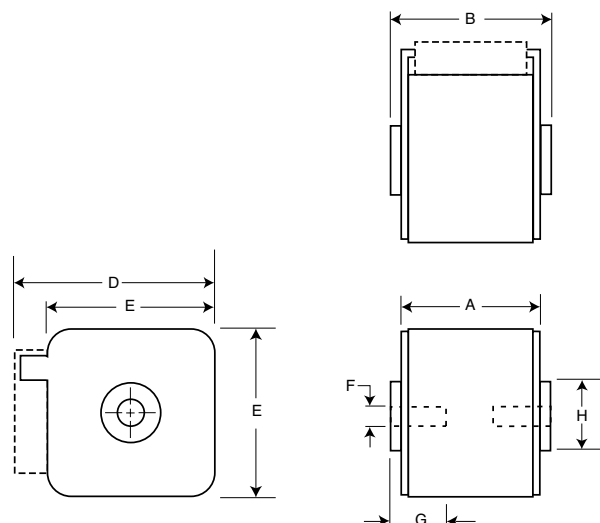


Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters



High Speed Fuses

Square body flush end contact — 690V/700V (IEC/UL): 40-2000A

Catalog Numbers

Catalog Numbers				Size	Electrical Characteristics			
-B/- Visual Indicator	-BKN/ Type K Indicator for Micro	-G/ Visual Indicator	-GKN/ Type K Indicator for Micro		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
						Pre-arc	Clearing at 660V	
170M3408	170M3458	170M3508	170M3558	1*	40	40	270	9
170M3409	170M3459	170M3509	170M3559		50	77	515	11
170M3410	170M3460	170M3510	170M3560		63	115	770	14
170M3411	170M3461	170M3511	170M3561		80	185	1250	18
170M3412	170M3462	170M3512	170M3562		100	360	2450	21
170M3413	170M3463	170M3513	170M3563		125	550	3700	26
170M3414	170M3464	170M3514	170M3564		160	1100	7500	30
170M3415	170M3465	170M3515	170M3565		200	2200	15000	35
170M3416	170M3466	170M3516	170M3566		250	4200	28500	40
170M3417	170M3467	170M3517	170M3567		315	7000	46500	50
170M3418	170M3468	170M3518	170M3568		350	10000	68500	55
170M3419	170M3469	170M3519	170M3569		400	15000	105000	60
170M3420	170M3470	170M3520	170M3570		450	21000	140000	65
170M3421	170M3471	170M3521	170M3571		500	27000	180000	70
170M3422	170M3472	170M3522	170M3572		550	34000	230000	75
170M3423	170M3473	170M3523	170M3573		630	48500	325000	80
170M4408	170M4458	170M4508	170M4558	1	200	1650	11500	45
170M4409	170M4459	170M4509	170M4559		250	3100	21000	55
170M4410	170M4460	170M4510	170M4560		315	6200	42000	58
170M4411	170M4461	170M4511	170M4561		350	8500	59000	60
170M4412	170M4462	170M4512	170M4562		400	13500	91500	65
170M4413	170M4463	170M4513	170M4563		450	17000	120000	70
170M4414	170M4464	170M4514	170M4564		500	25000	170000	72
170M4415	170M4465	170M4515	170M4565		550	34000	230000	75
170M4416	170M4466	170M4516	170M4566		630	52000	350000	80
170M4417	170M4467	170M4517	170M4567		700	69500	465000	85
170M4418	170M4468	170M4518	170M4568		800	105000	725000	95
170M4419	170M4469	170M4519	170M4569		±900	155000	±850000	100
170M5408	170M5458	170M5508	170M5558	2	400	11000	74000	65
170M5409	170M5459	170M5509	170M5559		450	15500	105000	70
170M5410	170M5460	170M5510	170M5560		500	21500	145000	75
170M5411	170M5461	170M5511	170M5561		550	28000	190000	80
170M5412	170M5462	170M5512	170M5562		630	41000	275000	90
170M5413	170M5463	170M5513	170M5563		700	60500	405000	95
170M5414	170M5464	170M5514	170M5564		800	86000	575000	105
170M5415	170M5465	170M5515	170M5565		900	125000	840000	110
170M5416	170M5466	170M5516	170M5566		1000	180000	1250000	115
170M5417	170M5467	170M5517	170M5567		1100	245000	1600000	120
170M5418	170M5468	170M5518	170M5568		1250	365000	2400000	130
170M6408	170M6458	170M6508	170M6558	3	500	14000	95000	95
170M6409	170M6459	170M6509	170M6559		550	19500	135000	100
170M6410	170M6460	170M6510	170M6560		630	31000	210000	105
170M6411	170M6461	170M6511	170M6561		700	44500	300000	110
170M6412	170M6462	170M6512	170M6562		800	69500	465000	115
170M6413	170M6463	170M6513	170M6563		900	100000	670000	120
170M6414	170M6464	170M6514	170M6564		1000	140000	945000	125
170M6415	170M6465	170M6515	170M6565		1100	190000	1300000	130
170M6416	170M6466	170M6516	170M6566		1250	290000	1950000	140
170M6417	170M6467	170M6517	170M6567		1400	370000	2450000	155
170M6418	170M6468	170M6518	170M6568		1500	460000	3100000	160
170M6419	170M6469	170M6519	170M6569		1600	580000	3900000	160
170M6420	170M6470	170M6520	170M6570		†1800	880000	†5250000	165
170M6421	170M6471	170M6521	170M6571		‡2000	1150000	‡6350000	175

†Rated voltage (IEC) 600V.

‡Rated voltage (IEC) 550V.

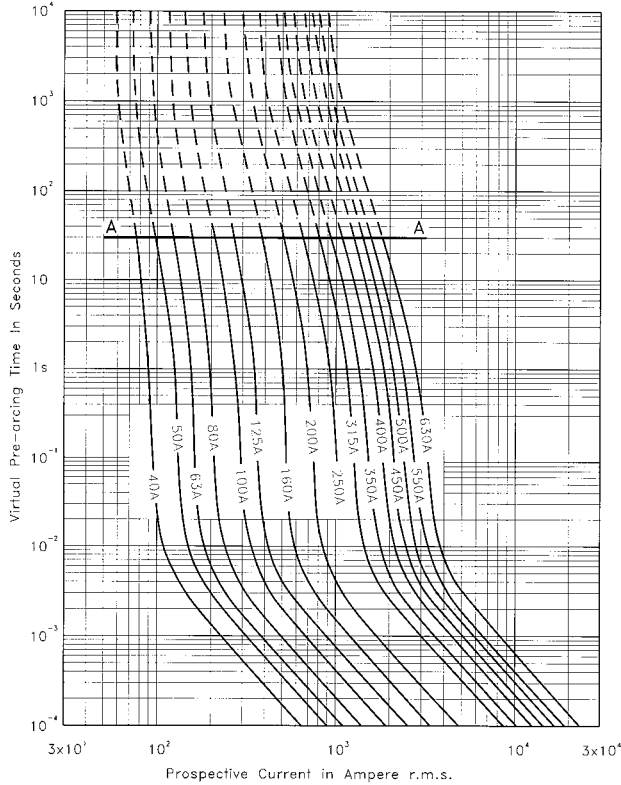
• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 179-180.

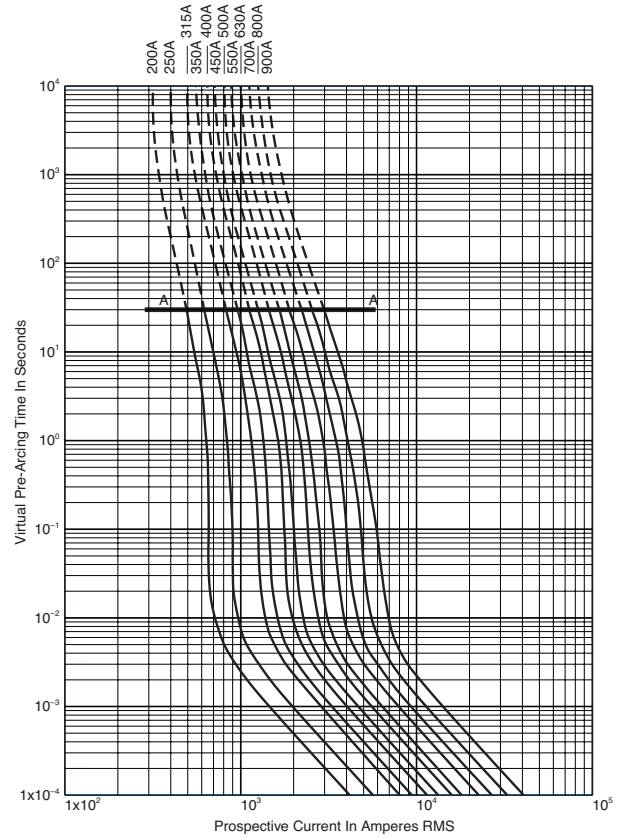
High Speed Fuses

Square body flush end contact — 690V/700V (IEC/UL): 40-2000A

Size 1* — 40-630A: 690V
Time-Current Curve

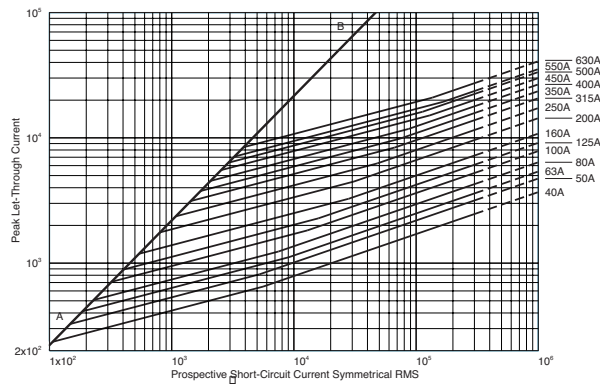


Size 1 — 200-900A: 690V
Time-Current Curve

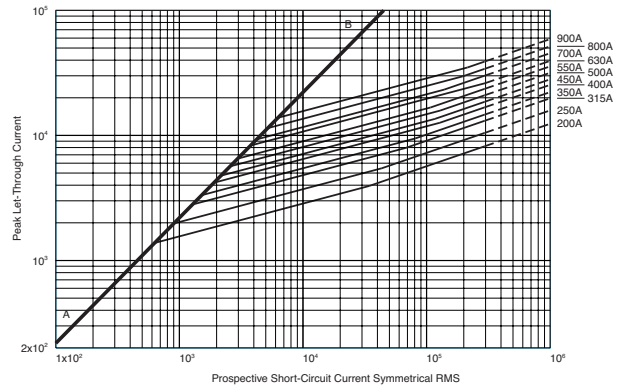


High Speed
Fuses

Peak Let-Through Curve



Peak Let-Through Curve



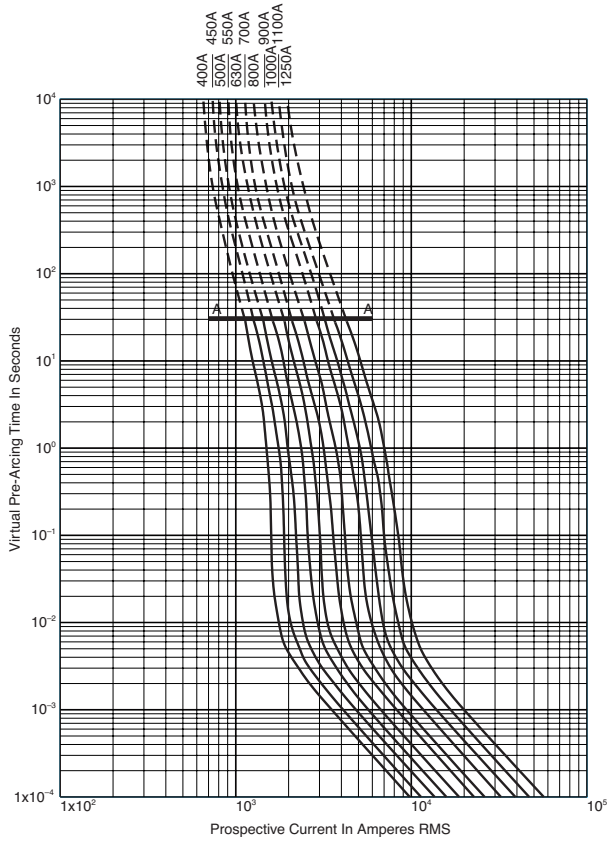
900 amp fuse is derated to 550V (IEC).

High Speed Fuses

Square body flush end contact — 690V/700V (IEC/UL):
40-2000A

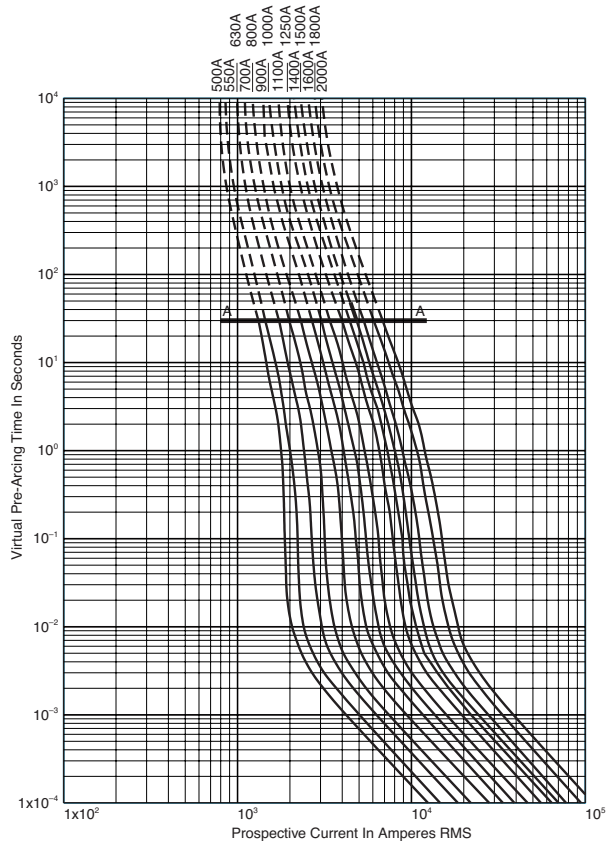
Size 2 — 400-1250A: 690V

Time-Current Curve

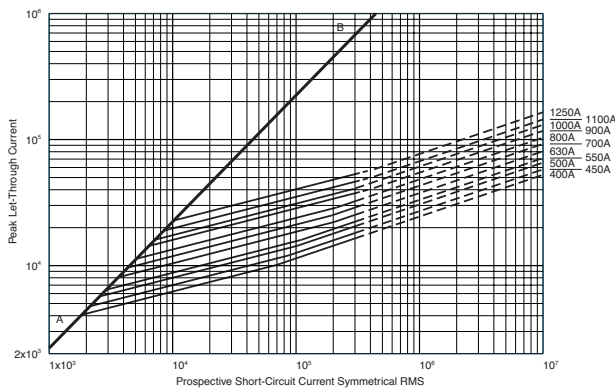


Size 3 — 500-2000A: 690V

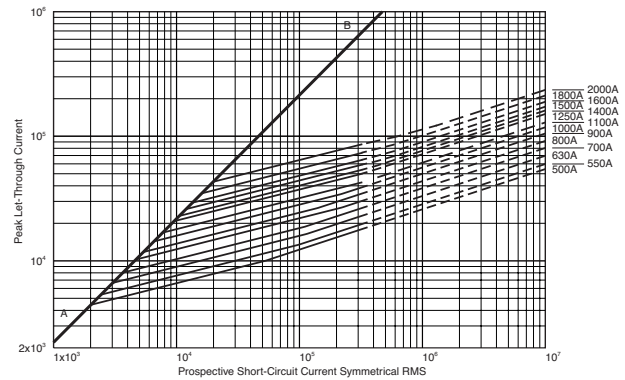
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



1800A fuse is derated to 600V (IEC).
2000A fuse is derated to 550V (IEC).

Data Sheet: 17056318

Data Sheet: 17056320

High Speed Fuses

Square body flush end contact — 690V (IEC): 1000-4000A

690V (IEC) 1000-4000A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

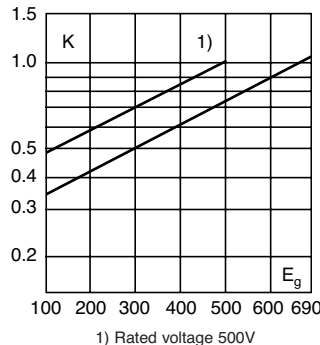
- Volts: — 690Vac
- Amps: — 1000-4000A
- IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

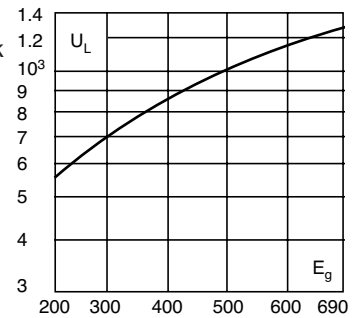
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



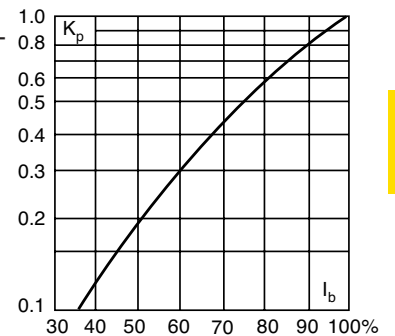
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

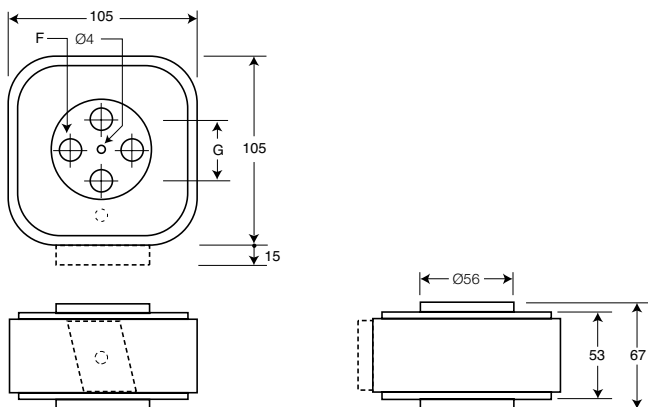
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type 4B/-, 4BKN/-, 4G/-, 4GKN/-

Size	F (in)	G
4B	M10 10 deep	33
4G	½" -13 UNC-2B 10 deep	38

1mm = 0.0394" / 1" = 25.4mm



High Speed Fuses

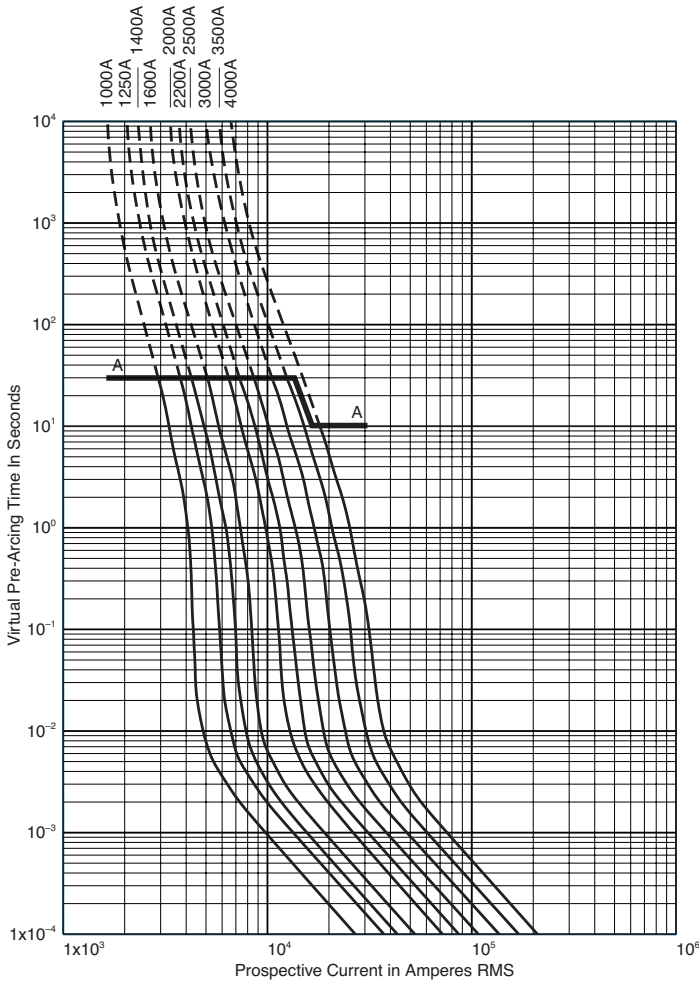
Square body flush end contact — 690V (IEC): 1000-4000A

Catalog Numbers

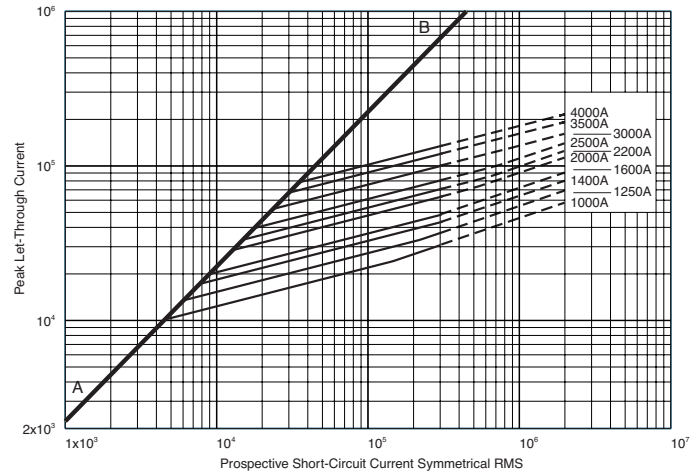
Catalog Numbers				Size	Electrical Characteristics					
-B/- Visual Indicator	-BKN/- Type K Indicator for Micro	-G/- Visual Indicator	-GKN/- Type K Indicator for Micro		Rated Current RMS		I2t (A2 Sec)		Watts Loss	
					Norm. Cool.	Liquid Cool.	Pre-arc	Clearing at 660V	Norm. Cool.	Liquid Cool.
170M7058	170M7078	170M7098	170M7118	4	1000	1350	76000	505000	175	315
170M7059	170M7079	170M7099	170M7119		1250	1700	145000	965000	195	355
170M7060	170M7080	170M7100	170M7120		1400	1900	205000	1400000	205	375
170M7061	170M7081	170M7101	170M7121		1600	2200	305000	2050000	220	405
170M7062	170M7082	170M7102	170M7122		2000	2700	600000	3950000	245	445
170M7063	170M7083	170M7103	170M7123		2500	3400	1200000	7800000	275	495
170M7064	170M7084	170M7104	170M7124		3000	4100	2000000	13500000	305	555
170M7065	170M7085	170M7105	170M7125		3500	4700	3250000	22000000	325	585
170M7066	170M7086	170M7106	170M7126		†4000	†5400	4700000	†28000000	355	640

- †Rated voltage (IEC) 500V.
- Watts loss provided at rated current.
- Liquid Cool. = Liquid cooling. Temperature on the terminals not to exceed 60°C.
- Microswitch indicator ordered separately. See accessories on pages 179-180.

Size 4 — 1000-4000A: 690V Time-Current Curve



Peak Let-Through Curve



4000A fuse is derated to 500V (IEC).

Data Sheet: 17056328

Square body flush end contact — 1000V (IEC): 50–1400A

1000V (IEC) 50–1400A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac.

Amps: — 50-1400A

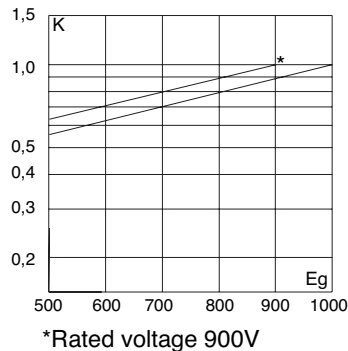
IR: — 150kA (Est.300kA) RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

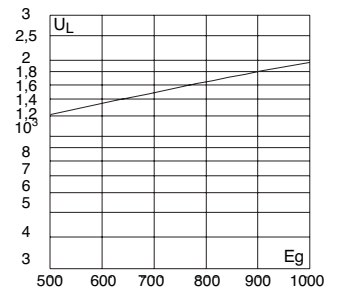
Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).



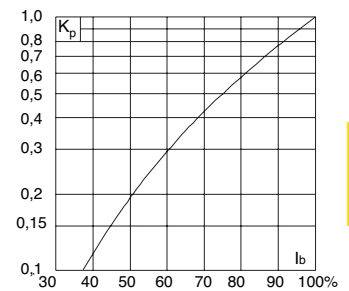
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

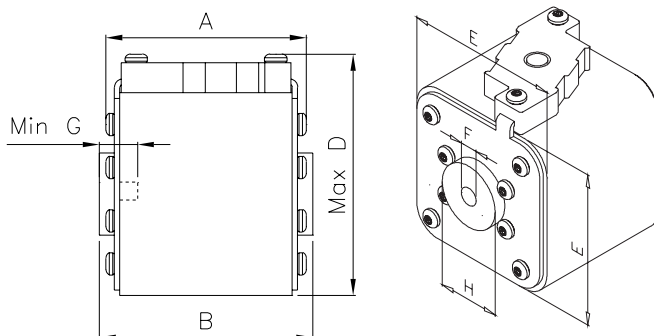
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type -BKN/- and -GKN/-

Size	A	B	Max D	E	F	F** (in)	Min G	H
1*BKN/75+GKN/75	72.5	74	61	43	M8	5/16" - 18 UNC-2B	5	ø17.5
1BKN/75+GKN/75	73.2	74	69	52	M8	5/16" - 18 UNC-2B	8	ø20
2BKN/75+GKN/75	73.2	74.4	77	59	M10	3/8" - 16 UNC-2B	10	ø24
3BKN/75+GKN/75	73.3	75.4	92	74	M12	1/2" - 13 UNC-2B	10	ø30
3BKN/90+GKN/90	80.3	91.4	92	74	M12	1/2" - 13 UNC-2B	10	ø30

** Valid for fuses type -GKN/-.
1mm = 0.0394" / 1" = 25.4mm



High Speed Fuses

High Speed Fuses

Square body flush end contact — 1000V (IEC): 50–1400A

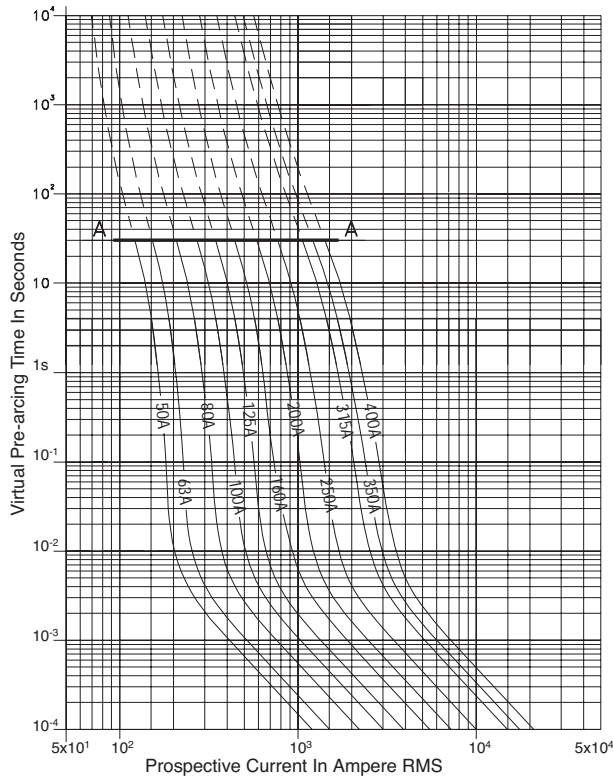
Catalog Numbers

Catalog Numbers		Electrical Characteristics					
-BKN/ Type K Indicator for Micro	-GKN/ Type K Indicator for Micro	Size	Rated Voltage	Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
					Pre-arc	Clearing at Rated Voltage	
170M3951	170M3921	1*	1000	50	135	815	20
170M3952	170M3922		1000	63	215	1300	25
170M3953	170M3923		1000	80	460	2750	30
170M3954	170M3924		1000	100	860	5100	35
170M3955	170M3925		1000	125	1450	8600	40
170M3956	170M3926		1000	160	2850	17500	45
170M3957	170M3927		1000	200	4950	29500	48
170M3958	170M3928		1000	250	9550	57000	50
170M3959	170M3929		1000	315	21500	130000	60
170M3960	170M3930		1000	350	29000	175000	65
170M3961	170M3931	1000	400	42000	250000	70	
170M4951	170M4921	1	1000	160	2200	13500	40
170M4952	170M4922		1000	200	4150	24500	45
170M4953	170M4923		1000	250	7750	46000	52
170M4954	170M4924		1000	315	16500	98500	60
170M4955	170M4925		1000	350	21500	130000	65
170M4956	170M4926		1000	400	31000	185000	70
170M4957	170M4927		1000	450	44500	265000	80
170M4958	170M4928		1000	500	63000	375000	85
170M4959	170M4929		1000	550	84500	500000	90
170M4960	170M4930		1000	630	125000	755000	98
170M5952	170M5922	2	1000	250	6750	40000	65
170M5953	170M5923		1000	315	13500	81500	75
170M5954	170M5924		1000	350	16500	99000	80
170M5955	170M5925		1000	400	26000	155000	85
170M5956	170M5926		1000	450	35500	210000	90
170M5957	170M5927		1000	500	49500	295000	95
170M5958	170M5928		1000	550	66000	390000	100
170M5959	170M5929		1000	630	93500	555000	110
170M5960	170M5930		1000	700	130000	770000	115
170M5961	170M5931		1000	800	195000	1200000	125
170M8600	170M8500	3	1000	315	9200	54500	90
170M8601	170M8501		1000	350	13000	77500	95
170M8602	170M8502		1000	400	19000	115000	105
170M8603	170M8503		1000	450	27000	160000	107
170M8604	170M8504		1000	500	37500	225000	110
170M8605	170M8505		1000	550	52000	310000	115
170M8606	170M8506		1000	630	82500	490000	120
170M8607	170M8507		1000	700	115000	700000	125
170M8608	170M8508		1000	800	170000	1050000	135
170M8609	170M8509		1000	900	250000	1500000	145
170M8610	170M8510		1000	1000	340000	2050000	150
170M8611	170M8511		1000	1100	460000	2750000	155
170M8612**	170M8512**		1000	1250	575000	3400000	175
170M8613**	170M8513**		900	1400	795000	4200000	185

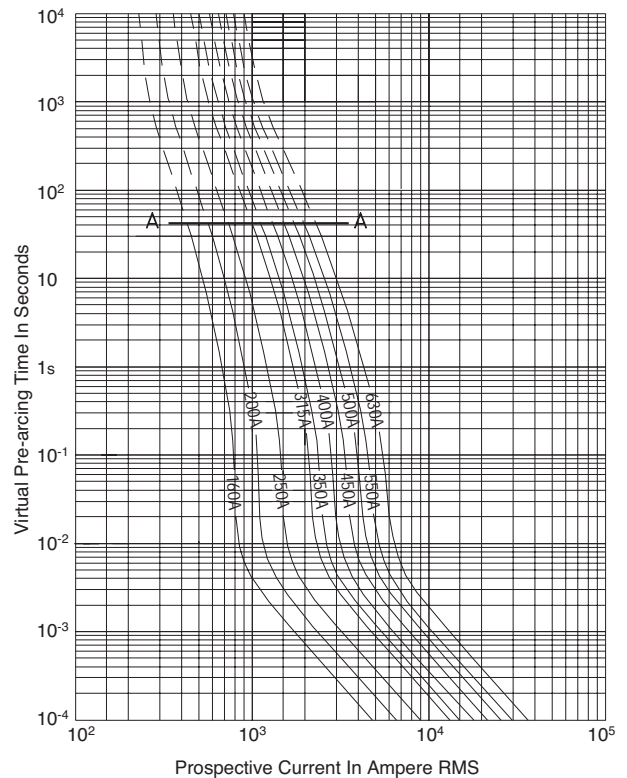
**Overall length is 90mm, for all other fuses the overall length is 75mm.
 • Watts loss provided at rated current.
 • Microswitch ordered separately. See accessories on page 179-180.

Square body flush end contact — 1000V (IEC): 50-1400A

Size 1* — 50-400A: 1000V
Time-Current Curve

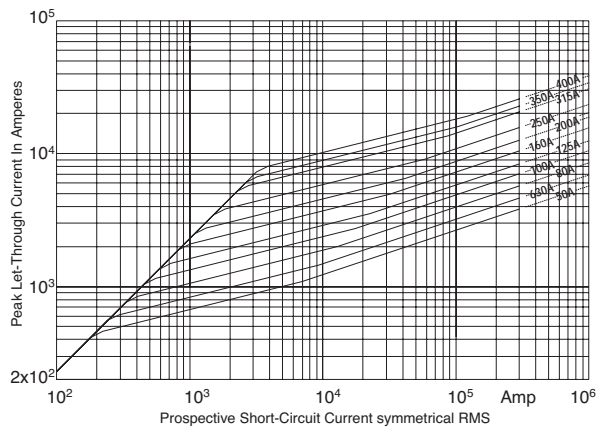


Size 1 — 160-630A: 1000V
Time-Current Curve

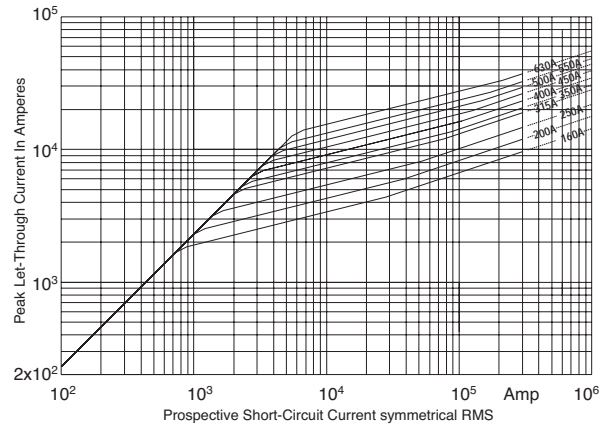


High Speed
Fuses

Peak Let-Through Curve



Peak Let-Through Curve

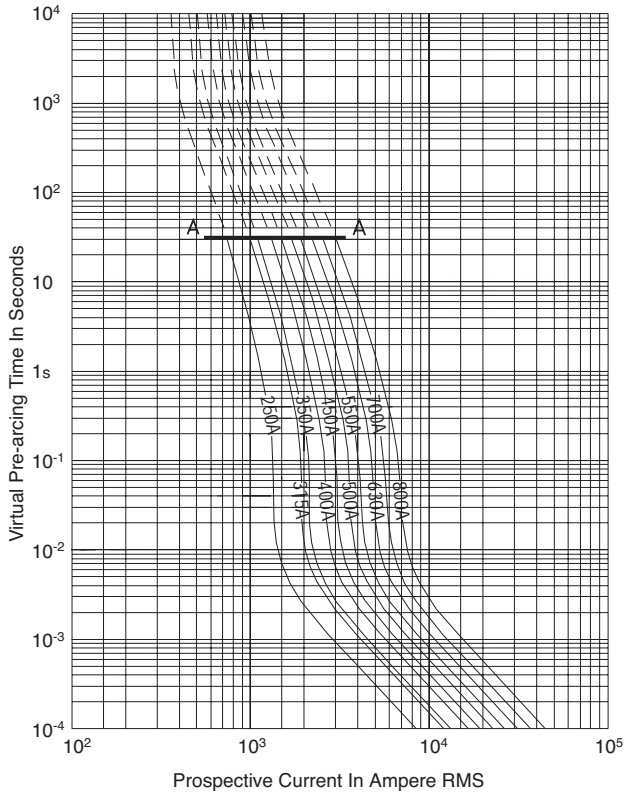


High Speed Fuses

Square body flush end contact — 1000V (IEC): 50-1400A

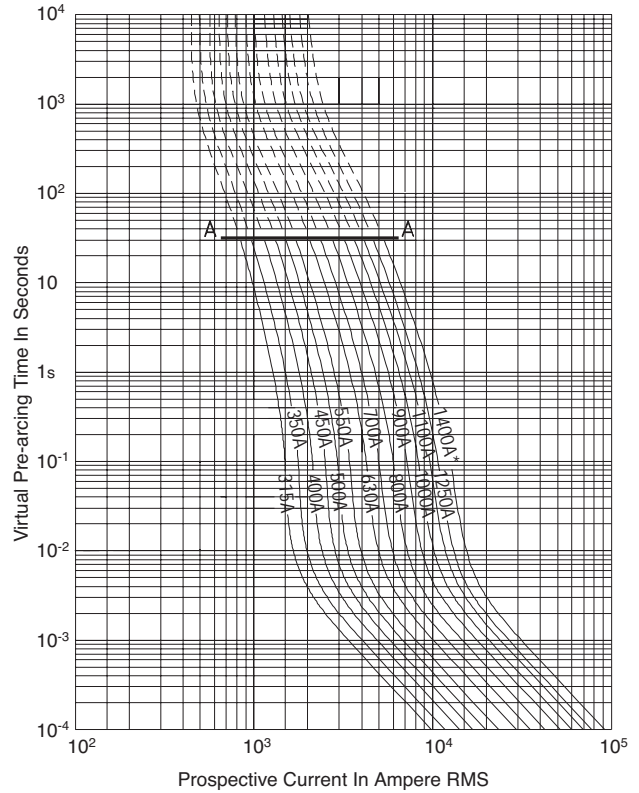
Size 2 — 250-800A: 1000V

Time-Current Curve

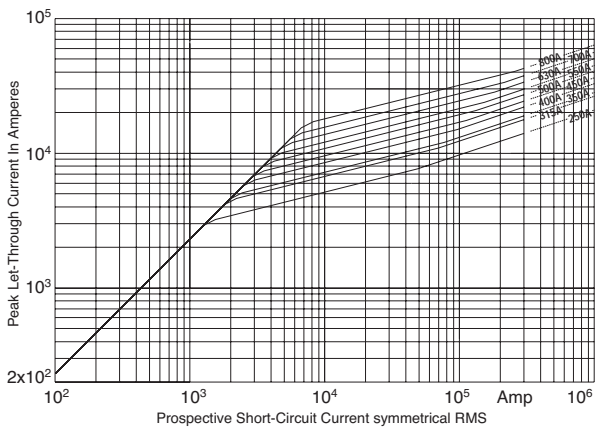


Size 3 — 315-1400A: 1000V

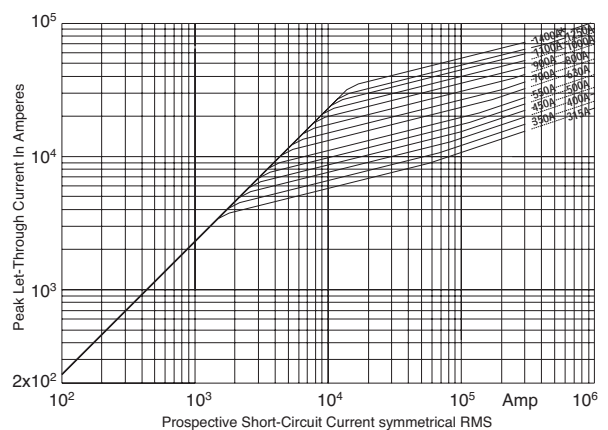
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



* 1400A fuses are derated to 900V

Data Sheet: 17058568

Data Sheet: 17058570

High Speed Fuses

Square body flush end contact — 1250V/1300V (IEC/UL): 50-1400A

1250V/1300V (IEC/UL) 50-1400A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

- Volts: — 1250Vac (IEC)
- 1300Vac (UL)

Amps: — 50-1400A

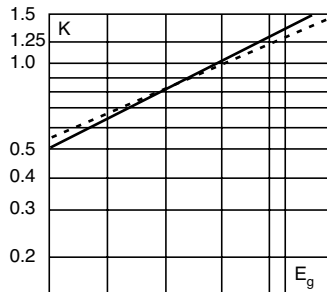
IR: — 100kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition/CSA Component Acceptance status.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dashed lines (---) apply to the following amperages:.

Size	Amps.
1*	400A
1	500-630A
2	630-1000A
3	800-1400A

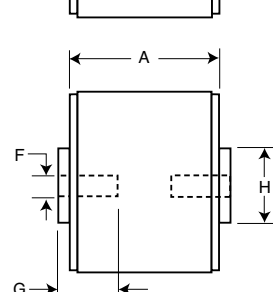
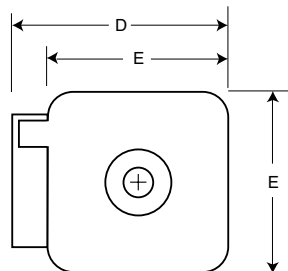
Dimensions (mm)

Type -BKN/-, -GKN/-

Size	Type	A	B	D	E	F	F** (in)	G	H
1*	BKN + GKN/75	74	75	59	45	M8	5/16" - 18 UNC-2B	5	Ø17
1*	BKN/80	80	81	59	45	M8		5	Ø17
1	BKN + GKN/75	74	75	69	53	M8	5/16" - 18 UNC-2B	8	Ø20
1	BKN/80	80	81	69	53	M8		8	Ø20
2	BKN + GKN/75	74	75	77	61	M10	3/8" - 16 UNC-2B	10	Ø24
2	BKN/80	80	81	77	61	M10		10	Ø24
2	BKN + GKN/90	80	91	77	61	M10	3/8" - 16 UNC-2B	10	Ø24
3	BKN + GKN/75	74	76	92	76	M12	1/2" - 13 UNC-2B	10	Ø30
3	BKN/80	81	83	92	76	M12		10	Ø30
3	BKN + GKN/90	81	91	92	76	M12	1/2" - 13 UNC-2B	10	Ø30

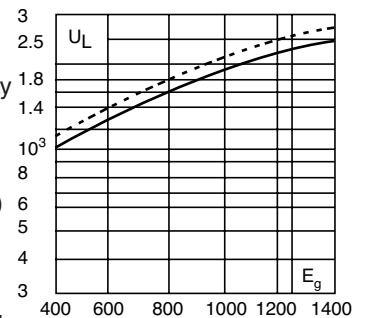
**Valid for fuses type -GKN/-.

1mm = 0.0394" / 1" = 25.4mm



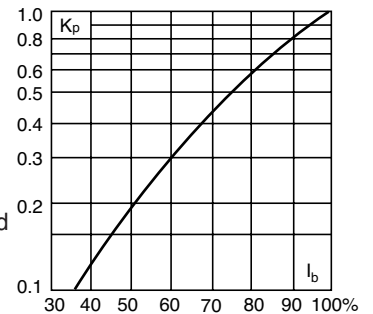
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

**Square body flush end contact — 1250V/1300V (IEC/UL):
50-1400A**

Catalog Numbers

Catalog Numbers					Electrical Characteristics					
-BKN/75 Type K Indicator for Micro	-BKN/80 Type K Indicator for Micro	-BKN/90 Type K Indicator for Micro	-GKN/75 Type K Indicator for Micro	-GKN/90 Type K Indicator for Micro	Size	Rated Current RMS- Amps	I ² t (A ² Sec)			Watts Loss
				Pre-arc			Clearing at 1000V	Clearing at 1250V		
170M3388	170M3438		170M3488		1*	50	135	815	1100	15
170M3389	170M3439		170M3489			63	215	1300	1750	20
170M3390	170M3440		170M3490			80	420	2500	3350	25
170M3391	170M3441		170M3491			100	750	4450	5950	30
170M3392	170M3442		170M3492			125	1450	9000	11500	35
170M3393	170M3443		170M3493			160	2600	16000	21000	40
170M3394	170M3444		170M3494			200	5150	31000	41000	45
170M3395	170M3445		170M3495			250	9200	54500	73000	55
170M3396	170M3446		170M3496			315	18500	115000	150000	60
170M3397	170M3447		170M3497			350	27000	165000	220000	65
	170M3448					400	53000	265000	335000	70
170M4388	170M4438		170M4488		1	160	1900	11500	15500	45
170M4389	170M4439		170M4489			200	3800	22500	30000	50
170M4390	170M4440		170M4490			250	7750	46000	61500	60
170M4391	170M4441		170M4491			315	15000	90000	120000	65
170M4392	170M4442		170M4492			350	20000	125000	165000	70
170M4393	170M4443		170M4493			400	29500	175000	235000	75
170M4394	170M4444		170M4494			450	42000	250000	335000	80
†170M4395	170M4445		†170M4495			500	69500	340000	435000	85
‡170M4396	170M4446		‡170M4496			550	95000	465000	590000	95
‡170M4397	†170M4447		‡170M4497			630	130000	660000		100
170M5388	170M5438		170M5588		2	250	6500	38500	51500	65
170M5389	170M5439		170M5589			280	9350	55500	74500	70
170M5390	170M5440		170M5590			315	13000	77500	105000	75
170M5391	170M5441		170M5591			350	16500	97500	135000	80
170M5392	170M5442		170M5592			400	23000	140000	180000	85
170M5393	170M5443		170M5593			450	34000	205000	270000	90
170M5394	170M5444	170M5494	170M5594	170M5644		500	48000	285000	380000	95
170M5395	170M5445	170M5495	170M5595	170M5645		550	62000	370000	495000	100
†170M5396	170M5446	170M5496	†170M5596	170M5646		630	115000	575000	730000	110
‡170M5397	†170M5447	170M5497	‡170M5597	170M5647		700	160000	795000	1050000	115
‡170M5398	‡170M5448	170M5498	‡170M5598	170M5648		800	245000	1200000	1550000	120
		170M5499		170M5649		†900	360000	1750000		125
		170M5500		170M5650		†1000	480000	2350000		135
170M6338	170M6538		170M6588		3	315	9500	58000	77500	85
170M6339	170M6539		170M6589			350	13500	81500	110000	90
170M6340	170M6540		170M6590			400	19500	120000	160000	95
170M6341	170M6541		170M6591			450	31000	185000	245000	100
170M6342	170M6542		170M6592			500	39000	235000	310000	105
170M6343	170M6543		170M6593			550	55000	325000	435000	110
170M6344	170M6544	170M6494	170M6594	170M6644		630	83500	495000	665000	115
170M6345	170M6545	170M6495	170M6595	170M6645		700	115000	705000	940000	120
†170M6346	170M6546	‡170M6496	†170M6596	‡170M6646		800	205000	995000	1300000	125
‡170M6347	†170M6547	‡170M6497	‡170M6597	‡170M6647		900	305000	1500000	1900000	130
‡170M6348	†170M6548	‡170M6498	‡170M6598	‡170M6648		1000	450000	2150000	2750000	135
‡170M6349	‡170M6549	‡170M6499	‡170M6599	‡170M6649		1100	575000	2800000	3600000	140
		170M6500		170M6650		†1250	810000	3950000		145
		170M6501		170M6651		†1400	1250000	6000000		150

†Rated voltage (IEC) 1100V.

‡Rated voltage (IEC) 1000V.

‡Rated voltage (IEC) 1250V.

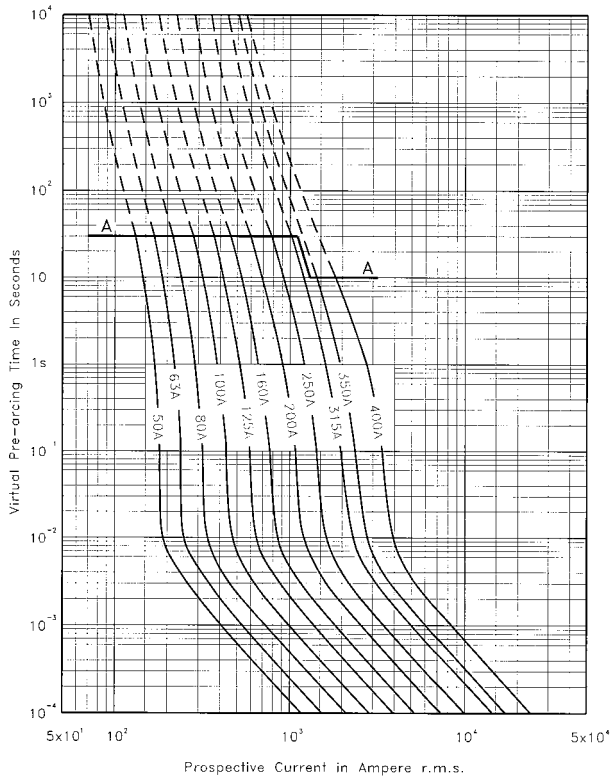
• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 179-180.

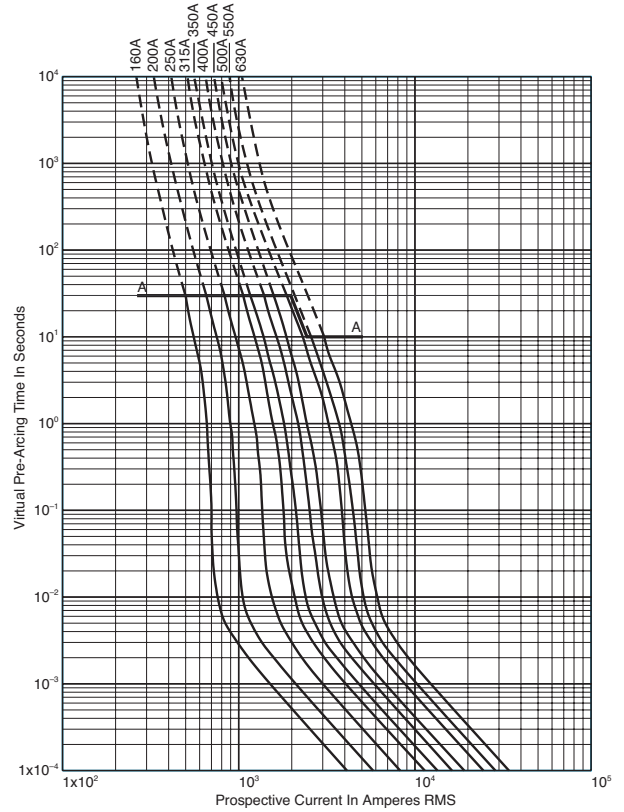
High Speed Fuses

Square body flush end contact — 1250V/1300V (IEC/UL): 50-1400A

Size 1* — 50-400A:1250V
Time-Current Curve

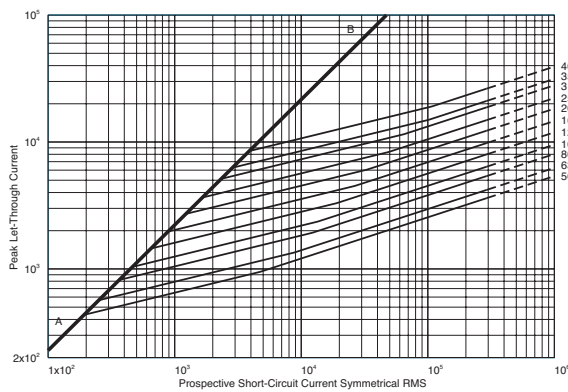


Size 1 — 160-630A: 1250V
Time-Current Curve

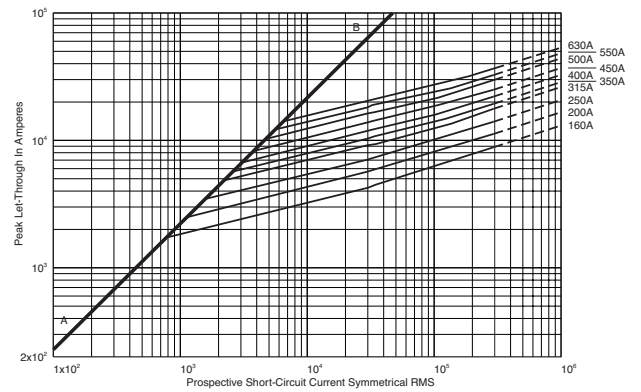


High Speed
Fuses

Peak Let-Through Curve



Peak Let-Through Curve



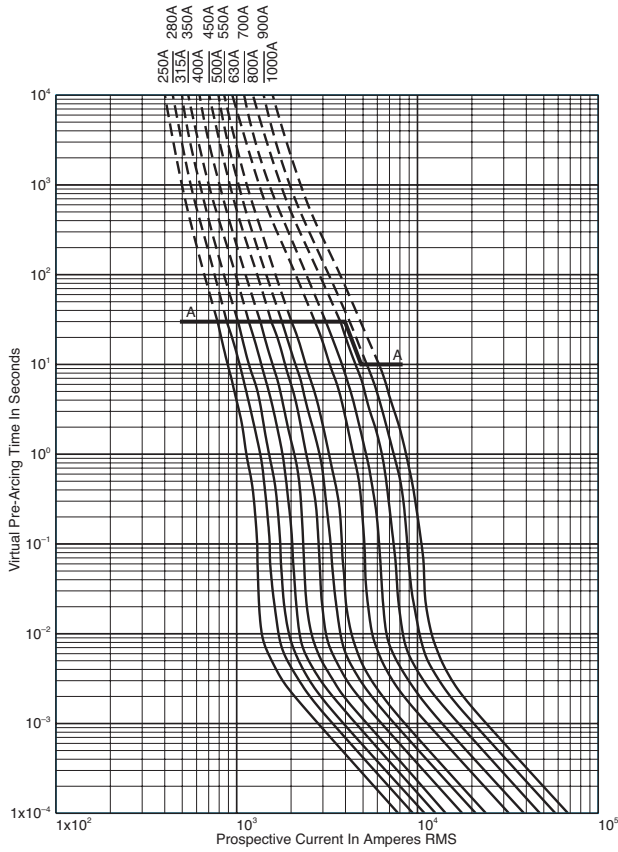
630A fuse is derated to 1100V (IEC).

High Speed Fuses

Square body flush end contact — 1250V/1300V (IEC/UL): 50-1400A

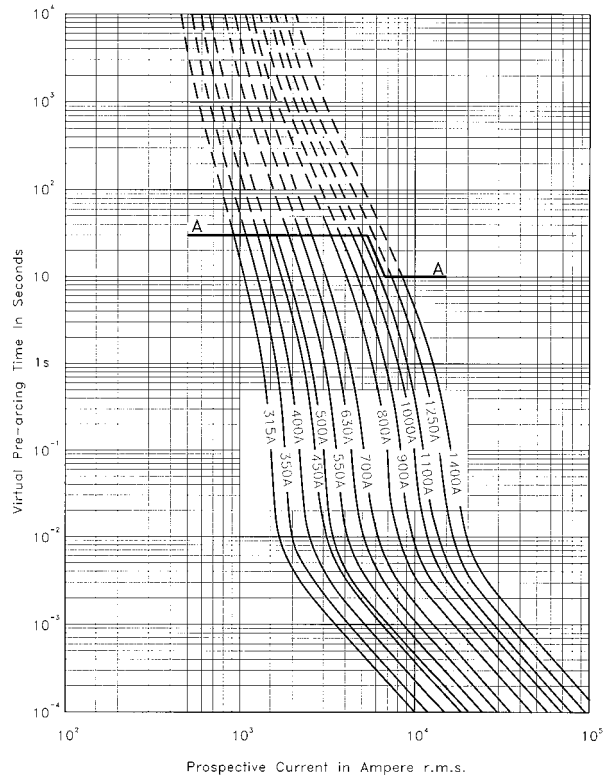
Size 2 — 250-1000A: 1250V

Time-Current Curve

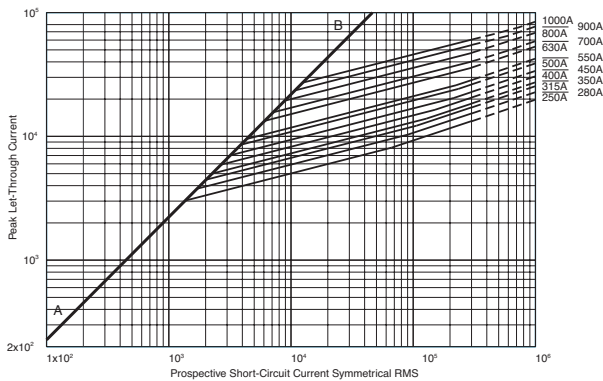


Size 3 — 315-1400A: 1250V

Time-Current Curve

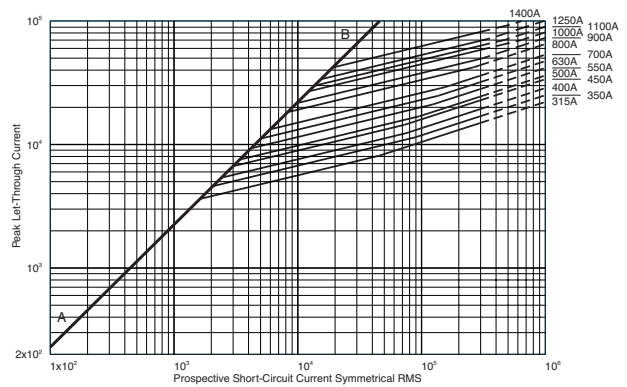


Peak Let-Through Curve



900-1000A fuses are derated to 1100V (IEC).

Peak Let-Through Curve



1250-1400A fuses are derated to 1100V (IEC).

High Speed Fuses

Square Body French Style — 690V/700V (IEC/UL): 40-1500A

690V/700V (IEC/UL) 40-1500A

Specifications

Description: Square body French style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-1500A

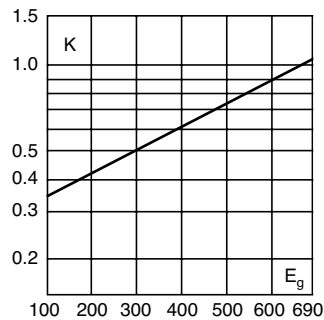
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

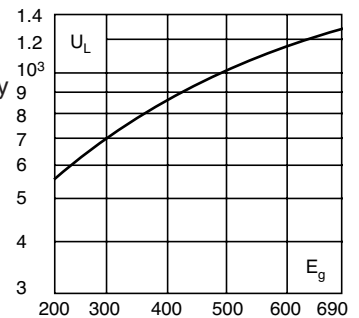
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



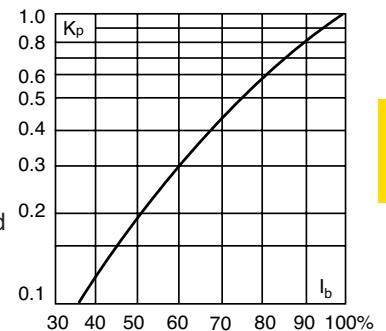
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

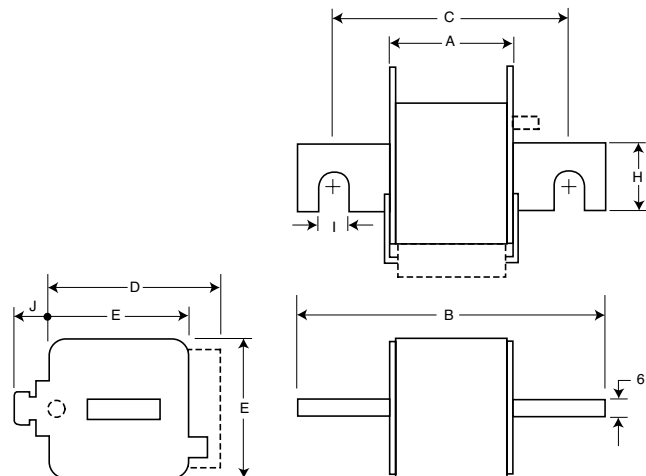
High Speed Fuses

Dimensions (mm)

Type -E/-, -EKN/-

Size	A	B	C	D	E	H	I	J
1*	50	102	76	59	45	18	9	13
1	50	111	86	69	53	25	11	11
2	50	126	91	77	61	30	13	12
3	51	126	91	92	76	36	13	13

1mm = 0.0394" / 1" = 25.4mm



High Speed Fuses

Square Body French Style — 690V/700V (IEC/UL): 40-1500A

Catalog Numbers

Catalog Numbers		Size	Electrical Characteristics				
-E/ Type T Indicator For Micro	-EKN/ Type K Indicator for Micro		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss	
				Pre-arc	Clearing at 660V		
170M3308	170M3358	1*	40	40	270	9	
170M3309	170M3359		50	77	515	11	
170M3310	170M3360		63	115	770	14	
170M3311	170M3361		80	185	1250	18	
170M3312	170M3362		100	360	2450	21	
170M3313	170M3363		125	550	3700	26	
170M3314	170M3364		160	1100	7500	30	
170M3315	170M3365		200	2200	15000	35	
170M3316	170M3366		250	4200	28500	40	
170M3317	170M3367		315	7000	46500	50	
170M3318	170M3368		350	10000	68500	55	
170M3319	170M3369		400	15000	105000	60	
170M3320	170M3370		450	21000	140000	65	
170M3321	170M3371		500	27000	180000	70	
170M4308	170M4358		1	200	1650	11500	45
170M4309	170M4359			250	3100	21000	55
170M4310	170M4360	315		6200	42000	58	
170M4311	170M4361	350		8500	59000	60	
170M4312	170M4362	400		13500	91500	65	
170M4313	170M4363	450		17000	120000	70	
170M4314	170M4364	500		25000	170000	72	
170M4315	170M4365	550		34000	230000	75	
170M4316	170M4366	630		52000	350000	80	
170M4317	170M4367	700		69500	465000	85	
170M4318	170M4368	800	105000	725000	95		
170M5308	170M5358	2	400	11000	74000	65	
170M5309	170M5359		450	15500	105000	70	
170M5310	170M5360		500	21500	145000	75	
170M5311	170M5361		550	28000	190000	80	
170M5312	170M5362		630	41000	275000	90	
170M5313	170M5363		700	60500	405000	95	
170M5314	170M5364		800	86000	575000	105	
170M5315	170M5365		900	125000	840000	110	
170M5316	170M5366		1000	180000	1250000	115	
170M6308	170M6358	3	500	14000	95000	95	
170M6309	170M6359		550	19500	135000	100	
170M6310	170M6360		630	31000	210000	105	
170M6311	170M6361		700	44500	300000	110	
170M6312	170M6362		800	69500	465000	115	
170M6313	170M6363		900	100000	670000	120	
170M6314	170M6364		1000	140000	945000	125	
170M6315	170M6365		1100	190000	1300000	130	
170M6316	170M6366		1250	290000	1950000	140	
170M6317	170M6367		1400	370000	2450000	155	
170M6318	170M6368		1500	460000	3100000	160	

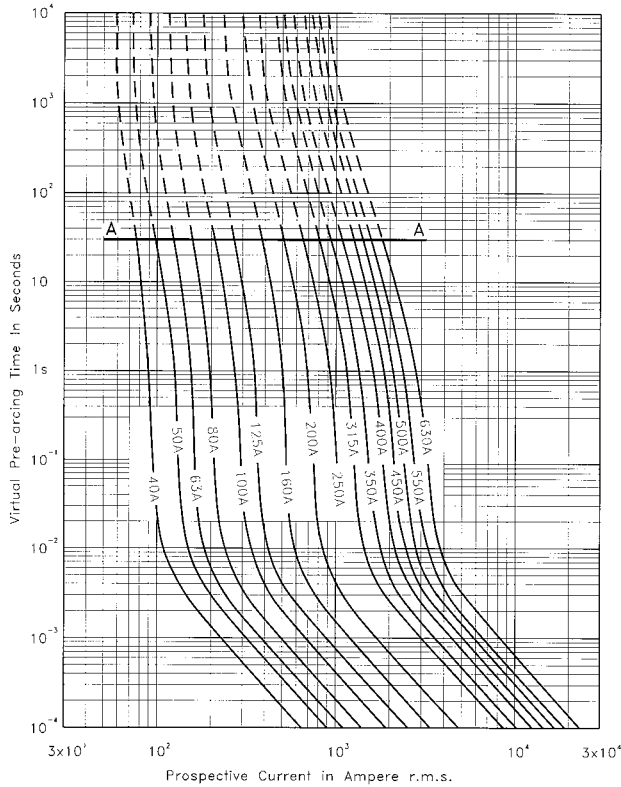
*Watts loss provided at rated current.

•Microswitch indicator ordered separately. See accessories on pages 179-180.

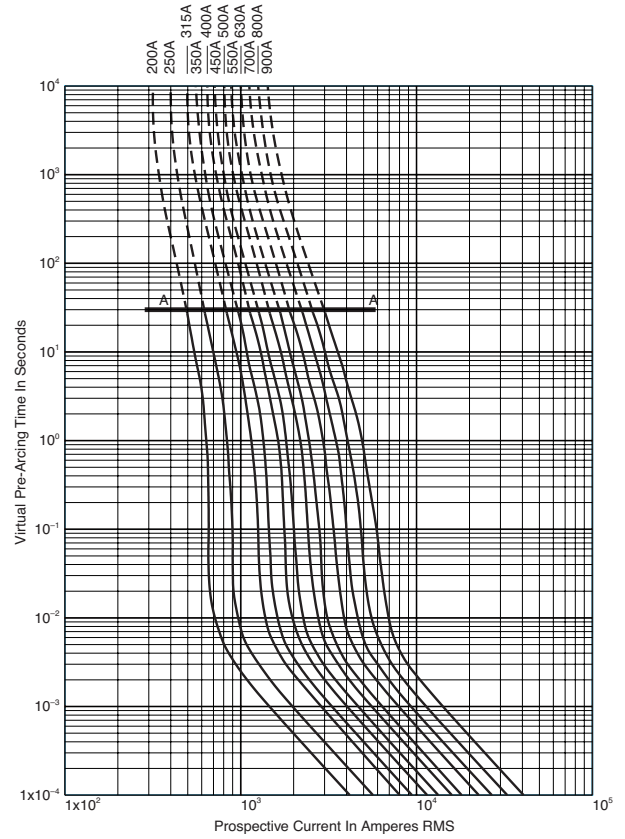
High Speed Fuses

Square Body French Style — 690V/700V (IEC/UL): 40-1500A

Size 1* — 40-630A: 690V
Time-Current Curve

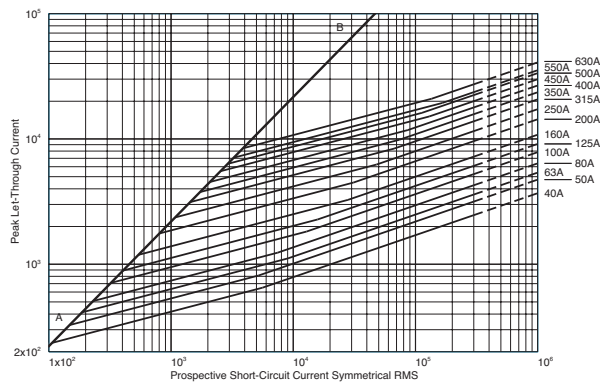


Size 1 — 200-900A: 690V
Time-Current Curve

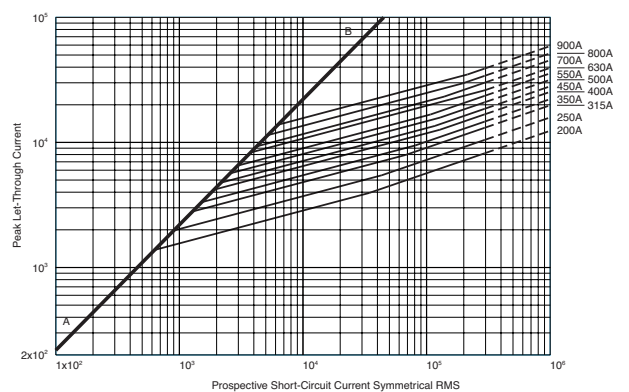


High Speed
Fuses

Peak Let-Through Curve



Peak Let-Through Curve

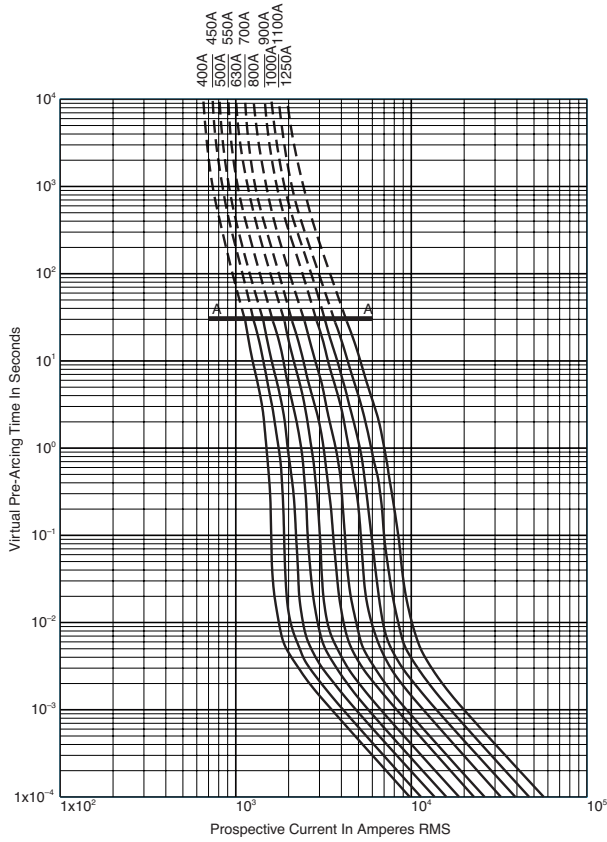


High Speed Fuses

Square Body French Style — 690V/700V (IEC/UL):
40-1500A

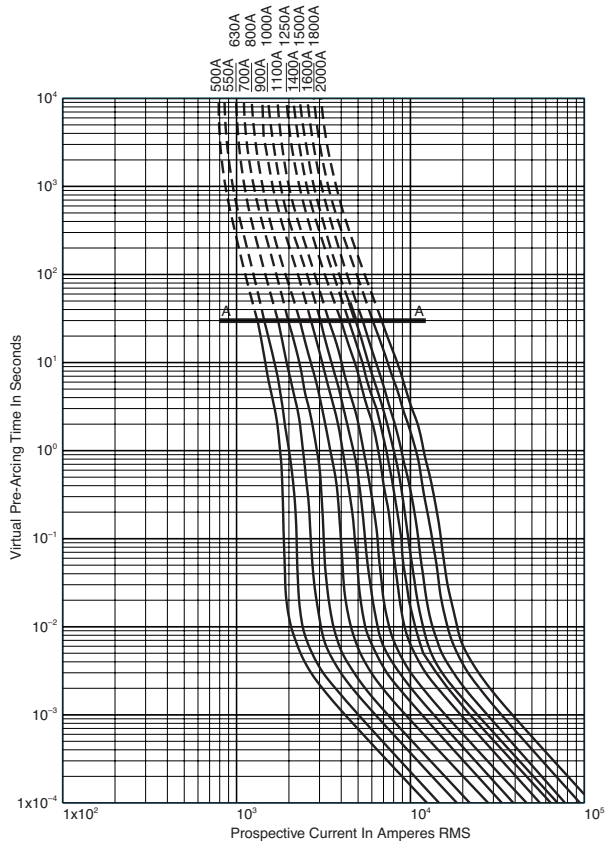
Size 2 — 400-1250A: 690V

Time-Current Curve

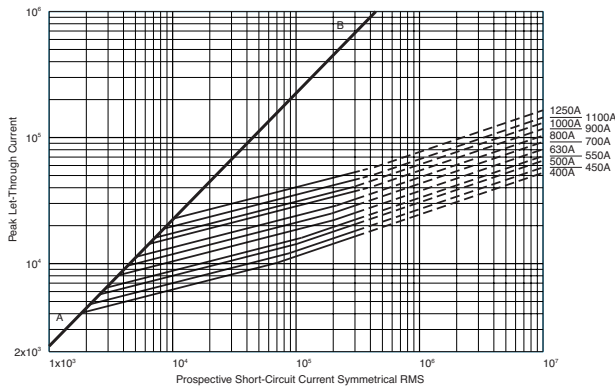


Size 3 — 500-2000A: 690V

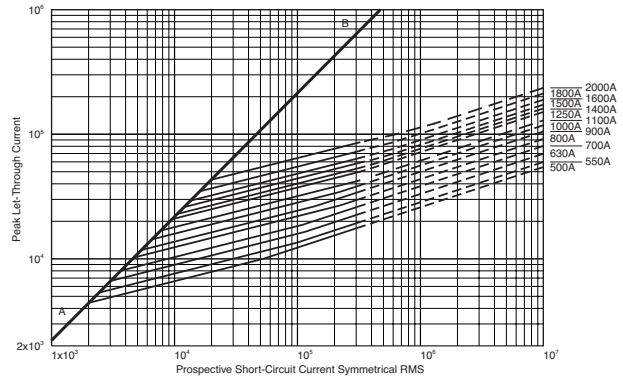
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



1800A fuse is derated to 600V (IEC).
2000A fuse is derated to 550V (IEC).

High Speed Fuses

Square Body US Style — 690V/700V (IEC): 40-2000A

690V/700V (IEC) 40-2000A

Specifications

Description: Square body US style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 7800Vac (UL)

Amps: — 40-200A

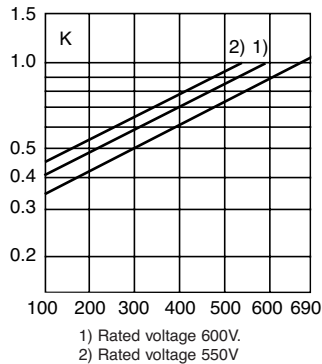
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition/ CSA Component Acceptance status.

Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).

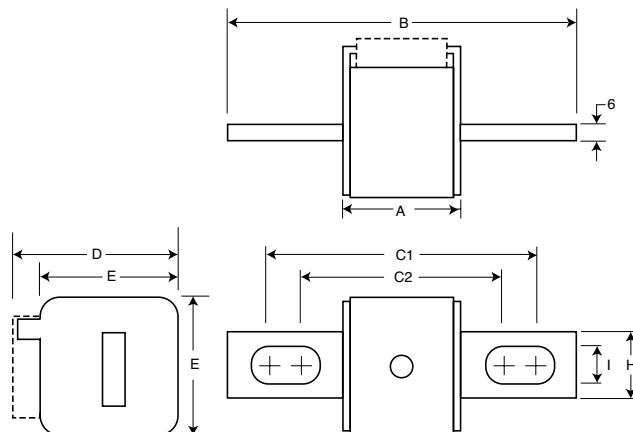


Dimensions (mm)

Type -FU/-, -FKE/-, FU/115-, -FKE/115

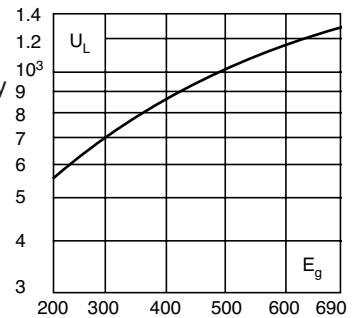
Size	A	B	B**	C1	C1**	C2	C2**	D	E	H	I
1*	50	110	148	85	123	72	110	59	45	20	10
1	50	136	157	104	126	78	100	69	53	25	14
2	50	135	159	105	125	78	99	77	61	25	14
3	51	135	155	106	125	77	97	92	76	36	16

**Valid for fuses type -FU/115 & -FKE/115.
1mm = 0.0394" / 1" = 25.4mm



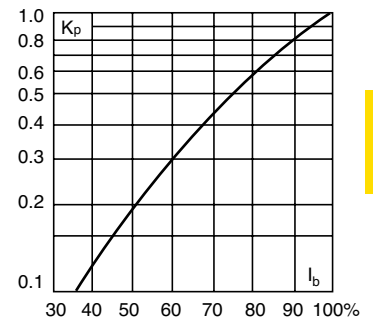
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

Square body US style — 690V/700V (IEC): 40-2000A

Catalog Numbers

Catalog Numbers				Size	Electrical Characteristics			
-FU/ Without Indicator	-FKE/ Type K Indicator for Micro	-FU/115 Without Indicator	-FKE/115 Type K Indicator for Micro		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
						Pre-arc	Clearing at 660V	
170M3608	170M3658	170M3708	170M3758	1*	40	40	270	9
170M3609	170M3659	170M3709	170M3759		50	77	515	11
170M3610	170M3660	170M3710	170M3760		63	115	770	14
170M3611	170M3661	170M3711	170M3761		80	185	1250	18
170M3612	170M3662	170M3712	170M3762		100	360	2450	21
170M3613	170M3663	170M3713	170M3763		125	550	3700	26
170M3614	170M3664	170M3714	170M3764		160	1100	7500	30
170M3615	170M3665	170M3715	170M3765		200	2200	15000	35
170M3616	170M3666	170M3716	170M3766		250	4200	28500	40
170M3617	170M3667	170M3717	170M3767		315	7000	46500	50
170M3618	170M3668	170M3718	170M3768		350	10000	68500	55
170M3619	170M3669	170M3719	170M3769		400	15000	105000	60
170M3620	170M3670	170M3720	170M3770		450	21000	140000	65
170M3621	170M3671	170M3721	170M3771		500	27000	180000	70
170M3622	170M3672	170M3722	170M3772		550	34000	230000	75
170M3623	170M3673	170M3723	170M3773		630	48500	325000	80
170M4608	170M4658	170M4708	170M4758	1	200	1650	11500	45
170M4609	170M4659	170M4709	170M4759		250	3100	21000	55
170M4610	170M4660	170M4710	170M4760		315	6200	42000	58
170M4611	170M4661	170M4711	170M4761		350	8500	59000	60
170M4612	170M4662	170M4712	170M4762		400	13500	91500	65
170M4613	170M4663	170M4713	170M4763		450	17000	120000	70
170M4614	170M4664	170M4714	170M4764		500	25000	170000	72
170M4615	170M4665	170M4715	170M4765		550	34000	230000	75
170M4616	170M4666	170M4716	170M4766		630	52000	350000	80
170M4617	170M4667	170M4717	170M4767		700	69500	465000	85
170M4618	170M4668	170M4718	170M4768		800	105000	725000	95
170M4619	170M4669	170M4719	170M4769		±900	155000	±850000	100
170M5608	170M5658	170M5708	170M5758	2	400	11000	74000	65
170M5609	170M5659	170M5709	170M5759		450	15500	105000	70
170M5610	170M5660	170M5710	170M5760		500	21500	145000	75
170M5611	170M5661	170M5711	170M5761		550	28000	190000	80
170M5612	170M5662	170M5712	170M5762		630	41000	275000	90
170M5613	170M5663	170M5713	170M5763		700	60500	405000	95
170M5614	170M5664	170M5714	170M5764		800	86000	575000	105
170M5615	170M5665	170M5715	170M5765		900	125000	840000	110
170M5616	170M5666	170M5716	170M5766		1000	180000	1250000	115
170M5617	170M5667	170M5717	170M5767		1100	245000	1600000	120
170M5618	170M5668	170M5718	170M5768		1250	365000	2400000	130
170M6608	170M6658	170M6708	170M6758	3	500	14000	95000	95
170M6609	170M6659	170M6709	170M6759		550	19500	135000	100
170M6610	170M6660	170M6710	170M6760		630	31000	210000	105
170M6611	170M6661	170M6711	170M6761		700	44500	300000	110
170M6612	170M6662	170M6712	170M6762		800	69500	465000	115
170M6613	170M6663	170M6713	170M6763		900	100000	670000	120
170M6614	170M6664	170M6714	170M6764		1000	140000	945000	125
170M6615	170M6665	170M6715	170M6765		1100	190000	1300000	130
170M6616	170M6666	170M6716	170M6766		1250	290000	1950000	140
170M6617	170M6667	170M6717	170M6767		1400	370000	2450000	155
170M6618	170M6668	170M6718	170M6768		1500	460000	3100000	160
170M6619	170M6669	170M6719	170M6769		1600	580000	3900000	160
170M6620	170M6670	170M6720	170M6770		±1800	880000	±5250000	165
170M6621	170M6671	170M6721	170M6771		±2000	1150000	±6350000	175

†Rated voltage (IEC) 600V.

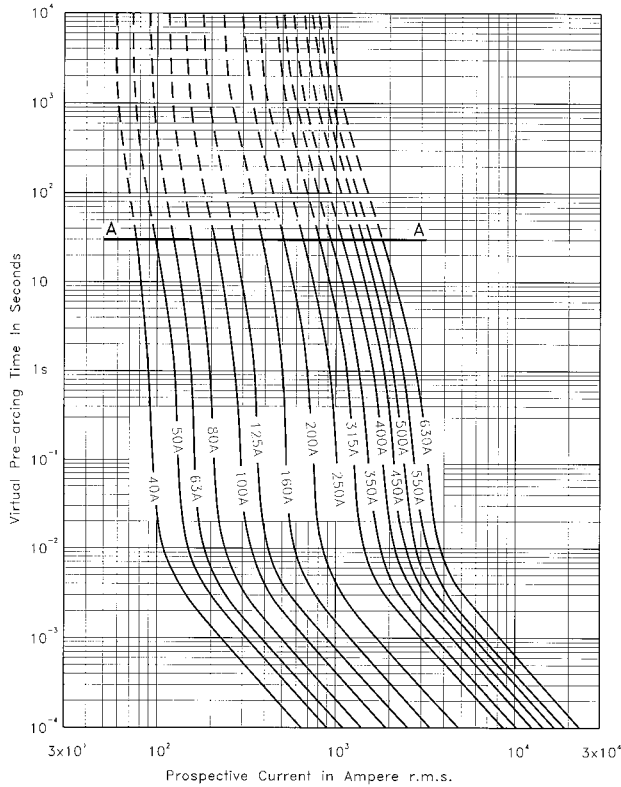
‡Rated voltage (IEC) 550V.

•Watts loss provided at rated current.

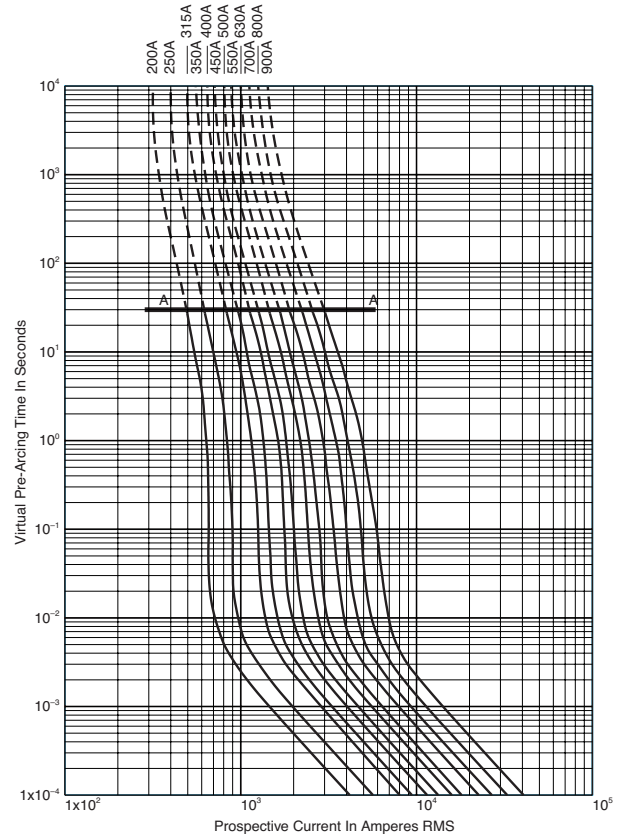
•Microswitch indicator ordered separately. See accessories on pages 179-180.

Square body US style — 690V/700V (IEC): 40-2000A

Size 1* — 40-630A: 690V
Time-Current Curve

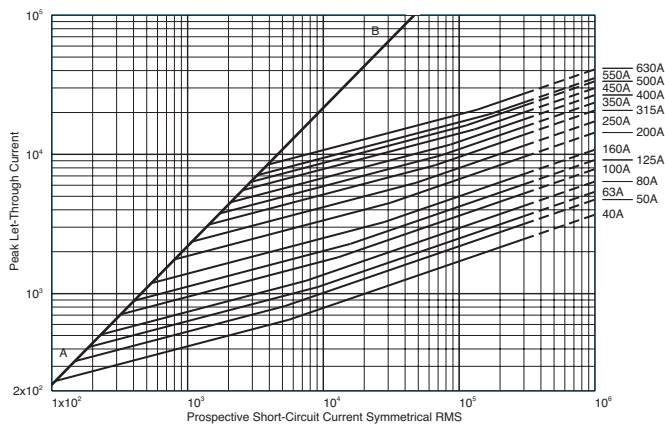


Size 1 — 200-900A: 690V
Time-Current Curve

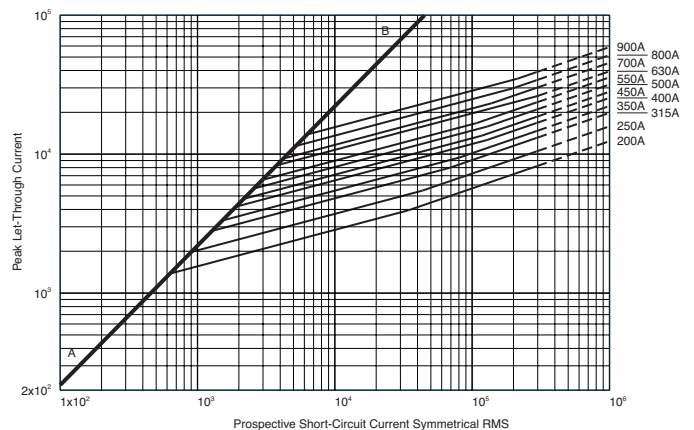


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 17056314

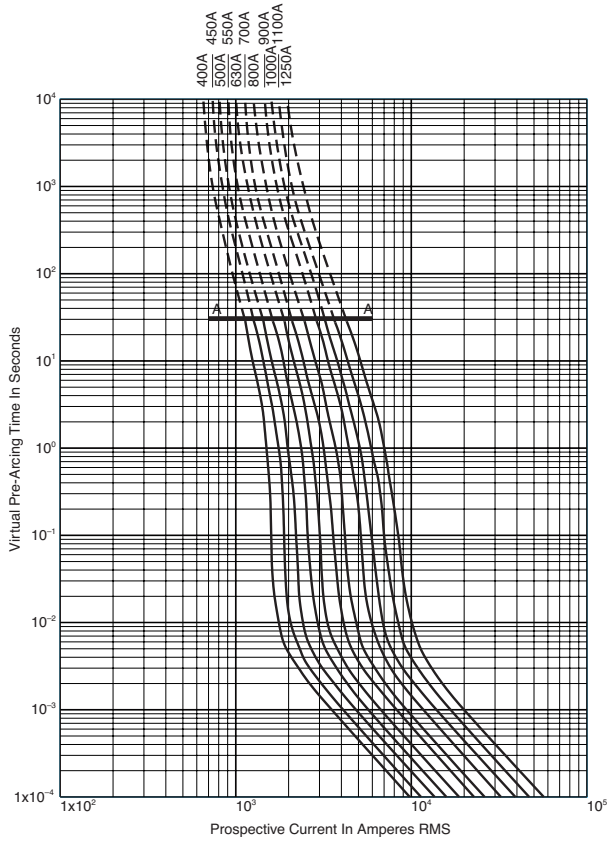
Data Sheet: 17056316

High Speed Fuses

Square body US style — 690V/700V (IEC): 40-2000A

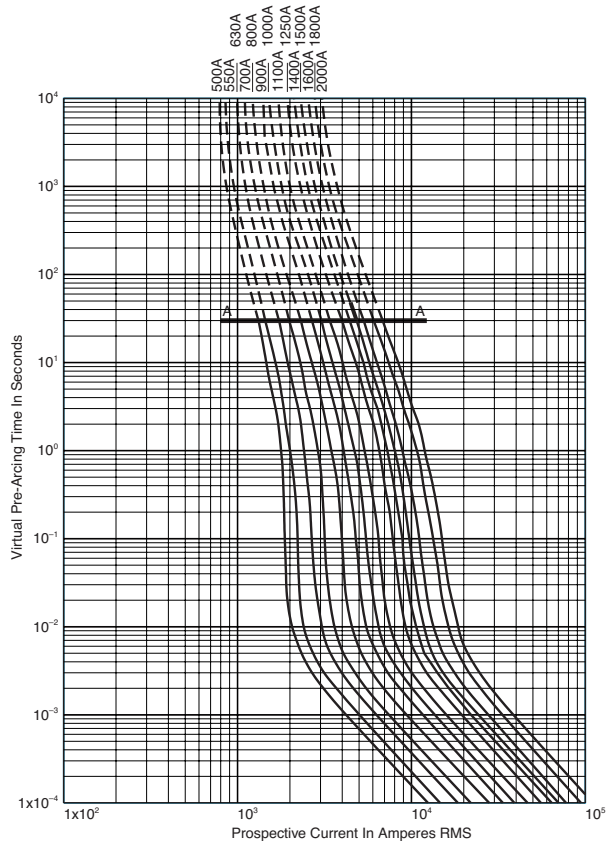
Size 2 — 400-1250A: 690V

Time-Current Curve

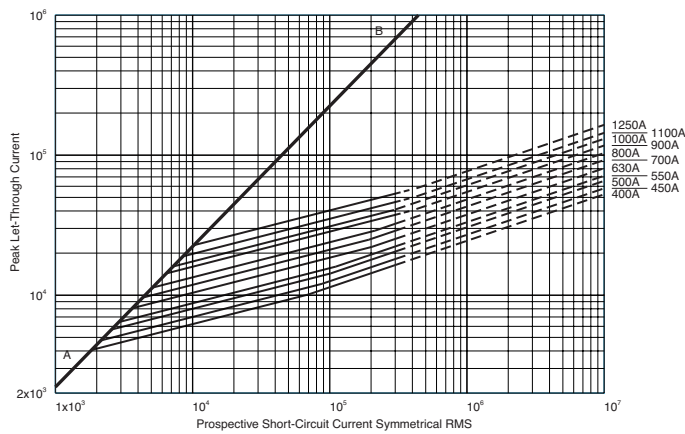


Size 3 — 500-2000A: 690V

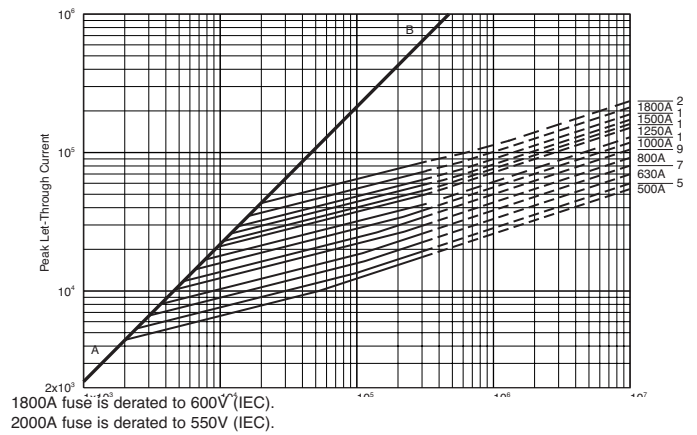
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



1800A fuse is derated to 600V (IEC).
2000A fuse is derated to 550V (IEC).

High Speed Fuses

Square body US style — 1000V (IEC): 50-1400A

1000V (IEC) 50-1400A

Specifications

Description: Square body US style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

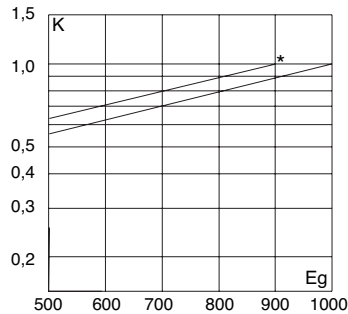
- Volts: — 1000Vac.
- Amps: — 50-1400A
- IR: — 150kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized.

Electrical Characteristics

Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g , (rms).

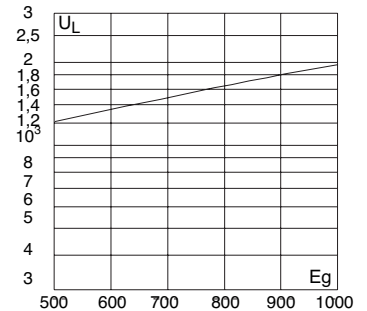


*Rated voltage 900V



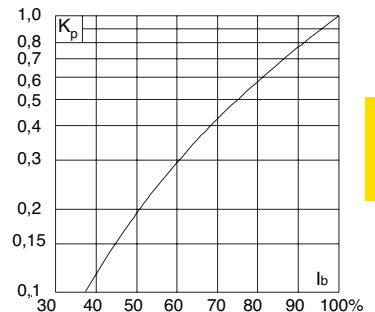
Arc Voltage

This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p , is given as a function of the RMS load current, I_b , in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

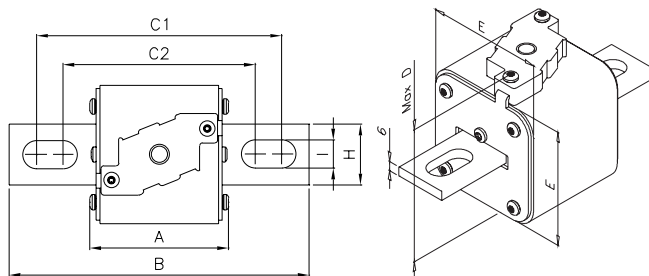
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Type -FKE/115

Size	B	C1	C2	D	E	H	I
1*FKE/115	156	130	101	59	45	20	10
1FKE/115	160	127	102	69	53	25	14
2FKE/115	160	127	102	77	61	25	14
3FKE/115	159	128	101	92	76	36	16

1mm = 0.0394" / 1" = 25.4mm



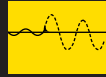
High Speed Fuses

Square body US style — 1000V (IEC): 50-1400A

Catalog Numbers

Catalog Numbers		Electrical Characteristics			
-FKE/115 Type K Indicator for Micro	Size	Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 1000V	
		170M3531	1*	50	135	815	20
170M3532		63	215	1300	25
170M3533		80	460	2750	30
170M3534		100	860	5100	35
170M3535		125	1450	8600	40
170M3536		160	2850	17500	45
170M3537		200	4950	29500	48
170M3538		250	9550	57000	50
170M3539		315	21500	130000	60
170M3540		350	29000	175000	65
170M3541		400	42000	250000	70
170M4531	1	160	2200	13500	40
170M4532		200	4150	24500	45
170M4533		250	7750	46000	52
170M4534		315	16500	98500	60
170M4535		350	21500	130000	65
170M4536		400	31000	185000	70
170M4537		450	44500	265000	80
170M4538		500	63000	375000	85
170M4539		550	84500	500000	90
170M4540		630	125000	755000	98
170M5531	2	250	6750	40000	65
170M5532		315	13500	81500	75
170M5533		350	16500	99000	80
170M5534		400	26000	155000	85
170M5535		450	35500	210000	90
170M5536		500	49500	295000	95
170M5537		550	66000	390000	100
170M5538		630	93500	555000	110
170M5539		700	130000	770000	115
170M5540		800	195000	1200000	125
170M8531	3	315	9200	54500	90
170M8532		350	13000	77500	95
170M8533		400	19000	115000	105
170M8534		450	27000	160000	107
170M8535		500	37500	225000	110
170M8536		550	52000	310000	115
170M8537		630	82500	490000	120
170M8538		700	115000	700000	125
170M8539		800	170000	1050000	135
170M8540		900	250000	1500000	145
170M8541		1000	340000	2050000	150
170M8542		1100	460000	2750000	155
170M8543		1250	575000	3400000	175
170M8544*		1400	795000	4200000*	185

* Rated voltage 900V.
 • Watts loss provided at rated current.
 • Microswitch ordered separately. See accessories on page 179-180.



Did You Know?

Cooper Bussmann Fuse Installation Enables Food Processor To Meet Manufacturing Demand



When one of America's largest retailers requested a special packaging size from Beech-Nut baby foods, the company developed a new packaging system with motors

and drives having state-of-the-art overcurrent protection.

The maintenance staff required a fuse system that was DIN-rail mountable for ease of installation with open fuse indication and a finger-safe design. And, the most important need was to use current-limiting overcurrent protection to minimize the arc-flash hazard to plant personnel in accordance with NFPA 70E guidance. The plant's associate electrical engineer chose the Cooper Bussmann CUBEFuse™ compact design because it would save time laying out and building the sub panel. He was looking for components that were easy to wire and would be part of a sub panel system that would be easy to maintain over time.

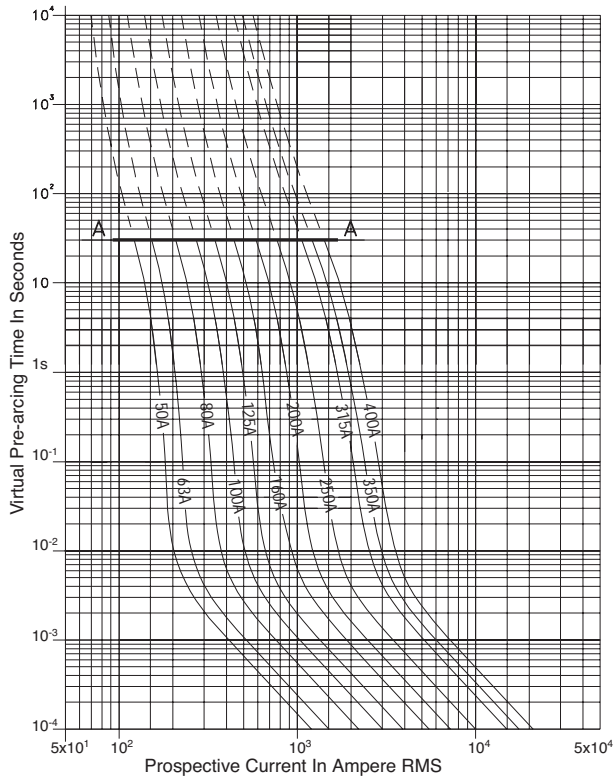
The fuse panel utilizes 39 three-pole, 10A CUBEFuse sets. The fuse holders snap onto an easy to install 35mm DIN rail versus time-consuming drilling and tapping mounting holes for all the fuse holders. The panel has a total of 117 fuse installations with expansion room up to 147 units.

High Speed Fuses

Square body US style — 1000V (IEC): 50-1400A

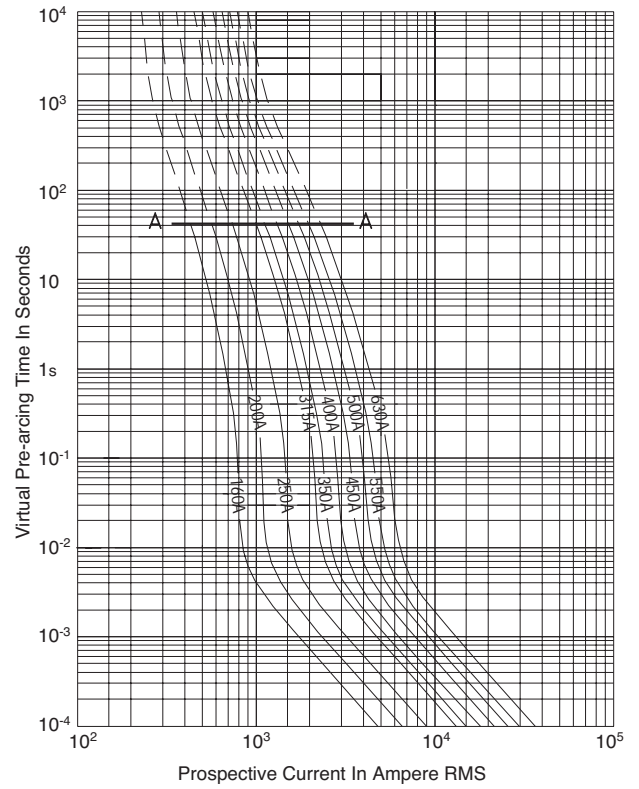
Size 1* — 50-400A: 1000V

Time-Current Curve



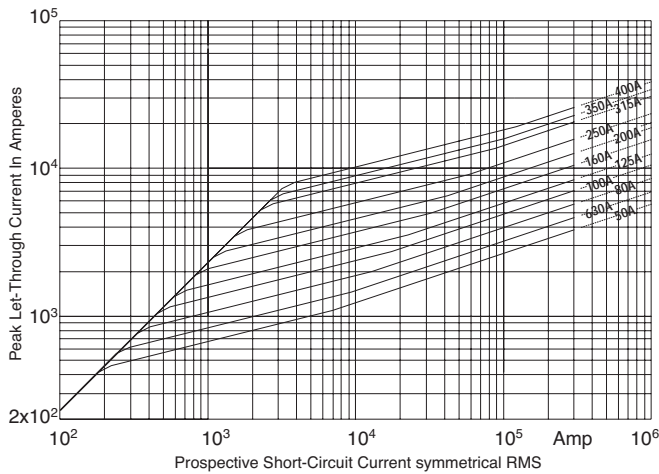
Size 1 — 160-630A: 1000V

Time-Current Curve

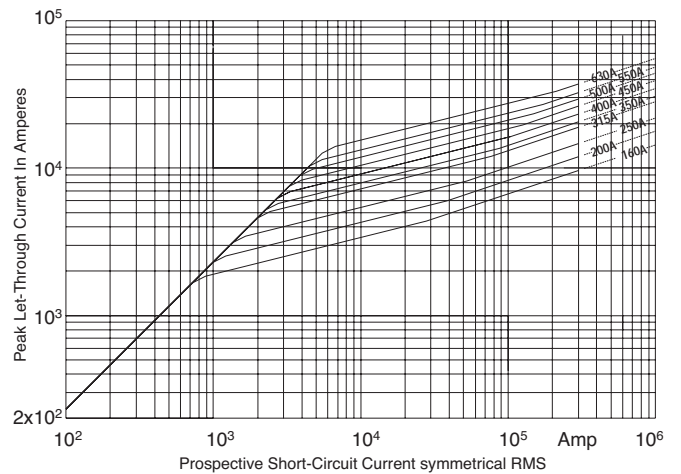


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 17058564

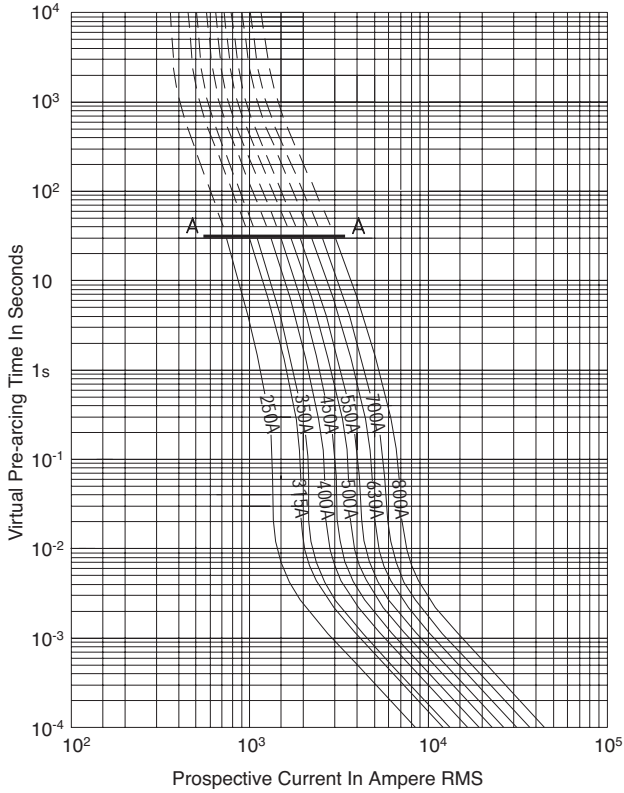
Data Sheet: 17058566

High Speed Fuses

Square body US style — 1000V (IEC): 50-1400A

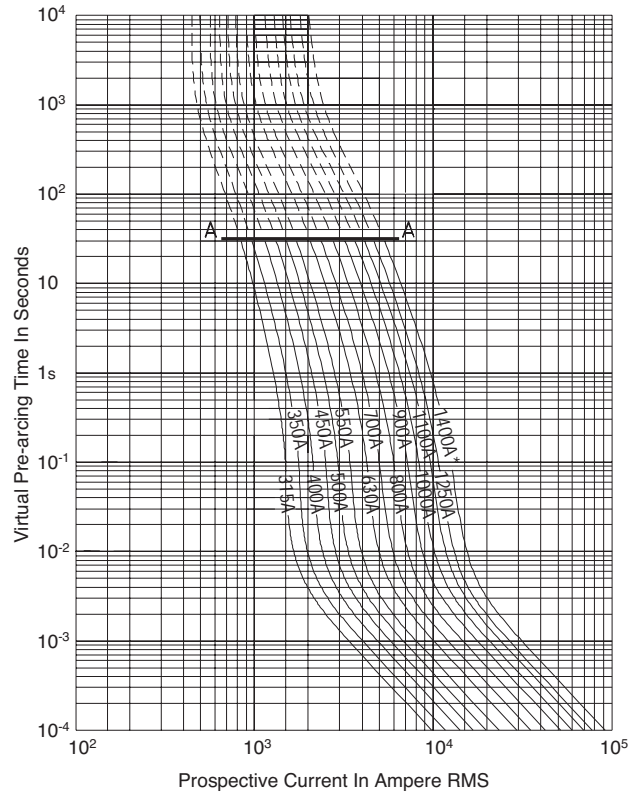
Size 2 — 250-800A: 1000V

Time-Current Curve

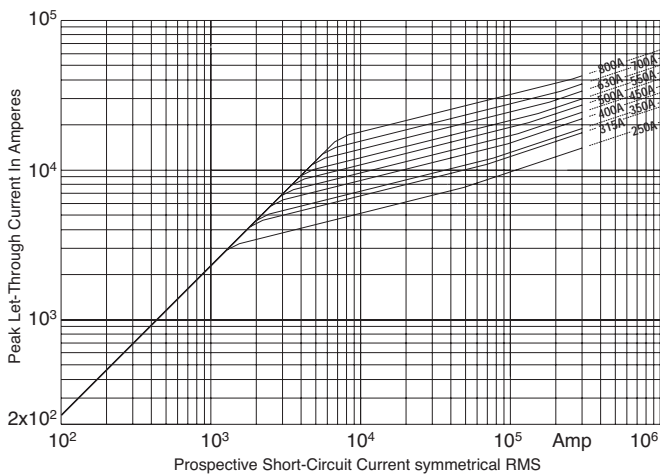


Size 3 — 315-1400A: 1000V

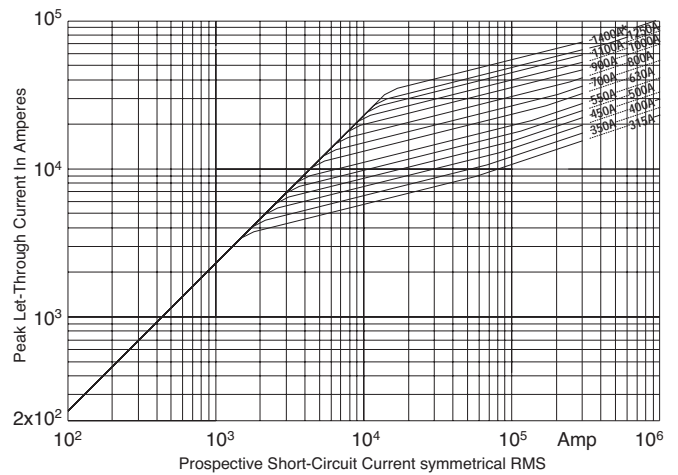
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



* 1400A fuses are derated to 900V

High Speed Fuses

Square body US style — 1250V/1300V (IEC/UL): 50-1400A

1250V/1300V (IEC/UL) 50-1400A

Specifications

Description: Square body US style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1250Vac (IEC)
— 1300Vac (UL)

Amps: — 50-1400A
IR: — 100kA RMS Sym.

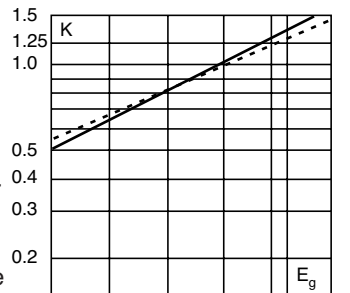
Agency Information: CE, Designed and tested to IEC 60269: Part 4, UL Recognized. Consult Cooper Bussmann for UL Recognition/CSA Component Acceptance status.



Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dashed lines (- - - -) apply to the following amperages:

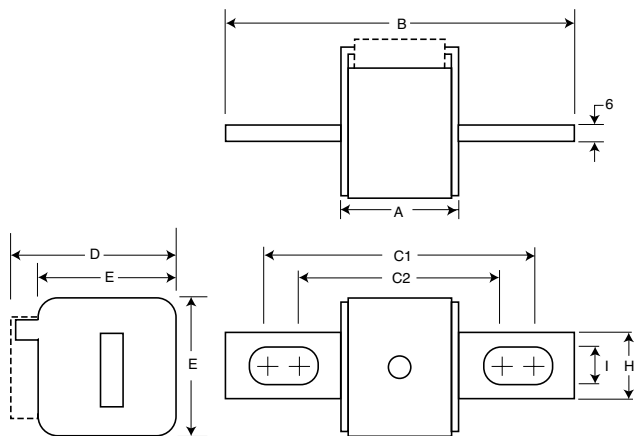
Size	Amps.
1*	400A
1	500-630A
2	630-1000A
3	800-1400A

Dimensions (mm)

Type -FU/115, -FKE/115

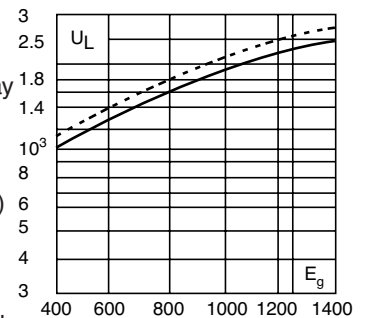
Size	B	C1	C2	D	E	H	I
1*	156	130	101	59	45	20	10
1	160	127	102	69	53	25	14
2	160	127	102	77	61	25	14
3	159	128	101	92	76	36	16

1mm = 0.0394" / 1" = 25.4mm



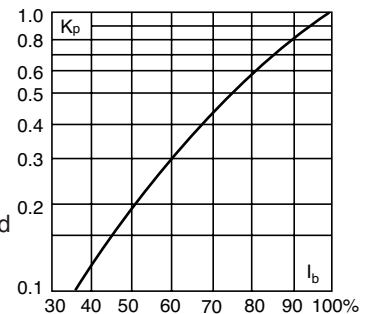
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

Square body US style — 1250V/1300V (IEC/UL): 50-1400A

Catalog Numbers

Catalog Numbers		Size	Electrical Characteristics				
-FU/115 Without Indicator	-FKE/115 Type K Indicator for Micro		Rated Current RMS-Amps	I ² t (A ² Sec)			Watts Loss
				Pre-arc	Clearing at 1000V	Clearing at 1250V	
170M3688	170M3738	1*	50	135	815	1100	15
170M3689	170M3739		63	215	1300	1750	20
170M3690	170M3740		80	420	2500	3350	25
170M3691	170M3741		100	750	4450	5950	30
170M3692	170M3742		125	1450	9000	11500	35
170M3693	170M3743		160	2600	16000	21000	40
170M3694	170M3744		200	5150	31000	41000	45
170M3695	170M3745		250	9200	54500	73000	55
170M3696	170M3746		315	18500	115000	150000	60
170M3697	170M3747		350	27000	165000	220000	65
170M4688	170M4738	1	160	1900	11500	15500	45
170M4689	170M4739		200	3800	22500	30000	50
170M4690	170M4740		250	7750	46000	61500	60
170M4691	170M4741		315	15000	90000	120000	65
170M4692	170M4742		350	20000	125000	165000	70
170M4693	170M4743		400	29500	175000	235000	75
170M4694	170M4744		450	42000	250000	335000	80
170M4695	170M4745		†500	69500	340000		85
170M4696	170M4746		†550	95000	465000		95
170M4697	170M4747		‡630	130000	660000		100
170M5688	170M5738	2	250	6500	38500	51500	65
170M5689	170M5739		280	9350	55500	74500	70
170M5690	170M5740		315	13000	77500	105000	75
170M5691	170M5741		350	16500	97500	135000	80
170M5692	170M5742		400	23000	140000	180000	85
170M5693	170M5743		450	34000	205000	270000	90
170M5694	170M5744		500	48000	285000	380000	95
170M5695	170M5745		550	62000	370000	495000	100
170M5696	170M5746		630	115000	575000	730000	110
170M5697	170M5747		†700	160000	795000		115
170M5698	170M5748	†800	245000	1200000		120	
170M5699	170M5749	‡900	360000	1750000		125	
170M5700	170M5750	‡1000	480000	2350000		135	
170M6688	170M6738	3	315	9500	58000	77500	185
170M6689	170M6739		350	13500	81500	110000	90
170M6690	170M6740		400	19500	120000	160000	95
170M6691	170M6741		450	31000	185000	245000	100
170M6692	170M6742		500	39000	235000	310000	105
170M6693	170M6743		550	55000	325000	435000	110
170M6694	170M6744		630	83500	495000	665000	115
170M6695	170M6745		700	115000	705000	940000	120
170M6696	170M6746		800	205000	995000	1300000	125
170M6697	170M6747		900	305000	1500000	1900000	130
†170M6698	†170M6748	¥1000	450000	2150000		135	
†170M6699	†170M6749	¥1100	575000	2800000		140	
‡170M6700	‡170M6750	¥1250	810000	3950000		145	
‡170M6701	‡170M6751	¥1400	1250000	6000000		150	

†Rated voltage (IEC) 1100.

‡Rated voltage (IEC) 1000V.

¥ UL Recognition at 1000V.

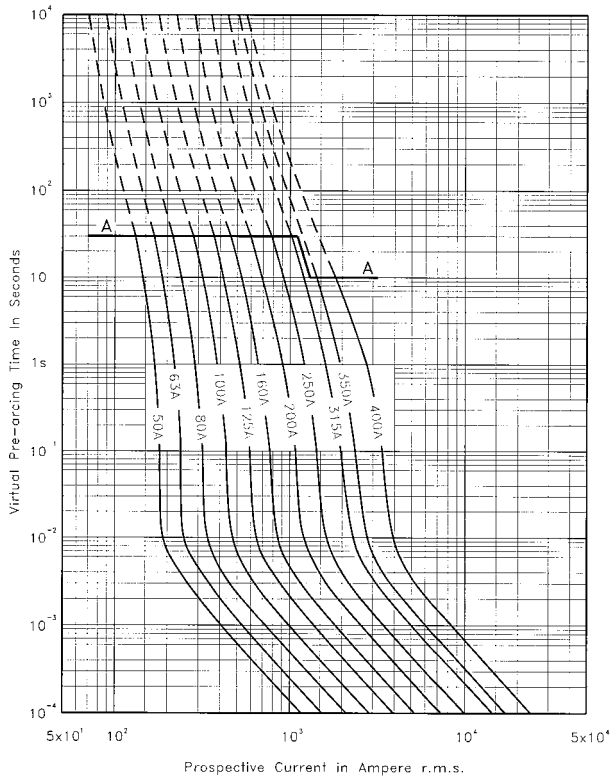
• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 179-180.

Square body US style — 1250V/1300V (IEC/UL): 0-1400A

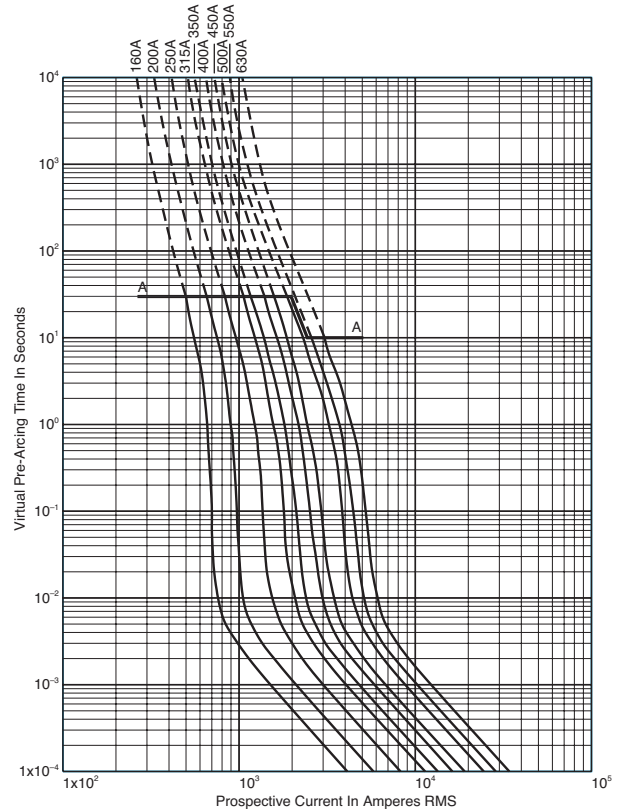
Size 1* — 50-400A:1250V

Time-Current Curve



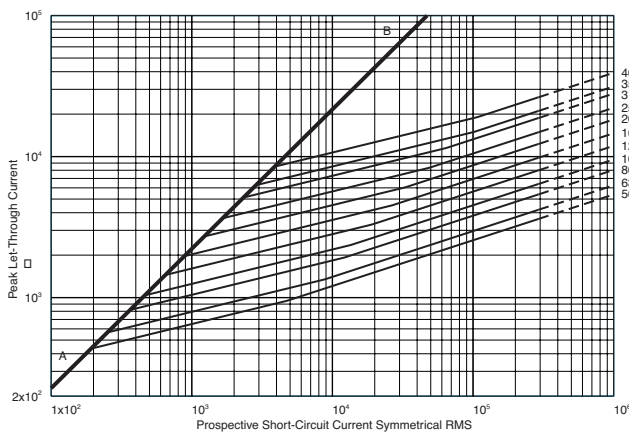
Size 1 — 160-630A: 1250V

Time-Current Curve

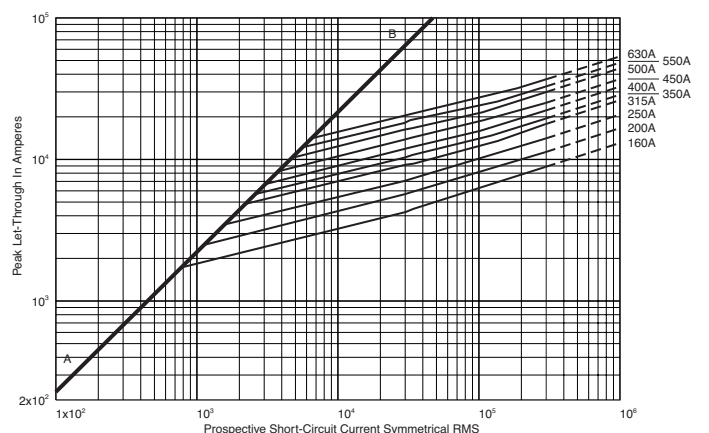


High Speed Fuses

Peak Let-Through Curve



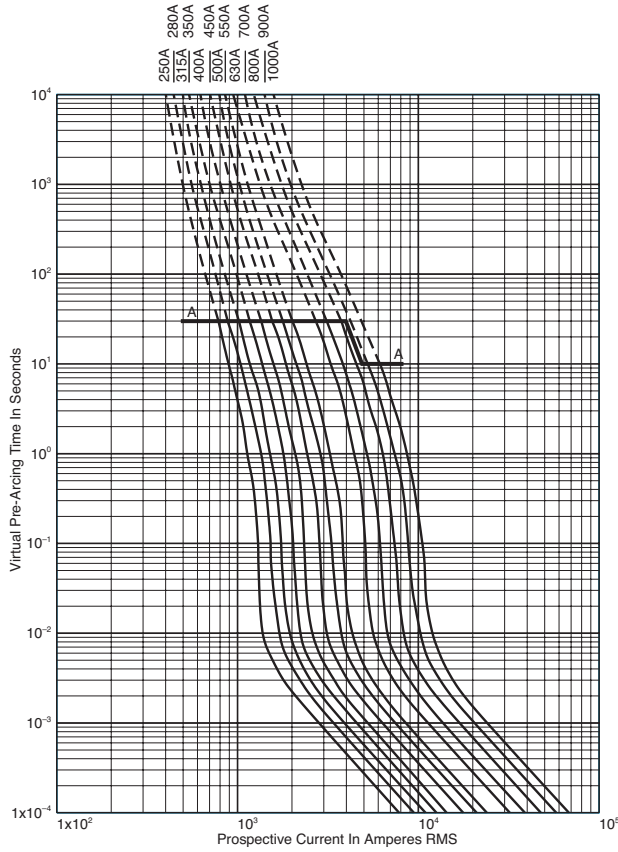
Peak Let-Through Curve



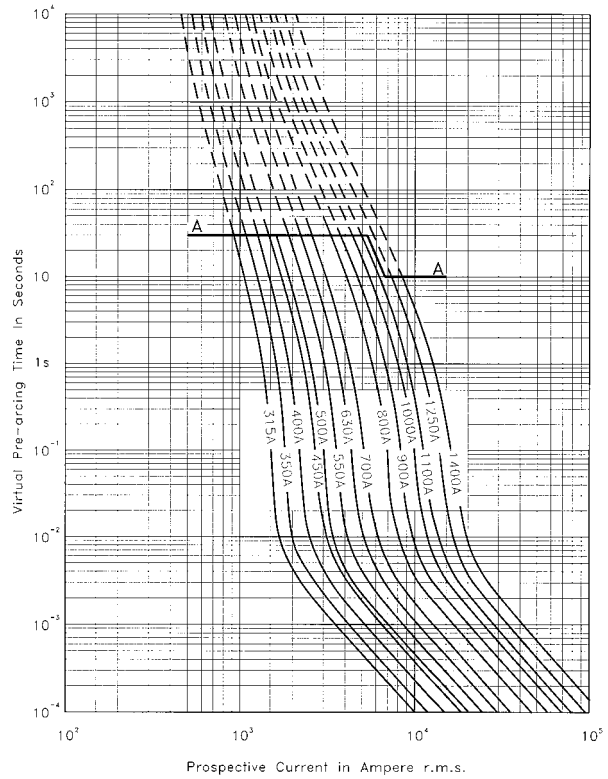
630A fuse is derated to 1100V (IEC).

Square body US style — 1250V/1300V (IEC/UL): 0-1400A

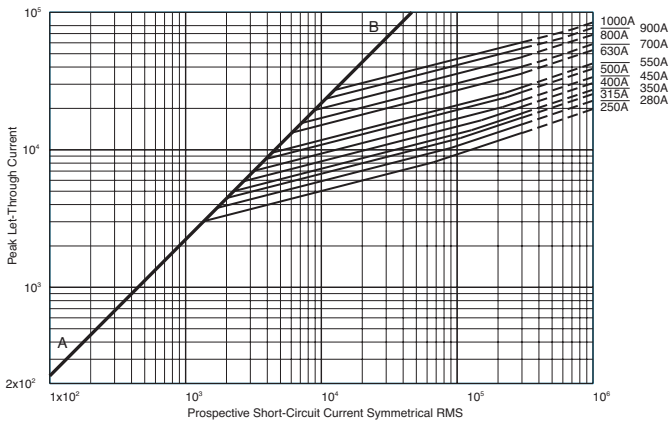
Size 2 — 250-1000A: 1250V
Time-Current Curve



Size 3 — 315-1400A: 1250V
Time-Current Curve

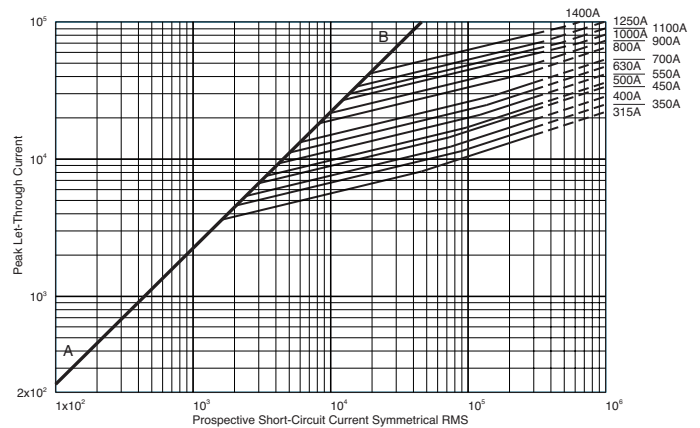


Peak Let-Through Curve



900-1000A fuses are derated to 1100V (IEC).

Peak Let-Through Curve



1250-1400A fuses are derated to 1100V (IEC).

Square body fuse accessories

Indicator Systems

Typower ZILOX fuses are available with three different indicator systems.

1. Visual Indicator

The indicator situated in one cover plate is clearly visible as soon as the fuse has operated. The minimum voltage for operating the indicator is 20V.

2. Type T Indicator

The indicator is situated on one cover plate with a cover plate tag to accommodate an auxiliary switch. The minimum voltage for operating the indicator is 20V. A special low voltage indicator (1.5V) is available on request.

3. Type K Indicator

This indicator is situated on the fuse body. It is covered by an adapter for snap-on mounting of an auxiliary switch. The operating voltage of the indicator is 1.5V. As a matter of safety, the factory mounted adapter must not be removed from the fuse.

Microswitch

The Typower ZILOX fuses with either type T indicator or type K indicator can be equipped with a microswitch for remote electrical indication of fuse operations. All micro-switches have one normally open and one normally closed contact. Ratings are 2A, 250Vac.

Microswitch	6.3 x 0.8mm	2.8 x 0.5mm	Indicator Type
	Lugs	Lugs	
170H0235	X		T
170H0236	X		T
170H0237		X	T
170H0238		X	T
170H0069	X		K



Size	DIN 43 653		DIN 43 620		French Style		Flush End		US Style	
	Type T	Type K	Type T	Type K	Type T	Type K	Type T	Type K	Type T	Type K
000	170H0236		170H0236							
	170H0238		170H0238							
00	170H0235						170H0235			
	170H0237						170H0237			
1*	170H0235	170H0069	170H0235		170H0236	170H0069			170H0069	170H0069
	170H0237		170H0237		170H0238					
1	170H0235	170H0069			170H0236	170H0069			170H0069	170H0069
	170H0237				170H0238					
2	170H0235	170H0069	170H0235		170H0236	170H0069			170H0069	170H0069
	170H0237		170H0237		170H0238					
3	170H0235	170H0069	170H0236		170H0236	170H0069			170H0069	170H0069
	170H0237		170H0238		170H0238					
4									170H0069	
23									170H0069	
24									170H0069	

High Speed Fuses

Square body fuse accessories

Fuse Bases (Blocks)

DIN 43 653 Fuse Bases

For the Typower ZILOX fuses according to DIN 43 653, the following fuse bases are available:

Catalog Number	Max Volts	Amp Rating	Center Distance
170H3003	1000	630	80mm
170H3004	1000	1250	80mm
170H3005	1400	630	110mm
170H3006	1400	1250	110mm

The fuse bases rated 1250A can also be used for the fuses with higher rated current if the maximum load current is derated according to the table below:

Fuse Amp Rating	Max Amp Load In Fuse Base
1400	1325
1500	1400
1600	1500
1800	1650
2000	1800

Fixed Center Base Style	Max Volts	Max. Fuse Amp Rating	Fuse Size
170H1007	1000	400	00, 000
170H1013	660	200	0000,000

UL Recognized to UL 512.

Universal Fuse Bases

For the Typower ZILOX fuses according to DIN 43 653, French style and North American style, the following fuse bases are available:

Modular Base Style	Max Volts	Max. Fuse Amp Rating	Data Sheet
1BS101	600	100	1206
1BS102	600	400	1207
1BS103	600	400	1208
1BS104	600	600	1209
BH-0xxx	700	100	1200
BH-1xxx	2500	400	1201
BH-2xxx	5000	400	1202
BH-3xxx	1250	700	1203

Modular fuse bases are UL Recognized to UL 512 and meet the spacing requirements of UL 347. Contact your Cooper Bussmann sales representative for more complete ordering information.

DIN 43 620 Fuse Bases

For fuse bases used with Typower ZILOX fuses according to DIN 43 620, please contact your local Cooper Bussmann sales representative.



DIN 43 653



DIN 43 653



Universal

British BS 88 fuses



Introduction

British BS 88 Contents

Fuse Volts	Amp Range	Page
240	6-900	182-184
690	6-710	185-188

Accessories

Indicator System & Fuse Bases	189
-------------------------------	-----

British BS 88 Fuse Ranges

Amps	Volts	AC	DC
6-900	240	X	—
6-900	150	—	X
6-700	690	X	—
6-700	500	—	X

General Information

Designed and tested to:

- BS 88: Part 4
- IEC 269: Part 4
- UL Recognized

Cooper Bussmann offers the industry's widest range of British style semiconductor fuses and accessories.

Cooper Bussmann® British style products use innovative arc quenching techniques and high grade materials to provide:

- Minimal energy let-through (I^2t)
- Excellent DC performance
- Good surge withstand profile

British style fuses are typically found in equipment manufactured in the United Kingdom or British Commonwealth countries. However, North American manufacturers have begun to specify British style fuses — particularly in UPS applications at 240V or less — to take advantage of their size, performance and cost benefits.

Voltage Rating

All Cooper Bussmann British style fuses are tested to IEC 269: Part 4. This standard requires a test voltage which is 5% higher than the rated voltage. In North America, fuses are required to clear only their rated voltage.

Accessories

Trip-indicator fuses are available for use in parallel with the main fuse. Indicator fuses can be attached to the associated fuselink, or mounted separately in panel-mounted fuseclips. In addition, a push-on adapter and microswitch attachment are available, to provide remote indication. Fuse blocks are also available for most applications.

High Speed Fuses

British BS 88 — 240V: 6-900A

LCT, LET, LMT, LMMT

Specifications

Description: BS 88 style stud-mount fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 240Vac/150Vdc

Amps: — 6-900A

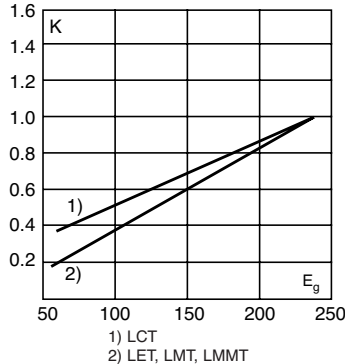
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to: BS 88 Part 4, IEC 269 Part 4, UL Recognized. All fuses above have been tested at 318Vac. Consult Cooper Bussmann for specific UL Recognition status.

Electrical Characteristics

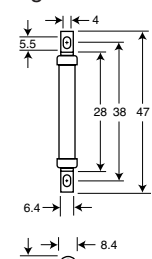
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g (rms).



Dimensions (mm)

Fig. 1: LCT



1mm = 0.0394" / 1" = 25.4mm

Fig. 2: LET

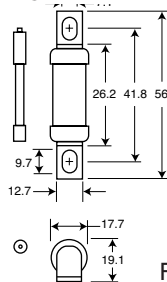


Fig. 3: LMT

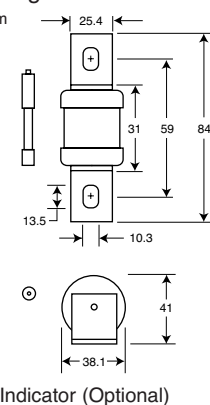
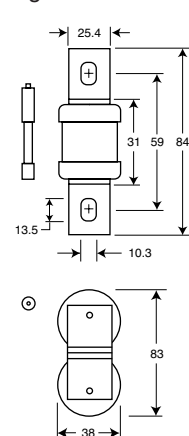
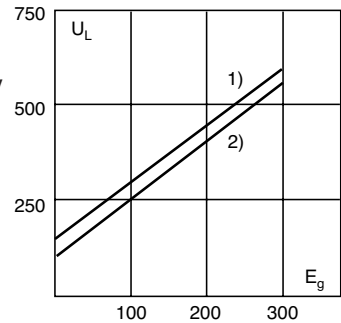


Fig. 4: LMMT



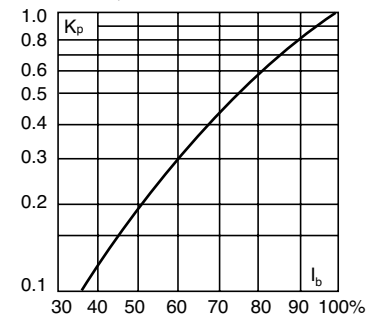
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Type	Rated Current RMS-Amps	I ² t (A ² Sec)			Watts Loss
			Pre-arc	Clearing at 120V	Clearing at 240V	
6LCT	LCT	6	2	6	9	1.0
10LCT		10	3.8	12	22	2.5
12LCT		12	7	22	32	2.5
16LCT		16	20	50	100	2.5
20LCT		20	25	80	160	4.0
25LET	LET	25	18	120	250	4.0
32LET		32	32	200	450	5.0
35LET		35	50	320	600	5.0
50LET		50	100	500	1400	7.0
63LET		63	180	1100	2200	9.0
80LET		80	300	1900	3800	10.0
100LET		100	600	3800	7500	10.0
125LET		125	600	3800	7500	16.0
160LET		160	1100	7000	16000	20.0
180LETa		180	1600	12000	29000	21.0
160LMT	LMT	160	1100	7000	16000	17.0
200LMT		200	1500	10000	20000	28.0
250LMT		250	3200	20000	40000	28.0
315LMT		315	6000	35000	75000	35.0
355LMT		355	8000	50000	100000	35.0
400LMT		400	14000	70000	160000	40.0
450LMT		450	18000	100000	220000	42.0
400LMMT	LMMT	400	6000	35000	80000	60.0
500LMMT		500	14000	80000	170000	64.0
630LMMT		630	24000	150000	300000	75.0
710LMMT		710	32000	200000	460000	77.0
800LMMT		800	52000	300000	600000	82.0
900LMMT		900	75000	400000	800000	97.0

• Watts loss provided at rated current.
• Note: 7LET, 10LET, 12LET and 16LET are available for replacement purposes on existing equipment.
• See accessories on page 189.

Features and Benefits

- Excellent cycling capability
- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)

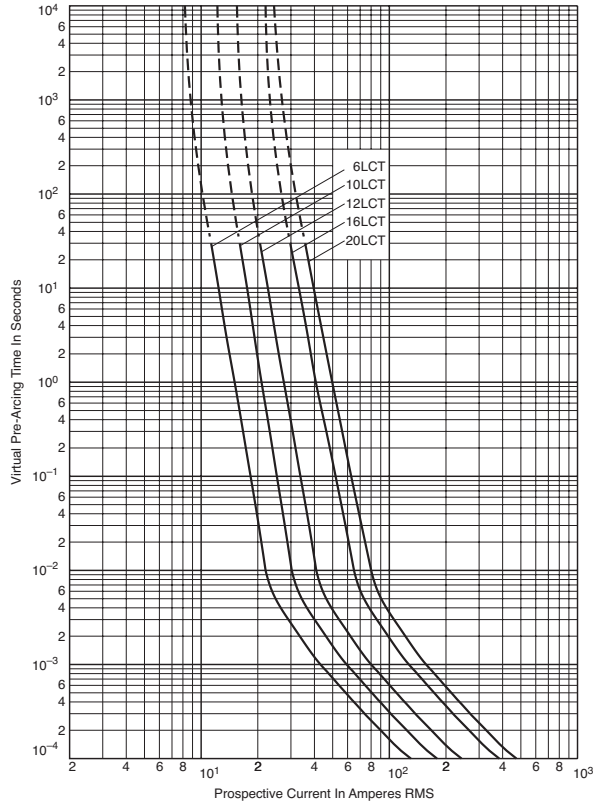
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

British BS 88 — 240V: 6-900A

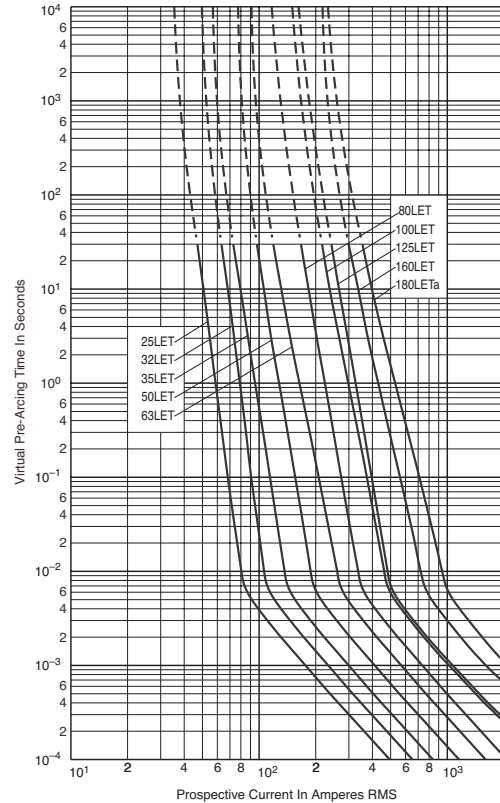
LCT 6-20A: 240V

Time-Current Curve



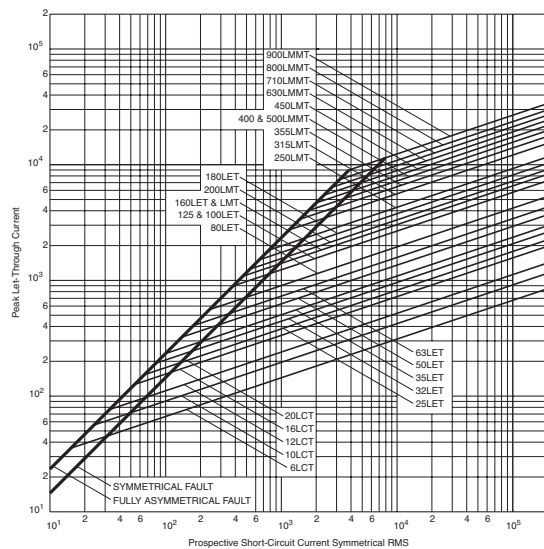
LET 25-180A: 240V

Time-Current Curve

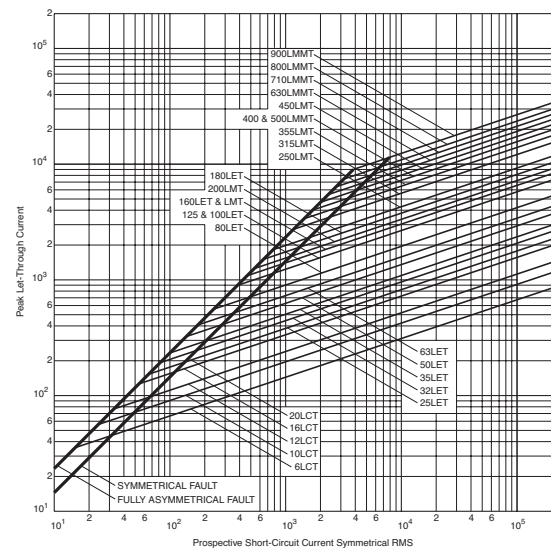


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



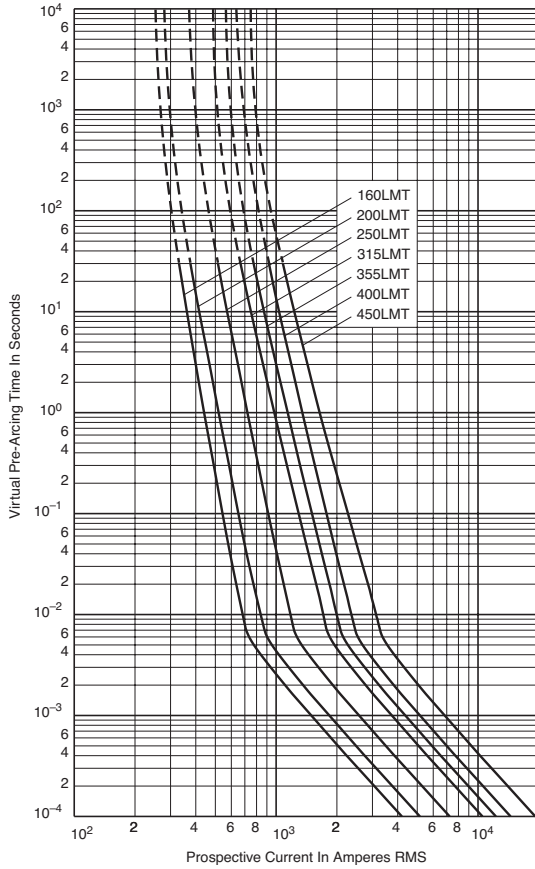
Data Sheet: 35785296

Data Sheet: 35785293

British BS 88 — 240V: 6-900A

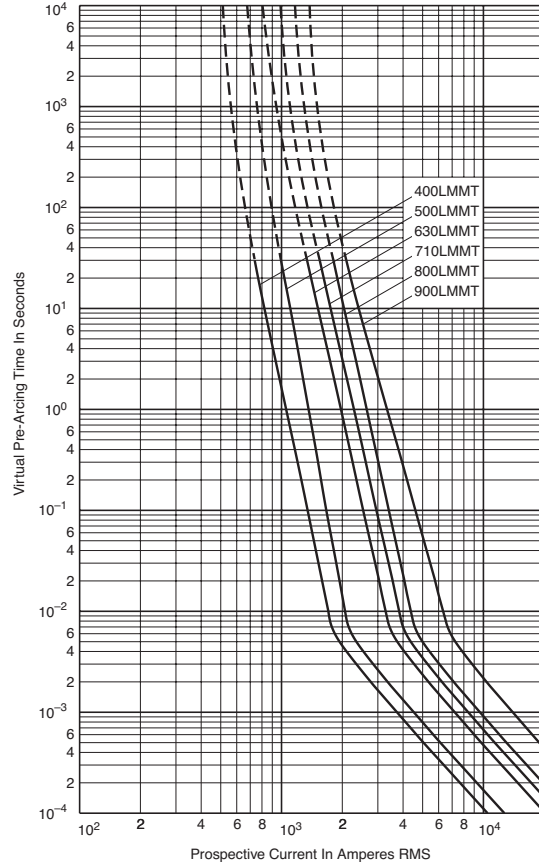
LMT 160-450A: 240V

Time-Current Curve

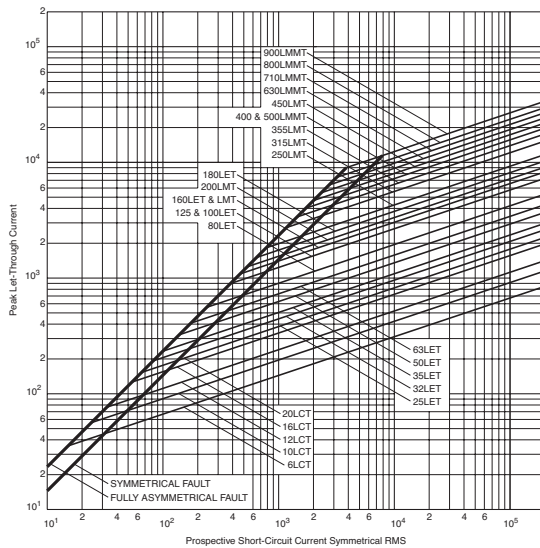


LMMT 400-900A: 240V

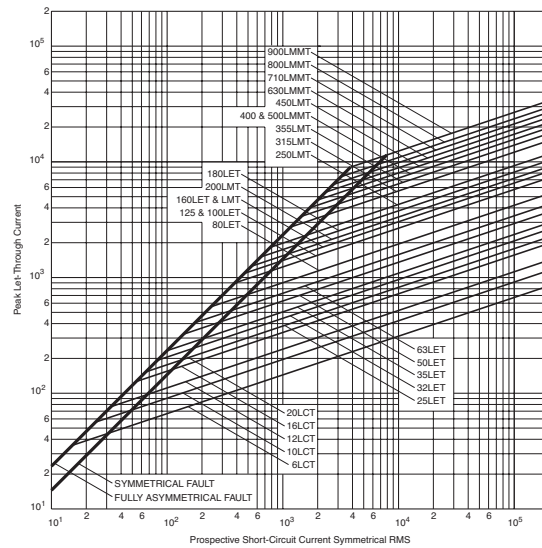
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 35785294

Data Sheet: 35785295

British BS 88 — 690V: 6-710A

CT, ET, FE, EET, FEE, FM, FMM, MT, MMT

Specifications

Description: BS 88 style stud-mount fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 690Vac/500Vdc

Amps: — 6-710A

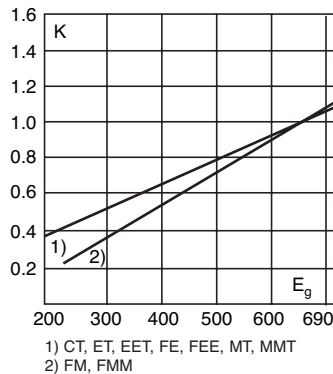
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to: BS 88 Part 4, IEC 269 Part 4, UL Recognized. MT and MMT — 350Vdc (IEC) rating. Consult Cooper Bussmann for UL Recognition status.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

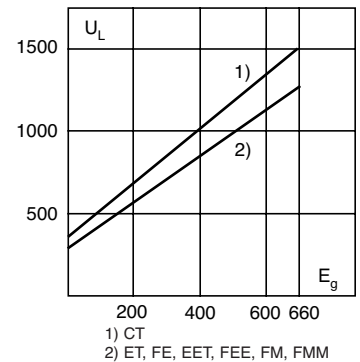


1) CT, ET, EET, FE, FEE, MT, MMT
2) FM, FMM



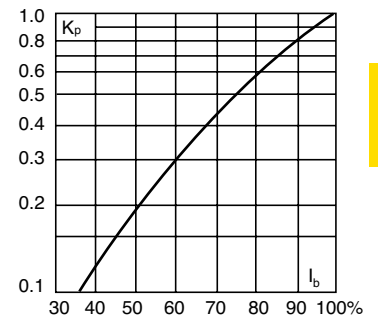
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent cycling capability
- Excellent dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions (mm)

Fig. 1: CT

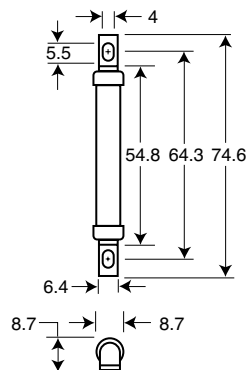


Fig. 2: ET, FE

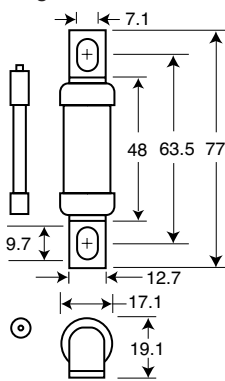


Fig. 3: EET, FEE

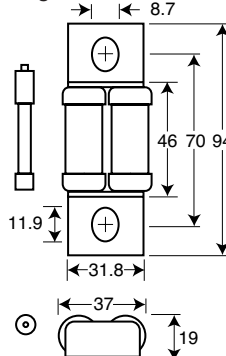


Fig. 4: FM, MT

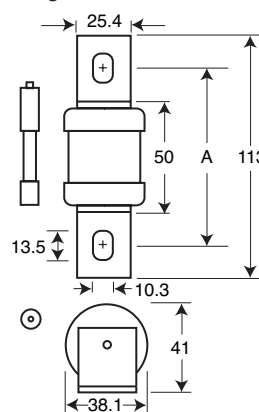
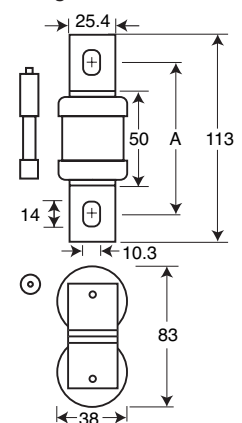


Fig. 5: FMM, MMT



Figs. 4 & 5 "A" Dimensions

Type	"A"
FM	80-85mm
FMM	80-85mm
MT	85mm
MMT	85mm

1mm = 0.0394" / 1" = 25.4mm

High Speed Fuses

British BS 88 — 690V: 6-710A

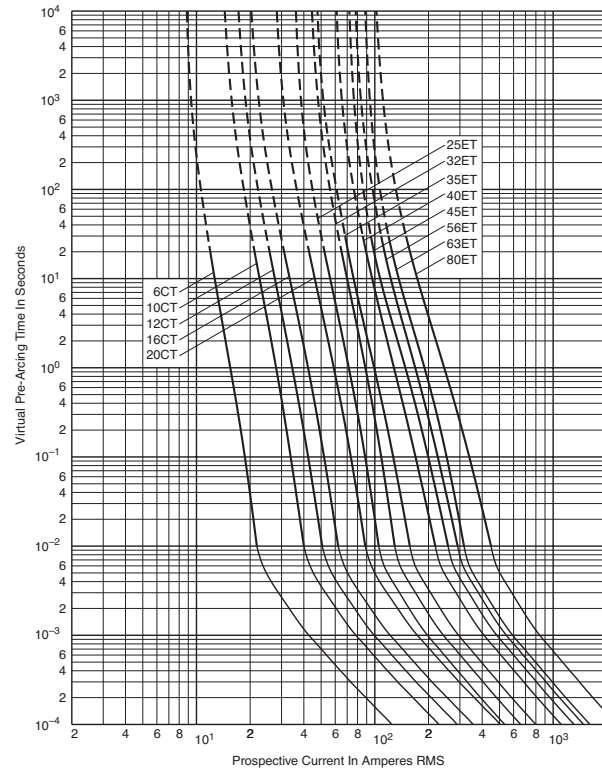
Catalog Numbers

Catalog Numbers	Type	Electrical Characteristics				
		Rated Current RMS-Amps	Pre-arc	I ² t (A ² Sec)		Watts Loss
				Clearing at 415V	Clearing at 660V	
6CT	CT	6	1.8	8.5	12	2
10CT	CT	10	7	30	48	3
12CT	CT	12	10	40	65	3
16CT	CT	16	16	66	110	7
20CT	CT	20	32	150	220	7
25ET	ET	25	25	150	250	7
32ET	ET	32	32	190	350	11
35ET	ET	35	52	310	500	11
40ET	ET	40	103	600	900	9
45ET	ET	45	103	680	1100	11
56ET	ET	56	135	950	1500	14
63ET	ET	63	171	1200	2000	16
80ET	ET	80	360	2500	4000	18
35FE	FE	35	33	130	200	9
40FE	FE	40	52	180	300	9
45FE	FE	45	76	270	450	11
50FE	FE	50	103	380	600	11
63FE	FE	63	135	480	750	12
71FE	FE	71	210	600	950	17
80FE	FE	80	250	900	1500	20
90FE	FE	90	360	1300	2100	20
100FE	FE	100	470	1800	2800	23
90EET	EET	90	490	3000	4500	19
110EET	EET	110	600	4000	6500	27
140EET	EET	140	1050	7000	12000	35
160EET	EET	160	1500	10000	17000	39
100FEE	FEE	100	400	1600	2400	24
120FEE	FEE	120	540	1900	3100	32
140FEE	FEE	140	850	2500	3800	36
160FEE	FEE	160	1000	3700	5700	46
180FEE	FEE	180	1400	5300	8400	46
200FEE	FEE	200	1900	7100	11400	52
180FM	FM	180	1400	7500	13500	40
200FM	FM	200	2600	10500	18500	40
225FM	FM	225	3700	14500	26500	44
250FM	FM	250	5200	20500	37500	48
280FM	FM	280	7000	30500	55000	48
315FM	FM	315	10000	40000	77000	55
350FM	FM	350	15000	60000	105000	55
400FMM	FMM	400	10000	40000	72500	85
450FMM	FMM	450	15000	60000	105000	90
500FMM	FMM	500	20000	82000	150000	100
550FMM	FMM	550	30000	120000	215000	100
630FMM	FMM	630	45000	180000	310000	100
700FMM	FMM	700	60000	245000	420000	120
160MT	MT†	160	2400	15000	25000	26
180MT	MT†	180	3800	25000	38000	26
200MT	MT†	200	6000	40000	58000	27
250MT	MT†	250	11500	80000	110000	32
280MT	MT†	280	16500	100000	150000	35
315MT	MT†	315	19000	125000	180000	42
355MT	MT†	355	22000	160000	200000	51
180MMT	MMT†	180	1650	12000	18000	42
200MMT	MMT†	200	2200	16000	23000	42
225MMT	MMT†	225	3700	26000	40000	42
280MMT	MMT†	280	6600	47000	70000	47
315MMT	MMT†	315	8600	62000	91000	51
355MMT	MMT†	355	13500	97000	140000	54
400MMT	MMT†	400	21000	150000	220000	60
450MMT	MMT†	450	30000	220000	320000	57
500MMT	MMT†	500	42000	300000	450000	64
560MMT	MMT†	560	60000	430000	640000	64
630MMT	MMT†	630	68500	500000	720000	86
710MMT	MMT†	710	78000	600000	850000	105

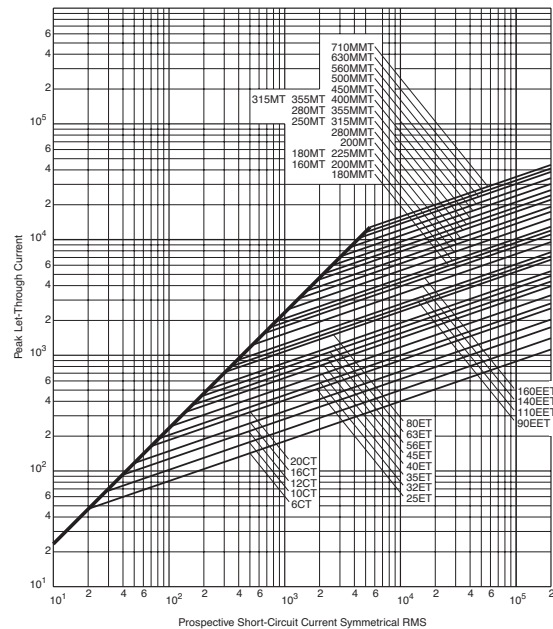
• Watts loss provided at rated current.
• Note: FC, 8ET, 12ET, 15ET, 20ET, 65EET and 75EET are available for replacement purposes on existing equipment.
• See accessories on page 189.

CT 6-20, ET 25-80A: 690V

Time-Current Curve



Peak Let-Through Curve



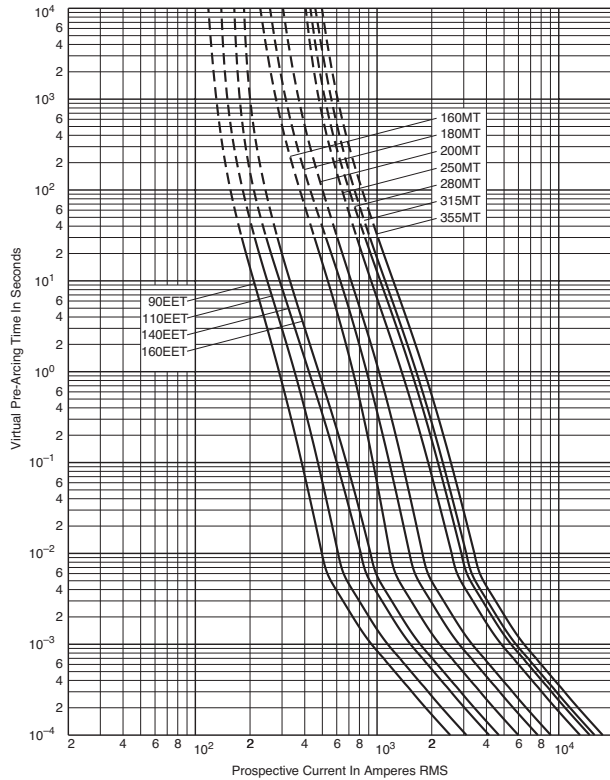
Data Sheet: 35785312

High Speed Fuses

British BS 88 — 690V: 6-710A

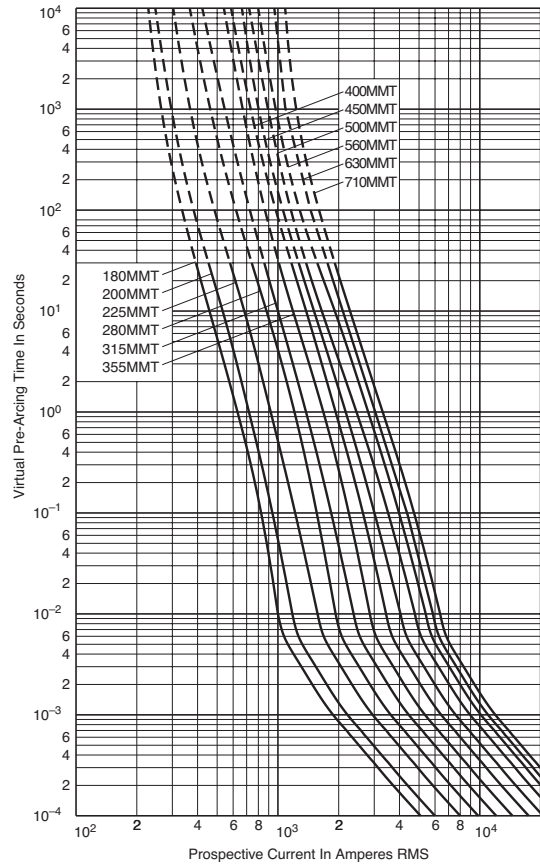
EET 90-160A, MT 160-355A: 690V

Time-Current Curve



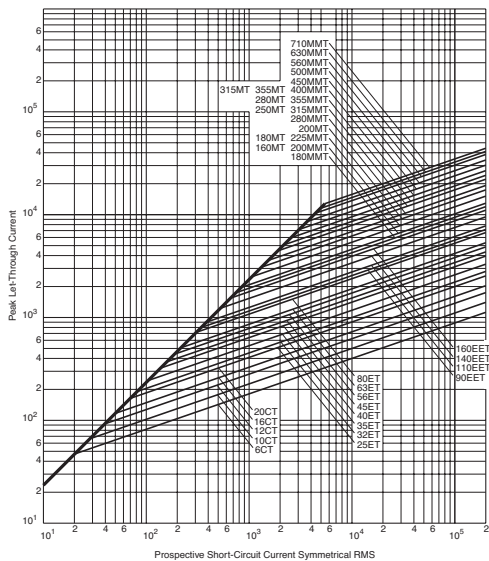
MMT 180-710A: 690V

Time-Current Curve

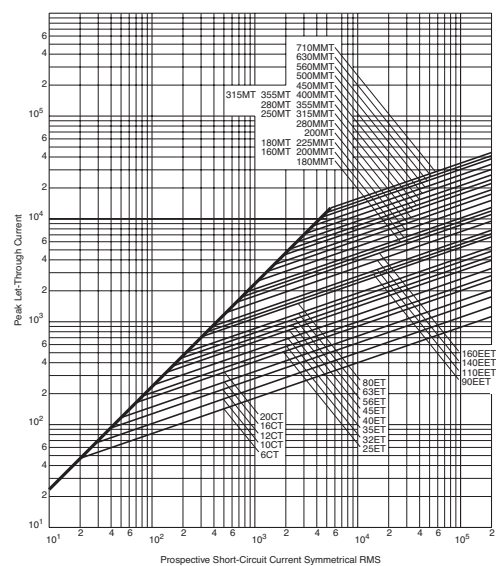


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



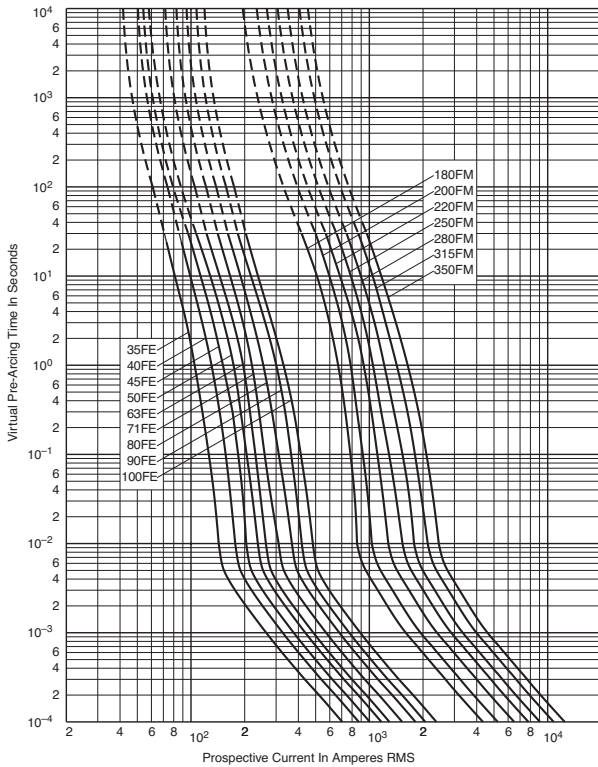
Data Sheet: 35785313

Data Sheet: 35785311

British BS 88 — 690V: 6-710A

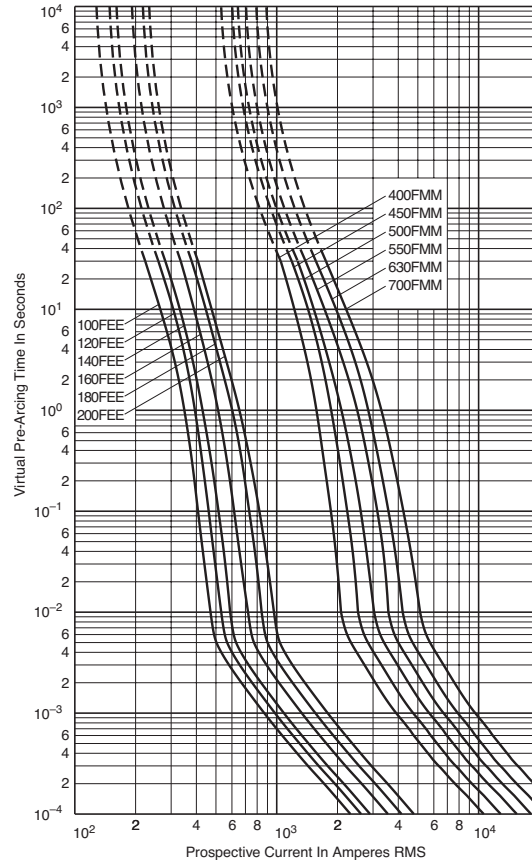
FE 35-100A & FM 180-350A: 690V

Time-Current Curve

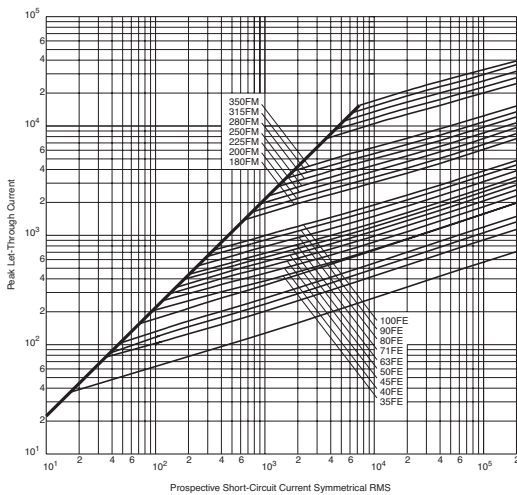


FEE 100-200A & FMM 400-700A: 690V

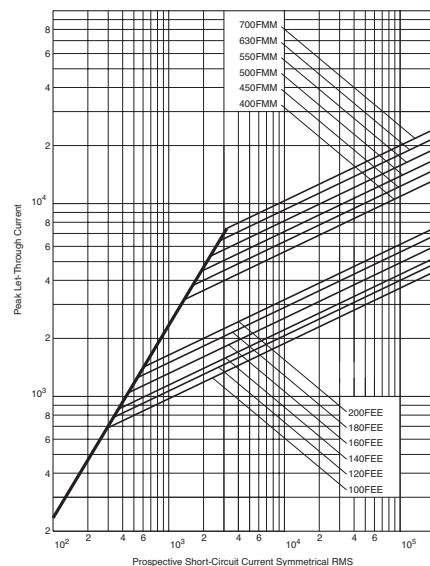
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 35785314

Data Sheet: 35785292

British BS 88 fuse accessories

Trip Indicator



Trip-indicator fuselinks are available for use in parallel with the main fuselinks. They can either be attached to the associated fuselink or mounted separately in panel mounted fuse clips, Part No. CL1. A push-on adapter and microswitch attachment is available for use with the trip indicator to give the facility of remote indication, reference MAI or MBI.

Fuse ratings of 20A and below cannot usually accommodate a trip fuselink in parallel.

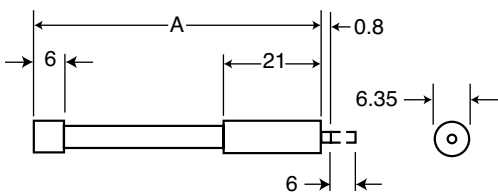
Where trip indicator fuselinks are to be attached to the main fuselink, an accessory pack comprising a pair of mounting clips and an appropriate trip indicator fuselink will be required.

The ordering code references for these packs are listed below:

Fuse Type	Order Ref.	Fuse Type	Order Ref.
ET	EC-600	FM	MC-600
EET	EC-600	FMM	MC-600
FE	EC-600	LMT	MC-250
FEE	EC-600	LMMT	MC-250
LET	EC-250		

Dimensions & Fuselink Data (mm)

Fuse Type	Dim. 'A' Max	Voltage Rating	Fuse Type	Dim. 'A' Max	Voltage Rating
TI250	37.6	250	TI1100	98.4	1100
TI500	47.5	500	TI1500	120.8	1500
TI600	55.7	600	TI2000	147.5	2000
TI700	61.8	700	TI2500	198.3	2500



1mm = 0.0394" / 1" = 25.4mm

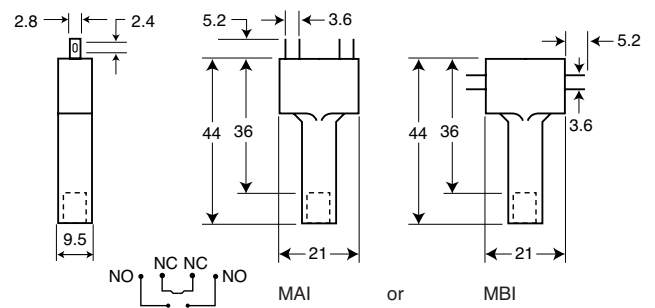
Microswitch and Adapter Type MAI
Current Ratings:

ac 50/60Hz resistive load @ 250Vrms	4A
ac 50/60Hz resistive load @ 127Vrms	6A

Maximum Working Voltage:

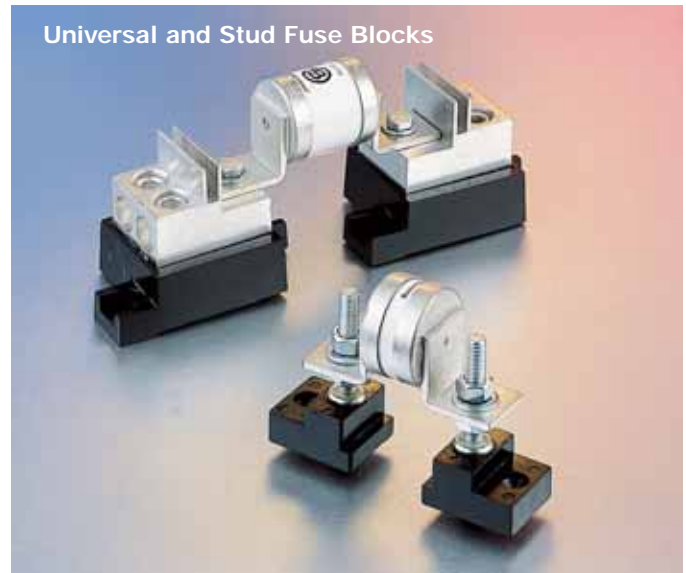
Contact-to-contact (rms)	1000V
Contact-to-contact (rms)	1500V

Dimensions (mm)



High Speed Fuses

Universal and Stud Fuse Blocks



Stud Fuse Blocks

Catalog Numbers	Stud Height (in)	Stud Dia. & Threads
C5268-1	1.00	3/16-18
C5268-2	1.75	3/16-18
C5268-3	0.75	3/16-18
C5268-4	1.00	1/4-20
C5268-5	1.75	1/4-20

Universal Fuse Blocks

Modular Base	Max Voltage	Max Fuse Amp Rating	Data Sheet
1BS101	600	100	1206
1BS102	600	400	1207
1BS103	600	400	1208
1BS104	600	600	1209

COOPER Busmann



! WARNING	
Arc Flash and Shock Hazards Appropriate PPE Required Failure to Comply Can result in Death or Injury	
34 inch	Flash Hazard Boundary
3	cal/cm ² Flash Hazard at 18 inches
1	Hazard Risk Category cat1
480 VAC Shock Hazard	
42 inch	Limited Approach
12 inch	Restricted Approach
1 inch	Prohibited Approach
<small>Equipment Name: Pump 1 Motor Starter</small>	

Reduce Liability while Increasing Safety and Productivity.

Cooper Busmann Services delivers electrical arc-flash analysis, hazard labeling and training to protect your workers and company.

We offer the most comprehensive approach to electrical system safety solutions, including electrical safety program assessment and development. And, we take the confusion out of OSHA requirements to help you meet NFPA 70E safety standards.

Cooper Busmann Services plus Busmann® circuit protection products in one package can help you enhance protection of people and property, thereby improving productivity. No one else can do that.

Contact our services manager today for your own electrically safe working environment at 636-207-3294.

COOPER

The Power Behind The Brands.



COOPER Lighting



COOPER Crouse-Hinds



COOPER Power Systems



COOPER Wiring Devices



COOPER B-Line

Ferrule fuses



High Speed Fuses

Table of Contents

Basic Catalog Number	Volts	Amp Range	Page
FWA	150	5-60	192-193
FWX	250	1-50	194-195
FWH	500	0.25-30	196-199
FWC	600	6-32	200-201
FWP	690V/700	1-100	202-205
FWK	750	5-60	206-207
FWJ	1000	20-30	208-209
FWL/FWS	1250/1500/2000	2-30	210

Accessories

Fuse Holders 211

Ferrule Fuse Ranges

Volts	Amps	AC	DC
150	5-60	X	X
250	1-50	X	X
500	0.25-30	X	X
600	6-32	X	X
700 (22 x 58mm)	20-100	X	—
700 (14 x 51mm)	1-50	X	X
750	5-60	X	X
1000	20-30	X	X (800Vdc)
1250	20-30	X	X (1000Vdc)
1500	8-15	X	X (1000Vdc)
2000	2-6	X	X (1000Vdc)

General Information

Cooper Bussmann offers a full line of ferrule style (cylindrical clip-mounted) fuses, designed and tested to meet standards and requirements in various locations around the world. Their unique design and construction provide:

- Superior cycling capability
- Low energy let-through (I²t)

Ferrule fuses provide an excellent solution for small UPS, small ac drives and other low power applications where space is at a premium.

Voltage Rating

All Cooper Bussmann ferrule fuses — except 690V — have been tested at their rated voltage. The 690V ferrule fuse has been tested to the IEC 60269 standard, which requires clearing at the rated voltage +5%.

Accessories

Ferrule fuses may be mounted in fuseclips, fuse holders, fuse blocks or fused switches. A variety of products are available. Please consult Cooper Bussmann Application Engineering to discuss your requirement.

High Speed Fuses

Ferrule — FWA 150V: 5-60A

**FWA 5-30A (10 x 38mm)
35-60A (21 X 51mm)**

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 150Vac/150Vdc

Amps: — 5-60A

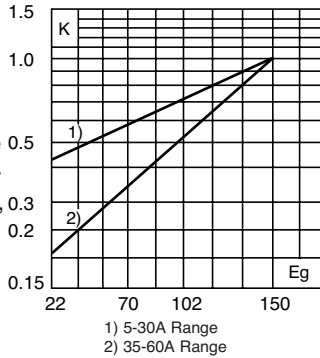
IR: — 100kA Sym.

Agency Information: CE, UL Recognition

Electrical Characteristics

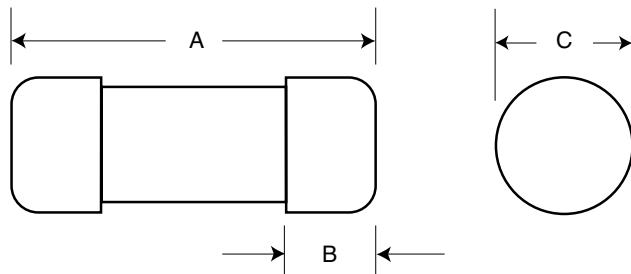
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



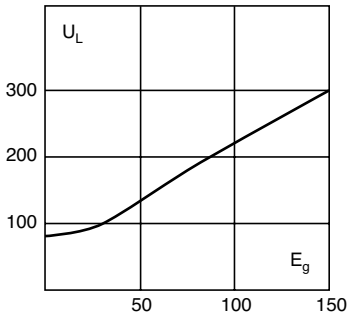
Dimensions - in (mm)

Amp Range	Dimensions		
	A	B	C
5-30	1.5 (38.1)	0.375 (9.5)	0.406 (10.3)
35-60	2.0 (50.8)	0.625 (15.9)	0.811 (20.6)



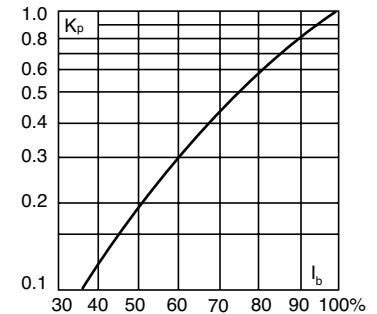
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 150V	
FWA-5A10F	10 x 38mm (¹ / ₂ " x 1 ¹ / ₂ ")	5	1.6	8	1
FWA-10A10F		10	3.6	16	2.7
FWA-15A10F		15	14	55	3.3
FWA-20A10F		20	33	130	3.8
FWA-25A10F		25	58	220	4.9
FWA-30A10F	30	100	400	4.9	
FWA-35A21F	21 x 51mm (¹ / ₂ " x 2")	35	75	800	4.5
FWA-40A21F		40	100	1000	5.1
FWA-45A21F		45	130	1300	6
FWA-50A21F		50	170	1600	7.3
FWA-55A21F		55	210	2100	8.0
FWA-60A21F		60	250	2400	8.0

• Watts loss provided at rated current.
• See accessories on page 211.

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

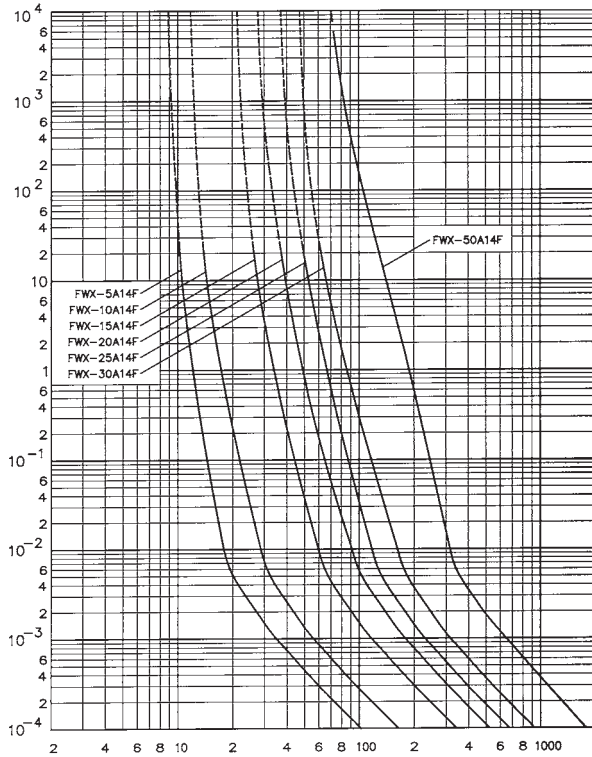
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

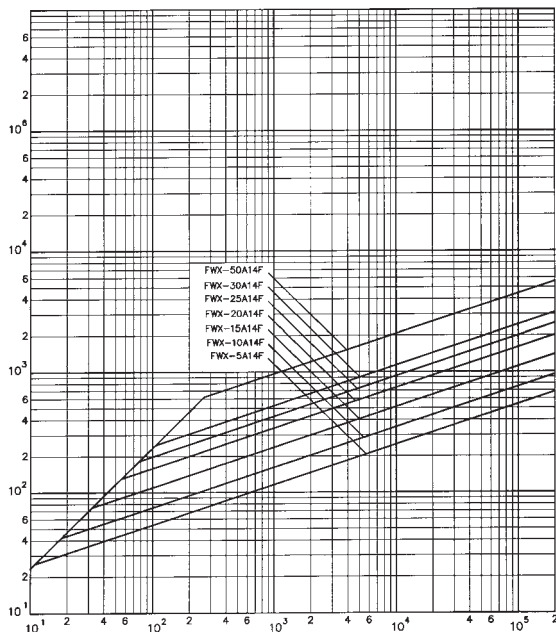
Ferrule — FWA 150V: 5-60A

FWA 5-30A: 150V (10 x 38mm)

Time-Current Curve



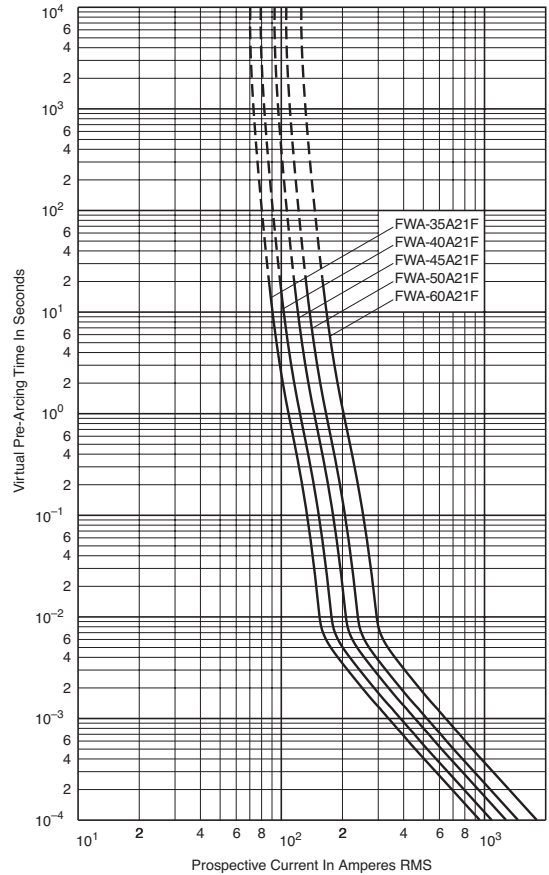
Peak Let-Through Curve



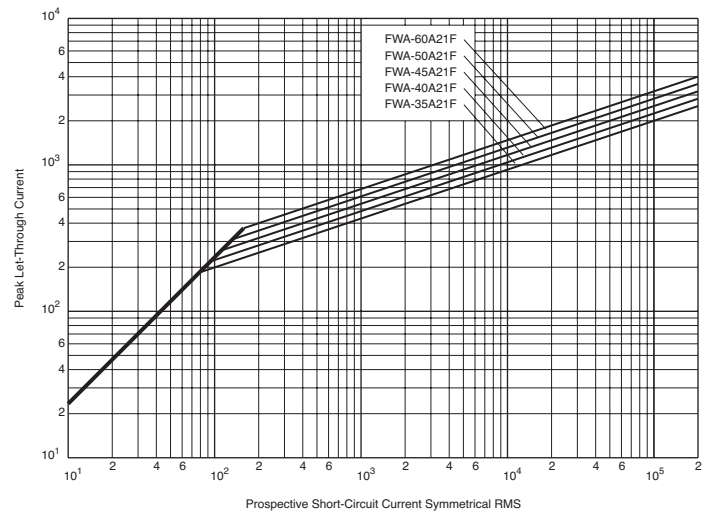
Data Sheet: 35785317

FWA 35-60A: 150V (21 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785305

High Speed Fuses

High Speed Fuses

Ferrule — FWX 250V (UL): 1-50A

FWX (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250Vac

Amps: — 1-50A

IR: — 200kA RMS Sym.

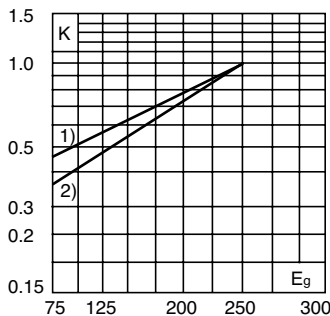
— 50kA @ 250Vdc

Agency Information: CE, UL Recognition 1-50A & CSA Component Acceptance: 5-30A

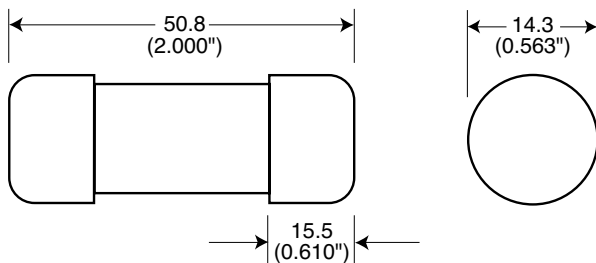
Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

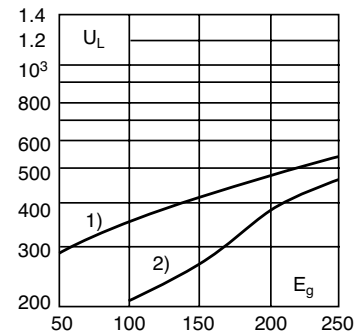


Dimensions - mm (inches)



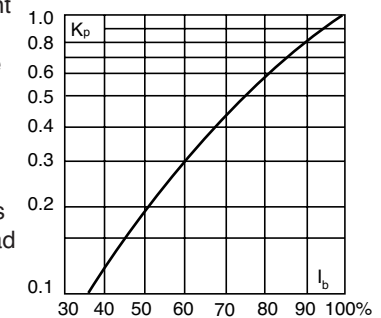
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Number	Size (% x 2")	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 250V	
FWX-1A14F	14 x 51mm	1	—	—	—
FWX-2A14F	(% x 2")	2	—	—	—
FWX-3A14F		3	—	—	—
FWX-4A14F		4	—	—	—
FWX-5A14F		5	1.6	13	1.3
FWX-10A14F		10	3.6	24	3.4
FWX-15A14F		15	14	83	3.8
FWX-20A14F		20	33	200	4.6
FWX-25A14F		25	58	300	5.3
FWX-30A14F		30	100	500	5.9
FWX-50A14F		50	200	1800	5.7

• Watts loss provided at rated current.
 • (250Vdc/Interrupting rating 50kA) UL Recognition & CSA Component Acceptance on 5 through 30A only. Consult Cooper Bussmann for additional ratings.
 • See accessories on page 211.

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

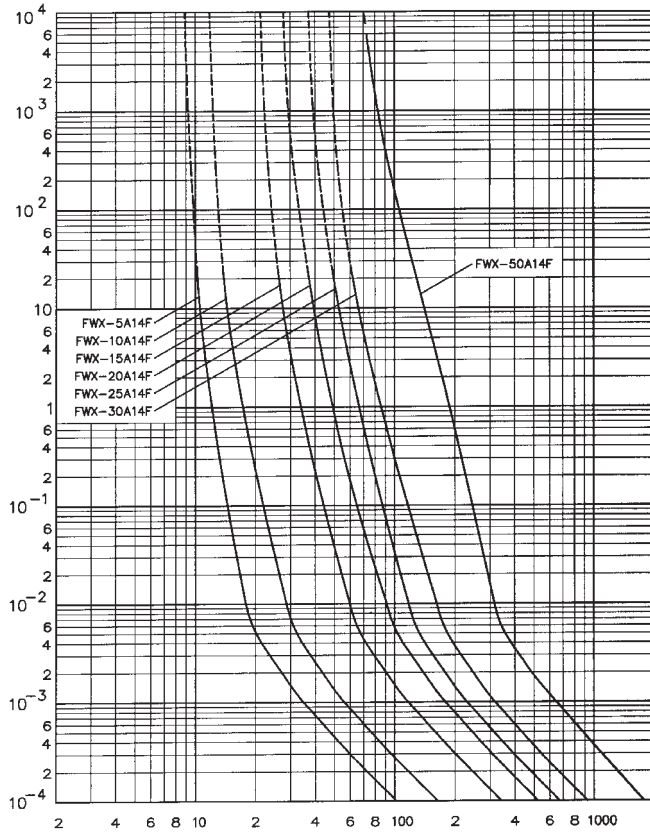
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

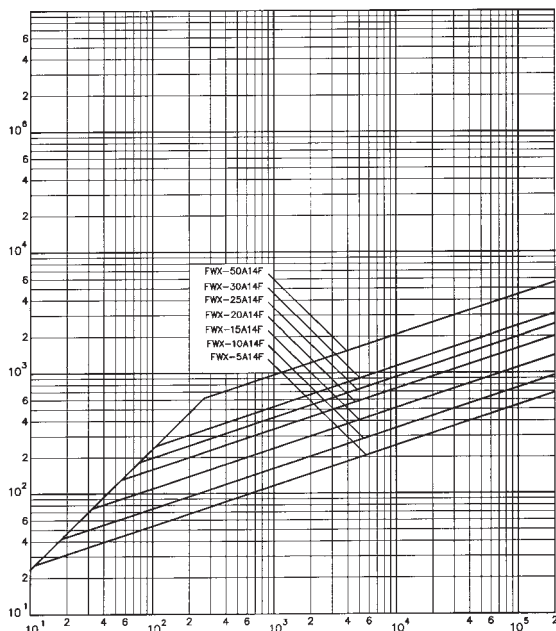
Ferrule — FWX 250V (UL): 1-50A

FWX 1-30A: 250V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785302

Did You Know?

All-Inclusive Elevator Disconnect Simplifies Installation Plus a Multitude of Codes and Standards



When the Westin Hotel chain renovated the historic Cupples Station in downtown St. Louis, the hotel's design-and-build electrical contractor specified the Cooper Bussmann

Power Module™ elevator shunt trip disconnect. The primary reason was the savings in man-hours with everything in one box: the fire alarm, control wiring and power wiring; all the parts needed to interface with a fire alarm system in a UL 98 Listed assembly. In addition, all the codes and standards surrounding the elevator disconnecting means – electrical, elevator, fire alarm and the sprinkler system – are met, including ANSI/ASME A17.1, NFPA 72, NEC® 620.62.

The contractor faced a unique situation when the luxury hotel chain chose to revamp the old warehouse versus tearing the structure down and rebuilding. The hotel complex consists of four buildings interconnected with walkways. A total of eight elevators were installed with eight Power Module switches, two per building. Each 30 HP passenger elevator is fused with Cooper Bussmann Low-Peak® Class J LPJ-70SP fuses while each 40HP service elevator uses the Class J LPJ-90SP fuses.

High Speed Fuses

High Speed Fuses

Ferrule — FWH 500V: 0.25-30A

FWH (6 x 32mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 500Vac

Amps: — 0.25-30A

IR: — 50kA at ≥ 20% pf (0.25-20A)

— 20kA at ≥ 20% pf (25-30A)

Agency Information: CE, UL Recognition 0.25-30A, CSA

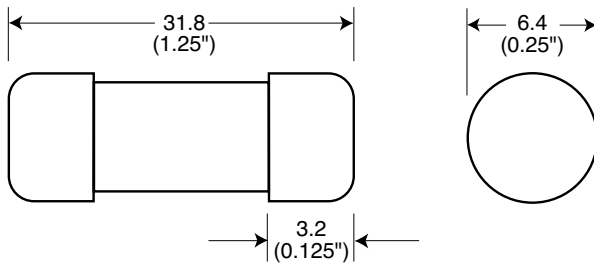
Component Acceptance: 0.25-7A

Opening Times

Amp Ratings	150%	200%	300%
0.25-7	> 30 min	< 30 min	≤ 10 sec
10-30	< 30 min	< 30 min	≤ 10 sec



Dimensions - mm (inches)



Catalog Numbers

Catalog Numbers	Size	Rated Current RMS-Amps	Electrical Characteristics		Watts Loss
			I ² t (A ² Sec)		
			Pre-arc	Clearing at 500V	
FWH-.250A6F	6 x 32mm	0.25*	0.01	0.05	2.7
FWH-.500A6F	(¼" x 1¼")	0.5*	0.05	0.25	1.2
FWH-001A6F		1*	0.4	2	1.7
FWH-002A6F		2*	1.3	3.5	3.2
FWH-3.15A6F		3.15*	3.1	7.7	2.9
FWH-005A6F		5*	15	40	2.1
FWH-6.30A6F		6.3*	36	90	2.3
FWH-007A6F		7*	50	125	2.5
FWH-010A6F		10**	9.9	139	2.86
FWH-12.5A6F		12.5**	20	60	3.53
FWH-015A6F		15**	44	146	3.08
FWH-016A6F		16**	48	177	4.48
FWH-020A6F		20**	75	259	4.26
FWH-025A6F		25**	126	345	—
FWH-030A6F		30**	145	430	—

*300% minimum opening current at rated voltage.

**200% minimum opening current at rated voltage.

• Consult Cooper Bussmann for dc ratings.

• See accessories on page 211.

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Did You Know?

Application Engineering Services

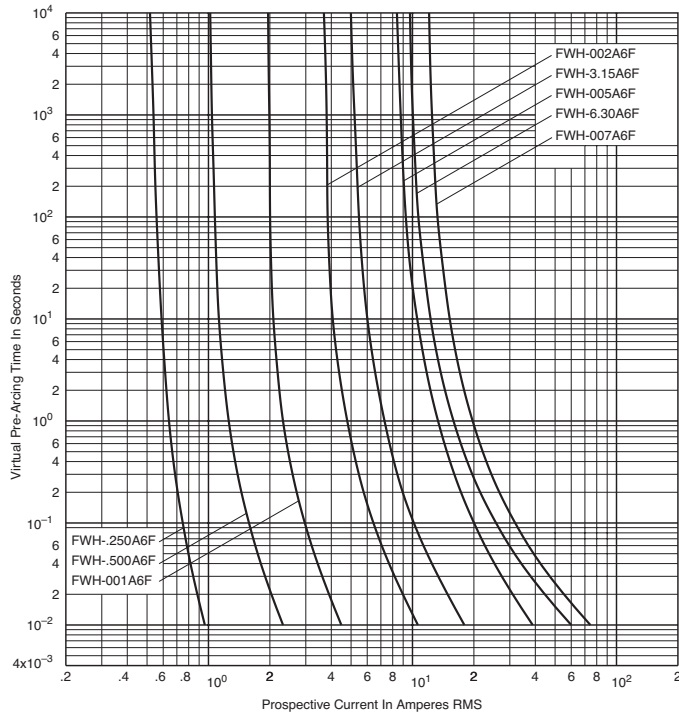
Application Engineering assistance is available to all customers. The Application Engineering team is staffed by degreed electrical engineers and available by phone with technical and application support Monday – Friday, 8:00 a.m. – 5:00 p.m. Central Time. Application Engineering can be reached via phone, fax or email:

- Phone: 636-527-1270
- E-mail: fusetech@buss.com

Ferrule — FWH 500V: 0.25-30A

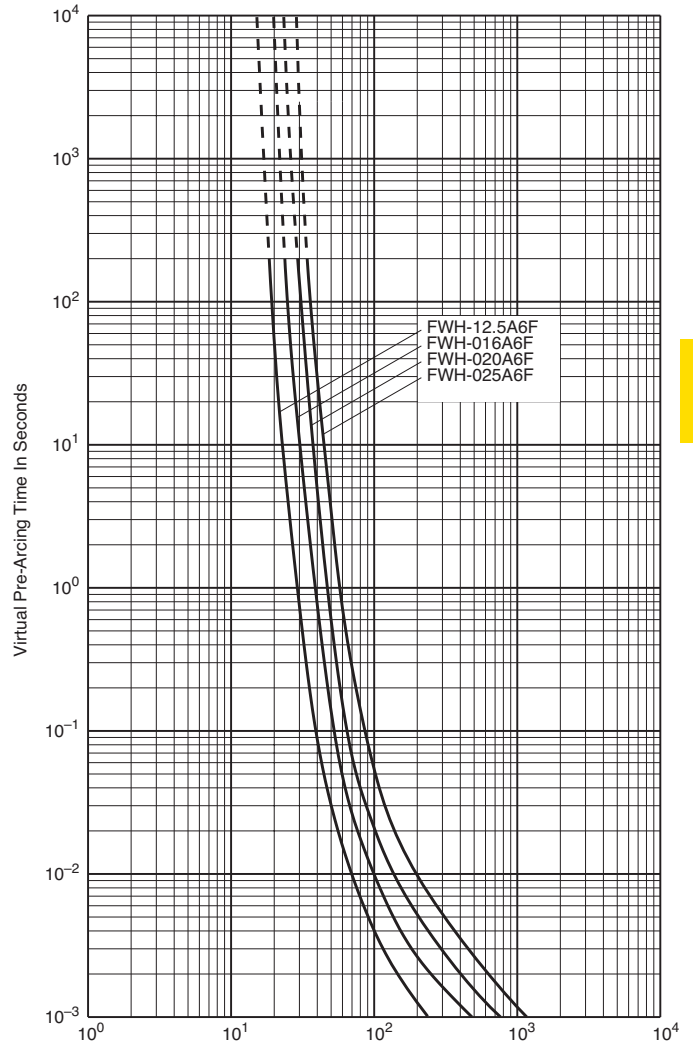
FWH 0.25-7A: 500V (6 x 32mm)

Time-Current Curve



FWH 10-30A: 500V (6 x 32mm)

Time-Current Curve



High Speed Fuses

High Speed Fuses

Ferrule — FWH 500V: 1-30A

FWH (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 500Vac

Amps: — 1-30A

IR: — 200kA RMS Sym.

— 50kA @500Vdc

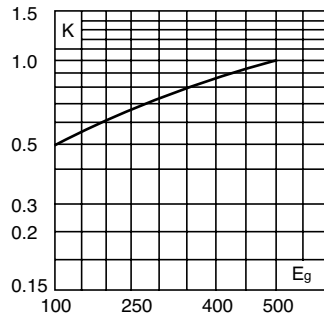
Agency Information: CE, UL Recognition 1- 30A & CSA Component Acceptance: 5 - 30A.



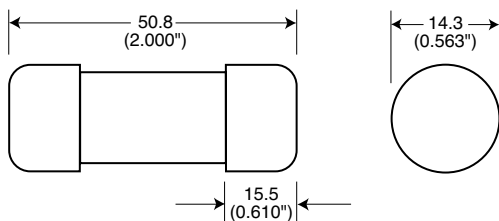
Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

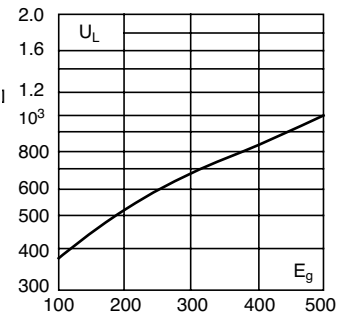


Dimensions - mm (inches)



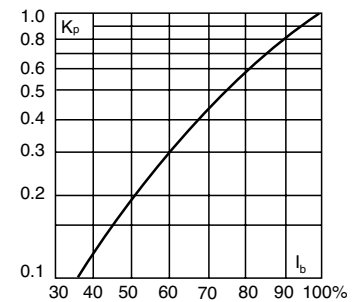
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 500V	
FWH-1A14F	14 x 51mm	1	—	—	—
FWH-2A14F	(1/8" x 2")	2	—	—	—
FWH-3A14F		3	—	—	2.3
FWH-4A14F		4	—	—	—
FWH-5A14F		5	1.6	6.4	1.5
FWH-6A14F		6	1.6	6.4	1.5
FWH-10A14F		10	3.6	13	4
FWH-12A14F		12	—	—	—
FWH-15A14F		15	10	40	5.5
FWH-20A14F		20	26	96	6
FWH-25A14F		25	49	191	7
FWH-30A14F		30	58	232	9

• Watts loss provided at rated current.
• See accessories on page 211.

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

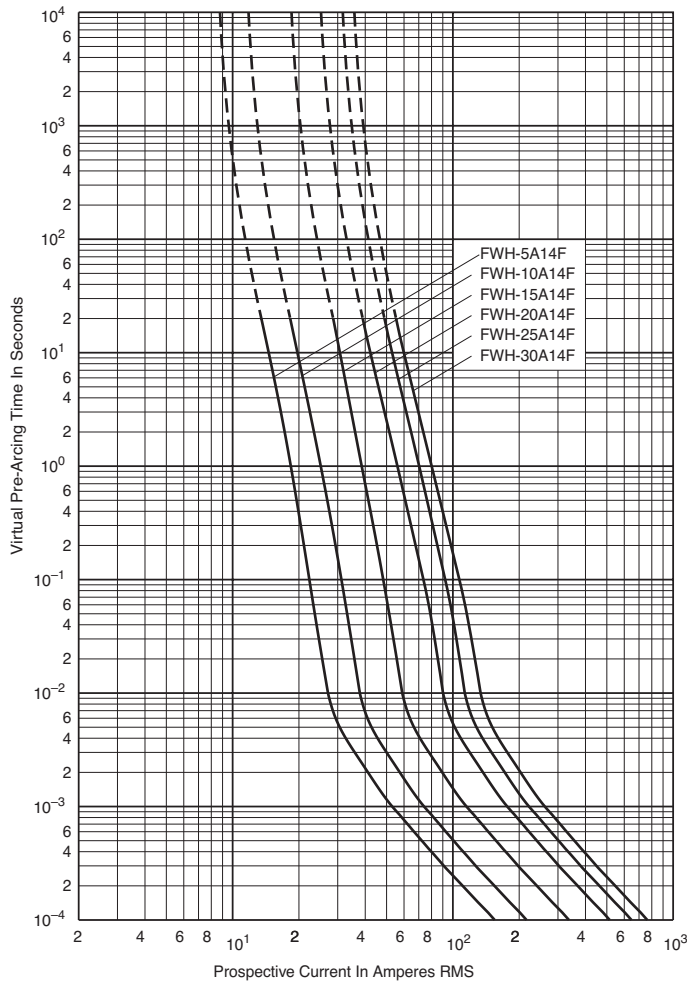
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

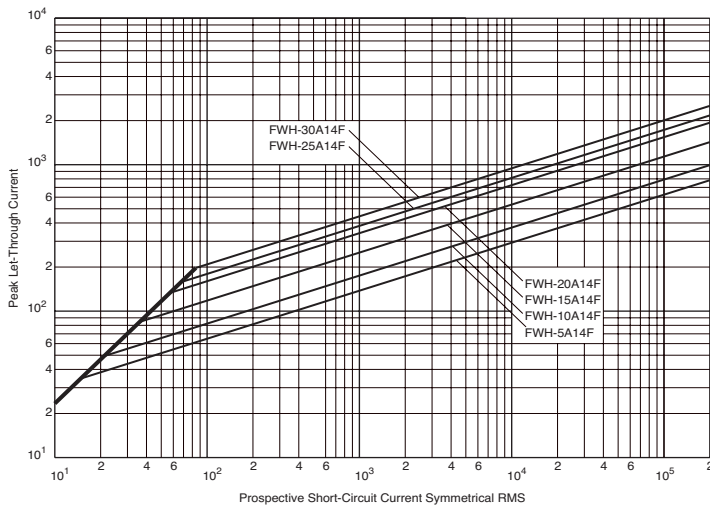
Ferrule — FWH 500V: 1-30A

FWH 1-30A: 500V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785298

High Speed Fuses

Ferrule — FWC 600V: 6-32A

FWC (10 x 38mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600Vac

Amps: — 6-32A

IR: — 200kA RMS Sym.

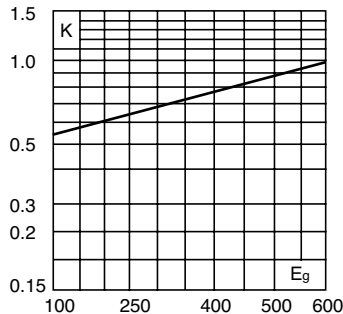
— 50kA @ 700Vdc (6-25A)

Agency Information: CE, UL Recognition: 6-32A. UL Recognition: 6-25A

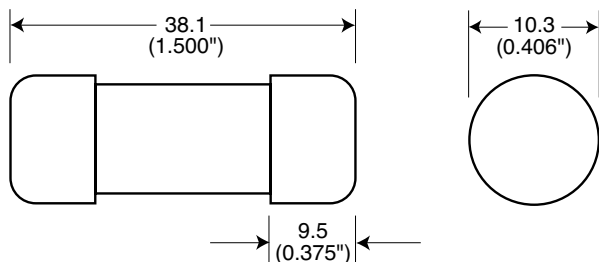
Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

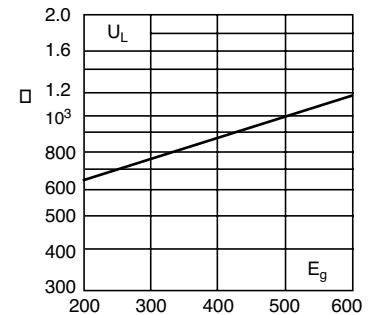


Dimensions - mm (inches)



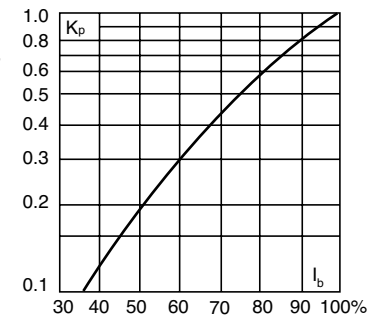
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 600V	
FWC-6A10F	10 x 38mm (¹³ / ₃₂ " x 1 ¹ / ₂ " ²)	6	4	30	1.5
FWC-8A10F		8	6	50	2.0
FWC-10A10F		10	9	70	2.5
FWC-12A10F		12	15	120	3.0
FWC-16A10F		16	25	150	3.5
FWC-20A10F		20	34	260	4.8
FWC-25A10F		25	60	390	6.0
FWC-32A10F	32	95	600	7.5	

*Watts loss provided at rated current.
• See accessories on page 211.

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

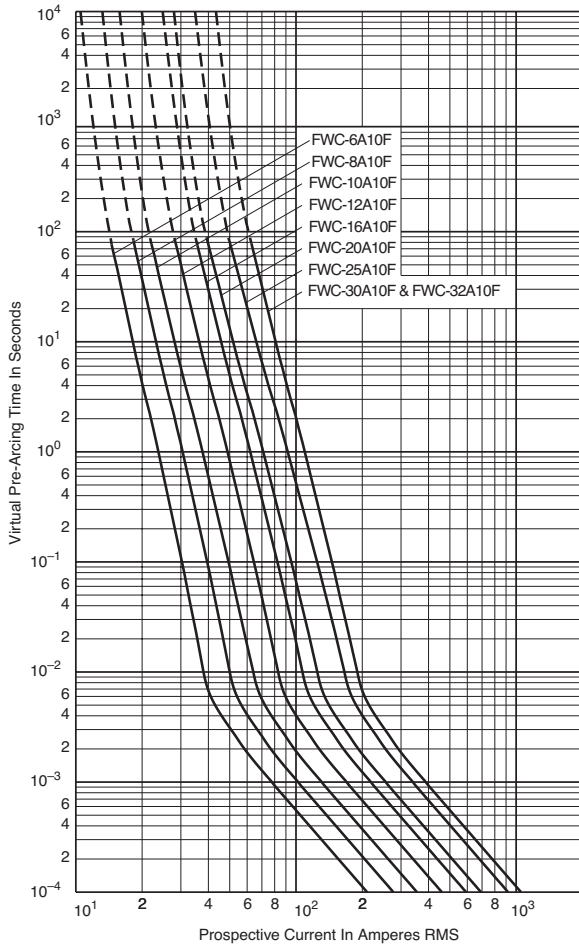
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Ferrule — FWC 600V: 6-32A

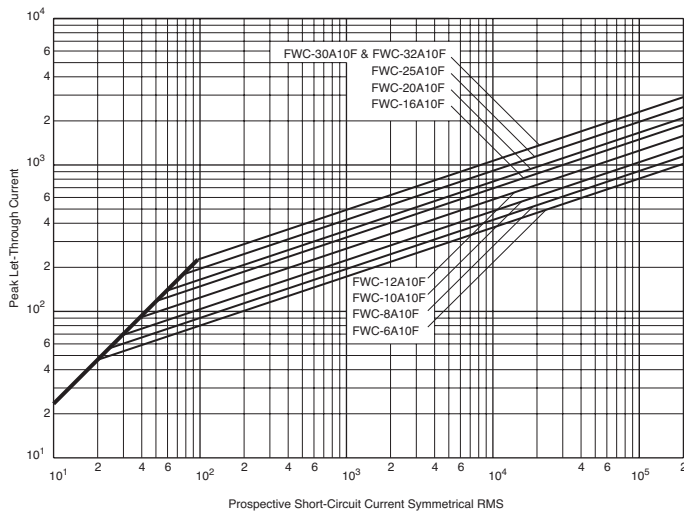
FWC 6-32A: 600V (10 x 38mm)

Time-Current Curve



High Speed
Fuses

Peak Let-Through Curve



Data Sheet: 35785306

High Speed Fuses

Ferrule — FWP 690V/700V (IEC/UL): 1-50A, striker optional

FWP (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses with and without indicating striker.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 1-50A

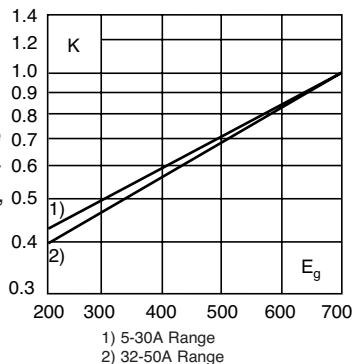
IR: — 200kA RMS Sym.
— 50kA @700Vdc

Agency Information: CE, UL Recognition, CSA Component Acceptance for versions without indicator only.

Electrical Characteristics

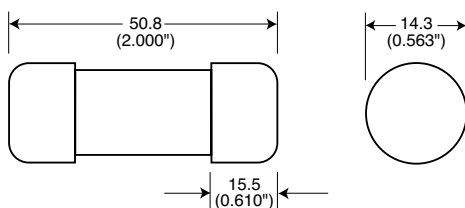
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

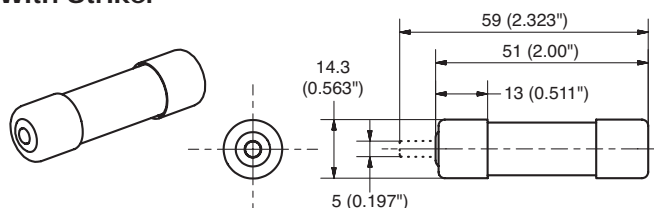


Dimensions - mm (inches)

Without Striker



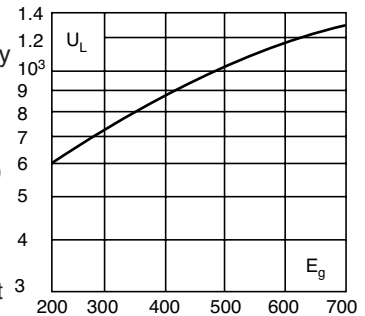
With Striker



Data Sheets: E5781724 rev. B (without striker)
170K5342/43 (with striker)

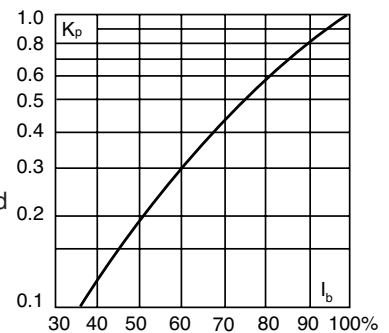
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Rated Minimum Melting	Clearing At Rated Voltage	
Without Striker	14 x 51mm ($\frac{9}{16}$ " x 2")	1	—	—	—
FWP-1A14Fa		2	—	—	—
FWP-2A14Fa		2.5	—	—	—
FWP-2.5A14Fa		3	—	—	—
FWP-3A14Fa		4	—	—	—
FWP-4A14Fa		5	1.6	11.0	1.5
FWP-5A14Fa		10	3.6	38.5	4
FWP-10A14Fa		15	8.6	70	5.5
FWP-15A14Fa		20	26.0	230	6
FWP-20A14Fa		25	46.5	375	7
FWP-25A14Fa		30	58	485	9
FWP-30A14Fa	32	68	600	7.6	
FWP-32A14Fa	40	84	750	8	
FWP-40A14Fa	50	200	1800	9	
FWP-50A14Fa	With Striker	10	3.6	38.5	4
FWP-10A14FI	15	8.6	70	5.5	
FWP-15A14FI	20	26.0	230	6	
FWP-20A14FI	25	46.5	375	7	
FWP-25A14FI	30	58	485	9	
FWP-30A14FI	32	68	600	7.6	
FWP-32A14FI	40	84	750	8	
FWP-40A14FI	50	200	1800	9	
FWP-50A14FI					

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

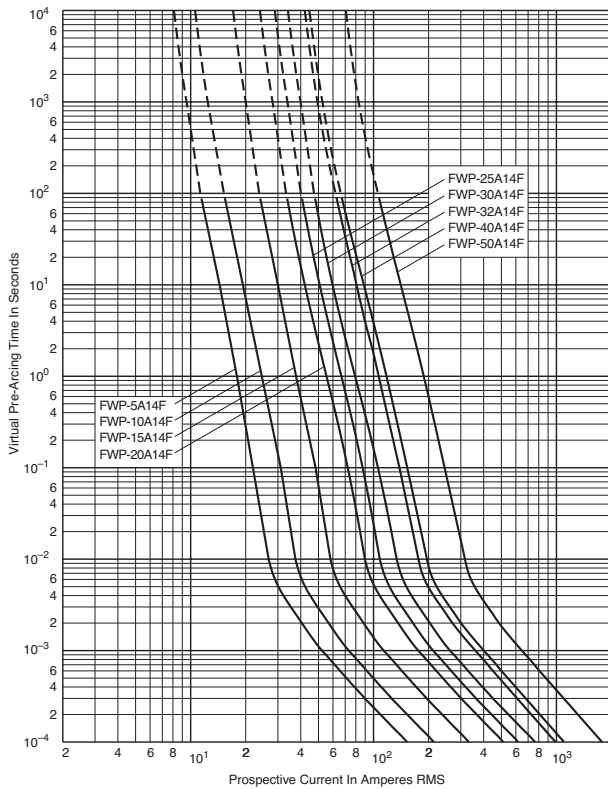
High Speed Fuses

Ferrule — FWP 690V/700V (IEC/UL): 1-50A, striker optional

Without Striker

FWP 5-50A: 660V/700V (14x 51mm)

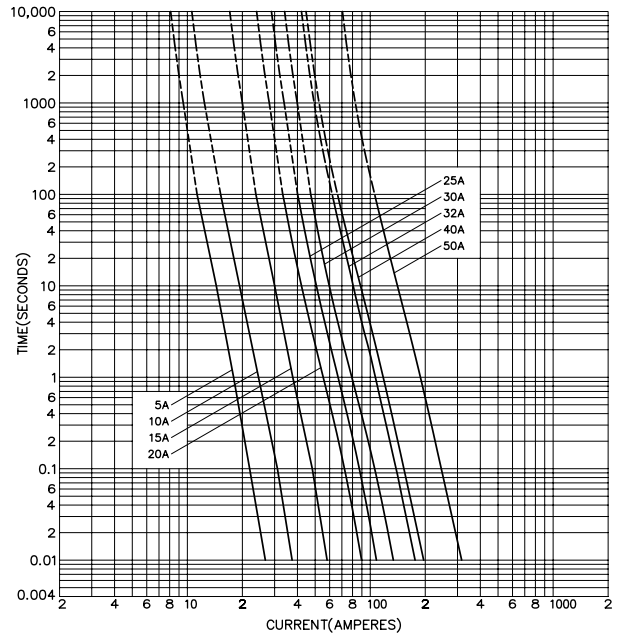
Time-Current Curve



With Striker

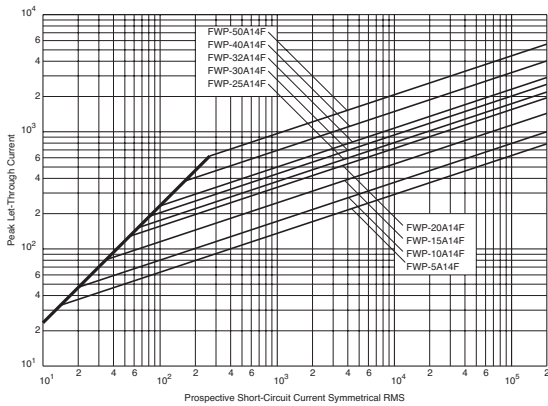
FWP 5-50A: 660V/700V (14x 51mm)

Time-Current Curve

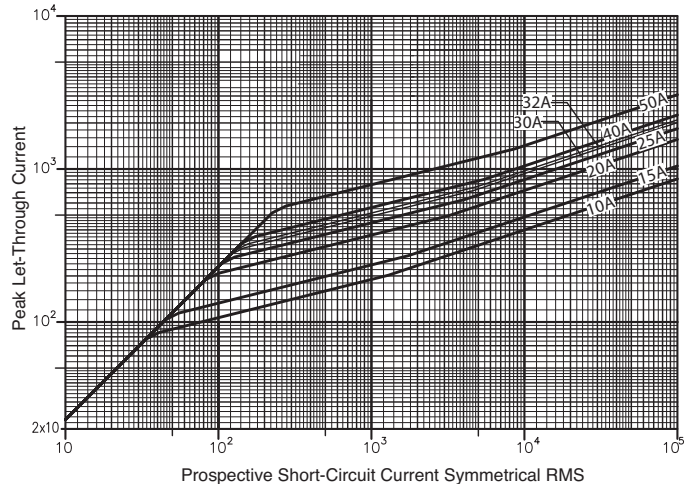


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 35785307

High Speed Fuses

Ferrule — FWP 690V/700V (IEC/UL): 20-100A, striker optional

FWP (22 x 58mm)

Specifications

Description: Ferrule style high speed fuses, with and without indicating striker.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 20-100A

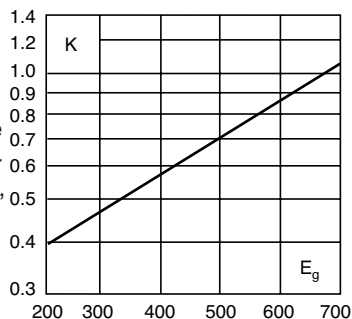
IR: — 200kA RMS Sym.
— 50kA @ 500Vdc

Agency Information: CE, UL Recognition

Electrical Characteristics

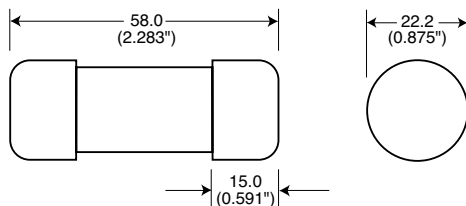
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

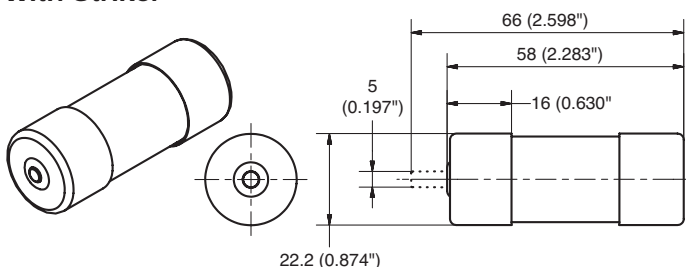


Dimensions - mm (inches)

Without Striker



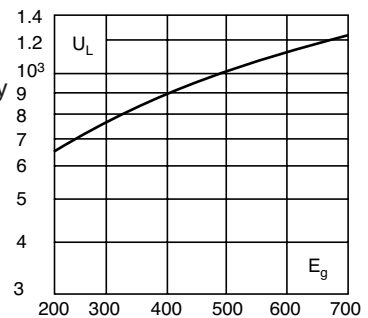
With Striker



FWP with
striker
option.

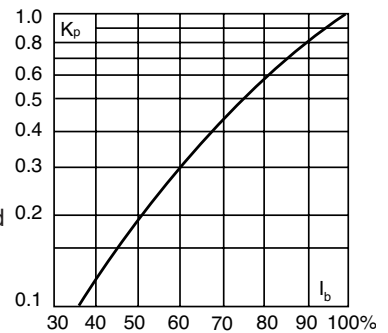
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics				
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss	
			Minimum Melting	Clearing At Rated Voltage		
Without Striker						
FWP-20A22Fa	22 x 58mm (7/8" x 2 1/2")	20	19.0	260	5	
FWP-25A22Fa		25	34.0	410	6	
FWP-32A22Fa		32	53.5	605	8	
FWP-40A22Fa		40	68	750	9	
FWP-50A22Fa		50	135	1600	9.5	
FWP-63A22Fa		63	280	3080	11	
FWP-80A22Fa		80	600	6600	13.5	
FWP-100A22Fa		100*	1100	12500	16	
With Striker						
FWP-20A22FI		22 x 58mm (7/8" x 2 1/2")	20	19.0	260	5
FWP-25A22FI	25		34.0	410	6	
FWP-32A22FI	32		53.5	605	8	
FWP-40A22FI	40		68	750	9	
FWP-50A22FI	50		135	1600	9.5	
FWP-63A22FI	63		280	3080	11	
FWP-80A22FI	80		600	6600	13.5	
FWP-100A22FI	100*		1100	12500	16	

*IEC/UL Voltage rating 600/700

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

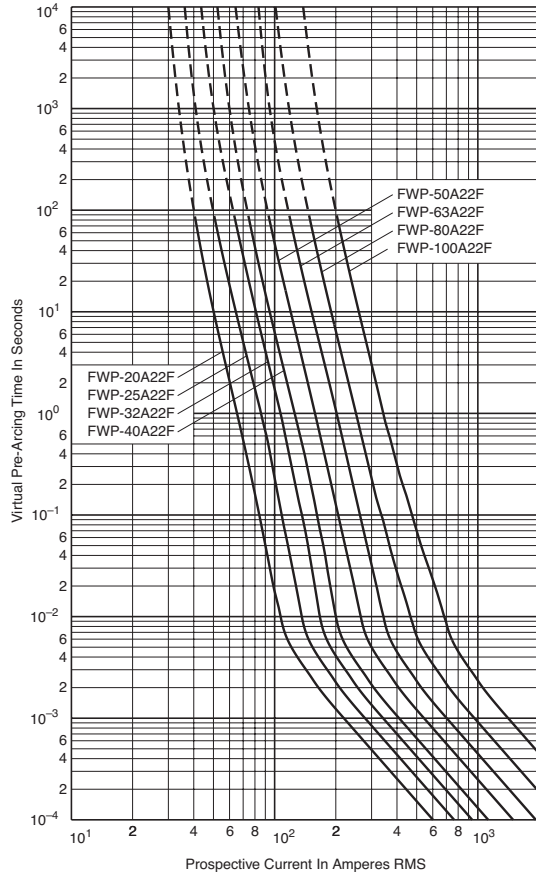
- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

High Speed Fuses

Ferrule — FWP 690V/700V (IEC/UL): 20-100A, striker optional

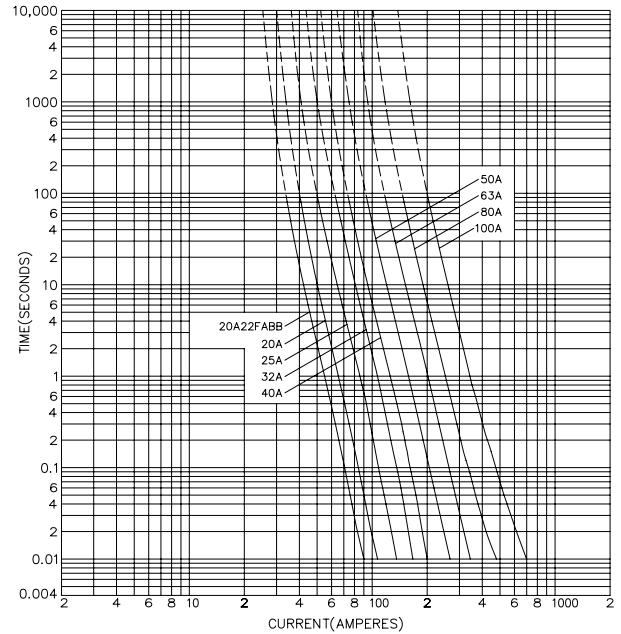
Without Striker
FWP 20-100A:660V/700V (22 x 58mm)

Time-Current Curve



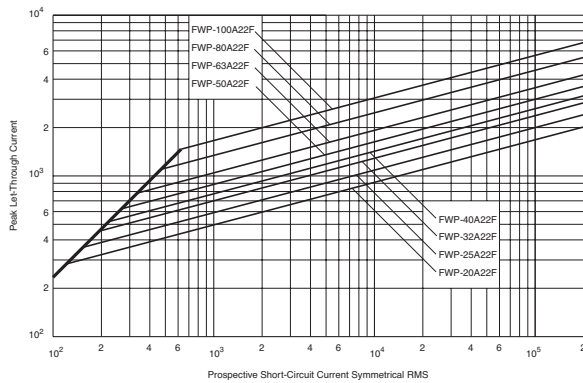
Without Striker
FWP 20-100A:660V/700V (22 x 58mm)

Time-Current Curve

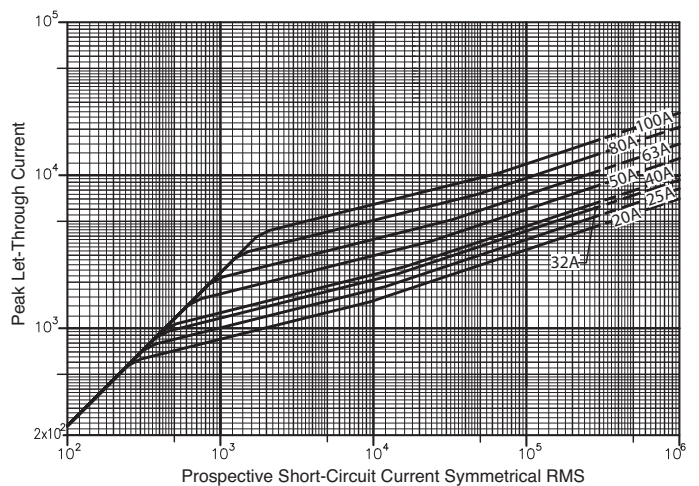


High Speed Fuses

Peak Let-Through Curve



Peak Let-Through Curve



High Speed Fuses

Ferrule — FWK 750V: 5-60A

FWK 5-30A (20 x 127mm 35-60A (25 x 146mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 750Vac

— 750Vdc (Time constant = 10-15 mS)

Amps: — 5-60A

IR: — 45kA RMS Sym.

Agency Information: CE



Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I^2t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 750Vdc	
FWK-5A20F	20 x 127mm (³ / ₁₆ " x 5")	5	8.5	16	—
FWK-8A20F		8	50	100	—
FWK-10A20F		10	95	200	—
FWK-15A20F		15	100	240	—
FWK-20A20F		20	125	315	—
FWK-25A20F		25	400	1100	—
FWK-30A20F	30	800	2600	—	
FWK-35A25F	25 x 146mm (1" x 5 ⁷ / ₁₆ ")	35	1300	4300	—
FWK-40A25F		40	1600	5300	—
FWK-50A25F		50	3100	12000	—
FWK-60A25F		60	5900	24000	—

* See accessories on page 211.

Dimensions - mm (inches)

Fig. 1: 5-30A

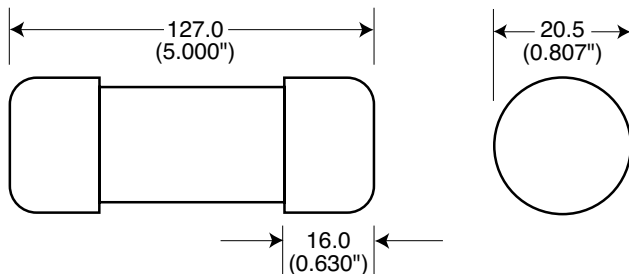
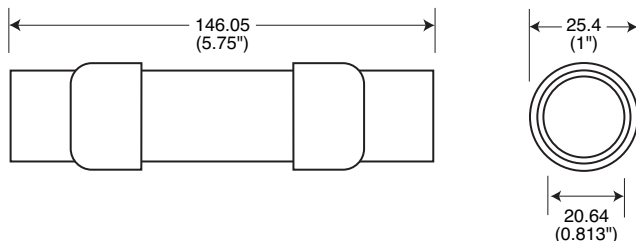


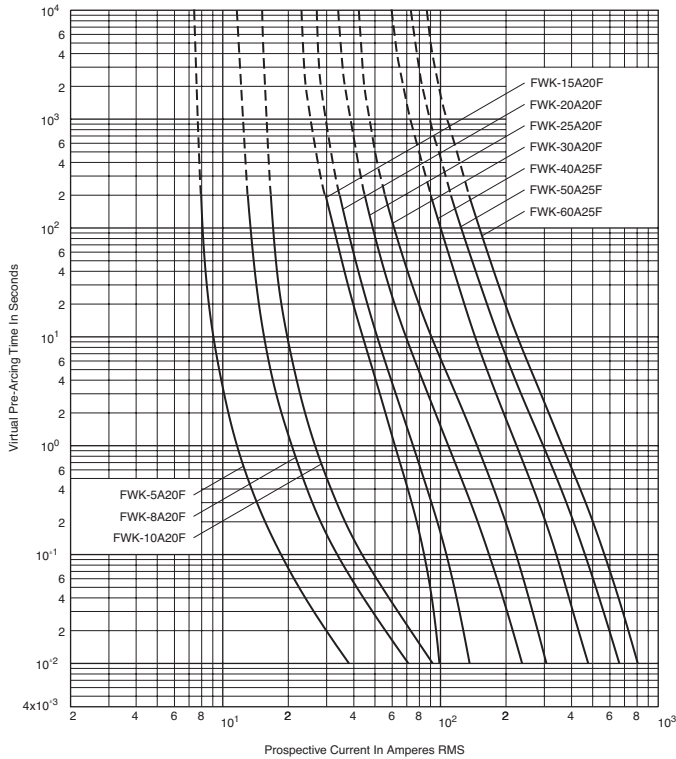
Fig. 2: 35-60A



Ferrule — FWK 750V: 5-60A

FWK 750V: 5-30A (20 x 127mm)
35-60A (25 x 146mm)

Time-Current Curve



High Speed
Fuses

Did You Know?

Lower Transaction Costs Mean Greater Operational Efficiency

We believe the synchronization of business is essential in maximizing the benefit of electronic commerce to the electrical distribution market. We're working hard to make doing business with Cooper Bussmann easier. Some other electronic commerce services we offer include:

- Industry Data Exchange Association (IDEA): We are a charter member of IDEA, a foundation for establishing standards for electronic communications founded by members of NAED and NEMA.
- Industry Data Warehouse (IDW)
- Electrical Industry Extranet (IDXchange)
- Socket to Socket
- Bar Coding: Bussmann product is coded with the UCC-128 serialized shipping container bar code to facilitate a distributor dock-to-stock and pay from receipt process. We also offer customer-specific bar coded shipments for distributors to use in cross-docking and automated receiving and stocking.

High Speed Fuses

Ferrule — FWJ 1000V: 20-30A

FWJ (14 x 67mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 1000Vac

Amps: — 20-30A

IR: — 25kA RMS Sym.

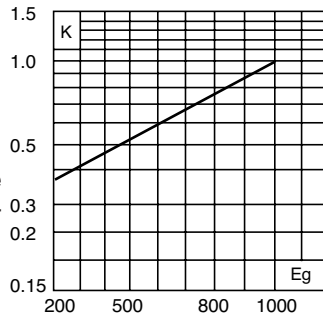
— 20kA @ 800Vdc

Agency Information: CE, UL Recognized

Electrical Characteristics

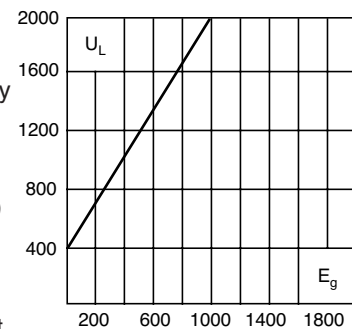
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



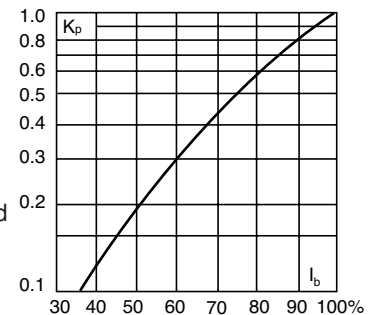
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

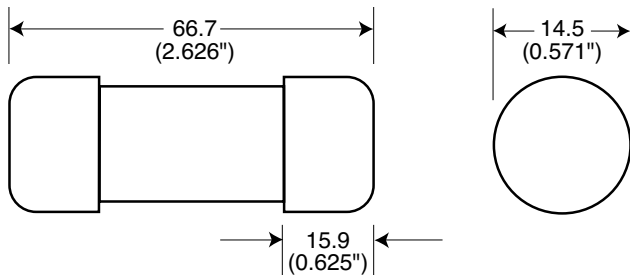


Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 1000V	
FWJ-20A14F	14 x 67mm	20	25	220	9
FWJ-25A14F	(1/2" x 2 3/4")	25	33	350	11
FWJ-30A14F		30	52	450	14

• Watts loss provided at rated current.
• See accessories on page 211.

Dimensions - mm (inches)



Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

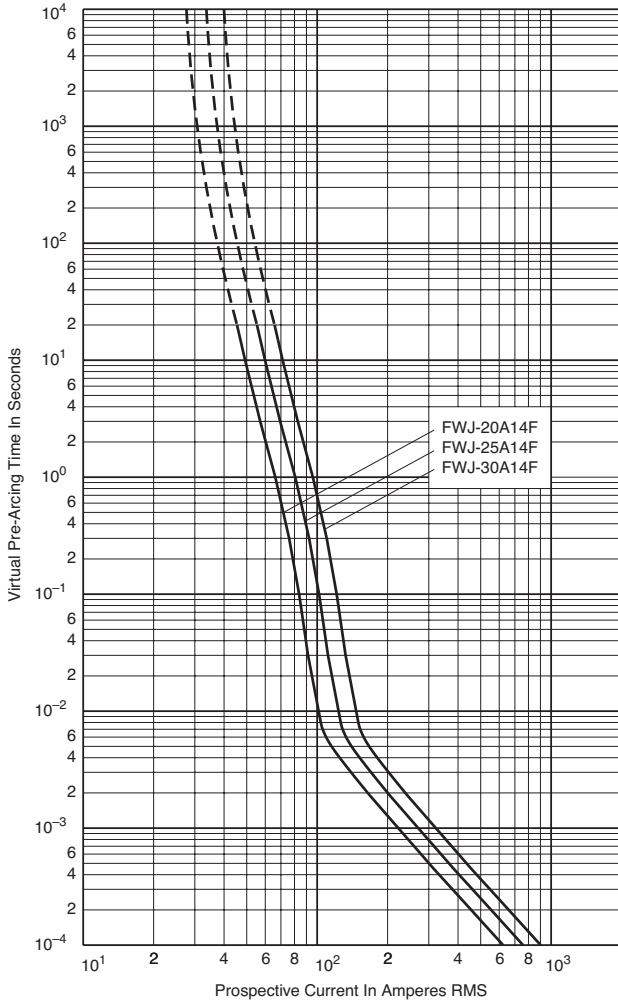
Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

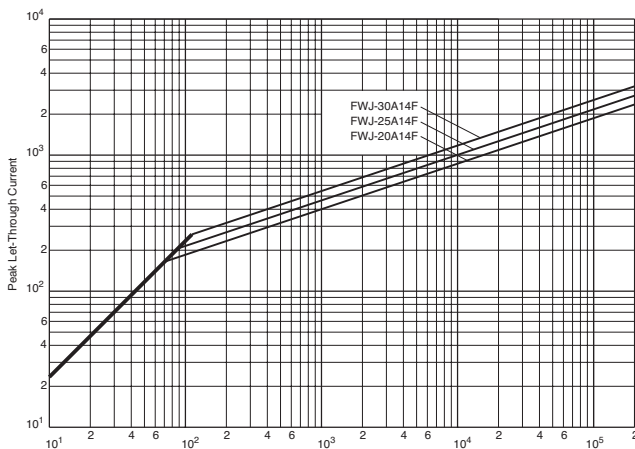
Ferrule — FWJ 1000V: 20-30A

FWJ 20-30A: 1000V (14 x 67mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785315

Did You Know?

Reduce Downtime with Cooper Bussmann 24/7 Emergency After-Hours Service

When overloads or short circuits open the fuse and there are no spares on the shelf, where do you turn to get the production line back up, the trains running or the elevators operating?

Customers pay only standard price for the required circuit protection device, rush freight charges and a \$75.00 emergency fee for this door-to-door service. No minimum order requirements. No surcharges for drop shipments.

Call us at 314-995-1342 and we will:
 Set the Cooper Bussmann Customer Satisfaction team in motion to do what it takes to satisfy your needs.
 Next flight out or next day service; your choice.

High Speed Fuses

High Speed Fuses

Ferrule — FWS/FWL 1000Vdc: 2-30A

FWS 2-15A (20 x 127mm)
FWL 20-30A (20 x 127mm)

Specifications

Description: Ferrule style full range fuses.

Dimensions: See Dimensions illustrations.

Ratings:

- Volts: — 1200Vac (FWL 20-30A)
- 1400Vac (FWS 8-15A)
- 2100Vac (FWS 2-6A)
- 1000Vdc (FWL/FWS 2-30)

Amps: — 2-30A

- IR: — 45kA RMS Sym.
- 30kA @ 1000Vdc

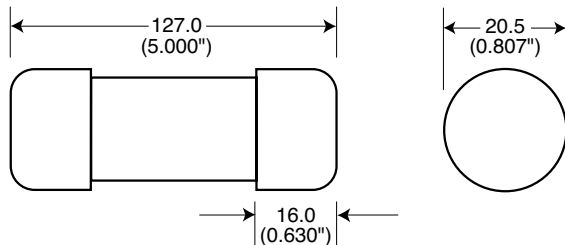
Agency Information: CE, IEC 60077

Catalog Numbers

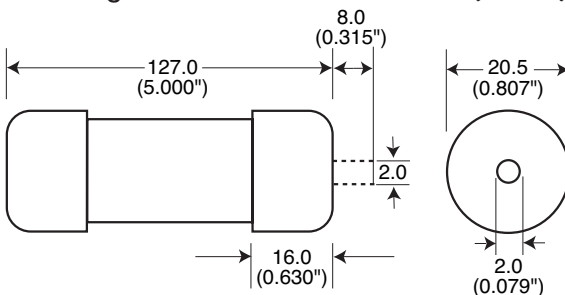
Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I ² t (A ² Sec)		Watts Loss
			Pre-arc	Clearing at 1000Vdc	
FWS-2A20F	20 x 127mm	2	0.8	2.4	4.4
FWS-6A20F	(¹ / ₈ " x 5")	6	27	81	6.7
FWS-8A20F		8	64	192	7.6
FWS-10A20F		10	118	277	3.0
FWS-12A20F		12	170	380	3.4
FWS-15A20F		15	209	500	5.0
FWL-20A20F	20 x 127mm	20	675	1550	5.9
FWL-25A20F	(¹ / ₈ " x 5")	25	1200	2760	6.5
FWL-30A20F		30	1850	4300	7.5

- ADD "I" to catalog number for indicating version.
- Enclosed finger-safe fuse holder — CH127
- Open style fuse block — 4530-OP
- See accessories on page 211.

Dimensions - mm (inches)



Indicating Version - Dimensions - mm (inches)



Data Sheet: 720040



Features and Benefits

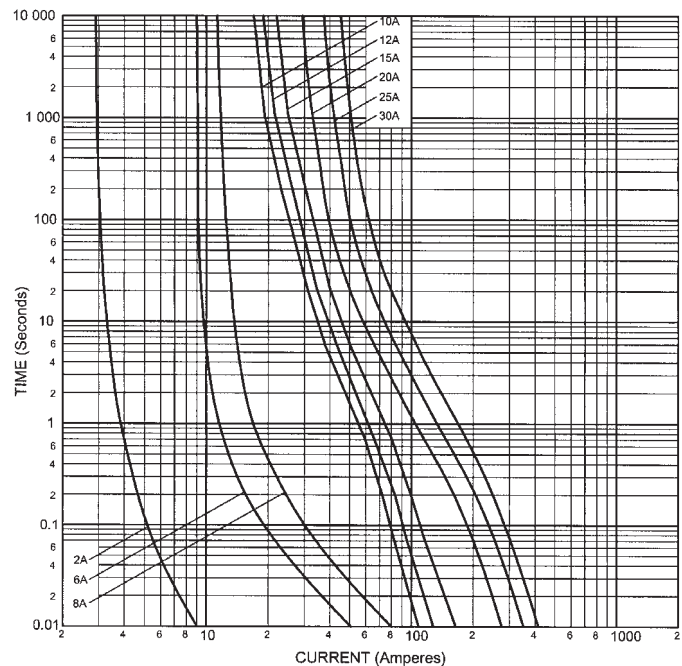
- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters
- Traction aux circuits
- Capacitor protection

FWL/FWS 2-30A: 1000Vdc 2-30A (20 x 127mm)

Time-Current Curve



Ferrule fuse accessories

Fuse Holders

Specifications

Catalog Symbol: CH Series

Description: DIN rail mount fuse holders for high speed fuses.

Agency Information: CE

North American 10 x 38

Class CC: Listed UL 512, Guide IZLT2, File E14853, Certified CSA Std. C22.2 No. 39, Class 6225 01, File 47235

North American 10 x 38 Midget: Recognized UL 512, Guide IZLT2, File E14853, Certified CSA Std. C22.2 No. 39, Class 6225 01, File 47235

European: 10 x 38 IEC 269-2-1, 14 x 51 IEC 269-2, 22 x 58 IEC 269-2



Features and Benefits

- 10 x 38 Dovetail design provides maximum flexibility in assembling multiple poles
- Finger-safe design - No exposed contacts
- DIN rail mount (35mm) - Fits standard mounting rails
- Optional open fuse indication lights tells fuse status at a glance
- Handle/fusepuller easily installs and removes fuses
- Available in single and multi-pole configurations
- Circuit marking system (P/N CH10CL and CH10CM)
- Wire ready to save time as terminals are ready to accept wires
- CE marking

Typical Applications

- Switchboard panel, control consoles, small motors, transformers, and similar applications

Recommended Cooper Bussmann Fuse Types

- 10 x 38 North American Class CC Fuses - LP-CC, FNQ-R, KTK-R
- 10 x 38 North American Midget Fuses - FNQ, KTK, AGU, BAF, BAN, FNM, FWA, & FWC
- 14 x 51 Fuses - FWX, FWH, FWP & NON
- 22 x 58 Fuses - FWP

Fuse Blocks

Specifications

Catalog Symbol: J70100

Description: Fuse holder for use with 22 x 58mm fuses (FWP-40A22F, FWP-100A22F, etc.)

Construction: Thermoplastic

Ratings:

Volts — 700Vac

Amps — 32-100A

Withstand — 200,000A RMS Sym.

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853

Flammability Rating: UL 94V0



Catalog Numbers

Catalog Numbers	Amps	Poles	Max Wire Size	Terminations
J70032-2CR	32	2	#2	Box Lug w/ Retaining Clip
J70032-3CR	32	3	#2	
J70100-1CR	100	1	#2	
J70100-2CR	100	2	#2	
J70100-3CR	100	3	#2	

High Speed Fuses

Did You Know?

Web Services

www.cooperbussmann.com

The Cooper Bussmann web site makes available free information and other resources that include:

- Product Data Sheets for complete technical information on Bussmann products
- Online catalogs for the latest United States and European products
- Safety BASICS™ for the essentials of electrical safety
- Training Modules for increasing skill levels of customers and end users
- Fuse Cross Reference to find the correct Bussmann replacement for a competitive fuse
- Arc-Flash Calculator to determine the incident energy level and flash protection boundary along with the recommends the level of Personal Protective Equipment (PPE)

COOPER Bussmann



easyID™

Reduce Downtime and Maintenance Costs.

Introducing an entire family of Bussmann® *easyID*™ circuit protection products for hundreds of applications, whether local or remote.

Bussmann *easyID* technology is available on many product lines: Low-Peak® fuses, CUBEFuse™, Safety Module™, fuse holders, high-speed fuses and Surge³™ surge suppressors.

Get superior circuit protection and convenience with no guessing about whether to replace the fuse or not.

To learn more about the product lines with *easyID* technology, contact your nearest authorized Bussmann distributor or visit www.bussmann.com today.

COOPER

The Power Behind The Brands.



COOPER Lighting



COOPER Crouse-Hinds



COOPER Power Systems



COOPER Wiring Devices



COOPER B-Line

IEC and British standard fuses

Section Contents

	Page
Application Data	213-214
CSA Type P and Type D fuses (CDS, CDN & PON)	215
Tron® HRC Form II Class C fuses (CGL Form II Class C)	216
HRCI industrial ceramic body fuses (CIF21 HRCI-CA & CIF06 HRCI-CB)	217
HRCI-J fast-acting fuses (CJ HRCI-J)	218
HRCI-miscellaneous Type K fuses (CIH, CIK & CIL HRCI-MISC)	219
HRC Form II current-limiting fuses	220
BS 88 British Standard low voltage fuses (SSD, NSD, ESD & STD, NITD, AAO, BAO, OSD, CEO, DEO BS 88 Part 1)	221
BS 88 British Standard low voltage fuses (AC, AD, BC, BD, CD, DD, ED, EFS & EF, FF, FG, GF, GG, GH BS 88)	222
DIN style Type D (D16, D27, D33, D125 Type D)	223
Neozed low voltage fuses (NZ01, NZ02 Type D0)	223
NH HRC Fuses	224-225
NH low voltage fuses (NH_M & NH_G-690)	226
Class gG/gL IEC industrial ferrule fuses (C08G, C08M, C10G, C10M, C14G, C14M, C22G, C22M)	227
Class aM IEC industrial ferrule fuses (C08M, C10M, C14M, C22M)	228
Class aM & gG/gL IEC industrial ferrule fuses with striker (C14G_S, C22G_S, C14M_S, C22M_S)	229
HRC fuse holders	
CAMaster	230
SAFEloc	230

RED indicates NEW information



Application Data

The standard range of fuses for low voltage industrial and general purpose applications meet the requirements of BS88 and IEC 60269. By using advanced fuse technology, current ratings up to 400A have compact dimensions but retain standard dimensional and performance requirements. These designs are for 315/240V systems. The standard range of fuses are available from 2-1250A in the following tag forms: Offset Blade - Offset Bolted - Center Bolted.

Supplementary ranges cover applications up to 660Vac and 500Vdc including those with nonstandard tag fixings.

Cooper Bussmann fuses are manufactured under quality systems independently assessed to BS5750 (ISO9002) and appropriate ratings carry the ASTA20 endorsement.

Selecting fuses is relatively simple and effective. The following notes cover the majority of applications. For further information contact our Application Engineers at 636-527-1270.

Circuit Loading

The current rating of the fuse should not be less than the full load current of the circuit. The circuit should be so designed that small overloads of long duration will not be of frequent occurrence.

Cable Ratings & Protection

There is an increasing move away from 70°C PVC insulation to materials that are more environmentally friendly, for example 90°C XLPE. The ratings of fusegear, switches, accessories, etc. are generally based upon the equipment being connected to conductors intended to be operated at a temperature not exceeding 70°C in normal service.

In view of the above, it is recommended that the practice of designs based upon conductor temperatures of 70°C be regarded as the norm. The equipment manufacturer should be consulted to ascertain the reduction of nominal current rating of the equipment if conductor temperatures exceeding 70°C are used. In addition, an overriding factor is often voltage drop.

Fuses with gG characteristics protect associated cables against both overload and short circuit current, provided that the current rating of the fuse 1N is equal or less than the current carrying capacity of the cable 1z.

In motor circuits, the motor starter will provide the overload protection and the fuses will provide the short circuit protection. The maximum fuse size that can be used depends upon the type of cable used and is determined using the appropriate K factor. The following table gives the maximum sizes of fuses that are recommended for two popular cables with copper conductors, 70°C PVC (K = 115) and 90°C thermosetting (K = 143).

IEC & British Fuses

Application data for BS low voltage fuses

Cable Size mm ²	Max. Fuse Rating	
	K = 115	K = 143
	A	A
1	16	16
1.5	20	25*
2.5	32*	32*
4	50*	50*
6	63*	63*
10	100*	125*
16	125*	160*
25	200*	250*
35	315*	355*
50	400*	500
70	560	630
95	710	800
120	800	1000

* Extended Motor Circuit dual ratings can be used

Protection Against Electrical Shock

For a TN System, a disconnecting time not exceeding 5s is permitted for a distribution circuit. The maximum values of earth fault loop impedance (Zs) of 240V for Cooper Bussmann gG fuses to BS88: Parts 2 and 6 are:

Rating (A)	Zs Ohms	Rating (A)	Zs 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	0.096
50	1.1	500	0.073
63	0.86	630	0.054
80	0.60	800	0.044

Ambient Temperature

The de-rating, in terms of current, of 0.5% per °C above an ambient of 35°C is recommended.

Interrupting Rating

The standardized interrupting rating values are 80kA for voltages of 415Vac and above, and 40kA for dc applications. The 240Vac designs have a breaking capacity of 50kA.

Coordination Ratio

All fuses to BS88 Parts 2 and 6 will give a coordination ratio of 2:1; and for most practical situations a ratio of 1.6:1 (two steps in the R10 series). Example: an upstream fuse rated at 160A will coordinate with a downstream fuse rated at 100A.

Current and Energy Limitation

The range of fuses have pre-arcing I²t values towards the bottom limits of BS88 Parts 2 and 6. This ensures excellent current and energy limitation. They also have lower power losses at rated current. This assists in the appropriate interchangeability with other makes of fuses.

Transformers

When fuses are used on the primary side of transformers, the normal fuse current rating should be at least twice the nominal transformer primary current.

Fluorescent Lighting

The normal fuse current rating should be at least twice the

normal full load current of the maximum number of lights to be simultaneously switched.

Capacitor Circuits

For power factor correction In capacitor circuits, the fuse should be chosen with a current rating greater than 1.5 times the rated capacitor current. This takes into account the high inrush current, circuit harmonics and capacitor tolerances.

Motor Circuits

In motor circuits, the fuse has to withstand the motor's starting current and often requires a higher rating than the motor's full load current. Coordination recommendations are made by the manufacturers of motor starters in accordance with IEC 60947-4-1. To get Type 2 coordination with fuses, tests are performed with the latest gG or gM fuses to BS88 or IEC 60269 that have pre-arcing I²t values towards the bottom of specified limits. This means that Cooper Bussmann fuses are suitable to provide Type 2 coordination.

Extended dual ratings of motor circuit protection fuses with gM characteristics are available in most popular fuse sizes to extend the use of associated equipment with appropriate economies. In the majority of applications, gG fuses are used. It is not essential to use gM fuses for motor circuit protection, they simply extend the utilization of standard equipment.

Below is a table of recommended fuses at 415V. In most applications, the run-up time is less than 5 seconds and duty is infrequent - no more than twice per hour. The next larger rating should be used for more demanding applications.

Rating Motor kW	Motor A	Direct On-line Standard Motor Circuit (gG)		Asst. Start Standard (gG)
		A	A	A
0.25	0.8	4	-	2
0.37	1.1	4	-	2
0.55	1.5	6	-	4
0.75	2.0	6	-	4
1.1	3.0	10	-	6
1.5	3.6	16	-	0.1
2.2	5.0	16	-	0.1
3.0	6.5	20	-	6.1
4.0	8.4	20	-	6.1
5.5	11.0	25	20M25	2.20
7.5	15.0	40	32M40	25
11.0	20.0	50	32M50	32
15.0	27.0	63	32M63	40
18.5	33.0	80	63M80	50
22.0	38.0	80	63M80	50
30.0	54.0	100	63M100	80
37.0	66.0	125	100M125	80
45.0	79.0	160	100M160	100
55.0	98.0	160	100M160	100
75.0	135.0	250	200M250	160
90.0	155.0	250	200M250	160
110.0	185.0	315	200M315	200
132.0	220.0	355	315M400	250
150.0	250.0	355	315M400	315
185.0	310.0	450	400M500	355
200.0	335.0	500	400M500	400
225.0	375.0	560	-	400
250.0	415.0	560	-	450
280.0	460.0	630	-	500
335.0	562.0	710	-	630
355.0	596.0	800	-	710

CSA Type P and Type D fuses

CDS, CDN & PON Type P & D

Specifications

Description: CSA time-delay Type D & P fuses.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Construction: Fiberglass body.

Ratings:

Volts: — 250V (CDN & PON)
— 600V (CDS)

Amps: — 10-600A

IR: — 10kA minimum

Agency Information: CE, CSA Certified to C22.2 No. 59.1.



Features and Benefits

- Economical fuse in a variety of ratings for applications not requiring time-delay.

Typical Applications

- Lighting, heating and other circuits not subject to temporary surges and where available short c-circuit current are relatively low.

Basic Catalog Numbers

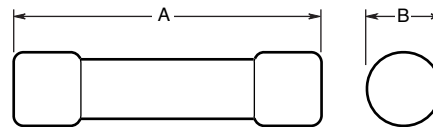
Time-Delay CSA Type "D" Fuses

Catalog Numbers	Volts	Amp Ratings
CDN	250	Below 10A use FRN-R 10, 12, 15, 20, 25, 30,
		35, 40, 45, 50, 60, 70, 80, 90, 100
		110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600
CDS	600	Below 10A use FRS-R 10, 12, 15, 20, 25, 30,
		35, 40, 45, 50, 60
		70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600

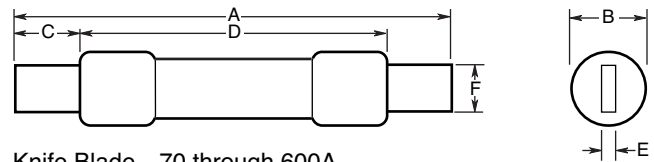
One-Time CSA Type "P" Fuses

Catalog Number	Volts	Amp Ratings
PON	250	15, 20, 25, 30, 35, 40, 45, 50, 60

Dimensions



Ferrule Design—1 through 60A



Knife Blade—70 through 600A

IEC & British Fuses

Catalog Numbers

Basic Catalog Number and Volts	Dimensions in (mm)						
	Amp Ratings	A Overall	B Max Diameter	C Min Blade Length	D Min Barrel Length	E Blade Thickness	F Blade Width
CDN/PON 250Vac	1-30	2.0 (50.8)	0.56 (14.3)	—	—	—	—
	35-60	3.0 (76.2)	0.81 (20.6)	—	—	—	—
	70-100	5.88 (149.4)	—	1.0 (25.4)	—	0.13 (3.2)	0.75 (19.1)
	110-200	7.3 (185.4)	—	1.38 (34.9)	4.13 (104.8)	0.19 (4.8)	1.13 (28.6)
	225-400	8.63 (219.2)	—	1.88 (47.6)	4.63 (117.5)	0.25 (6.4)	1.63 (41.3)
CDS 600V	450-600	10.38 (263.7)	—	2.25 (57.2)	5.19 (131.8)	0.25 (6.4)	2 (50.8)
	1-30	5.0 (127.0)	0.81 (20.6)	—	—	—	—
	35-60	5.5 (139.7)	1.06 (27.0)	—	—	—	—
	70-100	7.88 (200.2)	—	1.0 (25.4)	—	0.13 (3.2)	0.75 (19.1)
	110-200	9.63 (244.6)	—	1.38 (34.9)	6.13 (115.6)	0.19 (4.8)	1.13 (28.6)
225-400	11.63 (295.4)	—	1.88 (47.6)	7.13 (118.1)	0.25 (6.4)	1.63 (41.3)	
	450-600	13.38 (339.9)	—	2.25 (57.2)	8.19 (208.0)	0.25 (6.4)	2 (50.8)

To Order

To order, specify Basic Catalog Number and amp rating. Example: CDN-30

Tron® HRC Form II Class C fuses

CGL Form II Class C

Specifications

Description: Current-limiting HRCII-C fuses

designed to withstand inrush currents on typical motor start-ups while offering high current limitation in the short-circuit region.

Dimensions: See Dimensions illustrations.

Construction: Fiberglass and melamine body.

Ratings:

Volts: — 600Vac/250Vdc (1-30A)

Amps: — 1-600A

IR: — 200,000A (40,000A dc)

Agency Information: CE, CSA Certified, C22.2 No. 106.

Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- * Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

Typical Applications

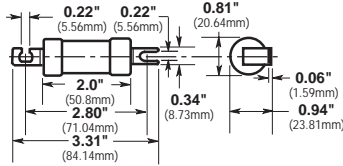
- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

Catalog Numbers (-Amps)

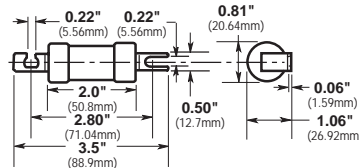
CGL-1	CGL-40	CGL-175
CGL-2	CGL-45	CGL-200
CGL-3	CGL-50	CGL-225
CGL-4	CGL-60	CGL-250
CGL-6	CGL-70	CGL-300
CGL-10	CGL-80	CGL-350
CGL-15	CGL-90	CGL-400
CGL-20	CGL-100	CGL-450
CGL-25	CGL-110	CGL-500
CGL-30	CGL-125	CGL-600
CGL-35	CGL-150	



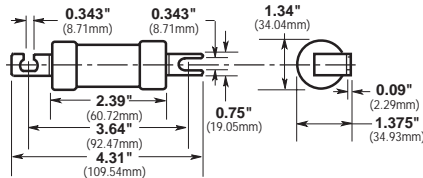
Dimensions



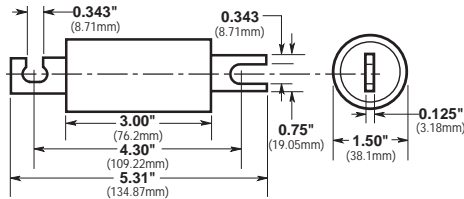
CGL 1-30



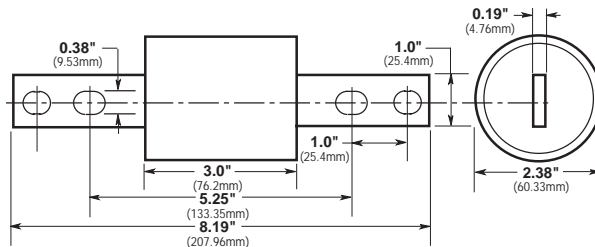
CGL 35-60



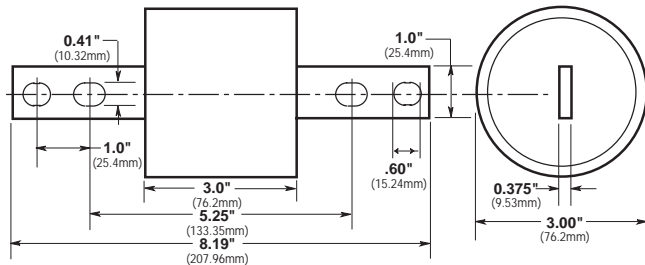
CGL 70-100



CGL 110-200



CGL 225-400



CGL 450-600

HRCI industrial ceramic body fuses

CIF21 HRCI-CA

Specifications

Description: The HRCI-CA fuse provides both overload and short-circuit protection to HRCI requirements. Offset blades for bolt-on mounting. CIF21 fuse fits the Cooper Bussmann-CAMaster fuse holder.

Dimensions: See Dimensions illustration.

Construction: Ceramic body.

Ratings:

Volts: — 600Vac/250Vdc

Amps: — 1-30A

IR: — 200,000A RMS Sym.

Agency Information: CE, CSA C22.2, No. 106-M92.

Mounting: Bolt-on.

Catalog Numbers

Catalog Numbers	Amp Ratings
1CIF21	1
3CIF21	3
10CIF21	10
15CIF21	15
20CIF21	20
25CIF21	25
30CIF21	30

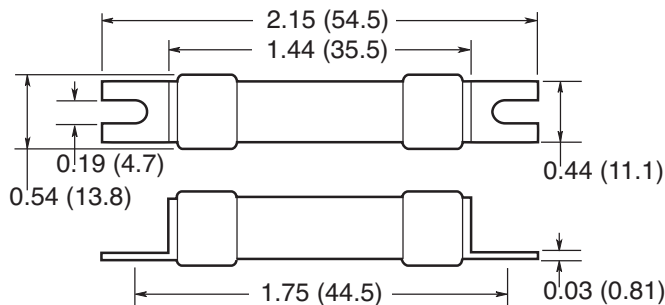
Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- * Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

Typical Applications

- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

Dimensions - in (mm)



Data Sheet: 4127

CIF06 HRCI-CB

Specifications

Description: A miniature industrial fuse that provides both short-circuit and overload protection and the CIF06 fits the 30A SAFEloc fuse holder.

Dimensions: See Dimensions illustration.

Construction: Ground ceramic body with plated end caps.

Ratings:

Volts: — 600Vac/250Vdc

Amps: — 1-30A

IR: — 200,000A RMS Sym.

Agency Information: CE, CSA C22.2 No. 106-M92 (3-30A only).

Mounting: Clip-in offset blades.

Catalog Number

Catalog Numbers	Amp Ratings
1CIF06	1
3CIF06	3
6CIF06	6
10CIF06	10
15CIF06	15
20CIF06	20
25CIF06	25
30CIF06	30

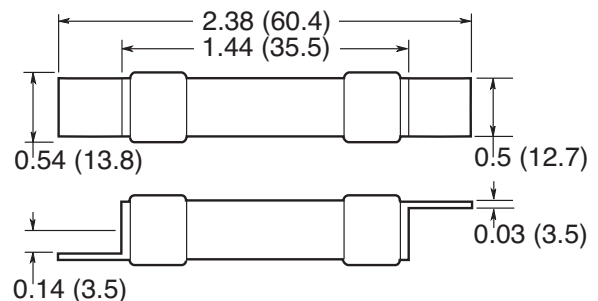
Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- * Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

Typical Applications

- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

Dimensions - in (mm)



Data Sheet: 4128

HRCI-J fast-acting fuses

CJ HRCI-J

Specifications

Description: HRCI-J fast-acting fuses are industrial duty fuses with the excellent current-limiting characteristics of fast-acting HRCI-J fuses to limit damage to equipment and installations by the thermal and magnetic energy associated with a large short-circuit fault current. Overload characteristics limit cable damage due to low overload currents.

Dimensions: See Catalog Numbers table and Dimensions illustrations.

Construction: Ceramic body fuse.

Ratings:

Volts: — 600Vac (or less), 250Vdc

Amps: — 1-600A

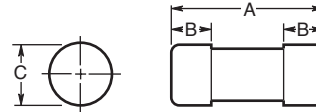
IR: — 200,000A

Agency Information: CSA C22.2 No. 106 M92; Designed to BS 88:2, IEC 60269-2.

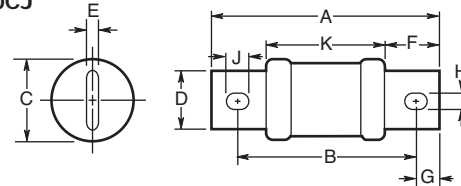


Dimensions

1CJ to 60CJ



70CJ to 600CJ



Catalog Numbers

Catalog Numbers	Amp Ratings	Dimensions in (mm)									
		A	B	C	D	E	F	G	H	J	K
1CJ	1	2.25 (57)	0.5 (12.7)	0.81 (20.6)	—	—	—	—	—	—	—
3CJ	3										
6CJ	6										
10CJ	10										
15CJ	15										
20CJ	20										
25CJ	25										
30CJ	30										
35CJ	35	2.38 (60)	0.63 (16)	1.06 (27)	—	—	—	—	—	—	—
40CJ	40										
45CJ	45										
50CJ	50										
60CJ	60										
70CJ	70	4.63 (117)	3.63 (92)	1.13 (28)	0.75 (19)	0.13 (3.2)	1 (25.4)	0.5 (12.7)	0.28 (7.1)	0.38 (9.5)	2.63 (67)
80CJ	80										
90CJ	90										
100CJ	100										
110CJ	110	5.75 (146)	4.38 (111)	1.63 (41)	1.13 (28.6)	0.19 (4.8)	1.38 (35)	0.69 (17.5)	0.28 (7.1)	0.38 (9.5)	3 (76)
125CJ	125										
150CJ	150										
175CJ	175										
200CJ	200										
225CJ	225	7.13 (181)	5.25 (133)	2.13 (54)	1.63 (41)	0.25 (6.3)	1.88 (47.6)	0.94 (24)	0.41 (10.3)	0.53 (13.5)	3.38 (86)
250CJ	250										
300CJ	300										
350CJ	350										
400CJ	400										
450CJ	450	8 (203)	6 (152)	2.63 (66)	2 (51)	0.38 (9.5)	2.13 (54)	1 (25.4)	0.53 (13.5)	0.69 (17.5)	3.75 (96)
500CJ	500										
600CJ	600										

Data Sheet: 4129

HRCI-miscellaneous Type K fuses

CIH, CIK & CIL HRCI-MISC

Specifications

Description: HRCI fuses provide both overload and short-circuit protection, featuring offset blades for bolt down mounting.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Construction: Ceramic body.

Ratings:

Volts: — 600V

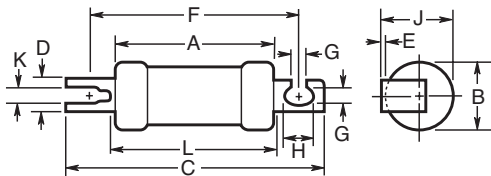
Amps: — 1-100A

IR: — 200,000A@600V

Agency Information: CE, CSA C22.2 No. 106 M92.



Dimensions



(The CIL14 has a rejection hole, not a slot as shown above.)

Catalog Numbers

Catalog Numbers	Amp Ratings	Dimensions: in (mm)										
		A Max	B Max	C Max	D Nom	E Nom	F Nom	G Nom	H Nom	J Max	K Nom	L Max
1CIH07	1	2.25 (57)	0.94 (24)	3.38 (86)	0.38 (9.2)	0.04 (1.0)	2.88 (73)	0.21 (5.2)	0.31 (8)	1 (25.4)	0.10 (2.6)	2.38 (60)
3CIH07	3											
6CIH07	6											
10CIH07	10											
15CIH07	15											
20CIH07	20											
25CIH07	25											
30CIH07	30											
35CIK07	35	2.28 (58)	1.06 (27)	3.56 (91)	0.5 (12.7)	0.05 (1.2)	2.88 (73)	0.21 (5.2)	0.41 (10.5)	1.09 (28)	0.13 (3.2)	2.38 (61)
40CIK07	40											
50CIK07	50											
60CIK07	60											
80CIL14	80	2.75 (70)	1.44 (37)	4.38 (111)	0.75 (19)	0.09 (2.5)	3.69 (94)	0.34 (8.7)	0.41 (10.5)	1.5 (38.5)	—	2.91 (74)
90CIL14	90											
100CIL14	100											

Recommended Fuse Holders

Fuse	Fuse Holder
1-30A	CM30CF
35-60A	CM60CF

Data Sheet: 4130

HRC Form II current-limiting fuses

HRC Form II

Specifications

Description: HRC Form II current-limiting fuses.

Dimensions: See Catalog Numbers table and Dimensions illustrations.

Construction: Ceramic body.

Ratings:

Volts: — 600Vac (or less)
— 250Vdc

Amps: — 2-600A

IR: — 200,000A RMS Sym.

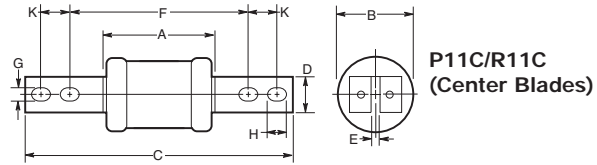
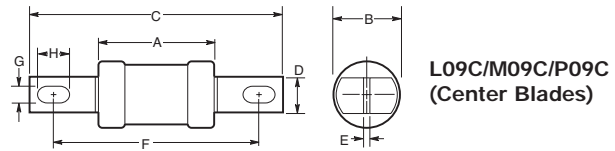
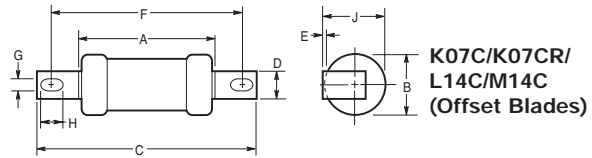
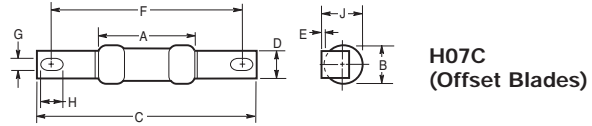
Agency Information: CE, CSA C22.2 No.106M1992; BS 88:2, IEC 60269:2.

Typical Applications

- Used to protect motor control circuits, together with contactors and overload protection relays to provide Type 2 coordination - per IEC 60947-4.



Dimensions



Catalog Numbers

Catalog Numbers	Amp Ratings	Dimensions in (mm)										CSA Category			
		A	B	C	D	E	F	G	H	J	K				
2H07C	2	1.38 (35)	0.56 (14)	3.38 (85)	0.38 (9)	0.06 (1.2)	2.88 (73)	0.22 (5.6)	0.31 (8)	0.56 (14)	—	HRCII-C			
4H07C	4														
6H07C	6														
10H07C	10														
15H07C	15														
20H07C	20														
25H07C	25	2.19 (56)	0.88 (22)	3.44 (87)	0.5 (13)	0.13 (3.2)	3.69 (94)	0.34 (8.7)	0.88 (22)	—	HRCII-C				
30H07C	30														
40K07C	40														
50K07C	50	3.06 (178)	2.31 (59)	5.38 (136)	0.75 (19)	0.13 (3.2)	4.38 (111)	0.34 (8.7)	0.56 (14)	—	—	HRCII-C			
60K07C	60														
80K07CR	80														
100K07CR	100														
80L14C	80			4.38 (111)	0.56 (14.3)	0.13 (3.2)	3.69 (94)	0.34 (8.7)	1 (25.4)	—	—	HRCII-C			
100L14C	100														
125M14C	125			3.06 (178)	2.31 (59)	5.38 (136)	0.75 (19)	0.13 (3.2)	4.38 (111)	0.34 (8.7)	0.56 (14)	—	—	HRCII-C	
150M14C	150														
200M14C	200					8.25 (210)	0.75 (19)	0.19 (4.8)	0.09 (2.4)	0.34 (8.7)	0.44 (11)	—	—	—	HRCII-MISC
80L09C	80														
100L09C	100														
125M09C	125														
150M09C	150														
200M09C	200														
250P09C	250														
300P09C	300														
350P09C	350														
400P09C	400	8.25 (210)	2.31 (59)	0.19 (4.8)	0.09 (2.4)	0.34 (8.7)	0.44 (11)	—	—	—	HRCII-MISC				
250P11C	250														
300P11C	300														
350P11C	350														
400P11C	400														
450R11C	450														
500R11C	500	3.19 (81)	2.88 (73)	0.25 (6.3)	0.09 (2.4)	0.34 (8.7)	0.63 (16)	—	1 (25)	—	HRCII-C				
600R11C	600														

BS 88 British Standard low voltage fuses

SSD, NSD, ESD BS 88 Part 1

Specifications

Description: The NSD and ESD are low voltage fuses complying with general purpose gG characteristics.

Construction: Ceramic body.

Ratings:

Volts: — 240-550Vac (See Catalog Numbers table)

Amps: — 2-63A (See Catalog Numbers table)

— 20M25-63M100A Motor Starter ratings (See Catalog Numbers table)

IR: — 80kA

Agency Information: CE, Meets the requirements of BS 88 Part 1 and IEC 60269-1.

Mounting: Offset blades.

Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Max Voltage Rating		BS 88 Ref.
		AC	DC	
SSD	2, 4, 6, 10, 16, 20, 25, 32	240	—	E1
NSD	2, 4, 6, 10, 16, 20, 25, 32, 20M25*, 20M32*	550	—	F1
	20M36*, 32M36*, 32M40*, 32M50*, 32M63*	415	—	—
ESD	2, 4, 6, 10, 16, 25, 32	550	250	F2
	40, 50, 63, 63M80, 63M100	415	250	F2

**M* indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: SSD-20

Recommended Fuse Holders

Basic Fuse Catalog Numbers	Holder Catalog Numbers
NSD	32NNSF
ESD	63ENSF



STD, NITD, AAO, BAO, OSD, CEO, DEO BS 88 Part 1

Specifications

Description: The NITD to DEO types are low voltage fuses complying with general purpose gG characteristics.

Construction: Ceramic body.

Ratings:

Volts: — 240-550Vac (See Catalog Numbers table)

Amps: — 2-200A (See Catalog Numbers table)

— 20M25-200M315A Motor Starter ratings (See Catalog Numbers table)

IR: — 80kA

Agency Information: CE, Meets the requirements of BS 88 Part 1 and IEC 60269-1.

Mounting: Offset bolted blades.

Typical Applications

- The STD type are used in 240V street lighting cut-outs.
- NITD to DEO types used for industrial and general purpose applications

Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Max AC Voltage Rating	BS 88 Ref.
STD	2, 4, 6, 10, 16, 20, 25, 32	240	—
NITD	2, 4, 6, 10, 16, 20,	550	A1
	25, 32	550	—
	20M25*, 20M32*	550	A1
AAO	32M40*, 32M50*, 32M63*	415	—
	2, 4, 6, 10, 16, 20, 25, 32, 32M40*, 32M50*, 32M63*	550	A2
	40, 50, 63, 63M80*, 63M100*	550	A3
BAO	80, 100	550	—
OSD	100M125*, 100M160*	415	—
	32, 40, 50, 63, 80, 100	550	A4
CEO	100M125*, 100M160*, 100M200*	415	A4
	125, 160, 200, 200M250*, 200M315*	415	—

**M* indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: BAO-16

Recommended Fuse Blocks & Holders

Basic Fuse Catalog Numbers	Block/Holder Catalog Numbers
NITD	CM32FC
AAO	CM32F
BAO	CM63F
OSD	CM100F
CEO	BH-0111

Data Sheets 4123 (STD), 4106 (NITD), 4109 (AAO), 4112 (BAO), 4107 (OSD), 4115 (CEO) and 4117 (DEO)

Data Sheets 4105 (SSD), 4100 (NSD) and 4101 (ESD)

BS 88 British Standard low voltage fuses

AC, AD, BC, BD, CD, DD, ED, EFS BS 88

Specifications

Description: Low voltage fuses that comply with general purpose gG characteristics and available up to 400A with two hole mount and up to 1250A with four hole mount.

Construction: Ceramic body.

Ratings:

Volts: — 415/550Vac, 250Vdc (See Catalog Numbers table)

Amps: — 2-400A (See Catalog Numbers table)
— 63M80-400M500A Motor Starter ratings (See Catalog Numbers table)

IR: — See Catalog Numbers table

Agency Information: CE, Meets the requirements of BS 88 Parts 1 and 2 and IEC 60269-1.

Mounting: Center bolted blades, two-hole mount.



Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Interrupting Rating		Max Voltage Rating		BS 88 Ref.
		AC	DC	AC	DC	
AC	2, 4, 6, 10, 16, 20, 25, 32	80kA	40kA	550	250	—
AD	2, 4, 6, 10, 16, 20, 25, 32	@	@	550	250	—
BC	40, 50, 63 63M80*, 63M100*	550V	250V	550	250	—
BD	40, 50, 63	—	—	550	250	—
CD	80, 100 100M125*, 100M160*, 100M200*, 100M200*	—	—	550	—	B1
DD	125, 160, 200, 200M250*, 200M315*	—	—	415	—	B1
ED	250, 315, 315M400* 355, 400 400M500*	80kA @ 415V	—	415	—	B3 B4 B4
EFS	125, 160, 200, 250, 315	—	—	415	—	—

*"M" indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: BC-40

Recommended Fuse Blocks & Holder

Basic Fuse Catalog Numbers	Block/Holder Catalog Numbers
AC	BH-0111 Modular fuse block
AD	200DF Fuse holder
BC	BH-0111 Modular fuse block
BD	200DF Fuse holder
CD	200DF Fuse holder
DD	200DF Fuse holder
ED	BH-1131 Modular fuse block

Data Sheets 4110 (AC), 4111 (AD), 4113 (BC), 4114 (BD), 4116 (CD), 4118 (DD), 4119 (ED) and 4121 (EFS)

EF, FF, FG, GF, GG, GH BS 88

Specifications

Description: Low voltage fuses complying with general purpose gG characteristics and available up to 400A with two hole mount and up to 1250A with four hole mount.

Construction: Ceramic body.

Ratings:

Volts: — 415/550Vac, 250/400Vdc (See Catalog Numbers table for details)

Amps: — 355-1250

IR: — See Catalog Numbers table

Agency Information: CE, Meets the requirements of BS 88 Parts 1 and 2 and IEC269-1.

Mounting: Center bolted blades, four-hole mount.



Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Interrupting Rating		Max Voltage Rating		BS 88 Ref.
		AC	DC	AC	DC	
EF	355, 400 400M500*	80kA@415V	—	415	—	C1
FF	450, 500, 560, 630	80kA@550V	40kA@400V	550	400	C2
FG	450, 500, 560, 630	—	—	550	400	—
GF	710, 800	80kA@550V	40kA@250V	550	250	C3
GG	710, 800 1000, 1250	—	—	550	250	—
GH	710, 800 1000, 1250	—	—	550	250	D1

*"M" indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: FG-450

Data Sheets 4120 (EF), 4102 (FF), 4122 (FG), 4103 (GF), 4104 (GG) and 4108 (GH)

DIN style Type D and Neozed low voltage fuses

D16, D27, D33, D125 Type D

Specifications

Description: DIN style Type D low voltage fuses.

Dimensions: See Catalog Numbers table and Dimensions illustrations.

Construction: Ceramic body.

Ratings:

Volts: — 500Vac

Amps: — 2-100A

IR: — 100kA

Agency Information: CE, “D” type fuses complying with DIN 49360 Part 2 and DIN 49515, operating class gL.

Catalog Numbers

Catalog Numbers	Amp Ratings	Dimension “D” (mm)	Color Code	Figure Number
2D16	2	6	Pink	1
4D16	4	6	Brown	
6D16	6	6	Green	
10D16	10	7	Red	
16D16	16	10	Grey	
20D16	20	12	Blue	
25D16	25	14	Yellow	
2D27	2	6	Pink	2
4D27	4	6	Brown	
6D27	6	6	Green	
10D27	10	8	Red	
16D27	16	10	Grey	
20D27	20	12	Blue	
25D27	25	14	Yellow	
35D33	35	16	Black	3
50D33	50	18	White	
63D33	63	20	Copper	
80D125	80	5	Silver	4
100D125	100	7	Red	

Additional Fuselinks: Quick acting fuselinks in body sized D16, D27, D33 and D125 rated 2-100A. Reference number suffixed Q, i.e. 10D27Q. Voltage rating 500V. Gauge rings and keys can also be supplied.

Dimensions (mm)

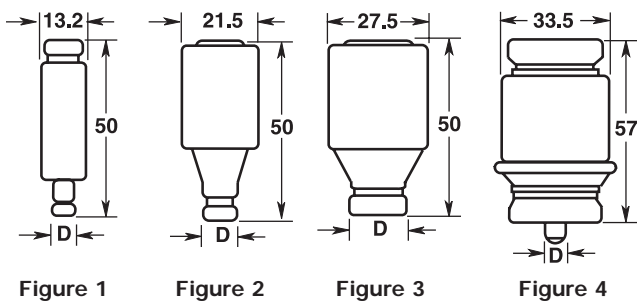


Figure 1

Figure 2

Figure 3

Figure 4

Data Sheet: 4124

NZ01, NZ02 Type D0

Specifications

Description: Low voltage Neozed fuses suitable for use on 250Vdc systems.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Construction: Ceramic body.

Ratings:

Volts: — 400Vac

Amps: — 2-63A

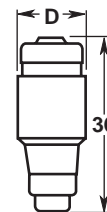
IR: — 100kA

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Ratings	Dimension “D” (mm)	Color Code
2NZ01	2	11	Pink
4NZ01	4	11	Brown
6NZ01	6	11	Green
10NZ01	10	11	Red
16NZ01	16	11	Grey
20NZ02	20	15	Blue
25NZ02	25	15	Yellow
35NZ02	35	15	Black
50NZ02	50	15	White
63NZ02	63	15	Copper

Dimensions (mm)



Data Sheet: 4124

IEC & British Fuses

IEC & British Standard Fuses

NH HRC fuses

__NHG__B

Specifications

Class: gL/gG

Description: DIN square bodied, dual indication industrial fuses.

Construction: Steatite insulator, corrosion-proof (aluminum) metal parts with full-contact, silver-plated copper blades.

Sizes: DIN 000 to 3.

Catalog Numbers



Ratings:

Volts: — 500Vac

Amps: — 10-630A

IR: — 120kA

Frequency: — 50Hz

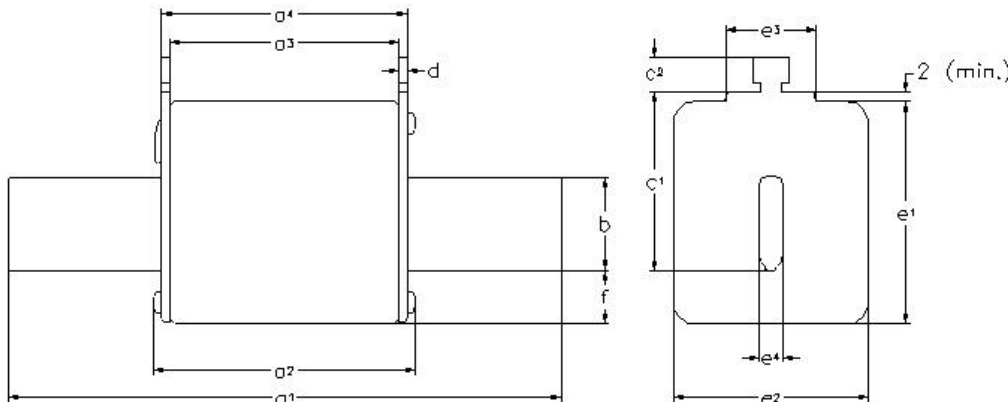
Operating Frequency: — 45-62Hz

Agency Information: IEC 60269, VDE0636, DIN 43 620 Part 1 to 4.

Catalog Numbers	Amp Ratings	I ² t (A ² Sec) Min Pre-arc	20 x I _n @ 500Vac	I ₁ 120kA @ 500Vac	Watts Loss
Size 000					
10NHG000B	10	58	290	232	1.5
16NHG000B	16	234	1170	1000	2.3
20NHG000B	20	584	3000	2400	2.2
25NHG000B	25	1000	4600	3700	2.8
32NHG000B	32	2400	11800	9400	3.7
35NHG000B	35	2400	11800	9400	3.7
40NHG000B	40	3300	16500	13200	4.0
50NHG000B	50	5600	27800	16700	4.9
63NHG000B	63	6300	24900	18700	4.5
80NHG000B	80	9800	38900	29200	6.3
100NHG000B	100	18100	72300	54300	7.4

Dimensions (mm)

Link Size	a ¹	a ² (max)	a ³	a ⁴	b (nom)	c ¹ (± 8)	c ² (nom)	D (nom)	e ¹ (max)	e ² (max)	e ³ (max)	e ⁴ (nom)	f (max)
000	78.5 ± 1.5	54	45 ± 1.5	49 ± 1.5	15	35	10	2 ± 0.5	41	21	21	6	8
00	78.5 ± 1.5	54	45 ± 1.5	49 ± 1.5	15	35	10	2.5 ± 0.5	48	30	25	6	15
0	125 ± 2.5	68	62 +3/-1.5	68 +1.5/-3	15	35	11	2.5 ± 0.5	48	30	25	6	15
01	135 ± 2.5	75	62 ± 2.5	68 ± 2.5	15	40	11	2.5 ± 0.5	48	30	25	6	15
1	135 ± 2.5	75	62 ± 2.5	68 ± 2.5	20	40	11	2.5 ± 0.5	53	52	25	6	15
02	150 ± 2.5	75	62 ± 2.5	68 ± 2.5	20	48	11	2.5 ± 0.5	53	52	25	6	15
2	150 ± 2.5	75	62 ± 2.5	68 ± 2.5	25	48	11	2.5 ± 0.5	61	60	25	6	15
03	150 ± 3	75	62 ± 2.5	68 ± 2.5	25	60	11	2.5 ± 0.5	61	60	25	6	15
3	150 ± 3	75	62 ± 2.5	68 ± 2.5	32	60	11	3.0 ± 0.5	76	75	25	6	18



NH HRC fuses

Catalog Numbers

Catalog Numbers	Amp Ratings	I ² t (A ² Sec) Min Pre-arc	20 x I _n @ 500Vac	I ₁ 120kA @ 500Vac	Watts Loss
Size 00					
125NHG00B	125	25000	125000	80000	10.0
160NHG00B	160	62000	310000	204600	10.0
Size 0					
10NHG0B	10	58	290	240	1.7
16NHG0B	16	240	1200	1000	3.0
20NHG0B	20	490	2500	2000	3.2
25NHG0B	25	1200	5600	4500	3.2
32NHG0B	32	1800	9000	7200	4.8
35NHG0B	35	2400	11800	9400	4.4
40NHG0B	40	3300	16500	13200	4.7
50NHG0B	50	5600	22300	16700	6.3
63NHG0B	63	6600	26100	19600	5.6
80NHG0B	80	9800	38900	29200	7.1
100NHG0B	100	20600	82300	61700	7.5
125NHG0B	125	25000	125000	72500	10.0
160NHG0B	160	62000	310000	179800	11.5
Sizes 01 & 1					
10NHG01B	10	58	300	300	2.0
16NHG01B	16	240	1200	1000	3.0
20NHG01B	20	490	2500	2000	3.2
25NHG01B	25	1200	5600	4500	3.2
32NHG01B	32	1800	9000	7200	4.8
35NHG01B	35	2400	11800	9400	4.6
40NHG01B	40	3300	16500	13200	5.0
50NHG01B	50	5600	22300	16700	6.7
63NHG01B	63	6600	26100	19600	5.6
80NHG01B	80	9800	38900	29200	7.1
100NHG01B	100	20600	82300	61700	7.7
125NHG01B	125	25000	125000	72500	11.6
160NHG01B	160	62000	310000	179800	12.3
200NHG1B	200	97000	368600	291000	15.0
224NHG1B	224	124000	471200	372000	15.0
250NHG1B	250	151300	574900	453800	19.0
Sizes 02 & 2					
35NHG02B	35	2400	11800	9400	4.4
40NHG02B	40	3300	16500	13200	5.0
50NHG02B	50	5600	22300	16700	6.4
63NHG02B	63	6600	26100	19600	6.0
80NHG02B	80	9800	38900	29200	7.0
100NHG02B	100	20600	82300	61700	8.0
125NHG02B	125	25000	100000	72500	12.0
160NHG02B	160	62000	248000	179800	12.0
200NHG02B	200	96900	367900	290500	15.0
224NHG02B	224	124000	472000	372000	15.0
250NHG02B	250	151300	574900	453800	19.0
315NHG2B	315	361700	1446500	940300	21.0
355NHG2B	355	446500	1785800	1160800	27.0
400NHG2B	400	642900	2571500	1671500	29.0
Sizes 03 & 3					
250NHG03B	250	160800	642900	417900	20.0
315NHG03B	315	361700	1446500	940300	21.0
355NHG03B	355	446500	1785800	1160800	27.0
400NHG03B	400	642900	2571500	1671500	29.0
500NHG3B	500	886000	3898400	2923800	37.0
630NHG3B	630	1590000	6996000	5406000	46.0

NH low voltage fuses

NH_M

Specifications

Class: aM Category

Description: A range of industrial fuses for the protection of motor circuits.

Ratings:

Volts: — 500Vac

Amps: — 4-630A

IR: — 120kA

Agency Information: IEC 60269, VDE, DIN43620 Part 1

The ordering code is made up as follows:

Rating	Product Code	Body	Category
100	NH	1	M

Type	Amp Rating	Fuse Body Size
NHC00M	4, 6, 8, 10, 12, 16, 20, 25, 32, 40, 50	C00
NH00M	63, 80, 100	00
NH1M	40, 50, 63, 80, 100, 125, 160	01
	200, 250	02
NH2M	125, 160, 200, 250	02
	315, 400	2
NH3M	315, 400	03
	500, 630	3

Dimensions (mm)

Type	Amp Rating	Depth	Width	Overall Length
NHC00M	4-50A	39.5	20.5	78.5
NH00M	63-100A	38	29	78.5
NH1M	40-160A	45	29	135
NH1M	200-250A	50	44.5	135
NH2M	125-250A	50	44.5	150
NH2M	315-400A	58	50	150
NH3M	315-400A	58	50	150
NH3M	500-630A	73	71	150

Data Sheet: 4173



NH_G-690

Specifications

Class: gL/gG Category

Description: A range of industrial fuses for a wide variety of applications where 690V is needed.

Ratings:

Volts: — 690Vac/250Vdc

Amps: — 10-630A

IR: — 50kA

Agency Information: IEC 60269, DIN43620 Part 1

The ordering code is made up as follows:

Rating	Product Code	Body	Category
250	NH	2	G-690

Type	Amp Rating	Fuse Body Size
NH00G-690	10, 16, 20, 25, 32, 40, 50, 63, 80, 100	C00
NH1G-690	32, 40, 50, 63, 80, 100	01
	125, 160, 200, 200, 224, 225, 250	1
NH2G-690	100, 125, 160, 200, 224, 250, 315, 350, 400	2
NH3G-690	315, 350, 400, 500, 630	3

Dimensions (mm)

Type	Amp Rating	Depth	Width	Overall Length
NH00G-690	10-100	38	29	78.5
NH1G-690	32-100	45	29	135
NH1G-690	125-250	50	44.5	135
NH2G-690	100-400	50	44.5	150
NH3G-690	315-630	58	50	150

Data Sheet: 4173



Class gG/gL IEC industrial ferrule fuses

C08G, C08M, C10G, C10M, C14G, C14M, C22G, C22M

Specifications

Class: gG/gL and aM

Description: IEC ferrule fuses are available in physical sizes and amp ratings for system voltages of 250, 380, 400, 500 & 690Vac.

Construction: Ceramic with silver-plated copper endcaps

Ratings: See Catalog Number tables.

Features and Benefits

- All fuses are available with an operated visible fuse indicator.
- Sizes 14x51 & 22x58 available with a built-in striker for micro-switch operation and remote indication.

Typical Applications

- Class gG/gL and aM fuses are intended for industrial applications.

8 X 31



10 X 38



14 X 51



22 X 58



Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)		
C08G0.5	C08G0.5I	0.5	2.60	400	20		
C08G1	C08G1I	1	2.50				
C08G2	C08G2I	2	0.70				
C08G4	C08G4I	4	0.85				
C08G6	C08G6I	6	0.95				
C08G8	C08G8I	8	1.55				
C08G10	C08G10I	10	1.65				
C08G12	C08G12I	12	2.00				
C08G16	C08G16I	16	2.30				
C08G20	C08G20I	20	2.55				
C08G25	C08G25I	25	2.65				
Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)			Voltage (AC)	Interrupting Rating (kA)
C10G0.5	C10G0.5I	0.5	1.43			500	120
C10G1	C10G1I	1	2.77				
C10G2	C10G2I	2	0.60				
C10G4	C10G4I	4	0.70				
C10G6	C10G6I	6	0.85				
C10G8	C10G8I	8	0.75				
C10G10	C10G10I	10	1.00				
C10G12	C10G12I	12	1.30				
C10G16	C10G16I	16	1.60				
C10G20	C10G20I	20	2.00				
C10G25	C10G25I	25	2.60				
C10G32	C10G32I	32	2.90				
Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)		
C14G1	C14G1I	1	3.90	690	80		
C14G2	C14G2I	2	0.90				
C14G4	C14G4I	4	1.00				
C14G6	C14G6I	6	1.15				
C14G8	C14G8I	8	1.00				
C14G10	C14G10I	10	1.30				
C14G12	C14G12I	12	1.70				
C14G16	C14G16I	16	2.00				
C14G20	C14G20I	20	2.50				
C14G25	C14G25I	25	3.30				
C14G32	C14G32I	32	3.50	500	500		
C14G40	C14G40I	40	4.85				
C14G50	C14G50I	50	4.90	400			
Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)		
C22G2	C22G2I	2	1.00	690	690		
C22G4	C22G4I	4	1.10				
C22G6	C22G6I	6	1.30				
C22G8	C22G8I	8	1.10				
C22G10	C22G10I	10	1.50				
C22G12	C22G12I	12	1.80				
C22G16	C22G16I	16	2.10				
C22G20	C22G20I	20	2.70				
C22G25	C22G25I	25	3.60				
C22G32	C22G32I	32	3.70				
C22G40	C22G40I	40	4.50				
C22G50	C22G50I	50	5.20				
C22G63	C22G63I	63	6.90				
C22G80	C22G80I	80	7.80				
C22G100	C22G100I	100	8.60			500	500
C22G125	C22G125I	125	11.40	400			

IEC & British Standard Fuses

Class aM IEC industrial ferrule fuses

8 X 32



Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C08M1	C08M1I	1	0.11	400V	20 kA
C08M2	C08M2I	2	0.14		
C08M4	C08M4I	4	0.25		
C08M6	C08M6I	6	0.28		
C08M8	-	8	0.43		
C08M10	C08M10I	10	0.45		
C08M12	C08M12I	12	0.50		
C08M16	C08M16I	16	0.55		
C08M20	C08M20I	20	0.58		
C08M25	-	25	0.62		

10 X 38



Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C10M0.16	-	0.16	0.24	500V	120 kA
C10M0.25	-	0.25	0.36		
C10M0.5	-	0.5	0.49		
C10M1	C10M1I	1	0.10		
C10M2	C10M2I	2	0.18		
C10M4	C10M4I	4	0.31		
C10M6	C10M6I	6	0.32		
C10M8	C10M8I	8	0.52		
C10M10	C10M10I	10	0.55		
C10M12	C10M12I	12	0.63		
C10M16	C10M16I	16	0.92		
C10M20	C10M20I	20	0.96		
C10M25	C10M25I	25	1.40		
C10M32	C10M32I	32	1.80		

14 X 51



Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C14M0.25	-	0.25	0.41	690V	80 kA
C14M0.5	-	0.5	0.69		
C14M1	C14M1I	1	0.14		
C14M2	C14M2I	2	0.24		
C14M4	C14M4I	4	0.45		
C14M6	C14M6I	6	0.42		
C14M8	C14M8I	8	0.70		
C14M10	C14M10I	10	0.53		
C14M12	C14M12I	12	0.88		
C14M16	C14M16I	16	1.16		
C14M20	C14M20I	20	1.23		
C14M25	C14M25I	25	1.46		
C14M32	C14M32I	32	2.04		
C14M40	C14M40I	40	3.34		
C14M50	C14M50I	50	3.04		

22 X 58



Catalog Number Without Indicator	Catalog Number With Indicator	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C22M2	C22M2I	2	0.29	690V	80 kA
C22M4	C22M4I	4	0.48		
C22M6	C22M6I	6	0.47		
C22M8	C22M8I	8	0.73		
C22M10	C22M10I	10	0.74		
C22M12	C22M12I	12	0.83		
C22M16	C22M16I	16	1.21		
C22M20	C22M20I	20	1.29		
C22M25	C22M25I	25	1.53		
C22M32	C22M32I	32	2.13		
C22M40	C22M40I	40	3.40		
C22M50	C22M50I	50	3.48		
C22M63	C22M63I	63	4.46		
C22M80	C22M80I	80	5.86		

C22M100	C22M100I	100	6.61	500V	120 kA
C22M125	C22M125I	125	8.42	400	

Class aM & gG/gL IEC industrial ferrule fuses with striker

14 X 51



22 X 58



Class gG/gL with Striker

Catalog Number With Striker	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C14G2S	2	0.24	500	120 kA
C14G4S	4	0.45		
C14G6S	6	0.42		
C14G8S	8	0.70		
C14G10S	10	0.53		
C14G12S	12	0.88		
C14G16S	16	1.16		
C14G20S	20	1.23		
C14G25S	25	1.46		
C14G32S	32	2.04		
C14G40S	40	3.34		
C14G50S	50	3.04		
Catalog Number With Striker	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C22G4S	4	0.48	690	80 kA
C22G6S	6	0.47		
C22G8S	8	0.73		
C22G10S	10	0.74		
C22G12S	12	0.83		
C22G16S	16	1.21		
C22G20S	20	1.29		
C22G25S	25	1.53		
C22G32S	32	2.13		
C22G40S	40	3.40		
C22G50S	50	3.48		
C22G63S	63	4.46		
C22G80S	80	5.86		
C22G100S	100	6.61	500	120 kA
C22G125S	125	8.42	400	

14 X 51



22 X 58



Class aM with Striker

Catalog Number With Striker	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)	
C14M1S	1	0.14	500	120 kA	
C14M2S	2	0.24			
C14M4S	4	0.45			
C14M6S	6	0.42			
C14M8S	8	0.70			
C14M10S	10	0.53			
C14M12S	12	0.88			
C14M16S	16	1.16			
C14M20S	20	1.23			
C14M25S	25	1.46			
C14M32S	32	2.04			
C14M40S	40	3.34			
C14M50S	50	3.04			400
Catalog Number With Striker	Amp Rating	Watts Loss (W)			Voltage (AC)	Interrupting Rating (kA)
C22M2S	2	0.29	690	80 kA	
C22M4S	4	0.48			
C22M6S	6	0.47			
C22M8S	8	0.73			
C22M10S	10	0.74			
C22M12S	12	0.83			
C22M16S	16	1.21			
C22M20S	20	1.29			
C22M25S	25	1.53			
C22M32S	32	2.13			
C22M40S	40	3.40			
C22M50S	50	3.48			
C22M63S	63	4.46			
C22M80S	80	5.86	500	120 kA	
C22M100S	100	6.61			
C22M125S	125	8.42			400

IEC & British Fuses

HRC fuse holders

CAMaster

Specifications
Catalog Symbol:

See table below.

Description: The CAMaster HRC fuse holder features a unique cam-action for easy fuse removal while allowing significantly improved contact pressure between fuse carrier and base contact that enhances electrical performance. A range of lockable safety carriers for the fuse holder (catalog reference: LSC), are available.



Ratings:

Volts: — 690V

Amps: — 30-100A (See Catalog Number table for details)

Agency Information: CE, CSA C22.2 No. 39; IEC 269 AND BS 88.

Mounting: 35mm DIN-rail or single screw mounting.

Catalog Numbers

Catalog Numbers	Amp Ratings	Details For:	Fuse Accepted
CM20CF	30	HRCI-CA Applications	_CIF21
CM30CF	30	HRCII Applications	_H07C
CM60CF	60		_K07C
CM100CF	100		_K07CR

Accessory Catalog Numbers for CAMaster Units

Catalog Numbers	Amp Ratings	Details	Fuse Holder Accepted
20BS	30	Back Stud	CM20CF
32BS	30		CM30CF
60/100BS	60/100		CM60/100CF
GLP	All	Ganging Link Kit	3-Pole
NI	All	660V Neon Indicator	—
20LSC	30	Security Carrier with Clip	CM20CF
30LSC	30		CM30CF
60/100LSC	60/100A		CM60/100CF

SAFEloc

Specifications
Catalog
Symbol:

See table below.

Description: The SAFEloc HRC fuse holders (for use with HRCI-CB fuses) provides a positive, stress-free fuse fitting



and locks it in position to ensure safe insertion and withdrawal from the base. Base contacts are fully shrouded to help protect against electric shock. Shrouds utilize simple slide/snap action allowing access to the contact terminal screws.

Ratings:

Volts: — 600V

Amps: — 30-60A (See Catalog Number table for details)

Agency Information: CE, Designed to accommodate the compact range of offset blade fuse to CSA C22.2 No. 106, HRCI-CB.

Mounting: 35mm DIN rail or single screw mounting.

Catalog Numbers*

Catalog Numbers	Amp Ratings	Connection	Fuse Accepted
C30F	30	Front	_CIF06
C30BS		Back	
C30FBS		Front-Back	
C60F	60	Front	EK-Amp
C60BS		Back	
C60FBS		Front-Back	

*For use with HRCI-CB Fuses.

Fuse holders and blocks



Section Contents	Page
OPM-1038 3-pole fuse holders with disconnect switch	232
OPM-1038 3-pole fuse holders	233
OPMNGA- 3-pole Class CC and 1 ³ / ₃₂ " X 1 ¹ / ₂ " fuse overcurrent protection modules	234-235
CH Series Class J modular fuse holders	236
JT(N)60030 & JT(N)600600 Safety J™ Class J fuse holders	237-238
CH Series Global Modular fuse holders	239-240
SAMI™ fuse covers	241
H250 & R250 Series 250V Class H (K) and R fuse blocks	242-244
H600 & R600 600V Class H (K) and R fuse blocks	245-247
J600 Series Class J fuse blocks	248-249
JP Series Class J fuse blocks	250
T300 300V Class T fuse blocks	251-252
T600 600V Class T fuse blocks	253-254
BCA Series Class CC add-a-pole modular fuse blocks	255
BMA Series 1³/₃₂" X 1¹/₂" fuse add-a-pole modular fuse blocks	255
BC Series Class CC fuse blocks	256
BM Series Type M 1 ³ / ₃₂ " X 1 ¹ / ₂ " fuse blocks	256
BG & G Series Class G fuse blocks	256
BH Series high speed fuse modular fuse blocks	257
Class H & J modular fuse blocks	257
Plug fuse box cover units	258
HFB & HEB-10 in-line fuse holders for 1/4" X 1 1/4" fuses	259
HHB & HRK universal in-line fuse holders for 1/4" dia. fuses	259
HR & HM Series in-line fuse holders for 1/4" dia. fuses	260
HFA Series waterproof in-line fuse holders for 1/4" X 1 1/4" fuses	260
HHT Series in-line fuse holders for 5 X 15 to 20mm fuses	260
Tron® in-line fuse holders	261-262
Panel mounted fuse holders for 5 X 20mm fuses	263
Panel mounted fuse holders for 1/4" X 1 1/4" fuses	264
Panel mounted fuse holders for 5 X 20mm and 1/4" X 1 1/4" fuses	265-266
Panel mounted fuse holders for indicating type fuses	267
Panel mounted fuse holders for 1 3/32" X 1 5/16" to 1 1/2" fuses	268
Panel mounted fuse holders for 1 3/32" X 1 1/2" fuses	269
Fuse blocks for 1/4" X 1 1/4" fuses	270
Fuse blocks for 1/4" X 1" fuses	271
Fuse blocks for 1 3/32" X 1 1/2" fuses	272
Rail mount fuse holders	273

Fuse Holders & Blocks

RED indicates NEW information

Fuse Holders and Blocks

Optima® fuse holder module and disconnect switch

OPM-1038 With Disconnect Switch



Catalog Number Build-A-Code

Series	Fuse Type	Communication
O P M - 1 0 3 8	Blank = 10 x 38mm or 1/2" x 1-1/2" R = Class CC	C = Communication Feature

Specifications

Description: 3-pole load break modular fuse holder and disconnect switch for 1/2" x 1-1/2" (10 x 38mm) fuses.

Dimensions: See Dimensions illustration.

Construction: Grey thermoplastic.

Poles: 3

Agency Information: CE, UL (see table), CSA Certified, C22.2 No. 39, Class 6225-01, File 47235, IEC (see table).

Flammability Rating: UL 94V0.

Horsepower Rating of Switch

3PH	V	240	480	600
	HP	5	10	15

Recommended Fuse Types

Class CC	Midget (Non-Rejection)	European
LP-CC	KTK	C10M
KTK-R	FNM	C10G
FNQ-R	FNQ	

Physical Characteristics

- Small size matches 45mm IEC starter width
- Accepts #8-18 AWG stranded, #10-18 AWG solid wire
- 3-pole
- Handle and shaft required for through the door operation

Catalog Numbers

Catalog Numbers	Electrical Rating	SC Rating	Clips	Remote Open Fuse Indication	UL Information Std.	File	Guide	IEC	CE
OPM-1038SW	30A, 600Vac UL/CSA 32A, 660Vac IEC	*	Non-rejection, 10x38mm or 1/2" x 1-1/2"	No	Recognized UL 508	E161278	NLRV2	IEC 60947-3	Yes
OPM-1038RSW	30A, 600Vac UL/CSA	100kA	Rejection, Class CC	No	Listed UL 508	E161278	NLRV		Yes
OPM-1038SWC	30A, 600Vac UL/CSA 32A, 660Vac IEC	*	Non-rejection, 10x38mm or 1/2" x 1-1/2"	Yes	Recognized UL 508	E161278	NLRV2	IEC 60947-3	No
OPM-1038RSC	30A, 600Vac UL/CSA	100kA	Rejection, Class CC	Yes	Listed UL 508	E161278	NLRV		No

*Rating varies depending on fuse used in module; 100kA maximum

Data Sheet: 1103

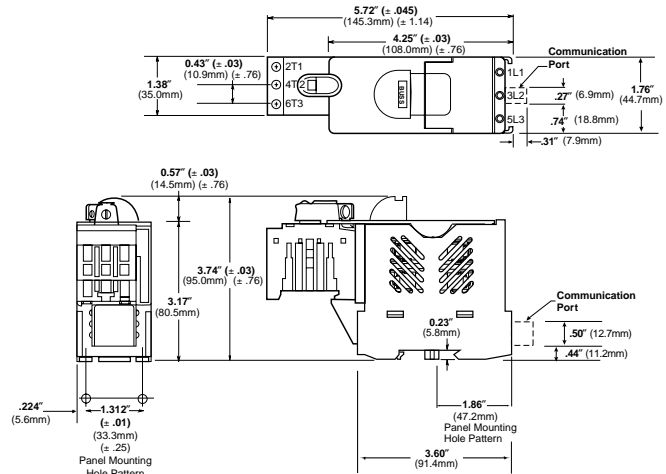
Features/Benefits

- Padlockable with finger-safe terminals. (Qualified as IP-20 per IEC 60529) for safety.
- Cam-action handle for easy module removal, offered with Class CC rejection clips or European 10 x 38mm clips to meet global needs
- Wire ready with 35mm DIN-rail or screw panel mounting (#8 screw, 1 1/4" long) saves installation time
- "Permanent" fuse indication lights with option for remote "permanent fuse" status indication feature available (reduces downtime!). See Data Sheet for additional wiring details.

Typical Applications

- Industrial Control
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

Dimensions



Optima® fuse holder module

OPM-1038



Features and Benefits

- Padlockable with finger-safe terminals. (Qualified as IP-20 per IEC 529) for safety.
- Cam-action handle for easy module removal, offered with Class CC rejection clips or European 10 x 38mm clips to meet global needs
- Wire ready with 35mm DIN-rail or screw panel mounting (#8 screw, 1 1/4" long) saves installation time
- "Permanent" fuse indication lights with option for remote "permanent fuse" status indication feature available (reduces downtime!). See Data Sheet for additional wiring details.

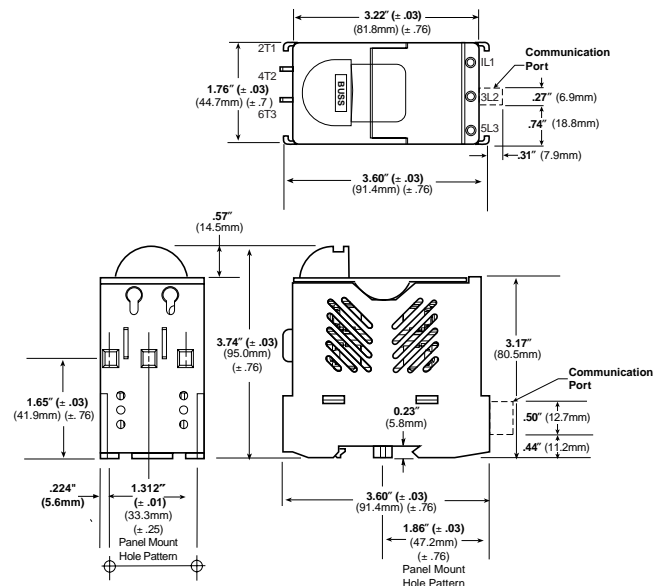
Catalog Number Build-A-Code

Series	Fuse Type	Communication
O P M - 1 0 3 8	Blank = 10 x 38mm or 1/2" x 1 1/2"	C = Communication Feature
	R = Class CC	

Typical Applications

- Industrial Control
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

Dimensions



Fuse Holders & Blocks

Specifications

Description: 3-pole modular fuse holder for 1 1/2" x 1 1/2" (10 x 38mm) fuses.

Dimensions: See Dimensions illustration.

Construction: Grey thermoplastic.

Poles: 3

Agency Information: CE, UL (see table), CSA Certified, C22.2 No. 39, Class 6225-01, File 47235, IEC (see table).

Flammability Rating: UL 94V0.

Recommended Fuse Types

Class CC	Midget (Non-Rejection)	European
LP-CC	KTK	C10M
KTK-R	FNM	C10G
FNQ-R	FNQ	

Physical Characteristics

- Small size matches 45mm IEC starter width
- Accepts #8-18 AWG stranded, #10-18 AWG solid wire
- 3-pole

Catalog Numbers

Catalog Numbers	Electrical Rating	SC Rating	Clips	Remote Open Fuse Indication	UL Information Std.	File	Guide	IEC	CE
OPM-1038	30A, 600Vac/dc UL/CSA (Max 3 Watts per fuse) 32A, 660V IEC	*	Non-rejection, 10 x 38mm or 1 1/2" x 1 1/2"	No	Recognized UL 512	E14853	IZLT2	IEC 60269-2-1	Yes
OPM-1038R	30A, 600Vac/dc UL/CSA	200kA	Rejection, Class CC	No	Listed UL 512	E14853	IZLT		Yes
OPM-1038C	30A, 600Vac/dc UL/CSA (Max 3 Watts per fuse) 32A, 660V IEC	*	Non-rejection, 10 x 38mm or 1 1/2" x 1 1/2"	Yes	Recognized UL 512	E14853	IZLT2	IEC 60269-2-1	No
OPM-1038RC	30A, 600Vac/dc UL/CSA	200kA	Rejection, Class CC	Yes	Listed UL 512	E14853	IZLT		No

*Rating varies depending on fuse used in module; 200kA maximum.

Data Sheet: 1102

Optima® three-pole overcurrent protection module

OPM-NG-



Specifications

Description:

OPM-NG-SC3: 3-pole Class CC fuse holder for use with Class CC fuses (Cooper Bussmann Types LP-CC, FNQ-R, KTK-R).

OPM-NG-SM3: 3-pole fuse holder for use with 1½" x 1½" and 10.3 x 38mm fuses (Cooper Bussmann Types: 1½" x 1½"; KTK, FNQ, KLM, 10 x 38mm; FWA, FWC, C10G_ , C10M_).

Ratings:

Volts: — OPM-NG-SC3: 600Vac (or less)
 — OPM-NG-SM3: 600Vac (or less) UL and CSA 30A
 — OPM-NG-SM3: 690Vac (or less) IEC 32A

Amps: — OPM-NG-SC3: 0-30A

— OPM-NG-SM3: 0-30A

Withstand: — OPM-NG-SC3: 200kA

— OPM-NG-SM3: Limited by fuse IR, 200kA maximum

Agency Information: CE, UL; OPM-NG-SC3 UL Listed, UL 512, File E14853, Guide IZLT. OPM-NG-SM3, UL Recognized, UL512, File E14853, Guide IZLT2. CSA Certified, C22.2 No. 39, Class C6225-01, File 47235. IEC 60947-3 Utilization Category AC20B.

Handling & Storage Temperature: -10°-65°C.

Features/Benefits

- 45mm width matches IEC starters, 35mm DIN rail or panel mounting feature. Maximum screw size #8 (M4)
- Pressure plate terminations with dual-wire rated terminals (see Wire Table) and optional auxiliary contacts
- Integrated collapsible handle and fuse carrier cannot be removed from holder base
- Padlockable and IP-20 finger-safe to IEC60529

Typical Applications

- Mass Produced Control Systems
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

Fuse holder Wire Range:

- 75°CU Only
- #18-12 Single/Dual, torque 15in-lb
- #10-8 Single/Dual, torque 20in-lb
- Dual wire with same gauge and type

		75° CU Only		C (N·m)/lb-in
		AWG	[mm ²]	
Solid		#18-8 x 1	1-6 x 1	18-12 Single/Dual 15in-lb (1.7 N·m)
		#18-8 x 2	1-6 x 2	
Stranded		#18-8 x 1	1-6 x 1	10-8 Single/Dual
		#18-8 x 2	1-6 x 2	
Ferrules			1-4 x 1	20in-lb (2.5 N·m)
			1-4 x 2	

Input Power Terminal Wire Range:

Wiring	Solid	(1) #14 to #2 (1.5 to 25mm ²) or conductor
	Conductor	(2) #14 to #6 (1.5 to 10mm ²) conductors
	Stranded	(1) #14 to #2 (1.5 to 25mm ²) conductor or
	Conductor	(2) #12 to #6 (2.5 to 10mm ²) conductors
Tightening	Connector	20in-lb (2.2 N·m)
Torque:	Screw Clamp	15in-lb (1.7 N·m)

Materials:

- **Housing:** Thermoplastic - UL V-2
- **Clip:** Tin-plated copper alloy
- **Contact lubricant:** Fluoroether grease
- **Saddle screw:** Plated steel
- **DIN rail springs:** Stainless steel

Optional Accessories:

Comb Bar (Max current rating = 63A)

OPMNGSA245	2 circuit, 45mm between same phases
OPMNGSA254	2 circuit, 54mm between same phases
OPMNGSA272	2 circuit, 72mm between same phases
OPMNGSA345	3 circuit, 45mm between same phases
OPMNGSA354	3 circuit, 54mm between same phases
OPMNGSA445	4 circuit, 45mm between same phases
OPMNGSA454	4 circuit, 54mm between same phases
OPMNGSA472	4 circuit, 72mm between same phases
OPMNGSA554	5 circuit, 54mm between same phases

Input Terminal Block (Max current rating = 63A)

OPMNGSA005	Input/Feed Through Power Terminal, Supports feed through to another system, DIN-rail mount only
OPMNGSA009	Input Power Terminal

Cover

OPMNGSA010	Protective Cover for unused terminals on comb bar
------------	---

Auxiliary Contacts

OPMNGSAAUX11	NO/NC
OPMNGSAAUX20	NO/NO

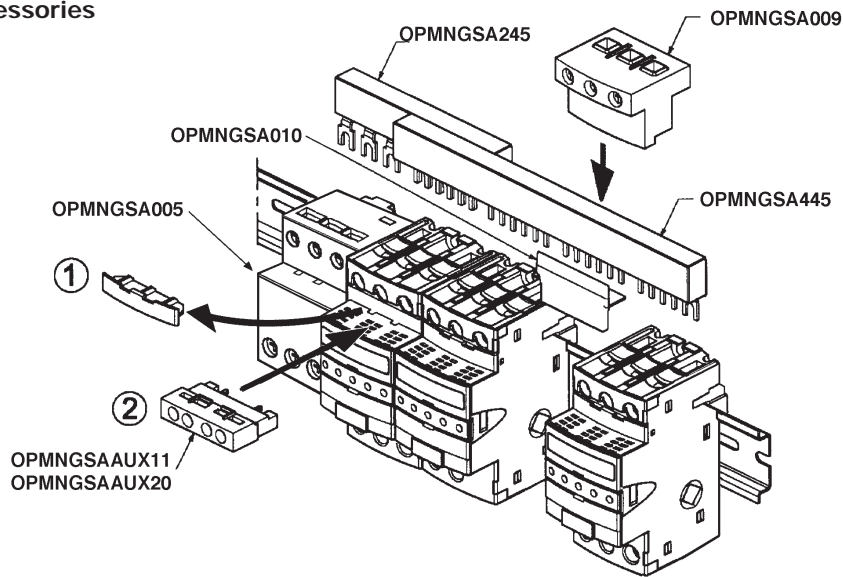
Marking Tabs

OPMNGSA101	Marking Tab - Mounts to front of carrier, quantity 100
------------	--

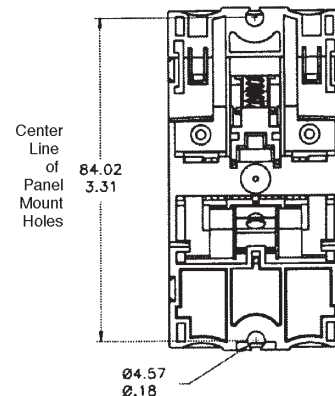
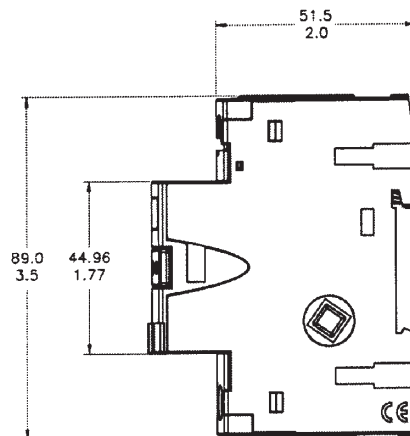
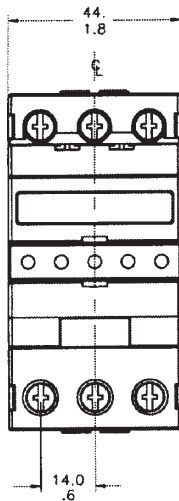
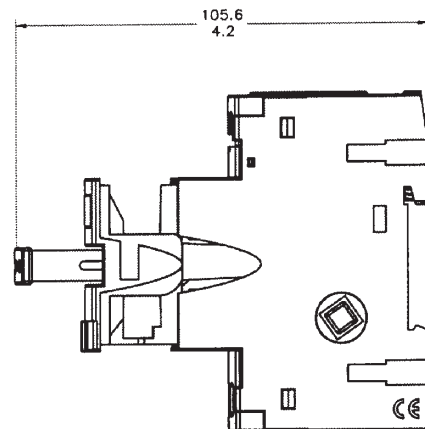
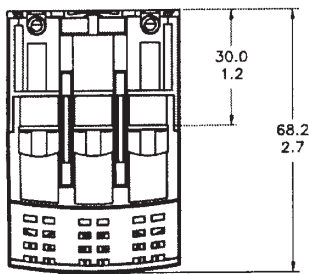
Fuse Holders and Blocks

Optima® three-pole overcurrent protection module

Optional Accessories



Dimensions Millimeters (± 0.38), Inches (± .015)



Fuse Holders & Blocks

Fuse Holders and Blocks

Class J modular fuse holders

CH _ _ J _

Specifications

Description: IP20 finger-safe, 1 to 3 pole Class J fuse holder with DIN rail or panel mounting.

Construction: Molded polyester housing, nickel-plated brass contacts and stainless steel DIN rail retaining spring.

Ratings:

Volts: — 600V

Amps: — 30A (30A version)

— 60A (60A version)

Withstand: — 200kA

Wire Range: 1-18 AWG CU solid and stranded conductors with single and dual wire ratings. See Catalog Numbers table for details.

Torque Rating: 10-18 AWG 24 in-lb.

1-8 AWG 35 in-lb.

Poles: 1-, 2- or 3-Pole.

Operating Temperature: +105/-30°C (+221/-22°F).

Agency Information: CE, UL 512/CSA 22.2.

Flammability Rating: UL 94V0 (white).

Catalog Numbers

See Catalog Numbers table below.

Features and Benefits

- New, easyID™ indication window provides power-off indication with choice of local indication (indication can be retrofitted).
- Versatile 1-, 2- and 3-pole versions in 30A or 60A ratings with dual wire rated connections simplify wiring.
- Improved electrical safety with IP20 finger-safe construction with lock-out/tag-out feature. 3-phase fuse extraction assures all phases are opened for service work.
- Flexible panel/35mm DIN rail mounting options



30 Amp Version



60 Amp Version

Dimensions (mm):

30A:	1-Pole 32 W X 70 D X 115 H
	2-Pole 64 W X 70 D X 115 H
	3-Pole 96 W X 70 D X 115 H
60A:	1-Pole 40 W X 83 D X 125 H
	2-Pole 80 W X 83 D X 125 H
	3-Pole 120 W X 83 D X 125 H

Accessories

- Field installable local indication

Catalog Numbers

Catalog Numbers	Amp Rating	Volts	# of Poles	IP-20 Finger-Safe	Mounting	Padlockable	Local Indication	AWG Wire Range
CH30J1	30	600	1	Yes	35mm DIN/ Panel	Yes	easyID*	1-18
CH30J1I	30	600	1	Yes	35mm DIN/ Panel	Yes	Neon**	1-18
CH30J2	30	600	2	Yes	35mm DIN/ Panel	Yes	easyID*	1-18
CH30J2I	30	600	2	Yes	35mm DIN/ Panel	Yes	Neon**	1-18
CH30J3	30	600	3	Yes	35mm DIN/ Panel	Yes	easyID*	1-18
CH30J3I	30	600	3	Yes	35mm DIN/ Panel	Yes	Neon**	1-18
CH60J1	60	600	1	Yes	35mm DIN/ Panel	Yes	easyID*	1-18
CH60J1I	60	600	1	Yes	35mm DIN/ Panel	Yes	Neon**	1-18
CH60J2	60	600	2	Yes	35mm DIN/ Panel	Yes	easyID*	1-18
CH60J2I	60	600	2	Yes	35mm DIN/ Panel	Yes	Neon**	1-18
CH60J3	60	600	3	Yes	35mm DIN/ Panel	Yes	easyID*	1-18
CH60J3I	60	600	3	Yes	35mm DIN/ Panel	Yes	Neon**	1-18

* easyID™ viewing window, requires use of Cooper Bussmann LPJ_SPI permanent indication fuses.

** Indication non-fuse dependent.

Class J (finger-safe) fuse holders

Safety J™ — JT(N)60030 & JT(N)60060

Specifications

Description: Indicating and non-indicating finger-safe, DIN rail mount fuse holders for use with Class J fuses - (Cooper Bussmann LPJ, JKS).

Dimensions: See Dimensions illustrations.

Construction: Thermoplastic.

Ratings:

Volts: — 600V

Amps: — 0-60A (JT(N)60060)

— 0-30A (JT(N)60030)

Withstand: — 200,000A RMS Sym.

— 300,000A self certified using Cooper Bussmann LPJ_SP fuses

Agency Information: CE, Listed to UL 512: Guide IZLT, File 14853, CSA Certified: Class 6225-01, File 47235. IP-20 per IEC 60529.

Flammability Rating: UL 94V0.

Indication: Min voltage: 90Vac, 115Vdc; neon lamp“ON” when fuse opens, voltage source and current path are present.

Terminations: 30A dual port torque 20in-lb, 60A single port torque 45in-lb, terminal construction, tin-plated copper alloy.

Wire Size: JT(N)60030 - rated for 75°C, AWG#18-#8; CU only, JT(N)60060 - rated for 75°C, AWG#14-#4; CU only.

(Note: For JT(N)60030 use both stranded or solid, in a variety of dual wire combinations of same wire size and type.)

Features and Benefits

- Short Circuit Current Rating of 300,000A with Cooper Bussmann LPJ___SP fuses.
- Rapid, flexible 35 mm DIN rail mounting.
- One piece interlocking design for assembling multiple pole blocks reduces inventory costs.
- Removable fuse carrier allows fuse replacement away from base while maintaining finger-safe rating.

Typical Applications

- Industrial Controls
- Process Controls
- Small HP VFDs

Catalog Numbers

Catalog Numbers	Amps	Indication
JT60030	30	Non-indicating
JT60060	60	Non-indicating
JTN60030	30	Indicating (Neon)
JTN60060	60	Indicating (Neon)



30 Amp Version



60 Amp Version

Did You Know?

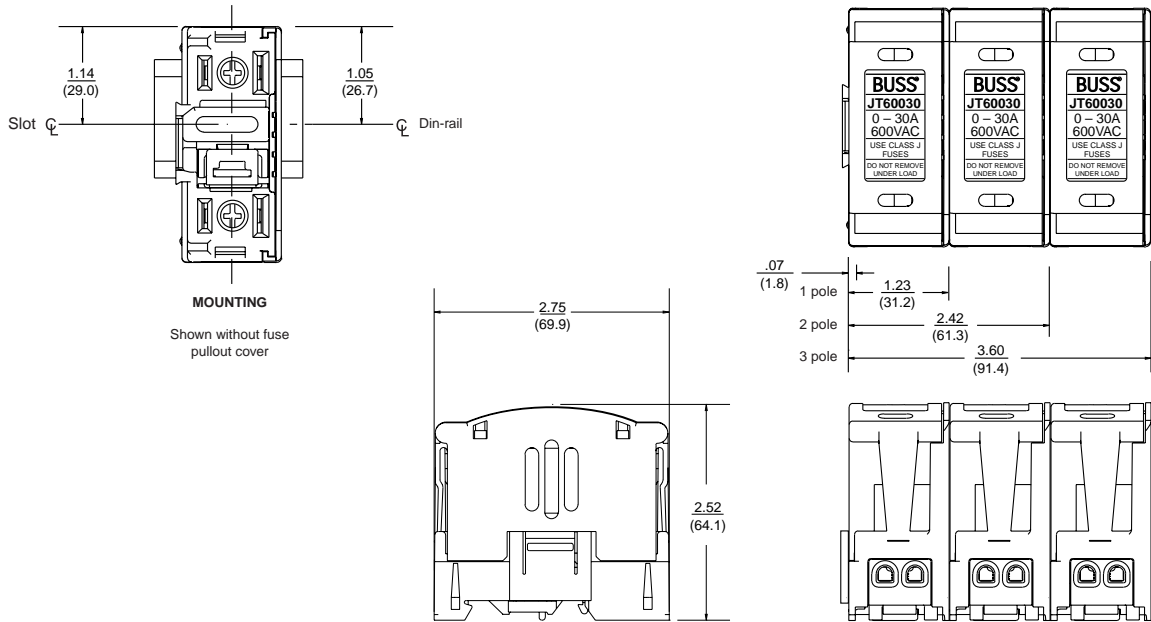
Safety is Good for Business

The Cooper Bussmann product line includes finger-safe overcurrent protection devices including the CUBEFuse™, the Surge3™ surge protection device, and the Optima®-NG fuse holder to promote worker safety and reduce downtime.

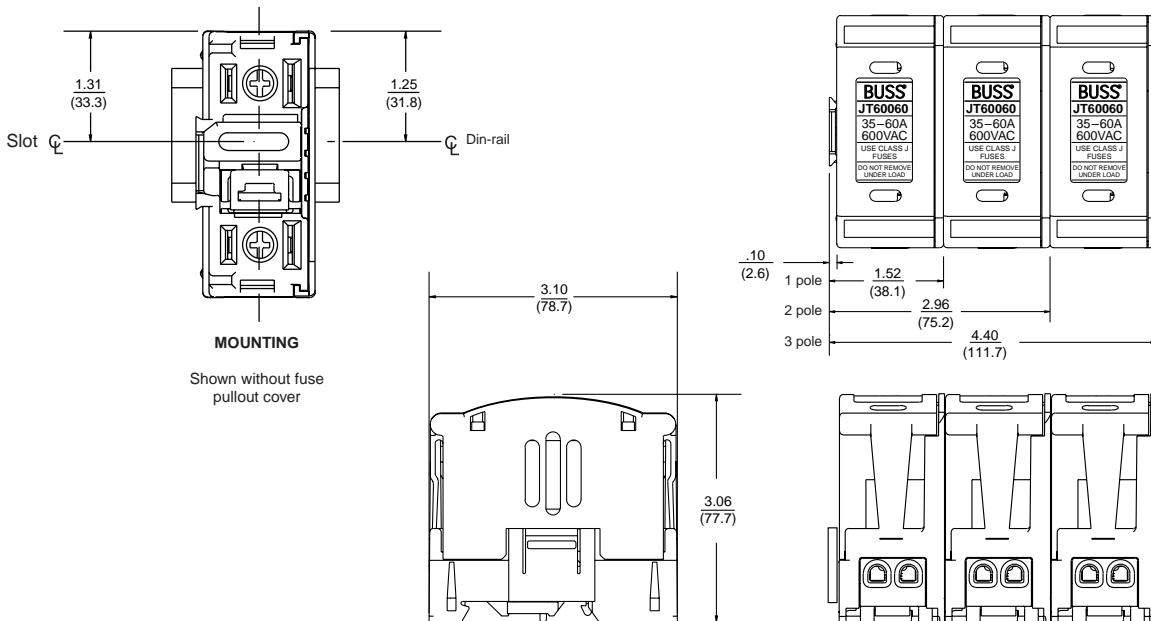
Fuse Holders and Blocks

Class J (finger-safe) fuse holders

Dimensions for JT60030 & JTN60030 — in (mm)



Dimensions for JT60060 & JTN60060 — in (mm)



JT(N)600 Series fuse blocks can be dovetailed together within the same current rating to provide multiple pole block configurations.

NOTE: JT(N)60030 cannot be dovetailed to JT(N)60060.

Global modular fuse holders

CH Series

Specifications

Description: The 'CH' line of modular fuse holders accommodates many fuses from around the world, including North American Class-CC, Midget, Class gR, aR HSF, and IEC Industrial Ferrule (Class gG and aM) in four physical sizes: 8x32, 10x38, 14x51 and 22x58mm.

Agency Information: Manufactured in accordance with IEC 60269 and IEC 60947-3. UL and CSA Compliance as indicated in the Catalog Numbers table.

Flammability Rating: UL 94V0.

Features/Benefits

- Finger-safe multiple pole configurations
- Optional "open-fuse" indication (minimum 90Vac, 115Vdc for indicator lights)
- 14x51 & 22x58mm configurations available with optional micro-switches for remote "open-fuse" indication, pre-breaking, and fuse presence
- Multi-phase connections available for ganging poles



Typical Applications

- Industrial Controls
- Process Controls
- Individual Control Circuits

Catalog Numbers

Catalog Numbers W/O Indication	W/Indication	Series/ Size	Max Voltage & Current	IEC	UL	CSA	Phase Configuration	No. of 17.5mm Modules	Box Qty.	Wire Range	Maximum Torque		
CH081D	CH081DI	CH08 8X32	IEC 400Vac 25A	•			1-pole	1	12	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)		
CH081DNX	-			•			1 Neutral Pole	1	12				
CH081DNS	CH081DNSI			•			1-pole + Neutral	1	12				
CH081DN	CH081DNI					•			1-pole + Neutral	2	6	1-10mm2 (18-8 AWG)	2.0 N•m (17.5in-lb)
CH082D	CH082DI			•			2-pole	2	6				
CH083D	CH083DI			•			3-pole	3	4				
CH083DNS	CH083DNSI					•			3-pole + Neutral	3	4	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)
CH083DN	CH083DNI			•			3-pole + Neutral	4	3				
CH084D	CH084DI			•			4-pole	4	3				
CHM1D	CHM1DI	CHM 10X38 & Midget	UL/CSA 600Vac/dc, 30A (3 Watt) 690Vac, 32A	•	†	•	1-pole	1	12	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)		
CHM1DNX	-			•			1 Neutral Pole	1	12				
CHM1DNS	CHM1DNSI			•			1-pole + Neutral	1	12				
CHM1DN	CHM1DNI					•			1-pole + Neutral	2	6	1-10mm2 (18-8 AWG)	2.0 N•m (17.5in-lb)
CHM2D	CHM2DI			•	†	•	2-pole	2	6				
CHM3D	CHM3DI			•	†	•	3-pole	3	4				
CHM3DNS	CHM3DNSI					•			3-pole + Neutral	3	4	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)
CHM3DN	CHM3DNI			•			3-pole + Neutral	4	3				
CHM4D	CHM4DI			•			4-pole	4	3				
CHCC1D	CHCC1DI	CHCC Class CC	UL/CSA 600Vac/dc, 30A		††	•	1-pole	1	12	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)		
CHCC2D	CHCC2DI				††	•	2-pole	2	6				
CHCC3D	CHCC3DI				††	•	3-pole	3	4				
CH141D	CH141DI	CH14 14X51	UL 600Vac/dc, 40A (5 Watt) IEC 690Vac, 50A	•	†		1-pole	1.5	6	2.5-16mm2 (14-6 AWG)	3.0 N•m (26in-lb)		
CH141DMS	-			•			1-pole + Microswitch	1.5	6				
CH141DNX	-			•			1 Neutral Pole	1.5	6				
CH141DN	CH141DNI					•			1-pole + Neutral	3	3	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)
CH142D	CH142DI			•	†		2-pole	3	3				
CH143D	CH143DI			•	†		3-pole	4.5	2				
CH143DMS	-					•			3-pole + Microswitch	4.5	2	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)
CH143DN	CH143DNI			•			3-pole + Neutral	6	1				
CH143DNMS	-			•			3-pole + Neutral + Microswitch	6	1				
CH144D	CH144DI					•			4-pole	6	1	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)
CH221D	Not	CH22 22X58	UL 600Vac/dc, 100A (9.5 Watt) IEC 690Vac, 125A	•	†		1-pole	2	6	2.5-50mm2 (14-1 AWG)	4.0 N•m (35in-lb)		
CH221DMS	Available			•			1-pole + Microswitch	2	6				
CH221DNX	with			•			1 Neutral Pole	2	6				
CH221DN	local					•			1-pole + Neutral	4	3	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)
CH222D	neon			•	†		2-pole	4	3				
CH223D	indication			•	†		3-pole	6	2				
CH223DMS	(remote					•			3-pole + Microswitch	6	2	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)
CH223DN	microswitch			•	†		3-pole + Neutral	8	1				
CH223DNMS	only)			•			3-pole + Neutral + Microswitch	8	1				
CH224D	-					•			4-pole	8	1	1-16mm2 (18-8 AWG)	2.5 N•m (22in-lb)

† UL Recognized †† UL Listed *Holder width as compared to standard 17.5mm module. i.e. 1 = 17.5mm 2 = 35mm.

Data Sheet: 2143

Global modular fuse holders

Recommended Cooper Bussmann Fuse Types

- 8x32 IEC ferrule - C08 Series
- 10x38 North American Class CC Fuses - LP-CC, FNQ-R, KTK-R
Fuses - FNQ, KTK, AGU, KM, BAF, BAN, GNM, FWA, FWC, C10 Series
- 14x51 Fuses - FWX, FWH, FWP & NON, C14 Series
- 22x58 Fuses - FWP, C22 Series

High Speed Fuses For Semiconductor Protection

The 'CH' range of modular fuse holders may be used in conjunction with Class gR and aR high-speed fuses, offering a touch-safe design with no exposed contacts. See Data Sheet 2143 for details. Contact Cooper Bussmann Application Engineering for more information regarding high-speed fuse application.

Accessories for CH Series

Catalog Numbers	Accessory	For Use with Fuse Holders	No. of Poles	Box Qty.
AL-D	Multi-Phase Connection Links	CH08, CHM,	-	12
		CHCC, AND	-	12
		CH14 Series	-	12
CH810-HP	Multi-Phase Handle Pins	CH08, CHM,&	-	12
		CHCC Series	-	12
CH14-HP		CH14 Series	-	12
C08NL	Neutral Links	CH08 Series	-	10
C10NL, NNB		CHM Series	-	10
NNB-R		CHCC Series	-	10
C14NL		CH14 Series	-	10
C22NL		CH22 Series	-	10
CH14MS-1D	Operated-Fuse Micro-Switches	CH141 Series	1	5
CH14MS-3D		CH143 Series	3	2

Multi-Phase Connection Links



Multi-Phase Handle Pins



Operated-Fuse Micro-Switches



Neutral Links



Did You Know?

Cooper Bussmann Optima® OPM-NG Wins Product of the Year Award

As voted by the readers of Plant Engineering Magazine, the Cooper Bussmann Optima® OPM-NG modular fuseholder won a Product of the Year Award (Silver) in the power products category. This prestigious honor recognizes innovative products used by electrical, engineering and maintenance professionals to improve safety and increase productivity.

The OPM-NG fuseholder's design incorporates IP-20 finger-safe construction with integral DIN rail spring mounting — requiring no tools — so installation is fast and easy. When the OPM-NG is used in motor starter applications, wiring time in group installations can be reduced by up to 80 percent.

The compact 45 mm width matches the OPM-NG with 32A/45 mm IEC motor starter requirements. The low profile handle is integral with the fuse carrier and acts as a built-in fuse puller. This eliminates the inconvenience of needing an extra tool to remove the fuses.

SAMI™ fuse covers

SAMI™ Series



Specifications

Description: Indicating and non-indicating fuse covers for Class J, RK1, RK5, H, K5, CC, G (0-30A) and midget-type fuses. Indicating feature requires a minimum of 90Vac or 115Vdc to illuminate lamp. One cover required for each pole.
WARNING: To avoid electrical shock, turn power off before installing, removing or servicing.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — — Non-Indicating - 0-600Vac/dc
 — — Indicating - 90 to 600Vac
 -115 to 600Vdc

Amps: — 0-100A

Agency Information: CE, UL Listed; SAMI-11 through SAMI-61, SAMI-81 and SAMI-91, SAMI-1N through SAMI-6N, SAMI-8N and SAMI-9N, UL Recognized; SAMI-71 and SAMI-7N, CSA Certified, File LR47235-93C.

Catalog Numbers

Catalog Numbers**	Description	Dimensions (inches)		
		A	B	C
SAMI-1_	600V, J (0-30A) and 600V, T (35-60A)* 250V, RK, K5, H (35-60A)	5.02	1.03	1.94
SAMI-2_	600V, RK, K5, H (0-30A)	7.03	1.30	2.07
SAMI-3_	600V, J (65-100A)	7.03	1.30	2.33
SAMI-4_	250V, RK, K5, H (65-100A)	8.20	1.30	2.18
SAMI-5_	600V, RK, K5, H (35-60A)	8.20	1.30	2.18
SAMI-6_	600V, J (35-60A)	4.98	1.17	2.14
SAMI-7_	600V, Midget, Class CC, G (0-30A)	3.82	0.75	1.72
SAMI-8†_	600V, RK††, K5, H (65-100A)	10.38	1.50	2.33
SAMI-9_	250V, RK, K5, H (0-30A) and 600V, T (0-30A)	3.82	0.75	1.72

*Available in non-indicating only.

**For indicating cover, add suffix "I", for non-indicating cover, add suffix "N".

Example: SAMI-7I = Indicating, SAMI-7N = Non-indicating

†SAMI-8A adapter available for small fusetron body design. SAMI-8I and SAMI-8N come standard with adapter (SAMI-8A).

††Not for use with KTS-R fuses.

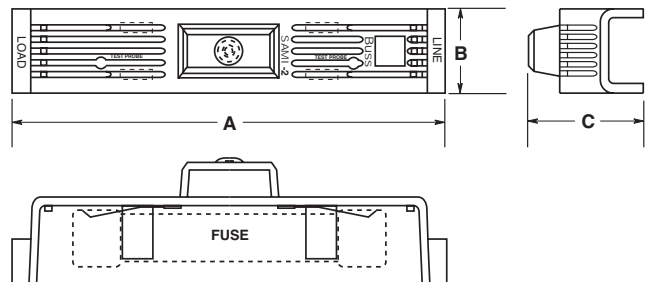
Features and Benefits

- Insulated cover allows field conversion of fuses mounted in open fuse blocks to dead front configuration.
- Optional open fuse indicating light aids in system troubleshooting.
- Units are re-usable.
- Allows visual marking of line and load side of fuses.

Typical Applications

- Class H, R and J fuse blocks up to 100A
- Class T fuse blocks up to 60A
- Class CC, G and Midget, 30A fuse blocks

Dimensions



Fuse Holders & Blocks

Fuse Holders and Blocks

Class H(K) and R fuse blocks – 250V

H250 & R250 Series

Specifications

Descriptions:

H250 Series: fuse blocks for use with 1-, 2- and 3-pole Class H fuses.

R250 Series: fuse blocks for use with 1-, 2- and 3-pole Class R fuses (Cooper Bussmann LPN-RK and FRN-R, DLN-R and KTN-R fuses).



Dimensions: See Dimensions illustrations.

Construction: Thermoplastic.

Ratings:

Volts: — 250V (H250 & R250 Series)

Amps: — 1/10-600A

Withstand: — H250 Series; 10,000A RMS Sym.

— R250 Series; 200,000A RMS Sym.

Agency Information: CE, UL Listed UL512, Guide IZLT, File E14853; CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.

Features and Benefits

- H250 fuse blocks provide one, two and three pole housing for Class H, K and R fuses at 250Vac.
- H250 fuse blocks are listed with a Short Circuit Current Rating of 10,000A RMS Sym.
- R250 fuse blocks provide one, two and three pole housing for Class R fuses at 250Vac.
- R250 fuse blocks are listed with a Short Circuit Current Rating of 200,000 amps RMS Sym.

Typical Applications

- 250V or less Control Systems
- 250V or less Industrial Control
- 250V or less Individual Control Circuits

Specifications For Class H Fuse blocks (250V) Catalog Data(for NON and REN Fuses)

Basic Catalog Numbers	Amps	Poles	Terminal Type (Suffix No.)										Wire Range
			Screw					Box Lug w/					
			I	Clips w/ Rein. Spring	Pres. Plt.	Pres.Plt. & Clip w/ Rein. Spring	I	Clips w/ Rein. Spring	Clips w/ Rein. Spring	CU Only	0.25" Qck. Con.		
H25030-1	1/10-30	1	S	SR	P	PR	C	CR	COR	CO	Q	C, CR #2-14 CU, #2-12 AL	
H25030-2		2	S	SR	P	PR	C	CR	COR	CO	Q	CO, COR #6-14 CU ONLY	
H25030-3		3	S	SR	P	PR	C	CR	COR	CO	Q	P, PR #10-18 CU ONLY	
												Q N/A, S, SR #10-18 CU ONLY	
H25060-1	31-60	1	—	—	—	—	C	CR	COR	CO	—	C, CR #2-14 CU, #2-8 AL	
H25060-2		2	—	—	—	—	C	CR	COR	CO	—	CO, COR #2-14 CU ONLY	
H25060-3		3	—	—	—	—	C	CR	COR	CO	—		
H25100-1	61-100	1	—	SR	—	—	—	CR	COR	—	—	COR #1/0-8 CU ONLY	
H25100-2		2	—	SR	—	—	—	CR	COR	—	—	CR #1/0-8 CU/AL	
H25100-3		3	—	SR	—	—	—	CR	COR	—	—	SR #8W/ Ring Terminal	
H25200-1	101-200	1	—	—	—	—	—	CR	—	—	—	CR 250kcmil-6 CU/AL	
H25200-3		3	—	—	—	—	—	CR	—	—	—		
H25400-1	201-400	1	—	—	—	—	—	CR*	—	—	—	CR 500kcmil-4 CU/AL	
H25400-3		3	—	—	—	—	—	CR†	—	—	—		
H25600-1	401-600	1	—	—	—	—	—	CR	—	—	—	CR (2) 500kcmil-4/0 CU/AL	
H25600-3		3	—	—	—	—	—	CR†	—	—	—		

*UL Recognized, CSA Certification.

†No UL, No CSA Certification.

Dimensions For Class H Fuse blocks (250V) Catalog Data (for NON and REN Fuses)

Basic Catalog Numbers	Fig. No.	Dimensions (in) — See next page for figures.									C' Bore	J Dia. X K
		A	B	C	D	E	F	G	H			
H25030-1	1											
H25030-2	2											
H25030-3	3											
H25060-1	4			1.5						—	0.22 x 0.41	0.27
H25060-2	5	4.25	1.73	2.81	1.5	0.5	0.5	1.25	1.31			
H25060-3	6			4.125					1.31			
H25100-1	7											
H25100-2	8											
H25100-3	9											
H25200-1	10	7.125	3.09	3.0	2.06	0.5	2.0	3.0	0.75	—		0.31
H25200-3	11											
H25400-1	10	9.06	4.0	3.0	3.02	0.63	1.75	3.0	1.00	—		0.31
H25400-3	12	9.06	4.0	4.0	2.50	0.82	9.25	10.88	1.00			
H25600-1	10	11.0	4.97	3.0	4.0	1.125	1.75	4.0	1.00	—		0.31
H25600-3	12	11.0	4.97	5.0	3.0	1.87	11.0	14.74	1.00			

Data Sheet: H250 Series, 1112; R250 Series, 1110

Class H(K) and R fuse blocks – 250V

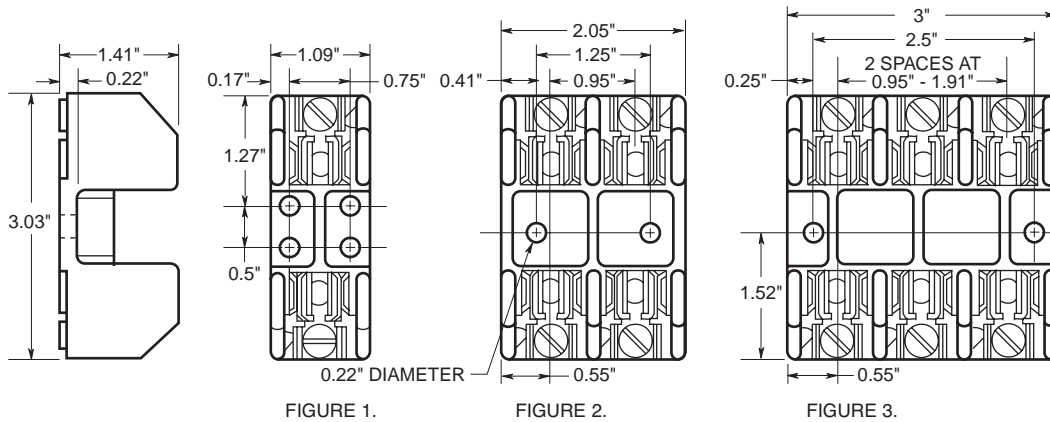
Catalog Numbers For Class R Fuse blocks (250V) Catalog Data (for LPN-RK, FRN-R, DLN-R and KTN-R Fuses)

Basic Catalog Number	Amps	Terminal Type (Suffix No.)						Fig. No.	Dimensions (in)										Wire Range
		Poles	Screw w/		Box Lug w/		Quick-Connect		A	B	C	D	E	F	G	H	J Dia. X C' Bore	K	
			—	Pres. Plate	—	Clip Cu Only														0.25"
R25030-1	1/0	1	SR	PR	CR	COR	QR*	1	(See Figures)										COR #6-14 CU ONLY
R25030-2	to	2	SR	PR	CR	COR	QR*	2											CR #2-14 CU, #2-12 AL
R25030-3	30	3	SR	PR	CR	COR	QR*	3											PR #10-18 CU ONLY
																			QR N/A
R25060-1	31	1	—		CR	COR	—	4			1.5					—			SR #10-18 CU ONLY
R25060-2	to	2	—		CR	COR	—	5	4.25	1.73	2.81	1.5	0.5	0.5	1.25	1.31	0.22 x 0.41	0.27	COR #2-14 CU ONLY
R25060-3	60	3	—		CR	COR	—	6			4.125					1.31			CR #2-14 CU, #2-8 AL
R25100-1	61	1	—		CR	COR	—	7	(See Figures)										
R25100-2	to	2	—		CR	COR	—	8											COR 1/0-8 CU ONLY
R25100-3	100	3	—		CR	COR	—	9											CR 1/0-8 CU/AL
R25200-1	101	1	—		CR	—	—	10	7.125	3.15	3.0	2.06	0.5	2.0	3.0	0.75	—	0.31	CR 250kcmil-6 CU/AL
R25200-3	to	3			CR	—		11	(See Figure)										
	200																		
R25400-1	201	1	—		CR†	COR‡	—	10	9.06	4.0	3.0	3.02	0.91	1.75	3.0	1.0		0.56	COR 500kcmil-4/0 ONLY
R25400-3	to	3			CR†	COR†		12	9.06	4.0	4.0	2.5	0.82	9.25	10.88	1.0			CR 500kcmil-4 CU/ALCU
	400																		
R25600-1	401	1	—		CR	—	—	10	11.0	4.97	3.0	4.0	1.125	1.75	4.0	1.0		0.56	CR (2) 500kcmil-4/0 CU/AL
R25600-3	to	3	—		CR†	—	—	12	11.0	4.97	5.0	3.0	1.87	11.0	14.74	1.0			
	600																		

*UL Recognized, No CSA Certification.
†No UL, No CSA Certification.
‡UL Recognized, CSA Certification

Fuse Holders & Blocks

Dimensions 250V 1/0A to 30A



Fuse Holders and Blocks

Class H(K) and R fuse blocks - 250V

250V, 31A to 60A

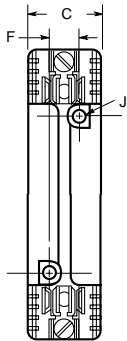
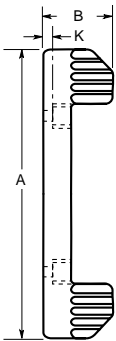


FIGURE 4.

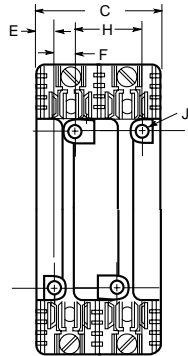


FIGURE 5.

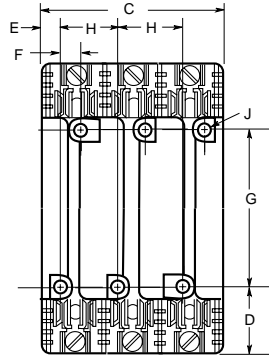


FIGURE 6.

250V, 61A to 100A

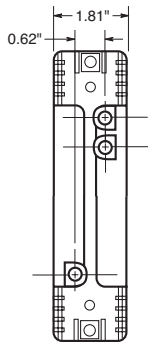
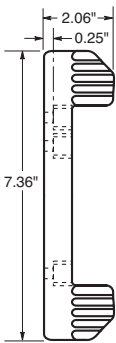


FIGURE 7.

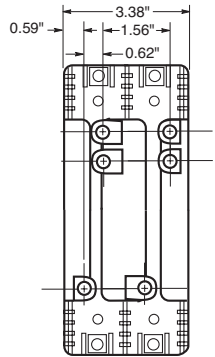


FIGURE 8.

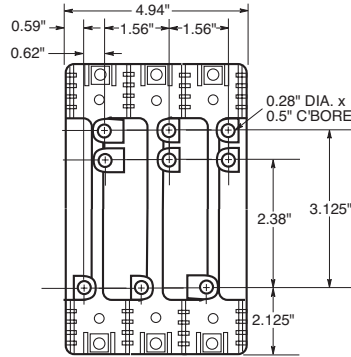


FIGURE 9.

250V, 101A to 600A

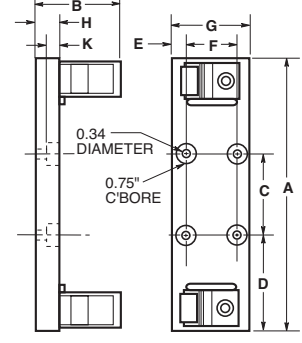


FIGURE 10.

250V, 101A to 200A

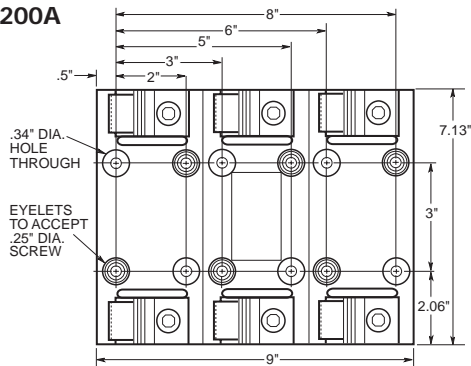
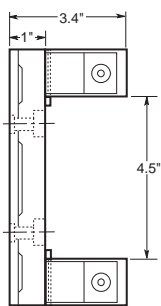


FIGURE 11.

250V, 201A to 600A

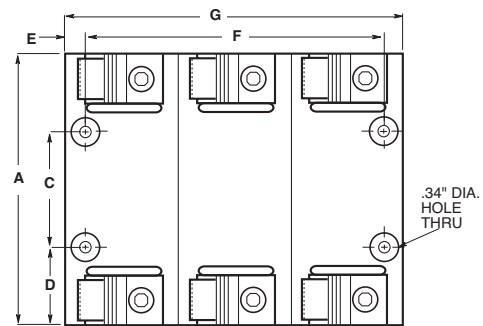
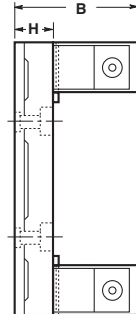


FIGURE 12.

Fuse Holders and Blocks

Class H(K) and R fuse blocks – 600V

H600 & R600 Series

Specifications

Descriptions:

H600 Series: fuse blocks for use with 1-, 2- and 3-pole Class H fuses.

R600 Series: fuse blocks for use with 1-, 2- and 3-pole Class R fuses (Cooper Bussmann LPS-RK, FRS-R, DLS-R and KTS-R fuses).

Dimensions: See Dimensions illustrations.

Construction: Thermoplastic.

Ratings:

Volts: — 600V (H600 & R600 Series)

Amps: — 1/0-600A

Withstand: — H600 Series; 10,000A RMS Sym.

— R600 Series; 200,000A RMS Sym.

Agency Information: CE, UL Listed UL512, Guide IZLT, File E14853; CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.



H60030-3C



H60030-2PR

Features and Benefits

- H600 fuse blocks provide one, two and three pole housing for Class H, K and R fuses at 600Vac.
- H600 fuse blocks are listed with a Short Circuit Current Rating of 10,000A RMS Sym.
- R600 fuse blocks provide one, two and three pole housing for Class R fuses at 600Vac.
- R600 fuse blocks are listed with a Short Circuit Current Rating of 200,000A RMS Sym.

Typical Applications

- 600 Volt or less Control Systems
- 600 Volt or less Industrial Control
- 600 Volt or less Individual Control Circuits

Specifications For Class H Fuse blocks (250V) Catalog Data (for NON and REN Fuses)

Basic Catalog Numbers	Amps	Poles	Terminal Type (Suffix No.)										Wire Range
			Screw					Box Lug w/					
			I	Clips w/ Rein. Spring	Pres. Plt.	Pres. Plt. & Clip w/ Rein. Spring	I	Clips w/ Rein. Spring	Clips w/ Rein. Spring CU Only	CU Only	0.25" Qck. Con.		
H60030-1	1/0-30	1	S	SR	P	PR	C	CR	COR	CO	Q	C, CR #2-14 CU, #2-12 AL	
H60030-2		2	S	SR	P	PR	C	CR	COR	CO	Q	CO, COR #6-14 CU ONLY	
H60030-3		3	S	SR	P	PR	C	CR	COR	CO	Q	P, PR, S, SR #10-18 CU ONLY	
H60060-1	31-60	1	—	—	—	—	C	CR	COR	CO	—	C, CR #2-14 CU, #2-8 AL	
H60060-2		2	—	—	—	—	C	CR	COR	CO	—	CO, COR #4-14 CU ONLY	
H60060-3		3	—	—	—	—	C	CR	COR	CO	—		
H60100-1	61-100	1	—	SR†	—	—	—	CR	COR	—	—	COR #1/0-8 CU ONLY	
H60100-2		2	—	SR†	—	—	—	CR	COR	—	—	CR #1/0-8 CU/AL	
H60100-3		3	—	SR†	—	—	—	CR	COR	—	—	SR #8W/ Ring Terminal	
H60200-1	101-200	1	—	—	—	—	—	CR	—	—	—	CR 250kcmil-6 CU/AL	
H60200-3		3	—	—	—	—	—	CR	—	—	—		
H60400-1	201-400	1	—	—	—	—	—	CR†	COR†	—	—	COR 500kcmil-4/0 CU Only	
H60400-3		3	—	—	—	—	—	CR†	—	—	—	CR 500kcmil-4 CU/AL	
H60600-1	401-600	1	—	—	—	—	—	CR	—	—	—	CR 500kcmil-4/0 CU/AL	
H60600-3		3	—	—	—	—	—	CR†	—	—	—		

† UL Recognized, CSA Certification.

‡ No UL, No CSA Certification.

Dimensions For Class H Fuse blocks (250V) Catalog Data (for NON and REN Fuses)

Basic Catalog Numbers	Fig. No.	Dimensions (in) — See next page for figures.									C' Bore	J Dia. X K
		A	B	C	D	E	F	G	H			
H60030-1	1			1.54								
H60030-2	2	6.25	1.73	2.90	1.56	0.25	0.62	3.13	1.56	0.28 x 0.5	0.26	
H60030-3	3			4.25								
H60060-1	4											
H60060-2	5											
H60060-3	6											
H60100-1	1			2.22								
H60100-2	2	9.5	2.38	4.03	2.63	0.67	0.88	4.25	1.81	0.28 x 0.50	0.34	
H60100-3	3			5.84								
H60200-1	7	9.63	3.09	3.0	3.31	0.5	2.0	3.0	0.75	—	0.31	
H60200-3	8											
H60400-1	7											
H60400-3	9	12.0	4.0	3.0	4.5	0.63	1.75	3.0	1.0	—	0.56	
H60600-1	7	14.0	4.97	3.0	5.5	1.125	1.75	4.0	1.0	—	0.56	
H60600-3	10											

Data Sheet: H600 Series, 1113; R600 Series, 1111

Fuse Holders and Blocks

Class H(K) and R fuse blocks – 600V

Catalog Numbers For Class R Fuse blocks (600V) Catalog Data (for LPS-RK, FRS-R, DLS-R and KTS-R Fuses)

Catalog Numbers	Amps	Poles	Terminal Type (Suffix No.)				Fig. No.	Dimensions(in)											Wire Range					
			Screw w/		Box Lug w/ 0.25"			A	B	C	D	E	F	G	H	J Dia. x C' Bore	K							
			—	Pres. Plate	—	Clip CU Only												Quick-Connect						
R60030-1	30	1	SR	PR	CR	COR	1			1.54													COR #6-14 CU Only	
R60030-2	to	2	SR	PR	CR	COR	2	6.25	1.73	2.90	1.56	0.25	0.62	3.13	1.56	0.28 x 0.5	0.26						CR #2-14 CU, #2-12 AL	
R60030-3	30	3	SR	PR	CR	COR	3			4.25													PR, SR #10-18 CU Only	
R60060-1	60	1	—	—	CR	COR	4																COR #2-14 CU Only	
R60060-2	to	2	—	—	CR	COR	5																CR #2-14 CU, #2-8 AL	
R60060-3	60	3	—	—	CR	COR	6																(See Figures)	
R60100-1	61	1	—	—	CR	COR	1	2.22																
R60100-2	to	2	—	—	CR	COR	2	9.5	2.38	4.03	2.63	0.67	0.88	4.25	1.81	0.28 x 0.5	0.34						COR 1/0 -8 CU Only	
R60100-3	100	3	—	—	CR	COR	3	5.84															CR, CRQ 1/0-8 CU/AL	
R60200-1	101	1	—	—	CR	—	CRQ†	7	9.63	3.09	3.0	3.31	0.5	2.0	3.0	0.75	—	0.31					CR, CRQ	
R60200-3	to	3	—	—	CR	—	—	8															250kcmil-6 CU/AL	
R60400-1	201	1	—	—	CR†	COR†	—	7	12.0	4.0	3.0	4.5	0.63	1.75	3.0	1.0	—	0.56					COR 500kcmil-4/0 CU Only	
R60400-3	to	3	—	—	CR†	—	—	9															CR, CRQ 1/0-8 CU/AL	
R60600-1	401	1	—	—	CR	—	—	7	14.0	4.97	3.0	5.5	1.125	1.75	4.0	1.0	—	0.56					CR (2) 500kcmil-4/0 CU/AL	
R60600-3	to	3	—	—	CR†	—	—	10															(See Figures)	
	600																							

†No UL, No CSA Certification.
‡UL Recognized, CSA Certification

Dimensions — 600V, 1/2A- 30A and 61A - 100A

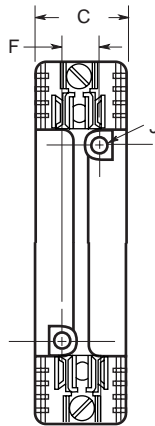
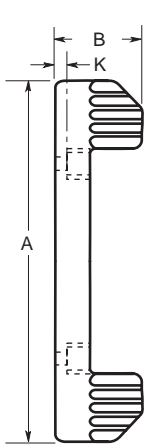


FIGURE 1.

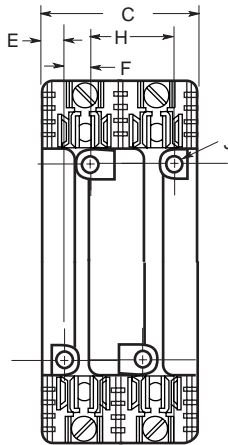


FIGURE 2.

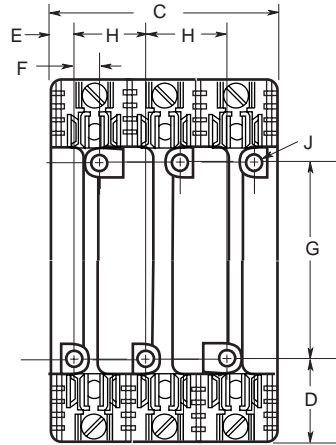


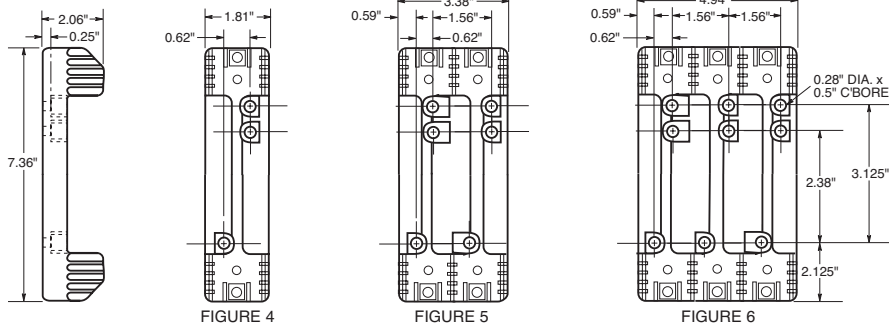
FIGURE 3.

Fuse Holders and Blocks

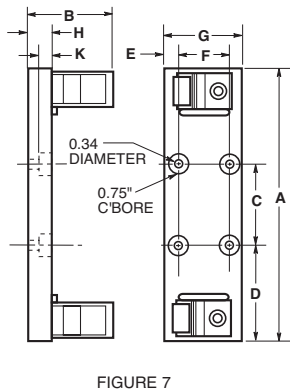
Class H(K) and R fuse blocks – 600V

Dimensions

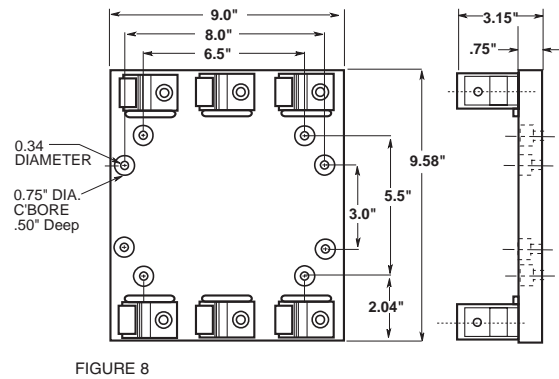
600V, 31A to 60A



600V, 101A to 600A

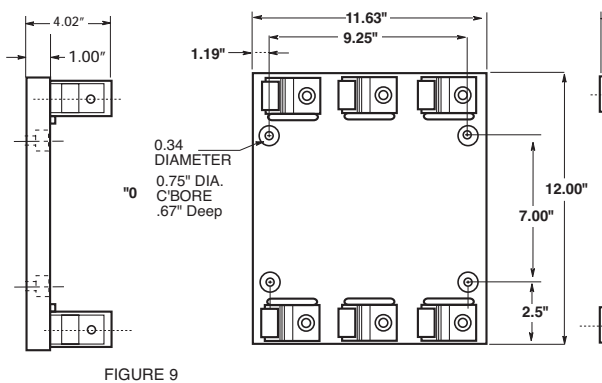


600V, 101A to 200A

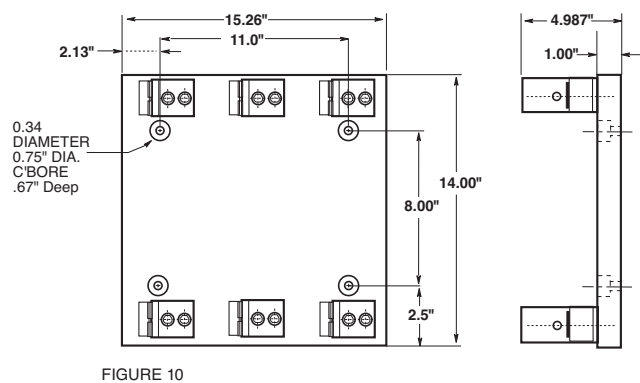


Fuse Holders & Blocks

600V, 201A to 400A



600V, 401A to 600A



Fuse Holders and Blocks

Class J fuse blocks

J600 Series

Specifications

Description: 1-, 2- or 3-pole fuse blocks for use with Class J fuses (Cooper Bussmann LPJ and JKS).

Dimensions: See Dimensions illustrations.

Construction: Thermoplastic.

Poles: 1 to 3

Ratings:

Volts: — 600V

Amps: — ½-600A

Withstand: — 200,000A RMS Sym.

Agency Information: CE, UL Listed, UL 512, Guide IZLT, File E14853, CSA Certified, C22.2 No. 39, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.



Features and Benefits

- J600 fuse blocks provide one, two and three pole housing for Class J fuses at 600Vac.
- J600 fuse blocks are listed with a Short Circuit Current Rating of 200,000A RMS Sym.

Typical Applications

- 600 Volt or less Control Systems
- 600 Volt or less Industrial Control
- 600 Volt or less Individual Control Circuits

Catalog Numbers

Catalog Numbers							
Screw†	Pressure Plate†	Box Lug	Box Lug w/ Retaining Clip	Amps	Poles	Fig. No.	Wire Range
J60030-1S(2)	J60030-1P	J60030-1C	J60030-1CR††		1	1	C, CR #2-14 CU, #2-8 AL
J60030-2S(2)	J60030-2P	J60030-2C	J60030-2CR††	1/2-30	2	2	COR #2-14 CU Only
J60030-3S(2)	J60030-3P	J60030-3C	J60030-3CR††		3	3	P, PR, S, SR #10-14 CU Only
—	—	J60060-1C	J60060-1CR††		1	1	C, CR, #2-14 CU/AL
—	—	J60060-2C	J60060-2CR††	31-60	2	2	COR #4-14 CU Only
—	—	J60060-3C	J60060-3CR††		3	3	
—	—	—	J60100-1CR	61-100	1	4	COR 1/0-8 CU ONLY
—	—	—	J60100-3CR††		3	5	CR, CRQ 1/0-8 CU/AL
—	—	—	J60200-1CR	101-200	1	6	CR 250kcmil-6 CU/AL
—	—	—	J60200-3CR		3	7	
—	—	—	J60400-1CR(3)	201-400	1	8	CR 500kcmil -4 CU/AL
—	—	—	J60400-3CR(3)		3	9	
—	—	—	J60600-1CR	401-600	1	10	CR (2) 500kcmil-4/0 CU/AL
—	—	—	J60600-3CR(2)		3	11	

†Clip reinforcing springs are standard on fuse blocks rated 100A and above. Available on 30A and 60A blocks by adding the letter "R" to the end of the part number.

††Copper only connections available by changing "CR" suffix to "COR".

(2)No UL, No CSA Certification

(3)UL Recognized, CSA Certification

Dimensions (±0.015)

½ - 60A

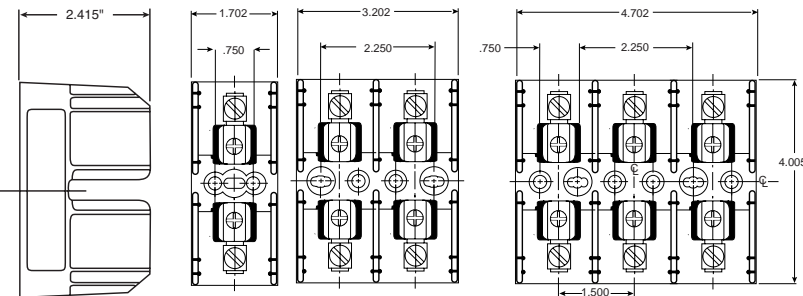


FIGURE 1.

FIGURE 2.

FIGURE 3.

61-100A

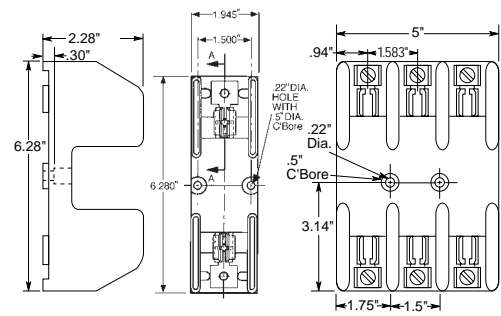


FIGURE 4.

FIGURE 5.

Data Sheet: 1114

Class J fuse blocks

101-200A

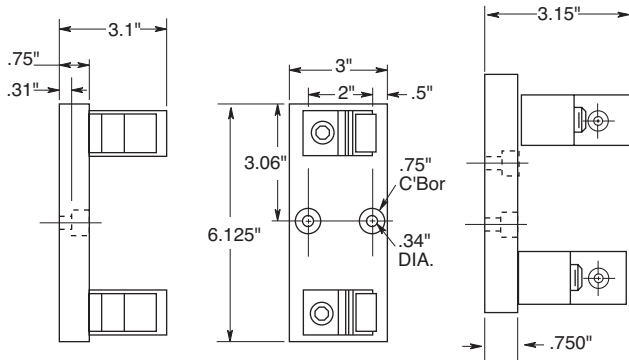


FIGURE 6.

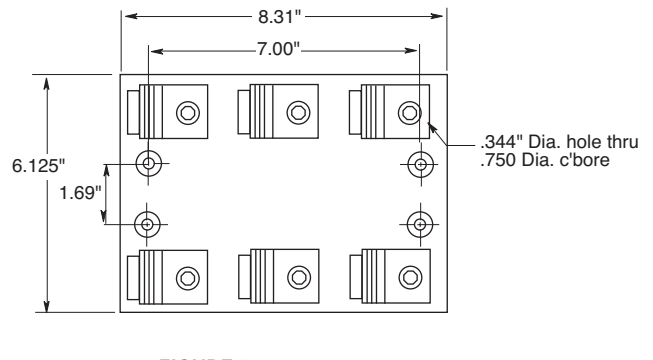


FIGURE 7.

201-400A

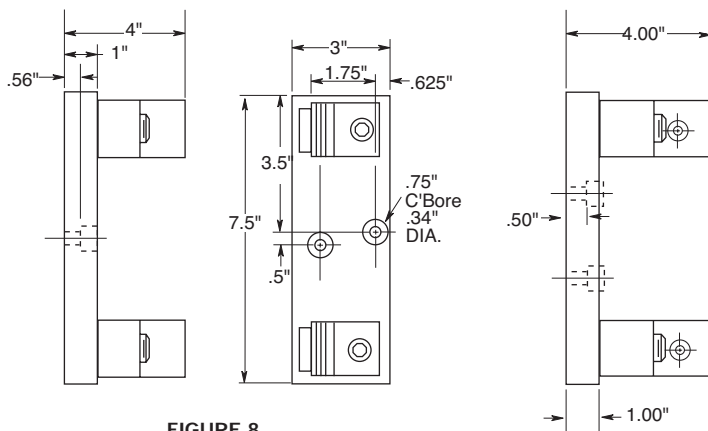


FIGURE 8.

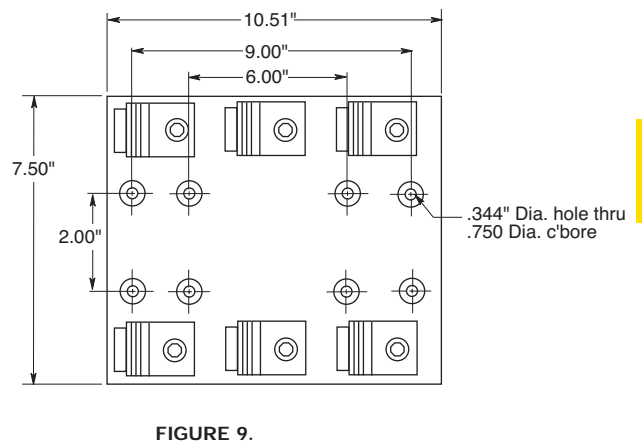


FIGURE 9.

401-600A

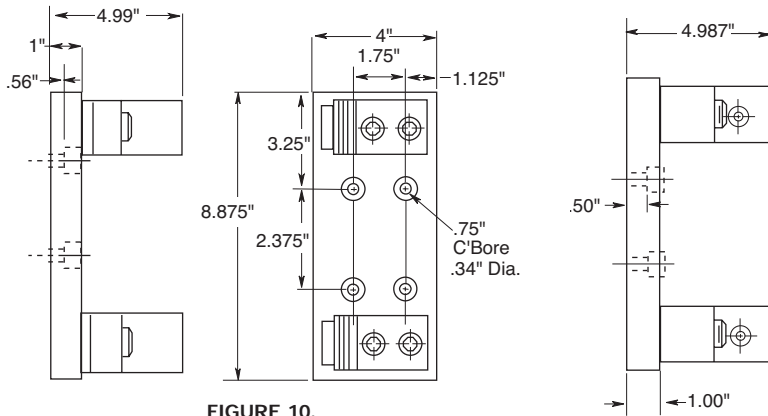


FIGURE 10.

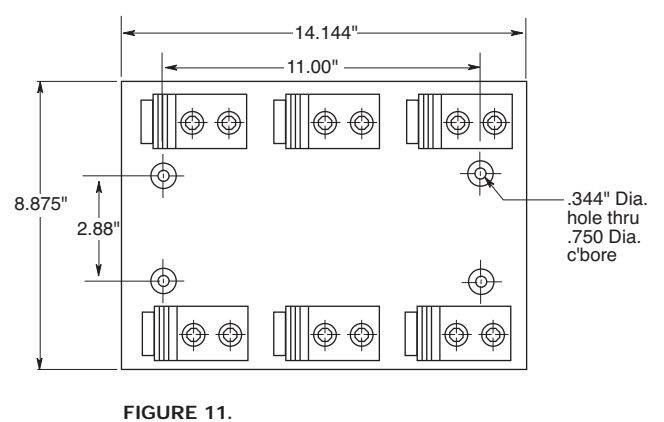


FIGURE 11.

Fuse Holders & Blocks

Fuse Holders and Blocks

Class J fuse blocks

JP Series

Specifications

Description: Pyramid style 3-pole fuse block for use with Class J fuses (Cooper Bussmann LPJ,JKS).

Dimensions: See Dimensions illustrations.

Construction: Thermoplastic, clips with reinforcing springs.

Ratings:

Volts: — 600V

Amps: — 0-30A

Withstand: — 200,000A RMS Sym.

Agency Information: CE, UL Listed, U.L. 512, Guide IZLT, File E14853, CSA Certified, C22.2 No. 39, Class 4225-04, File 47235.

Flammability Rating: UL 94V0.

Mounting: Panel or 35mm DIN-rail mount.

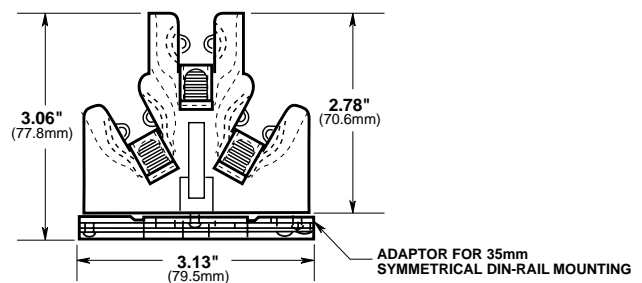
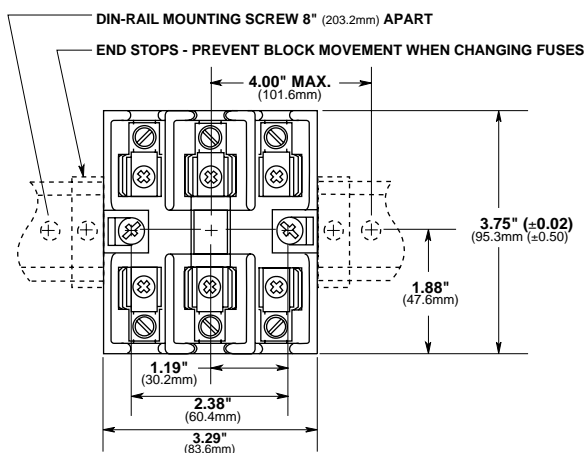
Catalog Numbers

Catalog Numbers	Mounting			Box		Wire Range
	Panel	With DIN Rail Adapter*	Screws with Pressure Plate	Aluminum	Copper Only	
JP60030-3PR	X		X			#10-14 CU Only
JP60030-3CR	X			X		#2-14 CU/AL
JP60030-3COR	X				X	#2-14 CU Only
JP60030-3PRA		X	X			#10-14 CU Only
JP60030-3CRA		X		X		#2-14 CU/AL
JP60030-CORA		X			X	#2-14 CU Only

*Adapter Only for DIN-Rail - Cat No. JPA-3.



Dimensions ± 0.015" (± 0.40mm)



Fuse Holders and Blocks

Class T fuse blocks – 300V

T300

Specifications

Description: T300 (300V) fuse blocks for use with Class T fuses (Cooper Bussmann JIN).

Dimensions: See Dimensions illustrations.

Construction: Glass polyester, phenolic on 600A, UL.

Poles: 1 to 4

Ratings:

Volts: — 300V

Amps: — ½ - 600A

Withstand: — 200,000A RMS Sym.

Agency Information: CE, UL Listed UL512, Guide IZLT, File E14853, CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.

Features and Benefits

- Provide 1-, 2- and 3-pole housing for 300Vac Class T fuses.
- Short Circuit Current Rating of 200,000A RMS Sym.
- Class T fuse blocks have a small foot print, providing substantial space savings in equipment

Typical Applications

- 300V or less Control Systems
- 300V or less Individual Control Circuits

Catalog Numbers

Catalog Numbers					
Screw	Box Lug	Amps	Poles	Fig. No.	Wire Range
T30030-2SR	T30030-2CR	1/2-30	2	1	SR #10-18 CU
T30030-3SR	T30030-3CR		3		CR #6-14 CU/AL
T30030-4SR	T30030-4CR		4		
T30060-2SR	T30060-2CR	31-60	2		CR #2-14 CU/AL
T30060-3SR	T30060-3CR		3	SR #10-18 CU Only	
T30060-4SR	T30060-4CR		4		
—	T30100-1CR	61-100	1	2	1/0-8 CU/AL
—	T30100-2CR		2		
—	T30100-3CR		3		
—	T30200-1C	101-200	1	3	250kcmil-6 CU/AL
—	T30200-3C		3	4	
—	T30400-1C	201-400	1	5	600kcmil-2/0 CU/AL
—	T30600-1C	401-600	1	6	(2) 600kcmil-4/0 CU/AL



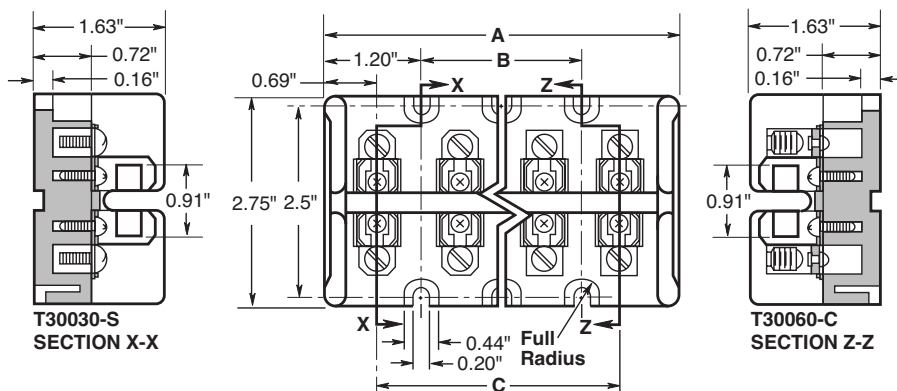
Class T Fuse blocks (300V) Catalog Numbers

Catalog Numbers	Dimensions (in)		
	A	B	C
T30030-2	2.41	—	1.03
T30060-2	2.41	—	1.03
T30030-3	3.44	1.03	2.06
T30060-3	3.44	1.03	2.06
T30030-4	4.47	2.06	3.09
T30060-4	4.47	2.06	3.09

Fuse Holders & Blocks

Dimensions

Figure 1. ½-60A



Data Sheet: 1115

Fuse Holders and Blocks

Class T fuse blocks – 300V

Figure 2. 61A to 100A

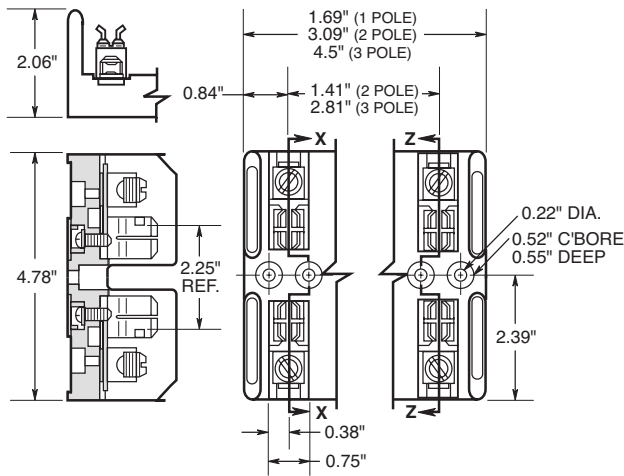


Figure 3. 101A to 200A

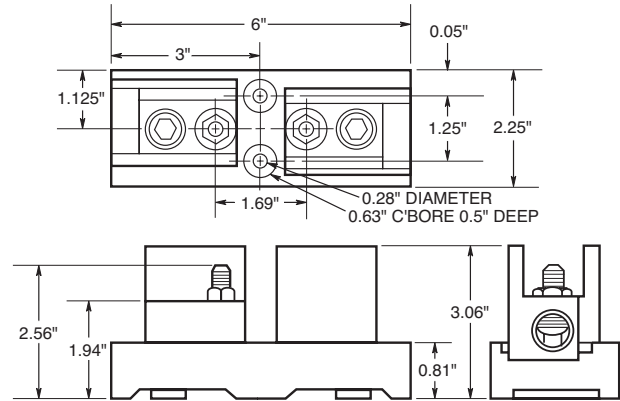


Figure 4. 200A

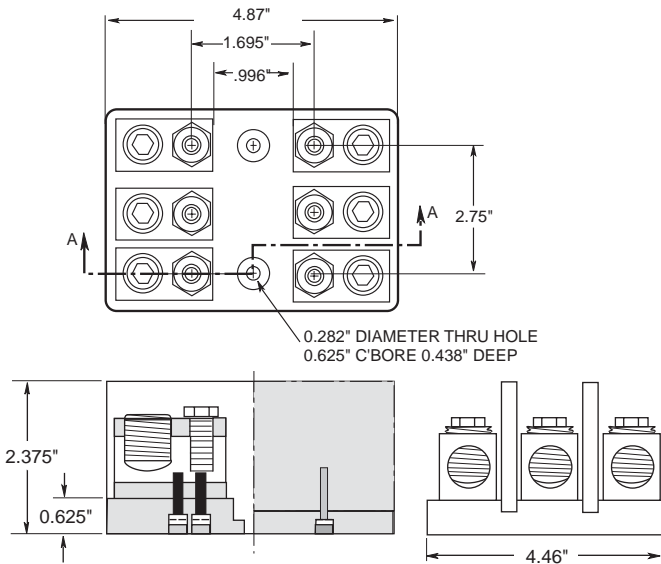


Figure 5. 201A to 400A

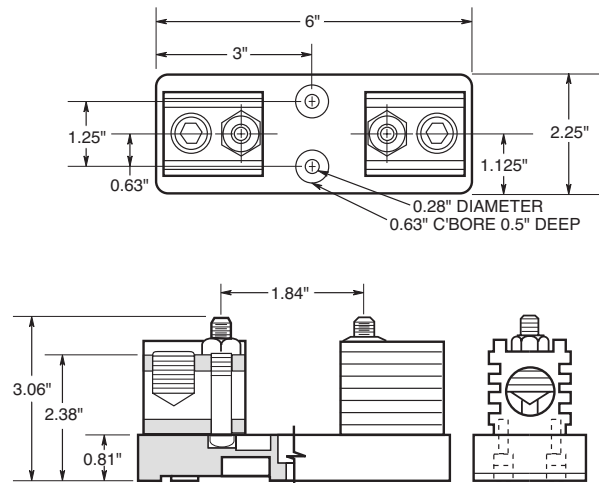
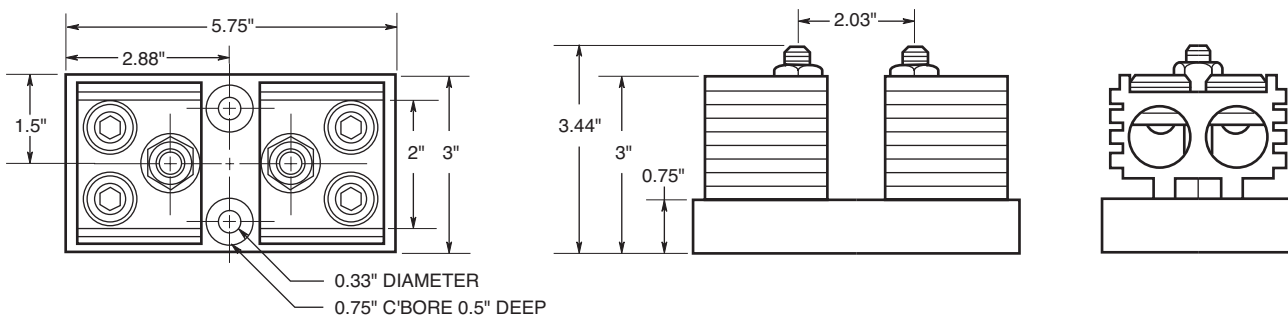


Figure 6. 401A to 600A



Fuse Holders and Blocks

Class T fuse blocks – 600V

T600

Specifications

Description: T600 (600V) fuse blocks for use with Class T fuses (Cooper Bussmann JJS).

Dimensions: See Dimensions illustrations.

Construction: Glass polyester, phenolic on 600A.

Poles: 1 to 3

Ratings:

Volts: — 600V

Amps: — ½ - 600A

Withstand: — 200,000A RMS Sym.

Agency Information: CE, UL Listed UL512, Guide IZLT, File E14853, CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.

Features and Benefits

- Provide 1-, 2- and 3-pole housing for 600Vac Class T fuses.
- Short Circuit Current Rating of 200,000A RMS Sym.
- Class T fuse blocks have a small foot print, providing substantial space savings in equipment

Typical Applications

- 600V or less Control Systems
- 600V or less Individual Control Circuits



T60600-1C



T30030-2CR

Catalog Numbers

Catalog Numbers					
Screw	Box Lug	Amps	Fig. Poles	No.	Wire Range
T60030-1SR	T60030-1CR	½-30	1	1	SR #10-18 CU
T60030-2SR	T60030-2CR		2		CR #2-14 CU/AL
T60030-3SR	T60030-3CR		3		CR #2-14 CU/AL
T60060-1SR	T60060-1CR	31-60	1	2	CR #2-14 CU/AL
T60060-2SR	T60060-2CR		2		SR #10-18 CU Only
T60060-3SR	T60060-3CR		3		SR #10-18 CU Only
—	T60100-1C	61-100	1	3	2/0-14 CU/AL
—	T60100-2C		2		
—	T60100-3C		3		
—	T60200-1C	101-200	1	4	250kcmil-6 CU/AL
—	1B0089*		3		
—	T60400-1C	201-400	1	5	600kcmil-2/0 CU/AL
—	T60600-1C	401-600	1	6	(2) 600kcmil-4/0 CU/AL

* UL Listed, Guide IZLT, File E14853, CSA Certified Class 6225-01, File 21455M18

Fuse Holders & Blocks

Dimensions

Figure 1. ½A to 30A

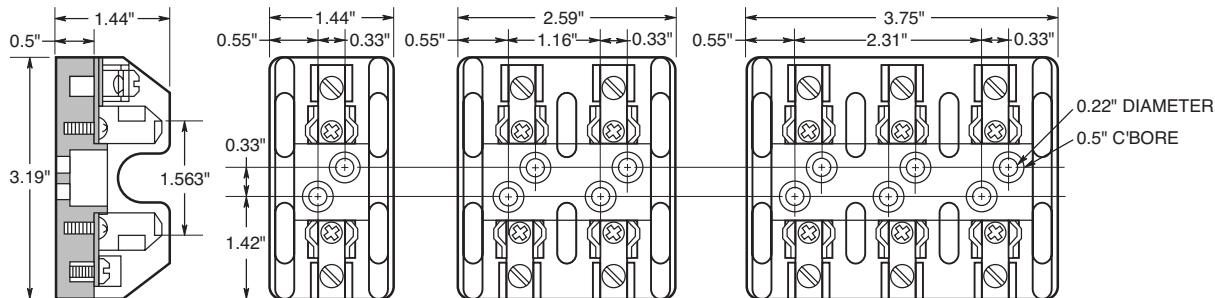
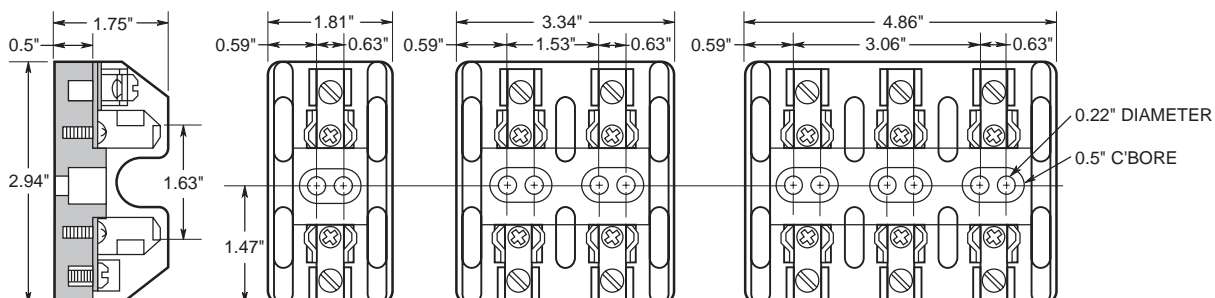


Figure 2. 31A to 60A



Data Sheet: 1116

Fuse Holders and Blocks

Class T fuse blocks – 600V

Figure 3. 61A to 100A

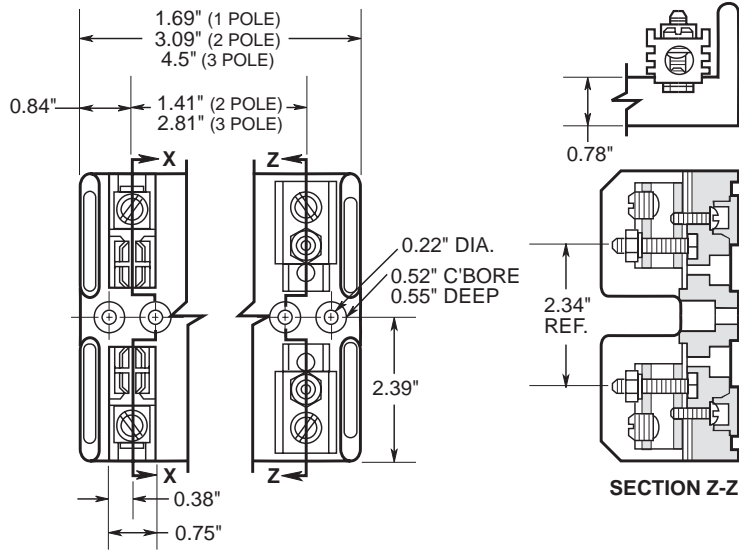


Figure 4. 101A to 200A

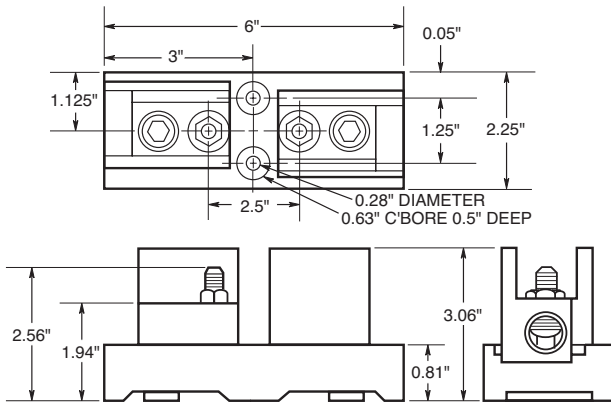


Figure 5. 201A to 400A

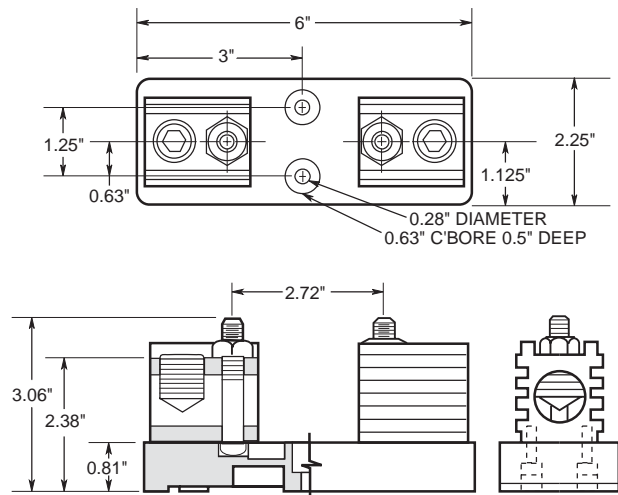
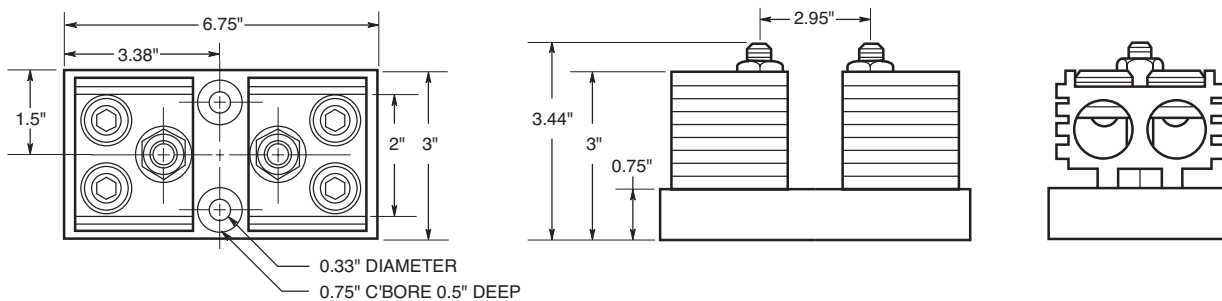


Figure 6. 401A to 600A



Add-a-pole fuse blocks

BCA Series - Class CC fuses BMA Series - 1 1/2" X 1 1/2" fuses

Specifications

Description: 1-, 2 and 3-pole fuse blocks for use with Class CC fuses (BCA Series use Cooper Bussmann LP-CC, KTK-R, and FNQ-R), or with standard 1 1/2 x 1 1/2" fuses (BMA Series use Cooper Bussmann KTK, FNQ, FNM, BAF, BAN and AGU) Both Series use an "adder block" to form multi-pole segmented blocks to achieve the desired number of poles.

Dimensions: See Dimensions illustration.

Construction: Thermoplastic base with bright tin-plated bronze clips.

Poles: 1 to 3.

Wire Range: #10-#18 CU only.

Terminals: Screw/quick connect* or pressure plate/quick connect*.

Ratings:

Volts: — 600V

Amps: — 1/0-30A

Withstand: — 200,000A
RMS Sym.

Agency Information:

BCA Series: CE, UL Listed, UL 512, Guide IZLT, File E14853. CSA Certified, C22.2 No. 39, Class 6225-01, File 47235.

BMA Series: CE, UL Recognized, UL 512, Guide IZLT2, File E14853. CSA Certified, C22.2 No. 39, Class 6225-01, File 47235.

Flammability Rating: UL 94V0

*Quick connect rated for 20A maximum.

Catalog Numbers

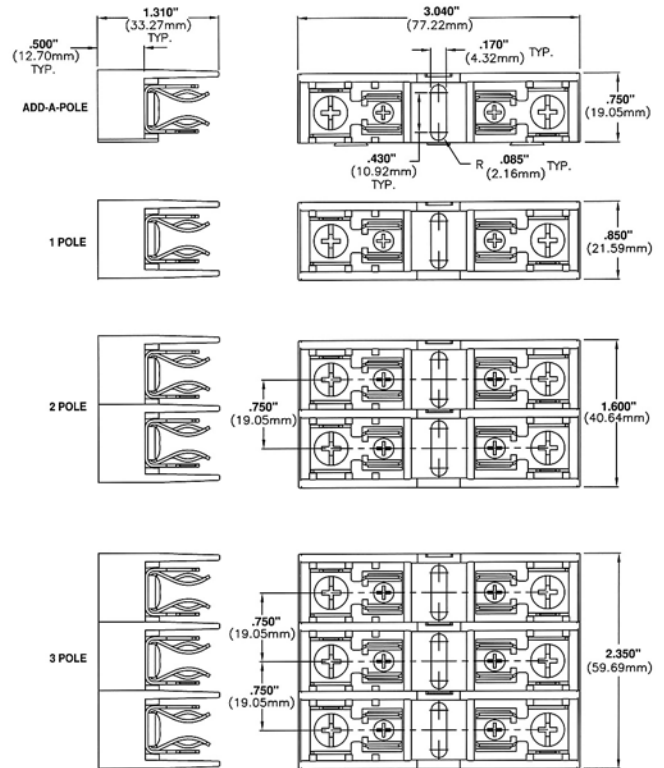
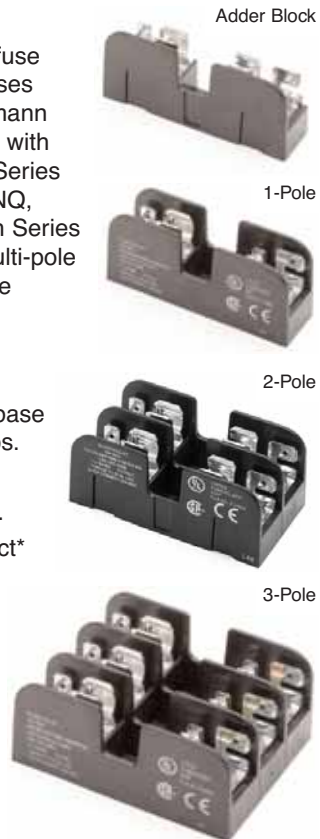
BCA Series

Catalog Numbers	Poles	Terminal Type
BCA603ASQ	Adder Block	Screw w/ quick connect
BCA6031SQ	1	Screw w/ quick connect
BCA6032SQ	2	Screw w/ quick connect
BCA6033SQ	3	Screw w/ quick connect
BCA603APQ	Adder Block	Pressure plate w/ quick connect
BCA6031PQ	1	Pressure plate w/ quick connect
BCA6032PQ	2	Pressure plate w/ quick connect
BCA6033PQ	3	Pressure plate w/ quick connect

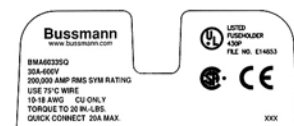
BCM Series

Catalog Numbers	Poles	Terminal Type
BMA603ASQ	Adder Block	Screw w/ quick connect
BMA6031SQ	1	Screw w/ quick connect
BMA6032SQ	2	Screw w/ quick connect
BMA6033SQ	3	Screw w/ quick connect
BMA603APQ	Adder Block	Pressure plate w/ quick connect
BMA6031PQ	1	Pressure plate w/ quick connect
BMA6032PQ	2	Pressure plate w/ quick connect
BMA6033PQ	3	Pressure plate w/ quick connect

Dimensions ± 0.015" (0.38mm)



FUSEBLOCK MARKING (EXAMPLE SHOWN)



Fuse Holders & Blocks

Data Sheets: BCA Series 1154, BMA Series 1155

Fuse Holders and Blocks

Class CC, Type M and Class G fuse blocks

BC Series



Specifications

Description: Class CC fuse blocks for use with Class CC fuses (Cooper Bussmann LP-CC, KTK-R, and FNQ-R).

Dimensions: See Data Sheet 1105 (available on the web at www.cooperbussmann.com).

Construction: Thermoplastic base.

Poles: 1 to 3

Ratings:

Volts: — 600V

Amps: — 1/0-30A

Withstand:— 200,000A RMS Sym.

Agency Information: CE, UL Listed (Guide IZLT, File E14853), CSA (Class 6225-01, File 47235)

Flammability Rating: UL 94V0

DIN Rail Adapters: See page 358 for DRA-1 & DRA-2

Catalog Numbers

Catalog Numbers					
Terminal Type					
Screw	Screw with Quick Connect*	Pressure Plate	Pressure Plate w/ Quick Connect*	Box Lug	Poles
BC6031S	BC6031SQ	BC6031P	BC6031PQ	BC6031B	1
BC6032S	BC6032SQ	BC6032P	BC6032PQ	BC6032B	2
BC6033S	BC6033SQ	BC6033P	BC6033PQ	BC6033B	3

Data Sheet: 1105

BCCM Series

Specifications

(See Data Sheet 1106 for details)

Description: 3-pole fuse block for use with (2) Class CC fuses and (1) 1³/₂" x 1¹/₂" fuse

Catalog Numbers

Catalog Numbers	Terminal Type
BCCM6033SQ	Screw with Quick-Connect*
BCCM6033PQ	Pressure Plate w/Quick-Connect*

*Quick-connect terminal rated for 20A max.

Data Sheet: 1106

BM Series Type M



Specifications

Description: Supplementary fuse blocks for use with any 1³/₂" x 1¹/₂" fuses (Cooper Bussmann® KTK, FNQ, FNM, BAF, BAN, and AGU).

Dimensions: See Data Sheet 1104 (available on the web at www.cooperbussmann.com).

Construction: Thermoplastic base.

Poles: 1 to 3

DIN Rail Adapters: See page 358 for DRA-1 & DRA-2

Ratings:

Volts: — 600V

Amps: — 1/0-30A

Withstand:— 10,000A RMS Sym.

Agency Information: CE, UL Recognized (Guide IZLT2, File E14853), CSA (Class 6225-01, File 47235).

Flammability Rating: UL 94V0.

Catalog Numbers

Catalog Numbers				
Terminal Type				
Screw with Quick Connect*	Pressure Plate w/ Quick Connect*	Box Lug	Poles	
BM6031SQ	BM6031PQ	BM6031B	1	
BM6032SQ	BM6032PQ	BM6032B	2	
BM6033SQ	BM6033PQ	BM6033B	3	

Data Sheet: 1104

BG & G Series



Specifications

Description: Class G fuse blocks for use with Class G fuses (Cooper Bussmann SC).

Dimensions: See Data Sheet 1106 (available on the web at www.cooperbussmann.com).

Construction: 0-30A thermoplastic base, 35-60A phenolic base.

Poles: 1 to 3

Ratings:

Volts: — 600V (0-20A)

— 480V (25-60A)

Amps: — 1-60A (See Catalog Numbers table)

Withstand: — 100,000A RMS Sym.

Agency Information: CE, UL Listed 35-60A (Guide IZLT, File E14853), UL Recognized 1-30A, (Guide IZLT2, File E14853), CSA (Class 6225-01, File 47235).

DIN Rail Adapters: See page 358 for DRA-1 & DRA-2.

Catalog Numbers

Catalog Numbers						
Terminal Type						
Screw with Quick Connect*	Pressure Plate w/ Quick Connect*	Box Lug	Box Lug w/retaining clip	Amps	Poles	
BG3011SQ	BG3011PQ	BG3011B	—	1-15	1	
BG3012SQ	BG3012PQ	BG3012B	—		2	
BG3013SQ	BG3013PQ	BG3013B	—		3	
BG3021SQ	BG3021PQ	BG3021B	—	20	1	
BG3022SQ	BG3022PQ	BG3022B	—		2	
BG3023SQ	BG3023PQ	BG3023B	—		3	
BG3031S	BG3031P	BG3031B	—	25-30	1	
BG3032S	BG3032P	BG3032B	—		2	
BG3033S	BG3033P	BG3033B	—		3	
—	—	—	G30060-1CR	35-60	1	
—	—	—	G30060-2CR		2	
—	—	G30060-3C	G30060-3CR		3	

Data Sheet: 1106

Modular fuse blocks

BH Series



Specifications

Description: For use with Cooper Bussmann semiconductor fuses.

Construction: Light weight, high temperature thermoplastic base with spring steel washer, and plated steel mounting studs and nuts.

Ratings:

Withstand: — 200,000A RMS Sym. or fuse IR, whichever is smaller.

Agency Information: CE, UL Recognized, Guide EZLT2, File No. E14853 up to 700V, CSA Certified, Class 6225-01, File No. 47235 up to 700V.

BH Series Features and Benefits

- BH fuse blocks provide a wide range of mounting configurations for Cooper Bussmann High Speed (Semi-conductor) fuses.
- BH fuse blocks have a Short Circuit Current Rating of any installed fuse up to 200,000A RMS Sym.

Typical Applications

- Solid State Control Circuits
- VFDs
- UPS Systems

Catalog Numbers

BH-0001	BH-0122	BH-2001	BH-3004
BH-0002	BH-1001	BH-2002	BH-3033
BH-0003	BH-1002	BH-2003	BH-3144
BH-0111	BH-1003	BH-2031	BH-3145
BH-0112	BH-1131	BH-2032	
BH-0113	BH-1132	BH-2033	
BH-0121	BH-1133	BH-3003	

Refer to the data sheet numbers below for the catalog code description information.

Data Sheet: (BH-0) 1200; (BH-1) 1201; (BH-2) 1202; (BH-3) 1203

Modular Type Fuse blocks for Class H & J Fuses



Specifications

Description: 3-Pole only, modular type fuse blocks for Class H & J fuses with standard reinforced retaining clips.

Ratings:

- Volts: — 250V (0-60A See Catalog Numbers table)
 — 600V (35-60A See Catalog Numbers table)
- Amps: — 0-60A @ 250V (See Catalog Numbers table)
 — 35-60A@600V (See Catalog Numbers table)

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853, CSA Certified, Class 6225-01, File 47235.

Class H & J Features and Benefits

- H & J modular fuse blocks provide three pole 30 and 60 amp ratings for specific client requirements for separate line and load fuse clip configurations.

Typical Applications

- Up to 60A, space confined, control circuits

Catalog Numbers

Catalog Numbers					
Screw	Pressure Plate	Fuse Class	Volts	Amps	Fig. No.
11241-3SR*	11241-3PR*	H	250	60	1
11242-3SR	11242-3PR				2
11241-3SR	11241-3PR		600	35	1
11242-3SR**	11242-3PR**				2
11239-3SR	11239-3PR	J	600	60	1
11240-3SR**	11240-3PR**				2
11241-3SR	11241-3PR		600	35	1
11239-3SR*	11239-3PR*				60	1

Note: Order two blocks per fuse (matched or mixed.)

*11239 and 11241 have wire terminals and mounting holes located under fuse. (Figure 1)

**11240 and 11242 have wire terminals and mounting holes located at end of fuse. (Figure 2)



Figure 1



Figure 2

Fuse Holders and Blocks

Box cover units for plug fuses

SOU, SRU, SSU, SOW, SRW, SSW, SOX, SRX, SSX, SOY, SRY, SSY, SSY-RL, SSY-L, STY, SCY, SOY-B & SKA

Specifications

Description: Box covers for standard electrical boxes that provide fused outlet, fused switch or circuit fuse protection.

Ratings:

Volts: — 125V/250V (See Catalog Numbers table)

Amps: — 0-15A (See Catalog Numbers table)

Agency Information: CE, See Catalog Numbers table.



Features/Benefits

- Cooper Bussmann Box Cover Units provide a low-cost method of controlling and protecting small motors when used with Cooper Bussmann Type T, Fusetron®, dual-element fuses.
- Provide low-cost supplementary protection and disconnection of 125V or less, single phase circuits.

Typical Applications

- Fractional Horsepower, 125 Volt Single-Phase Motor Circuits
- General 125 Volt Supplemental Circuits

Catalog Numbers

Catalog Numbers	Type Box	Fuse holder		Receptacle Outlet to Load		Switch Control ¹	Switch Light ²	Motor Size (Max)	General Data	Agency ⁴ Listing/Certification
		Single	Double	125V	250V					
SOU		X						¾hp	125V, 15A	UL, CSA
SRU	2¼" Handy	X		X				½hp	125V, 15A	UL
SSU ⁵		X				X		½hp	125Vac, (do not use on dc), 15A	UL, CSA
SOW		X						¾hp	125V, 15A	UL, CSA
SRW	2¾" Switch	X		X				½hp	125V, 15A	UL
SSW		X				X		½HP	125Vac, (do not use on dc), 15A	UL, CSA
SOX		X						¾hp	125V, 15A	UL, CSA
SRX	4" Octagon	X		X				½hp	125V, 15A	UL
SSX		X				X		½hp	125Vac, (do not use on dc), 15A	UL, CSA
SOY		X						¾hp	125V, 15A	UL, CSA
SRY		X		X				½hp	125V, 15A	UL
SSY		X				X		½hp	125Vac, (do not use on dc), 15A	UL, CSA
SSY-RL	4" Square	X		X		X	X	½hp	125Vac, (do not use on dc), 15A	—
STY ³			X			X		½hp	125Vac, (do not use on dc), 15A	UL
SCY			X			X(2)		½hp (2)	125Vac, (do not use on dc),	
									can protect two motors, 15A	UL
SOY-B			X					¾hp	125V, protects two motors, 15A	UL
SKA	4½" Square		X		X(15A)			2hp	250V, 15A single phase	UL

¹ Switch turns power to fused load OFF or ON.

² Switch light indicates power to load (dark when switch OFF or fuse open).

³ Double-pole switch opens both side of circuit. STY can be used for two separate 125V motors not larger than ½hp with the common switch, or a single motor not larger than 2hp at 250V (Maximum of 150V to ground).

⁴ UL Guide JAMZ, File IE6491; CSA Class 6225-01, File 47235.

⁵ Weatherproof version available, Part No. SSN.

In-line fuse holders for ¼" x ⅞" to 1¼" fuses

HFB & HFB-10



Specifications

Description: Waterproof in-line fuse holder for ¼" x 1¼" fuses.

Dimensions: See Dimensions illustration.

Construction: Thermoplastic rubber body with tin-plated, copper contacts.

Ratings:

Volts: — 32V

Amps: — 30A

Catalog Numbers

Catalog Numbers	Description
HFB*	Standard Pack (10-in)
BK/HFB	Bulk Pack (20-in)
BK/1A2294	HFB Replacement Contact Clip
1A2294-01	HFB-10** Replacement Contact Clip

*HFB accepts #12 to #18 wire leads (not provided). See Data Sheet for recommended crimp tools.

**HFB-10 accepts #10 wire leads (not provided). See Data Sheet for recommended crimp tools.

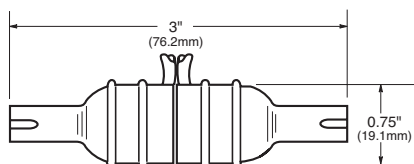
Features/Benefits

- Simple assembly with one-piece thermoplastic (important information molded into body)
- High visibility yellow color for easy identification in dark or hard-to-access locations
- Ideal for shock and vibration environments; withstands many organic solvents; temperature range -40/+150°C

Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

Dimensions



Data Sheet: 2102

HHB



Specifications

Description: Universal in-line fuse holder for ¼" x ⅞", 1" and 1¼" fuses.

Dimensions: See Dimensions illustration.

Construction: Nylon body with tin-plated, copper contacts.

Ratings:

Volts: — 32V

Amps: — 30A

Flammability Rating: UL 94V2.

Pull Force: 5lbs minimum to separate fuse holder housing with fuse installed.

Features and Benefits

- HHB Universal in-line fuse holder for ¼" x ⅞", 1" and 1¼" fuses.

Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Numbers

Holder — without leads*	Description
HHB	Standard Pack (10-in)
BK/HHB	Bulk Pack (100-in)

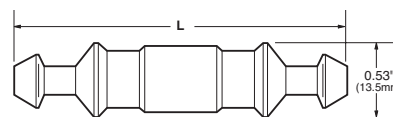
Holder — with pre-attached #14 Insulated lead wires

Catalog Numbers	19" Length	8" Length	Wire Color
BK/HHB-Y419	BK/HHB-Y408		Yellow
BK/HHB-R419	BK/HHB-R408		Red
BK/HHB-B419	BK/HHB-B408		Black

*Accepts #12 to #16 wire leads (not provided with basic fuse holder). See Data Sheet for recommended crimp tools.

Dimensions

Fuse Length	Fuse Holder Length "L"
⅞" (AGW)	2.100 Max
1" (AGX)	2.250 Max
1¼" (AGC, MDL)	2.420 Max



Data Sheet: 2103

HRK



Specifications

Description: Universal in-line fuse holder for ¼" x ⅞" to 1¼" fuses.

Dimensions: See Dimensions illustration.

Construction: 8" (203mm) #14 lead wires staked and soldered to fuse holder contacts.

Ratings:

Volts: — 32V

Amps: — 15A

Features and Benefits

- HRK Universal in-line fuse holder for ¼" x ⅞", 1" and 1¼" fuses with #14 lead wires.

Typical Applications

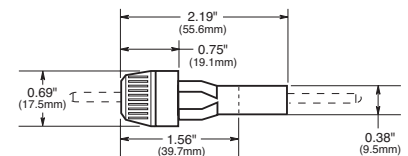
- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Number

Catalog Number	Amp Rating	Volts	Fuse Description
HRK*	15	32	¼" diameter fuses of different lengths.

*Three springs furnished with fuse holder to accommodate different length ¼" fuses.

Dimensions



Data Sheet: 2111

Fuse Holders & Blocks

Fuse Holders and Blocks

In-line fuse holders

HR and HM Series

Specifications

Description: In-line fuse holders for SFE and ¼" dia. x various length fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 32V

Amps: — 20A

Features and Benefits

- HR and HM Universal in-line fuse holder for SFE and various length ¼" diameter fuses with #14 lead wires.

Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Numbers

Catalog Numbers	Includes Fuse	Wire Length & Size
HRJ*	SFE-20	19" of #14
HRI	SFE-14	
HRH	SFE-9	
HRE	SFE-7½	
HRG	SFE-6	
HRF	SFE-4	
HMJ**	SFE-20	8" of #14
HMI	SFE-14	
HMH	SFE-9	
HME	SFE-7½	
HMG	SFE-6	
HMF	SFE-4	

* Also available as in-line fuse holder only with lead wire contacts, HRJ-LESS-Fuse.

** Also available as in-line fuse holder only with lead wire contacts, HMJ-LESS-Fuse.

HHJ-A For ¼" x 1¼" fuse, no wire or fuse included, accepts #18 - #22 wire.

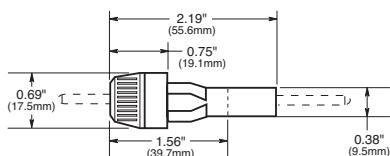
HHJ-B For ¼" x 1¼" fuse, no wire or fuse included, accepts #12 - #16 wire.

HHi-B For ¼" x 1½" fuse, no wire or fuse included, accepts #12 - #16 wire.

Replacement Contacts

Catalog Number	Symbol
9838	HHJ-A
9841	HHJ-B

Dimensions



HFA Series

Specifications

Description: In-line waterproof fuse holders for ¼" x 1¼" fuses.

Dimensions: See Dimensions illustration.

Construction: Phenolic body with copper crimp contact leads.

Ratings:

Volts: — 250V

Amps: — 20A

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853) UL.

Flammability Rating: UL 94V0.

Features and Benefits

- HFA in-line, waterproof fuse holder for ¼" x 1¼" fuses.

Typical Applications

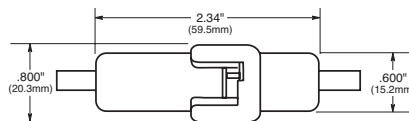
- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Numbers

Catalog Numbers	Terminals
HFA	Crimp #12 - #16
HFA-HH*	¼" Quick Connect

*No UL Recognition.

Dimensions



HHT Series

Specifications

Description: In-line fuse holders for 5 x 15mm or 5 x 20mm fuses.

Dimensions: See Dimensions illustration.

Construction: Black thermoplastic body with brass contacts, wire: 16 AWG, red.

Ratings:

Volts: — 32V

Amps: — 5A (5 x 15mm)

— 10A (5 x 20mm)

Features and Benefits

- HHT in-line fuse holders for 5 x 15 mm and 5 x 20 mm fuses.

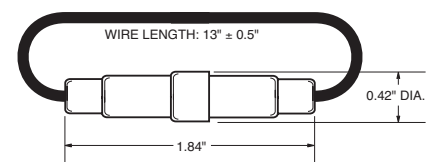
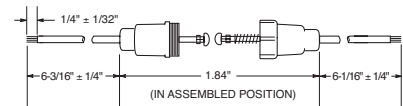
Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Numbers

Catalog Number	Fuse Size
HHT	5 x 15mm & 5 x 20mm

Dimensions



Fuse Holders and Blocks

Tron® in-line fuse holders

HEG Series



Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC fuses, 480V (or less).

Ratings:

Volts: — 600V

Amps: — 0-15A

Fuse Size: 1³/₃₂" x 1⁵/₁₆"

Catalog Number

HEG-AA

Data Sheet: 2124

HEH Series



Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC fuses (Also fuse types BBS & KTQ, nominal size 1³/₃₂" x 1³/₈").

Ratings:

Volts: — 600V

Amps: — 0-20A

Agency Information:

CSA - 15A.

Catalog Numbers

HEH-AA, HEH-BB, HEH-AD

Data Sheet: 2124

HEC Series



Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC-25, & SC-30 fuses, size 1³/₃₂" x 1⁵/₈".

Ratings:

Volts: — 480V

Amps: — 0-30A

Catalog Numbers

HEC-AA, HEC-RW-RLB-R

Data Sheet: 2124

HEJ Series



Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC and Type HVW fuses, size 1³/₃₂" x 2¹/₄".

Ratings:

Volts: — 480V

Amps: — 35-60A Type SC
— 1/2-6A Type HVW

Catalog Numbers

HEJ-AA, HEJ-AB, HEJ-AC, HEJ-BB, HEJ-JJ, HEJ-JK, HEJ-LL, HEJ-LLB, HEJ-CC, HEJ-DD, HEJ-WW, HEJ-PP, HEJ-QQ

Data Sheet: 2123

HEB Series



Specifications

Description: Single-pole in-line fuse holders for any 1³/₃₂" x 1¹/₂" fuses (typically fuse types: BAF, FNM, FNQ, and KTK 1/0 - 30A).

Ratings:

Volts: — 600V

Amps: — 0-30A

Catalog Numbers

See Page 261

Data Sheet: 2127

HET Series



Specifications

Description: Single-pole in-line fuse holders for 1³/₃₂" x 1¹/₂" fuses with a permanently solid neutral identified by white plastic coupling nut.

Catalog Numbers

HET-AA, HET-AB, HET-AW, HET-AW-RCL-A, HET-AW-RCL-B, HET-AW-RCL-C, HET-AW-RCL-J, HET-AW-RYC, HET-BB, HET-BW-RLC-B, HET-BW-RYC, HET-JJ, HET-JK, HET-JW, HET-JW-RLC-J, HET-JW-RYC, HET-KK

Data Sheet: 2125

HEY Series



Specifications

Description: Double-pole in-line fuse holders for KTK-R fuses with optional breakaway receptacle, polarized, and accepting Class CC branch circuit fuses (Cooper Bussmann KTK-R, FNQ-R & LP-CC; 600V or less, 200,000A IR).

Ratings:

Volts: — 600V

Amps: — 0-30A

Catalog Numbers

HEY-AA, HEY-AB, HEY-AC, HEY-AD, HEY-AE, HEY-AL, HEY-AW-DRLC-A, HEY-AW-DRLC-B, HEY-AW-DRYC, HEY-BB, HEY-JJ

Data Sheet: 2126

HEX Series



Specifications

Description: Double-pole in-line fuse holders for 1³/₃₂" x 1¹/₂" fuses (typically fuse types BAF, FNM, FNQ, and KTK 1/0 - 30A).

Ratings:

Volts: — 600V

Amps: — 0-30A

Catalog Numbers

HEX-AA, HEX-AB, HEX-AC, HEX-AD, HEX-AE, HEX-AW, HEX-AW-DRLC-A, HEX-AW-DRYC, HEX-AY, HEX-BB, HEX-CC, HEX-JJ, HEX-JK, HEX-JW-DRYC, HEX-KK

Data Sheet: 2126

Fuse Holders & Blocks

Fuse Holders and Blocks

For HEB holders only

Directions: To select complete holder P/N, work from left to right starting with load terminal options and then line terminal options. Then determine breakaway or non-breakaway style.

Catalog Numbers		Load Terminal					Line Terminal				
Non-Breakaway Catalog Numbers (Boots not included)	Breakaway Catalog Numbers (Boots included)	Terminal Type	Wire Size	No. of Wires per Terminal	Solid Wire	Stranded Wire	Terminal Type	Wire Size	No. of Wires per Terminal	Solid Wire	Stranded Wire
HEB-AA(1)(2)(3)	HEB-AW-RLC-A(1)(2)(3)	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y
HEB-AB(2)	HEB-AW-RLC-B	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	#6 to #4 #10	1 2	Y Y	Y Y
HEB-AC(2)	HEB-AW-RLC-C	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	#4 #8	1 2	N Y	Y Y
HEB-AD(2)	N/A	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	#2 #6	1 2	N Y	Y Y
HEB-AE(2)	N/A	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	2/0 #3	1 2	N N	Y Y
HEB-AJ	HEB-AW-RLC-J	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Set-Screw	#12 to #3	1	Y	Y
HEB-AK	HEB-AW-RYC	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper set-screw	#12 to #3	2	Y	Y
HEB-AL	HEB-AW-RLA	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Aluminum Set-Screw	#12 to #2	1	Y	Y
HEB-AY	HEB-AW-RYA	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Aluminum Set-Screw	#12 to #2	2	Y	Y
HEB-AR	N/A	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Aluminum Crimp	#1, #2	1	N	Y
HEB-BA(2)	HEB-BW-RLC-A	Copper Crimp	#6, #4 #10	1 2	Y Y	Y Y	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y
HEB-BB(2)	HEB-BW-RLC-B	Copper Crimp	#6, #4 #10	1 2	Y Y	Y Y	Copper Crimp	#6, #4 #10	1 2	Y Y	Y Y
HEB-BC(2)	N/A	Copper Crimp	#6, #4 #10	1 2	Y Y	Y Y	Copper Crimp	#4 #8	1 2	N Y	Y Y
HEB-BD(2)	N/A	Copper Crimp	#6, #4 #10	1 2	Y Y	Y Y	Copper Crimp	#2 #6	1 2	N Y	Y Y
HEB-CC(2)	N/A	Copper Crimp	#4 #8	1 2	N Y	Y Y	Copper Crimp	#4 #8	1 2	N Y	Y Y
HEB-DD(2)	N/A	Copper Crimp	#2 #6	1 2	N Y	Y Y	Copper Crimp	#2 #6	1 2	N Y	Y Y
HEB-ZA	N/A	Copper Crimp	#20, #18	1	Y	Y	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y
HEB-JJ	HEB-JW-RLC-J	Copper Set-Screw	#12 to #3	1	Y	Y	Copper Set-Screw	#12 to #3	1	Y	Y
HEB-JK	HEB-JW-RYC	Copper Set-Screw	#12 to #3	1	Y	Y	Copper Set-Screw	#12 to #3	2	Y	Y
HEB-JL	N/A	Copper Set-Screw	#12 to #3	1	Y	Y	Aluminum Set-Screw	#12 to #2	1	Y	Y
HEB-JY	N/A	Copper Set-Screw	#12 to #3	1	Y	Y	Aluminum Set-Screw	#12 to #2	2	Y	Y
HEB-LL	HEB-LW-RLA	Aluminum Set-Screw	#12 to #2	1	Y	Y	Aluminum Set-Screw	#12 to #2	1	Y	Y
HEB-NN	N/A	Aluminum Crimp	#8 #6	1 1	N Y	Y N	Aluminum Crimp	#8 #6	1 1	N Y	Y N
HEB-PP(2)	N/A	Aluminum Crimp	#6 #4	1 1	N Y	Y N	Aluminum Crimp	#6 #4	1 1	N Y	Y N
HEB-QQ(2)	N/A	Aluminum Crimp	#3, #4 #2	1 1	N Y	Y N	Aluminum Crimp	#3, #4 #2	1 1	N Y	Y N
HEB-RR(2)	N/A	Aluminum Crimp	#1, #2	1	N	Y	Aluminum Crimp	#1, #2	1	N	Y
HEB-TT(2)	N/A	Aluminum Crimp	1/0	1	N	Y	Aluminum Crimp	1/0	1	N	Y
HEB-SS	N/A	Solid Terminal for aluminum connector	#8 to #12 #10 to #14	1 1	Y N	N Y	Solid Terminal for aluminum connector	#8 to #12 #10 to #14	1 1	Y N	N Y

(1) UL Recognized, Guide IZLT2, File E14853

(2) CSA Certified, Class 6225-01, File 47235

(3) CE

For custom terminations contact your Cooper Bussmann representative.

Panel mounted fuse holders for 5 x 20mm fuses

HTC-30M

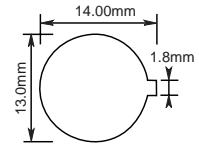
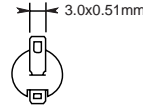
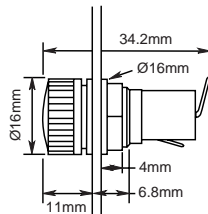
Ratings:

Volts: — 250V

Amps: — 6.3A

Watts: — 2.5W

Fuse Access: Screwdriver slot



Data Sheet: 2110

HTC-35M

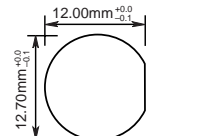
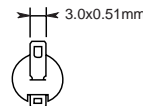
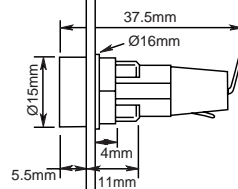
Ratings:

Volts: — 250V

Amps: — 6.3A

Watts: — 2.5W

Fuse Access: Threaded cap



Data Sheet: 2110

HTC-40M

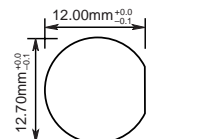
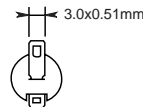
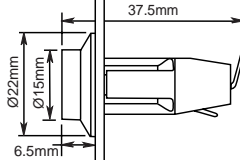
Ratings:

Volts: — 250V

Amps: — 6.3A

Watts: — 2.5W

Fuse Access: Screwdriver slot



Data Sheet: 2110

HTC-55M

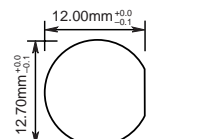
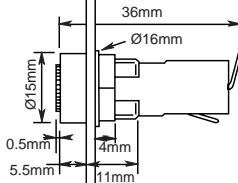
Ratings:

Volts: — 250V

Amps: — 6.3A

Watts: — 2.5W

Fuse Carrier: Bayonet type



Data Sheet: 2110

HTC-70M

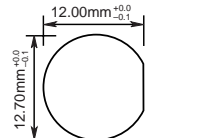
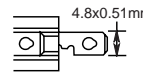
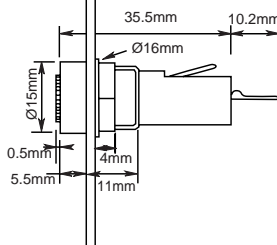
Ratings:

Volts: — 250V

Amps: — 10A

Watts: — 2.5W

Fuse Carrier: Bayonet type



Data Sheet: 2110

Specifications

- Terminals:** Tin-plated brass.
- Molded Materials:** High temperature thermoplastic that meets the flammability ratings of UL 94V0; Glow Wire Test: 960°C per IEC 60695-2-1.
- Solderability:** In accordance with IEC 68-2-20.
- Agency Information:** ROHS Compliant, CE, UL Recognized — Guide IZLT2, File E14853, CSA Certified — Class 6225-01, File 47235, SEMKO — 9226031 (HTC-30M, HTC-35M); 9226032 (HTC-40M); 9226033 (HTC-55M); 9226034 (HTC-70M)
- Electrical:** Contact Resistance: ≤ 10mΩ; Insulation Resistance: ≥ 10mΩ; Dielectric Strength ≥ 2000Vac.
- Shock Safety:** PC2 (fuse holders).
- Packaging:** Standard Qty 10 (No Prefix), Bulk Qty 100 (Prefix Catalog Number with BK/).

Fuse Holders & Blocks

Fuse Holders and Blocks

Panel mounted fuse holders for ¼" x 1¼" fuses

HKP, HKP-L, HKP-W



Specifications

Description: Standard fuse holders.

Dimensions: See Dimensions illustration.

Ratings:

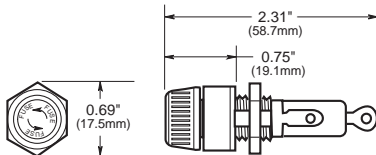
Volts: — 250V

Amps: — 30A

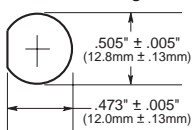
Catalog Numbers

Catalog Numbers	Fuse Description
HKP	—
HKP-L	HKP w/ 2250V stand-off barrier
HKP-W	HKP w/ drip-proof knob

Dimensions



Punched Mounting Hole



Data Sheet: 2106

HKP-BBHH, HKP-HH and HKP-LW-HH



Specifications

Description: Fuse holders with ¼" quick-connects.

Dimensions: See Dimensions illustration.

Ratings:

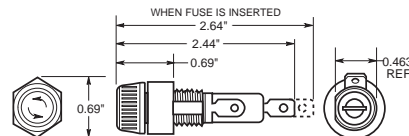
Volts: — 250V

Amps: — 15A

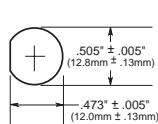
Catalog Numbers

Catalog Numbers	Fuse Description
HKP-BBHH	HKP w/ ¼" quick-connects, nut and washer assembled.
HKP-HH	HKP w/ ¼" quick-connect.
HKP-LW-HH	HKP w/ drip-proof knob, 2250V stand-off barrier and quick-connects.

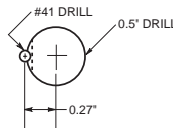
Dimensions



Punched Mounting Hole



Drilled Mounting Hole



Data Sheet: 2106

HKP-OO



Specifications

Description: Snap-lock fuse holders.

Dimensions: See Dimensions illustration.

Ratings:

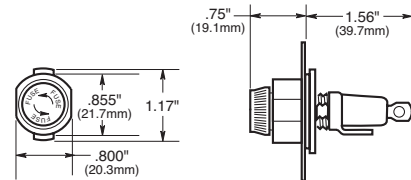
Volts: — 250V

Amps: — 30A

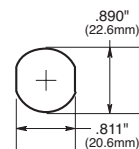
Catalog Numbers

Catalog Number	Fuse Description
HKP-OO	HKP with snap-lock

Dimensions



Punched Mounting Hole



Data Sheet: 2106

Specifications

Terminals: Bayonet-type knob.
Vibration resistant.
For panels up to ⅝" (7.9mm) thick.

Agency Information: CE, UL Recognized — Guide IZLT2, File E14853, CSA Certified — Class 6225-01, File 47235

Replacement Parts: Knob: 9435-1/2"
Plastic Nut: BK/1A4287
Metal Nut: BK/1A4806-2
Washer: 9732

Fuse Holders and Blocks

Panel mounted fuse holders for 5 x 20mm and ¼" x 1 ¼" fuses

HTB Series

Specifications

Description: Fuse holders with knob-type carriers.

Dimensions: See Dimensions illustrations.

Construction: High temperature, flame retardant thermo-plastic; UL Component Recognized; UL 94V0; mounting nut, spacer-black polycarbonate. Terminals: tin-plated brass.

Electrical Data: Insulation resistance (per IEC #257) — 10,000 ohms @ 500Vdc; contact resistance (per IEC #257) — 0.005 ohms Max @ 1A; standoff voltage (per IEC #257) — 480V/Mil @ 0.125" thickness.

Agency Information: CE, UL Recognized — Guide IZLT2, File E14853, 20A (3/16" quick-connect 15A) @ 250V, CSA — 16A @ 250V Class 6225-01 File 47235; VDE* — 6.3A @ 250V, 49890, SEMKO* — 6.3A @ 250V, 8945092, 9005230.

Mounting: Withstands 15 to 20 lbs-ins torque to mounting nut when mounting fuse holder to panel. Maximum panel thickness 0.300 inches.

Environmental: Maximum operating temperature - 55/+85°C.

*Screwdriver slot carrier only.



Knob Type Carrier	Maximum Panel Thickness	Terminal Options				Carrier Options	
		Solder/ ⅜" Quick-Connect		¼" Quick-Connect		¼" x 1 ¼" ("I" Equals Inches)	5 x 20mm ("M" Equals Metric)
		In-Line	Rt. Angle	In-Line	Rt. Angle	Knob	Knob
Common Dimensions: Length (Knob Type) - 1.69" (42.9mm) Plus In-Line Terminal (Screwdriver Slotted) 1.75" (44.5mm) NOTE: Plus In-Line Terminal	 0.30"	HTB-22I	HTB-24I	HTB-26I	HTB-28I	X	
	7.62mm	HTB-22M	HTB-24M	HTB-26M	HTB-28M		X
 0.125"	HTB-42I	HTB-44I	HTB-46I	HTB-48I	X		
	3.18mm	HTB-42M	HTB-44M	HTB-46M	HTB-48M		X
 0.30"	HTB-62I	HTB-64I	HTB-66I	HTB-68I	X		
	7.62mm	HTB-62M	HTB-64M	HTB-66M	HTB-68M		X
 0.125"	HTB-82I	HTB-84I	HTB-86I	HTB-88I	X		
	3.18mm	HTB-82M	HTB-84M	HTB-86M	HTB-88M		X

Fuse holders and fuse carriers may be ordered separately.

Data Sheet: 2119

Fuse Holders and Blocks

Panel mounted fuse holders for 5 x 20mm and 1/4" x 1 1/4" fuses

HTB Series



Knob Type Carrier	Maximum Panel Thickness	Terminal Options				Carrier Options	
		Solder/ 3/16" Quick-Connect		1/4" Quick-Connect		1/4" x 1 1/4" ("I" Equals Inches)	5 x 20mm ("M" Equals Metric)
		In-Line	Rt. Angle	In-Line	Rt. Angle	Knob	Knob
Common Dimensions: Length (Knob Type) - 1.69" (42.9mm) Plus In-Line Terminal (Screwdriver Slotted) 1.75" (44.5mm) NOTE: Plus In-Line Terminal							
 HTB-3	0.30" 7.62mm	HTB-32I	HTB-34I	HTB-36I	HTB-38I	X	
		HTB-32M	HTB-34M	HTB-36M	HTB-38M		X
 HTB-5	0.125" 3.18mm	HTB-52I	HTB-54I	HTB-56I	HTB-58I	X	
		HTB-52M	HTB-54M	HTB-56M	HTB-58M		X
 HTB-9	0.125" 3.18mm	HTB-92I	HTB-94I	HTB-96I	HTB-98I	X	
		HTB-92M	HTB-94M	HTB-96M	HTB-98M		X

Catalog Number Build-A-Code

	HTB-				S	P	FUSE CARRIER ONLY		
Packing (Blank) - Std. BK/ - Bulk	Product Symbol		Fuse Carrier I - 1/4" x 1-1/4" M - 5mm x 20mm	Splash Proof (Optional on -2, -4, -6, and -8)			Packaging (Blank) - Std. BK/ - Bulk	Product Symbol FT - Knob Type (For 20, 40, 60, and 80 Series Only) ST - Screwdriver Slotted (For 30, 50, and 90 Series Only)	Fuse Carrier I - 1/4" x 1 1/4" M - 5mm x 20mm
Body Configuration and Mounting Finger Grip Holders 2 - Low Profile (Rear Panel Hex-Nut) 4 - High Profile *6 - (Front Panel Hex-Nut) 8 - Low Profile (Snap-In) Screwdriver Slotted Holders 3 - Low Profile 5 - High Profile 9 - Low Profile (Snap-In)		Rear Terminal Configuration 2 - Solder/3/16" Quick-Connect (In-Line) 4 - Solder/3/16" Quick-Connect (Right Angle) 6 - 1/4" Quick-Connect (In-Line) 8 - 1/4" Quick-Connect (Right Angle)							

*Profile varies with panel thickness. Holder installs thru rear of panel.

Panel mounted fuse holders for indicating type fuses

HLD



Specifications

Description: Pin indicating for ¼" x 1¼" fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 15A

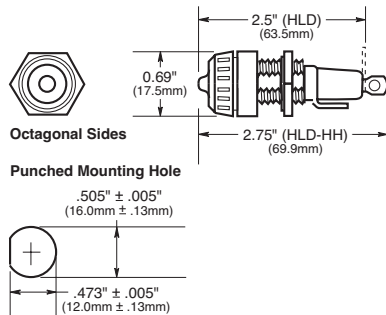
Agency Information: CE, UL Recognized, (File E14853, Guide IZLT2).

Catalog Numbers

Catalog Numbers*	Terminals
HLD	Solder terminals
HLD-HH	¼" quick-connect terminals

*Use w/GBA, GLD Fuses

Dimensions



Data Sheet: 2120

HJL



Specifications

Description: Neon lamp indicating for ¼" x 1" fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 15A

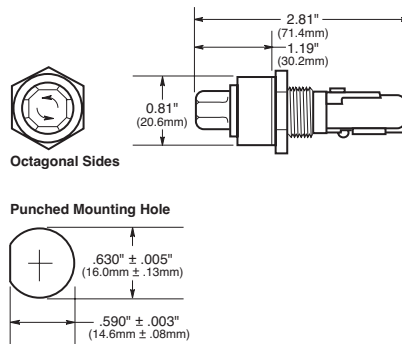
Agency Information: None

Catalog Number

Catalog Number*	Volts	Lamp Color	Knob Type
HJL	90 to 250	Clear	Oct

*Use with AGX or MKB fuses, for panels up to ¼" thick.

Dimensions



Data Sheet: 2121

HK Series



Specifications

Description: Neon and incandescent lamp indicating for ¼" x 1¼" fuses

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 15A (HKL, HKL-X)

— 20A (HKR, HKT, HKU, HKX)

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853), CSA Certified (Class 6225-01, File 47235).

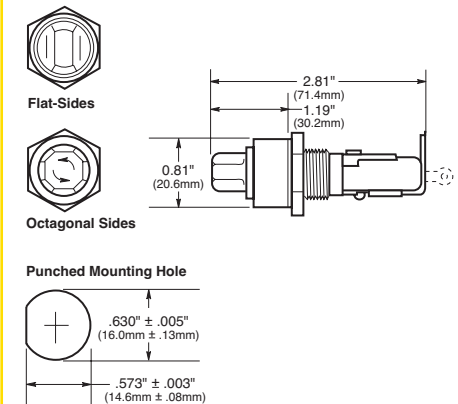
Catalog Numbers

Catalog Numbers	Lamp Volts	Knob Color/Type
HKL*	90-250	Clear/Oct
HKL-X*		Clear/FS
HKR**	22-30	Amber/Oct
HKT**	13-22	Amber/Oct
HKU**	4-6	Red/Oct
HKX**	22-33	Amber/FS

* Neon lamp — UL Recognized and CSA Certified

** Incandescent lamp

Dimensions



Data Sheet: 2105

Fuse Holders & Blocks

Fuse Holders and Blocks

Panel mounted fuse holders for $1\frac{3}{32}$ " x $1\frac{5}{16}$ " to $1\frac{1}{2}$ " fuses

HPF



Specifications

Description: Standard fuse holders with screw-type knob for $1\frac{3}{32}$ " x $1\frac{5}{16}$ " to $1\frac{1}{2}$ " Fuses.

Dimensions: See Dimensions illustration.

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853) CSA Certified (Class 6225-01, File 47235).

Flammability Rating: UL 94HB.

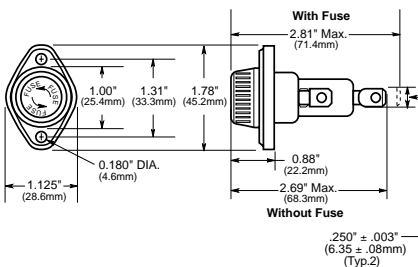
Terminals: Combination $\frac{1}{4}$ " quick-connect/solder terminals.

Catalog Numbers

Catalog Numbers	Amp Ratings	Volts	Fuse Description
HPF	30(3)	600	$1\frac{1}{2}$ " (38.1mm)
HPF-C	30(4)	600(4)	$1\frac{1}{2}$ " (38.1mm) clear knob.
HPF-L	5	600	BBS, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPF-EE	15	600	SC 0-15, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPF-JJ	20	600	SC 20, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPF-FF(2)	30(3)	480	SC 25 & 30, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPF-RR	30(3)	600	KTK-R, LP-CC & FNQ-R Class CC fuses.
HPF-WT	30(3)	600	Splash-proof knob. $\frac{3}{32}$ " x $1\frac{1}{2}$ " (38.1mm)

- (2) No CSA Certification
- (3) 20A max when used with quick-connect terminals.
- (4) HPF-C ratings for CSA-15A, 250V

Dimensions



Data Sheet: 2114

HPS



Specifications

Description: Standard fuse holders with bayonet-type knob for $1\frac{3}{32}$ " x $1\frac{5}{16}$ " to $1\frac{1}{2}$ " fuses.

Dimensions: See Dimensions illustration.

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853) CSA Certified (Class 6225-01, File 47235).

Flammability Rating: UL 94HB.

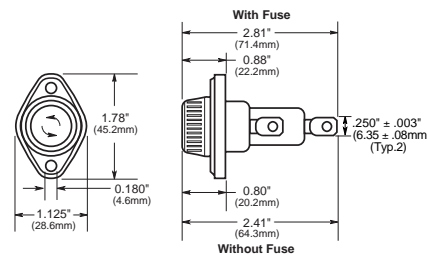
Terminals: Combination $\frac{1}{4}$ " quick-connect/solder terminals.

Catalog Numbers

Catalog Numbers	Amp Ratings	Volts	Fuse Description
HPS	30(3)(4)	600	$1\frac{3}{32}$ " x $1\frac{1}{2}$ "
HPS-L	5	600	BBS, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPS-EE*	15	600	SC 0-15, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPS-JJ*	20	600	SC 20, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPS-F-EE(2) 15	600		Sleeve on body, leaded for $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPS-FF*(2) 30(3)	480		SC 25 & 30, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPS-RR*(2) 30(3)	600		KTK-R, LP-CC, FNQ-R Class CC fuses.

- *-EE, -JJ, -FF and -RR versions are UL Recognized for applications requiring branch circuit protection.
- (1) No UL Recognition
- (2) No CSA Certification
- (3) 20A max when used with quick-connect terminals.
- (4) HPS rated at 250V for CSA

Dimensions



Data Sheet: 2113

HPG



HPD



Specifications

Description: Standard fuse holders with bayonet-type knob for $1\frac{3}{32}$ " x $1\frac{1}{2}$ " fuses.

Dimensions: See Dimensions illustrations.

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853).

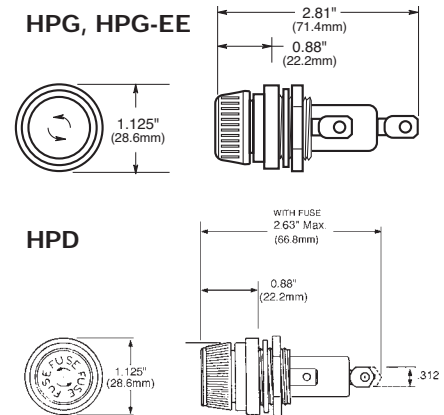
Flammability Rating: UL 94V0 - fuse holder body UL 94HB - Knob.

Catalog Numbers

Catalog Numbers	Amp Ratings	Volts	Fuse Description
HPG*	30(3)	600	$1\frac{3}{32}$ " x $1\frac{1}{2}$ " fuses
HPG-EE*	15	600	SC 0-15, $\frac{3}{32}$ " x $1\frac{3}{16}$ " fuses.
HPD**	30(3)	600	$1\frac{3}{32}$ " x $1\frac{1}{2}$ " fuses

- (3) 20A max when used with quick-connect terminals.
- *HPG and HPG-EE has combination $\frac{1}{4}$ " quick-connect/solder terminals on both side (load) and rear (line) terminals.
- **HPD has combination $\frac{1}{4}$ " quick-connect/solder terminal on side (load) terminal only. Rear (line) terminal is $\frac{3}{16}$ " shorter than HPG. Rear terminal solder only.

Dimensions



Data Sheet: 2108

Panel mounted fuse holders for 1³/₃₂" x 1 1¹/₂" fuses

HPM



Specifications

Description: Standard fuse holder with screw-type knob for 1³/₃₂" x 1 1¹/₂" fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600V

Amps: — 30A⁽³⁾

⁽³⁾ 20A max when used with quick-connect terminals.

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853), CSA Certified (Class 6225-01, File 47235).

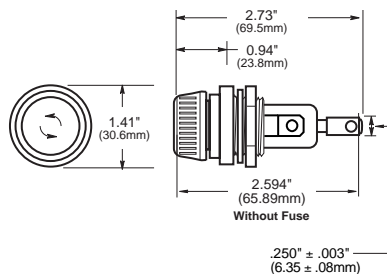
Flammability Rating: UL 94HB.

Catalog Numbers

Catalog Numbers	Description
HPM	1/4" quick-connect/solder
HPM-D	Splash-resistant knob ⁽⁴⁾

⁽⁴⁾ HPM-D has 1/4" quick-connect/solder terminal on rear (load) terminal only. The side (line) terminal is 1/4" quick-connect only.

Dimensions



HPC-D



Specifications

Description: Fuse holder with screw-type knob for 1³/₃₂" x 1 1¹/₂" fuses. Supplied with O-ring and panel gasket.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600V

Amps: — 30A⁽³⁾

⁽³⁾ 20A max when used with quick-connect terminals.

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853).

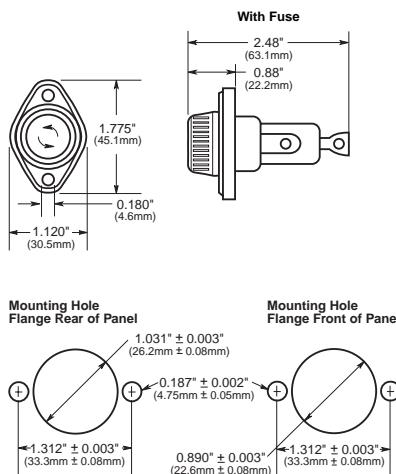
Flammability Rating: UL 94HB.

Catalog Numbers

Catalog Number	Description
HPC-D	Mount in panels up to 1/4" thick.

Replacement knob - BK/9987SA

Dimensions



HPS2



Specifications

Description: For fuse size 1³/₃₂" x 1 1¹/₂", meeting UL 1598 requirement that both poles be removed simultaneously.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600V@30A

Amps: — 0-30A⁽³⁾

⁽³⁾ 20A max when used with quick-connect terminals.

Agency Information: UL 512 recognized, (Guide IZLT2, File E14853), CSA certified: (Class 6225-01, File 47235).

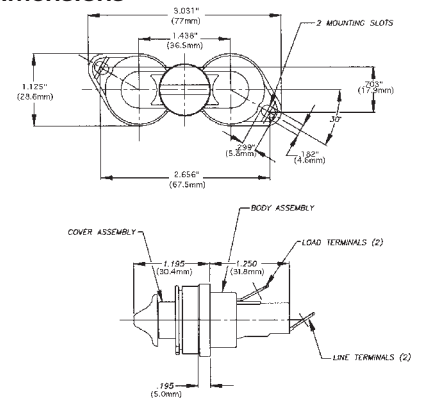
Flammability Rating: UL 94V0.

Terminals: 1/4" quick-connect/solder.

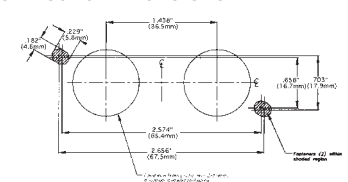
Catalog Numbers

Catalog Numbers	Description
HPS2	Standard 10-in carton
BK/HPS2	Bulk 100-in carton

Dimensions



Panel Mount Dimensions



Fuse Holders and Blocks

Fuse blocks for ¼" x 1 ¼" fuses

Series 8000



Specifications

Description: Bolt-in and snap-in mounting for ¼" x 1 ¼" fuses.

Construction: Blocks are molded flame retarded thermoplastic. Clips are spring-bronze.

Ratings:

Volts: — 300V

Amps: — 25A (See Catalog Numbers table)

Agency Information: CE, UL Recognized ; File E14853A, Guide IZLT2, CSA Certified Class 6225-01, File 47235.

Anti-Rotation Pin: Single-pole blocks may be ordered without the anti-rotational pin simply by adding an "X" to the number of poles (Example: BK/S-8000-1X).

Carton Quantity: 10; shelf package: 100.

Bulk Carton: Single-pole and 2-pole fuse blocks—1,000; Multiple-pole fuse blocks—3- to 8-pole: 200; 9- to 12-pole: 50. When ordering bulk quantities, prefix "BK/" to catalog number: (Example: BK/S-8001-1-SNP).

Catalog Numbers

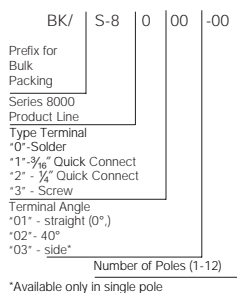
Bolt-in Mounting

Catalog Numbers	Series	Terminal	Angle	Agency Maximums	Poles (Suffix)
S-8001-	8000	Solder	0°	UL 25A	1 - 12
S-8002-			40°	CSA 21A	
S-8101-	8100	⅜" Quick Connect	0°	UL 20A	
S-8102-			40°	CSA 13A	
S-8201-	8200	¼" Quick Connect	0°	UL 20A	
S-8202-		Connect	40°	CSA 16A	
S-8203-		Side			
S-8301-	8300	Screw	—	UL 30A CSA 25A	

Snap-in Mounting

Catalog Numbers	Series	Terminal	Angle	Agency Maximums	Poles (Suffix)
S-8001-1-SNP	8000	Solder	0°	UL 25A	Available only in single pole
S-8002-1-SNP			40°	CSA 21A	
S-8101-1-SNP	8100	⅜" Quick Connect	0°	UL 20A	
S-8102-1-SNP		Connect	40°	CSA 13A	
S-8201-1-SNP	8200	¼" Quick Connect	0°	UL 20A	
S-8203-1-SNP		Connect	Side	CSA 16A	

Catalog Number Build-A-Code



Single-Pole Fuse Blocks

Specifications

Description: Single-pole fuse block for ¼" x 1 ¼" (6.4 x 31.8mm) size fuses.

Dimensions: See Dimensions illustrations.

Construction: Bakelite base width ½" (12.7mm); spring-bronze, bright tin-lead plate clips.

Ratings:

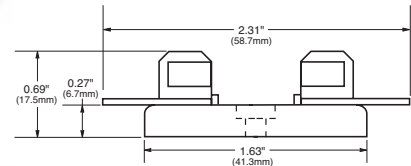
Volts: — 250V

Amps: — 30A



4405 - 0° Solder terminals with integral terminal and clip

Dimensions

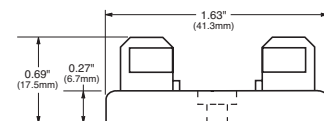


4406 - Side solder terminal



4574 - Spare fuse block

Dimensions

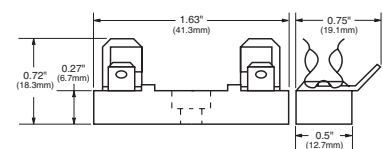


2499 - Side quick-connect

Agency Information: UL Recognized, Guide IZLT2, File E14853

Terminals: ¼" (6.4mm); 15A, 250V

Dimensions



Note: Mounting screw hole diameter is 0.147" (3.7mm). Counterbore diameter, 0.636" (8.0mm). Max Mounting Screw No. 6.

Data Sheet: 2101

Fuse blocks for ¼" x 1" fuses

3828 Series



Specifications

Description: Fuse block for ¼" x 1" (6.4 x 25.4mm) fuses with solder terminals.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 30A

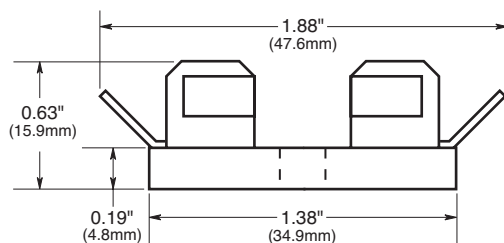
Mounting: Mounting screw hole diameter is 0.147" (3.7mm), diameter. Max mounting screw No. 6.

Catalog Numbers

Catalog Numbers	Poles	*Base Length in (mm)
3828-1	1	½ (12.7)
3828-2	2	1¼ (28.6)
3828-3	3	1¾ (44.5)
3828-4	4	2¾ (60.3)
3828-5	5	3 (76.2)
3828-6	6	3¾ (92.1)
3828-7	7	4¾ (108.0)
3828-8	8	4¾ (123.8)
3828-10	10	6¾ (155.6)
3828-12	12	7¾ (187.3)

*Small phenolic base, base width 1¾" (34.9mm)

Dimensions



4520 and 4393



Specifications

Description: Single-pole fuse block for ¼" x 1" fuses.

Dimensions: See Dimensions illustrations.

Construction: Bakelite with ½" (12.7mm) width base. Spring-bronze, bright tin-lead plated clips.

Ratings:

Volts: — 250V

Amps: — 30A

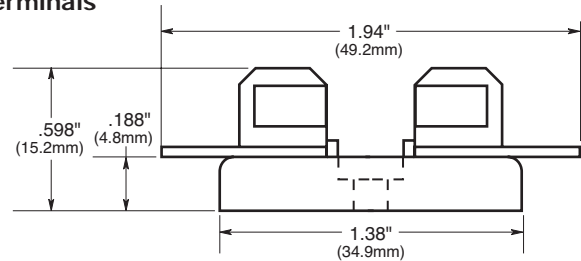
Mounting: Mounting screw hole diameter is 0.147" (3.7mm), counterbore 0.636" (8.0mm) diameter. Max mounting screw No. 6.

Catalog Numbers

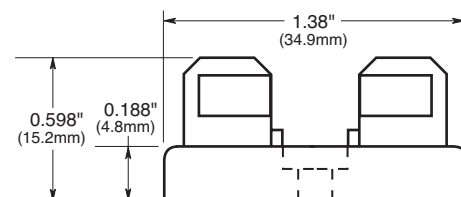
Catalog Numbers	Description
4520	Integral clip and straight solder terminals
4393	Spare fuse block

Dimensions

No. 4520 - Integral clip and straight solder terminals



No. 4393 - Spare fuse block



Fuse Holders and Blocks

Blocks for 1³/₃₂" X 1¹/₂" fuses

3743



Specifications

Description: Add-on fuse blocks for 1³/₃₂" X 1¹/₂" (10.3 X 38.1mm) fuses. Single pole blocks lock into each other and can be added at any time. Each has a single end barrier.

Dimensions: See Dimensions illustration.

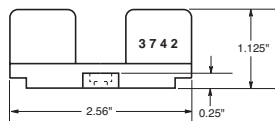
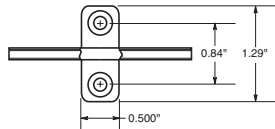
Construction: Molded phenolic base, screw terminals and beryllium copper, bright-dipped clips.

Ratings:

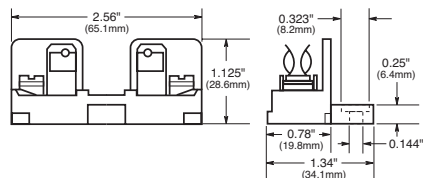
Volts: — 600V

Amps: — 30A

Agency Information: CE, UL Recognized Guide IZLT2, File E14853.



No. 3742—End Barrier Only



No. 3723—Marking Strip. Length is 9³/₈" (23.8cm). Block and end barrier

Note: Mounting screw hole is 0.147" (3.7mm) dia. Counterbore, 0.636" (8mm) dia. Max. mounting screw No. 6.

Data Sheet: 2104

3835 Series



Specifications

Description: Multiple pole fuse blocks for 1³/₃₂" X 1¹/₂" (10.3 X 38.1mm) fuses.

Dimensions: See Dimensions illustration.

Construction: Phenolic base with silver-plated, beryllium copper clips and screw terminals. No side barriers.

Ratings:

Volts: — 250V

Amps: — 30A

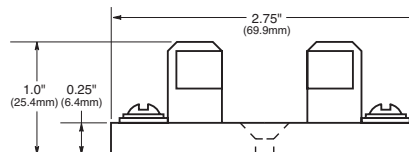
Agency Information: CE

Catalog Numbers

Catalog Numbers	Poles	Base* Width In (mm)
3835-1	1	2 ⁷ / ₃₂ (21.4)
3835-2	2	1 ¹ / ₁₆ (46.0)
3835-3	3	2 ²⁵ / ₃₂ (70.6)
3835-4	4	3 ³ / ₁₆ (95.2)
3835-5	5	4 ²³ / ₃₂ (119.9)
3835-6	6	5 ¹ / ₁₆ (144.5)
3835-7	7	6 ² / ₁₆ (169.0)
3835-8	8	7 ⁷ / ₁₆ (193.7)
3835-9	9	8 ¹ / ₁₆ (218.8)
3835-10	10	9 ⁹ / ₁₆ (242.9)
3835-12	12	11 ¹ / ₂ (292.1)

*Base length: 2³/₁₆" (69.9mm)

Dimensions



Note: Mounting screw hole diameter is 0.148" (3.7mm). Countersink, 0.313" (7.9mm). Max. mounting screw No. 6.

4421 and 4515



Specifications

Description: Single pole fuse blocks for 1³/₃₂" X 1¹/₂" (10.3 X 38.1mm) fuses.

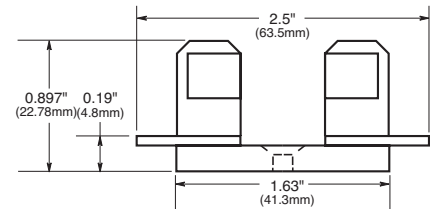
Dimensions: See Dimensions illustration.

Ratings:

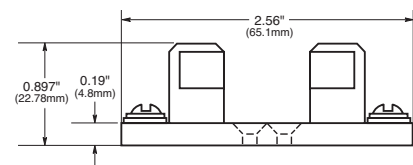
Volts: — 250Vac (or less)

Amps: — 30A

Agency Information: CE



No. 4421—Solder Terminals. Base width 5¹/₈" (15.9mm)



No. 4515—Screw Terminals. Base width 3¹/₄" (19mm)

Note: Mounting screw hole diameter is 0.147" (3.7mm). Countersink, 0.312" (7.9mm). Max. mounting screw No. 6.

Rail mount fuse holders

NDNF1-WH

Specifications

Description: Rail mount fuse holder.

Circuit Jumper: JF1, 2 circuits

Fuse Size: 1³/₂" X 1¹/₂" (KTK, FNQ).

Poles: 1

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 30A

Agency Information: UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-1/2

Torque Rating: 18 in-lb max.

Mounting Options: 35mm DIN rail, C-rail.

Catalog Numbers

Catalog

Number	Color
NDNF1-WH	White

Fuse Pullers (Optional): PF1

Lighted neon or incandescent lamp:

Catalog

Numbers	Voltage
LPF1-24	24
LPF1-120	120
LPF1-120-C	120
LPF1-220	220
LPF1-440	440



NDNLF1

Specifications

Description: Rail mount fuse holder.

Circuit Jumper: JF1, 2 circuits.

Fuse Size: 1/4" X 1 1/4" (Cooper Bussmann AGC, MDL or equivalent).

Poles: 1

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 30A (NDND1 non-fused)

— 15A (NDNFD1, 600V/CSA, fused)

— 15A (NDNLF1*fused, indicating)

*WH24 - 24V White, WH-90Vdc-600Vdc, 115Vac-600Vac White

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-1/2

Torque Rating: 18 in-lb max.

Mounting Options: 35mm DIN rail, C-rail.

Catalog Numbers

Catalog

Number	Color	Indicator
NDNFD1-WH	White	NO
NDNLF1-WH	White	90Vdc-600Vdc 115Vac-600Vac
NDNLF1-WH 24	White	24V

Extension: WH - White

(Only available with NDNLF1)



COOPER Bussmann

FINGER SAFETY
Optional safety barrier covers energized parts for added protection.

FLEXIBILITY
Allows applications
1-100A as well as
0-600 Vac.

HIGH VISIBILITY
NEMA 1, 3R, 12 and 4x
enclosures available
in high-visibility yellow
or standard gray.

CUBEFuse
Features finger-safe,
time-delay, current-
limiting design with
the best permanent
fuse indication
technology available.

easyID™ WINDOW
Lets you quickly
identify open fuse
without opening
enclosure.

The New Cooper Bussmann® Safety Module™ Reduces Downtime. Increases Safety.

The new Cooper Bussmann Safety Module disconnect lets you easily view the fuses without opening the enclosure while the Cooper Bussmann CUBEFuse™ indication technology shows clearly and quickly whether the fuse is good or needs to be replaced.

You also get a combination of finger-safety and dead-front construction for added protection against electrical hazards.

To learn more about the Safety Module and easyID™ technology, contact your nearest authorized Cooper Bussmann distributor or visit www.cooperbussmann.com.

COOPER

The Power Behind The Brands.



COOPER Lighting



COOPER Crouse-Hinds



COOPER Power Systems



COOPER Wiring Devices



COOPER B-Line

Power distribution blocks

Section Contents	Page
Power distribution blocks	
Series 163	276-277
Series 11675 2- to 12-Pole quick-connect	278
Series 11725 2- to 4-Pole quick-connect	278
Series 160, 162, 163 & 165	278
Series 162, 163 & 165 power stud terminal blocks . .	279
Series 160, 162, 163 & 165 power splicer blocks . . .	279
Series 14002 Barrier terminal blocks	280
Series 14004 Dead front terminal block	280



Power Distribution Blocks

Power distribution blocks

163 Series

Replaces Cooper Bussmann
164 Series

Specifications

Description: Power distribution block.

Dimensions: See Dimensions illustrations.

Construction: Tin-plated aluminum connectors.

Poles: 1- to 3-Poles, See Catalog Numbers table for details.

Wire Range: See Catalog Numbers table page 277.

Ratings:

Volts: — 600V

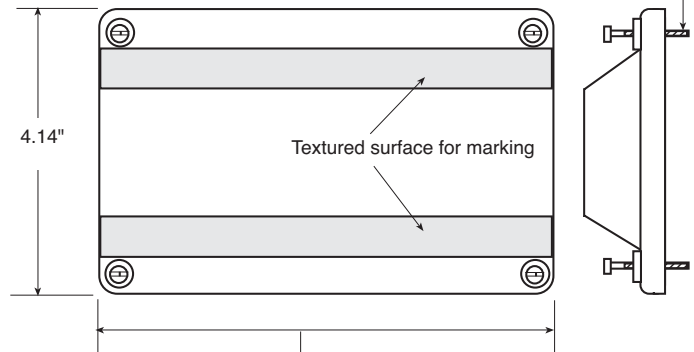
Amps: — See catalog Numbers table page 277

Agency Information: CE, UL Recognized: UL E221592, General Industrial Class per UL1059, CSA Certified: CSA LR15364

Flammability Rating: UL 94V0

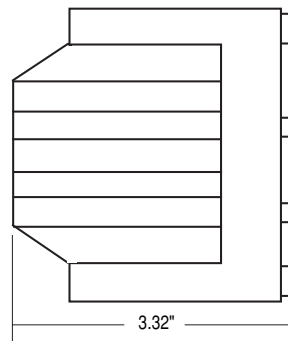
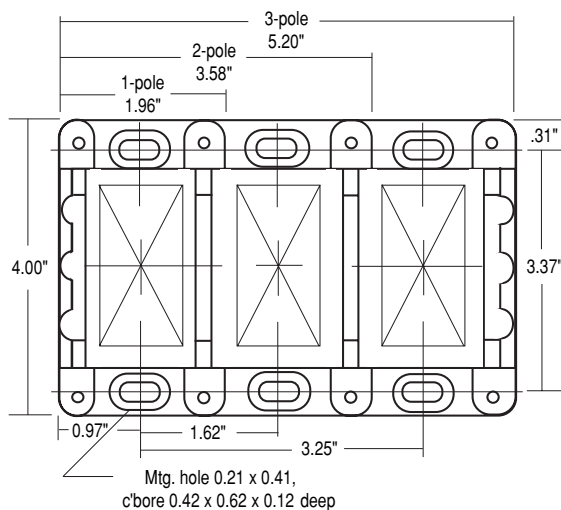


Supplied with (4) #4 thread-cutting screws assembled as shown



CPDB-1	(single pole)	2.10"
CPDB-2	(two pole)	3.72"
CPDB-3	(three pole)	5.34"

Dimensions



Power distribution blocks

Catalog Numbers

Basic

Catalog Numbers	Wire Size Line Side (Poles)	Load Side (Poles)	Amps/ Pole	Line/Load
16301*	250kcmil-#6CU Only	250kcmil-#6CU Only	255	
16303	350kcmil-#6CU-AL	350kcmil-#6CU-AL	310	
16306	500kcmil-#6CU-AL	500kcmil-#6CU-AL	380	
16321	2/0-#14CU, 2/0-#8AL	(6)#4-#14CU, #4-#8AL	175	
16323	350kcmil-#6CU-AL	(6)#4-#14CU, #4-#12AL	310	
16325	(2)2/0-#14CU, 2/0-#8AL	(6)#4-#14CU, #4-#8AL	350	
16330	500kcmil-#6CU-AL	(6) #2-#14CU, #2-#12AL	380	
16332	350kcmil-#6CU-AL	(3) #2-#14CU, #2-#8AL (2) 1/0-#14CU, 1/0-#8AL	310	
16335	500kcmil-#6CU-AL	(3) #2-#14CU, #2-#8AL (2) 1/0-#14CU, 1/0-#8AL	380	
16370	350kcmil-#6CU-AL	(12)#4-#14CU, #4-#12AL	310	
16371	350kcmil-#6CU-AL	(6) #2-#14CU, #2-#8AL (3) 1/0-#14CU, 1/0-#8AL	310	
16372	350kcmil-#6CU-AL	(21) #10-#14CU, #10AL	310	
16373	350kcmil-#6CU-AL	(14) #10-#14CU, #10AL (3) 1/0-#14CU-AL	310	
16375	600kcmil-#2CU-AL	(12)#4-#14CU, #4-#12AL	420	
16376	(2)600kcmil-#2CU-AL	(6) #2-#14CU, #2-#8AL (3) 1/0-#14CU, 1/0-#8AL	420	
16377	(2)300kcmil-#4CU-AL	(12)4-#14CU, #4-#12AL	570	
16378	500kcmil-#6CU-AL	Stud Size (2) 1/4-20 x 1	380	
16383	500kcmil-#6CU-AL	Stud Size (1) 3/8-16 x 1	380	
16390	3/8-16 x 1 1/8 Stud Size	3/8-16 x 1 1/8 Stud Size	250	
16394	1/2-13 x 1 1/16 Stud Size	1/2-13 x 1 1/16 Stud Size	400	
16395	3/8-16 x 1 7/16 Stud Size	(2) 1/4-20 x 3/16 Stud Size	310	

*Copper connectors for use with copper wire only.

Ordering Information

163 Series blocks are available in 1-, 2- or 3-poles. To order: Basic Catalog Number + Number of poles.

Examples: 16301-1 = one-pole block
16301-3 = three-pole block

Data Sheet: 1148

Power Distribution Blocks

Power distribution blocks

Series 11675

Specifications

Description: Screw connection line side, (3) 0.250" quick-connect load side power distribution block.

Poles:

2- to 12-poles.

Wire Range:

#8 – #14 CU.

Ratings:

Volts: — 250V

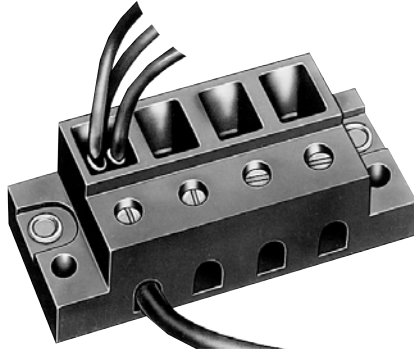
Amps: — Up to 40A

Agency Information: CE, UL E62622; CSA LR15364.

Torque Rating: 9 in-lb max.

Catalog Numbers

Catalog Numbers	Poles	Catalog Numbers	Poles
11675-2	2	11675-8	8
11675-3	3	11675-9	9
11675-4	4	11675-10	10
11675-5	5	11675-11	11
11675-6	6	11675-12	12
11675-7	7		



Series 11725

Specifications

Description: Screw connection line side, (4) 0.250" quick-connect load side power distribution block.

Poles: 2-, 3- or 4-poles.

Wire Range: #2 – #14 CU/#8 AL.

Ratings:

Volts: — 600V

Amps: — Up to 70A

Agency Information: CE, UL E62622; CSA LR15364.

Torque Rating: 45 in-lb max.

Catalog Numbers

Catalog Numbers	Poles	Catalog Numbers	Poles
11725-2	2	11725-4	4
11725-3	3		



Series 160, 162, 163 & 165

Specifications

Description: Power distribution blocks.

Construction: Molded black thermoplastic.

Wire Range: See Catalog Numbers table.

Poles:

Series 160: 2-, 3- or 4-poles

Series 162, 163 and 165: 1-, 2- or 3-poles

Ratings:

Volts: — 600V

Amps: — Up to 840A

Agency Information: CE, UL E221592 General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

Flammability Rating: UL 94V0.

Catalog Numbers

Catalog Numbers	Line Connection	Load Connection	Connector Material & Ampacity	Agency Information
16021*	2/0-#14CU, 2/0-#8AL	(6)#4-#14CU, #4-#8AL	AL-175A	UL/CSA
16023*	350kcmil-#6CU/AL	(6)#4-#14CU, #4-#12AL	AL-310A	UL/CSA
16220	2/0-#14CU, 2/0-#8AL	(4)#4-#14CU, #4-#8AL	AL-175A	UL/CSA
16321	2/0-#14CU, 2/0-#8AL	(6)#4-#14CU, #4-#8AL	AL-175A	UL/CSA
16323	350kcmil-#6CU/AL	(6)#4-#14CU, #4-#12AL	AL-310A	UL/CSA
16325	(2)2/0-#14CU, 2/0-#8AL	(6)#4-#14CU, #4-#8AL	AL-350A	UL/CSA
16330	500kcmil-#6CU/AL	(6)#2-#14CU, #2-#12AL	AL-380A	UL/CSA
16332	350kcmil-#6CU/AL	(3)#2-#14CU, #2-#8AL	AL-310A	UL/CSA
		(2)1/0-#14CU, 1/0-#8AL		
16335	500kcmil-#6CU/AL	(3)#2-#14CU, #2-#8AL	AL-380A	UL/CSA
		(2)1/0-#14CU, 1/0-#8AL		
16370	350kcmil-#6CU/AL	(12)#4-#14CU, #4-#12AL	AL-310A	UL/CSA
16371	350kcmil-#6CU/AL	(6)#2-#14CU, #2-#8AL	AL-310A	UL/CSA
		(3)1/0-#14CU, 1/0-#8AL		
16372	350kcmil-#6CU/AL	(21)#10-#14CU, #10AL	AL-310A	UL/CSA
16373	350kcmil-#6CU/AL	(3)1/0-#14CU/AL	AL-310A	UL/CSA
		(14)#10-#14CU, #10AL		
16375	600kcmil-#2CU/AL	(12)#4-#14CU, #4-#12AL	AL-420A	UL/CSA
16376	600kcmil-#2CU/AL	(6)#2-#14CU, #2-#8AL	AL-420A	UL/CSA
		(3)1/0-#14CU, 1/0-#8AL		
16377	(2)300kcmil-#4CU/AL	(12)#4-#14CU, #4-#12AL	AL-570A	UL/CSA
16528	(2)600kcmil-#2CU/AL	(4)3/0-#6CU/AL	AL-840A	UL/CSA
		(4)#4-#14CU/AL		
16530	(2)500kcmil-#6CU/AL	(12)#4-#14CU/AL	AL-760A	UL/CSA

*160 Series Bases have mounting holes outside the barriers. Other bases (162 through 165) have mounting holes within barriers. See Data Sheet for dimensional drawings.

How To Order

Catalog Number + # of Poles

Example: 16021 – 3 (complete part number)

Optional Covers:

160 Series: CPB160 - (pole)

162 Series: CPB162 - (pole)

163 Series: CPDB- (pole)

165 Series: CPDB165 (1 for each pole)



Data Sheets: 1117 (Series 160, 162, 165); 1148 (Series 163)

Power stud & splicer terminal blocks

Series 162, 163 & 165

Specifications

Description: Power stud terminal blocks.

Construction: Molded black thermoplastic.

Poles: 1-, 2- or 3-poles.

Wire Range: See Catalog Numbers table.

Ratings:

Volts: — 600V

Amps: — Up to 760A

Agency Information: CE, UL E221592 General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

Flammability Rating: UL 94V0.



Stud Block Catalog Numbers

Catalog Numbers	Line Connection (Poles)	Load Connection (Poles)	Material & Ampacity	Connector Agency Information
Connector to Stud				
16280	2/0-#14CU-AL	¼-20 X ¾ Stud	AL-175A	UL —
16281	2/0-#14CU-AL	¼-20 Tapped hole	AL-175A	UL —
16378	500kcmil-#6CU-AL	(2)¼-20 x 1 Stud	AL-380A	UL CSA
16383	500kcmil-#6CU-AL	(1)¼-16 x 1 Stud	AL-380A	UL CSA
16582	(2)500kcmil-#6CU-AL	(2)¼-16 x 1 ½ Stud	AL-760A	UL CSA
Stud to Stud				
16290	¼-20 x ¾ Stud	¼-20 x ¾ Stud	CU-175A	UL —
16390	¾-16 x 1 ½ Stud	¾-16 x 1 ½ Stud	CU-250A	UL CSA
16394	½-13 x 1 ½ Stud	½-13 x 1 ½ Stud	CU-400A	UL CSA
16395	¾-16 x 1 ½ Stud	(2)¼-20 x ¾ Stud	CU-310A	UL CSA
16591	¾-16 x 1 ½ Stud	(2)¾-16 x 1 ½ Stud	CU-400A	UL CSA
16593	½-13 X 1 Stud	½-13 X 1 Stud	CU-600A	UL CSA

How To Order

Catalog Number + # of Poles

Example: 16000 – 3 (complete part number)

Optional Covers:

160 Series: CPB160 - (pole)

162 Series: CPB162 - (pole)

163 Series: CPDB - (pole)

165 Series: CPDB165 (1 for each pole)

Series 160, 162, 163 & 165

Specifications

Description: Power splicer terminal blocks.

Construction: Molded black thermoplastic.

Wire Range: See Catalog Numbers table.

Poles: Series 160: 2-, 3- or 4-poles

Series 162, 163 and 165: 1-, 2- or 3-poles

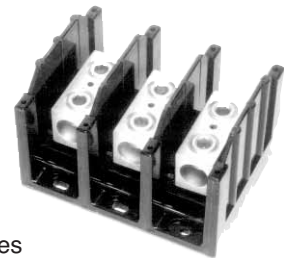
Ratings:

Volts: — 600V

Amps: — Up to 620A

Agency Information: CE, UL E221592 General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

Flammability Rating: UL 94V0.



Catalog Numbers

Catalog Numbers	Line Connection	Load Connection	Connector Material & Ampacity	Agency Information
16000*	2/0-#8CU/AL	2/0-#8CU/AL	AL-175A	UL
16003*	250kcmil-#6CU Only	250kcmil-#6CU Only	CU-255A	UL
16005*	350kcmil-#6CU/AL	350kcmil-#6CU/AL	AL-310A	UL
16200	#2-#14CU, #2-#8AL	#2-#14CU, #2-#8AL	AL-115A	UL
16201	1/0-#14CU Only	1/0-#14CU Only	CU-150A	UL
16204	2/0-#8CU/AL	2/0-#8CU/AL	AL-175A	UL
16301	250kcmil-#6CU Only	250kcmil-#6CU Only	CU-255A	UL/CSA
16303	350kcmil-#6CU/AL	350kcmil-#6CU/AL	AL-310A	UL/CSA
16306	500kcmil-#6CU/AL	500kcmil-#6CU/AL	AL-380A	UL/CSA
16500	(2)350kcmil-#4CU/AL	(2)350kcmil-#4CU/AL	AL-620A	UL/CSA
16504	(2)500kcmil-#6CU/AL	(2)500kcmil-#6CU/AL	AL-760A	UL/CSA

*160 Series Bases have mounting holes outside the barriers. Other bases (162 through 165) have mounting holes within barriers. See Data Sheet for dimensional drawings.

How To Order

Catalog Number + # of Poles

Example: 16000 – 3 (complete part number)

Optional Covers:

160 Series: CPB160 - (pole)

162 Series: CPB162 - (pole)

163 Series: CPDB - (pole)

165 Series: CPDB165 (1 for each pole)

Barrier & dead front terminal blocks

Series 14002

Specifications

Description: Barrier terminal block.

Poles: 2- to 6-poles.

Wire Range: #2 – #14 CU/#8 AL.

Ratings:

Volts: — 600V

Amps: — 115A

Agency Information:

CE, UL E62622; CSA LR15364.

Torque Ratings*: 2-3, 50 in.-lb; 4-6, 45 in.-lb; 8, 40 in.-lb; 10-14, 35 in.-lb.

*Consult factory for torque ratings for CP and Q options.

Marking: Marking strip optional, consult factory.

Options For Load Side Connector

CP: Sems pressure plate, rated 60A, 600V

Q: Quick-Connect, rated 50A, 600V

To order options, enter letter code in front of Catalog Number: ie; CP14002-2.

Catalog Numbers

Catalog Numbers	Poles	Catalog Numbers	Poles
14002-2	2	14002-5	5
14002-3	3	14002-6	6
14002-4	4		



Series 14004

Specifications

Description: Dead front terminal block.

Poles: 2- to 12-poles.

Wire Range: #4 – #14 CU/#8 AL.

Ratings:

Volts: — 600V

Amps: — 90A

Agency Information: CE, UL E62622; CSA LR15364.

Marking: Marking strip optional, consult factory.

Catalog Numbers

Catalog Numbers	Poles	Catalog Numbers	Poles
14004-2	2	14004-8	8
14004-3	3	14004-9	9
14004-4	4	14004-10	10
14004-5	5	14004-11	11
14004-6	6	14004-12	12
14004-7	7		



Did You Know?

The Power of Lower Transaction Costs

Efficiency is a priority in our relationship with our distributors. Technology and sound management make it easy to communicate with us. Following are some of the many ways that we help distributors reduce transaction costs.

EDI

Cooper Bussmann's EDI -- Electronic Data Interchange -- processes reduce data entry errors, reduce administrative transactional costs, increase access to enhanced data, and reduce lead time in order to service you better and faster. We offer a full set of transactions for our distributor partners to conduct e-Business from beginning to end.

Bussmann Transaction Codes:

- 810 Invoice
- 820 Remittance advice
- 824 Application advice
- 830 Planning schedule with release capability
- 832 Product, price, sales catalog (all views)
- 844/849 Ship and debit
- 845 Contract file update
- 846 Inventory advice and inquiry
- 850 Purchase order
- 852 Product activity (VMI)
- 855 Purchase order acknowledgment
- 856 Advance shipping notice
- 857 ASN with invoice and UCC-128 bar coded shipment
- 860 Purchase order change request
- 861 Receipt advice
- 862 Release advice
- 864 Text message
- 997 Functional acknowledgment

BussLink™

BussLink™ is your 'hot' connection to order information. BussLink is the quickest, most convenient method of ordering available. With just a click of your mouse, you're linked directly to Cooper Bussmann products at any hour of the day or night.

Vendor Managed Inventory

Bussmann utilizes Pan-Pro VMI software to provide state-of-the-art supplier assisted inventory management to our distributor business partners.

The Pan-Pro model enables you to:

- Improve inventory turns.
- Improve customer service levels.
- Reduce acquisition costs.

Wire connection products

Section Contents



	Page
Rail mount terminal blocks	
NDN Series 35mm DIN rail mount blocks	282-283
N512-BK 12-Pole block	284
NFT2-WH 2-Pole block	284
NFT3-__ 3-pole block	284
NC3-WH 3-Pole block	285
NSE3-WH 3-Pole block	285
NSS3-WH 3-Pole block	285
Rail mount disconnect terminal blocks	
15188 Series 3- and 4-Pole blocks	286
15288 Series 3-Pole block	286
Sectional terminal blocks	
PLU3-__ 3-Pole block	287
PLU1-WH 1- to 3-Pole block	287
PSU1-WH 1- to 3-Pole block	287
KT3-WH 3-Pole block	288
KT4-WH 4-Pole block	288
PLK-3__ 3-Pole block	288
Quick-connect terminal blocks	
NTQ23-WH 3-Pole block	289
BNQ21-WH 1-Pole block	289
BQQ41-WH 1-Pole block	289
Double row terminal blocks	
Series TB100 2- to 36-Pole blocks	290-291
Series TB200 & TB200HB 2- to 30-Pole blocks	292-293
Series TB300 & TB345 2- to 24-Pole blocks	294-295
Marking options and covers for double row series	
296	
Top & bottom marking strips for double row terminal blocks	
297	
Series TB400 2- to 12-Pole double row terminal blocks	
298	
Series KU 2- to 12-Pole base mount double row terminal blocks	
299	
Series TS finger-safe terminal blocks	
2- to 12-Pole standard base	300
2- to 12-Pole flat base	301
2- to 12-Pole raised base	302

RED indicates **NEW** information

Rail mount terminal blocks

NDN Series

Specifications

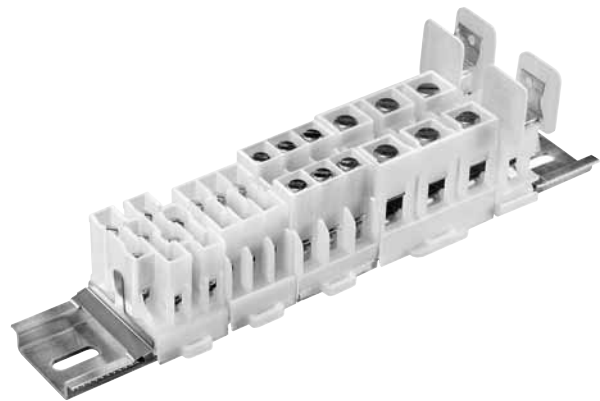
Description: High-density, snap-on 35mm DIN rail compatible rail mount terminal blocks.

Construction: Unique, impact resistant, one-piece thermoplastic moldings. Heat treated stainless steel collars (to secure wires). Tin-plated copper alloy terminals. Zinc-plated steel screws.

Circuits Per Foot: Up to 48 circuits per foot.

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2



NDNV4-__ __ (color)

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.250" (6.35).

Circuit Jumper: JN4, 4 circuits.

Screw Size: #6-32.

Poles: 4

Circuits Per Foot: 48

Wire Range: AWG #10-22 CU.

Ratings:

Volts: — 600V

Amps: — 0-30A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

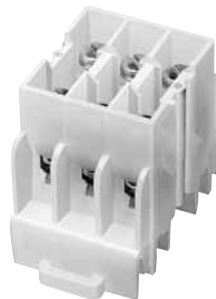
Marking Tape: MTC6.

Torque Rating: 18 in-lb max.

Mounting Options: 35mm DIN rail, C-rail.

Catalog Numbers

Numbers	Colors
NDNV4-WH	WH - White (Standard)
NDNV4-BK	BK - Black



NDN3-__ __ (color)

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.300" (7.62).

Circuit Jumper: JNDN3, 2 circuits.

Screw Size: #6-32.

Poles: 3

Circuits Per Foot: 38

Wire Range: AWG #10-22 CU.

Ratings:

Volts: — 600V

Amps: — 0-30A (field wiring)

— 0-30A (factory wiring)

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2

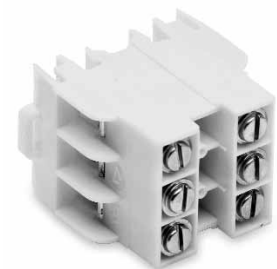
Marking Tape: MT12-½.

Torque Rating: 18 in-lb max.

Mounting Options: 35mm DIN rail, C-rail.

Catalog Numbers

Numbers	Colors
NDN3-WH	WH - White (Standard)
NDN3-BK	BK - Black



NDN63-__ __ (color)

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.375" (9.52).

Circuit Jumper: JN3, 2 circuits.

Screw Size: #10-32.

Poles: 3

Circuits Per Foot: 30

Wire Range: AWG #6-18 CU.

Ratings:

Volts: — 600V

Amps: — 0-65A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2

Marking Tape: MT12-½.

Torque Rating: 35 in-lb max.

Mounting Options: 35mm DIN rail, C-rail.

Catalog Numbers

Numbers	Colors
NDN63-WH	WH - White (Standard)
NDN63-BK	BK - Black

Rail mount terminal blocks

NDN1-WH

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.635" (16.13mm).

Circuit Jumper: JN1, 2 circuits.

Screw Size: ¼"-28.

Poles: 1

Circuits Per Foot: 18

Wire Range: AWG #2-18 CU.

Ratings:

Volts: — 600V

Amps: — 0-90A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½.

Torque Rating: 32 in-lb max.

Mounting Options: 35mm DIN rail, C-rail (Dove-tail option is available for mounting side-by-side. Order part no. NDN1A-WH).

Catalog Numbers

Catalog

Number	Color
NDN1-WH	White



NDN111-__ __(color)

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.635" (16.13mm).

Circuit Jumper: JN1, 2 circuits.

Screw Size: ¼"-28.

Poles: 3

Circuits Per Foot: 18

Wire Range: AWG #2-18 CU.

Ratings:

Volts: — 600V

Amps: — 0-90A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½.

Torque Rating: 32 in-lb max.

Mounting Options: 35mm DIN rail, C-rail, Base Mount. (Dove tail option is available for mounting side-by-side. Order part no. NDN111A-WH).

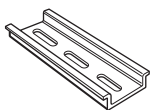
Catalog Numbers

Catalog

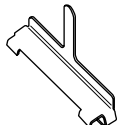
Numbers	Colors
NDN111-WH	White (Standard)
NDN111-BK	Black
NDN111A-WH	White
NDN111A-BK	Black (Standard)



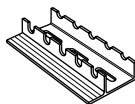
NDN Series Terminal Block Accessories



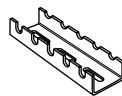
NDNA
35mm DIN rail
Aluminum
NDNA 100 1 meter
NDNA 200 2 meters



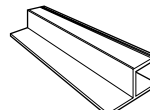
NDNAS
35mm DIN rail
End Stop



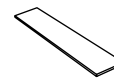
NFTA
C-rail
Aluminum
NFTA36
36" long
NFTA72
72" long



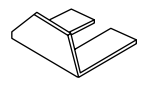
NRA37 ½
C-rail
Low profile
No flange
Aluminum
37 ½" length



SOA72
72" long
Stand-Off Channel
for C-rail



MARKING TAPE
See series specifications



JUMPERS
See series specifications

Rail mount terminal blocks

N512-BK

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.197" (5.00).

Circuit Jumper: JN512, 12 circuits.

Screw Size: #4-48.

Poles: 12

Circuits Per Foot: 60

Wire Range: AWG #12-22 CU.

Ratings:

Volts: — 300V (20A)

— 600V (5A)

Amps: — 20A (300V)

— 5A (600V)

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2

Marking Tape: AT512.

Torque Rating: 12 in-lb max.

Mounting Options: C-rail, 15mm DIN rail.

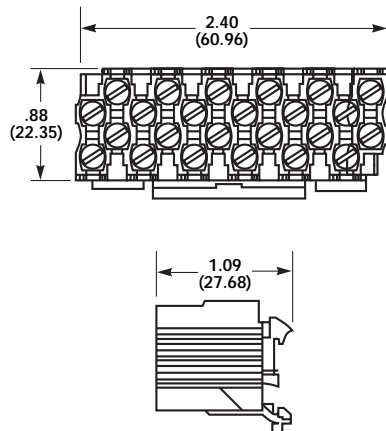
Catalog Numbers

Catalog

Number	Color
N512-BK	Black



Dimensions - in (mm)



NFT2-WH

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.281" (7.13).

Circuit Jumper: JN2, 2 circuits.

Screw Size: #8-32.

Poles: 2

Circuits Per Foot: 38

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 40A

— 55A (factory wired)

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-1/2.

Torque Rating: 18 in-lb max.

Mounting Options: C-rail.

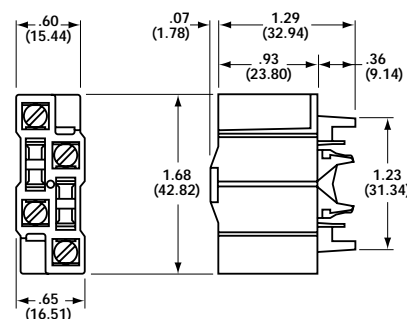
Catalog Numbers

Catalog

Numbers	Colors
NFT2-WH	White



Dimensions - in (mm)



NFT3-__ __ (color)

Specifications

Description: Rail mount terminal block.

Center Spacing: 0.390" (9.91).

Circuit Jumper: JN3, 2 circuits.

Screw Size: #8-32.

Poles: 3

Circuits Per Foot: 28

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 40A

— 55A (factory wired)

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-1/2.

Torque Rating: 18 in-lb max.

Mounting Options: C-rail.

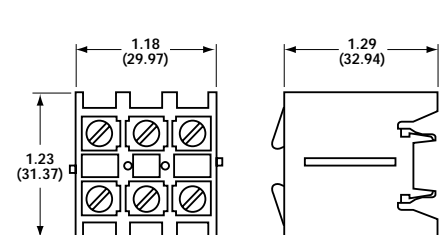
Catalog Numbers

Catalog

Numbers	Colors
NFT3-WH	White (Standard)
NFT3-BK	Black



Dimensions - in (mm)



Rail mount terminal blocks

NC3-WH

Specifications

Description:

Rail mount terminal block.

Center Spacing:

1.06" (26.92).

Circuit Jumper: JN3, 2 circuits.

Screw Size: 5/16"-24.

Poles: 3

Circuits Per Foot: 11

Wire Range: 2/0-#14 CU/AL.

Ratings:

Volts: — 600V

Amps: — 175A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-1/2.

Torque Rating: 45 in-lb max.

Mounting Options: C-rail, base mount.

Catalog Numbers

Catalog

Number	Color
NC3-WH	White



NSE3-WH

Specifications

Description:

Rail mount terminal block.

Center Spacing:

1.06" (26.92).

Circuit Jumper: JN3, 2 circuits.

Screw Size: 1/4"-28.

Poles: 3

Circuits Per Foot: 11

Wire Range: For use with wire crimped to ring terminal.

Ratings:

Volts: — 600V

Amps: — 115A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-1/2.

Mounting Options: C-rail, base mount.

Catalog Numbers

Catalog

Number	Color
NSE3-WH	White



NSS3-WH

Specifications

Description:

Rail mount terminal block.

Center Spacing:

0.385" (9.77).

Circuit Jumper: JNSS3, 2 circuits.

Screw Size: #6-32.

Poles: 3

Circuits Per Foot: 28

Wire Range: For use with wire crimped to ring terminal.

Ratings:

Volts: — 600V

Amps: — 30A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-1/2.

Mounting Options: C-rail.

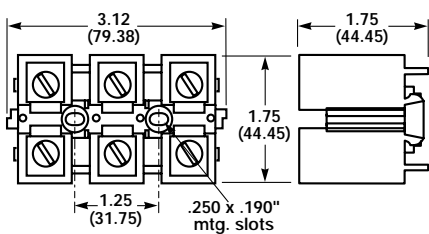
Catalog Numbers

Catalog

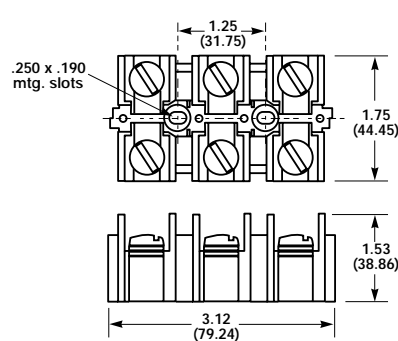
Number	Color
NSS3-WH	White



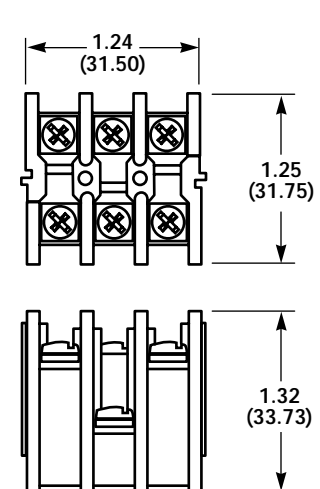
Dimensions - in (mm)



Dimensions - in (mm)



Dimensions - in (mm)



Rail mount disconnect terminal blocks

15188 Series

Specifications

Description: Disconnect terminal blocks for 35mm DIN rail mount.

Ratings:

Volts: — 600V

Amps: — 30A*

Center Spacing: 0.375" (9.52mm).

Wire Range: #12-16 AGW CU.

Screw Size: #6-32 zinc-plated phillslot.

Poles: 3- and 4-pole only.

Mounting: 35mm DIN Rail.

Optional End Stop NDNAS

Jumpers: 2- through 4-pole available.

Construction: Molded thermoplastic base, tin-plated copper alloy contacts.

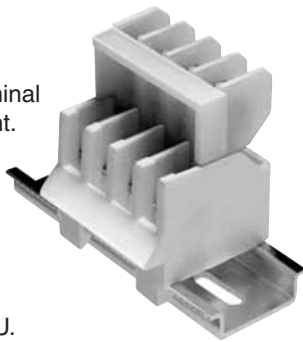
Torque Rating: 12 in-lb.

Operating Temperature: 105°C.

Agency Information: UL/CSA; CE Certified.

Flammability Rating: UL 94V0.

* 30A rating achieved with #10AWG wire crimped to ring terminal; 25A without.



15288 Series

Specifications

Description: Disconnect terminal blocks for 35mm DIN rail mount.

Rating:

Volts: — 600V*

Amps: — 65A

Center Spacing: 0.54" (13.7mm).

Wire Range: #6-16 AWG.

Screw Size: #8-32 zinc-plated phillslot.

Poles: 3-pole only.

Mounting: 35mm DIN Rail.

Optional End Stop NDNAS (shown on pg. XX)

Construction: Molded thermoplastic base, tin-plated copper alloy contacts.

Torque Rating: 20 in-lb (30 in-lb for 8 AWG bare wire).

Operating Temperature: 105°C (221°F).

Agency Information: UL/CSA E62622; CE Certified.

Flammability Rating: UL 94V2.

*CSA rating achieved with #6 AWG wire crimped to ring terminal 50A without.

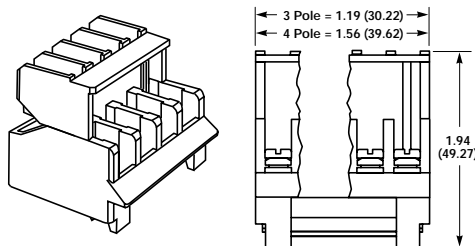


Catalog Number Build-A-Code

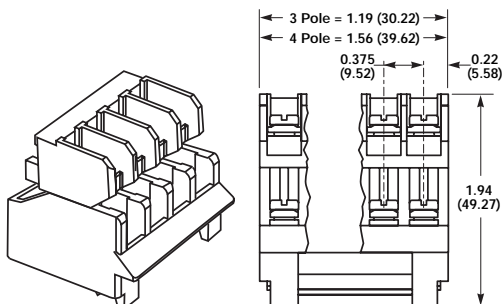
Series	Poles	Wiring	Optional End Stop
15188	3 to 4	Blank - Inline R - Reverse	S - Locking snap

Dimensions - in(mm)

In-Line Wiring Direction



Reverse Wiring Direction

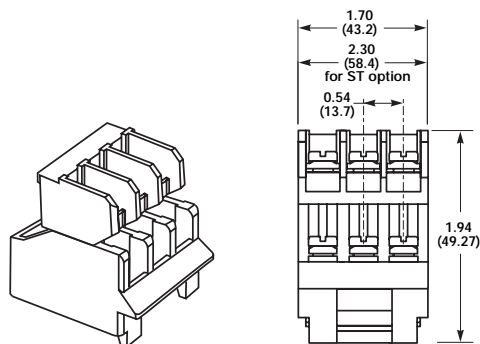


Catalog Number Build-A-Code

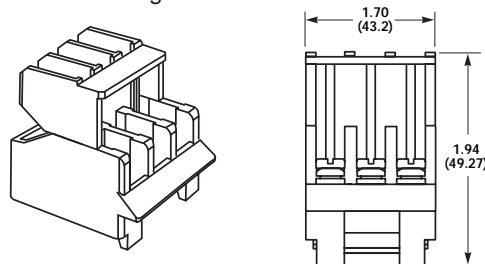
Series	Wiring	Options
15288	Blank - Inline R - Reverse	S - Snap ST - Screw together SS - Solid DIN rail snap

Dimensions - in(mm)

Reverse Wiring Direction



In-Line Wiring Direction



Sectional terminal blocks

PLU3-__ (color)

Specifications

Description:

Depluggable rail mount sectional terminal block.

Center Spacing:
0.390" (9.91).

Circuit Jumper: JN3, 2 circuits.

Screw Size: #8-32.

Poles: 3

Circuits Per Foot: 28

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 40A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½.

Torque Rating: 18 in-lb max.

Mounting Options: C-rail, stackable.

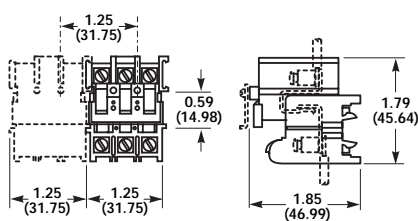
Catalog Numbers

Catalog

Numbers	Colors
PLU3-WH	White (Standard)
PLU3-BK	Black



Dimensions - in (mm)



PLU1-WH

Specifications

Description:

Depluggable rail mount sectional terminal block.

Center Spacing:
0.625" (15.88).

Circuit Jumper: JN1, 2 circuits.

Screw Size: ¼"-28.

Poles: 1- to 3-Poles.

Circuits Per Foot: 19

Wire Range: AWG #4-18 CU.

Ratings:

Volts: — 600V

Amps: — 70A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½.

Torque Rating: 32 in-lb max.

Mounting Options: C-rail, stackable.

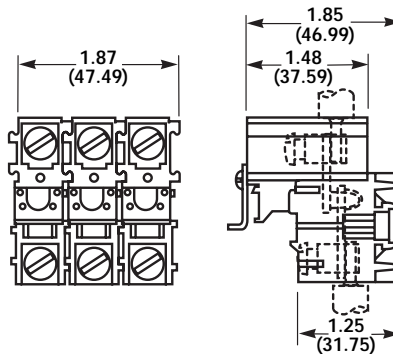


Catalog Numbers

Catalog

Numbers	Poles	Colors
PLU1-WH	1	White
PLU11-WH	2	White
PLU111-WH	3	White

Dimensions - in (mm)



PSU1-WH

Specifications

Description:

Depluggable rail mount sectional terminal block.

Center Spacing: 0.625" (15.88).

Circuit Jumper: JN1, 2 circuits.

Screw Size: #10-32.

Poles: 1- to 3-Poles.

Circuits Per Foot: 19

Wire Range: For use with crimp on connectors only.

Ratings:

Volts: — 600V

Amps: — 45A*

*45A rating achieved with ring terminal crimped to wire.

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½.

Torque Rating: 32 in-lb max.

Mounting Options: C-rail, stackable.

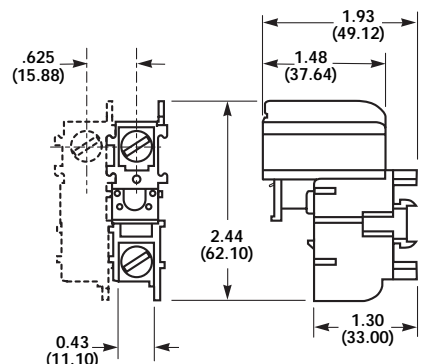


Catalog Numbers

Catalog

Numbers	Poles	Colors
PSU1-WH	1	White
PSU11-WH	2	White
PSU111-WH	3	White

Dimensions - in (mm)



Wire Management Products

Sectional terminal blocks

KT3-WH

Specifications

Description:

Depluggable rail mount sectional terminal block.

Center Spacing:

0.390" (9.91).

Circuit Jumper:

JN3, 2 circuits.

Screw Size: #8-32.

Poles: 3

Circuits Per Foot: 28

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 40A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½.

Torque Rating: 18 in-lb max.

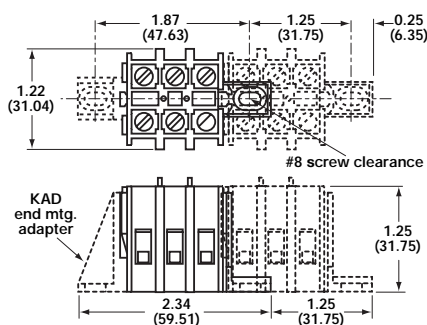
Mounting Options: Base mount, stackable. KAD end mount adapter optional.

Catalog Numbers

Number	Color
KT3-WH	White



Dimensions - in (mm)



KT4-WH

Specifications

Description:

Depluggable rail mount sectional terminal block.

Center Spacing:

0.250" (6.35).

Circuit Jumper: JN4, 4 circuits.

Screw Size: #6-32.

Poles: 4

Circuits Per Foot: 48

Wire Range: AWG #10-22 CU.

Ratings:

Volts: — 600V

Amps: — 30A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MTC6.

Torque Rating: 18 in-lb max.

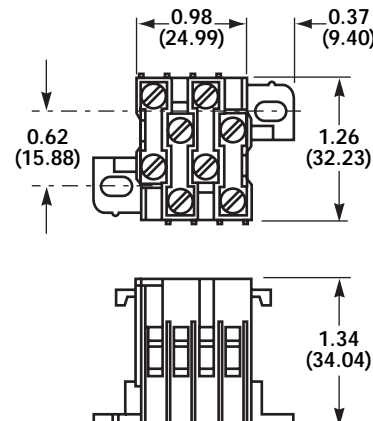
Mounting Options: Base mount., Mounting screws recommended every 12 circuits.

Catalog Numbers

Number	Color
KT4-WH	White



Dimensions - in (mm)



PLK3-_(color)

Specifications

Description:

Depluggable rail mount sectional terminal block.

Center Spacing:

0.390" (9.91).

Circuit Jumper: JN3, 2

circuits.

Screw Size: #8-32.

Poles: 3

Circuits Per Foot: 28

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 40A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½.

Torque Rating: 18 in-lb max.

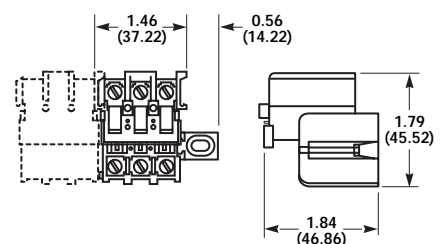
Mounting Options: Base mount, stackable. End Piece (Part No. KAD) is required for mounting. Mounting screws recommended every 15 circuits.

Catalog Numbers

Number	Color
PLK3-WH	White



Dimensions - in (mm)



Quick-connect terminal blocks

NTQ23-WH

Specifications

Description:

Quick connect terminal block.

Center Spacing: 0.390" (9.91).

Screw Size: #8-32.

Poles: 3

Circuits Per Foot: 28

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 40A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Marking Tape: MT12-½

Torque Rating: 18 in-lb max.

Mounting Options: C-rail.

Catalog Numbers

Catalog

Number	Color
NTQ23-WH	White



BNQ21-WH

Specifications

Description:

Quick connect terminal block.

Quick Connects: 0.250" X .031".

Center Spacing: 0.437" (11.10).

Screw Size: #8-32.

Poles: 1

Circuits Per Foot: 24

Wire Range: AWG #8-22 CU.

Ratings:

Volts: — 600V

Amps: — 40A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Torque Rating: 18 in-lb max.

Mounting Options: Base mount, stackable. End Piece (Cat. No. BQE) is required for mounting. Mounting screws recommended every 8 circuits.

Catalog Numbers

Catalog

Number	Color
BNQ21-WH	White



BQQ41-WH

Specifications

Description:

Quick connect terminal block.

Quick Connects: 0.250" x .031".

Center Spacing: 0.437" (11.10).

Screw Size: #8-32.

Poles: 1

Circuits Per Foot: 24

Wire Range: For use with quick connect terminals only.

Ratings:

Volts: — 600V

Amps: — 30A

Agency Information: CE, UL E62622; CSA LR15364.

Flammability Rating: UL 94V2.

Mounting Options: Base mount, stackable. End Piece (Cat. No. BQE) is required for mounting. Mounting screws recommended every 8 circuits.

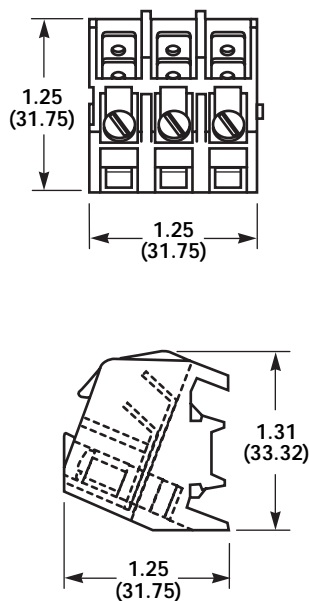
Catalog Numbers

Catalog

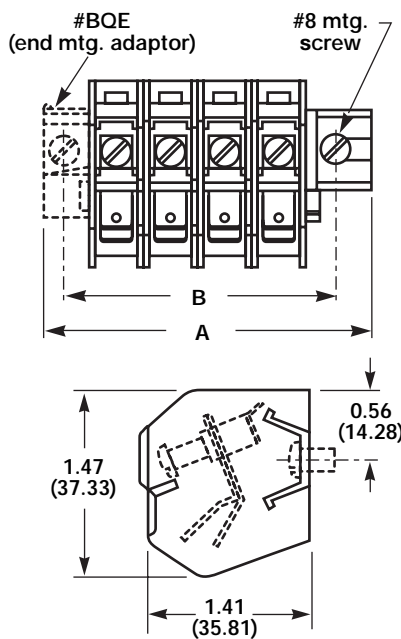
Number	Color
BQQ41-WH	White



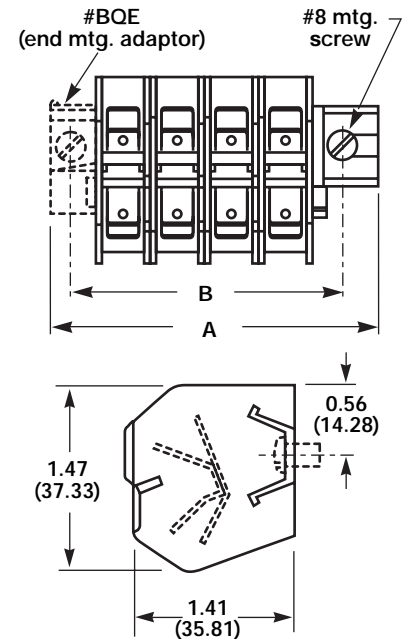
Dimensions - in (mm)



Dimensions - in (mm)



Dimensions - in (mm)



Wire Connection Products

Double row terminal blocks

Series TB100

Specifications

Description: Double row terminal blocks.

Ratings:

Volts: — 300V*

Amps: — 30A*

Center Spacing: 0.375" or 3/8" (9.52mm).

Wire Range: #14 - 22 AWG CU.

Screw Size: #6-32 phillslot screws.

Poles: 2 to 36.

Torque Rating: 9 in-lb.

Distance Between Barriers: 0.30" (7.62mm).

Mounting: #6 screws.

Operating Temperature: +130/-40°C (+266/-40°F).

Construction: Molded, black thermoplastic base, tin-plated brass terminals with zinc-plated steel screws.

Breakdown Voltage: 3600V.

Agency Information: UL/CSA; IEC Compliance; CE Certified.

Flammability Rating: UL 94V0.

* Max rating shown; some options may be rated lower, consult Cooper Bussmann.

Dimensions - in

Poles	A	B	Poles	A	B	Poles	A	B
02	1.40	1.12	14	5.90	5.62	26	10.40	10.12
03	1.78	1.50	15	6.28	6.00	27	10.78	10.50
04	2.16	1.88	16	6.66	6.38	28	11.16	10.88
05	2.53	2.25	17	7.03	6.75	29	11.53	11.25
06	2.90	2.62	18	7.40	7.12	30	11.90	11.62
07	3.28	3.00	19	7.78	7.50	31	12.28	12.00
08	3.66	3.38	20	8.16	7.88	32	12.66	12.38
09	4.03	3.75	21	8.53	8.25	33	13.03	12.75
10	4.40	4.12	22	8.90	8.62	34	13.40	13.12
11	4.78	4.50	23	9.28	9.00	35	13.78	13.50
12	5.16	4.88	24	9.66	9.38	36	14.16	13.88
13	5.53	5.25	25	10.03	9.75			

1" = 25.4mm.

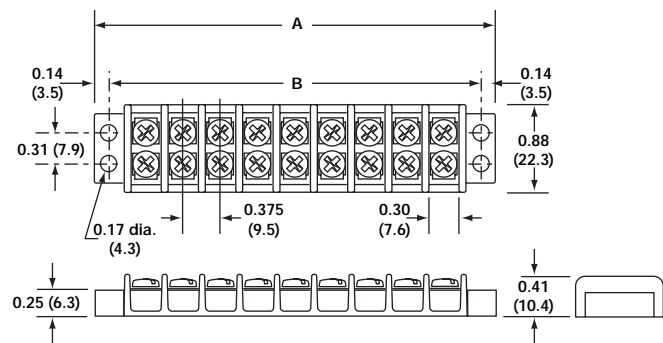


TB100-08



TB100-04SP

TB100- in (mm)



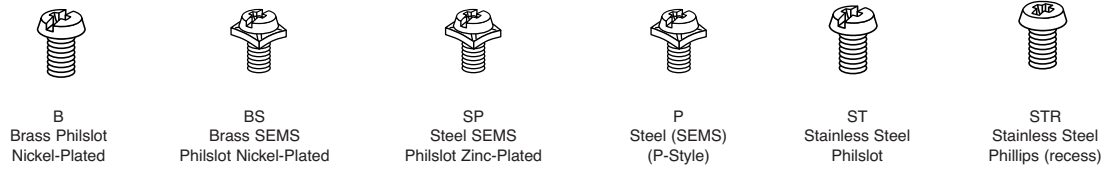
Catalog Number Build-A-Code

Series	Poles	Screw Options	Marking	Hardware Options
TB100	— <input type="checkbox"/> <input type="checkbox"/> 02 to 36	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Blank = Steel phillslot, zinc-plated 00 = Screws shipped bulk B = Brass phillslot, nickel-plated BS = Brass Sems phillslot, nickel-plated SP = Steel Sems phillslot, zinc-plated P = Steel Sems (P-style) ST = Stainless steel, phillslot STR = Stainless steel, phillips (recess)	<input type="checkbox"/> <input type="checkbox"/> L1 to L6 (See page 296) Marker strips (See page 297) Covers (See page 296)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> QC1 to QC20 = Quick connects J101 = Flat slip-on jumper (2 position only) 0J2 = Over barrier jumpers 0J4 = Over barrier jumpers

Wire Connection Products

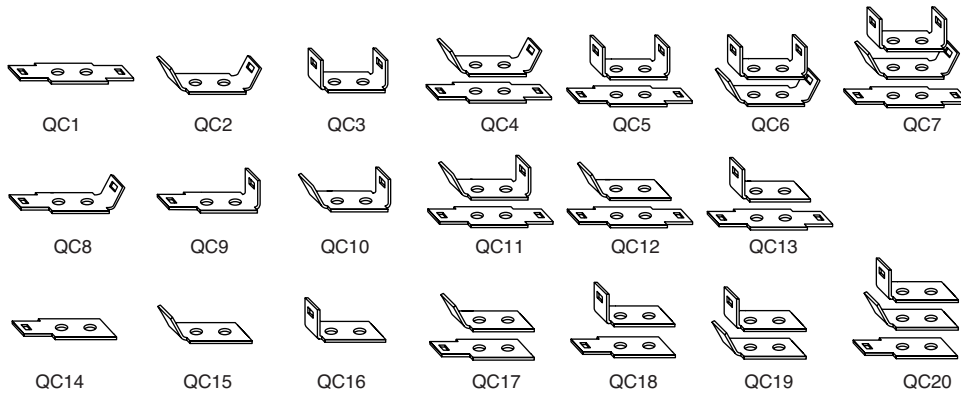
Double row terminal blocks

Screw Options

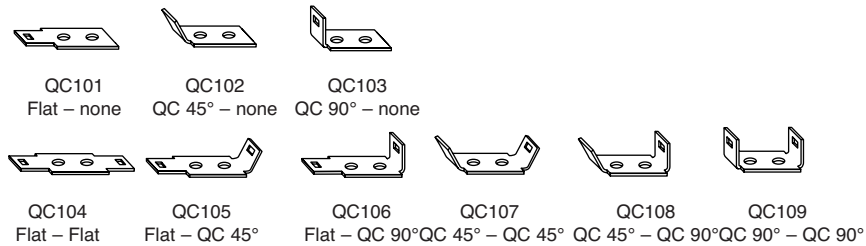


Hardware Options

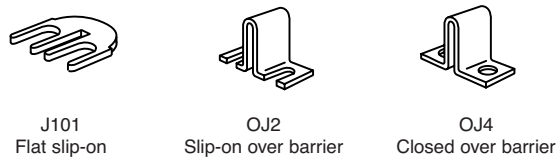
Quick Connects – Assembled: Terminals 0.187" x 0.020". Maximum current rating 13 Amps. For other orientations, contact Cooper Bussmann.



Quick Connects – Bulk: minimum order per part number – 100 pieces.



Jumpers – Bulk: minimum order per part number – 100 pieces. Contact Cooper Bussmann for jumper assembly.



Wire Connection Products

Double row terminal blocks

Series TB200 & TB200HB

Specifications

Description: Double row terminal blocks.

Ratings:

- Volts: — 300V* (TB200)
- 600V* (TB200HB)

Amps: — 30A*

Center Spacing: 0.437" or 7/16" (11.10 mm).

Wire Range: #12 - 22 AWG CU.

Screw Size: #6-32 phillslot screws.

Poles: 2 to 30.

Torque Rating: 9 in-lb.

Distance Between Barriers: 0.353" (8.97mm).

Mounting: #6 screws.

Operating Temperature: +130/-40°C (+266/-40°F).

Construction: Molded, black thermoplastic base with tin-plated brass terminals and zinc-plated steel screws.

Breakdown Voltage: 4800V.

Agency Information: UL/CSA; IEC Compliance; CE Certified.

Flammability Rating: UL 94V0.

* Max rating shown; some options may be rated lower - consult factory.

Dimensions - in

Poles	A	B	Poles	A	B	Poles	A	B
02	1.63	1.31	12	6.00	5.68	22	10.37	10.06
03	2.07	1.75	13	6.44	6.12	23	10.81	10.50
04	2.51	2.18	14	6.87	6.56	24	11.25	10.93
05	2.94	2.62	15	7.31	7.00	25	11.68	11.37
06	3.38	3.06	16	7.75	7.43	26	12.12	11.81
07	3.82	3.50	17	8.19	7.87	27	12.56	12.25
08	4.25	3.93	18	8.62	8.31	28	13.00	12.68
09	4.69	4.37	19	9.06	8.75	29	13.44	13.12
10	5.13	4.81	20	9.50	9.18	30	13.87	13.56
11	5.57	5.25	21	9.94	9.62			

1" = 25.4mm.

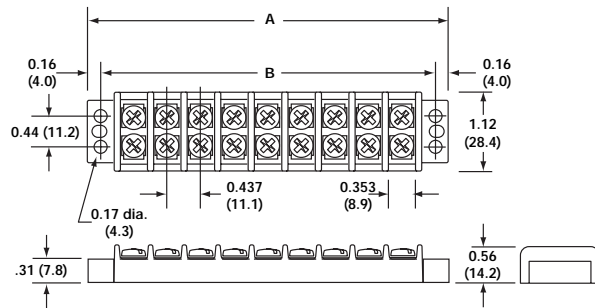


TB200-10SP

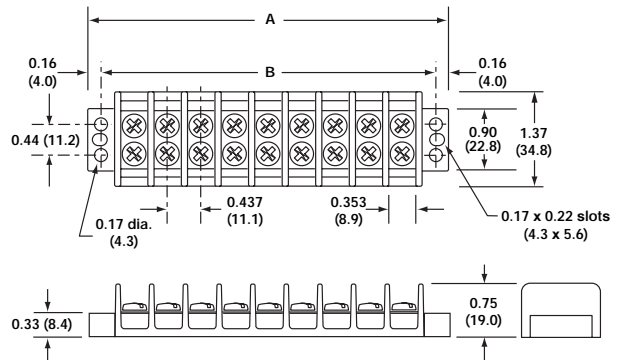


TB200HB-06

TB200 - in (mm)



TB200HB



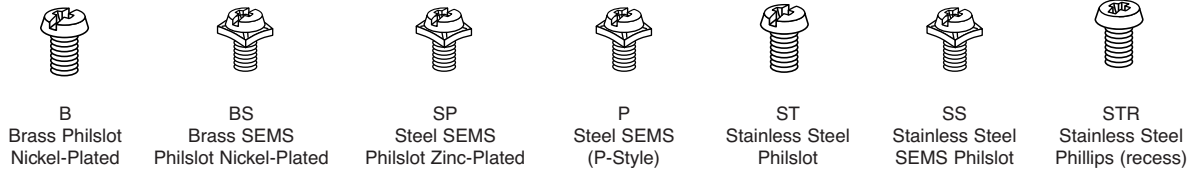
Catalog Number Build-A-Code

Series	Poles	Screw Options	Marking	Hardware Options
TB <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
200 = Standard 200HB = High barrier	02 to 30	Blank = Steel phillslot, zinc-plated 00 = Screws shipped bulk B = Brass phillslot, nickel-plated BS = Brass Sems phillslot, nickel-plated SP = Steel Sems phillslot, zinc-plated P = Steel Sems (P-style) ST = Stainless steel, phillslot SS = Stainless steel Sems, phillslot STR = Stainless steel, phillips (recess)	L1 to L6 - (See page 296) Marker strips (See page 297) Covers (See page 296)	QC1 to QC20 = Quick connects J201 = Flat slip-on jumper (2 position only) OJ3 = Over barrier jumpers OJ5 = Over barrier jumpers OJ7 = Over barrier jumpers

Wire Connection Products

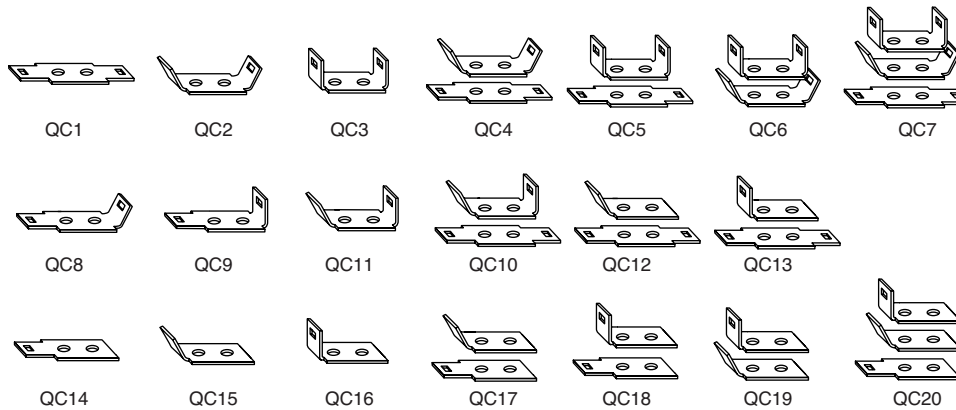
Double row terminal blocks

Screw Options

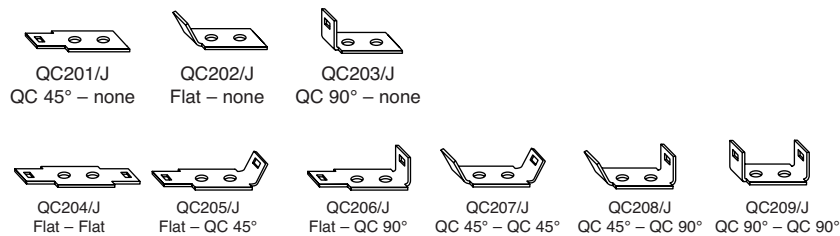


Hardware Options

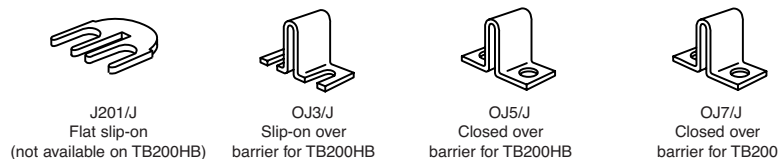
Quick Connects – Assembled: Terminals 0.25" x 0.031". Maximum current rating 20 Amps. For other orientations, contact Cooper Bussmann.



Quick Connects – Bulk: minimum order per part no. – 100 pieces.



Jumpers – Bulk: minimum. order per part no. – 100 pieces. Contact Cooper Bussmann for jumper assembly.



Wire Connection Products

Double row terminal blocks

Series TB300 & TB345

Specifications

Description: Double row terminal blocks.

Ratings:

- Volts: — 600V*
- Amps: — 30A* (TB300)
- 45A (TB345)

Center Spacing: 0.562" or 14.28mm.

Wire Range: #8 - 22 AWG CU.

Screw Size: TB300 — #8-32 phillslot screws
TB345 — #10-32 phillslot screws

Poles: 2 to 24.

Torque Rating: #8 screws - 16 in-lb;
#10 screws - 20 in-lb

Distance Between Barriers: 0.41" (10.5mm).

Mounting: TB300 — #8 screws; TB345 — #10 screws.

Operating Temperature: +130/-40°C (+266/-40°F).

Construction: Molded, black thermoplastic base with tin-plated brass terminals and zinc-plated steel screws.

Breakdown Voltage: 7500V.

Agency Information: UL/CSA; IEC Compliance; CE Certified.

Flammability Rating: UL 94V0.

* Max rating shown; some options may be rated lower - consult Cooper Bussmann.

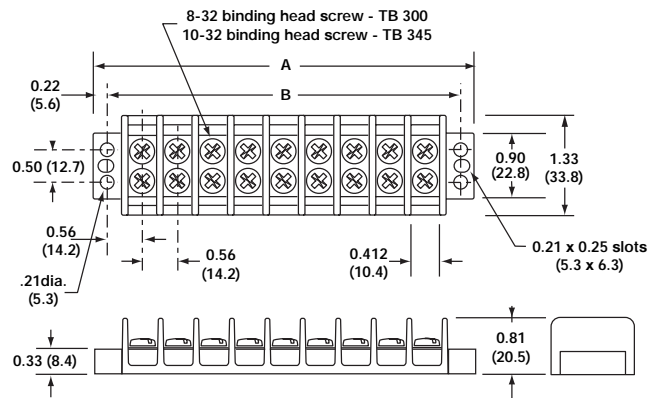
Dimensions - in

Poles	A	B	Poles	A	B	Poles	A	B
02	2.13	1.69	10	6.62	6.19	18	11.12	10.68
03	2.69	2.25	11	7.18	6.75	19	11.68	11.25
04	3.25	2.81	12	7.75	7.31	20	12.24	11.81
05	3.81	3.37	13	8.31	7.87	21	12.80	12.37
06	4.37	3.94	14	8.87	8.44	22	13.37	12.93
07	4.94	4.50	15	9.43	9.00	23	13.93	13.50
08	5.50	5.06	16	9.99	9.56	24	14.49	14.06
09	6.06	5.62	17	10.56	10.12			

1" = 25.4mm.



TB300 & TB345 - in (mm)



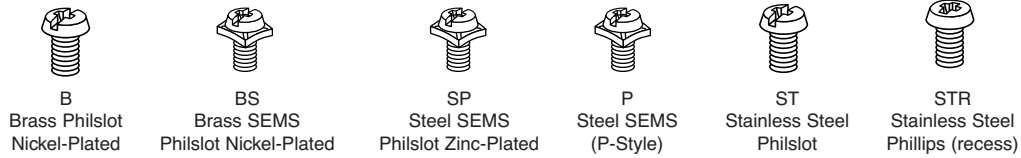
Catalog Number Build-A-Code

Series	Poles	Screw Options	Marking	Hardware Options
TB — <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
300 = 8-32 screw 345 = 10-32 screw	02 to 24	Blank = Steel phillslot, zinc-plated 00 = Screws shipped bulk B = Brass phillslot, nickel-plated BS = Brass Sems phillslot, nickel-plated (TB300 only) SP = Steel Sems phillslot, zinc-plated P = Steel Sems (P-style) ST = Stainless steel, phillslot STR = Stainless steel, phillips (recess)	L1 to L6 = (pg 296) Marker strips (pg 297) Covers (pg 296)	QC1 to QC20 = Quick connects (TB300 only) J301 = Flat slip-on jumper OJ6 = Over barrier jumper OJ11 = Over barrier jumper

Wire Connection Products

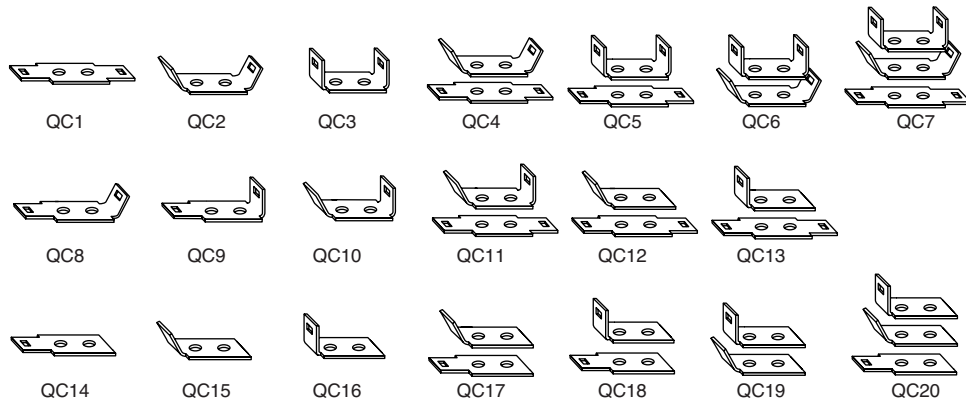
Double row terminal blocks

Screw Options

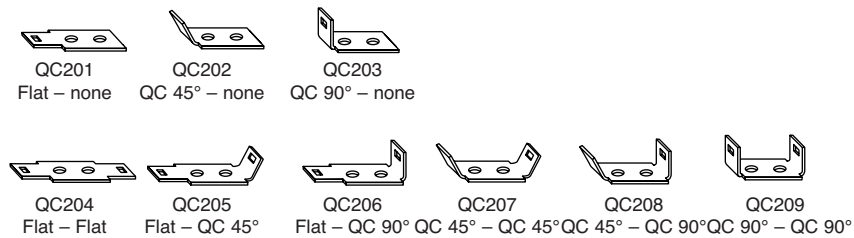


Hardware Options

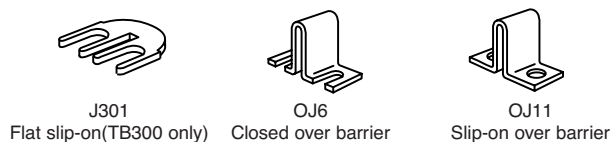
Quick Connects – Assembled: TB300 only. Terminals 0.25" x 0.031". Maximum current rating 20 Amps. For other orientations, contact Cooper Bussmann.



Quick Connects – Bulk: (*TB300 only) minimum order per part number. – 100 pieces.



Jumpers – Bulk: minimum order per part number – 100 pieces. Contact Cooper Bussmann for jumper assembly.

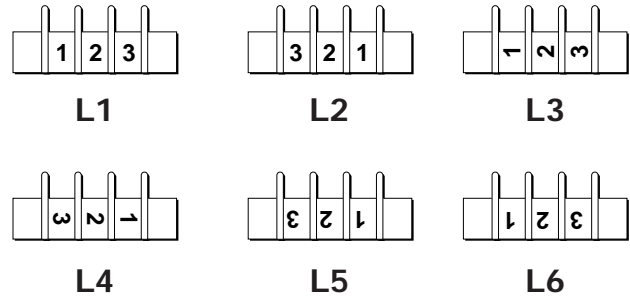


Marking options and covers for double row series

Standard Marking

Standard markings are applied directly to the side(s) of a block. Standard color is white. Standard height is 0.125 inches (3.17mm).

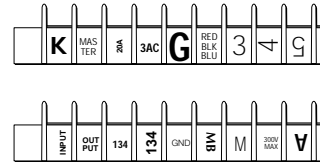
Note: Blocks marked on both sides require a different code for each side. Example Style L1 on one side of the block requires Style L2 on the other side to ensure common terminal marking. To order, add appropriate suffix (L1, L2, L3, L4, L5 and/or L6) to block catalog number in the proper sequence.



Special Marking

Special markings are available at an additional charge for preparation. Production charges for setup, handling and marking are the same as for standard marking. Drawing(s) must be submitted to ensure accuracy of part required. Consult Cooper Bussmann for price and delivery.

Note: Marking is not available on TB400 Series

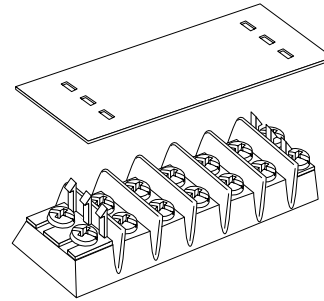


Covers

Covers prevent personnel, screws and foreign items from contacting live terminals. Available in white or clear plastic. Two cover clips supplied with each cover. Cover width is 1.31 inches (33.3mm).

All covers must be ordered separately. Consult Cooper Bussmann for special legends.

Example: 10 position cover, white, TB100 Series, no legends = Catalog Number **X12010**.



Catalog Number Build-A-Code

Series	Cover Strip	Poles
X	□ □ □ □ □ 120 = TB100/white 119 = TB100/clear 220 = TB200/white 220HB = TB200HB/white 219 = TB200/clear 219HB = TB200HB/clear 320 = TB300 & TB345/white 319 = TB300 & TB345/clear	□ □ 02 to 36 (TB100) 02 to 30 (TB200/TB200HB) 02 to 24 (TB300/TB345)

Note: Covers are not available on TB400 Series.

Cover Clip Catalog Numbers (Bulk)

- DD1 = TB100 Series (Specify quantity)
- DD2 = TB200 Series (Specify quantity)
- DD2HB = TB200HB Series (Specify quantity)
- DD3 = TB300 Series (Specify quantity)

Wire Connection Products

Top & bottom marking strips for double row terminal blocks

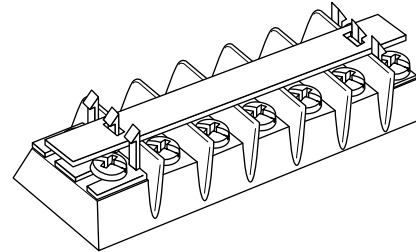
Top Marker Strips

Top mounting marker strips are available in white (opaque) plastic. Two cover clips are supplied with each marker strip.

All top marker strips must be ordered separately. Consult factory for special legends.

Example: 12 position cover, TB200, 0.032" x 0.312", with no legends = Catalog Number **X20312**.

Example: 12 position cover, TB200HB, 0.06" x 0.50", with no legends = Catalog Number **X23312HB**.



Catalog Number Build-A-Code

Series	Top Marker Strip	Poles
X	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	133 - TB100 (0.060 thk x 0.500 w)	02 to 36 (TB100)
	103 - TB100 (0.032 thk x 0.312 w)	02 to 30 (TB200/TB200HB)
	233 - TB200 (0.060 thk x 0.500 w)	02 to 24 (TB300/TB345)
	233TB - TB200HB (0.060 thk x 0.500 w)	
	203 - TB200 (0.032 thk x 0.312 w)	
	203HB - TB200HB (0.032 thk x 0.312 w)	
	333 - TB300 & TB345 (0.060 thk x 0.500 w)	
	303 - TB300 & TB345 (0.032 thk x 0.380 w)	
	Note: Marking Strips are not available on TB400 Series	

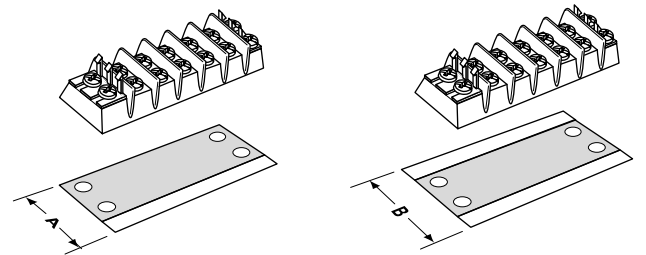
Bottom Marker Strips

Bottom mounting marker strips are made of black PVC, 0.030" thick. Space is available to handle most marking situations. All marker strips must be ordered separately.

To order, specify part number, required legends and (BF) bottom forward, (BR) bottom reverse, (TF) top forward, or (TR) top reverse. Consult factory for specials.

Example: 13 position strip, TB100 with no legends, space for marking one side = Catalog Number **X10513**.

Position for legends (one side, two sides) can be specified standard. Standard legend height is 0.125". Standard leg-ends are 0-99 and A-Z. Special legends are available on special order. Drawing(s) must be submitted to ensure accuracy of part required.



Space for marking one side

Space for marking two sides

Dimensions (in)

Dim.	TB100	TB200	TB200HB	TB300	TB345	TB400
A	1.13	1.37	1.62	1.58	1.58	N/A
B	1.38	1.62	1.81	1.81	1.81	N/A

Wire Management Products

Catalog Number Build-A-Code

Series	Bottom Marker Strip	Poles	Orientation
X	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	105 = TB100/marketing one side	02 to 36 (TB100)	BF = Bottom forward
	101 = TB100/marketing both sides	02 to 30 (TB200/TB200HB)	BR = Bottom reverse
	205 = TB200/marketing one side	02 to 24 (TB300/TB345)	TF = Top forward
	201 = TB200/marketing both sides		TR = Top reverse
	295 = TB200HB/marketing one side		
	291 = TB200HB/marketing both sides		
	305 = TB300 & TB345/marketing one side		
	301 = TB300 & TB345/marketing both sides		
	Note: Marking Strips are not available on TB400 Series.		

Double row terminal blocks

Series TB400

Specifications

Description: Double row terminal blocks.

Ratings:

Volts: — 600V

Amps: — 75A

Center Spacing: 0.687" or 11/16" (17.45mm).

Wire Range: #6-14 AWG CU.

Screw Size: #10-32 philslot screws.

Poles: 2 to 12.

Torque Rating: 20 in-lb.

Distance Between Barriers: 0.56" (14.3mm).

Mounting: #10 screws.

Operating Temperature: +130/-40°C (+266/-40°F).

Construction: Molded, black thermoplastic base with tin-plated brass terminals and zinc-plated steel screws.

Breakdown Voltage: 7500V.

Agency Information: UL/CSA; IEC Compliance; CE Certified.

Flammability Rating: UL 94V0.

Dimensions - in

Poles	A	B	Poles	A	B	Poles	A	B
02	2.51	2.06	06	5.26	4.81	10	8.01	7.56
03	3.20	2.75	07	5.95	5.50	11	8.70	8.25
04	3.89	3.44	08	6.64	6.19	12	9.39	8.94
05	4.58	4.13	09	7.33	6.88			

1" = 25.4mm.

Screw Options



B
Brass Philslot
Nickel-Plated



ST
Stainless Steel
Philslot



STR
Stainless Steel
Phillips (recess)

Hardware Options



OJ14: Closed over barrier

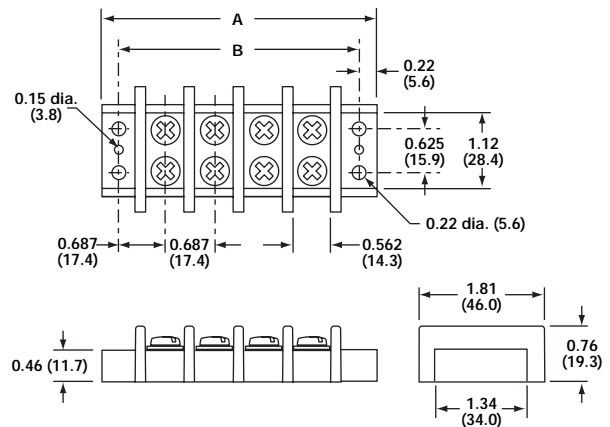
Catalog Number Build-A-Code

Series	Poles	Screw Options	Marking
TB400	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
	02 to 12	Blank = Steel philslot, zinc-plated 00 = Screws shipped bulk B = Brass philslot, nickel-plated ST = Stainless steel, philslot STR = Stainless steel, phillips (recess)	Not available



TB400-05

TB400 - in (mm)



Base mount double row terminal blocks

Series KU

Specifications

Description: Base mount double row terminal blocks.

Ratings:

Volts: — 600V

Amps: — 60A*

Center Spacing: 0.625" (15.88mm).

Poles: 2-12.

Wire Range: #6-22 AWG CU.

Screw Size: #10-32 nickel-plated brass.

Torque Rating: 20 in-lb.

Distance Between Barriers: 0.437" (11.09mm).

Mounting: Base mount. For 35mm DIN rail mountable, add ND prefix.

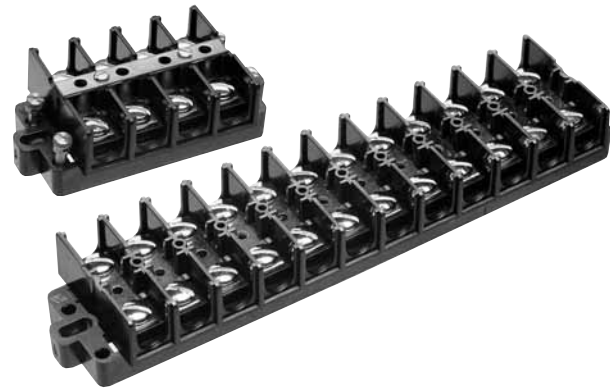
Construction: Molded, black thermoplastic base with nickel-plated brass terminals.

Operating Temperature: 105°C max.

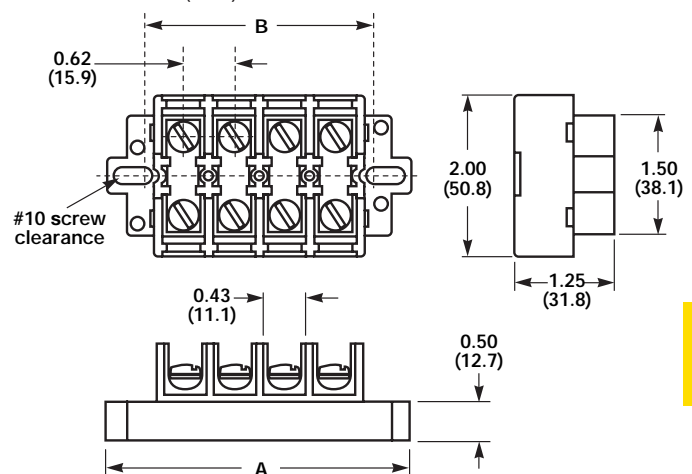
Agency Information: UL/CSA; CE Certified.

Flammability Rating: UL 94V0.

* 60A rating achieved with #6 copper wire crimped to ring terminal.



Series KU - in (mm)



Dimensions - in

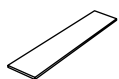
Poles	KU		KUX Only
	A	B	A
02	2.50	1.62	2.00
03	3.12	2.25	2.62
04	3.75	2.87	3.25
05	4.37	3.50	3.87
06	5.00	4.12	4.50
07	5.62	4.75	5.12
08	6.25	5.37	5.75
09	6.87	6.00	6.37
10	7.50	6.62	7.00
11	8.12	7.25	7.62
12	8.75	7.87	8.25

1" = 25.4mm.

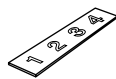
Catalog Number Build-A-Code

Series	Poles	Screw Options	Covers	Marking Strip
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
KU = Standard block KUH = Block KUX = Short block KUSC = Standard w/shorting strap & 4 shorting screws KURL = Standard w/removable link KUXSC = Short block w/shorting strap & 4 Shorting screws KUXRL = Short block w/removable link	02 to 12	00 = Screws shipped bulk W = Brass washer head, nickel-plated P = Steel screw w/pressure plate zinc-plated B = Brass washer head, no plating BP = Brass phillslot, nickel-plated	WC = Top cover & 2 end plates	MT = Matte finish NU = Numbered 1 to 12, horizontal NUV = Numbered 1 to 12, vertical PT = Marker strip for cover

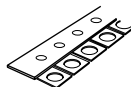
Accessories



MTU##
Molded Marking Tape
Matte Finish



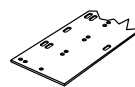
NUM##
Molded Marking Tape



JU12
Jumper
12 Circuits



NUE
End Piece for NUC



NUC##
Cover

Standard base terminal blocks

Series TS — 8.0, 10.0, 12.0, 13.5mm centers

Specifications

Description: 8, 10, 12 and 13.5mm center, standard base terminal blocks.

Construction: Mold to length polyamide type 6/6 housing, nickel-plated brass contacts and stainless steel wire protector.

Ratings:

- Volts: — 600V
- Amps: —20A (TS08)
- 30A (TS10)
- 35A (TS12)
- 50A (TS14)

Wire Range: See Specifications table.

Screw Size: See Specifications table.

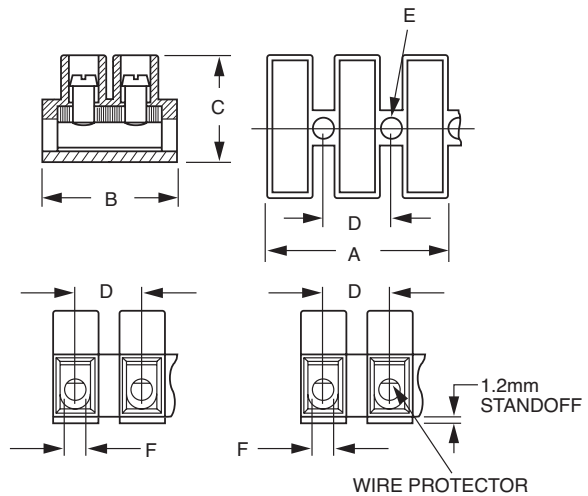
Poles: 2 to 12.

Torque Rating: See Specifications table.

Operating Temperature: +105/-30°C (+221/-22°F).

Agency Information: UL/CSA; CE Certified

Flammability Rating: UL 94V2(white)



A Dimensions - in (mm)

Poles	TS08	TS10	TS12	TS14
2	0.622 (15.8)	0.689 (17.5)	0.815 (20.7)	0.906 (23.0)
3	0.937 (23.8)	1.083 (27.5)	1.287 (32.7)	1.437 (36.5)
4	1.252 (31.8)	1.476 (37.5)	1.760 (44.7)	1.969 (50.0)
5	1.567 (39.8)	1.870 (47.5)	2.232 (56.7)	2.500 (63.5)
6	1.882 (47.8)	2.264 (57.5)	2.705 (68.7)	3.031 (77.0)
7	2.232 (55.8)	2.657 (67.5)	3.177 (80.7)	3.563 (90.5)
8	2.512 (63.8)	3.051 (77.5)	3.650 (92.7)	4.094 (104.0)
9	2.827 (71.8)	3.445 (87.5)	4.122 (104.7)	4.626 (117.5)
10	3.142 (79.8)	3.839 (97.5)	4.594 (116.7)	5.157 (131.0)
11	3.457 (87.8)	4.232 (107.5)	5.067 (128.7)	5.689 (144.5)
12	3.772 (95.8)	4.626 (117.5)	5.539 (140.7)	6.220 (158.0)

Specifications

Position	Torque in-lb	Clamping Area (mm ²)	Wire Range AWG (CU)	Dimensions - in (mm)					
				Screw	B	C	D	E	F
TS0801	3.5	4.0	22-12 Sol./Str.	M2.6x5	0.67 (17.0)	0.57 (14.5)	0.32 (8.0)	0.11 (2.9)	0.11 (2.8±0.1)
TS0802	3.5	1.5	22-12 Sol./Str.	M2.6x5	0.67 (17.0)	0.57 (14.5)	0.32 (8.0)	0.11 (2.9)	0.11 (2.8±0.1)
TS1001	4.4	6.0	22-10 Sol., 14-10 Str.	M3.0x6	0.80 (20.2)	0.67 (17.0)	0.39 (10.0)	0.14 (3.6)	0.13 (3.4±0.1)
TS1002	4.4	2.5	22-12 Sol./Str., 10 Sol.	M3.0x6	0.80 (20.2)	0.67 (17.0)	0.39 (10.0)	0.14 (3.6)	0.13 (3.4±0.1)
TS1201	7.0	10.0	22-10 Sol./Str.	M3.5x7	0.94 (23.8)	0.75 (19.0)	0.47 (12.0)	0.14 (3.9)	0.15 (4.2±0.1)
TS1202	7.0	6.0	22-10 Sol./Str.	M3.5x7	0.94 (23.8)	0.75 (19.0)	0.47 (12.0)	0.15 (3.9)	0.15 (4.2±0.1)
TS1401	12.0	16.0	20-8 Sol./Str.	M4.0x9	1.01 (25.6)	0.99 (25.2)	0.53 (13.5)	0.17 (4.4)	0.19 (5.0±0.1)
TS1402	12.0	10.0	20-8 Sol./Str.	M4.0x9	1.01 (25.6)	0.99 (25.2)	0.53 (13.5)	0.17 (4.4)	0.19 (5.0±0.1)

Catalog Number Build-A-Code

Series	Base	Poles
TS		
08 = 20A	01 = Standard	02 to 12
10 = 30A	02 = Standard w/ wire protector	
12 = 35A		
14 = 50A		

Flat base terminal blocks

Series TS — 8.0, 10.0mm centers

Specifications

Description: 8 and 10mm center, flat base terminal blocks.

Construction: Mold to length polyamide type 6/6 housing, nickel-plated brass contact and stainless steel wire protector.

Ratings:

- Volts: — 600V
- Amps: — 20A (TS08)
- 30A (TS10)

Wire Range: See Specifications table.

Screw Size: See Specifications table.

Poles: 2 to 12.

Torque Rating: See Specifications table.

Operating Temperature: +105/-30°C (+221/-22°F).

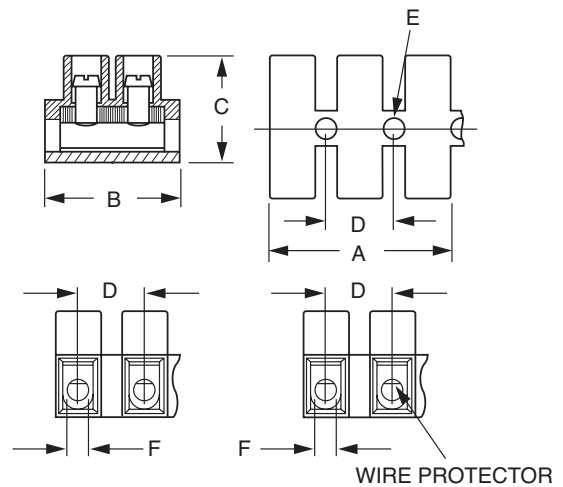
Agency Information: UL/CSA; CE Certified.

Flammability Rating: UL 94V2 (white).



A Dimensions - in (mm)

Poles	TS08	TS10
2	0.622 (15.8)	0.689 (17.5)
3	0.937 (23.8)	1.083 (27.5)
4	1.252 (31.8)	1.476 (37.5)
5	1.567 (39.8)	1.870 (47.5)
6	1.882 (47.8)	2.264 (57.5)
7	2.232 (55.8)	2.657 (67.5)
8	2.512 (63.8)	3.051 (77.5)
9	2.827 (71.8)	3.445 (87.5)
10	3.142 (79.8)	3.839 (97.5)
11	3.457 (87.8)	4.232 (107.5)
12	3.772 (95.8)	4.626 (117.5)



Specifications

Position	Torque in-lb	Clamping Area (mm ²)	Wire Range AWG (CU)	Dimensions - in (mm)					
				Screw	B	C	D	E	F
TS0803	3.5	4.0	22-12 Sol./Str.	M2.6x5	0.64 (16.3)	0.53 (13.3)	0.32 (8.0)	0.11 (2.9)	0.11 (2.8±0.1)
TS0804	3.5	1.5	22-12 Sol./Str.	M2.6x5	0.64 (16.3)	0.52 (13.3)	0.32 (8.0)	0.11 (2.9)	0.11 (2.8±0.1)
TS1003	4.4	6.0	22-10 Sol., 14-10 Str.	M3.0x6	0.80 (20.2)	0.62 (15.8)	0.39 (10.0)	0.14 (3.6)	0.13 (3.2±0.1)
TS1004	4.4	2.5	22-12 Sol./Str., 10 Sol.	M3.0x6	0.80 (20.2)	0.62 (15.8)	0.39 (10.0)	0.14 (3.6)	0.13 (3.2±0.1)

Catalog Number Build-A-Code

Series	Base	Poles
TS <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
08 = 20A	03 = Flat	02 to 12
10 = 30A	04 = Flat w/ wire protector	

Wire Management Products

Raised base terminal blocks

Series TS - 8.0, 10.0mm centers

Specifications

Description: 8 and 10mm center, raised base terminal blocks.

Construction: Mold to length polyamide type 6/6 housing, nickel-plated brass contacts and stainless steel wire protector.

Ratings:

- Volts: — 600V
- Amps: — 20A (TS08)
- 30A (TS10)

Wire Range: See Specifications table.

Screw Size: See Specifications table.

Poles: 2 to 12.

Torque Rating: See Specifications table.

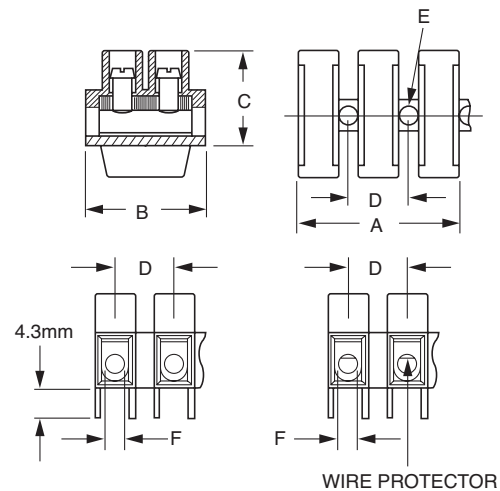
Operating Temperature: +105/-30°C (+221/-22°F).

Agency Information: UL/CSA; CE Certified

Flammability Rating: UL 94V2 (white)



Note: TS Series standard base pictured above.



A Dimensions

Poles	TS08	TS10
2	0.622 (15.8)	0.689 (17.5)
3	0.937 (23.8)	1.083 (27.5)
4	1.252 (31.8)	1.476 (37.5)
5	1.567 (39.8)	1.870 (47.5)
6	1.882 (47.8)	2.264 (57.5)
7	2.232 (55.8)	2.657 (67.5)
8	2.512 (63.8)	3.051 (77.5)
9	2.827 (71.8)	3.445 (87.5)
10	3.142 (79.8)	3.839 (97.5)
11	3.457 (87.8)	4.232 (107.5)
12	3.772 (95.8)	4.626 (117.5)

Specifications

Position	Torque in-lb	Clamping Area (mm ²)	Wire Range AWG (CU)	Dimensions - in (mm)					
				Screw	B	C	D	E	F
TS0805	3.5	4.0	22-12 Sol./Str.	M2.6x5	0.64 (16.30)	0.67 (16.90)	0.32 (8.00)	0.11 (2.90)	0.11 (2.8±0.1)
TS0806	3.5	1.5	22-12 Sol./Str.	M2.6x5	0.64 (16.30)	0.67 (16.90)	0.32 (8.00)	0.11 (2.90)	0.11 (2.8±0.1)
TS1005	4.4	6.0	22-10 Sol., 14-10 Str.	M3.0x6	0.80 (20.20)	0.79 (20.10)	0.39 (10.00)	0.14 (3.60)	0.13 (3.2±0.1)
TS1006	4.4	2.5	22-12 Sol./Str., 10 Sol.	M3.0x6	0.80 (20.20)	0.79 (20.10)	0.39 (10.00)	0.14 (3.60)	0.13 (3.2±0.1)

Catalog Number Build-A-Code

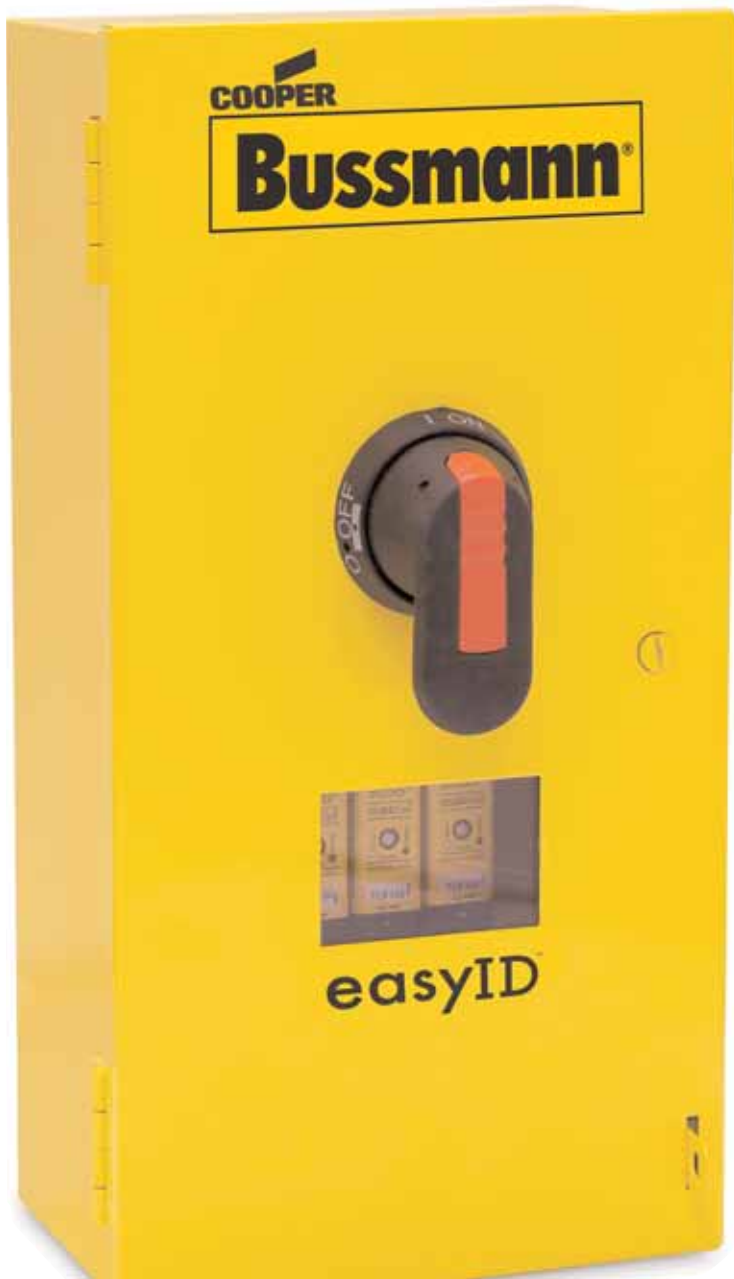
Series	Base	Poles
TS <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
08 = 20A	05 = Raised	02 to 12
10 = 30A	06 = Raised w/ wire protector	

Disconnects

Section Contents

	Page
Safety Module™ fused disconnect switch	304
Coordination Module™ fused lighting and appliance panelboard	305
Power Module™ — all-in-one elevator disconnect . .	306
Fusible disconnects	
Overview	307
30A Base & DIN rail mount switches	308-309
60-100A Base & DIN rail mount switches	310
Accessories for 60-100A switches	311
200-800A Base & DIN rail mount switches	312-313
30-800A, 600V 3-Pole enclosed switches	314-315
30-800A 2-, 4- & 6-Pole enclosed switches	316-317
Non-fusible disconnects	
Overview for non-fusible switches	318-319
16-100A Base & DIN rail mount switches	320-321
16-100A door mounted switches	322
400-800A switches	323
Accessories for 400-800A switches	324
16-80A, 600V 3-Pole enclosed switches	325
16A-3150A, 600V 3-Pole enclosed switches	326
16-400A 2-, 4- & 6-Pole enclosed switches	327-328
A/C Disconnects — fused and non-fused	329
Fused, dead front disconnect switches	330

RED indicates **NEW** information



Disconnects

Safety Module™ fused disconnect switch

SM363 _ _

Cooper Bussmann Safety Module™

Specifications

Description: A fused disconnect featuring enhanced safety features and use of the Cooper Bussmann CUBEFuse™. Optional rejection kits prevent overfusing 30 and 60 amp circuits. Padlockable handle and door interlock provide safety during maintenance procedures. Viewing window permits viewing CUBEFuse permanent fuse indication status without opening the door.

Poles: 3

Enclosures: NEMA 1, 3R, 12 and 4X

Ratings:

Volts: — 600Vac

Amps: — 0-100A

IR: — 50kA

Agency Information: CE, UL Listed and cUL Listed.

Features and Benefits

- *easyID™* fuse viewing window allows maintenance personnel to quickly identify open fuses — without opening the enclosure.
- Wide amp range in one unit provides installation flexibility — one Safety Module™ covers 1-100A applications.
- Rejection kits prevent overfusing 30A and 60A circuits.
- Optional internal safety barrier covers all energized parts to provide added protection against electrical hazards — even with the enclosure door open.

Accessories

- Optional internal safety barriers
- Solid neutral terminal
- Auxiliary contacts
- Rejection kits for 30 and 60 amp applications

Catalog Numbers

Catalog Numbers*	Amp Rating	NEMA Enclosure	Max. Hp Rating			Dimensions (in)**			Short Circuit Rating
			240V	480V	600V	Height	Width	Depth	
SM363FG	100	1	20	40	50	16	8	5	50kA
SM363FR	100	3R	20	40	50	16	12	5	50kA
SM363FD	100	12	20	40	50	16	10	6	50kA
SM363FX	100	4XSS	20	40	50	16	12	6	50kA

* For safety barrier/rejection plate, add the suffix "B" to the catalog number, then add either; 1 for 30A, 2 for 60A or 3 for 100A. Example: SM363FGB3.

NEMA 1 enclosures also available in gray. To order, place suffix "G" to the end of catalog number. Example: SM363FGG.

NEMA 3R & 12 only available in gray.

** Does not include mounting tabs or handle. See Data Sheet for full dimensional data.



Disconnects

Coordination Module™ fused lighting and appliance panelboard

Type EP

Cooper Bussmann Coordination Module™

Specifications

Description: A fused lighting and appliance panelboard for branch circuit applications. Specifically designed to meet the 2005 NEC® Code requirements for selective coordination for Emergency, Legally Required Standby and Essential Electrical Systems per 700.27, 701.18, and 517.26 when properly coordinated with the upstream overcurrent protective device feeder.

Circuits: 12, 24, 36, 42

Enclosure: NEMA 1

Ratings:

Volts: — 120/208 or 277/480Vac

Branch Circuit Amps: — 0-30A

Short Circuit Rating : — 100kA

Agency Information: UL67, UL 50.

Features and Benefits

- Complies with the new 2005 NEC® Selective Coordination Requirements for Emergency, Legally Required Standby and Essential Electrical Systems per 700.27, 701.18, and 517.26 when properly coordinated with the upstream overcurrent protective device feeder. Per the 2005 NEC®: Coordination (Selective) is the localization of an overcurrent condition to restrict outages to the circuit or equipment affected, accomplished by the choice of overcurrent protective devices and their ratings or settings.
- Ensures system uptime with the goal of safety of human life during emergencies or for essential health care functions.
- Provides a fast and easy solution to meeting new coordination Code requirements. Simply utilize published fuse selective coordination ratios to select the correct upstream fuse ratings.
- Offers significant savings compared to other fused panels and selectively coordinated circuit breaker systems.

Typical Applications

- Hospitals
- Schools
- Commercial and industrial facilities



Catalog Numbers Coordination Module*

Catalog Numbers	Voltage Rating	Short Circuit Rating	Dimensions (in)			Type	Main Device Amp Rating	Branch Circuit	
			Height	Width	Depth			Amp Rating	Number of Circuits
EP2M23012GCC	120/208	100kA**	36	28	5 ¾	MLO	200	30	12
EP2M23024GCC	120/208	100kA**	38	28	5 ¾	MLO	200	30	24
EP2M23036GCC	120/208	100kA**	48	28	5 ¾	MLO	200	30	36
EP2M23042GCC	120/208	100kA**	48	28	5 ¾	MLO	200	30	42
EP4M23012GCC	277/480	100kA***	36	28	5 ¾	MLO	200	30	12
EP4M23024GCC	277/480	100kA***	36	28	5 ¾	MLO	200	30	24
EP4M23036GCC	277/480	100kA***	48	28	5 ¾	MLO	200	30	36
EP4M23042GCC	277/480	100kA***	48	28	5 ¾	MLO	200	30	42

* Meets UL 67 (Panelboards) and UL 50 (Cabinets and Boxes).

** When protected by upstream LPN-RK 100A max. LPJ 200A max. or JLN 200A max., otherwise 10kA.

*** When protected by upstream LPN-RK 200A max. LPJ 200A max. or JLN 200A max., otherwise 14kA.

Data Sheet: 1154

Disconnects

Power Module™ — all-in-one elevator disconnect

PS & PMP

Cooper Bussmann® Power Module™

Specifications

Description: Fusible power switch with shunt trip and fire safety interface to allow for single point tie in with fire alarm system.

Ratings:

- Volts: — 600Vac, 3Ø
- Amps: — 30-400A (PS)
 - 30-400A (PMP feeder switches)
 - 400-800A (PMP main switches*)
- IR: — 200,000A rms

*Contact Cooper Bussmann for applications greater than 800A.

Agency Information: Complies with NFPA 70 (NEC®; National Electrical Code®), ANSI/ASME A17.1 (Safety Code for Elevators and Escalators), NFPA 72 (National Fire Alarm Code®)

— Power Module Switch; UL Listed (UL 98) Enclosed and Dead front switch Guide 96NK3917, File E182262, NEMA 1, UL 50 Listed enclosure**, ULc per Canadian Standards C22.2, No. 0-M91-CAN/CSA C22.2, No. 4-M89 Enclosed switch.

**NEMA 12, 3R, and 4 enclosures also available

— Power Module Panel; UL Listed (UL 67) Panel Boards or (UL 891) Dead Front Switchboard, File E181664, ULc per Canadian Standards, Service Entrance Rated.

Features and Benefits

- Internally powered, relay activated shunt trip system.
- Mechanically interlocked auxiliary contact.
- Self-contained adherence to elevator consensus standards, NFPA 70 (NEC®). NFPA 72, ANSI/ASME 17.1.

Typical Applications

- Elevator Disconnects
- Computer Room Shunt Trip Disconnect
- Fire Safety Interface Relay

Accessories

- For added safety, use the Cooper Bussmann SAMI™ fuse covers to improve maintenance personnel protection (OSHA 1910.333, paragraph C).

Ordering

The Cooper Bussmann Power Module switch and panel are factory configured to the specific application. Contact your Cooper Bussmann representative to place your order. Have all relevant electrical and circuit information on hand.

PS

Power Module™ Switch for single elevator applications



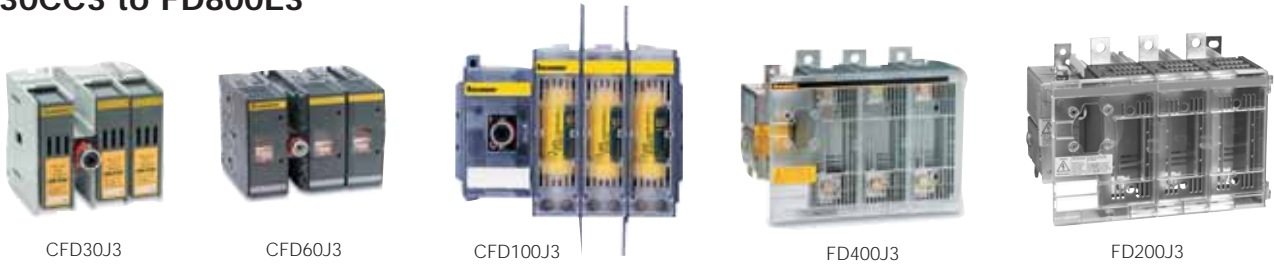
PMP

Power Module™ Panel for multiple elevator applications



Overview for fusible disconnect switches

CFD30CC3 to FD800L3



Agency Information: UL listed, CSA certified, IEC rated, CE marked.

Catalog Numbers		3-pole	CFD30CC3	CFD30J3	CFD60J3	CFD100J3	FD200J3	FD400J3	FD600J3	FD800L3
General Purpose Amp Ratings		A	30	30	60	100	200	400	600	800
Approvals(1)		2-pole 3-pole 4-pole	N/A UL98 & IEC UL98 & IEC	N/A UL98 & IEC UL98 & IEC	N/A UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC UL98 & IEC
Technical Ratings (UL,CSA)										
Max operating voltage	V		600	600	600	600	600	600	600	600
Max horsepower rating										
Three phase	200-208V	hp	5/7.5	5/7.5	15	25	50	100/125	150	200
	240V	hp	7.5	7.5	15	30	60	125	200	250
	480V	hp	15	15	30	60	125	250	400	500
	600V	hp	20	20	50	75	150	350	500	600
Single phase	120V	hp	2	2	—	—	—	—	—	—
	240V	hp	3	3	—	—	—	—	—	—
UL fuse class			CC	J	J	J	J,T	J,T	J,T	L
Technical Ratings (IEC)										
Rated insulation and operational voltage. ac20 and dc20(2)			1000	1000	750	750	1000	1000	1000	1000
Rated thermal current, Ith										
ac 20/dc 20	open	A	32	32	63	125	250	400	630	800
ac 20/dc 20	enclosed	A	32	32	63	125	250	400	600	720
ac 21A	≤500V	A	32	32	63	125	250	400	630	800
	≤690V	A	32	32	63	125	250	400	630	800
Rated operational power ac 23										
	400/415V	kW	14/15	14/15	30	80/90	132/140	210/230	315/340	350/380
	690V	kW	25	25	60	132	230	330	540	600
Physical Characteristics										
Weight	3-pole switch	lb	1.54	1.54	2.86	3.30	15.21	17.2	37.48	37.48
	4-pole	lb	1.98	1.98	3.52	3.96	17.4	19.4	46.3	46.3
Dimension	3-pole	H in	3.82	3.82	3.94	5.66	7.87	7.87	11.42	11.42
		W in	4.17	4.17	5.63	7.06	10.31	11.22	14.69	14.69
		D in	4.21	4.21	5.04	5.09	7.83	8.11	9.21	9.21
Accessories										
Double break contacts		S	S	S	S	S	S	S	S	S
Fuse cover		S	S	S	S	S	S	S	S	S
Terminal lug kit		Integral	Integral	Integral	BDTL24	BDTL25	BDTL26	BDTL27	BDTL27	BDTL27
Terminal shroud		Not required	Not required	Not required	•	•	•	•	•	•
Auxiliary contact		•	•	•	•	•	•	•	•	•
Handle UL/NEMA type										
Type 1, 3R, 12		•	•	•	•	•	•	•	•	•
Type 1, 3R, 4, 4X, 12		•	•	•	•	•	•	•	•	•
Conversion kit										
6-pole		•	•	•	•	•	•	•	•	•
Transfer		•	•	•	•	•	•	•	•	•
Bypass		—	—	—	—	—	—	—	—	—
Mechanical interlock		•	•	—	—	•	•	•	•	•
Electrical interlock		—	—	—	—	•	•	•	•	•

S = Standard
 • = Available
 — = Not available
 (1) UL listed switches are also CSA certified
 (2) 1000V IEC 408

Disconnects

Disconnects

30A Base & DIN rail mount fusible disconnect switches

Selector Handle 30A UL fuse Class J, CC

For a complete assembly, please select one of each:

- 1 switch
- 1 shaft
- 1 handle



CFD30J3



CDS180S



CDH3S

30A/600V Switches

Catalog Numbers	Poles	UL General Purpose Amp Rating	Fuse Type 600V	Maximum Horsepower Rating					Terminal Lugs Wire Size/Type
				Three Phase					
				200V	208V	240V	480V	600V	
CFD30J3	3	30	J	5	7.5	7.5	15	20	#18 – 8/CU
CFD30CC3	3	30	CC	5	7.5	7.5	15	20	#18 – 8/CU
CFD30J4	4	30	J	5	7.5	7.5	15	20	#18 – 8/CU
CFD30CC4	4	30	CC	5	7.5	7.5	15	20	#18 – 8/CU



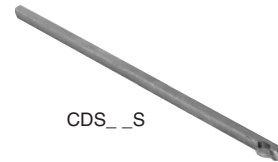
CFD30J3

Shafts — For use with CDH selector handles □ 0.20 x 0.20" (□ 5 x 5 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth(1) in inches
CDS85S	3.3 (85)	5.5-5.7
CDS105S	4.1 (105)	5.5-6.5
CDS120S	4.7 (120)	5.5-7.1
CDS130S	5.1 (130)	5.5-7.5
CDS180S	7.1 (180)	6.3-9.4
CDS250S	9.8 (250)	9.1-12.2
CDS330S	13.0 (330)	12.2-15.4



(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.



CDS_ _S

Selector Handles — For use with shafts □ 0.20 x 0.20" (□ 5 x 5 mm)

All marked both O/I & Off/On

Catalog Numbers	NEMA Type	IEC Type	Color	Defeatable	Padlockable
CDH3S	1,3R,12	IP65	Black	—	Yes
CDH4S	1,3R,12	IP65	Red/Yellow	—	Yes
CDH5S	1,3R,12	IP65	Black	Yes	Yes
CDH6S	1,3R,12	IP65	Red/Yellow	Yes	Yes



CDH3S, 5S



CDH4S, 6S

Disconnects

30A Base & DIN rail mount fusible disconnect switches

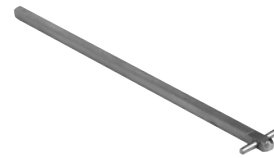
Pistol Handle 30A UL fuse Class J, CC

For a complete assembly, please select one of each:

- 1 switch
- 1 shaft
- 1 handle



CFD30J3



CDS67P



BDH106

30A/600V Switches

Catalog Numbers	Poles	UL General Purpose Amp Rating	Fuse Type 600V	Maximum Horsepower Rating					Terminal Lugs Wire Size/Type
				Three Phase					
				200V	208V	240V	480V	600V	
CFD30J3	3	30	J	5	7.5	7.5	15	20	#18 – 8/CU
CFD30CC3	3	30	CC	5	7.5	7.5	15	20	#18 – 8/CU
CFD30J4	4	30	J	5	7.5	7.5	15	20	#18 – 8/CU
CFD30CC4	4	30	CC	5	7.5	7.5	15	20	#18 – 8/CU

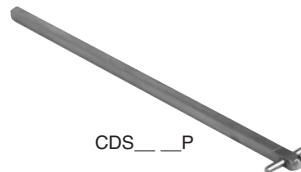


CFD30J3

Shafts

For use with pistol handles □ 0.20 x 0.20" (□ 5 x 5 mm)

Catalog Number	Shaft length in (mm)	Mounting Depth (1) in inches
CDS48P	5.9 (150)	4.9-8.9
CDS67P	6.7 (170)	5.9-9.7
CDS49P	10.4 (265)	9.5-13.4
CDS50P	15.8 (400)	15.0-18.7
CDS99P	19.7 (500)	20.5-22.6



CDS__P

(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.

Pistol Handles

For use with shafts □ 0.20 x 0.20" (□ 5 x 5 mm)

Catalog Numbers	NEMA Type	IEC Type	Color	Marking	Length in (mm)	Defeatable	Padlockable
BDH104	1,3R,12	IP65	Black	O/I&Off/On	1.8 (45)	Yes	Yes
BDH105	1,3R,12	IP65	Red/Yellow	O/I&Off/On	1.8 (45)	Yes	Yes
BDH106	1,3R,12	IP65	Black	O/I&Off/On	2.6 (65)	Yes	Yes
BDH107	1,3R,12	IP65	Red/Yellow	O/I&Off/On	2.6 (65)	Yes	Yes
CDHXB65	1,3R,4,4X,12	IP65	Black	O/I&Off/On	2.6 (65)	Yes	Yes
CDHXY65	1,3R,4,4X,12	IP65	Red/Yellow	O/I&Off/On	2.6 (65)	Yes	Yes
BDH106T	1,3R,12	IP65	Black	Off/On/Test	2.6 (65)	Yes	Yes
BDH107T	1,3R,12	IP65	Red/Yellow	Off/On/Test	2.6 (65)	Yes	Yes



BDH104, 106



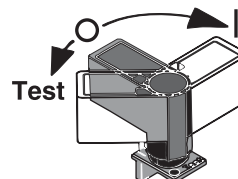
BDH105, 107

Disconnects

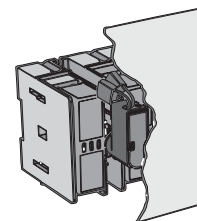
Direct Mount Handle

Mounts directly to switch, no shaft necessary

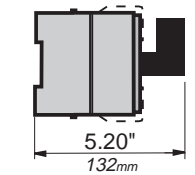
Catalog Number	NEMA Type	Color	Marking	Length in (mm)	Padlockable
BDH79	1	Black	O/I/Test	5.2 (132)	Yes



BDH79



BDH79 Mounted



5.20" / 132mm
BDH79 Mounted Depth

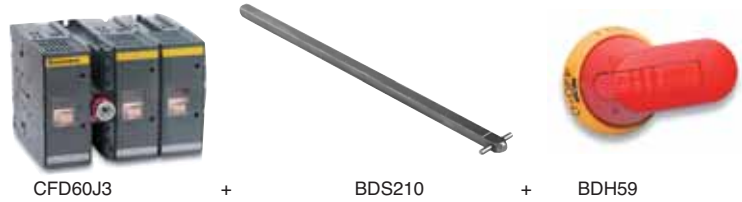
Disconnects

60-100A Base & DIN rail mount fusible disconnect switches

Pistol Handle 60-100A UL fuse Class J

For a complete assembly, please select one of each:

- 1 switch
- 1 shaft
- 1 handle
- 1 terminal lug kit



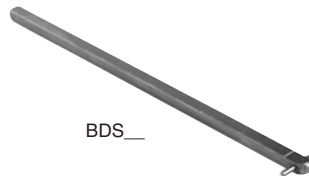
60—100A/600V Switches

Catalog Number	Poles	UL General Purpose Amp Rating	UL Fuse Type 600V	Maximum Horsepower Rating				
				Three Phase				
				200V	208V	240V	480V	600V
CFD60J3	3	60	J	15	15	15	30	50
CFD100J3	3	100	J	25	25	30	60	75
CFD60J4	4	60	J	15	15	15	30	50
CFD100J4	4	100	J	25	25	30	60	75



Shafts — □ 0.24 x 0.24" (□ 6 x 6 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth (1) in inches
BDS150	5.9 (150)	5.5-8.5
BDS210	8.3 (210)	8.0-11.0
BDS290	11.4 (290)	11.0-14.0
BDS360	14.2 (360)	13.8-16.8
BDS430	16.9 (430)	16.5-19.7

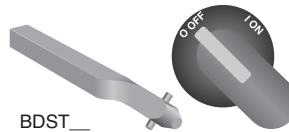


(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.

Twisted Shafts

Rotates handle 45° □ 0.24 x 0.24" (□ 6 x 6 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth (1) in inches
BDST4	5.1 (130)	4.8-7.8
BDST25	8.3 (210)	8.0-11.0
BDST29	11.4 (290)	11.0-14.0
BDST30	14.2 (360)	13.8-16.8



(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.

Pistol Handles — □ 0.24 x 0.24" (□ 6 x 6 mm)

Catalog Numbers	NEMA Type	IEC Type	Color	Length in (mm)	Marking	Defeatable	Padlockable
BDH58	1,3R,12	IP65	Black	2.6 (65)	O/I & Off/On	Yes	Yes
BDH59	1,3R,12	IP65	Red/Yel	2.6 (65)	O/I & Off/On	Yes	Yes
BDH60	1,3R,12	IP65	Black	3.1 (80)	O/I & Off/On	Yes	Yes
BDH61	1,3R,12	IP65	Red/Yel	3.1 (80)	O/I & Off/On	Yes	Yes
CDHXB86	1,3R,4,4X,12	IP65	Black	3.1 (80)	O/I & Off/On	Yes	Yes
CDHXY86	1,3R,4,4X,12	IP65	Red/Yel	3.1 (80)	O/I & Off/On	Yes	Yes



BDH58, 60



BDH59, 61

Direct Mount Handle

Mounts directly to switch, no shaft necessary

Catalog Number	NEMA Type	Color	Marking	Length(mm)	Padlockable
CDH4	1	Black	O/I/Test	50	Yes



CDH4

Disconnects

Accessories for 60-100A fusible disconnect switches

Terminal Lug Kit

Catalog Numbers	For Use On:	Wire Size	Wire Type	Terminal Lugs Per Kit
Integral	CFD60J	#14-4	CU	—
BDSL24	CFD100J	#14-2/0	CU/AL	6



BDTL24

Auxiliary Contacts

Catalog Numbers	Description	For Use On:	AC Thermal Amp Rating	AC Rated Voltage
CDAUX10	1 NO	CFD60 – CFD100	10	600
CDAUX01K	1 NC		10	600



CDAUX10 CDAUX01K

Replacement Fuse Clip

Catalog Number	Description	For Use On:
CFC60J	Removable fuse carrier	CFD60



CFC60J

Replacement Fuse Covers

Catalog Number	Description	For Use On:
CFCVR100	Transparent fuse cover	CFD100



CFCVR100

Terminal Shroud

Catalog Number	Description	For Use On:
CFTS100	Includes one terminal shroud for line or load side	CFD100, 1-Pole



CFTS100

Terminal Poles

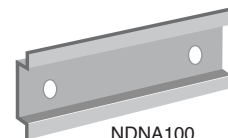
Catalog Numbers	Description	For Use On:	AC Thermal Amp Rating	AC Rated Voltage
CFZ1	Detachable neutral	CFD60	63	600
CFZ2	mounts on side of switch or DIN rail	CFD100	125	



CFZ1

DIN Rail

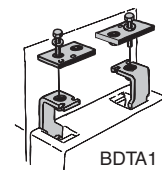
Catalog Numbers	Description	For Use On:	Length in(cm)
NDNA100	35mm Aluminum DIN Rail	CFD60	39.4 (100)



NDNA100

"T" Type Fuse Adapter Kit

Catalog Number	Description	For Use On:
BDTA1	100A, 600V	CFD100



BDTA1

Disconnects

200-800A Base & DIN rail mount fusible disconnect switches

Pistol Handle 200-800A UL fuse Class J, T, L

For a complete assembly, please select one of each:

- 1 switch
- 1 shaft
- 1 handle
- 1 terminal lug kit



200—800A, 600V Switches

Catalog Number	Poles	UL General Purpose Amp Rating	UL Fuse Type 600V	Maximum Horsepower Rating				
				Three Phase				
				200V	208V	240V	480V	600V
FD200J2	2	200	J(1)	—	—	—	—	—
FD400J2	2	400	J(1)	—	—	—	—	—
FD600J2	2	600	J(1)	—	—	—	—	—
FD800L2	2	800	L	—	—	—	—	—
FD200J3	3	200	J(1)	50	50	60	125	150
FD400J3	3	400	J(1)	100	125	125	250	350
FD600J3	3	600	J(1)	150	150	200	400	500
FD800L3	3	800	L	200	200	250	500	600
FD200J4	4	200	J(1)	50	50	60	125	150
FD400J4	4	400	J(1)	100	125	125	250	350
FD600J4	4	600	J(1)	150	150	200	400	500
FD800L4	4	800	L	200	200	250	500	600



FD400J3



FD600J3
FD800L3

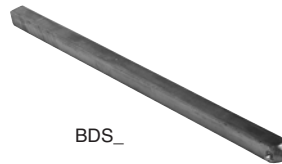
(1) J type fuse clips are standard. If 600V Type "T" clips are desired, please order a "T" type fuse adapter kit.

Shafts — □ 0.47 x 0.47" (□ 12 x 12 mm)

Catalog Number	Shaft Length in (mm)	Mounting Depth(1) in inches
----------------	----------------------	-----------------------------

For use on FD200J_ - FD400J_

BDS220	8.7 (220)	7.9-12.2
BDS250	9.8 (250)	9.1-13.4
BDS280	11.0 (280)	10.2-14.5
BDS325	12.8 (325)	12.0-16.3
BDS395	15.6 (395)	14.8-19.1
BDS465	18.3 (465)	17.5-21.9
BDS535	21.1 (535)	20.3-24.6



BDS_

For use on FD600J_ - FD800J_

BDS250	9.8 (250)	10.0-12.8
BDS280	11.0 (280)	11.2-14.0
BDS325	12.8 (325)	13.0-15.8
BDS395	15.6 (395)	15.8-18.6
BDS465	18.3 (465)	18.5-21.3
BDS535	21.1 (535)	21.1-24.1



(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.

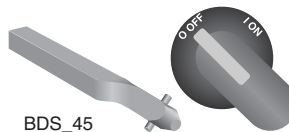
Twisted Shafts

Rotates handle 45° □ 0.47 x 0.47" (□ 12 x 12 mm)

Catalog Number	Shaft Length in (mm)	Mounting Depth (1) in inches
----------------	----------------------	------------------------------

For use on FD200J_ - FD400J_

BDS28045	11.0 (280)	10.2-14.5
BDS32545	12.8 (325)	12.0-16.3
BDS46545	18.3 (465)	17.5-21.9



BDS_45

For use on FD600J_ - FD800J_

BDS28045	11.0 (280)	11.2-14.0
BDS32545	12.8 (325)	13.0-15.8
BDS46545	18.3 (465)	18.5-21.3



(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.

Disconnects

200-800A Base & DIN rail mount fusible disconnect switches

Pistol Handles — □ 0.47 x 0.47" (□ 12 x 12 mm)

Catalog Numbers	NEMA Type	IEC Type	Color	Length in (mm)	Marking	Defeatable	Padlockable
BDH112	1,3R,12	IP65	Black	4.9 (125)	O/I & Off/On	Yes	Yes
BDH113	1,3R,12	IP65	Red/Yellow	4.9 (125)	O/I & Off/On	Yes	Yes
BDH114	1,3R,12	IP65	Black	5.7 (145)	O/I & Off/On	Yes	Yes
BDH115	1,3R,12	IP65	Red/Yellow	5.7 (145)	O/I & Off/On	Yes	Yes
BDH116	1,3R,12	IP65	Black	6.9 (175)	O/I & Off/On	Yes	Yes
BDH117	1,3R,12	IP65	Red/Yellow	6.9 (175)	O/I & Off/On	Yes	Yes
CDHXB12	1,3R,4,4X,12	IP65	Black	5.7 (145)	O/I & Off/On	Yes	Yes
CDHXY12	1,3R,4,4X,12	IP65	Red/Yellow	5.7 (145)	O/I & Off/On	Yes	Yes
CDHXB22	1,3R,4,4X,12	IP65	Black	6.9 (175)	O/I & Off/On	Yes	Yes
CDHXY22	1,3R,4,4X,12	IP65	Red/Yellow	6.9 (175)	O/I & Off/On	Yes	Yes
BDH8	1,3R,4,4X,12	IP65	Metal	8.7 (220)	Off/On	—	Yes



Terminal Lug Kit

Catalog Numbers	For Use On:	Wire Size	Wire Type	Terminal Lugs Per Kit
BDTL25	FD200J_	#6 – 300 kcmil	CU/AL	6
BDTL175	FD200J	(6) #14 – 6 kcmil	CU/AL	3
BDTL26	FD400J	#2 – 600 kcmil	CU/AL	6
BDTL175/400	FD600J – FD800L	(12) #14 – 16–600 kcmil	CU/AL	3
BDTL27	FD600J_ & FD800L_	(2) #2 – 600 kcmil	CU/AL	6



BDTL25



BDTL26



BDTL27



BDTL175



BDTL175/400

"T" Type Fuse Adapter Kit

Catalog Number	Poles	For Use On:	AC Thermal Amp Rating	AC Rated Voltage
BDA2	3	FD200J_	200	600
BDA4	3	FD400J_	400	600
BDA6	3	FD600J_	600	600
BDA8	3	FD800J_	800	600



BDA



Did You Know?

Protect the Promise of Customer Satisfaction

Our customer satisfaction team answers your calls 8:00 a.m. – 4:30 p.m. for all US time zones, receiving and responding to an average of 1600 calls and 700 emails every day.

We also offer emergency after-hours service.

Phone: 636-527-3877
email: busscustsat@cooperbussmann.com
Toll-free fax: 800-544-2570
Emergency after-hour phone: 314-995-1342

Disconnects

30–800A, 600V 3-Pole enclosed fusible disconnect switches

Pistol Handle NEMA 1, 3R, 4 and 4X, UL fuse Class J, CC



EFJ30X-3PB6



Catalog Numbers

UL General Purpose Amp Rating	Fuse Class/ Type	Catalog Numbers (1) NEMA/UL Enclosure Type			
		1	3R	4	4X Stainless
30	J	EFJ301-3PB6	EFJ303-3PB6	EFJ304-3PB6	EFJ30X-3PB6
30	CC	EFC301-3PB6	EFC303-3PB6	EFC304-3PB6	EFC30X-3PB6
60	J(2)	EFJ601-3PB6	EFJ603-3PB6	EFJ604-3PB8	EFJ60X-3PB8
100	J(2)	EFJ1001-3PB8	EFJ1003-3PB8	EFJ1004-3PB8	EFJ100X-3PB8
200	J(2)	EFJ2001-3PB4	EFJ2003-3PB4	EFJ2004-3PB4	EFJ200X-3PB4
400	J(2)	EFJ4001-3PB4	EFJ4003-3PB4	EFJ4004-3PB4	EFJ400X-3PB4
600	J(2)	EFJ6001-3PB4	EFJ6003-3PB4	EFJ6004-3PB4	EFJ600X-3PB4
800	J(2)	EFL8001-3PB4	EFL8003-3PB4	EFL8004-3PB4	EFL800X-3PB4

(1) Fusible switches are UL listed to the UL98 standard.

(2) 600V T type fuse clips may be substituted at no charge. Please change the second character of the catalog number from "J" to "T."

NEMA 4X, 12 and 7&9, UL fuse Class J, CC



CFD30J3

Catalog Numbers

UL General Purpose Amp Rating	Fuse Class/ Type	Catalog Numbers (1) NEMA/UL Enclosure Type		
		4X Plastic	12	7 & 9
30	J	EFJ30P-3PB6	EFJ302-3PB6	EFJ307-3PB
30	CC	EFC30P-3PB6	EFC302-3PB6	EFC307-3PB
60	J(2)	EFJ60P-3PB8	EFJ602-3PB6	EFJ607-3PB
100	J(2)	EFJ100P-3PB8	EFJ1002-3PB8	EFJ1007-3PB
200	J(2)	EFJ200P-3PB4	EFJ2002-3PB4	EFJ2007-3PB
400	J(2)	EFJ400P-3PB4	EFJ4002-3PB4	EFJ4007-3PB
600	J(2)	EFJ600P-3PB4	EFJ6002-3PB4	EFJ6007-3PB
800	J(2)	EFL800P-3PB4	EFL8002-3PB4	EFL8007-3PB

(1) Fusible switches are UL listed to the UL98 standard.

(2) 600V T type fuse clips may be substituted at no charge. Please change the second character of the catalog number from "J" to "T."

Disconnects

30–800A, 600V 3-Pole enclosed fusible disconnect switches

Switch Ratings

UL General Purpose	Maximum Horsepower Rating								Wire Size For Terminal Lugs	For Wire Type	Approval(1)
	Single Phase			Three Phase							
Amp Rating	120V	200V	240V	200V	208V	240V	480V	600V			
30	2	3	5	5	7.5	7.5	15	20	#18 – 8	CU	CSA, UL
60	3	7.5	10	15	15	15	30	50	#14 – 4	CU	CSA, UL
100	5	10	15	25	25	30	60	75	#14 – 2/0	CU/AL	CSA, UL
200	—	—	—	50	50	60	125	150	#6 – 300 kcmil	CU/AL	CSA, UL
400	—	—	—	100	125	125	250	350	#2 – 600 kcmil	CU/AL	CSA, UL
600	—	—	—	150	150	200	400	500	(2) #2 – 600 kcmil	CU/AL	CSA, UL
800	—	—	—	200	200	250	500	600	(2) #2 – 600 kcmil	CU/AL	CSA, UL

(1) Fusible switches are UL listed to the UL98 standard.

Handle Ratings

Catalog Numbers	Catalog No. Suffix	Amp Range	Handle Type	NEMA Rating	Color	Marking	Defeatable	Padlockable
CDH5S	BJ	30	Selector	1,3R,12	Black	0/I & Off/On	Yes	Yes
CDH6S	YJ	30	Selector	1,3R,12	Red/Yel	0/I & Off/On	Yes	Yes
BDH106	B6	30	Pistol	1,3R,12	Black	0/I & Off/On	Yes	Yes
BDH107	Y6	30	Pistol	1,3R,12	Red/Yel	0/I & Off/On	Yes	Yes
CDHXB65	B6	30	Pistol	1,3R,4,4X,12	Black	0/I & Off/On	Yes	Yes
CDHXY65	Y6	30	Pistol	1,3R,4,4X,12	Red/Yel	0/I & Off/On	Yes	Yes
BDH58	B6	60-100	Pistol	1,3R,12	Black	0/I & Off/On	Yes	Yes
BDH59	Y6	60-100	Pistol	1,3R,12	Red/Yel	0/I & Off/On	Yes	Yes
BDH60	B8	60-100	Pistol	1,3R,12	Black	0/I & Off/On	Yes	Yes
BDH61	Y8	60-100	Pistol	1,3R,12	Red/Yel	0/I & Off/On	Yes	Yes
CDHXB86	B8	60-100	Pistol	1,3R,4,4X,12	Black	0/I & Off/On	Yes	Yes
CDHXY86	Y8	60-100	Pistol	1,3R,4,4X,12	Red/Yel	0/I & Off/On	Yes	Yes
BDH114	B4	200-800	Pistol	1,3R,12	Black	0/I & Off/On	Yes	Yes
BDH115	Y4	200-800	Pistol	1,3R,12	Red/Yel	0/I & Off/On	Yes	Yes
BDH116	B7	200-800	Pistol	1,3R,12	Black	0/I & Off/On	Yes	Yes
BDH117	Y7	200-800	Pistol	1,3R,12	Red/Yel	0/I & Off/On	Yes	Yes
CDHXB12	B4	200-800	Pistol	1,3R 4,4X,12	Black	0/I & Off/On	Yes	Yes
CDHXY12	Y4	200-800	Pistol	1,3R 4,4X,12	Red/Yel	0/I & Off/On	Yes	Yes
CDHXB22	B7	200-800	Pistol	1,3R 4,4X,12	Black	0/I & Off/On	Yes	Yes
CDHXY22	Y7	200-800	Pistol	1,3R 4,4X,12	Red/Yel	0/I & Off/On	Yes	Yes
BDH8	8	200-800	Pistol	1,3R 4,4X,12	Metal	0/I & Off/On	No	Yes



Did You Know?

Easy Internet Access to Product and Technical Information

All of the following functions are available on-line at www.cooperbussmann.com:

- Product cross-reference
- Product catalogs
- Technical specification sheets
- Current events/news releases
- Training seminar schedule
- Training modules
- Technical software solutions

Disconnects

30–800A 2-, 4- and 6-Pole enclosed fusible disconnect switches

NEMA 1, 3R and 4X for Transfer, Bypass and Mechanical Interlock Applications

Catalog Numbers

UL General Purpose Amp Rating	Switch Type	Catalog Numbers			
		NEMA Enclosure Type			
		1	3R	4	4X Stainless
30 (Class J fuses)	4-Pole(1)	EFJ301-4PB6	EFJ303-4PB6	EFJ304-4PB6	EFJ30X-4PB6
	6-Pole	EFJ301-6PB6	EFJ303-6PB6	EFJ304-6PB6	EFJ30X-6PB6
	Transfer	EFJ301-3TB8	EFJ303-3TB8	EFJ304-3TB8	EFJ30X-3TB8
	Bypass	EFJ301-3BB6	EFJ303-3BB6	EFJ304-3BB6	EFJ30X-3BB6
	Mech. interlock	EFJ301-3MB6	EFJ303-3MB6	EFJ304-3MB6	EFJ30X-3MB6
30 (Class CC fuses)	4-Pole(1)	EFC301-4PB6	EFC303-4PB6	EFC304-4PB6	EFC30X-4PB6
	6-Pole	EFC301-6PB6	EFC303-6PB6	EFC304-6PB6	EFC30X-6PB6
	Transfer	EFC301-3TB8	EFC303-3TB8	EFC304-3TB8	EFC30X-3TB8
	Bypass	EFC301-3BB6	EFC303-3BB6	EFC304-3BB6	EFC30X-3BB6
	Mech. interlock	EFC301-3MB6	EFC303-3MB6	EFC304-3MB6	EFC30X-3MB6
60	4-Pole(1)	EFJ601-4PB6	EFJ603-4PB6	EFJ604-4PB6	EFJ60X-4PB6
	6-Pole	EFJ601-6PB4	EFJ603-6PB4	EFJ604-6PB4	EFJ60X-6PB4
	Transfer	EFJ601-3TB8	EFJ603-3TB8	EFJ604-3TB8	EFJ60X-3TB8
	Mech. interlock	EFJ601-3MB6	EFJ603-3MB6	EFJ604-3MB6	EFJ60X-3MB6
100	2-Pole(1)	EFJ1001-2PB8	EFJ1003-2PB8	EFJ1004-2PB8	EFJ100X-2PB8
	4-Pole(1)	EFJ1001-4PB8	EFJ1003-4PB8	EFJ1004-4PB8	EFJ100X-4PB8
	6-Pole	EFJ1001-6PB4	EFJ1003-6PB4	EFJ1004-6PB4	EFJ100X-6PB4
	Transfer	EFJ1001-3TB8	EFJ1003-3TB8	EFJ1004-3TB8	EFJ100X-3TB8
	Mech. interlock	EFJ1001-3MB8	EFJ1003-3MB8	EFJ1004-3MB8	EFJ100X-3MB8
200	2-Pole(1)	EFJ2001-2PB8	EFJ2003-2PB8	EFJ2004-2PB8	EFJ200X-2PB8
	4-Pole(1)	EFJ2001-4PB4	EFJ2003-4PB4	EFJ2004-4PB4	EFJ200X-4PB4
	6-Pole	EFJ2001-6P8	EFJ2003-6P8	EFJ2004-6P8	EFJ200X-6P8
	Transfer	EFJ2001-3TB4	EFJ2003-3TB4	EFJ2004-3TB4	EFJ200X-3TB4
	Bypass	EFJ2001-3B6	EFJ2003-3B6	EFJ2004-3B6	EFJ200X-3B6
	Mech. interlock	EFJ2001-3MB4	EFJ2003-3MB4	EFJ2004-3MB4	EFJ200X-3MB4
400	2-Pole(1)	EFJ4001-2PB4	EFJ4003-2PB4	EFJ4004-2PB4	EFJ400X-2PB4
	4-Pole(1)	EFJ4001-4PB4	EFJ4003-4PB4	EFJ4004-4PB4	EFJ400X-4PB4
	6-Pole	EFJ4001-6P8	EFJ4003-6P8	EFJ4004-6P8	EFJ400X-6P8
	Transfer	EFJ4001-3TB4	EFJ4003-3TB4	EFJ4004-3TB4	EFJ400X-3TB4
	Bypass	EFJ4001-3B6	EFJ4003-3B6	EFJ4004-3B6	EFJ400X-3B6
	Mech. interlock	EFJ4001-3MB4	EFJ4003-3MB4	EFJ4004-3MB4	EFJ400X-3MB4
600	2-Pole(1)	EFJ6001-2PB4	EFJ6003-2PB4	EFJ6004-2PB4	EFJ600X-2PB4
	4-Pole(1)	EFJ6001-4PB4	EFJ6003-4PB4	EFJ6004-4PB4	EFJ600X-4PB4
	6-Pole	EFJ6001-6P8	EFJ6003-6P8	EFJ6004-6P8	EFJ600X-6P8
	Transfer	EFJ6001-3TB4	EFJ6003-3TB4	EFJ6004-3TB4	EFJ600X-3TB4
	Bypass	EFJ6001-3B6	EFJ6003-3B6	EFJ6004-3B6	EFJ600X-3B6
	Mech. interlock	EFJ6001-3MB4	EFJ6003-3MB4	EFJ6004-3MB4	EFJ600X-3MB4
800	2-Pole(1)	EFL8001-2PB4	EFL8003-2PB4	EFL8004-2PB4	EFL800X-2PB4
	4-Pole(1)	EFL8001-4PB4	EFL8003-4PB4	EFL8004-4PB4	EFL800X-4PB4
	6-Pole	EFL8001-6P8	EFL8003-6P8	EFL8004-6P8	EFL800X-6P8
	Transfer	EFL8001-3TB4	EFL8003-3TB4	EFL8004-3TB4	EFL800X-3TB4
	Bypass	EFL8001-3B6	EFL8003-3B6	EFL8004-3B6	EFL800X-3B6
	Mech. interlock	EFL8001-3MB4	EFL8003-3MB4	EFL8004-3MB4	EFL800X-3MB4

2-Pole



4-Pole



6-Pole



(2) ≡ Three-poles

(1) IEC rated only.

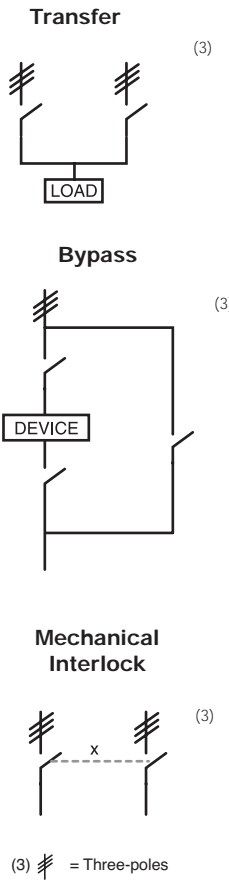
Disconnects

30–800A 2-, 4- and 6-Pole enclosed fusible disconnect switches

NEMA 4X, 12 and 7&9 for Transfer, Bypass and Mechanical Interlock Applications

UL General Purpose Amp Rating	Switch Type	Catalog Numbers		
		NEMA Enclosure Type		
		4X Plastic	12	7 & 9
30 (Class J fuses)	4-Pole(1)	EFJ30P-4PB6	EFJ302-4PB6	(2)
	6-Pole	EFJ30P-6PB6	EFJ302-6PB6	
	Transfer	EFJ30P-3TB8	EFJ302-3TB8	
	Bypass	EFJ30P-3BB6	EFJ302-3BB6	
	Mech. interlock	EFJ30P-3MB6	EFJ302-3MB6	
30 (Class CC fuses)	4-Pole(1)	EFC30P-4PB6	EFC302-4PB6	(2)
	6-Pole	EFC30P-6PB6	EFC302-6PB6	
	Transfer	EFC30P-3TB8	EFC302-3TB8	
	Bypass	EFC30P-3BB6	EFC302-3BB6	
	Mech. interlock	EFC30P-3MB6	EFC302-3MB6	
60	4-Pole(1)	EFJ60P-4PB6	EFJ602-4PB6	(2)
	6-Pole	EFJ60P-6PB4	EFJ602-6PB4	
	Transfer	EFJ60P-3TB8	EFJ602-3TB8	
	Mech. interlock	EFJ60P-3MB6	EFJ602-3MB6	
	100	2-Pole(1)	EFJ100P-2PB8	EFJ1002-2PB8	(2)
4-Pole(1)		EFJ100P-4PB8	EFJ1002-4PB8	
6-Pole		EFJ100P-6PB4	EFJ1002-6PB4	
Transfer		EFJ100P-3TB8	EFJ1002-3TB8	
Mech. interlock		EFJ100P-3MB8	EFJ1002-3MB8	
200	2-Pole(1)	EFJ200P-2PB8	EFJ2002-2PB8	(2)
	4-Pole(1)	EFJ200P-4PB4	EFJ2002-4PB4	
	6-Pole	EFJ200P-6P8	EFJ2002-6P8	
	Transfer	EFJ200P-3TB4	EFJ2002-3TB4	
	Bypass	EFJ200P-3B6	EFJ2002-3B6	
400	2-Pole(1)	EFJ400P-2PB4	EFJ4002-2PB4	(2)
	4-Pole(1)	EFJ400P-4PB4	EFJ4002-4PB4	
	6-Pole	EFJ400P-6P8	EFJ4002-6P8	
	Transfer	EFJ400P-3TB4	EFJ4002-3TB4	
	Bypass	EFJ400P-3B6	EFJ4002-3B6	
600	2-Pole(1)	EFJ600P-2PB4	EFJ6002-2PB4	(2)
	4-Pole(1)	EFJ600P-4PB4	EFJ6002-4PB4	
	6-Pole	EFJ600P-6P8	EFJ6002-6P8	
	Transfer	EFJ600P-3TB4	EFJ6002-3TB4	
	Bypass	EFJ600P-3B6	EFJ6002-3B6	
800	2-Pole(1)	EFL800P-2PB4	EFL8002-2PB4	(2)
	4-Pole(1)	EFL800P-4PB4	EFL8002-4PB4	
	6-Pole	EFL800P-6P8	EFL8002-6P8	
	Transfer	EFL800P-3TB4	EFL8002-3TB4	
	Bypass	EFL800P-3B6	EFL8002-3B6	
	Mech. interlock	EFL800P-3MB4	EFL8002-3MB4	

(1) IEC rated only.
(2) Consult factory for pricing and availability.



Disconnects

Disconnects

Overview for non-fusible disconnect switches

CDNF16 to CDNF160



Agency Information: UL listed, CSA certified, IEC rated, CE marked

Catalog Number

	3-pole	CDNF16	CDNF25	CDNF32	CDNF45	CDNF63	CDNF30	CDNF60	CDNF100	CDNF160
General Purpose Amp Rating	A	16	25	40	60	80	30	60	100	125
Approvals(1)	2-pole 3-pole 4-pole	N/A UL508 UL508	N/A UL508 UL508	N/A UL508 UL508	N/A UL508 UL508	N/A UL508 UL508	N/A UL98 UL98	N/A UL98 UL98	N/A UL98 UL98	UL98 UL98 UL98
Technical Ratings UL,CSA										
Max operating voltage	V	600	600	600	600	600	600	600	600	600
Max horsepower rating										
Three phase										
200 – 208V	hp	3	7.5	10	15	20	10	20	25	30
240V	hp	5	7.5	10	15	20	10	20	30	30
480V	hp	10	15	20	30	40	20	40	50	75
600V	hp	10	20	25	30	40	30	40	50	100
Single phase										
120V	hp	1/2	3/4	1	2	2	2	3	5	7.5
240V	hp	1.5	2	3	5	5	5	7.5	15	20
Technical Ratings IEC										
Rated insulation and operational voltage ac20 and dc20	V	750	750	750	750	750	750	750	750	750
Rated thermal current, lth										
ac 20/dc 20 open	A	25	32	40	63	80	40	63	115	200
ac 20/dc 20 enclosed	A	25	32	40	63	80	40	63	115	160
ac 21A 500V	A	16	25	32	63	80	40	63	100	160
690V	A	16	25	32	63	80	40	63	100	160
Rated operational power ac23										
400/415V kW		7.5	9	11	22	37	15	18.5	37	75
690V kW		7.5	9	11	15	18.5	15	15	37	75
Physical Characteristics										
Weight 3-pole	lb	0.24	0.24	0.24	0.59	0.59	0.79	0.79	0.79	2.42
Dimension 3-pole										
H in		2.68	2.68	2.68	3.60	3.60	3.94	3.94	3.94	5.00
W in		1.38	1.38	1.38	2.07	2.07	2.76	2.76	2.76	4.96
D in		2.20	2.20	2.20	2.85	2.85	2.95	2.95	2.95	2.93
Accessories										
Terminal lug kit		Integral	Integral	Integral	Integral	Integral	Integral	Integral	Integral	Integral
Terminal shroud		.	.	.	.	.	.	.	.	.
Auxiliary contact		.	.	.	.	.	.	.	.	.
Handle UL/NEMA type										
Type 1, 3R, 12		.	.	.	.	.	.	.	.	.
Type 1, 3R, 4, 4X, 12		.	.	.	.	.	.	.	.	.
Handle type										
Selector		.	.	.	.	.	—	—	—	—
Pistol		.	.	.	.	.	.	.	.	.
Conversion kits										
6-pole		.	.	.	.	.	.	.	.	.
Transfer		.	.	.	.	.	.	.	.	.
Bypass		.	.	.	.	.	.	.	.	.
Mechanical interlock		.	.	.	.	.	.	.	.	.
Electrical interlock		—	—	—	—	—	—	—	—	—

. = Available

— = Not available

(1) UL listed switches are also CSA certified.

Overview for non-fusible disconnect switches

BDNF175A to BDNF3150



Agency Information: UL listed, CSA certified, IEC rated, CE marked

Catalog Number		3-pole	BDNF175A	BDNF200A	BDNF400	BDNF600A	BDNF800A	BDNF1200	BDNF1600	BDNF2000	BDNF3150
General Purpose Amp Rating	A		175	200	400	600	800	1200	1600	2000	3150
Approvals(1)	2-pole 3-pole 4-pole		UL508 & IEC UL508 & IEC IEC	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC UL98 & IEC	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC IEC	UL98 & IEC UL98 & IEC IEC	
Technical Ratings UL, CSA											
Max operating voltage	V		600	600	600	600	600	600	600	600	600
Max horsepower rating											
Three phase											
200 – 208V	hp		30	60	100	150	200	—	—	—	—
240V	hp		40	75	125	200	250	—	—	—	—
480V	hp		75	150	250	400	500	—	—	—	—
600V	hp		100	200	350	500	600	—	—	—	—
Single phase											
120V	hp		—	—	—	—	—	—	—	—	—
240V	hp		—	—	—	—	—	—	—	—	—
Technical Ratings IEC											
Rated insulation and operational voltage.											
ac20 and dc20 V			1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated thermal current, I _{th}											
ac 20/dc 20open	A		200	315	630	800	1250	1600	2500	2500	3150
ac 20/dc 20 enclosed	A		200	270	630	720	1250	1600	2300	2300	2600
ac 21A 500V	A		200	250	630	800	1250	1600	2500	2500	3150
690V	A		200	250	630	800	1250	1600	2500	2500	3150
Rated operational power ac23											
400/415V	kW		90	132	315	355	400	400	400	400	400
690V	kW		170	200	355	355	—	—	—	—	—
Physical Characteristics											
Weight 3-pole	lb		6.61	6.61	13.66	13.66	35.9	38.55	127.7	127.7	127.7
Dimension 3-pole											
H in			8.35	8.35	11.81	11.77	19.09	19.09	25.04	25.04	25.04
W in			7.83	8.62	10.24	11.93	14.29	14.29	18.43	18.43	18.43
D in			4.55	4.55	5.12	5.12	4.92	4.92	10.67	10.67	10.67
Accessories											
Terminal lug kit			BDTL25	BDTL25	BDTL26	BDTL27	BDTL30	BDTL28	BDTL28	BDTL28/2	BDTL28/2
Terminal shroud			•	•	•	•	•	•	—	—	—
Auxiliary contact			•	•	•	•	•	•	•	•	•
Handle UL/NEMA type											
Type 1, 3R, 12	•		•	•	•	•	•	•	•	•	•
Type 1, 3R, 4, 4X, 12	•		•	•	•	•	•	•	•	•	•
Handle type											
Selector			—	—	—	—	—	—	—	—	—
Pistol			•	•	•	•	•	•	•	•	•
Conversion kits											
6-pole			•	•	•	•	•	•	—	—	—
Transfer			•	•	•	•	•	•	—	—	—
Bypass			•	•	•	•	•	•	—	—	—
Mechanical interlock			•	•	•	•	•	•	•	•	•
Electrical interlock			•	•	•	•	•	•	•	•	•

Disconnects

S = Standard feature
• = Available
— = Not available
(1) UL listed switches are also CSA certified.

Disconnects

16-100A Base & DIN rail mount non-fusible disconnect switches

Selector Handle 16-100A 3-Pole

For a complete assembly, please select one of each:

- 1 switch
- 1 shaft
- 1 handle



CDNF60



CDS85S



CDH3S

16—100A/600V 3 Pole(1) Switches

Catalog Numbers	UL General Purpose Amp Rating	IEC AC21 Amp Rating	Maximum Horsepower Rating					Terminal Lugs Wire Size/Type
			Single Phase		Three Phase			
			120V	240V	240V	480V	600V	
CDNF16	16	16	1/2	1.5	5	10	10	#18-8/CU
CDNF25	25	25	3/4	2	7.5	15	20	#18-8/CU
CDNF32	40	40	1	3	10	20	25	#18-8/CU
CDNF45	60	63	2	5	15	30	30	#14-4/CU
CDNF63	80	80	2	5	20	40	40	#14-4/CU
CDNF30	30	40	2	5	10	20	30	#14-4/CU
CDNF60	60	63	3	7.5	20	40	40	#14-4/CU
CDNF100	100	115	5	15	30	50	50	#8-1/0/CU

(1) A snap-on fourth pole may be added.



CDNF16
CDNF25
CDNF32

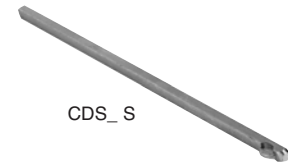


CDNF30
CDNF60
CDNF100

Shafts — For use with CDH selector handles □ 0.20 x 0.20" (□ 5 x 5 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth(2) in inches						
		CDNF16 CDNF25 CDNF32	CDH3S CDH4S CDH15S CDH16S	CDNF45 CDNF63	CDH1S CDH2S CDH15S CDH16S	CDH3S CDH4S CDH5S CDH6S	CDNF30 CDNF60 CDNF100	CDH3S CDH4S CDH5S CDH6S
CDS85S	3.3 (85)	4.2-5.0	3.6-4.3	4.9-5.6	4.4-5.0	3.9-4.9		
CDS105S	4.1 (105)	5.0-5.8	4.4-5.1	5.7-6.4	5.1-5.8	4.7-5.7		
CDS120S	4.7 (120)	5.6-6.4	5.0-5.8	6.3-7.0	5.7-6.4	5.3-6.3		
CDS130S	5.1 (130)	6.0-6.7	5.4-6.1	6.7-7.4	6.1-6.8	5.6-6.7		
CDS180S	7.1 (180)	7.1-8.7	7.4-8.1	8.6-9.4	8.1-8.7	7.6-8.6		
CDS250S	9.8 (250)	10.7-11.5	10.1-10.8	11.4-12.1	10.9-11.5	10.4-11.4		
CDS330S	13 (330)	13.8-14.6	13.3-14.0	14.6-15.3	14.0-14.7	13.5-14.5		

(2) Mounting depth is the distance from the outside of door to the disconnect switch mounting plate. Shaft can be cut to desired length.



CDS_S

Selector Handles — For use with shafts □ 0.20 x 0.20" (□ 5 x 5 mm)

All marked both O/I & Off/On

Catalog Numbers	NEMA Type	IEC Type	Color	Defeatable	Padlockable
CDH1S(3)	1	IP54	Black	—	—
CDH2S(3)	1	IP54	Red/Yellow	—	—
CDH15S(3)	1	IP54	Black	—	Yes
CDH16S(3)	1	IP54	Red/Yellow	—	Yes
CDH3S	1,3R,12	IP65	Black	—	Yes
CDH4S	1,3R,12	IP65	Red/Yellow	—	Yes
CDH5S	1,3R,12	IP65	Black	Yes	Yes
CDH6S	1,3R,12	IP65	Red/Yellow	Yes	Yes

(3) Not suitable for use with CDNF30, 60, 100.



CDH3S



CDH15S



CDH6S

Replacement Knob

Mounts directly to switch; no shaft necessary

Catalog Numbers	NEMA Type	Color	For Use On:	Length (inches)	Padlockable
OPMRH	1	Red	CDNF16, 25, 32	1.0	—
CDBY68306(3)	1	Red	CDNF30, 45, 60, 63, 100	1.4	—
CDBY68419/1(3)	1	Red	CDNF30, 45, 60, 63, 100	1.6	Yes(5)
CDMC1	Metal collar	—	CDNF16 – CDNF100	—	—
CDSWM5X8	Set screw	—	CDNF16, 25, 30, 32, 45, 60, 63, 100	—	—

(4) 0.1875" (3/16") diameter shackle required.

(5) Set screw CDSWM5X8 needed with replacement knobs CDBY__.



OPMRH



CDBY68419/1



CDMC1

Disconnects

16-100A Base & DIN rail mount non-fusible disconnect switches

Pistol Handle 16-100A 3-Pole

For a complete assembly, please select one of each:

- 1 switch
- 1 shaft
- 1 handle



CDNF60



CDS85S



BDH104, 106

16—100A/600V 3-Pole(1) Switches

Catalog Numbers	UL General Purpose Amp Rating	IEC AC21 Amp Rating	Maximum Horsepower Rating					Terminal Lugs Wire Size/Type
			Single Phase		Three Phase			
			120V	240V	240V	480V	600V	
CDNF16	16	16	½	1.5	5	10	10	#18-8/CU
CDNF25	25	25	¾	2	7.5	15	20	#18-8/CU
CDNF32	40	40	1	3	10	20	25	#18-8/CU
CDNF45	60	63	2	5	15	30	30	#14-4/CU
CDNF63	80	80	2	5	20	40	40	#14-4/CU
CDNF30	30	40	2	5	10	20	30	#14-4/CU
CDNF60	60	63	3	7.5	20	40	40	#14-4/CU
CDNF100	100	115	5	15	30	50	50	#8-1/0/CU

(1) A snap-on fourth pole may be added.



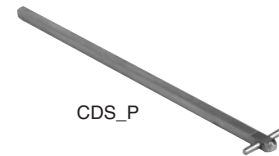
CDNF16
CDNF25
CDNF32



CDNF30
CDNF60
CDNF100

Shafts — For use with pistol handles □ 0.20 x 0.20" (□ 5 x 5 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth(1) in inches			
		CDNF16 CDNF25 CDNF32	CDNF45 CDNF63	CDNF30 CDNF60 CDNF100	
CDS48P	5.9 (150)	6.2-6.7	6.9-7.4	6.4-7.4	
CDS67P	6.7 (170)	7.0-7.5	7.7-8.1	7.2-8.1	
CDS49P	10.4 (265)	10.7-11.3	11.4-11.9	10.9-11.9	
CDS50P	15.8 (400)	16.0-16.6	16.8-17.2	16.2-17.2	
CDS99P	19.7 (500)	20.0-20.5	20.7-21.1	20.1-21.1	

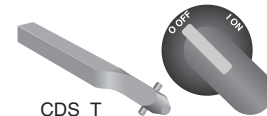


CDS_P

(1) Mounting depth is the distance from the outside of door to the disconnect switch mounting plate. Shaft can be cut to desired length.

Twisted Shafts — Rotates handle 45° □ 0.20 x 0.20" (□ 5 x 5 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth(1) in inches			
		CDNF16 CDNF25 CDNF32	CDNF45 CDNF63	CDNF30 CDNF60 CDNF100	
CDS48T	5.9 (150)	6.2-6.7	6.9-7.4	6.4-7.4	
CDS67T	6.7 (170)	7.0-7.5	7.7-8.1	7.2-8.1	
CDS49T	10.4 (265)	10.7-11.3	11.4-11.9	10.9-11.9	
CDS50T	15.8 (400)	16.0-16.6	16.8-17.2	16.2-17.2	



CDS_T

(1) Mounting depth is the distance from the outside of door to the disconnect switch mounting plate. Shaft can be cut to desired length.

Pistol Handles — For use with shafts □ 0.20 x 0.20" (□ 5 x 5 mm)

Catalog Number	NEMA Type	IEC Type	Color	Marking	Length in (mm)	Defeatable	Padlockable
BDH104	1,3R,12	IP65	Black	O/I & Off/On	1.8 (45)	Yes	Yes
BDH105	1,3R,12	IP65	Red/Yel	O/I & Off/On	1.8 (45)	Yes	Yes
BDH106	1,3R,12	IP65	Black	O/I & Off/On	2.6 (65)	Yes	Yes
BDH107	1,3R,12	IP65	Red/Yel	O/I & Off/On	2.6 (65)	Yes	Yes
CDHXB65	1,3R,12,4,4X	IP66	Black	O/I & Off/On	2.6 (65)	Yes	Yes
CDHXY65	1,3R,12,4,4X	IP66	Red/Yel	O/I & Off/On	2.6 (65)	Yes	Yes



BDH104, 106



BDH107

Disconnects

16-100A door mounted non-fusible disconnect switches

Selector Handle 16-100A 3-Pole

For a complete assembly, please select one of each:

- 1 switch
- 1 handle

Note: Door mounted switches do not provide door interlock.



CDNF45D



CDH9S

+



CDNF16D
CDNF25D
CDNF32D

16—100A/600V 3 Pole⁽¹⁾⁽²⁾⁽³⁾ Switches

Catalog Number	UL General Purpose Amp Rating	IEC AC21 Amp Rating	Maximum Horsepower Rating					Terminal Lugs Wire Size/Type
			Single Phase		Three Phase			
			120V	240V	240V	480V	600V	
CDNF16D	16	16	½	1.5	5	10	10	#18-8/CU
CDNF25D	25	25	¾	2	7.5	15	20	#18-8/CU
CDNF32D	40	40	1	3	10	20	25	#18-8/CU
CDNF45D	60(4)	63	2	5	15	30	30	#14-4/CU
CDNF63D	80(4)	80	2	5	20	40	40	#14-4/CU
CDNF30D	30(4)	40	2	5	10	20	30	#14-4/CU
CDNF60D	60(4)	63	3	7.5	20	40	40	#14-4/CU
CDNF100D	100(4)	115	5	15	30	50	50	#8-1/0/CU

(1) A snap-on fourth pole may be added.

(2) Door mounted switches do not require shafts.

(3) CDNF16, 25, 32, 45 & 63 door mounted switches will not accept pistol handles.

(4) CDNF45 & 63 door mounted switches can only use screw mounted handles.

Selector Handles

All marked both O/I & Off/On

Catalog Numbers	NEMA Type	IEC Type	Color	Defeatable	Padlockable
-----------------	-----------	----------	-------	------------	-------------

Snap-on mounting — for use on CDNF16, 25, 32D

CDH7S	1	IP54	Black	—	—
CDH8S	1	IP54	Red/Yellow	—	—
CDH19S	1	IP54	Black	—	Yes
CDH20S	1	IP54	Red/Yellow	—	Yes
CDH9S	1,3R,12	IP65	Black	—	Yes
CDH10S	1,3R,12	IP65	Red/Yellow	—	Yes



CDH8S
CDH12S



CDH17S
CDH19S

Screw mounting — for use on CDNF16, 32, 45 & 63D

CDH11S	1	IP54	Black	—	—
CDH12S	1	IP54	Red/Yellow	—	—
CDH17S	1	IP54	Black	—	Yes
CDH18S	1	IP54	Red/Yellow	—	Yes
CDH13S	1,3R,12	IP65	Black	—	Yes
CDH14S	1,3R,12	IP65	Red/Yellow	—	Yes



CDH9S
CDH13S



CDH10S
CDH14S

Pistol Grip Handle Adapter

Catalog Number	Description	For Use On:
CDHZX6	Adapter piece for pistol grip handle	CDNF30D, CDNF60D, CDNF100D

NOTE:

The model pistol grip handles used on the non-door mounted switches shown on the bottom of page 321, are the available handles.

Disconnects

400-800A non-fusible disconnect switches

Pistol Handle 400-800A 2-, 3- and 4-Pole

For a complete assembly, please select one of each:

- 1 switch
- 1 handle
- 1 shaft
- 1 terminal lug kit



BDNF400 + BDS280 + BDH114 + BDTL26

400-800A/600V Switches

Catalog Number	Poles	UL General Purpose	IEC AC21	Maximum Horsepower Rating				
		Amp Rating	Amp Rating	200V	208V	240V	480V	600V
BDNF4002	2	400	630	—	—	—	—	—
BDNF600A2	2	600	800	—	—	—	—	—
BDNF800A2	2	800	1250	—	—	—	—	—
BDNF400	3	400	630	100	100	125	250	350
BDNF600A	3	600	800	150	150	200	400	500
BDNF800A	3	800	1250	200	200	250	500	600
BDNF4004	4	400	630	100	100	125	250	350
BDNF600A4	4	600	800	150	150	200	400	500
BDNF800A4	4	—	1250	200	200	250	500	600



BDNF600A

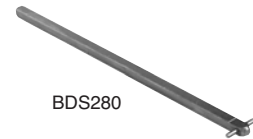
BDNF800A

Shafts — for use with pistol handles □ 0.47 x 0.47" (□ 12 x 12 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth(1) in Inches
BDS280	11.0 (280)	10.2-14.5
BDS325	12.8 (325)	12.0-16.3
BDS395	15.6 (395)	14.8-19.1
BDS465	18.3 (465)	17.5-21.9
BDS535	21.1 (535)	20.3-24.6



(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.



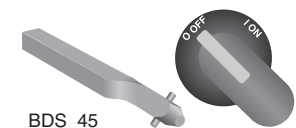
BDS280

Twisted shafts — Rotates handle 45° □ 0.47 x 0.47" (□ 12 x 12 mm)

Catalog Numbers	Shaft Length in (mm)	Mounting Depth(1) in Inches
BDS28045	11.0 (280)	10.2-14.5
BDS32545	12.8 (325)	12.0-16.3
BDS46545	18.3 (465)	17.5-21.9



(1) Mounting depth is the distance from the outside of the door to the disconnect switch mounting plate. Shaft can be cut to desired length.



BDS_45

Pistol Handles — for use with shafts □ 0.47 x 0.47" (□ 12 x 12 mm)

Catalog Number	NEMA type	IEC type	Color	Length in (mm)	Marking	Defeatable	Padlockable
BDH112	1,3R,12	IP65	Blk	4.9 (125)	O/I & Off/On	Yes	Yes
BDH113	1,3R,12	IP65	R/Y	4.9 (125)	O/I & Off/On	Yes	Yes
BDH114	1,3R,12	IP65	Blk	5.7 (145)	O/I & Off/On	Yes	Yes
BDH115	1,3R,12	IP65	R/Y	5.7 (145)	O/I & Off/On	Yes	Yes
BDH116	1,3R,12	IP65	Blk	6.9 (175)	O/I & Off/On	Yes	Yes
BDH117	1,3R,12	IP65	R/Y	6.9 (175)	O/I & Off/On	Yes	Yes
CDHXB12	1,3R,4,4X,12	IP66	Blk	5.7 (145)	O/I & Off/On	Yes	Yes
CDHXY12	1,3R,4,4X,12	IP66	R/Y	5.7 (145)	O/I & Off/On	Yes	Yes
CDHXB22	1,3R,4,4X,12	IP66	Blk	6.9 (175)	O/I & Off/On	Yes	Yes
BDH8	1,3R,4,4X,12	IP65	Metal	8.7 (220)	Off/On	—	Yes



BDH112-117

Terminal Lug Kits

Catalog Numbers	For Use On:	Wire Size/Type	Lugs Per Kit
BDTL26	BDNF400	#2-600 kcmil/CU/AL	6
BDTL262	BDNF400	(2) #2-500 kcmil/CU/AL	6
BDTL27	BDNF600A	(2) #2-600 kcmil/CU/AL	6
BDTL30	BDNF800A	(2) #2-600 kcmil/CU/AL	6
BDTL32	BDNF800A1	(8) 2/0 + (2)#2 600 kcmil/CU/AL	3
BDTL175/400	BDNF400-BDNF600A(1)	(12) #14-6/CU/AL	3

(1) A load side distribution lug eliminates the need to purchase, install and wire a separate distribution block.



BDTL26

BDTL27

BDTL30

BDTL32

BDTL175/400

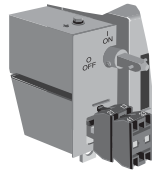
Disconnects

Accessories for 400-800A non-fusible disconnect switches

Auxiliary Contacts (2)

Catalog Numbers	Description	For Use On:	AC Thermal Amp Rating	AC Rated Voltage
BDAUX1	1 NO + 1 NC	BDNF400 –	10	600
BDAUX2	2 NO + 2 NC	BDNF800A	10	600
BDAUX3	4 NO + 4 NC	BDNF800A	10	600
BDAUX4	2 NO	BDNF800A	10	600
BDAUX5	4 NO	BDNF800A	10	600
BDAUX6	8 NO	BDNF800A	10	600

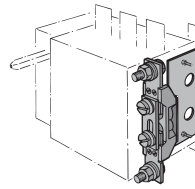
(2) UL File E57057



BDAUX1-6

Terminal Poles

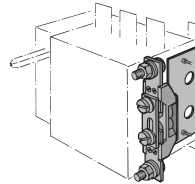
Catalog Number	Description	For Use On:	AC Thermal Amp Rating	AC Rated Voltage
BDZX85	Detachable neutral mounts on side of switch or DIN rail	BDNF400 –	400	600
		BDNF600A	400	600



BDZX85

Terminal Shrouds

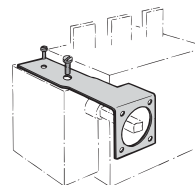
Catalog Numbers	Description	For Use On:
BDTS4	Includes one	BDNF400
BDTS6A	shroud for line or	BDNF600A
BDTS8A	load side	BDNF800A



BDZX85

Handle Support Bracket

Catalog Numbers	Description	For Use On:
BDZX73	Allows handle to be directly mounted to switch	BDNF400 – BDNF600A
BDZX71	behind the door	BDNF800A



BDZX71

Disconnects

16–80A, 600V 3-Pole enclosed non-fusible disconnect switches

Selector Handle NEMA 1, 3R, 4 & 4X

Catalog Numbers

UL General Purpose Amp Rating	Catalog Numbers			
	NEMA Enclosure Type (1)			
	1	3R	4	4X Stainless
16	ENF161-3PBJ	ENF163-3PBJ	ENF164-3PBJ	ENF16X-3PBJ
25	ENF251-3PBJ	ENF253-3PBJ	ENF254-3PBJ	ENF25X-3PBJ
40	ENF321-3PBJ	ENF323-3PBJ	ENF324-3PBJ	ENF32X-3PBJ
60	ENF451-3PBJ	ENF453-3PBJ	ENF454-3PBJ	ENF45X-3PBJ
80	ENF631-3PBJ	ENF633-3PBJ	ENF634-3PBJ	ENF63X-3PBJ

(1) Enclosures are rated as listed, selector handles are only NEMA rated 1, 3R, 12. The overall NEMA rating of an enclosed switch with a selector handle is 1, 3R, 12.



ENF321-3PBJ

Selector Handle NEMA 4X and 12, IEC IP65

Catalog Numbers

UL General Purpose Amp Rating	Catalog Numbers		
	NEMA Enclosure Type		IEC Enclosure Type
	4X Plastic(1)	12(1)	IP65 Plastic
16	ENF16P-3PBJ	ENF162-3PBJ	ENF16E-3PBJ
25	ENF25P-3PBJ	ENF252-3PBJ	ENF25E-3PBJ
40	ENF32P-3PBJ	ENF322-3PBJ	ENF32E-3PBJ
60	ENF45P-3PBJ	ENF452-3PBJ	ENF45E-3PBJ
80	ENF63P-3PBJ	ENF632-3PBJ	ENF63E-3PBJ

(1) Enclosures are rated as listed, selector handles are only NEMA rated 1, 3R, 12. The overall NEMA rating of an enclosed switch with a selector handle is 1, 3R, 12.



ENF252-3PYJ



ENF16E-3PBJ



ENF45E-3PBJ

Selector Handle Ratings, 600V

Amp Rating	NEMA Rating	Color	Marking	Detachable	Padlockable	Cat. No. Suffix	Catalog Number
16-100	1, 3R, 12	Black	O/I & OFF/ON	Yes	Yes	BJ	CDH5S
	1, 3R, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	YJ	CDH6S

NOTE: All enclosed switches come with a black handle. However, most handles can be substituted with a red/yellow handle. Please substitute the handle suffix code (1st and 2nd from last characters) with the red/yellow handle catalog number suffix listed in the table to the left. There is no additional cost for a red/yellow handle of equal rating and style.

EXAMPLE: A red/yellow selector handle for an ENF161-3PBJ can be substituted for the black selector handle by using the "YJ" suffix instead of the "BJ" suffix, new catalog #ENF161-3PYJ.

Disconnects

16A-3150A, 600V 3-Pole enclosed non-fusible disconnect switches

Pistol Handle NEMA 1, 3R, 4 & 4X

Catalog Numbers

UL General Purpose Amp Rating	Agency Listing	Catalog Numbers			
		NEMA Enclosure Type			
		1	3R	4	4X Stainless
16	UL 508	ENF161-3PB6	ENF163-3PB6	ENF164-3PB6	ENF16X-3PB6
25	UL 508	ENF251-3PB6	ENF253-3PB6	ENF254-3PB6	ENF25X-3PB6
40	UL 508	ENF321-3PB6	ENF323-3PB6	ENF324-3PB6	ENF32X-3PB6
60	UL 508	ENF451-3PB6	ENF453-3PB6	ENF454-3PB6	ENF45X-3PB6
80	UL 508	ENF631-3PB6	ENF633-3PB6	ENF634-3PB6	ENF63X-3PB6
30	UL98	ENF301-3PB6	ENF303-3PB6	ENF304-3PB6	ENF30X-3PB6
60	UL98	ENF601-3PB6	ENF603-3PB6	ENF604-3PB6	ENF60X-3PB6
100	UL98	ENF1001-3PB6	ENF1003-3PB6	ENF1004-3PB6	ENF100X-3PB6
125	UL98	ENF1251-3PB6	ENF1253-3PB6	ENF1254-3PB6	ENF125X-3PB6
200	UL98	ENF2001-3PB8	ENF2003-3PB8	ENF2004-3PB8	ENF200X-3PB8
400	UL98	ENF4001-3PB4	ENF4003-3PB4	ENF4004-3PB4	ENF400X-3PB4
600	UL98	ENF6001-3PB4	ENF6003-3PB4	ENF6004-3PB4	ENF600X-3PB4
800	UL98	ENF8001-3PB4	ENF8003-3PB4	ENF8004-3PB4	ENF800X-3PB4
1200	UL98	ENF12001-3PB4	ENF12003-3PB4	ENF12004-3PB4	ENF1200X-3PB4
1600	UL98	ENF16001-3P8	ENF16003-3P8	ENF16004-3P8	ENF1600X-3P8
2000	UL98	ENF20001-3P8	ENF20003-3P8	ENF20004-3P8	ENF2000X-3P8
3150(2)	UL98	ENF31501-3P8	ENF31503-3P8	ENF31504-3P8	ENF3150X-3P8

(2) IEC rated only.



ENF63X-3PB6

Pistol Handle NEMA 4X, 12 and 7 & 9, IEC IP65

Catalog Numbers

UL General Purpose Amp Rating	Agency Listing	Catalog Numbers			
		NEMA Enclosure Type			IEC Enclosure Type IP65 Plastic
		4X Plastic	12	7 & 9	
16	UL 508	ENF16P-3PB6	ENF162-3PB6	ENF167-3P	ENF16E-3PB4
25	UL 508	ENF25P-3PB6	ENF252-3PB6	ENF257-3P	ENF25E-3PB4
40	UL 508	ENF32P-3PB6	ENF322-3PB6	ENF327-3P	ENF32E-3PB4
60	UL 508	ENF45P-3PB6	ENF452-3PB6	ENF457-3P	ENF45E-3PB4
80	UL 508	ENF63P-3PB6	ENF632-3PB6	ENF637-3P	ENF63E-3PB4
30	UL 98	ENF30P-3PB6	ENF302-3PB6	ENF307-3P	ENF30E-3PB6
60	UL 98	ENF60P-3PB6	ENF602-3PB6	ENF607-3P	ENF60E-3PB6
100	UL 98	ENF100P-3PB6	ENF1002-3PB6	ENF1007-3P	ENF100E-3PB6
125	UL 98	ENF125P-3PB6	ENF1252-3PB6	ENF1257-3P	ENF125E-3PB6
200	UL 98	ENF200P-3PB8	ENF2002-3PB8	ENF2007-3P	—
400	UL 98	ENF400P-3PB4	ENF4002-3PB4	ENF4007-3P	—
600	UL 98	ENF600P-3PB4	ENF6002-3PB4	ENF6007-3P	—
800	UL 98	ENF800P-3PB4	ENF8002-3PB4	ENF8007-3P	—
1200	UL 98	ENF1200P-3PB4	ENF12002-3PB4	ENF12007-3P	—
1600	UL 98	ENF1600P-3P8	ENF16002-3P8	ENF16007-3P	—
2000	UL 98	ENF2000P-3P8	ENF20002-3P8	ENF20007-3	—
3150(2)	UL 98	ENF3150P-3P8	ENF31502-3P8	ENF31507-3P	—

(2) IEC rated only.



ENF25P-3PY6

NOTE: All enclosed switches come with a black handle. However, most handles can be substituted with a red/yellow handle. Please substitute the handle suffix code (1st and 2nd from last characters) with the red/yellow handle catalog number suffix listed in the table to the left. There is no additional cost for a red/yellow handle of equal rating and style.

EXAMPLE: A red/yellow pistol handle for an ENF161-3PB6J can be substituted for the black selector handle by using the "YJ" suffix instead of the "BJ" suffix, new catalog #ENF161-3PY6.

Pistol Handle Ratings: 16-3150A, 600V

Amp Rating	NEMA Rating	Color	Marking	Detachable	Padlockable	Cat. No. Suffix	Catalog Number
16-100	1, 3R, 12	Black	O/I & OFF/ON	Yes	Yes	B6	BDH106
	1, 3R, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y6	BDH107
	1, 3R, 4, 4X, 12	Black	O/I & OFF/ON	Yes	Yes	B6	CDHXB65
	1, 3R, 4, 4X, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y6	CDHXY65
125	1, 3R, 12	Black	O/I & OFF/ON	Yes	Yes	B6	BDH120
	1, 3R, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y6	BDH121
	1, 3R, 4, 4X, 12	Black	O/I & OFF/ON	Yes	Yes	B8	CDHXB86
	1, 3R, 4, 4X, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y8	CDHXY86
200	1, 3R, 12	Black	O/I & OFF/ON	Yes	Yes	B8	BDH110
	1, 3R, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y8	BDH111
	1, 3R, 4, 4X, 12	Black	O/I & OFF/ON	Yes	Yes	B8	CDHXB88
	1, 3R, 4, 4X, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y8	CDHXY88
400-3150	1, 3R, 12	Black	O/I & OFF/ON	Yes	Yes	B4	BDH114
	1, 3R, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y4	BDH115
	1, 3R, 12	Black	O/I & OFF/ON	Yes	Yes	B7	BDH116
	1, 3R, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y7	BDH117
	1, 3R, 4, 4X, 12	Black	O/I & OFF/ON	Yes	Yes	B4	CDHXB12
	1, 3R, 4, 4X, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y4	CDHXY12
	1, 3R, 4, 4X, 12	Black	O/I & OFF/ON	Yes	Yes	B7	CDHXB22
	1, 3R, 4, 4X, 12	Red/Yel	O/I & OFF/ON	Yes	Yes	Y7	CDHXY22
	1, 3R, 4, 4X, 12	Metal	O/I & OFF/ON	No	Yes	8	BDH8

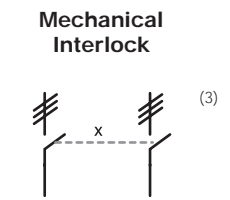
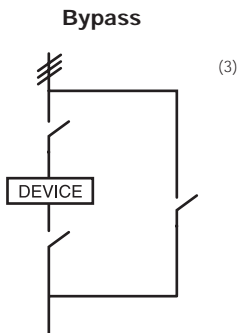
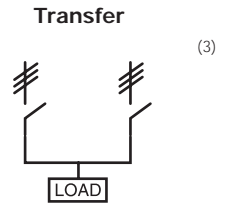
Disconnects

16-400A 2-, 4- and 6-Pole enclosed non-fusible disconnect switches

NEMA 4X, 12 and 7&9 for Transfer, Bypass and Mechanical Interlock Applications

Catalog Numbers

UL General Purpose Amp Rating	Switch Type	Catalog Numbers			
		NEMA Enclosure Type			
		1	3R	4	4X Stainless
16	4-Pole	ENF161-4PB6	ENF163-4PB6	ENF164-4PB6	ENF16X-4PB6
	6-Pole	ENF161-6PB6	ENF163-6PB6	ENF164-6PB6	ENF16X-6PB6
	Transfer	ENF161-3TB8	ENF163-3TB8	ENF164-3TB8	ENF16X-3TB8
	Bypass	ENF161-3BB8	ENF163-3BB8	ENF164-3BB8	ENF16X-3BB8
	Mech. interlock	ENF161-3MB6	ENF163-3MB6	ENF164-3MB6	ENF16X-3MB6
25	4-Pole	ENF251-4PB6	ENF253-4PB6	ENF254-4PB6	ENF25X-4PB6
	6-Pole	ENF251-6PB6	ENF253-6PB6	ENF254-6PB6	ENF25X-6PB6
	Transfer	ENF251-3TB8	ENF253-3TB8	ENF254-3TB8	ENF25X-3TB8
	Bypass	ENF251-3BB8	ENF253-3BB8	ENF254-3BB8	ENF25X-3BB8
	Mech. interlock	ENF251-3MB6	ENF253-3MB6	ENF254-3MB6	ENF25X-3MB6
40	4-Pole	ENF321-4PB6	ENF323-4PB6	ENF324-4PB6	ENF32X-4PB6
	6-Pole	ENF321-6PB6	ENF323-6PB6	ENF324-6PB6	ENF32X-6PB6
	Transfer	ENF321-3TB8	ENF323-3TB8	ENF324-3TB8	ENF32X-3TB8
	Bypass	ENF321-3BB8	ENF323-3BB8	ENF324-3BB8	ENF32X-3BB8
	Mech. interlock	ENF321-3MB6	ENF323-3MB6	ENF324-3MB6	ENF32X-3MB6
60	4-Pole	ENF451-4PB6	ENF453-4PB6	ENF454-4PB6	ENF45X-4PB6
	6-Pole	ENF451-6PB6	ENF453-6PB6	ENF454-6PB6	ENF45X-6PB6
	Transfer	ENF451-3TB8	ENF453-3TB8	ENF454-3TB8	ENF45X-3TB8
	Bypass	ENF451-3BB8	ENF453-3BB8	ENF454-3BB8	ENF45X-3BB8
	Mech. interlock	ENF451-3MB6	ENF453-3MB6	ENF454-3MB6	ENF45X-3MB6
80	4-Pole	ENF631-4PB6	ENF633-4PB6	ENF634-4PB6	ENF63X-4PB6
	6-Pole	ENF631-6PB6	ENF633-6PB6	ENF634-6PB6	ENF63X-6PB6
	Transfer	ENF631-3TB8	ENF633-3TB8	ENF634-3TB8	ENF63X-3TB8
	Bypass	ENF631-3BB8	ENF633-3BB8	ENF634-3BB8	ENF63X-3BB8
	Mech. interlock	ENF631-3MB6	ENF633-3MB6	ENF634-3MB6	ENF63X-3MB6
30	4-Pole	ENF301-4PB6	ENF303-4PB6	ENF304-4PB6	ENF30X-4PB6
	6-Pole	ENF301-6PB6	ENF303-6PB6	ENF304-6PB6	ENF30X-6PB6
	Transfer	ENF301-3TB8	ENF303-3TB8	ENF304-3TB8	ENF30X-3TB8
	Bypass	ENF301-3BB8	ENF303-3BB8	ENF304-3BB8	ENF30X-3BB8
	Mech. interlock	ENF301-3MB6	ENF303-3MB6	ENF304-3MB6	ENF30X-3MB6
60	4-Pole	ENF601-4PB6	ENF603-4PB6	ENF604-4PB6	ENF60X-4PB6
	6-Pole	ENF601-6PB6	ENF603-6PB6	ENF604-6PB6	ENF60X-6PB6
	Transfer	ENF601-3TB8	ENF603-3TB8	ENF604-3TB8	ENF60X-3TB8
	Bypass	ENF601-3BB8	ENF603-3BB8	ENF604-3BB8	ENF60X-3BB8
	Mech. interlock	ENF601-3MB6	ENF603-3MB6	ENF604-3MB6	ENF60X-3MB6
100	4-Pole	ENF1001-4PB6	ENF1003-4PB6	ENF1004-4PB6	ENF100X-4PB6
	6-Pole	ENF1001-6PB6	ENF1003-6PB6	ENF1004-6PB6	ENF100X-6PB6
	Transfer	ENF1001-3TB8	ENF1003-3TB8	ENF1004-3TB8	ENF100X-3TB8
	Bypass	ENF1001-3BB8	ENF1003-3BB8	ENF1004-3BB8	ENF100X-3BB8
	Mech. interlock	ENF1001-3MB6	ENF1003-3MB6	ENF1004-3MB6	ENF100X-3MB6
125	2-Pole	ENF1251-2PB6	ENF1253-2PB6	ENF1254-2PB6	ENF125X-2PB6
	4-Pole	ENF1251-4PB6	ENF1253-4PB6	ENF1254-4PB6	ENF125X-4PB6
	6-Pole	ENF1251-6PB2	ENF1253-6PB2	ENF1254-6PB4	ENF125X-6PB4
	Transfer	ENF1251-3TB8	ENF1253-3TB8	ENF1254-3TB8	ENF125X-3TB8
	Bypass	—	—	—	—
200	Mech. interlock	ENF1251-3MB6	ENF1253-3MB6	ENF1254-3MB8	ENF125X-3MB8
	2-Pole	ENF2001-2PB8	ENF2003-2PB8	ENF2004-2PB8	ENF200X-2PB8
	4-Pole	ENF2001-4PB8	ENF2003-4PB8	ENF2004-4PB8	ENF200X-4PB8
	6-Pole	ENF2001-6PB4	ENF2003-6PB4	ENF2004-6PB4	ENF200X-6PB4
	Transfer	ENF2001-3TB4	ENF2003-3TB4	ENF2004-3TB4	ENF200X-3TB4
400	Bypass	ENF2001-3BB4	ENF2003-3BB4	ENF2004-3BB4	ENF200X-3BB4
	Mech. interlock	ENF2001-3MB8	ENF2003-3MB8	ENF2004-3MB8	ENF200X-3MB8
	2-Pole	ENF4001-2PB4	ENF4003-2PB4	ENF4004-2PB4	ENF400X-2PB4
	4-Pole	ENF4001-4PB4	ENF4003-4PB4	ENF4004-4PB4	ENF400X-4PB4
	6-Pole	ENF4001-6P8	ENF4003-6P8	ENF4004-6P8	ENF400X-6P8
	Transfer	ENF4001-3TB4	ENF4003-3TB4	ENF4004-3TB4	ENF400X-3TB4
	Bypass	ENF4001-3B6	ENF4003-3B6	ENF4004-3B6	ENF400X-3B6
	Mech. interlock	ENF4001-3MB4	ENF4003-3MB4	ENF4004-3MB4	ENF400X-3MB4



(3) ≡ = Three-poles

Disconnects

Disconnects

16-400A 2-, 4- and 6-Pole enclosed non-fusible disconnect switches

NEMA 4X, 12 and 7&9, and IEC IP65 for Transfer, Bypass and Mechanical Interlock Applications

Catalog Numbers

UL General Purpose Amp Rating	Switch Type	Catalog Numbers			IEC Enclosure Type IP65
		NEMA Enclosure Type			
		4X Plastic	12	7 & 9	
16	4-pole	ENF16P-4PB6	ENF162-4PB6	ENF167-4P	ENF16E-4PBJ
	6-pole	ENF16P-6PB6	ENF162-6PB6	ENF167-6P	ENF16E-6PBJ
	Transfer	ENF16P-3TB8	ENF162-3TB8	ENF167-3T	—
	Bypass	ENF16P-3BB8	ENF162-3BB8	ENF167-3B	—
	Mech. interlock	ENF16P-3MB6	ENF162-3MB6	—	—
25	4-pole	ENF25P-4PB6	ENF252-4PB6	ENF257-4P	ENF25E-4PBJ
	6-pole	ENF25P-6PB6	ENF252-6PB6	ENF257-6P	ENF25E-6PBJ
	Transfer	ENF25P-3TB8	ENF252-3TB8	ENF257-3T	—
	Bypass	ENF25P-3BB8	ENF252-3BB8	ENF257-3B	—
	Mech. interlock	ENF25P-3MB6	ENF252-3MB6	—	—
40	4-Pole	ENF32P-4PB6	ENF322-4PB6	ENF327-4P	ENF32E-4PBJ
	6-Pole	ENF32P-6PB6	ENF322-6PB6	ENF327-6P	ENF32E-6PBJ
	Transfer	ENF32P-3TB8	ENF322-3TB8	ENF327-3T	—
	Bypass	ENF32P-3BB8	ENF323-3BB8	ENF327-3B	—
	Mech. interlock	ENF32P-3MB6	ENF322-3MB6	—	—
60	4-Pole	ENF45P-4PB6	ENF452-4PB6	ENF457-4P	ENF45E-4PBJ
	6-Pole	ENF45P-6PB6	ENF452-6PB6	ENF457-6P	ENF45E-6PBJ
	Transfer	ENF45P-3TB8	ENF452-3TB8	ENF457-3T	—
	Bypass	ENF45P-3BB8	ENF452-3BB8	ENF457-3B	—
	Mech. interlock	ENF45P-3MB6	ENF452-3MB6	—	—
80	4-Pole	ENF63P-4PB6	ENF632-4PB6	ENF637-4P	ENF63E-4PBJ
	6-Pole	ENF63P-6PB6	ENF632-6PB6	ENF637-6P	ENF63E-6PBJ
	Transfer	ENF63P-3TB8	ENF632-3TB8	ENF637-3T	—
	Bypass	ENF63P-3BB8	ENF632-3BB8	ENF637-3B	—
	Mech. interlock	ENF63P-3MB6	ENF632-3MB6	—	—
30	4-Pole	ENF30P-4PB6	ENF302-4PB6	ENF307-4P	ENF30E-4PB4
	6-Pole	ENF30P-6PB6	ENF302-6PB6	ENF307-6P	ENF30E-6PB6
	Transfer	ENF30P-3TB8	ENF302-3TB8	ENF307-3T	—
	Bypass	ENF30P-3BB8	ENF302-3BB8	ENF307-3B	—
	Mech. interlock	ENF30P-3MB6	ENF302-3MB6	—	—
60	4-Pole	ENF60P-4PB6	ENF602-4PB6	ENF607-4P	ENF60E-4PB4
	6-Pole	ENF60P-6PB6	ENF602-6PB6	ENF607-6P	ENF60E-6PB6
	Transfer	ENF60P-3TB8	ENF602-3TB8	ENF607-3T	—
	Bypass	ENF60P-3BB8	ENF602-3BB8	ENF607-3B	—
	Mech. interlock	ENF60P-3MB6	ENF602-3MB6	—	—
100	4-Pole	ENF100P-4PB6	ENF1002-4PB6	ENF1007-4P	ENF100E-4PB4
	6-Pole	ENF100P-6PB6	ENF1002-6PB6	ENF1007-6P	ENF100E-6PB6
	Transfer	ENF100P-3TB8	ENF1002-3TB8	ENF1007-3T	—
	Bypass	ENF100P-3BB8	ENF1002-3BB8	ENF1007-3B	—
	Mech. interlock	ENF100P-3MB6	ENF1002-3MB6	—	—
125	2-Pole	ENF125P-2PB6	ENF1252-2PB6	ENF1257-2P	—
	4-Pole	ENF125P-4PB6	ENF1252-4PB6	ENF1257-4P	—
	6-Pole	ENF125P-6PB2	ENF1252-6PB2	ENF1257-6P	—
	Transfer	ENF125P-3TB8	ENF1252-3TB8	ENF1257-3T	—
	Bypass	—	—	—	—
200	Mech. interlock	ENF125P-3MB6	ENF1252-3MB6	—	—
	2-Pole	ENF200P-2PB8	ENF2002-2PB8	ENF2007-2P	—
	4-Pole	ENF200P-4PB8	ENF2002-4PB8	ENF2007-4P	—
	6-Pole	ENF200P-6PB4	ENF2002-6PB4	ENF2007-6P	—
	Transfer	ENF200P-3TB4	ENF2002-3TB4	ENF2007-3T	—
400	Bypass	ENF200P-3BB4	ENF2002-3BB4	ENF2007-3B	—
	Mech. interlock	ENF200P-3MB8	ENF2002-3MB8	—	—
	2-Pole	ENF400P-2PB4	ENF4002-2PB4	ENF4007-2P	—
	4-Pole	ENF400P-4PB4	ENF4002-4PB4	ENF4007-4P	—
	6-Pole	ENF400P-6P8	ENF4002-6P8	ENF4007-6P	—
	Transfer	ENF400P-3TB4	ENF4002-3TB4	ENF4007-3T	—
	Bypass	ENF400P-3B6	ENF4002-3B6	ENF4007-3B	—
	Mech. interlock	ENF400P-3MB4	ENF4002-3MB4	—	—

Disconnects

A/C Disconnects — fused and non-fused

Series B22__

Specifications

Description: Fused and non-fused rainproof air conditioner pullout units.

Dimensions: See Catalog Numbers table.

Construction: NEMA 3R rainproof metal housing with weather resistant coating.

Wire Range: 14-3 AWG, AL/CU

Ratings:

Phase: — Single, 2-wire

Volts: — 240Vac

Amps: — 30-60A

Agency Information: UL Listed to UL 1429, C-UL Certified, UL Guide WGEW

Features and Benefits

- A/C disconnects meet NEC® Code Requirements under articles 440.14. GFCI units meet NEC® Code Requirements under articles 210.63, 210.8, and 406.8(B)(1).
- NEMA 3R rainproof enclosures withstand outdoor environment.
- Padlockable with two-position pullout handle to lock safety shield when in the ON position. (Not available on GF or NA units.) For added safety, pullout handle can be stored in the compartment in the off position.
- Easy installation: knockouts on back, bottom and both sides, Cable whip versions save labor.

Typical Applications

- Residential, light industrial/commercial A/C and heat pump service.
- Spas/whirlpools, swimming pools, pump houses
- Suitable for service entrance equipment applications with field installable ground bar, kit number DPFQ.

Catalog Numbers

Fused

Catalog Numbers	Description	Disconnect Rating	Max Hp Rating		Wire Range 60 or 75°C CU/AL	Enclosure Type	Fuse Class	Approx. Dimensions (in)		
			120V	240V				Height	Width	Depth
B221-30F	30A, Pullout	30A	1.5	3	#14-3	NEMA 3R	H or R	8 ¾	5 ¾	2 ¾
B221-30FGF	30A, Pullout w/ GFCI	30A	1.5	3	#14-3	NEMA 3R	H or R	13	7 ½	4 ¾
B222-60F	60A, Pullout	60A	3	10	#14-3	NEMA 3R	H or R	8 ¾	5 ¾	2 ¾
B222-60FGF	60A, Pullout w/ GFCI	60A	3	10	#14-3	NEMA 3R	H or R	13	7 ½	4 ¾
Non-Fused										
B222-60NF	60A, Pullout	60A	3	10	#14-3	NEMA 3R	*	8 ¾	5 ¾	2 ¾
B222-60NFGF	60A, Pullout w/ GFCI	60A	3	10	#14-3	NEMA 3R	*	11 ¾	6 ½	4 ¾
B222-60NFNA	60A, Switch	60A	*	10	#14-3	NEMA 3R	*	8 ¾	5 ¾	3 ¾
Non-Fused Cable Whip										
B222-60NF12W	60A, Pullout w/ ½" Cable Whip	60A*	3	10	#14-3	NEMA 3R	*	14 ¾	12 ½	4
B222-60NF34W	60A, Pullout w/ ¾" Cable Whip	60A**	3	10	#14-3	NEMA 3R	*	14 ¾	12 ½	4

Cable Whip Specifications

Catalog Numbers	Description	Pullout Rating	Max Upstream Wire Overcurrent Protection Device	Harness Diameter	Ground Hot Wire Size	Flexible Wire Size	Conduit Length (ft)	Non-Metallic Fittings
B222-60NF12W	60A, Pullout w/ ½" Cable Whip	60A	30A	½"	#10	#10	6	1 - 90°, 1 - Straight
B222-60NF34W	60A, Pullout w/ ¾" Cable Whip	60A	50A	¾"	#8	#10	6	1 - 90°, 1 - Straight

* Upstream overcurrent protection device (OCPD) not to exceed 30 Amps.

**Upstream overcurrent protection device (OCPD) not to exceed 50 Amps.

Data Sheet: 1143



Metallic Fused Disconnect

Metallic Non-Fused Disconnect



Metallic Non-Fused Disconnect with GFCI receptacle.

B222-60NF34Wnon-fused with with cable whip

Fused, dead front disconnect switches

15149 Series



Specifications

Description: Fused, dead front disconnect switches

Ratings:

- Volts: — 600Vac
- Amps: — 0-30A
- Withstand: — 200,000A RMS Sym.
- Dielectric Withstand:** 2200V
- Motor Rating:** 5hp

Poles: 2 to 3

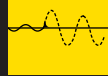
Agency Information: UL Recognized, file E116716 for General Industrial installations. Guide WFXV2. CSA certified, file LR37129-6. Examined under the new proposed standard UL 1429 which imparts a stricter set of test conditions than the former program that combined the applicable portions for UL 512 (Fuse Holders) and UL 98 (Enclosed Switches).

Features and Benefits

- Fuse holders in the pull-out head eliminate possibility of electric shock while changing fuse.
- Accepts Class J fuses

Ordering Information

To order, specify: 15149 + number of poles.
Example: 15149-2 = 2-pole device.



Did You Know?

All-Inclusive Elevator Disconnect Simplifies Installation Plus a Multitude of Codes and Standards



When the Westin Hotel chain renovated the historic Cupples Station in downtown St. Louis, the hotel's design-and-build electrical contractor specified the Cooper Bussmann

Power Module™ elevator shunt trip disconnect. The primary reason was the savings in man-hours with everything in one box: the fire alarm, control wiring and power wiring; all the parts needed to interface with a fire alarm system in a UL 98 Listed assembly. In addition, all the codes and standards surrounding the elevator disconnecting means – electrical, elevator, fire alarm and the sprinkler system – are met, including ANSI/ASME A17.1, NFPA 72, NEC® 620.62.

The contractor faced a unique situation when the luxury hotel chain chose to revamp the old warehouse versus tearing the structure down and rebuilding. The hotel complex consists of four buildings interconnected with walkways. A total of eight elevators were installed with eight Power Module switches, two per building. Each 30 HP passenger elevator is fused with Cooper Bussmann Low-Peak® Class J LPJ-70SP fuses while each 40HP service elevator uses the Class J LPJ-90SP fuses.

Telecom protection products

Section Contents Page

Telpower® compact fused disconnect switches	332
Telpower miniature fused disconnect switches	333
Fused disconnect switches for TPA fuses	
TP15914 4-Pole disconnect switch	334
TP11590-4 4-Pole disconnect switch	335
TPA & TPA-B Fuses	335
Fused disconnect switches for TPS fuses	
15800 1-Pole fused disconnect switch	336
TPS Fuses	336
Fused disconnect switches	
TP158HC panel mount, rear access switch	337
15100 1-Pole switch for use with TPL fuses	338
15200 1-Pole switch for use with TPL fuses	338
TPHCS Telpower high-current switch	339
TPL Telpower 70-600A: 170Vdc fuses	340
TPN Telpower 1-600A: 170Vdc fuses	341
70 Series Indicating fuses	342
15087 Fuse holders	342
HLS, HLT & PCT fuse holders	343
GMT Fast acting fuses	343
GMT-A Fast acting fuse	343
Telpower specialty fuses	
7 Type Fuses	344
11 Type Fuse	344
24 & WER Type non-indicating, visible link fuses	344
74 Type Fast acting fuses	344
75 Type Cylindrical fuses with leads	345
76 Type Cylindrical fuses with leads	345
80 Type visual indicating fuses	345
81 Type Fast acting, non-indicating fuses	345
Filtered terminal blocks	
F38 Series 2- to 8-Pole block	346
FE2475 Series 2- to 8-Pole block	347
F7036 Series 1- to 12-Pole block	348
Power feed thru terminal blocks	
Series C7021 2- to 6-Pole block	349
Series C7024 1- to 12-Pole block	350

Telecom Protection Devices



RED indicates NEW information

Telpower® compact fused disconnect switches

TPC & TPCDS

Specifications

Descriptions:

— **TPC:** Telpower® compact current-limiting fuses.

— **TPCDS:** Telpower compact fused disconnect switch available in two disconnect switch profiles in addition to a variety of terminal styles. Recommended 0.75 inch center-to-center product spacing.

Dimensions: See Data Sheet 5023.

Construction: Black thermoplastic.

Ratings:

- Volts: — 80Vdc
- Amps: — 3-125A (See Catalog Numbers table for details)
- IR: — 100,000A

Agency Information: CE, UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Recognized to U.S. and Canadian requirements under the component recognition program of Underwriters Laboratories Inc. Files E219046 and E56412.

Flammability Ratings: Fuse UL 94V0, 170° C RTI, Housing UL 94V0, 120° C RTI.

Features and Benefits

- Highest interrupting rating (100,000A) available and complete system coordination for dc circuit protection for compact footprint providing a superior protection solution for replacement of existing dc telecom circuit breakers
- AmpColor ID™ System makes fuse replacement easy
- Local and remote open fuse indication. Local alarm indication provided by LED on TPC fuse
- Remote alarm terminal available in three positions common to dc circuit protection devices

Typical Applications

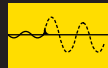
- Telecommunications dc power circuit protection
- Replacement of dc telecom circuit breakers
- Applications where venting of arc or molten metals and gases during opening would pose a problem to surrounding devices



Catalog Numbers

TPCS disconnect switch		TPC Current-Limiting Fuse	
Catalog Numbers	Amp Range	Catalog Numbers	Amp Rating
TPCDS-BBE-1	3-125	TPC-3	3
TPCDS-BBE-2	3-125	TPC-4	4
TPCDS-BBE-3	3-125	TPC-5	5
TPCDS-BBM-1	3-125	TPC-6	6
TPCDS-BBM-2	3-125	TPC-7	7
TPCDS-BBM-3	3-125	TPC-8	8
TPCDS-BSE-1	3-125	TPC-10	10
TPCDS-BSE-2	3-125	TPC-12	12
TPCDS-BSE-3	3-125	TPC-15	15
TPCDS-BSM-1	3-125	TPC-20	20
TPCDS-BSM-2	3-125	TPC-25	25
TPCDS-BSM-3	3-125	TPC-30	30
TPCDS-SSE-1	3-125	TPC-40	40
TPCDS-SSE-2	3-125	TPC-50	50
TPCDS-SSE-3	3-125	TPC-60	60
TPCDS-SSM-1	3-125	TPC-75	75
TPCDS-SSM-2	3-125	TPC-90	90
TPCDS-SSM-3	3-125	TPC-100	100
TPCDS-D-BC1*	3-125	TPC-125	125
TPCDS-D-BC2*	3-125		
TPCDS-D-CC1*	3-125		
TPCDS-D-SEC1*	3-125		
TPCDS-D-SEC2*	3-125		
TPCDS-D-SMC1*	3-125		
TPCDS-D-SMC2*	3-125		

*Not investigated to Canadian Requirements.



Did You Know?

Reduce Downtime with Cooper Bussmann 24/7 Emergency After-Hours Service

When overloads or short circuits open the fuse and there are no spares on the shelf, where do you turn to get the production line back up, the trains running or the elevators operating?

Customers pay only standard price for the required circuit protection device, rush freight charges and a \$75.00 emergency fee for this door-to-door service. No minimum order requirements.

No surcharges for drop shipments.

Call us at 314-995-1342 and we will:

Set the Cooper Bussmann Customer Satisfaction team in motion to do what it takes to satisfy your needs. Next flight out or next day service; your choice.

Telpower miniature fused disconnect switches

TPM & TPMDS

Specifications Description:

— **TPM:**
Telpower miniature current-limiting fuses.

— **TPMDS:**
Telpower miniature fused disconnect switch.



Dimensions: See Data Sheet 5022.

Construction: Black thermoplastic.

Ratings:

- Volts: — 80Vdc
- Amps: — 3-30A
- IR: — 20,000A

Agency Information: CE, UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Recognized to U.S. and Canadian requirements under the component recognition program of Underwriters Laboratories Inc. Files E219046 and E56412.

Flammability Ratings: Fuse UL 94V0, 170°C RTI; Switch UL 94V0, 140°C RTI.

Features and Benefits

- Smallest and most versatile fused disconnect switch available allowing for assembly into 1 U (1.75 in/44.5mm) panel. Easy to connect; Load: ¼ inch quick-connect or bolted connection with 10-32 (M5) captive nut, Line: ¼ inch quick-connect or screw connection with clearance hole for #10 (M5) bolt.
- AmpColor ID™ System makes fuse replacement easy
- Switch design provides for easy panel mounting by single captive 4-40 (M3) nut and panel notch integral to switch footprint.
- Complete system coordination capability with local and remote open fuse indication. Local alarm indication provided by LED on TPM fuse (maximum alarm circuit current: 20mA)

Typical Applications

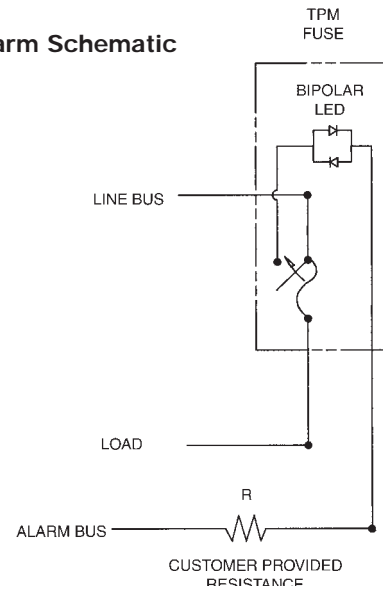
- Telecommunications dc power circuit protection
- Applications with restricted space, or mounting in 1 U panels

Catalog Numbers

Catalog Numbers	Description	Amp Rating
TPM-3	Fuse	3
TPM-4	Fuse	4
TPM-5	Fuse	5
TPM-6	Fuse	6
TPM-7	Fuse	7
TPM-8	Fuse	8
TPM-10	Fuse	10
TPM-12	Fuse	12
TPM-15	Fuse	15
TPM-20	Fuse	20
TPM-25	Fuse	25
TPM-30	Fuse	30
TPMDS-E	Disconnect, English hardware	3-30
TPMDS-M	Disconnect, Metric hardware	3-30

Dimensions

TPM Alarm Schematic



NOTES:

1. The resistance, R, must be provided by the end-user to limit the alarm output current to a maximum of 20mA. The value, R, should be calculated using the system voltage value.
- If remote alarm functionality is not required, the END-USER CIRCUITRY must still be supplied to provide a resistive path to the return for the local alarm to properly function.
2. The fuse is polarized to maintain proper orientation with the switch housing. The line and load terminals are identified on the switch housing.

Fused disconnect switches for TPA fuses

TP15914

Specifications

Description:

Modular 4-pole disconnect switch for TPA Series fuses — 4-poles per module up to four modules banked together.

Features open fuse indication and fuse presence indication along with fuse orientation rejection feature.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 145Vdc

Amps: — 50A per pole

Agency Information: CE, UL Recognized as a disconnect switch for interruption of load current by means of withdrawing the fuse carrier. UL recognized as a component for telecommunication power distribution equipment (UL category QPQYZ), UL recognized fuses for branch circuit protection, CSA component acceptance for the system. UL Recognized, Guide JFHR2, File E56412., CSA Certified, Class 1422-30, File 53787.

Flammability Rating: UL 94V0, 140°C.

Features and Benefits

- Totally enclosed module directly connects to busbar for reduced external wiring—per pole and easy installation with front access load and line connection standard—double lug load connections 8 AWG wire
- LED alarm signaling (LED current 30mA max)
- Remote alarm with alarm test probe point to allow on-site checking of alarm circuitry
- Bi-polar LED provides capability for both -48Vdc and +24Vdc applications

Typical Applications

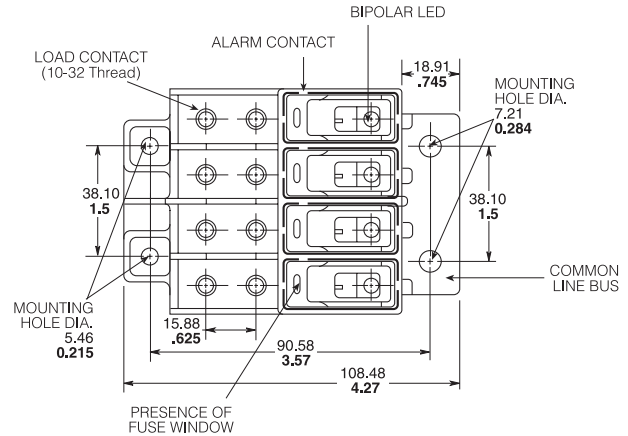
- Telecommunications dc power circuit protection

Catalog Numbers

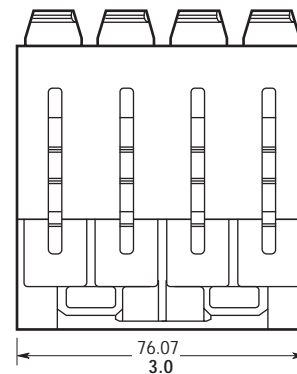
Catalog Numbers	Hardware
TP15914	English
TP15914-1	Metric



Dimensions mm/in



TOP



Accessories

- Spare fuse holders: Catalog Numbers 5THP and TPSFH-A

Fused disconnect switches for TPA fuses

TP15900-4

Specifications

Description: 4-pole disconnect switch for use with Telpower fuses Type TPA & TPA-B.



Dimensions: See Dimensions illustrations.

Ratings:

- Volts: — 145Vdc (40A)
- 80Vdc (50A)
- Amps: — 40A@145Vdc
- 50A@80Vdc

Agency Information: CE, UL Recognized as a disconnect switch for interruption of load current by means of withdrawing the fuse carrier. UL Recognized as a component for telecommunication power distribution equipment (UL category QPQY2). UL Recognized fuses for branch circuit protection. CSA Component Acceptance for the system.

Flammability Rating: UL 94V0, 140°C.

Features and Benefits

- Ease of installation - connection directly to busbar, reduces external wiring per pole. Rear accessibility for line and load terminations
- LED alarm signaling (LED current 30mA max)
- Local and remote open-fuse indication along with fuse orientation rejection feature and fuse presence indication
- Alarm test probe point, to allow on-site checking of alarm circuitry

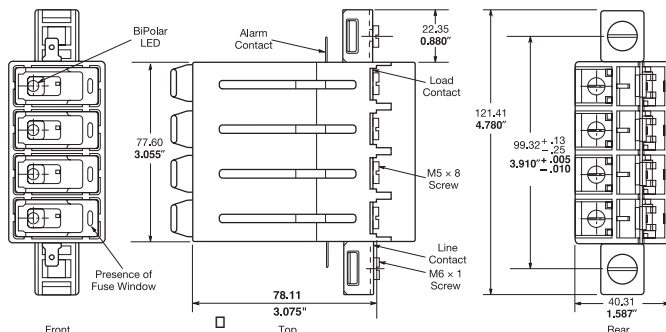
Typical Applications

- Telecommunications dc power circuit protection

Catalog Numbers

Catalog Numbers	Description
TP15900-4	4-Pole common disconnect switch
TP15900-41	4-Pole common disconnect switch w/ Split Alarm, Split Line

Dimensions - mm (in)



Accessories

- Spare fuse holders: Catalog Numbers 5TPH and TPSFH-A.

Data Sheet: 5001

TPA & TPA-B

Specifications

Description: dc power distribution indicating fuses.

Dimensions: See Dimensions illustration.

Construction: Glass melamine tube. Silver-plated brass ferrules and indicator pin on TPA 3-15 and TPA-B. Tin-plated brass on TPA 20-50 on indicator end.



Ratings:

- Volts: — 170Vdc TPA
- 65Vdc TPA-B
- Amps: — 3-50A TPA
- 20-30A TPA-B
- IR: — 100kA TPA
- 20kA TPA-B

Agency Information: CE, UL Recognized, Guide JFHR2, File E56412, CSA Certified, Class 1422-30, File 53787.

Features and Benefits

- Indication pin provides for local and remote indication when used with Cooper Bussmann TP15900-4 and TP15914 disconnect switches
- Patented “orange ring” fuse orientation features assures correct fuse position
- The UL Recognized ratings and current-limiting capability make this fuse ideal for cable protection on existing dc power distribution systems
- A unique blue label is used on all Telpower fuses to designate their dc capability

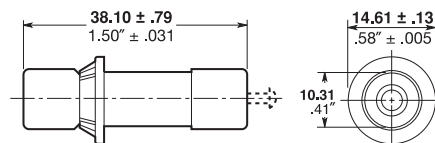
Typical Applications

- Telecommunications dc power circuit protection

Catalog Numbers (-Amps)

Catalog Numbers	Amp Rating	Catalog Numbers	Amp Rating
TPA-3	3	TPA-30	30
TPA-5	5	TPA-40	40
TPA-10	10	TPA-50	50
TPA-15	15	TPA-B-20	20
TPA-20	20	TPA-B-25	25
TPA-25	25	TPA-B-30	30

Dimensions - mm (in)



Accessories

- Spare fuse holders: 5 position holder; 5TPH; 6 position holder; TPSFH-AS
- Use with fused disconnect switches TP15900-4, TP15914

Data Sheet: 5012

Fused disconnect switches for TPS fuses

15800

Specifications

Description:

Fused disconnect switch for use only with the following fuses; Main: Telpower® TPS 3 to 70 Amp, Alarm: Cooper Bussmann GMT-A only (page 343). Recommend GMT-X Cover (page 343).



Dimensions: See Dimensions illustration.

Construction: Thermoplastic housing.

Ratings:

Volts: — 60Vdc
Amps: — 3-70A
Withstand: — 100,000A

Agency Information: CE, UL Recognized, Guide QPQY2, File E97649.

Flammability Rating: UL 94V0, 150°C.

Features and Benefits

- Alarm output with wire wrap terminal or connection to 0.063" thick common alarm bus
- Spare alarm and power fuse compartment
- Mounting hardware included

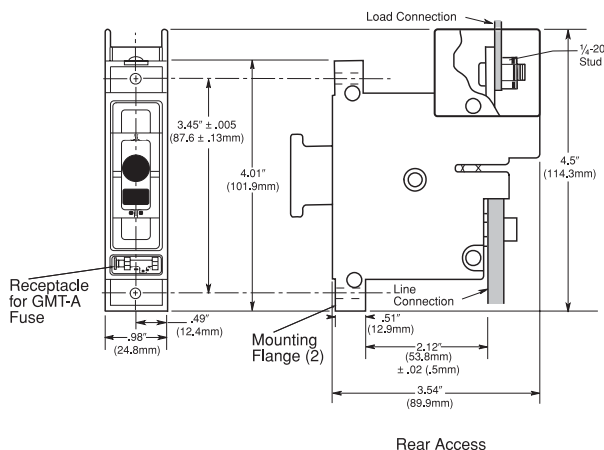
Typical Applications:

- Telecommunications dc power circuit protection

Catalog Numbers

Catalog Numbers	Access Panel Mounting
15800-R-200	Rear
15800-F-200	Front

Dimensions



Accessories

- Spare fuse holders: Catalog Numbers TPSFH-AS (TPS fuses) and TPSFH-T (GMT fuses).

Data Sheet: 5002

TPS

Specifications

Description:

DC power distribution non-indicating fuses specifically designed to meet the unique needs of dc power distribution systems. For use with Cooper Bussmann fused disconnect switch 15800.



Dimensions: See Dimensions illustration.

Construction: Glass melamine tube with silver-plated brass ferrules.

Ratings:

Volts: — 170Vdc
Amps: — 1-70A.
IR: — 100,000A

Agency Information: CE, UL Recognized, Guide JFHR2, File E56412.

Features/Benefits

- The UL Recognized ratings and current-limiting capability make this fuse ideal for cable protection on existing dc power distribution systems
- A unique blue label is used on all Telpower fuses to designate their dc capability
- Printed circuit board variations available

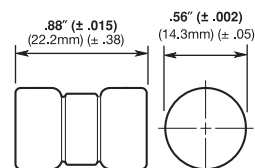
Typical Applications

- Telecommunications dc power circuit protection
- Applications requiring printed circuit board mounting

Catalog Numbers (-amps)

TPS-1	TPS-6L	TPS-30	TPS-50V
TPS-1L	TPS-10	TPS-30L	TPS-60
TPS-2	TPS-10L	TPS-35	TPS-60L
TPS-2L	TPS-15	TPS-35L	TPS-70
TPS-3	TPS-15L	TPS-40	TPS-70L
TPS-3L	TPS-20	TPS-40L	TPS-70LB
TPS-5	TPS-20L	TPS-40V	
TPS-5L	TPS-25	TPS-50	
TPS-6	TPS-25L	TPS-50L	

Dimensions - in (mm)



Accessories

- Spare fuse holder: TPSFH-AS, see page 359.

Data Sheet: 5009

Fused disconnect switches

TP158HC

Specifications

Description: Panel mount, rear access high amp version of Cooper Bussmann 15800 series fused disconnect switch for use only with the following fuses; Main: Telpower TPL-B 70-250 Amps, Alarm: Cooper Bussmann GMT-A.

Dimensions: See Data Sheet 5021.

Construction: Thermoplastic housing.

Ratings:

Volts: — 80Vdc
Amps: — 70-250A
Withstand: — 100,000A

Agency Information: UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Guide QPQY2, File E97649.

Flammability Rating: UL 94V0, 150°C.

Features and Benefits

- Similar profile, mounting method, and backplane configuration as 15800 Series. The TP158HC can be installed into existing 15800 Series panels using the space of two 15800 disconnects
- Innovative new fuse pullout design eliminates need for tools to replace the Telpower type TPL-B fuse
- Alarm output with wire wrap terminal or connection to 0.063 inch (1.6mm) thick common alarm bus
- Hardware included: Load: washer, split lockwasher, and $\frac{5}{16}$ - 18 nut (metric-M8 x 1.25)

Typical Applications:

- Telecommunications dc power circuit protection

Catalog Numbers

Catalog Numbers	Hardware
TP158HC	English
TP158HC-M	Metric

Accessories

- Spare fuse holders: TPSFH-LB (TPL-B fuses) and TPSFH-T (GMT fuses).



Application Notes

- The line connection uses a ¼-20 bolt (metric – M6X1) that threads into the line terminal. The line terminal is designed with a float of ±0.02" (± 0.50mm) to allow for variation in the distance between the TP158HC mounting flange and the line busbar (see Dimensions). Equipment should be designed to eliminate any relative movement between the TP158HC mounting flange and the line busbar.
- The alarm circuit is not intended for precharging of capacitive circuits. Alarm circuit current 1A maximum.



Easy Fuse Replacement



Did You Know?

Is The Fuse Doctor In?

Institutional customers need help with their fuse inventory too. And organizing their fuse supply was the cure. An Iowa hospital had "every fuse brand known to man" according to the Cooper Bussmann authorized distributor sales representative. A joint call with the Cooper Bussmann district sales engineer showed them that simply by reducing the number of fuses and organizing the remaining fuses in the FDM-2 fuse merchandiser the distributor was able to save the hospital not only inventory costs but productivity time as well. Knowing where the fuses were located shaved time off maintenance work. The hospital found merchandisers also work for organizing glass fuses.

Telecom Protection Devices

Fused disconnect switches

15100

Specifications

Description: Fused disconnect system for use with Telpower fuses Type TPL.

Dimensions: See Dimensions illustrations.

Ratings:

- Volts: — 60Vdc
- Amps: — 70-800A
- Withstand: — 100,000A

Agency Information: CE, UL Recognized, Guide QPQY2, File E97649.

Features and Benefits

- Single-pole fusible disconnect switch for primary dc power distribution
- Robust housing and terminal construction for demanding applications
- Panel mounting
- Easily connected to line or load bus

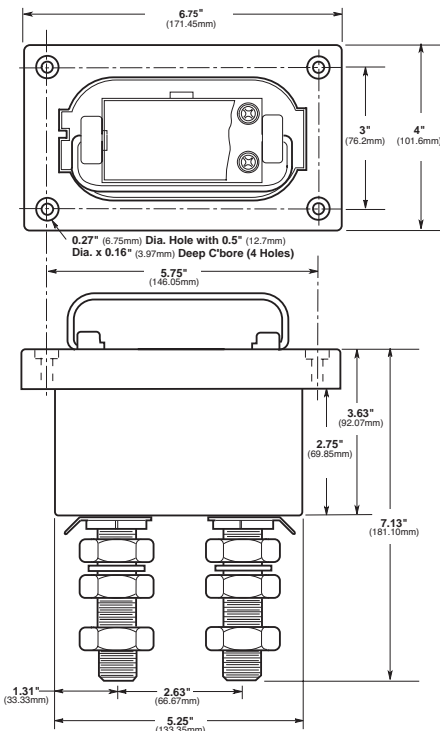
Typical Applications

- Telecommunications dc power circuit protection

Catalog Numbers

Catalog Numbers	For Use With TPL Series Fuses
15100-401	70-400A
15100-601	300-800A

Dimensions - in (mm)



Data Sheet: 5003

15200

Specifications

Description: Fused disconnect system for use with Telpower fuses Type TPL.

Dimensions: See Dimensions illustrations.

Ratings:

- Volts: — 60Vdc
- Amps: — 70-800A
- Withstand: — 100,000A

Agency Information: CE, UL Recognized, Guide QPQY2, File E97649.

Features and Benefits

- Fusible disconnect transfer switch for primary dc power distribution
- Robust housing and terminal construction for demanding applications
- Panel mounting
- Easily connected to line or load bus

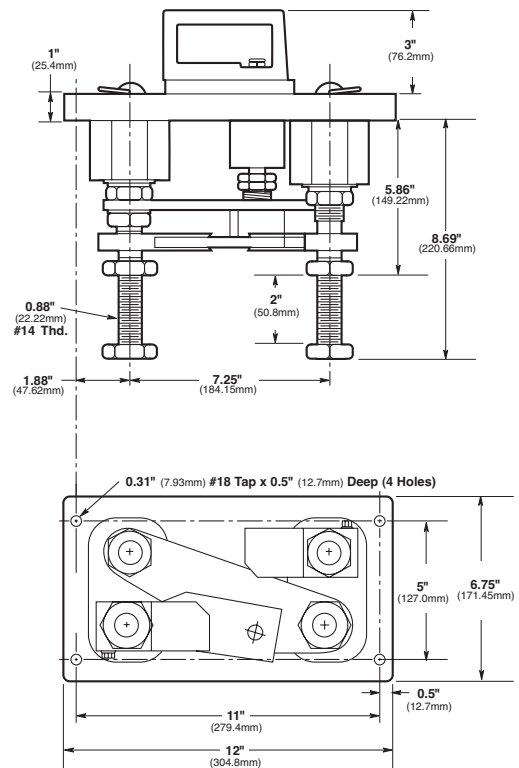
Typical Applications

- Telecommunications dc power circuit protection

Catalog Number

Catalog Number	For Use With TPL Series Fuses
15200-602	70-800A

Dimensions - in (mm)



Data Sheet: 5004

Telpower® high-current switch

TPHCS

Specifications Description: High current switch for use with Telpower fuses Type TPL-B, TPL-C and TPH.

Available as complete switch or pullout. Base may be purchased separately.



TPHCS800-MAV (shown)

Dimensions: See Dimensions illustrations.

Construction:

Ratings:

Volts: — 80Vdc

Amps: — 70-800A

Withstand: — 100,000A

Agency Information: UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse carrier. UL Recognized to meet the requirements for Canadian Standards.

Features and Benefits

- Innovative design eliminates need for tools to replace the Telpower® type TPL-B, TPL-C or TPH fuse
- Easy to install—captive fasteners allow for direct busbar mounting (bolts not included). Standard ¼” male quick-connect terminal for effortless remote alarm connection.
- Optional new electronic alarm eliminates need for parallel indicating fuses while providing local and remote open-fuse indications (maximum remote alarm current: 20mA); Bipolar alarm: designed for both Central Office and Radio applications, Local LED alarm indication for ease-of-viewing.
- Fuse presence window allows for easy viewing of installed fuse amp rating

Typical Applications

- Telecommunications dc power circuit protection
- Compact design is ideal for today’s high power, high-density cabinets

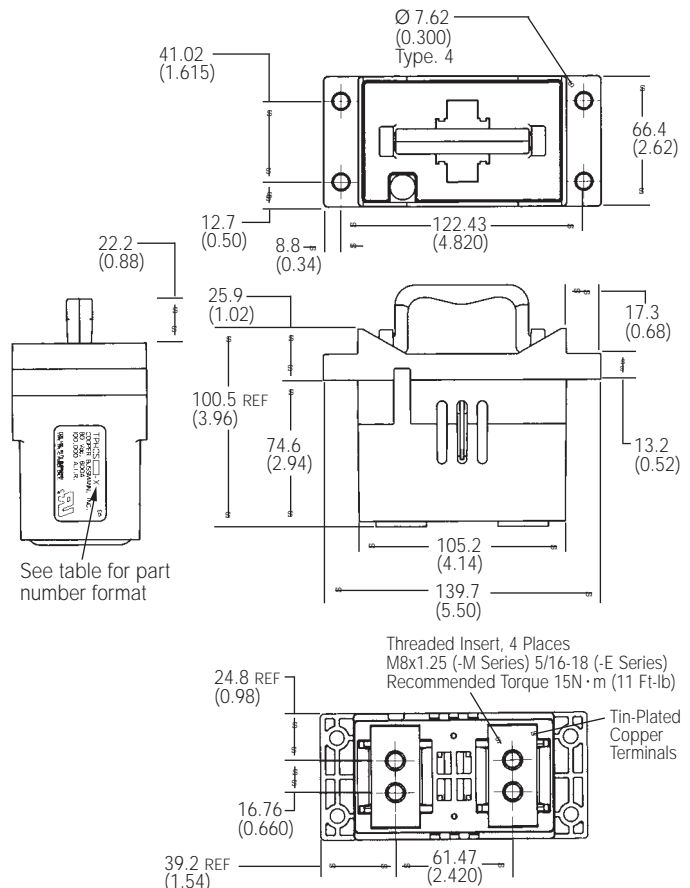
Catalog Numbers – Switches (Pullout and Base)

Catalog Numbers	Hardware/Option	Fuse Series	Amp Rating
TPHCS250-M	Metric	TPL-B	70-250
TPHCS250-E	English	TPL-B	70-250
TPHCS250-ML	Metric, LED	TPL-B	70-250
TPHCS250-EL	English, LED	TPL-B	70-250
TPHCS250-MAV	Metric, Alarm	TPL-B	70-250
TPHCS250-EAV	English, Alarm	TPL-B	70-250
TPHCS800-M	Metric	TPL-C or TPH	300-800
TPHCS800-E	English	TPL-C or TPH	300-800
TPHCS800-ML	Metric, LED	TPL-C or TPH	300-800
TPHCS800-EL	English, LED	TPL-C or TPH	300-800
TPHCS800-MAV	Metric, Alarm	TPL-C or TPH	300-800
TPHCS800-EA	English, Alarm	TPL-C or TPH	300-800

Catalog Numbers – Components

Catalog Numbers	Description Rating/Hardware/Option	Fuse Series	Amp Rating
TPHCS250-P	Pullout only – 250A	TPL-B	70-250
TPHCS800-P	Pullout only – 800A	TPL-C or TPH	300-800
TPHCS-B-M	Base only, Metric	—	800 Max
TPHCS-B-E	Base only, English	—	800 Max
TPHCS-B-ML	Base only, Metric, LED	—	800 Max
TPHCS-B-EL	Base only, English, LED	—	800 Max
TPHCS-B-MAV	Base only, Metric, Alarm	—	800 Max
TPHCS-B-EAV	Base only, English, Alarm	—	800 Max

Dimensions mm (in)



NOTES:

1. TPHCS250 and TPHCS800 pullouts and bases are the same with exception to the type of fuse, TPL-B, TPL-C or TPH the pullout will carry.
2. Plastic rated UL 94V0, 140°C RTI.

Telpower® 70-600A: 170Vdc fuses

TPL

Specifications

Description: DC power distribution fuses for use with Telpower 15100, 15200, TP158HC and TPHCS disconnect systems. For replacement of Cooper Bussmann UBO fuses a TPL-TA adapter kit is necessary.

Dimensions: See Dimensions illustrations.

Construction: Silver-plated terminals.

Ratings:

- Volts: — 170Vdc
- Amps: — 70-800A
- IR: — 100,000A

Agency Information: CE, UL Recognized Guide JFHR2, File E56412 Bellcore.

Features and Benefits

- Current-limiting capability designed for dc power distribution systems
- Recognized branch circuit protection
- Complete system coordination capability
- Energy savings with low watts loss, low operating temperatures, and minimum I²t levels

Typical Applications

- Telecommunications power circuit protection

Catalog Numbers

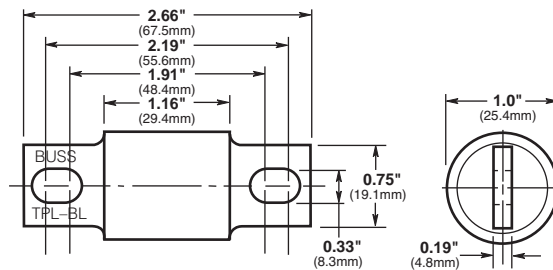
Catalog Numbers	Amp Rating
TPL-BA	70
TPL-BB	80
TPL-BC	90
TPL-BD	100
TPL-BE	125
TPL-BF	150
TPL-BG	175
TPL-BH	200
TPL-BK	225
TPL-BL	250
TPL-CN	300
TPL-CO	350
TPL-CR	400
TPL-CU	450
TPL-CV	500
TPL-CZ	600
TPL-CZH	800

Accessories

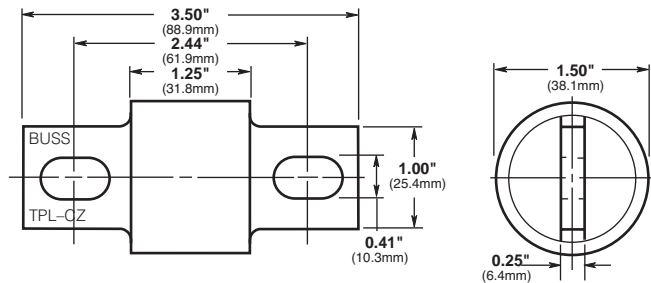
- Spare fuse holders: TPSFH-LB (for TPL-B fuses)
TPSFH-LC (for TPL-C fuses)



Dimensions - in (mm)



TPL-BA, TPL-BD, TPL-BF, TPL-BH, TPL-BK, AND TPL-BL



TPL-CN, TPL-CR, TPL-CV, AND TPL-CZ

Did You Know?

Web Services

www.cooperbussmann.com

The Cooper Bussmann web site makes available free information and other resources that include:

- Product Data Sheets for complete technical information on Bussmann products
- Online catalogs for the latest United States and European products
- Safety BASICs™ for the essentials of electrical safety
- Training Modules for increasing skill levels of customers and end users
- Fuse Cross Reference to find the correct Bussmann replacement for a competitive fuse
- Arc-Flash Calculator to determine the incident energy level and flash protection boundary along with the recommends the level of Personal Protective Equipment (PPE)

Telpower® 1-600A, 170Vdc fuses

TPN

Specifications

Description: Current-limiting dc power distribution fuses. The TPN fuse series is dimensionally similar to Class R fuses making it easy to use standard Class R fuse blocks.



Dimensions: See Dimensions illustrations.

Construction:

Ratings:

Volts: — 170Vdc

Amps: — 1-600A

IR: — 100,000A

Agency Information: UL Recognized, Guide JFHR2, File E56412.

Features/Benefits

- Current-limiting capability designed for dc power distribution systems
- Recognized branch circuit protection
- Complete system coordination capability
- Energy savings with low watts loss, low operating temperatures, and minimum I²t levels

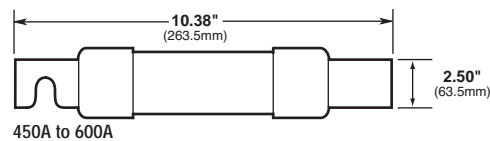
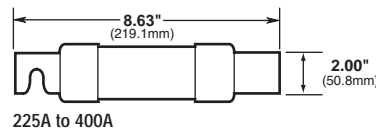
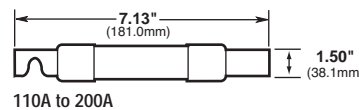
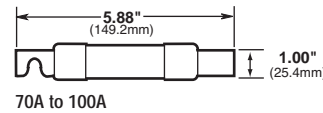
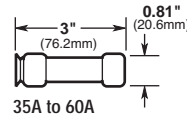
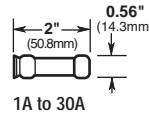
Typical Applications

- Telecommunications power circuit protection

Catalog Numbers (-amps)

TPN-1	TPN-45	TPN-200
TPN-3	TPN-50	TPN-225
TPN-5	TPN-60	TPN-250
TPN-6	TPN-70	TPN-300
TPN-10	TPN-80	TPN-350
TPN-15	TPN-90	TPN-400
TPN-20	TPN-100	TPN-450
TPN-25	TPN-110	TPN-500
TPN-30	TPN-125	TPN-600
TPN-35	TPN-150	
TPN-40	TPN-175	

Dimensions - in (mm)



Accessories

- Spare fuse holders:TPSFH-N30 (for TPN 1-30) TPSFH-N60 (for TPN 35-60)

Recommended Class R Fuse Blocks

Amps	Poles	Catalog Number
1-30	1	R25030-1CR
1-30	2	R25030-2CR
1-30	3	R25030-3CR
35-60	1	R25060-1CR
35-60	2	R25060-2CR
35-60	3	R25060-3CR
70-100	1	R25100-1CR
70-100	2	R25100-2CR
70-100	3	R25100-3CR
110-200	1	R25200-1CR
110-200	3	R25200-3CR
225-400	1	R25400-1CR
225-400	3	R25400-3CR
450-600	1	R25600-1CR
450-600	3	R25600-3CR

Indicating fuses and holders

70 Series Fuses

Specifications

Description: Indicating type fuse.

Ratings:

Volts: — 125Vac/300Vdc

Amps: — 1/10-10A

IR: — 1000A @ 300Vdc

Agency Information: CE, UL Recognized, Guide JDYX2, File E19180 Bellcore.

Catalog Numbers

Catalog Numbers	Amp Rating	Color Code	Lucent Comcode Ref. No.	Code/ List No.
70P-1/10A*	1/10	Gray/Wh	100203413	KS23751-L10
70R-1/100A*	1/100	Red/Wh	101384550	KS23751-L11
70E-1/100A*	1/100	Yellow	100203363	KS23751-L5
70X-2/10A	2/10	Black	—	—
70F-1/4A*	1/4	Violet	100203371	KS23751-L6
70K-1/4A*	1/4	Violet/Wh	100203405	KS23751-L9
70G-1/2A*	1/2	Red	100203389	KS23751-L7
70H-3/4A*	3/4	Brown	100203397	KS23751-L8
70I-1A	1	Pink	—	—
70A-1 1/2A*	1 1/2	White	100203322	KS23751-L1
70B-2A*	2	Orange	100203330	KS23751-L2
70C-3A*	3	Blue	100203348	KS23751-L3
70J-3 1/2A	3 1/2	Black/Wh	—	—
70D-5A*	5	Grn/Blk	100203355	KS23751-L4
70L-6A	6	Grn/Wh	—	—
70M-8A	8	Brown/Wh	—	—
70N-10A	10	Violet/Yel	—	—
GKB-10A	10	Violet/Yel	—	—
72A Plastic Case	Dummy	—	100203421	—
72B Blister Pack	Dummy	—	103757977	—



15087 Fuse Holder

Specifications

Description: Fuse holder for 70 Series fuses.

Construction:

Thermoplastic body. Tin-plated copper alloy, terminals. Zinc-plated 3-24 x 3/8" steel screws.

Ratings:

Volts: — 300Vdc

Amps: — 12A

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853.

Flammability Rating: UL 94V0.

Features and Benefits

- Panel mount fuse holder for 70 Type fuses supplied with two screws
- Remote alarm capability

Typical Applications

- Telecommunications dc power circuit protection

Catalog Number — 15087

Accessories

Description: Optional color code eyelets used with fuse holder to indicate fuse amp rating.

Eyelet Catalog Numbers

Catalog Numbers	Amp Indication	Color Code
1A1706-01	19/100	Yellow
1A1706-02	2/10	Black
1A1706-03	1/4	Violet
1A1706-04	1/4	Violet/White
1A1706-05	1/2	Red
1A1706-06	3/4	Brown
1A1706-07	1	Pink
1A1706-08	1 1/2	White
1A1706-09	2	Orange
1A1706-10	3	Blue
1A1706-11	5	Green/Black
1A1706-12	6	Green/White
1A1706-13	8	Brown/White
1A1706-14	10	Violet/Yellow
1A1706-15	1/10	Gray/White
1A1706-16	3 1/2	Black/White
1A1706-17	19/100	Red/White



Indicating fuses and holders

HLS, HLT, PCT

Specifications

Description: Fuse holders for GMT Type indicating fuses.

Construction: Thermoplastic body. Tin-plated copper terminals.

Poles: 01 to 25.

Ratings:

Volts: — 60Vdc/125Vac

Agency Information:

CE, UL Recognized, Guide IZLT2, File E14853, 15A (60Vdc).

Flammability Rating: UL 94V0.

Features and Benefits

- Multiple configurations provide application flexibility
- Compact size saves space



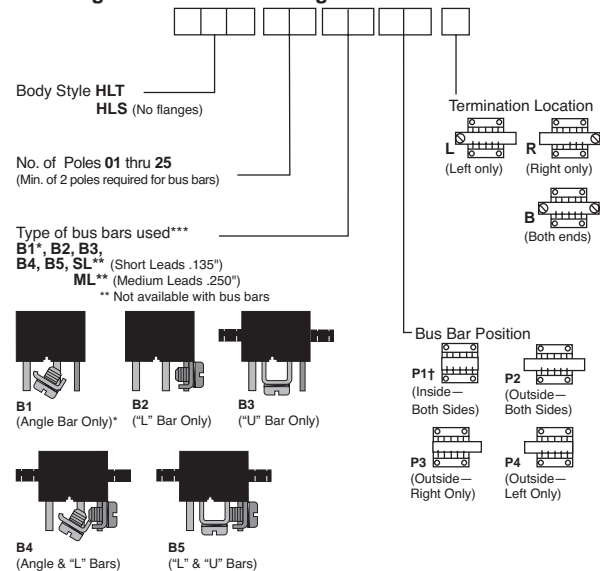
Typical Applications

- Telecommunications dc power circuit protection

Catalog Numbers

Catalog Numbers	Poles
PCT	1
HLS	See Build-A-Code
HLT	See Build-A-Code

Multiple Fuseholders with bus bars Ordering Information— Catalog No.



*Angle Bar mounts on common or center terminals only.

**SL Version is not available with bus bars.

†Minimum of 4 Poles Required.

***.38 max. leads if not specified.

Data Sheet: 5010

GMT

Specifications

Description: Fast-acting fuses for use in HLT, HLS, and PCT fuse holders.

Construction: Thermoplastic body. Tin-plated, Beryllium-copper terminals.

Ratings:

Volts: — 60Vdc/125Vac

Amps: — $\frac{1}{100}$ -15A

IR: — 450A@60Vdc

— 300A@125Vac

Agency Information: CE, UL Recognized, Guide JFHR2, File E56412.

Flammability Rating: UL 94V0.

Features and Benefits

- Local and remote indication capability
- Color coded for easy amp rating identification

Typical Applications

- Telecommunications dc power circuit protection

Catalog Numbers

Catalog Numbers	Color Code	Catalog Numbers	Color Code
GMT-18/100A	Yellow	GMT-3A	Blue
GMT- $\frac{1}{4}$ A	Violet	GMT-3 $\frac{1}{2}$ A	White/Blue
GMT- $\frac{1}{2}$ A	White/Gray	GMT-4A	White/Brown
GMT- $\frac{1}{2}$ A	Red	GMT-5A	Green
GMT- $\frac{6}{100}$ A	Black	GMT-7 $\frac{1}{2}$ A	Black/White
GMT- $\frac{3}{4}$ A	Brown	GMT-10A	Red/White
GMT-1A	Gray	GMT-12A	Yellow/Green
GMT-1 $\frac{1}{2}$ A	White	GMT-15A	Red/Blue
GMT-1 $\frac{1}{2}$ A	White/Yellow	GMT-Dummy	Gray Body
GMT-2A	Orange	GMT-X	Clear Cover

Some GMT sizes may be sold in bulk pack only.

Accessories

- Spare fuse holder: Catalog Number TPSFH-T

GMT-A

Specifications

Description: Fast-acting fuse designed specifically for use in the Telpower® series 15800 fused disconnect switch (page 343).

Agency Information: The GMT-A has the same ratings and agency approvals as the standard GMT fuses as shown above.

Catalog Numbers

Catalog Number	Color Code
GMT-A	Yellow

Data Sheet: 5008

Telpower specialty fuses

7 Type



Specifications

Description: Fiber tube, threaded ends. Typically used on wall type main distribution frames and central battery substations.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Ratings:

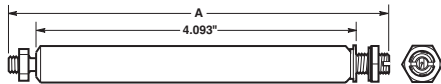
Amps: — 7A

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Dimension A Length Inches
7A-7	7	100863737	4.562
7T-7	7	100202753	4.828

Dimensions



11 Type



Specifications

Description: Fiber tube, threaded ends, identical to 7 Type except for vent slots in fiber tube.

Dimensions: See Dimensions illustration.

Ratings:

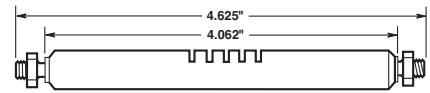
Amps: — 7A

Agency Information: CE

Catalog Number

Catalog Number	Amp Rating	Lucent Comcode Ref. No.
11C-7	7	100863745

Dimensions



24 and WER Type

Specifications

Description: Flat, non-indicating visible link element mounted on 1 inch centers using either No. 6 or No. 10 screws.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 32Vdc (1/4, 1, 3 1/2, 8, 10A)

— 60Vdc (1/2, 3/4, 1 1/2, 2, 3, 4, 5A)

Amps: — 1/4-10A

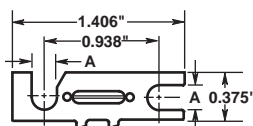
Agency Information: CE, UL Recognized File E56412.

Catalog Numbers

Catalog Numbers	Amp Rating	DC Volts	Color Code	Lucent Comcode Ref. No.	A Length Inches
WER-1/4	1/4	32	—	—	—
24E-1/2*	1/2	60	Red	100202894	0.20
24D-3/4*	3/4	60	Black	100202886	0.15
WER-1	1	32	—	—	—
24G-1 1/8*	1 1/8	60	White	100202910	0.20
24C-2*	2	60	Orange	100202878	0.20
24B-3*	3	60	Blue	100202852	0.15
WER-3 1/2	3 1/2	32	—	—	—
24B-4*	4	60	Yellow	100202860	0.15
24F-5*	5	60	Green	100202902	0.15
WER-8	8	32	—	—	—
WER-10	10	32	—	—	—
64A-Dummy	—	—	—	100203280	—

*Designed to comply with Bellcore Technical Reference TR-TSY-000799 Issue 1, Dec. 1988.

Dimensions



74 Type



Specifications

Description: Fast-acting 0.281" x 1.25" cylindrical fuse designed to comply with Lucent specification KS23753. High current companion to 70 Type Fuse.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 60Vdc

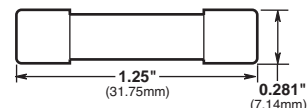
Amps: — 11/4-20A

Agency Information: CE, UL Recognized File E19180.

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Code/List No.
74A-1 1/4	1 1/4	102630290	KS23753-L1
74G-2	2	103064952	KS23753-L7
74B-3	3	102630308	KS23753-L2
74H-4	4	103264669	KS23753-L8
74C-5	5	102630316	KS23753-L3
74J-7 1/2	7 1/2	103228425	KS23753-L9
74D-10	10	102630324	KS23753-L4
74E-15	15	102630332	KS23753-L5
74F-20	20	102630340	KS23753-L6

Dimensions



Telecom Protection Products

Telpower® specialty fuses

75 Type

Specifications

Description: Cylindrical with leads, designed to provide protection against currents resulting from the application of foreign voltages. Application for data sets and telephones.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 135Vac/220Vdc (440Vdc@0.007A)

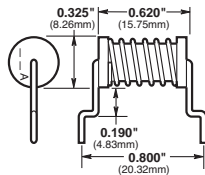
Amps: — 0.007-0.230A

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Code/ List No.
75C	0.007	103260816	KS23825-L3
75F	0.063	104172861	KS23825-L6
75B	0.115	102732112	KS23825-L2
75D	0.129	104013180	KS23825-L4
75A	0.200	102660008	KS23825-L1
75E	0.230	104015292	KS23825-L5

Dimensions



76 Type

Specifications

Description: Cylindrical with leads, designed to provide protection against currents resulting from the application of foreign voltages. Application for data sets and telephones.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 135Vac/440Vdc

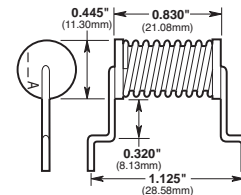
Amps: — 0.012-0.412A

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Code/ List No.
76D	0.012	103798245	KS23825-L10
76B	0.191	102965688	KS23825-L8
76A	0.231	102810181	KS23825-L7
76C	0.412	103656625	KS23825-L9

Dimensions



80 Type

Specifications

Description: A fuse designed for high reliability applications where high ambient temperatures, low circuit voltages, low power dissipation and low contact resistance are prime considerations. The 80 Type is a visual indicating fuse with remote electrical alarm capability. UL Recognized, Guide JDYX2, File E19180.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 160Vdc

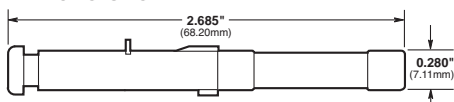
Amps: — 0.5-5A

Agency Information: CE, UL Recognized File E19180.

Catalog Numbers

Catalog Numbers	Amp Rating	Color Code	Lucent Comcode Ref. No.	Code/ List No.
80G-½	0.50	Red	103839916	KS23824-L6
80M-1 ½	1.33	White	408078657	KS23824-L8
80B-2	2	Orange	103752150	KS23824-L2
80C-3	3	Blue	103752168	KS23824-L3
80D-5	5	Green	103800637	KS23824-L4

Dimensions



81 Type

Specifications

Description: Cylindrical, fast-acting, non-indicating high current companion to the 80 Type.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 65Vdc

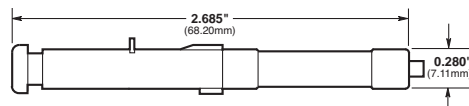
Amps: — 7.5-12A

Agency Information: CE, UL Recognized, Guide JDYX2, File E19180.

Catalog Numbers

Catalog Numbers	Amp Rating	Color Code	Lucent Comcode Ref. No.	Code/ List No.
81B-7 ½	7.5	Gray	103828141	KS23824-L12
81A-10	10	Yellow	103752176	KS23824-L11
81C-12	12	Lt Blue	104391842	KS23824-L13

Dimensions



Filtered terminal blocks

F38 Series

Specifications

Description: Terminal blocks for filtering line power in telecommunications applications.

Ratings:

Volts: — 240Vac/300Vdc

Amps: — 30A

Center Spacing: 0.437" or 7/16" (11.1mm).

Wire Range: # 10-22 AWG CU.

Screw Size: # 8-32 (# 6-32 available, consult factory).

Torque Rating: 15 in-lb.

Operating Temperature: -55°C to +105°C.

Construction: Black thermoplastic with tin-plated brass terminals.

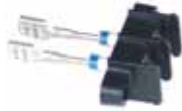
Capacitance: 1,000 pF to 5,000 pF in either C or Pi Schematic.

Dielectric Withstanding: 1000 Vac/1700Vdc.

DC Resistance: 0.01 Ohms max.

Agency Information: UL/CSA, CE Certified.

Flammability Rating: UL 94V0.



Dimensions* - in

Poles	Front Mount		Rear Mount		
	A	A	B	C	D
2	1.67	1.88	1.31	0.93	0.44
3	2.10	2.32	1.75	1.37	0.88
4	2.54	2.76	2.19	1.81	1.31
5	2.98	3.19	2.63	2.25	1.75
6	3.41	3.63	3.06	2.68	2.19
7	3.85	4.07	3.50	3.12	2.62
8	4.29	4.51	3.94	3.56	3.06

1" = 25.4mm.

* Note: In inches. Available up to 16-poles. Consult factory.

Insertion Loss for 2,500 pF Pi Schematic

Typical Insertion Loss* (dB) in 50 Ohm Circuit

30MHz: 42 dB

50 MHz: 45 dB

100 MHz: 50 dB

300 MHz: 68 dB

1000 MHz: 70 dB

* For other capacitance insertion loss, consult factory.

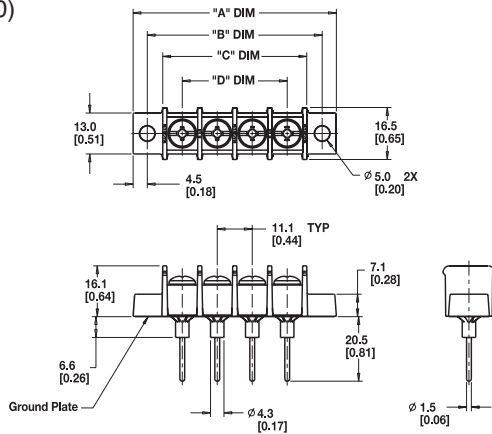
Features and Benefits

- Rugged integrated construction of filtering elements around a solid brass pin provides excellent EMI/RFI filtering with high insertion loss for EMI/RFI filtering of ac and dc power and control lines
- 2 to 8 terminals standard (up to 16-poles available) with options for straight lead, male or female quick-connect

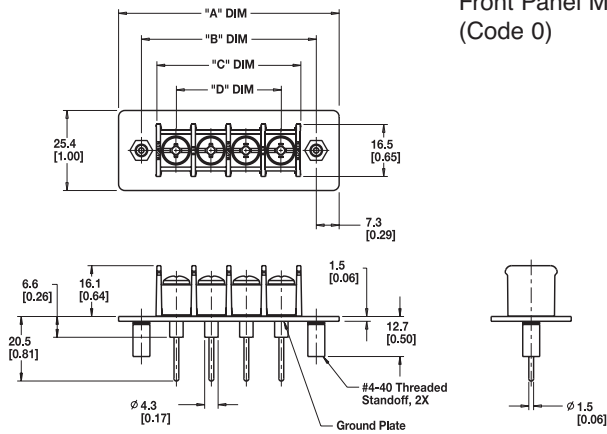
Typical Applications

- Cost-effective EMI solution for industrial interconnection filtering

Front Panel Mount (Code 0)



Front Panel Mount (Code 0)



Catalog Number Build-A-Code

Series	Terminal Style	Mounting	Poles	Screw Options	Filter Options	Capacitance
F38	<input type="checkbox"/> 0 = Straight lead <input type="checkbox"/> 1 = 0.187" Quick connect (male) <input type="checkbox"/> 2 = 0.187" Quick connect (female) <input type="checkbox"/> 3 = 0.250" Quick connect (male) <input type="checkbox"/> 4 = 0.250" Quick connect (female)	<input type="checkbox"/> 0 = Front panel mount with mount ends <input type="checkbox"/> 1 = Rear panel mount with #4-40 threaded inserts	<input type="checkbox"/> <input type="checkbox"/> 02 to 08*	<input type="checkbox"/> <input type="checkbox"/> Blank = #8-32, steel, zinc-plated phillslot BHMS (standard) <input type="checkbox"/> <input type="checkbox"/> 04 = #8-32, Brass, nickel-plated phillslot BHMS <input type="checkbox"/> <input type="checkbox"/> 92 = #8-32, Steel, zinc-plated slotted BHMS <input type="checkbox"/> <input type="checkbox"/> 94 = #8-32, Brass, nickel-plated slotted BHMS	<input type="checkbox"/> C = C Filter <input type="checkbox"/> P = Pi Filter	<input type="checkbox"/> <input type="checkbox"/> 1.0 = 1,000 pF +100%-0% <input type="checkbox"/> <input type="checkbox"/> 2.5 = 2,500 pF +100%-0% <input type="checkbox"/> <input type="checkbox"/> 5.0 = 5,000 pF +100%-0%

* Note: Standard is 02-08 poles. Available up to 16-poles. Consult Cooper Bussmann for availability. Special electrical/mechanical configurations are available upon request.

Filtered terminal blocks

FE2475 Series

Specifications

Description: Terminal blocks for filtering line power in telecommunications applications.

Ratings:

Volts: — 125Vac/200Vdc.

Amps: — 12A

Center Spacing: 0.197" (5mm).

Operating Temperature: -55°C to +105°C.

Construction: Green Polyamide Type 6/6 with tin-plated brass terminals.

Capacitance: 1,000 pF to 5,000 pF in either C or Pi Schematic.

Dielectric Withstanding: 1250Vac/1500Vdc

DC Resistance: 0.01 Ohms max.

Agency Information: UL & CSA Pending.

Flammability Rating: UL 94V0.

Dimensions - in (mm)

Poles*	A	B	C
02	1.003 (25.46)	0.803 (20.38)	0.457 (11.60)
03	1.200 (30.46)	1.000 (25.38)	0.654 (16.60)
04	1.396 (35.46)	1.196 (30.38)	0.850 (21.60)
05	1.593 (40.46)	1.393 (35.38)	1.047 (26.60)
06	1.790 (45.46)	1.590 (40.38)	1.244 (31.60)
07	1.987 (50.46)	1.787 (45.38)	1.441 (36.60)
08	2.184 (55.46)	1.984 (50.38)	1.638 (41.60)

* Available up to 16-poles. Consult Cooper Bussmann.

Insertion Loss* for 2,500 pF Pi Schematic

Typical Insertion Loss (dB) in 50 Ohm Circuit

30MHz :42 dB

50 MHz: 45 dB

100 MHz: 50 dB

300 MHz: 68 dB

1000 MHz: 70 dB

* For other capacitance insertion loss, consult Cooper Bussmann.

Features and Benefits

- Rugged integrated construction of filtering elements around a solid brass pin provides excellent EMI/RFI filtering with high insertion loss for EMI/RFI filtering of ac and dc power and control lines
- 2 to 8 terminals standard (available up to 16-poles)
- Special options for added application flexibility include: different capacitance values on each position, wire assemblies added to pins

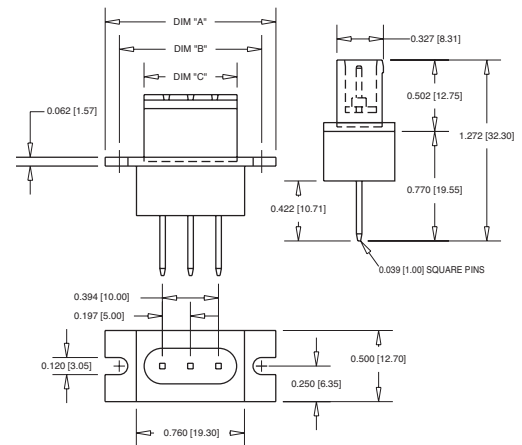
Catalog Number Build-A-Code

Series	Mounting	Poles	Filter Options	Capacitance
FE2475	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	01 = Panel mount** 02 = Shrouded panel mount 03 = PCB mount	02 to 08*	C = C Filter P = Pi Filter	1.0 = 1000 pF +100%-0% 2.5 = 2500 pF +100%-0% 5.0 = 5000 pF +100%-0%

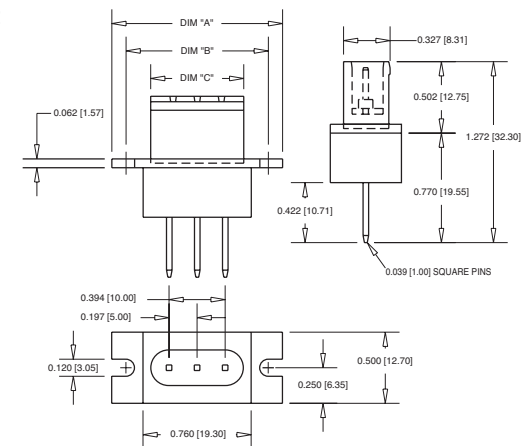
* Note: Standard is 02-08 poles. Available up to 16-poles. Consult Cooper Bussmann for availability. Special electrical/mechanical configurations are available upon request.

** Note: 01-panel mount only available with C filter.

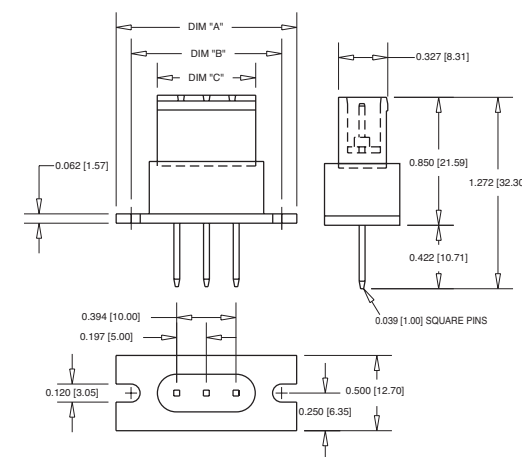
FE2475 01



FE2475 02



FE2475 03



Telecom Protection Devices

Mating Pluggable Blocks: EM2525, EM2485

Filtered terminal blocks

F7036 Series

Specifications

Description: Terminal blocks for filtering line power in telecommunications applications.

Ratings:

Volts: — 300Vdc

Amps: — 115A

Center Spacing: 0.75" (19.05mm).

Wire Range: # 2-8 AWG CU.

Thread Size: ¼ - 28*.

Torque Rating: 36 in-lb.

Operating Temperature: -55°C to +105°C.

Construction: Black thermoplastic with tin-plated bronze terminals.

Capacitance: 1,000 pF to 5,000 pF in C.

Dielectric Withstanding: 1500Vdc.

DC Resistance: 0.01 Ohms.

Agency Information: UL/CSA, CE Certified.

Flammability Rating: UL 94V0.

* Consult Cooper Bussmann for other options.



Dimensions - mm (in)

Poles	A	B	C
01	21.6 (0.85)	14.7 (.580)	47.0 (1.85)
02	40.6 (1.60)	50.8 (2.00)	66.0 (2.60)
03	59.7 (2.35)	69.9 (2.75)	85.1 (3.35)
04	78.7 (3.10)	88.9 (3.50)	104.1 (4.10)
05	97.8 (3.85)	108.0 (4.25)	123.2 (4.85)
06	116.8 (4.60)	127.0 (5.00)	142.2 (5.60)
07	135.9 (5.35)	146.1 (5.75)	161.3 (6.35)
08	154.9 (6.10)	165.1 (6.50)	180.3 (7.10)
09	174.0 (6.85)	184.2 (7.25)	199.4 (7.85)
10	193.0 (7.60)	203.2 (8.00)	218.4 (8.60)
11	212.1 (8.35)	222.3 (8.75)	237.5 (9.35)
12	231.1 (9.10)	241.3 (9.50)	256.5 (10.10)

Catalog Number Build-A-Code

Series	Poles	Mounting	Filter Options	Capacitance
F7036	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	01 to 12 poles	00 = Standard	C = C Filter	1.0 = 1000 pF +100%-0% 2.5 = 2500 pF +100%-0% 5.0 = 5000 pF +100%-0%

Special electrical/mechanical configurations are available upon request.

Insertion Loss* for 1,000 pF C Schematic

Typical Insertion Loss (dB) in 50 Ohm Circuit

10MHz: 7 dB

50 MHz: 21 dB

100 MHz: 27 dB

100+ - 1 GHz: 20 dB

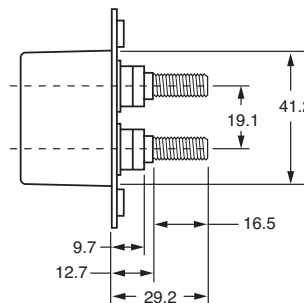
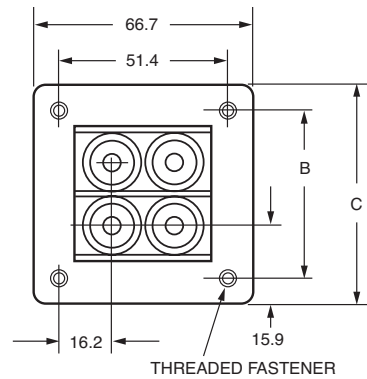
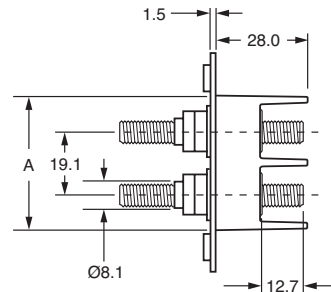
* Note: For other capacitance insertion loss, consult Cooper Bussmann.

Features and Benefits

- Rugged integrated construction of filtering elements around a solid brass pin provides excellent EMI/RFI filtering
- Filter element provides high insertion loss for EMI/RFI filtering of ac and dc power and control lines
- Custom and special options available. Consult Cooper Bussmann.

Typical Applications

- Cost-effective EMI solution for telecommunications interconnection filtering



Power feed thru terminal blocks

Series C7021

Specifications

Description: Power feed thru terminal block with tow rows ¼-20 studs capable of accommodating the industry standard two-hole compression lugs on both studs in parallel.



Ratings:

- Volts: — 300V
- Amps: — 115/175A* per pole
- Center Spacing: 0.690" (17.5mm).
- Wire Range: AWG #2/0-8.
- Poles: 2-6.
- Bolt Hole Spacing: 0.625" or 5/8" (15.88mm).
- Stud: Standard ¼-20 stud (tin-plated brass) or optional M6 stud.
- Mounting: #6 thread cutting screws (not included) or optional mounting ears.
- Torque Rating: 36 in-lb.
- Operating Temperature: 130°C.
- Agency Information: UL/CSA; CE Certified.

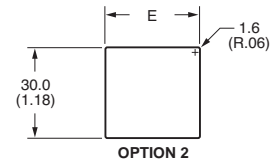
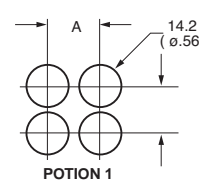
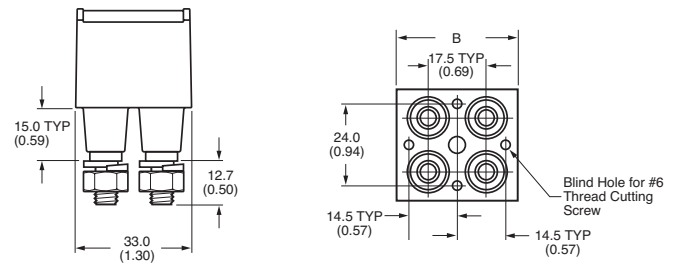
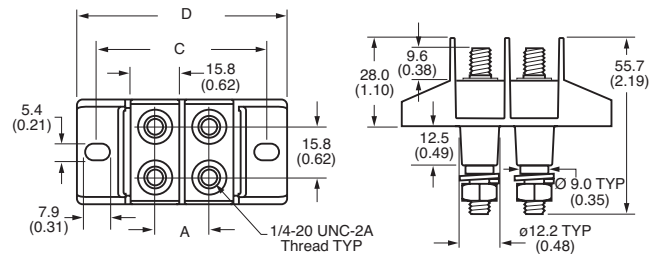
*175 achieved using both studs in parallel, 115A using a single stud per line.

Dimensions - in(mm)

Catalog Numbers	A	B	C	D	E
C7021-01-X					
C7021-02-X	17.5 (0.69)	-	54.4 (2.14)	67.3 (2.65)	31.8 (1.25)
C7021-03-X	34.9 (1.37)	-	70.9 (2.83)	84.8 (3.34)	49.2 (1.94)
C7021-04-X	52.3 (2.06)	-	89.3 (3.52)	102.2 (4.02)	66.7 (2.63)
C7021-05-X	69.8 (2.75)	-	106.8 (4.20)	119.7 (4.71)	84.2 (3.31)
C7021-06-X	87.2 (3.44)	-	124.2 (4.89)	134.1 (5.40)	101.7 (4.00)
C7021-01N-X					
C7021-02N-X	17.5 (0.69)	36.1 (1.42)	-	-	31.8 (1.25)
C7021-03N-X	34.9 (0.69)	53.5 (2.11)	-	-	49.2 (1.94)
C7021-04N-X	52.3 (2.06)	71.0 (2.80)	-	-	66.7 (2.63)
C7021-05N-X	69.8 (2.75)	88.4 (3.48)	-	-	84.2 (3.31)
C7021-06N-X	87.2 (3.44)	105.9 (4.17)	-	-	101.7 (4.00)

Typical Applications

- Applications requiring up to 175A utilizing a 2-hole compression lug on 5/8" centers
- Input/output block for telecommunications power panels
- Use to eliminate busbars



Option 1

Panel Cutouts

Catalog Number Build-A-Code

Series	Poles	Mount Ends	Studs	Hardware
C7021	□ □	□	□ □ □	□
	01 = 1-Pole (2 studs) 02 = 2-Pole (4 studs) 03 = 3-Pole (6 studs) 04 = 4-Pole (8 studs) 05 = 5-Pole (10 studs) 06 = 6-Pole (12 studs)	Blank = Mount ends N = No mount ends	Blank = Standard 1/4 = 20 Studs M6 = M6 Studs	Blank = No hardware 0 = Bulk pack, one set 1 = Bulk pack, two sets 2 = Assembled, bottom 3 = Assembled, top 4 = Assembled, both sets

Power feed thru terminal blocks

Series C7024

Specifications

Description: A power feed through terminal block with two rows of ¼-28 studs capable of accommodating the industry standard two-hole compression lugs on ¾" centers.



Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600V

Amps: — 115A per pole

Center Spacing: 0.75" (19.1mm).

Wire Range: #2-8 AWG.

Poles: 1 to 12.

Bolt Hole Spacing: 0.75" (19.1mm).

Stud: Standard ¼-28 stud (tin-plated bronze).

Torque Rating: 36 in-lb.

Construction: Thermoplastic.

Operating Temperature: 130°C.

Agency Information: UL/C-UL, CSA; CE Certified.

Flammability Rating: UL 94V0.

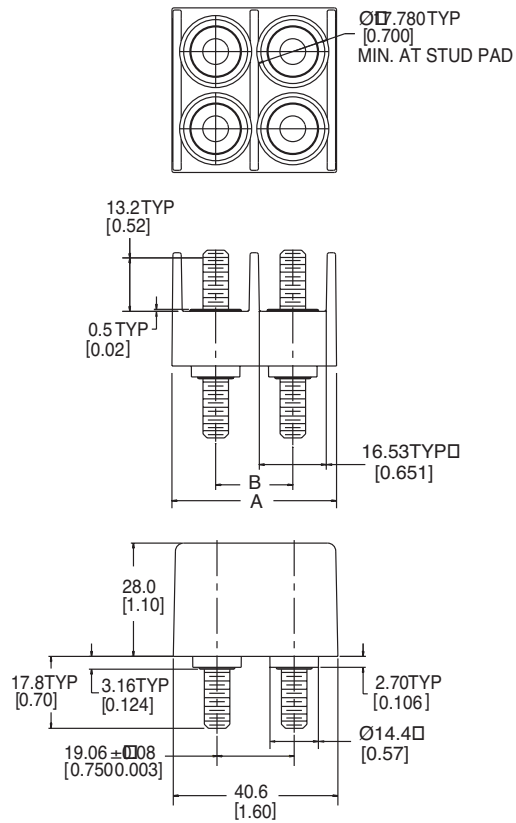
Catalog Numbers

Catalog Number	Poles	"A" Dimension ±0.4 (±0.02)	"B" Dimension
C7024-01	01	21.6 (0.85)	-
C7024-02	02	40.6 (1.60)	19.05 ±0.08 (0.750 ±0.003)
C7024-03	03	59.7 (2.35)	38.10 (1.500)
C7024-04	04	78.7 (3.10)	57.15 ±0.26 (2.250 ±0.010)
C7024-05	05	97.8 (3.85)	76.2 (3.00)
C7024-06	06	116.8 (4.60)	95.25 ±0.26 (3.750 ±0.010)
C7024-07	07	135.9 (5.35)	114.30 ±0.38 (5.250 ±0.015)
C7024-08	08	154.9 (6.10)	133.35 ±0.38 (5.25 ±0.015)
C7024-09	09	174.0 (6.85)	152.40 ±0.38 (6.00 ±0.015)
C7024-10	10	193.0 (7.60)	171.45 ±0.38 (6.750 ±0.015)
C7024-11	11	212.1 (8.35)	190.50 ±0.38 (7.500 ±0.015)
C7024-12	12	231.1 (9.10)	209.55 ±0.38 (8.250 ±0.015)

Typical Applications

- Applications requiring up to 115A utilizing a 2-hole compression lug on ¾" centers
- Ideal as an input/output block for telecommunications power panels
- Use to eliminate busbars

Dimensions - mm (in)



Surge suppression devices

Section Contents	Page
TVS Transient voltage surge suppressors	352
TVSS Transient surge suppression limiters	353



Transient voltage surge suppressors

TVS — Cooper Bussmann Surge³™



Specifications

Description: DIN rail mount transient voltage surge suppressor system for ac or dc voltage using diode or MOV technology.

Dimensions: See Dimensions illustration.

Construction:

Suppressor Module: 20% glass-filled PES (Polyethersulfone) case with 110 copper terminals with electroless tin plating.

DIN Rail Mount Holder: 15% glass-filled PBT (Polybutylene terephthalate) case with electroless tin-plated CDA 7025 interface clips lubricated with fluoroether grease, copper box lugs and stainless steel DIN rail springs.

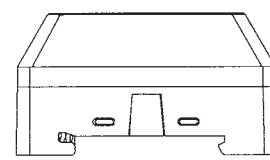
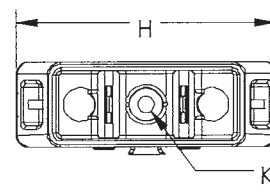
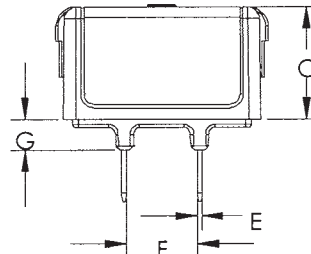
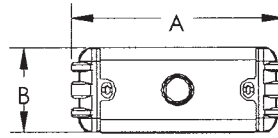
Ratings*:

- Volts: — 12Vdc (2kA surge current)
- 24Vdc (2kA surge current)
- 48Vdc (2kA surge current)
- 120Vac (7kA-18kA surge current)
- 240Vac (7kA-18kA surge current)

* See Catalog Numbers table for all specifications pertaining to specific voltage ratings.

Agency Information: UL Recognized (UL 1449) for ac products, (UL 497B) for dc products, CSA Approved.

Dimensions - in(mm)

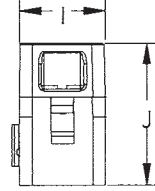


Suppressor Module

- A. 1.88 (47.75)
- B. 0.75 (19.05)
- C. 1.00 (25.40)
- D. 0.31 (7.94)
- E. 0.04 (1.02)
- F. 0.63 (15.88)
- G. 0.27 (6.86)

DIN Rail Mount Holder

- H. 2.30 (58.42)
- I. 0.76 (19.30)
- J. 1.27 (32.18)
- K. 0.15 (3.81)



Catalog Numbers

Catalog Numbers	Voltage Application*	MCOV	Technology	SVR 500A, 8x20µs	Surge Current Rating	Agency Information	Label Color
TVS12DCD	12Vdc	14Vdc	SASD	36Vdc	2kA	UL 497B	Red
TVS22DCD	24Vdc	28Vdc	SASD	58Vdc	2kA	UL 497B	White
TVS48DCD	48Vdc	57Vdc	SASD	90Vdc	2kA	UL 497B	Black
TVS120ACD	120Vac	140Vac	SASD	330Vac	7kA	UL 1449	Blue
TVS120ACM	120Vac	140Vac	MOV	500Vac	18kA	UL 1449	Grey
TVS240ACD	240Vac	280Vac	SASD	600Vac	7kA	UL 1449	Blue
TVS240ACM	240Vac	280Vac	MOV	800Vac	18kA	UL 1449	Grey

Data Sheet: 9006

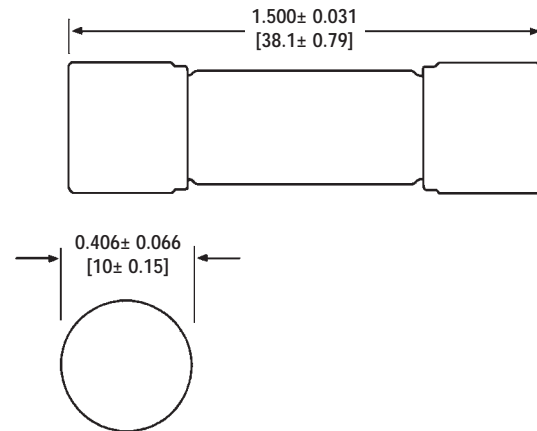
Transient surge suppression limiters

TVSS

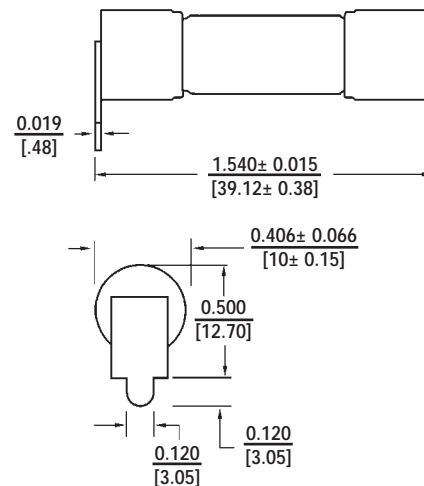


Dimensions

Ferrule Style



Optional Printed Circuit Board Tabs



Specifications

Description: Transient surge suppression limiters designed to protect TVSS systems. Apply in conjunction with TVS transient voltage surge suppressor to provide complete surge protection. Able to withstand $8 \times 20 \mu\text{Sec}$ surge pulses without opening. Limiters are identified by a surge rating and not continuous current rating. Available with optional printed circuit board tabs.

Dimensions: See Dimensions illustration.

Construction: Melamine tube with nickel-plated brass end caps.

Ratings*:

Volts: — 600Vac

IR: — 200,000A RMS Sym.

* See Catalog Numbers table for all specifications pertaining to specific ratings.

Agency Information: CE, UL Recognized 600Vac, File E56412. Designed to protect TVSS systems per UL 1449 Second Edition requirements.

Features and Benefits

- Optional tabs for mounting on printed circuit board.

Catalog Numbers

Catalog Numbers	8x20 μS Surge Rating	Melting I ² t (A ² Sec)	Clearing I ² t (A ² Sec)	I _{peak} @ 100kA 60Hz (A)
TVSS-5	5,000A	559	1,650	4,283
TVSS-10	10,000A	1,788	5,766	6,618
TVSS-15	15,000A	3,760	9,730	7,843
TVSS-20	20,000A	6,020	14,000	8,594

Above catalog numbers are available with printed circuit board tabs. When ordering, use suffix "-01".

Recommended fuse blocks/fuse holders for $1\frac{1}{2}'' \times 1\frac{1}{2}''$ fuses

— See Data Sheets

- Open fuse blocks - 1104, 2104
- Finger-safe fuse holders - 1109, 1102, 1103, 1151
- Panel-mount fuse holders - 2114, 2113, 2108
- In-line fuse holders - 2127, 2126

Data Sheet: 2141

Reduce downtime with quick access to the right replacement fuse

Select from six new Cooper Bussmann service kits

Section Contents	Page
Fuse service kits - supplemental	355-356
Fuse service kits - branch circuit	355-356
Fuse service kits - premium branch circuit	355-356
Large electronic fuse kit - 270	357
Small electronic fuse kit - 140	357
Electrical and electronic fuse kit	
5 x 20mm fuse kit 220	357
Clip clamps & rail adapters (DIN & American) . . .	358
Spare fuse holders, pullers, testers & cabinets	
Telpower® spare fuse holders	359
5TPH	359
Fuse pullers	359
FT-2 & FT-3 fuse testers	359
SFC spare fuse cabinet	359
Fuse reducers & dummy "neutrals"	
Class J dimension fuses - LPJ, JKS.	360
Class R dimension fuses FRN-R, LPN-RK, FRS-R & LPS-RK	360
Class H & K dimension fuses NON, REN, NOS & RES	360
Dummy fuse "neutrals"	360

RED indicates NEW information



Fuse Kits and Accessories

Fuse service kits

Save Time and Money with These **New** Fuse Service Kits

Selection

These service kits are filled with the most common fuse types and sizes for the most common applications – no need to search for the right fuse, it's in the kit.

Organization

The compact and sturdy carrying case allows organizing and modifying the fuses needed to assure a proper supply is kept on hand.

Accessories

All kits come with a fuse puller for the fuses it contains. As a bonus, all kits on this page include a free wire stripper or lineman's pliers that will come in handy when performing wiring tasks.

Supplemental



Glass Fuse Kit

Catalog Number: GSK-260

Kit Contents

- | | | |
|---------------|------------|-------------|
| (5) GMA-500mA | (5) MDL-6 | (5) AGC-10 |
| (5) GMA-1A | (5) MDL-7 | (5) AGC-15 |
| (5) GMA-2A | (5) MDL-8 | (5) AGC-20 |
| (5) GMA-3A | (5) MDL-10 | (5) GMC-2A |
| (5) GMA-4A | (5) MDL-15 | (5) GMC-5A |
| (5) GMA-5A | (5) MDL-20 | (5) GMC-10A |
| (5) GMA-6A | (5) AGC-¼ | (5) MDA-5 |
| (5) GMA-10A | (5) AGC-½ | (5) MDA-10 |
| (5) GMA-15A | (5) AGC-1 | (5) MDA-12 |
| (5) MDL-¼ | (5) AGC-1½ | (5) MDA-15 |
| (5) MDL-½ | (5) AGC-2 | (5) MDA-20 |
| (5) MDL-1 | (5) AGC-2½ | (5) ABC-5 |
| (5) MDL-1½ | (5) AGC-3 | (5) ABC-10 |
| (5) MDL-2 | (5) AGC-4 | (5) ABC-12 |
| (5) MDL-2½ | (5) AGC-5 | (5) ABC-15 |
| (5) MDL-3 | (5) AGC-6 | (5) ABC-20 |
| (5) MDL-4 | (5) AGC-7 | |
| (5) MDL-5 | (5) AGC-8 | |
- (1) FT-3 Fuse tester/puller
(1) 6-inch Crescent® wire stripper



Midget Fuse Kit

Catalog Number: MSK-45

Kit Contents

- | | |
|------------|-----------------------------|
| (3) FNM-1 | (3) KTK-20 |
| (3) FNM-2 | (3) KTK-30 |
| (3) FNM-5 | (3) FNQ-5 |
| (3) FNM-10 | (3) FNQ-10 |
| (3) FNM-15 | (3) FNQ-15 |
| (3) KTK-5 | (3) FNQ-20 |
| (3) KTK-10 | (3) FNQ-30 |
| (3) KTK-15 | (1) FT-3 Fuse tester/puller |
- (1) 6-inch Crescent® wire stripper

Branch Circuit



Class CC Fuse Kit

Catalog Number: CCSK-45

Kit Contents

- | | |
|--------------|--------------|
| (3) LP-CC-5 | (3) KTK-R-15 |
| (3) LP-CC-10 | (3) KTK-R-20 |
| (3) LP-CC-15 | (3) KTK-R-30 |
| (3) LP-CC-20 | (3) FNQ-R-½ |
| (3) LP-CC-30 | (3) FNQ-R-3 |
| (3) KTK-R-5 | (3) FNQ-R-5 |
| (3) KTK-R-10 | (3) FNQ-R-10 |
- (1) FT-3 Fuse tester/puller
(1) 6-inch Crescent® wire stripper



Fusetron® Class RK5

250/600V Fuse Kit

Catalog Number: RK5SK-39

Kit Contents

- | | |
|---------------|----------------------|
| (3) FRN-R-10 | (3) FRS-R-10 |
| (3) FRN-R-15 | (3) FRS-R-15 |
| (3) FRN-R-20 | (3) FRS-R-20 |
| (3) FRN-R-25 | (3) FRS-R-30 |
| (3) FRN-R-30 | (3) FRS-R-60 |
| (3) FRN-R-60 | (3) FRS-R-100 |
| (3) FRN-R-100 | (1) FP-2 Fuse puller |
- (1) No. 263-R (60 to 30A fuse reducer)
(1) No. 663-R (60 to 30A fuse reducer)
(1) 6-inch Crescent® wire stripper

Premium Branch Circuit



Low-Peak® Class RK1

250/600V Fuse Kit

Catalog Number: RK1SK-39

Kit Contents

- | | |
|-----------------|------------------|
| (3) LPN-RK-10SP | (3) LPS-RK-10SP |
| (3) LPN-RK-15SP | (3) LPS-RK-15SP |
| (3) LPN-RK-20SP | (3) LPS-RK-20SP |
| (3) LPN-RK-25SP | (3) LPS-RK-30SP |
| (3) LPN-RK-30SP | (3) LPS-RK-60SP |
| (3) LPN-RK-60SP | (3) LPS-RK-100SP |
- (3) LPN-RK-100SP
(1) No. 263-R (60 to 30A fuse reducer)
(1) No. 663-R (60 to 30A fuse reducer)
(1) FP-2 Fuse puller
(1) 8½-inch Crescent® lineman's pliers



Low-Peak Class J Fuse Kit

Catalog Number: JSK-36

Kit Contents

- | | |
|--------------|---------------|
| (3) LPJ-3SP | (3) LPJ-25SP |
| (3) LPJ-5SP | (3) LPJ-30SP |
| (3) LPJ-6SP | (3) LPJ-40SP |
| (3) LPJ-10SP | (3) LPJ-50SP |
| (3) LPJ-15SP | (3) LPJ-60SP |
| (3) LPJ-20SP | (3) LPJ-100SP |
- (1) FP-2 Fuse puller
(1) 8½-inch Crescent® lineman's pliers

Fuse Kits and Accessories

Fuse service kits

Supplemental/Branch Circuit



Class CC / Midget Fuse Kit

Emergency fuse kit for replacement of 1 $\frac{3}{32}$ " x 1 $\frac{1}{2}$ " (Class CC and midget) fuses in a sturdy nylon box. Cross reference makes it easy to install the correct fuse in any Class CC or midget application.

Kit Size: 10 $\frac{7}{8}$ " W x 6 $\frac{5}{8}$ " D x 1 $\frac{1}{4}$ " H

Catalog Number: No. 36

Emergency Kit Contents

- | | |
|--------------------------|--------------|
| (2) FNQ-R- $\frac{1}{2}$ | (2) KTK-R-1 |
| (2) FNQ-R-1 | (2) KTK-R-2 |
| (2) FNQ-R-2 | (2) KTK-R-3 |
| (2) FNQ-R-3 | (2) KTK-R-5 |
| (2) FNQ-R-4 | (2) KTK-R-6 |
| (2) FNQ-R-5 | (2) KTK-R-10 |
| (2) FNQ-10 | (2) KTK-R-15 |
| (2) FNQ-15 | (2) KTK-R-20 |
| (2) FNQ-20 | (2) KTK-R-30 |
| (1) FP-2 Fuse puller | |

Branch Circuit



Fusetron® Class RK5 250V Fuse Kit

Compact kit in a sturdy nylon box rugged enough to withstand field use. Extra spaces and changeable compartments make it easy to customize for your particular need.

Catalog Number: ERK-28

Service Kit Contents

- | | |
|---------------------------|------------------------|
| (2) FRN-R-3 $\frac{1}{2}$ | (2) FRN-R-40 |
| (2) FRN-R-6 $\frac{1}{4}$ | (2) FRN-R-50 |
| (2) FRN-R-10 | (3) FRN-R-60 |
| (2) FRN-R-15 | (2) FRN-R-100 |
| (3) FRN-R-20 | (2) No. 263-R Reducers |
| (2) FRN-R-25 | (2) No. 1 Clip Clamps |
| (4) FRN-R-30 | (2) No. 2 Clip Clamps |
| (2) FRN-R-35 | |

Premium Branch Circuit



Low-Peak® Class RK1 250V Fuse Kit

Compact kit in a sturdy nylon box rugged enough to withstand field use. Extra spaces and changeable compartments make it easy to customize for your particular need.

Catalog Number: LPRK-28

Service Kit Contents

- | | |
|--------------------------------|------------------------|
| (2) LPN-RK-3 $\frac{3}{16}$ SP | (2) LPN-RK-40 SP |
| (2) LPN-RK-6 $\frac{1}{4}$ SP | (2) LPN-RK-50 SP |
| (2) LPN-RK-10 SP | (3) LPN-RK-60 SP |
| (2) LPN-RK-15 SP | (2) LPN-RK-100 SP |
| (3) LPN-RK-20 SP | (2) No. 263-R Reducers |
| (2) LPN-RK-25 SP | (2) No. 1 Clip Clamps |
| (4) LPN-RK-30 SP | (2) No. 2 Clip Clamps |
| (2) LPN-RK-35 SP | (1) FP-2 Fuse puller |

Fuse service kits

Large Electronic Fuse Kit



Fuse Kit 270

Small dimension fuse assortment with 270 fuses, fuse holders, fuse blocks and fuse clips to fit most electronic equipment.

Ratings:

Volts: — 125V/250V

Catalog Number: No. 270

Assortment Contents

- | | | |
|-------------------------|-------------------------|--------------------------|
| (5) MDL- $\frac{1}{8}$ | (5) AGC- $\frac{1}{2}$ | (5) GMA-1A |
| (5) MDL- $\frac{1}{4}$ | (5) AGC- $\frac{3}{4}$ | (5) GMA-2A |
| (5) MDL- $\frac{1}{2}$ | (5) AGC-1 | (5) GMA-3A |
| (5) MDL- $\frac{3}{4}$ | (5) AGC-1 $\frac{1}{2}$ | (5) GMA-4A |
| (5) MDL-1 | (5) AGC-2 | (5) GMA-6A |
| (5) MDL-1 $\frac{1}{2}$ | (5) AGC-2 $\frac{1}{2}$ | (5) GMC-1A |
| (5) MDL-2 | (5) AGC-3 | (5) GMC-2A |
| (5) MDL-3 | (5) AGC-4 | (5) GMC-3A |
| (5) MDL-4 | (5) AGC-5 | (5) GMC-4A |
| (5) MDL-5 | (5) AGC-6 | (5) GMC-6A |
| (5) MDL-6 | (5) AGC-7 | (5) AGC-V- $\frac{1}{2}$ |
| (5) MDA-8 | (5) AGC-8 | (5) AGC-V-1 |
| (5) MDA-10 | (5) ABC-10 | (5) AGC-V-2 |
| (5) MDA-15 | (5) ABC-15 | (5) AGC-V-3 |
| (5) MDA-20 | (5) ABC-20 | (5) MDL-V- $\frac{1}{2}$ |
| (5) MDA-30 | (5) ABC-30 | (5) MDL-V-1 |
| (5) AGC- $\frac{1}{4}$ | (5) GMA-250mA | (5) MDL-V-2 |
| (5) AGC- $\frac{1}{2}$ | (5) GMA-500mA | (5) MDL-V-3 |
- (2) Pr. 4121 Fuse clips
(2) HHB Inline fuse holder
(1) HTB-26I panel mount fuse holder
(1) HTB-28M panel mount fuse holder
(1) S-8202-2 Two-pole fuse block

Small Electronic Fuse Kit



Fuse Kit 140

Small dimension fuse kit with 140 fuses, fuse holders, fuse blocks and fuse clips to fit most electronic equipment.

Ratings:

Volts: — 125V/250V

Catalog Number: No. 140

Assortment Contents

- | | |
|-------------------------|----------------------------|
| (5) MDL- $\frac{1}{2}$ | (5) AGC-1 $\frac{1}{2}$ |
| (5) MDL-1 | (5) AGC-2 |
| (5) MDL-1 $\frac{1}{2}$ | (5) AGC-3 |
| (5) MDQ-2 | (5) MTH-4 |
| (5) MDQ-3 | (5) MTH-5 |
| (5) MDQ-4 | (5) MTH-6 |
| (5) MDQ-5 | (5) MTH-7 |
| (5) MDQ-6 | (5) MTH-8 |
| (5) MDA-8 | (5) ABC-10 |
| (5) MDA-10 | (5) ABC-15 |
| (5) MDA-15 | (5) ABC-20 |
| (5) MDA-20 | (5) ABC-30 |
| (5) MDA-30 | (2) Pr. #4121 Fuse clips |
| (5) AGC- $\frac{1}{4}$ | (2) HHB Inline fuse holder |
| (5) AGC- $\frac{1}{2}$ | (1) FP-A3 Fuse puller |
| (5) AGC-1 | |

Electrical and Electronic Fuse Kit



5 x 20mm Fuse Kit 220

A complete assortment of 125V and 250V 5 x 20mm fuses for the repair of both electrical and electronic devices.

Ratings:

Volts: — 125V/250V

Catalog Number: No. 220

Assortment Contents

- | | | |
|---------------|---------------|---------------|
| (5) GMA-250mA | (5) GDA-6.3 | (5) GMD-200mA |
| (5) GMA-500mA | (5) GDB-630mA | (5) GMD-500mA |
| (5) GMA-1 | (5) GDB-2 | (5) GMD-1 |
| (5) GMA-1.5 | (5) GDB-3.15 | (5) GMD-1.6 |
| (5) GMA-2 | (5) GDB-4 | (5) GMD-2 |
| (5) GMA-2.5 | (5) GMC-500mA | (5) GMD-3 |
| (5) GMA-3 | (5) GMC-750mA | (5) GDC-250mA |
| (5) GMA-4 | (5) GMC-1 | (5) GDC-500mA |
| (5) GMA-5 | (5) GMC-2 | (5) GDC-1 |
| (5) GMA-10 | (5) GMC-2.5 | (5) GDC-1.6 |
| (5) GDA-630mA | (5) GMC-3 | (5) GDC-2 |
| (5) GDA-1 | (5) GMC-3.15 | (5) GDC-3.15 |
| (5) GDA-2 | (5) GMC-4 | (5) GDC-4 |
| (5) GDA-3.15 | (5) GMC-5 | (5) GDC-5 |
| (5) GDA-5 | (5) GMC-6.3 | |
- (1) HTB-28M panel mount fuse holder
(1) FP-A3 Fuse puller

Clip clamps and rail adapters (DIN & American)

TRON Clip-Clamps

Specifications

Description: Clamps for ferrule and blade-type cartridge fuse clips. Provide tight contacts between fuse holder clips and fuse ferrules/blades.

Construction:

Phenolic knob and plated-steel jaws.



Catalog Numbers

Catalog Numbers	Clamp Size	
	Volts	Amps
No. 1	250	0-30
No. 2	250	35-60
No. 2	600	0-30
No. 4	600	35-60
No. 5	250/600	70-100
No. 6	250/600	110-200
No. 7	250/600	225-400
No. 8	250/600	450-600

Adapters for DIN and American Rails

Specifications

Description: Cooper Bussmann DIN-rail adapters permit secure, positive snap-on mounting of Cooper Bussmann 0-30A fuse blocks (one-, two-, or three-pole) onto various size rails to eliminate costly and time consuming drilling, tapping, and screw mounting. Adapters mechanically lock into mounting holes of fuse blocks in seconds to become an integral part of the block. One adapter is required for one- and two-pole Cooper Bussmann blocks. Two adapters are required for three-pole blocks.



With the exception of the 32mm DIN-rail, all blocks with adapters can be removed from a rail simply by pulling up its release tab.

Use of rail end-stops on both sides of adapters is recommended.

Construction: Molded from "Lexan™ 241" for high strength and flexibility.

Catalog Numbers (For 0-30A Fuse Blocks)

Catalog Numbers	Fuse Block		Rail Type	Size	Adapter Color
	Class				
DRA-1	CC		DIN	15mm (Sym.)	Black
	G			32mm (Asym.)	
	*H (250V)			35mm (Sym.)	
DRA-2	*R (250)	American	M Type	1/8" (Sym.)	Gray
				(also 35mm DIN)	

Package Quantities: standard—10; bulk—100 (Cat. No. BK/DRA-1 or BK/DRA-2.)

*Mounting on 15mm rails is not recommended.

NOTE—Newer Cooper Bussmann fuse blocks have elongated block-to-adapter mounting holes (old style fuse blocks will not accept the rail adapters).

Fuse Kits and Accessories

Spare fuse holders, pullers, testers and cabinets

Spare Fuse Holders



Specifications

Description: Spare fuse holders durably constructed using black thermoplastic with common mounting using #6 screws or bolts on 5-inch centers. Dovetailed interlocking between fuse holders simplifies installation and reduces needed hardware. Common footprint allows for any combination of fuse holders to be mounted together. Built-in retaining clips secure fuses.

Flammability Rating: UL 94V0.

Catalog Numbers

Catalog Numbers	Capacity	For Use With:
TPSFH-CW	4-position	TPC and/or TPW fuses
TPSFH-M	4-position	TPM fuses
TPSFH-70	12-position	Series 70 fuses
TPSFH-LC	1-position	TPL-C series fuses
TPSFH-LB	1-position	TPL-B series fuses
TPSFH-N60	1-position	TPN (35-60A) fuses
TPSFH-N30	4-position	TPN (1-30A) fuses
TPSFH-AS	6-position	TPA & TPS fuses
TPSFH-T	10-position	GMT fuses

5TPH



Specifications

Description: 5-position spare fuse holder for midsize and class CC fuses (1/2" diameter) fuses. Constructed of grey thermoplastic with adhesive tape on back for easy mounting on cabinet doors.

Size: 2.98" W x 1.03" H x 0.63" D

Catalog Number: 5TPH

Data Sheet: 1119

Fuse Pullers



Specifications

Description: Fuse pullers in various sizes to safely and easily extract fuses from blocks and holders.

Catalog Numbers

Catalog Numbers	Application
FP-2	1/2" to 1/4" dia. fuses
FP-3	1" to 1 1/2" dia. fuses
FP-4	1 3/4" to 2 1/2" dia. fuses
FP-6	0-60A T-Tron fuses
FP-A3	Glass Tube & ATC fuses

Fuse pullers are only to be used when the associated circuit has been de-energized.

FT-2 Fuse Tester



Specifications

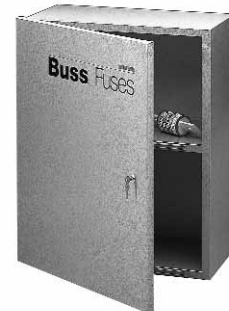
Description: Fuse tester for automotive, glass tube and ferrule fuses up to 1 1/8" length. Probe slides to appropriate fuse length. Batteries are included and replaceable.

Rating: 24V maximum.

WARNING: DO NOT test electrical fuses in the fuse panel.

Catalog Number: FT-2

SFC Spare Fuse Cabinet



Specifications

Description: Spare fuse cabinet with five cubic feet of storage space. Constructed of heavy gauge steel with durable baked ASA 61 grey enamel finish. Cabinet door is equipped with locking handle for security. Mounting holes are 16 inches on center with key slots.

Size: 24" W x 30" H x 12" D

Catalog Numbers:

SFC-FUSE-CAB

SFC SHELF*

*Extra shelf for fuse cabinet.

FT-3 Fuse Tester



Specifications

Description: Fuse tester for automotive, glass tube and ferrule fuses up to 1 1/4" length. Probe slides to appropriate fuse length. Batteries are included and replaceable.

Rating: 24V maximum.

WARNING: DO NOT test electrical fuses in the fuse panel.

Catalog Number: FT-3

Fuse reducers and dummy “neutrals”



Fuse Reducers for Class J Dimension Fuses-LPJ, JKS

Catalog Numbers

Catalog Numbers (Pair) Reducer No.	Fuse (Case) Amp Size	Equipment Clip Amp Size
J-63	30	60
J-13	30	100
J-16	60	100
J-26	60	†200
J-21	100	†200
J-41	100	†400
J-42	200	†400
J-62	200	†600
J-64	400	†600

†Not for Bolt-on Applications.

Fuse Reducers for Class R Dimension Fuses FRN-R, LPN-RK—FRS-R, LPS-RK

Catalog Numbers

Catalog Numbers (Pairs)		Fuse (Case) Amp Size	Equipment Clip Amp Size
250V	600V		
No. 263-R	No. 663-R	30	60
No. 213-R	No. 216-R	30	100
No. 216-R	No. 616-R	60	100
No. 226-R	No. 626-R	60	200
No. 2621-R***	No. 2621-R	100	200
No. 2641-R	No. 2641-R	100	400
No. 242-R	No. 642-R	200	400
No. 2661-R	No. 2661-R	100	600
No. 2662-R	No. 2662-R	200	600
No. 2664-R**	No. 2664-R**	400	600

**Single reducer only (pair not required).

***Reducer No. 2621-R does not apply to LPN-RK-70SP to LPN-RK-100SP Fuses.

Fuse Reducers for Class H & K Dimension Fuses NON, REN—NOS, RES

Catalog Numbers

Catalog Numbers. (Pairs)		Fuse (Case) Amp Size	Equipment Clip Amp Size
250V Reducer	600V Reducer		
No. 263	No. 663	30	60
No. 213	No. 216	30	100
No. 216	No. 616	60	100
No. 226	No. 626	60	200
No. 2621	No. 2621	100	200
No. 2641	No. 2641	100	400
No. 2642	No. 2642	200	400
No. 2661	No. 2661	100	600
No. 2662	No. 2662	200	600
No. 2664	No. 2664	400	600

Dummy Fuse “Neutrals” (These are not fuses)

Catalog Numbers

Catalog Numbers	Voltage	Fuse Equivalent	
		Dimension	Amp Size
NNB	—	3/8" x 1 1/2"	—
NNB-R	—	Class CC	—
NNC	—	1/4" x 1 1/4"	—
NTN-R-30	250	R/H	30
NTN-R-60	250	R/H	60
NTN-R-100	250	R/H	100
NTN-R-200	250	R/H	200
NTN-R-400	250	R/H	400
NTS-R-30	600	R/H	30
NTS-R-60	600	R/H	60
NTS-R-100	600	R/H	100
NTS-R-200	600	R/H	200
NTS-R-400	600	R/H	400
NTS-R-600	600	R/H	600

Cooper Bussmann Electrical Safety Services

Section Contents

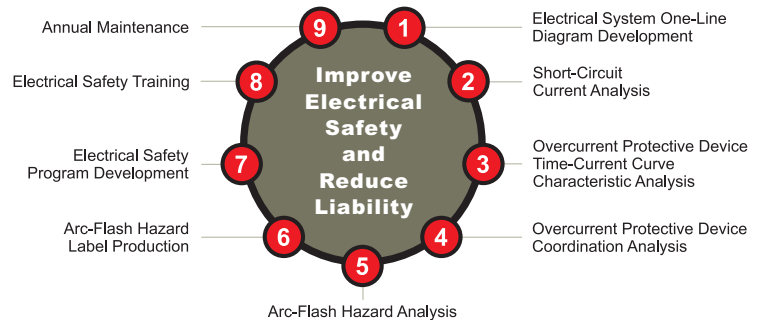
Cooper Bussmann Electrical Safety Services	362
Application Guide	
Fuse technology	363-369
Motor circuit branch circuit protection	370
Conductor & termination considerations	371-373
Glossary	374-376
Out-of-stock substitution/upgrades	376
Cooper Bussmann electrical trademarks	376
Industrial & commercial fuse applications	377-378
Catalog number index	379-383
Sales support & manufacturing facilities	384

RED indicates **NEW** information



Cooper Bussmann Electrical Safety Services

Improving Safety, Reducing Liability



A Safe Working Environment

Complete electrical safety involves a total approach to the selection, installation and continued maintenance of all electrical system components.

Keeping on top of all facets of any power distribution system can become a complex task involving ever-evolving codes changes, changes made by electrical utilities and government regulations that affect what goes on inside any commercial, industrial or institutional facility.

While this Application Guide is intended to provide a general understanding, its depth of coverage is limited. For more detailed information, we recommend reviewing the Cooper Bussmann SPD (Selecting Protective Devices — Reorder# 3002).

Electrical Safety Services

To help you be sure your power distribution system is up to code, and providing maximum safety and reduced liability, Cooper Bussmann offers *Electrical Safety Services*.

Our professional staff of degreed Electrical Engineers is available to assist in assessing your current electrical system; analyzing it for areas of weakness and making recommendations for improvements that will help assure its safety and integrity.

Employee Training

At Cooper Bussmann we recognize any electrical system isn't a "get it and forget it" affair. It's vital that your employees are properly trained to perform the tasks they're called upon for operating and maintaining your electrical power distribution system.

We have developed comprehensive training programs that can be modified to meet your specific needs so that your maintenance staff is qualified to perform their duties.

Contact Cooper Bussmann

To learn more about our comprehensive approach to enhancing electrical safety in facilities like yours, contact your local Cooper Bussmann representative, or call 636-207-3294.

Fuse technology

Circuit Protection

Electrical distribution systems are often quite complicated. They cannot be absolutely fail-safe. Circuits are subject to destructive overcurrents. Harsh environments, general deterioration, accidental damage, damage from natural causes, excessive expansion, and/or overloading of the electrical distribution system are factors which contribute to the occurrence of such overcurrents. Reliable protective devices prevent or minimize costly damage to transformers, conductors, motors, and the other many components and loads that make up the complete distribution system. Reliable circuit protection is essential to avoid the severe monetary losses which can result from power blackouts and prolonged downtime of facilities. It is the need for reliable protection, safety, and freedom from fire hazards that has made the fuse a widely used protective device.

Overcurrents

An overcurrent is either an overload current or a short-circuit current. The overload current is an excessive current relative to normal operating current, but one which is confined to the normal conductive paths provided by the conductors and other components and loads of the distribution system. As the name implies, a short-circuit current is one which flows outside the normal conducting paths.

Overloads

Overloads are most often between one and six times the normal current level. Usually, they are caused by harmless temporary surge currents that occur when motors are started-up or transformers are energized. Such overload currents, or transients, are normal occurrences. Since they are of brief duration, any temperature rise is trivial and has no harmful effect on the circuit components. (It is important that protective devices do not react to them.)

Continuous overloads can result from defective motors (such as worn motor bearings), overloaded equipment, or too many loads on one circuit. Such sustained overloads are destructive and must be cut off by protective devices before they damage the distribution system or system loads. However, since they are of relatively low magnitude compared to short-circuit currents, removal of the overload current within minutes will generally prevent equipment damage. A sustained overload current results in overheating of conductors and other components and will cause deterioration of insulation, which may eventually result in severe damage and short-circuits if not interrupted.

Short-Circuits

Whereas overload currents occur at rather modest levels, the short-circuit or fault current can be many hundred times larger than the normal operating current. A high level fault may be 50,000A (or larger). If not cut off within a matter of a few thousandths of a second, damage and destruction can become rampant—there can be severe insulation damage, melting of conductors, vaporization of metal, ionization of gases, arcing, and fires.

Simultaneously, high level short-circuit currents can develop huge magnetic-field stresses. The magnetic forces between bus bars and other conductors can be many hundreds of pounds per linear foot; even heavy bracing may not be adequate to keep them from being warped or distorted beyond repair.

Fuses

The fuse is a reliable overcurrent protective device. A “fusible” link or links encapsulated in a tube and connected to contact terminals comprise the fundamental elements of the basic fuse. Electrical resistance of the link is so low that it simply acts as a conductor. However, when destructive currents occur, the link very quickly melts and opens the circuit to protect conductors and other circuit components and loads. Fuse characteristics are stable. Fuses do not require periodic maintenance or testing. Fuses have three unique performance characteristics:

1. *Modern fuses have an extremely “high interrupting rating”—can withstand very high fault currents without rupturing.*
2. *Properly applied, fuses prevent “blackouts.” Only the fuse nearest a fault opens without upstream fuses (feeders or mains) being affected—fuses thus provide “selective coordination.” (These terms are precisely defined in subsequent pages.)*
3. *Fuses provide optimum component protection by keeping fault currents to a low value... They are said to be “current limiting.”*

Voltage Rating

The voltage rating of a fuse must be at least equal to or greater than the circuit voltage. It can be higher but never lower. For instance, a 600V fuse can be used in a 208V circuit.

The voltage rating of a fuse is a function of its capability to open a circuit under an overcurrent condition. Specifically, the voltage rating determines the ability of the fuse to suppress the internal arcing that occurs after a fuse link melts and an arc is produced. If a fuse is used with a voltage rating lower than the circuit voltage, arc suppression will be impaired and, under some fault current conditions, the fuse may not clear the overcurrent safely. Special consideration is necessary for semiconductor fuse and medium voltage fuse applications, where a fuse of a certain voltage rating is used on a lower voltage circuit.

Ampere Rating

Every fuse has a specific amp rating. In selecting the amp rating of a fuse, consideration must be given to the type of load and code requirements. The amp rating of a fuse normally should not exceed the current carrying capacity of the circuit. For instance, if a conductor is rated to carry 20A, a 20A fuse is the largest that should be used. However, there are some specific circumstances in which the amp rating is permitted to be greater than the current carrying capacity of the circuit.

Fuse technology

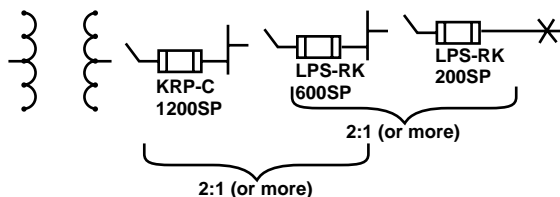
A typical example is the motor circuit; dual-element fuses generally are permitted to be sized up to 175% and non-time-delay fuses up to 300% of the motor full-load amps. As a rule, the amp rating of a fuse and switch combination should be selected at 125% of the continuous load current (this usually corresponds to the circuit capacity, which is also selected at 125% of the load current). There are exceptions, such as when the fuse-switch combination is approved for continuous operation at 100% of its rating.

Interrupting Rating

A protective device must be able to withstand the destructive energy of short-circuit currents. If a fault current exceeds the capability of the protective device, the device may actually rupture, causing additional damage. Thus, it is important when applying a fuse or circuit breaker to use one which can sustain the largest potential short-circuit currents. The rating which defines the capacity of a protective device to maintain its integrity when reacting to fault currents is termed its "interrupting rating". The interrupting rating of most branch-circuit, molded case, circuit breakers typically used in residential service entrance panels is 10,000A. (Please note that a molded case circuit breaker's interrupting capacity will typically be lower than its interrupting rating.) Larger, more expensive circuit breakers may have interrupting ratings of 14,000A or higher. In contrast, most modern, current-limiting fuses have an interrupting rating of 200,000 or 300,000A and are commonly used to protect the lower rated circuit breakers. The National Electrical Code, Section 110-9, requires equipment intended to break current at fault levels to have an interrupting rating sufficient for the current that must be interrupted.

Selective Coordination – Prevention of Blackouts

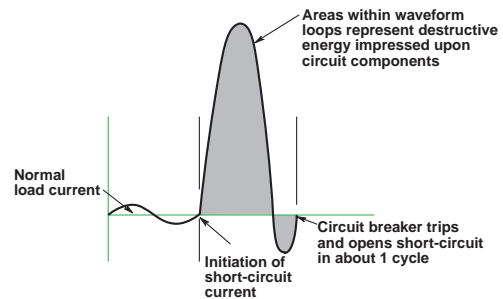
The coordination of protective devices prevents system power outages or blackouts caused by overcurrent conditions. When only the protective device nearest a faulted circuit opens and larger upstream fuses remain closed, the protective devices are "selectively" coordinated (they discriminate). The word "selective" is used to denote total coordination...isolation of a faulted circuit by the opening of only the localized protective device.



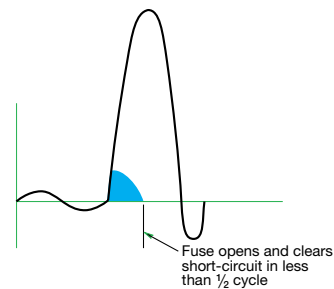
This diagram shows the minimum ratios of amp ratings of Low-Peak Yellow fuses that are required to provide "selective coordination" (discrimination) of upstream and downstream fuses.

Unlike electromechanical inertial devices (circuit breakers), it is a simple matter to selectively coordinate fuses of modern design. By maintaining a minimum ratio of fuse-amp ratings between an upstream and downstream fuse, selective coordination is assured.

Current Limitation – Component Protection



A non-current-limiting protective device, by permitting a short-circuit current to build up to its full value, can let an immense amount of destructive short-circuit heat energy through before opening the circuit.



A current-limiting fuse has such a high speed of response that it cuts off a short-circuit long before it can build up to its full peak value.

If a protective device cuts off a short-circuit current in less than one-quarter cycle, before it reaches its total available (and highly destructive) value, the device is a "current-limiting" device. Most modern fuses are current-limiting. They restrict fault currents to such low values that a high degree of protection is given to circuit components against even very high short-circuit currents. They permit breakers with lower interrupting ratings to be used. They can reduce bracing of bus structures. They minimize the need of other components to have high short-circuit current "withstand" ratings. If not limited, short-circuit currents can reach levels of 30,000 or 40,000A or higher in the first half cycle (.008 seconds, 60Hz) after the start of a short-circuit. The heat that can be produced in circuit components by the immense energy of short-circuit currents can cause severe insulation damage or even explosion. At the same time, huge magnetic forces developed between conductors can crack insulators and distort and destroy bracing structures. Thus, it is important that a protective device limit fault currents before they reach their full potential level.

Fuse technology

Operating Principles of Cooper Bussmann Fuses

The principles of operation of the modern, current-limiting fuses are covered in the following paragraphs.

Non-Time-Delay Fuses

The basic component of a fuse is the link. Depending upon the amp rating of the fuse, the single-element fuse may have one or more links. They are electrically connected to the end blades (or ferrules) (see Figure 1) and enclosed in a tube or cartridge surrounded by an arc quenching filler material. Cooper Bussmann Limitron® and T-Tron® fuses are both single-element fuses.

Under normal operation, when the fuse is operating at or near its amp rating, it simply functions as a conductor. However, as illustrated in Figure 2, if an overload current occurs and persists for more than a short interval of time, the temperature of the link eventually reaches a level which causes a restricted segment of the link to melt. As a result, a gap is formed and an electric arc established. However, as the arc causes the link metal to burn back, the gap becomes progressively larger. Electrical resistance of the arc eventually reaches such a high level that the arc cannot be sustained and is extinguished. The fuse will have then completely cut off all current flow in the circuit. Suppression or quenching of the arc is accelerated by the filler material. (See Figure 3.)

Single-element fuses of present day design have a very high speed of response to overcurrents. They provide excellent short-circuit component protection. However, temporary, harmless overloads or surge currents may cause nuisance openings unless these fuses are oversized. They are best used, therefore, in circuits not subject to heavy transient surge currents and the temporary over-load of circuits with inductive loads such as motors, transformers, solenoids, etc. Because single-element, fast-acting fuses such as Limitron and T-Tron fuses have a high speed of response to short-circuit currents, they are particularly suited for the protection of circuit breakers with low interrupting ratings.

Whereas an overload current normally falls between one and six times normal current, short-circuit currents are quite high. The fuse may be subjected to short-circuit currents of 30,000 or 40,000A or higher. Response of current limiting fuses to such currents is extremely fast. The restricted sections of the fuse link will simultaneously melt (within a matter of two or three-thousandths of a second in the event of a high-level fault current).

The high total resistance of the multiple arcs, together with the quenching effects of the filler particles, results in rapid arc suppression and clearing of the circuit. (Refer to Figures 4 & 5) Short-circuit current is cut off in less than a half-cycle, long before the short-circuit current can reach its full value (fuse operating in its current limiting range).



Figure 1. Cutaway view of typical single-element fuse.



Figure 2. Under sustained overload, a section of the link melts and an arc is established.



Figure 3. The "open" single-element fuse after opening a circuit overload.



Figure 4. When subjected to a short-circuit current, several sections of the fuse link melt almost instantly.



Figure 5. The "open" single-element fuse after opening a short circuit.

Fuse technology

Cooper Bussmann Dual-Element Fuses

There are many advantages to using these fuses. Unlike single-element fuses, the Cooper Bussmann dual-element, time-delay fuses can be sized closer to provide both high performance short-circuit protection and reliable overload protection in circuits subject to temporary overloads and surge currents. For ac motor loads, a single-element fuse may need to be sized at 300% of an a.c. motor current in order to hold the starting current. However, dual-element, time delay fuses can be sized much closer to motor loads. For instance, it is generally possible to size Fusetron Dual-Element Fuses, FRS-R and FRN-R and Low-Peak® Dual-Element Fuses, LPS-RK_SP and LPN-RK_SP, at 125% and 130% of motor full load current, respectively. Generally, the Low-Peak Dual-Element Fuses, LPJ_SP, and CUBEFuse™, TCF, can be sized at 150% of motor full load amps. This closer fuse sizing may provide many advantages such as: (1) smaller fuse and block, holder or disconnect amp rating and physical size, (2) lower cost due to lower amp rated devices and possibly smaller required panel space, (3) better short-circuit protection – less short-circuit current let-through energy, and (4) potential reduction in the arc-flash hazard.



Figure 6. This is the LPS-RK100SP, a 100A, 600V Low-Peak, Class RK1, Dual-Element Fuse that has excellent time-delay, excellent current-limitation and a 300,000A interrupting rating. Artistic liberty is taken to illustrate the internal portion of this fuse. The real fuse has a non-transparent tube and special small granular, arc-quenching material completely filling the internal space.

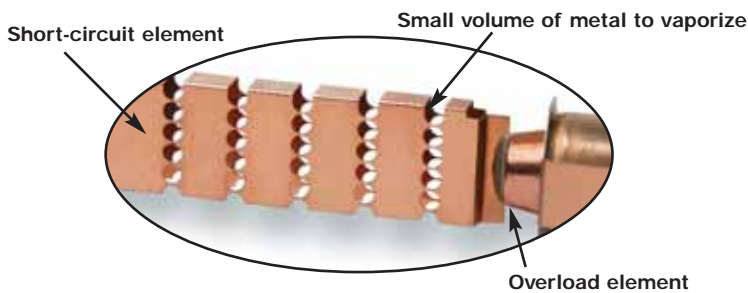


Figure 7. The true dual-element fuse has distinct and separate overload element and short-circuit element.

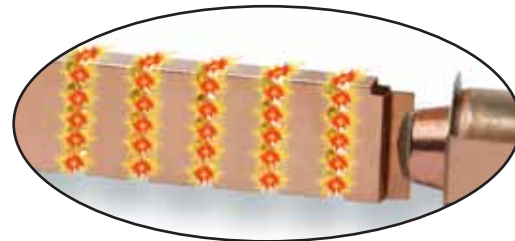


Figure 9. Short-circuit operation: Modern fuses are designed with minimum metal in the restricted portions which greatly enhance their ability to have excellent current-limiting characteristics – minimizing the short circuit let-through current. A short-circuit current causes the restricted portions of the short-circuit element to vaporize and arcing commences. The arcs burn back the element at the points of the arcing. Longer arcs result, which assist in reducing the current. Also, the special arc quenching filler material contributes to extinguishing the arcing current. Modern fuses have many restricted portions, which results in many small arcllets – all working together to force the current to zero.

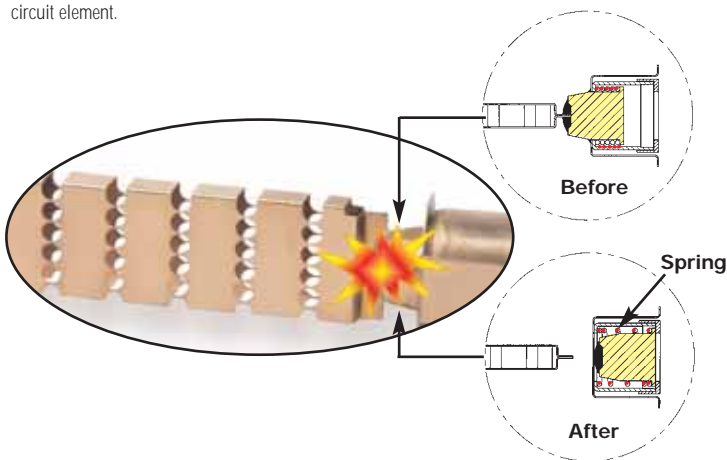


Figure 8. Overload operation: Under sustained overload conditions, the trigger spring fractures the calibrated fusing alloy and releases the “connector”. The insets represent a model of the overload element before and after. The calibrated fusing alloy connecting the short-circuit element to the overload element fractures at a specific temperature due to a persistent overload current. The coiled spring pushes the connector from the short-circuit element and the circuit is interrupted.

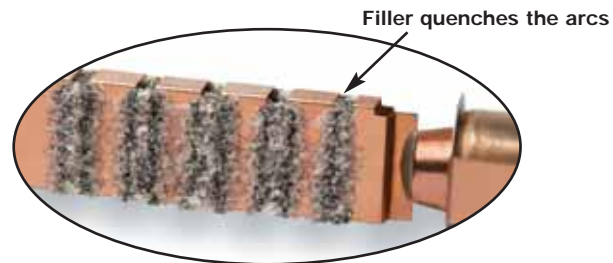


Figure 10. Short-circuit operation: The special small granular, arc-quenching material plays an important part in the interruption process. The filler assists in quenching the arcs; the filler material absorbs the thermal energy of the arcs, fuses together and creates an insulating barrier. This process helps in forcing the current to zero. Modern current-limiting fuses, under short-circuit conditions, can force the current to zero and complete the interruption within a few thousandths of a second.

When the short-circuit current is in the current-limiting range of a fuse, it is not possible for the full available short-circuit current to flow through the fuse – it’s a matter of physics. The small restricted portions of the short-circuit element quickly vaporize and the filler material assists in forcing the current to zero. The fuse is able to “limit” the short-circuit current.

Overcurrent protection must be reliable and sure. Whether it is the first day of the electrical system or thirty or more years later, it is important that overcurrent protective devices perform under overload or short-circuit conditions as intended. Modern current-limiting fuses operate by very simple, reliable principles.

Fuse technology

Fuse Time-Current Curves

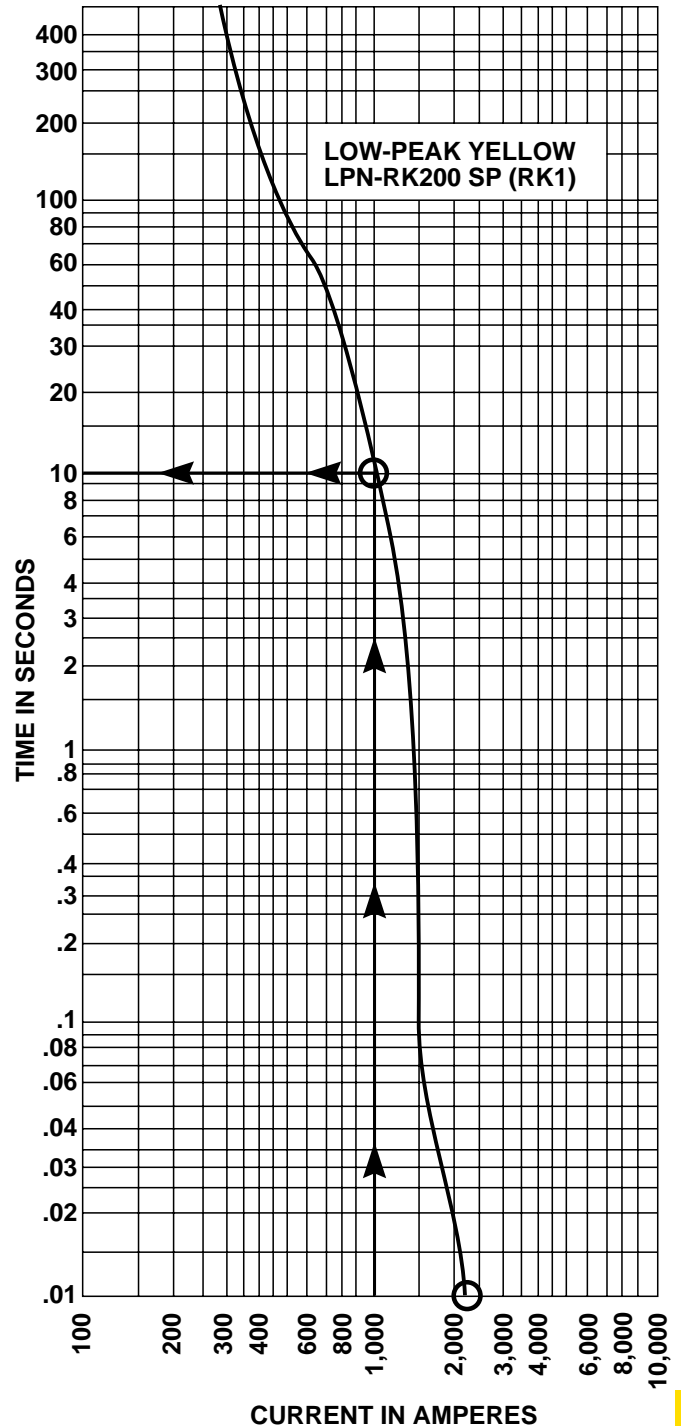
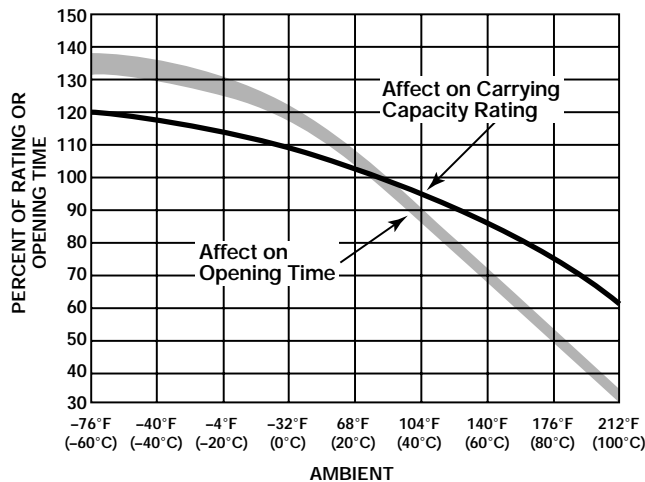
When a low level overcurrent occurs, a long interval of time will be required for a fuse to open (melt) and clear the fault. On the other hand, if the overcurrent is large, the fuse will open very quickly. The opening time is a function of the magnitude of the level of overcurrent. Overcurrent levels and the corresponding intervals of opening times are logarithmically plotted in graph form as shown to the right. Levels of overcurrent are scaled on the horizontal axis; time intervals on the vertical axis. The curve is thus called a “time-current” curve.

This particular plot reflects the characteristics of a 200A, 250V, Low-Peak dual-element fuse. Note that at the 1,000A overload level, the time interval which is required for the fuse to open is 10 seconds. Yet, at approximately the 2,200A overcurrent level, the opening (melt) time of a fuse is only 0.01 seconds. It is apparent that the time intervals become shorter as the overcurrent levels become larger. This relationship is termed an inverse time-to-current characteristic. Time-current curves are published or are available on most commonly used fuses showing “minimum melt,” “average melt” and/or “total clear” characteristics. Although upstream and downstream fuses are easily coordinated by adhering to simple amp ratios, these time-current curves permit close or critical analysis of coordination.

Better Motor Protection in Elevated Ambients

The derating of dual-element fuses based on increased ambient temperatures closely parallels the derating curve of motors in elevated ambient. This unique feature allows for optimum protection of motors, even in high temperatures.

Affect of ambient temperature on operating characteristics of Fusetron and Low-Peak Dual-Element Fuses.



Fuse technology

Better Protection Against Motor Single Phasing

When secondary single-phasing occurs, the current in the remaining phases increases to approximately 200% rated full load current. (Theoretically 173%, but change in efficiency and power factor make it about 200%.) When primary single-phasing occurs, unbalanced voltages occur on the motor circuit causing currents to rise to 115%, and 230% of normal running currents in delta-wye systems.

Dual-element fuses sized for motor running overload protection will help to protect motors against the possible damages of single-phasing.

Classes of Fuses

Safety is the industry mandate. However, proper selection, overall functional performance and reliability of a product are factors which are not within the basic scope of listing agency activities. In order to develop its safety test procedures, listing agencies develop basic performance and physical specifications or standards for a product. In the case of fuses, these standards have culminated in the establishment of distinct classes of low-voltage (600V or less) fuses; classes RK1, RK5, G, L, T, J, H and CC being the more important.

The fact that a particular type of fuse has, for instance, a classification of RK1, does not signify that it has the identical function or performance characteristics as other RK1 fuses. In fact, the Limitron® non-time-delay fuse and the Low-Peak dual-element, time-delay fuse are both classified as RK1. Substantial differences in these two RK1 fuses usually requires considerable difference in sizing. Dimensional specifications of each class of fuse does serve as a uniform standard.

Class R Fuses

Class R ("R" for rejection) fuses are high performance, 1/10 to 600A units, 250V and 600V, having a high degree of current limitation and a short-circuit interrupting rating of up to 300,000A (RMS Sym.). Cooper Bussmann Class R fuses include Class RK1 Low-Peak and Limitron® fuses, and RK5 Fusetron fuses. They have replaced the K1 Low-Peak and Limitron fuses and K5 Fusetron fuses. These fuses are identical, with the exception of a modification in the mounting configuration called a "rejection feature." This feature permits Class R fuses to be mounted in rejection type fuse-clips. "R" type fuseclips prevent older type Class H, ONE-TIME and RENEWABLE fuses from being installed. The use of Class R fuse holders is thus an important safeguard. The application of Class R fuses in such equipment as disconnect switches permits the equipment to have a high interrupting rating. NEC® Articles 110-9 and 230-65 require that protective devices have adequate capacity to interrupt short-circuit currents. Article 240-60(b) requires fuse holders for current-limiting fuses to reject non-current-limiting type fuses.



In the above illustration, a grooved ring in one ferrule provides the rejection feature of the Class R fuse in contrast to the lower interrupting rating, non-rejection type.

Branch-Circuit Listed Fuses

Branch-circuit listed fuses are designed to prevent the installation of fuses that cannot provide a comparable level of protection to equipment.

The characteristics of Branch-circuit fuses are:

1. They must have a minimum interrupting rating of 10,000A
2. They must have a minimum voltage rating of 125V.
3. They must be size rejecting such that a fuse of a lower voltage rating cannot be installed in the circuit.
4. They must be size rejecting such that a fuse with a current rating higher than the fuse holder rating cannot be installed.

Fuse technology

Supplementary Overcurrent Protective Devices for use in Motor Control Circuits

Branch Circuit vs. Supplemental Overcurrent Protective Devices

Branch circuit overcurrent protective devices (OCPD) can be used everywhere OCPD are used, from protection of motors and motor circuits and group motor circuits, to protection of distribution and utilization equipment. Supplemental OCPD can only be used where proper protection is already being provided by a branch circuit device, by exception [i.e., 430.72(A)], or if protection is not required. Supplemental OCPD can often be used to protect motor control circuits but they cannot be used to protect motors or motor circuits. A very common misapplication is the use of a supplementary overcurrent protective device such as a UL 1077 mechanical overcurrent device for motor branch circuit short-circuit and ground fault protection. Supplementary OCPDs are incomplete in testing compared to devices that are evaluated for branch circuit protection. **THIS IS A SERIOUS MISAPPLICATION AND SAFETY CONCERN!!** Caution should be taken to assure that the proper overcurrent protective device is being used for the application at hand. Below is a description of popular supplementary overcurrent protective devices.

Most supplemental overcurrent protective devices have very low interrupting ratings. Just as any other overcurrent protective device, supplemental OCPDs must have an interrupting rating equal to or greater than the available short-circuit current.



Supplemental Fuses As listed or recognized to the UL/CSA/ANCE Trinational 248-14 Standard

These are fuses that can have many voltages and interrupting ratings within the same case size. Examples of supplemental fuses are $\frac{1}{2}$ " X $1\frac{1}{2}$ ", 5 x 20mm, and $\frac{1}{4}$ " x $1\frac{1}{4}$ " fuses. Interrupting ratings range from 35 to 100,000 amperes.

Reliability and Maintenance of Overcurrent Protective Devices

Modern fuses have several significant advantages over mechanical overcurrent protective devices - one of those advantages is reliability. Whether the first day of the electrical system or years later, it is important that overcurrent protective devices perform under overload and fault conditions as intended.

Modern current-limiting fuses operate by very simple, reliable principles. Fuses do not have to be maintained. By their inherent design, fuses do not have elements or mechanisms to calibrate, adjust or lubricate. If and when fuses are called upon to open on an overcurrent, installing the same type and ampere rated fuses provides the circuit with new factory-calibrated protection. The original design integrity can be maintained throughout the life of the electrical system. One last point on fuse systems; the terminations, clips and disconnects should be maintained as necessary.

In contrast, circuit breakers are mechanical devices, even those with electronic sensing, and circuit breakers require periodic maintenance, testing, and if necessary reconditioning or replacement. This is required per the circuit breaker manufacturers' instructions, NFPA 70B Recommended Practice for Electrical Equipment Maintenance, and NEMA AB4. If circuit breakers are not properly maintained, the interrupting rating, circuit component protection, coordination, and electrical safety may be compromised.

See www.cooperbussmann.com for more information on Reliability and Maintenance.

Motor circuit branch circuit protection

Motor Circuits – Choice of Overcurrent Protection

Motor circuits have unique characteristics and several functions, such as short-circuit protection, overload protection and automatic/ remote start/stop, that may be required. Sometimes the comment is made that users prefer circuit breakers because they can be reset. Let's examine the choice of either circuit breakers or current-limiting fuses for motor branch circuit protection.

In the case to be examined, fuses and circuit breakers (includes magnetic only circuit breakers which are called MCPs or motor circuit protectors) are sized with the intent to provide only short-circuit and ground fault protection for the motor branch circuit protection per 430.52. Other means, such as overload relays, provide the motor overload protection. Typical thermal magnetic circuit breakers can only be sized for motor branch circuit protection (typically 200% - 250% of motor current) because if they are sized closer, the motor starting current trips the circuit breaker's instantaneous mechanism. Magnetic only circuit breakers (MCPs) are intentionally not provided with overload capability; they only operate on short-circuit currents. There are some fuses such as the FRS-R and LPS-RK fuses that can be sized close enough for motor running overload protection or backup motor running protection. But for the discussion in this section, assume current-limiting fuses are sized only for motor short-circuit and ground fault protection.

It is important to note that in this protection level being discussed, a circuit breaker or fuses should only open if there is a fault on the motor circuit. A separate overload protective device, such as an overload relays, provides motor overload protection per 430.32. Here are some important considerations:

1. OSHA regulation 1910.334(b)(2) Use of Equipment states:

Reclosing circuits after protective device operation. After a circuit is deenergized by a circuit protective device, the circuit may not be manually reenergized until it has been determined that the equipment and circuit can be safely energized. The repetitive manual reclosing of circuit breakers or reenergizing circuits through replaced fuses is prohibited. NOTE: When it can be determined from the design of the circuit and the over-current devices involved that the automatic operation of a device was caused by an overload rather than a fault condition, no examination of the circuit or connected equipment is needed before the circuit is reenergized.

So the speed of reclosing a circuit breaker after a fault is not an advantage. The law requires that if the condition is a fault (that is the only reason the circuit breaker or fuses should open on a motor circuit), then the fault must be corrected prior to replacing fuses or resetting the circuit breaker.

- The typical level of short-circuit protection for the motor starter provided by circuit breakers and MCPs is referred to as Type 1. This is because most circuit breakers are not current-limiting. So, for a loadside fault, the starter may sustain significant damage such as severe welding of contacts and rupturing of the heater elements. Or the heater/overload relay system may lose calibration. This is an acceptable level of performance per UL508, which is the product standard for motor starters. Current-limiting fuses can be selected that can provide Type 2 "no damage" short-circuit protection for motor starters.*

Consequently, with circuit breaker protection, after a fault condition,

significant downtime and cost may be incurred in repairing or replacing the starter. With properly selected fuses for Type 2 protection, after the fault is repaired, only new fuses need to be inserted in the circuit; the starter does not have to be repaired or replaced.

- Circuit breakers must be periodically tested to verify they mechanical operate and electrically tested to verify they still are properly calibrated within specification. The circuit breaker manufacturers recommend this. Typically circuit breakers should be mechanically operated at least every year and electrically tested every 1 to 5 years, depending on the service conditions. Modern current-limiting fuses do not have to be maintained or electrically tested to verify they still will operate as intended. The terminations of both circuit breakers and fusible devices need to be periodically checked and maintained to prevent thermal damage. Plus fuse clips should be periodically inspected and if necessary maintained.*
- After a circuit breaker interrupts a fault, it may not be suitable for further service. UL489, the product standard for molded case circuit breakers, only requires a circuit breaker to interrupt two short-circuit currents at its interrupting rating. Circuit breakers that are rated 100 amps or less do not have to operate after only one short-circuit operation under "bus bar" short-circuit conditions. If the fault current is high, circuit breaker manufacturers recommend that a circuit breaker should receive a thorough inspection with replacement, if necessary. How does one know a circuit breaker's service history or what level of fault current that a circuit breaker interrupts? With modern current-limiting fuses, if the fuse interrupts a fault, new factory calibrated fuses are installed in the circuit. The original level of superior short-circuit protection can be there for the life of the motor circuit.*
- After a fault, the electrician has to walk back to the storeroom to get new fuses; that is if spare fuses are not stored adjacent to the equipment. This does require some additional down time. However, if fuses opened under fault conditions, there is a fault condition that must be remedied. The electrician probably will be going back to the storeroom anyway for parts to repair the fault. If properly selected current-limiting fuses are used in the original circuit, the starter will not sustain any significant damage or loss of overload calibration.*

With circuit breaker protection on motor circuits, after a fault condition, it may be necessary to repair or replace the starter, so a trip to the storeroom may be necessary. And if the starter is not significantly damaged, it may still need to be tested to insure the let-through energy by the circuit breaker has not caused the loss of starter overload calibration. Also, the circuit breaker needs to be evaluated for suitability before placing it back into service. Who is qualified for that evaluation? How much time will that take?

In summary, resettability is not an important feature for motor branch circuit (short-circuit) protection and resettability of the branch circuit protective device is not a benefit for motor circuits. As a matter of fact, resettability of the motor branch circuit overcurrent protective device may encourage an unsafe practice. The function of motor branch circuit protection is fault protection: short-circuit and ground fault protection. Faults do not occur on a regular basis. But when a fault does occur, it is important to have the very best protection. The best motor branch circuit protection can be judged by (1) reliability - its ability to retain its calibration and speed of operation over its lifetime, (2) current-limiting protection -its ability to provide Type 2 "no damage" protection to the motor starter, and (3) safety - its ability to meet a facility's safety needs. Modern current-limiting fuses are superior to circuit breakers for motor branch circuit protection.

Conductor & termination considerations

Conductor & Termination Considerations



A fuse, as well as a circuit breaker, is part of a system where there are electrical, mechanical and thermal considerations. All three of these are interrelated. If there is too much electrical current for the circuit, the components can overheat. If a conductor termination is not properly torqued, the termination can be a “hot spot” and contribute excess heat. This additional heat is detrimental to the integrity of the termination means, conductor insulation and even the overcurrent protective device. If the conductor size is too small for the circuit load or for how the fuse/termination or circuit breaker/termination has been rated, the undersized conductor will be a source of detrimental excess heat, which bleeds into the devices through the terminals. This excess heat can cause integrity issues.

How important is the proper conductor size and proper termination methods? Very! Many so called “nuisance” openings of overcurrent protective devices or device failures can be traced to these root causes. Improper electrical connections can result in fire or other damage to property and can cause injury and death. If there are loose terminal connections, then:

- The conductor overheats and the conductor insulation may break down. This can lead to a fault; typically line to ground. Or, if conductors of different potential are touching, the insulation of both may deteriorate and a phase-to-neutral or phase-to-phase fault occurs.



- Arcing can occur between the conductor and lug. Since a poor connection is not an overload or a short-circuit, the overcurrent protective device does not operate.
- The excessive thermal condition of the conductor termination increases the temperature beyond the thermal rating of the fuse clip material. The result is that the fuse clip can lose its spring tension, which can result in a hot spot at the interface surface of the fuse and clip.

- These excessive thermal conditions described above may cause the device (block, switch, fuse, circuit breaker, etc.) insulating system to deteriorate, which may result in a mechanical and/or electrical breakdown. For instance, the excessive thermal condition of a conductor termination of a circuit breaker can degrade the insulating case material. Or a fuse block material may carbonize due to the excessive thermal conditions over a long time.

Normally, a fuse is mounted in a fuse clip or bolted to a metal surface. It is important that the two surfaces (such as fuse to clip) are clean and mechanically tight so that there is minimal electrical resistance of this interface. If not, this interface is a high resistance spot, which can lead to a hot spot. With a fuse to clip application, the temperature rise from a poor clip can cause even further deterioration of the clip tension. This results in the hot spot condition getting worse.



The fuse clip on the right has excellent tension that provides a good mechanical and electrical interface (low resistance) between the fuse and clip. The clip on the left experienced excessive thermal conditions due to an improper conductor termination or undersized conductor. As a result, the clip lost its tension. Consequently, the mechanical and electrical interface between the fuse and clip was not adequate which further accelerated the unfavorable thermal condition.

Some causes of loose terminal connections

Below are some possible causes for loose terminal connections for various termination methods and possible causes of excessive heating of the overcurrent protective device / termination / conductor system:

1. *The conductor gauge and type of conductor, copper or aluminum, must be within the connector's specifications. The terminals for a fuse block, terminal block, switch, circuit breaker, etc. are rated to accept specific conductor type(s) and size(s). If the conductor is too large or too small for the connector, a poor connection results, and issues may arise. Additionally, it must be verified that the terminal is suitable for aluminum conductor, copper conductor, or both. Usually the termination means is rated for acceptable conductor type(s) and range of conductor sizes; this is evidenced by the ratings being marked on the device (block, switch, circuit breaker, etc.) or specified on the data sheet.*

Conductor & termination considerations

- The connector is not torqued to the manufacturer's recommendation. Conductors loosen as they expand and contract with changes in temperature due to equipment running and not running. If the connections are not torqued appropriately, loose connections may result. For a mechanical screw, nut, bolt or box lug type connection, follow the manufacturer's recommended torque. Typically the specified torque for a connector is marked on the device. For a specific connector, the specified torque may be different for different wire sizes.
- The conductor is not crimped appropriately. A poor crimp could be between the conductor and a ring terminal. It could be between the conductor and the quick connect terminal. Or, it could be between the conductor and an in-line device. If using a compression connection, use the manufacturer's recommended crimp tool with the proper location and number of crimps.
- The quick connect terminal is not seated properly. If the male-female connections are not fully seated, a hot spot may be created.
- The quick connect terminal is being used beyond its amp rating. Quick connects typically have limited continuous current ratings that must not be exceeded. Typical maximum ratings possible for a quick connect are 16 or 20A (some are less); this is based on a proper conductor size, too. If the quick connect is used beyond its amp rating, excessive temperature will result which can degrade the quick connect's tension properties and further overheating issues result.
- The conductor is not properly soldered to a solder terminal. Again, if there is not a good connection between the two, a hot spot will be created.
- The terminal is only rated to accept one conductor, but multiple conductors are being used. Again, the product specifications must be checked to see if the terminal is rated for dual conductors. If the product is not marked suitable for dual conductors, then only one conductor can be used for this termination. Inserting too many conductors will cause a poor connection, which can result in heat or other problems.

Other important aspects in the electrical and thermal relationship for circuit components in a circuit are the conductor size, conductor rated ampacity, the conductor insulation temperature rating and the permissible connector device conductor temperature limits. Conductors have specified maximum ampacities that are based on many variables including the size of the conductor and its insulation temperature rating. The NEC® establishes the allowable ampacity of conductors for various variables and applications. In addition, there are some overriding requirements in the NEC® and product standards that dictate the ampacity of conductors when connected to terminals. For instance, the ampacity for a conductor with 90°C insulation is generally greater than the ampacity of a conductor of the same size but with 60°C insulation. However, the greater ampacity of a conductor with 90°C insulation is not always permitted to be used due to limitations of the terminal temperature rating and/or the requirements of the NEC®. (Reference 110.14 in the NEC® for specific requirements.) However, there are some simple rules to follow for circuits of 100A and less. These simple rules generally should be followed because these are the norms for the device component product standards and performance evaluation to these standards for fuses, blocks, disconnects, holders, circuit breakers, etc.

Simple rules for 100 amps and less:

- Use 60°C rated conductors [110.14(C)(1)(a)(1)]. This assumes all terminations are rated for 60°C rated conductors.
- Higher temperature rated conductors can be used, but the ampacity of these conductors must be as if they are 60°C rated conductors. In other words, even if a 90°C conductor is used, it has to be rated for ampacity as if it were a 60°C conductor [110.14(C)(1)(a)(2)]. For instance, assume an ampacity of 60A is needed in a circuit that has terminations that are rated for 60°C conductors. If a 90°C conductor is to be used, what is the minimum conductor size required?

Wire Size	60°C Ampacity	90°C Ampacity
6 AWG	55	75
4 AWG	70	95

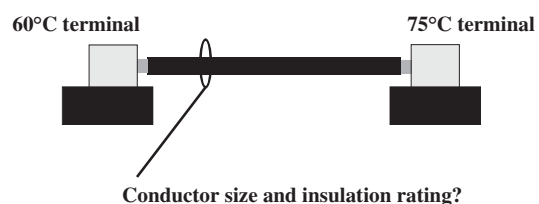
The answer is 4 AWG, 90°C conductor. A 6 AWG, 90°C conductor has an ampacity of 75 amps per (NEC® Table 310.16); but this ampacity can not be used for a 60°C termination. For this circuit, if a 90°C, 6 AWG conductor is evaluated, the ampacity of this conductor must be according to the 60°C conductor ampacity, which is 55A. Ampacities are from NEC® Table 310.16.

- Conductors with higher temperature ratings can be used at their rated ampacities if the terminations of the circuit devices are rated for the higher temperature rated conductor [110.14(C)(1)(a)(3)]. However, the industry norm is that most devices rated 100A or less, such as blocks, disconnects and circuit breakers, have 60°C or 75°C rated terminations.
- For motors with design letters B, C, D, or E, conductors with insulation rating of 75°C or higher are permitted as long as the ampacity of the conductors is not greater than the 75°C rating [110.14(C)(1)(a)(4)].
- If a conductor is run between two devices that have terminals rated at two different temperatures, the rules above must be observed that correlate to the terminal with the lowest temperature rating.

For circuits greater than 100A, use conductors with at least a 75°C insulation rating at their 75°C ampacity rating.

So why would anyone ever want to use a conductor with a 90°C or a 105°C rating if they can't be applied at their ampacity ratings for those temperatures? The answer lies in the fact that those higher ampacity ratings can be utilized when derating due to ambient conditions or due to exceeding more than 3 current carrying conductors in a raceway.

Circuit ampacity required: 60 amps
Ambient: 45°C



Example (ampacity and derating table next page)

Assume that an ampacity of 60A is needed in a circuit with a 75°C termination at one end and a 60°C termination at the other end, where the ambient is 45°C. First, since one termination temperature rating is higher than the other, the lowest one must be used, which is 60°C. The first choice might be a 4 AWG TW conductor with an ampacity of 70A at 60°C.

Conductor & termination considerations

However, in the NEC® the Correction Factors table at the bottom of conductor ampacity Table 310.16 reveals that the 70A ampacity must be derated, due to the 45°C ambient, by a factor of .71. This yields a new ampacity of 49.7, which is less than the required 60. This is where a conductor with a higher temperature rating becomes useful. A 4 AWG THHN conductor has a 90°C ampacity of 95A. Again, looking at the table at the bottom of Table 310.16, a factor of .87 must be used, due to the 45°C ambient. This yields a new ampacity of 82.65, which is adequate for the required 60A ampacity. Could a 6 AWG THHN conductor be used in this application? Its 90°C ampacity is 75A. Using the factor of .87 for the 45°C ambient gives a new ampacity of 65.25, which seems adequate for a required ampacity of 60A. However, a 6 AWG conductor of any insulation rating could never be used in this application because the 60°C terminal requires that the smallest amount of copper is a 4 AWG for a 60A ampacity (simple rule 2 in previous paragraphs). The amount of copper associated with a 4 AWG conductor is required to bleed the right amount of heat away from the terminal. The use of less copper won't bleed enough heat away, and therefore overheating problems could result.

Allowable Ampacities

The table below shows the allowable ampacities of insulated copper conductors rated 0 through 2000 volts, 60°C through 90°C, not more than three current-carrying conductors in a raceway, cable, or earth (directly buried), based on ambient of 30°C (86°F) (data taken from NEC® Table 310.16). The note for 14, 12, and 10 AWG conductors is a very important note that limits the protection of these conductors.

Conductor Size AWG	Ampacity For Temperature Rated Copper Conductors (NEC® Table 310.16)		
	60°C	75°C	90°C
14*	20*	20*	25*
12*	25*	25*	30*
10*	30*	35*	40*
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	110
2	95	115	130
1	110	130	150

*See NEC® 240.4(D) which essentially limits (with several exceptions) the overcurrent protection of copper conductors to the following ratings after any correction factors have been applied for ambient temperature or number of conductors: 14 AWG - 15 amps, 12 AWG - 20 amps, 10 AWG - 30 amps. Depending on the circumstances of a specific application, the ampacity determined due to the correction factors may be less than the values in Table 310.16. In those cases, the lower value is the ampacity that must be observed. For instance, a 75°C, 10AWG in 50°C ambient would have a derating factor of 0.75, which results in an ampacity of 26.25 (35A x 0.75). So in this case, the ampacity would be 26.25. Since 26.25 is not a standard size fuse per NEC® 240.6, NEC® 240.4(B) would allow the next standard fuse, which is a 30A fuse. The 30A fuse is in compliance with 240.4(D). In a 35°C ambient, the correcting factor for this same conductor is 0.94, so the new ampacity is 32.9A (35A x 0.94). However, a 35A fuse can not be utilized because NEC® 240.4(D) limits the protection to 30A.

Ambient Derating

Conductor allowable ampacities must be derated when in temperature ambient greater than 30°C. The correction factors for the conductor allowable ampacities in NEC® Table 310.16 are below.

Conductor Ampacity Correction Factors For Ambient Temperatures

Ambient Temp. °C	For ambient other than 30°C, multiply conductor allowable ampacities by factors below (NEC® Table 310.16)			Ambient Temp. °F
	60°C	75°C	90°C	
21-25	1.08	1.05	1.04	70-77
26-30	1.00	1.00	1.00	78-86
31-35	0.91	0.94	0.96	87-95
36-40	0.82	0.88	0.91	96-104
41-45	0.71	0.82	0.87	105-113
46-50	0.58	0.75	0.82	114-122
51-55	0.41	0.67	0.76	123-131
56-60	-	0.58	0.71	132-140
61-70	-	0.33	0.58	141-158
71-80	-	-	0.41	159-176

Conduit Fill Derating

Also, conductor ampacity must be derated when there are more than three current-carrying conductors in a raceway or cable per NEC® 310.15(B)(2). There are several exceptions; the derating factors are:

# Of Current-Carrying Conductors	% Values in NEC® Ampacity Tables 310.16 to 310.19 As Adjusted for Ambient Temperature if Necessary
4 – 6	80
7 – 9	70
10 – 20	50
21 – 30	45
31 – 40	40
41 & greater	35

Termination Ratings

As discussed above, terminations have a temperature rating that must be observed and this has implications on permissible conductor temperature rating and ampacity. Shown below are three common termination ratings and the rules. Remember, from the example above, the conductor ampacity may also have to be derated due to ambient, conduit fill or other reasons.

- 60°C** Can use 60°C, 75°C, 90°C or higher temperature rated conductor, but the ampacity of the conductor must be based as if conductor is rated 60°C.
- 75°C** Can use 75°C, 90°C or higher temperature rated conductor, but the ampacity of the conductor must be based as if conductor is rated 75°C. A 60°C conductor not permitted to be used.
- 60°C/75°C** Dual temperature rated termination. Can use either 60°C conductors at 60°C ampacity or 75°C conductors at 75°C ampacity. If 90°C or higher temperature rated conductor is used, the ampacity of the conductor must be based as if conductor is rated 75°C.

Glossary

Ampere (Amp)

The measurement of intensity of rate of flow of electrons in an electric circuit. An ampere (amp) is the amount of current that will flow through a resistance of one ohm under a pressure of one volt.

Amp Rating

The current-carrying capacity of a fuse. When a fuse is subjected to a current above its amp rating, it will open the circuit after a predetermined period of time.

Amp Squared Seconds, I²t

The measure of heat energy developed within a circuit during the fuse's clearing. It can be expressed as "melting I²t", "arcing I²t" or the sum of them as "Clearing I²t". "I" stands for effective let-through current (RMS), which is squared, and "t" stands for time of opening, in seconds.

Arcing I²t

Value of the I²t during the arcing time under specified conditions.

Arcing Time

The amount of time from the instant the fuse link has melted until the overcurrent is interrupted, or cleared.

Breaking Capacity

(See Interrupting Rating)

Cartridge Fuse

A fuse consisting of a current responsive element inside a fuse tube with terminals on both ends.

Class CC Fuses

600V, 200,000A interrupting rating, branch circuit fuses with overall dimensions of $1\frac{3}{32}$ " x $1\frac{1}{2}$ ". Their design incorporates a rejection feature that allows them to be inserted into rejection fuse holders and fuse blocks that reject all lower voltage, lower interrupting rating $1\frac{3}{32}$ " x $1\frac{1}{2}$ " fuses. They are available from $\frac{1}{10}$ A through 30A.

Class G Fuses

480V, 100,000A interrupting rating branch circuit fuses that are size rejecting to eliminate overfusing. The fuse diameter is $1\frac{3}{32}$ " while the length varies from $1\frac{1}{16}$ " to $2\frac{1}{4}$ ". These are available in ratings from 1A through 60A.

Class H Fuses

250V and 600V, 10,000A interrupting rating branch circuit fuses that may be renewable or non-renewable. These are available in ampere ratings of 1 amp through 600A.

Class J Fuses

These fuses are rated to interrupt a minimum of 200,000A ac. They are labeled as "Current-Limiting", are rated for 600Vac, and are not interchangeable with other classes.

Class K Fuses

These are fuses listed as K-1, K-5, or K-9 fuses. Each subclass has designated I²t and I_p maximums. These are dimensionally the same as Class H fuses, and they can have interrupting ratings of 50,000, 100,000, or 200,000 A. These fuses are current-limiting. However, they are not marked "current-limiting" on their label since they do not have a rejection feature.

Class L Fuses

These fuses are rated for 601 through 6000A, and are rated to interrupt a minimum of 200,000A ac. They are labeled "Current-Limiting" and are rated for 600Vac. They are intended to be bolted into their mountings and are not normally used in clips. Some Class L fuses have designed in time-delay features for all purpose use.

Class R Fuses

These are high performance fuses rated $\frac{1}{10}$ -600A in 250V and 600V ratings. All are marked "Current Limiting" on their label and all have a minimum of 200,000A interrupting rating. They have identical outline dimensions with the Class H fuses but have a rejection feature which prevents the user from mounting a fuse of lesser capabilities (lower interrupting capacity) when used with special Class R Clips. Class R fuses will fit into either rejection or non-rejection clips.

Class T Fuses

An industry class of fuses in 300V and 600V ratings from 1 amp through 1200A. They are physically very small and can be applied where space is at a premium. They are fast acting fuses with an interrupting rating of 200,000A RMS.

Classes of Fuses

The industry has developed basic physical specifications and electrical performance requirements for fuses with voltage ratings of 600V or less. These are known as standards. If a type of fuse meets the requirements of a standard, it can fall into that class. Typical classes are K, RK1, RK5, G, L, H, T, CC, and J.

Clearing Time

The total time between the beginning of the overcurrent and the final opening of the circuit at rated voltage by an overcurrent protective device. Clearing time is the total of the melting time and the arcing time.

Current Limitation

A fuse operation relating to short circuits only. When a fuse operates in its current-limiting range, it will clear a short circuit in less than $\frac{1}{2}$ cycle. Also, it will limit the instantaneous peak let-through current to a value substantially less than that obtainable in the same circuit if that fuse were replaced with a solid conductor of equal impedance.

Glossary

Dual Element Fuse

Fuse with a special design that utilizes two individual elements in series inside the fuse tube. One element, the spring actuated trigger assembly, operates on overloads up to 5-6 times the fuse current rating. The other element, the short circuit section, operates on short circuits up to their interrupting rating.

Electrical Load

That part of the electrical system which actually uses the energy or does the work required.

Fast Acting Fuse

A fuse which opens on overload and short circuits very quickly. This type of fuse is not designed to withstand temporary overload currents associated with some electrical loads.

Fuse

An overcurrent protective device with a fusible link that operates and opens the circuit on an overcurrent condition.

High Speed Fuses

Fuses with no intentional time-delay in the overload range and designed to open as quickly as possible in the short-circuit range. These fuses are often used to protect solid-state devices.

Inductive Load

An electrical load which pulls a large amount of current—an inrush current—when first energized. After a few cycles or seconds the current “settles down” to the full-load running current.

Interrupting Capacity

(See Interrupting Rating)

Interrupting Rating — IR (Breaking Capacity)

The rating which defines a fuse’s ability to *safely* interrupt and clear short circuits. This rating is much greater than the ampere rating of a fuse. The NEC® defines Interrupting Rating as “The highest current at rated voltage that an overcurrent protective device is intended to interrupt under standard test conditions.”

Melting I²t

Value of the I²t during the melting time of the fuse link under specified conditions.

Melting Time

The amount of time required to melt the fuse link during a specified overcurrent. (See Arcing Time and Clearing Time.)

“NEC®” Dimensions

These are dimensions once referenced in the National Electrical Code. They are common to Class H and K fuses and provide interchangeability between manufacturers for fuses and fusible equipment of given ampere and voltage ratings.

Ohm

The unit of measure for electric resistance. An ohm is the amount of resistance that will allow one ampere to flow under a pressure of one volt.

Ohm’s Law

The relationship between voltage, current, and resistance, expressed by the equation $E = IR$, where E is the voltage in volts, I is the current in amps, and R is the resistance in ohms.

One Time Fuses

Generic term used to describe a Class H non-renewable cartridge fuse, with a single element.

Overcurrent

A condition which exists on an electrical circuit when the normal load current is exceeded. Overcurrents take on two separate characteristics—overloads and short circuits.

Overload

Can be classified as an overcurrent which exceeds the normal full load current of a circuit. Also characteristic of this type of overcurrent is that it does not leave the normal current carrying path of the circuit—that is, it flows from the source, through the conductors, through the load, back through the conductors, to the source again.

Peak Let-Through Current, I_p

The instantaneous value of peak current let-through by a current-limiting fuse, when it operates in its current-limiting range.

Renewable Fuse (600V & below)

A fuse in which the element, typically a zinc link, may be replaced after the fuse has opened, and then reused. Renewable fuses are made to Class H standards.

Resistive Load

An electrical load which is characteristic of not having any significant inrush current. When a resistive load is energized, the current rises instantly to its steady-state value, without first rising to a higher value.

RMS Current

The RMS (root-mean-square) value of any periodic current is equal to the value of the direct current which, flowing through a resistance, produces the same heating effect in the resistance as the periodic current does.

Semiconductor Fuses

Fuses used to protect solid-state devices. See “High Speed Fuses.”

Short Circuit

Can be classified as an overcurrent which exceeds the normal full load current of a circuit by a factor many times (tens, hundreds or thousands greater). Also characteristic of this type of overcurrent is that it leaves the normal current carrying path of the circuit—it takes a “short cut” around the load and back to the source.

Short-Circuit Current Rating

The maximum short-circuit current an electrical component can sustain without the occurrence of excessive damage when protected with an overcurrent protective device.

Short-Circuit Withstand Rating

Same definition as short-circuit rating.

Agencies & standards

Single Phasing

That condition which occurs when one phase of a three phase system opens, either in a low voltage (secondary) or high voltage (primary) distribution system. Primary or secondary single phasing can be caused by any number of events. This condition results in unbalanced currents in polyphase motors and unless protective measures are taken, causes overheating and failure.

Threshold Current

The symmetrical RMS available current at the threshold of the current-limiting range, where the fuse becomes current-limiting when tested to the industry standard. This value can be read off of a peak let-through chart where the fuse curve intersects the A-B line. A threshold ratio is the relationship of the threshold current to the fuse's continuous current rating.

Time-Delay Fuse

A fuse with a built-in delay that allows temporary and harmless inrush currents to pass without opening, but is so designed to open on sustained overloads and short circuits.

Total Clearing I²t

Total measure of heat energy developed within a circuit during the fuse's clearing of a fault current. Total Clearing I²t is the sum of the melting I²t and arcing I²t.

Voltage Rating

The maximum open circuit voltage in which a fuse can be used, yet safely interrupt an overcurrent. Exceeding the voltage rating of a fuse impairs its ability to clear an overload or short circuit safely.

Withstand Rating

The maximum current that an unprotected electrical component can sustain for a specified period of time without the occurrence of extensive damage.

Out-of-Stock Substitution/Upgrades

Cooper Bussmann #	Upgrade #	Description	Data Sheet #
AGC-(AMP)	ABC-(AMP)	FAST-ACTING, 1/4" X 1 1/4" FUSE	2001
AGC-V-(AMP)	ABC-V-(AMP)	FAST-ACTING, 1/4" X 1 1/4" FUSE WITH LEADS	2001
AGU-(AMP)	LP-CC-(AMP)	FAST-ACTING, 1/2" X 1 1/2" FUSE	2008
BAF-(AMP)	LP-CC-(AMP)	FAST-ACTING, 1/2" X 1 1/2" FUSE	2011
BAN-(AMP)	LP-CC-(AMP)	FAST-ACTING, 1/2" X 1 1/2" FUSE	2046
FNM-(AMP)	LP-CC-(AMP)	TIME-DELAY, 1/2" X 1 1/2" FUSE	2028
FNQ-R-(AMP)	LP-CC-(AMP)	TIME-DELAY, 500V, 1/2" X 1 1/2" FUSE	1012
FNR-R-(AMP)	LPN-RK-(AMP)SP	TIME-DELAY, 250V, CLASS RK5 FUSES	1019/1020
FRS-R-(AMP)	LPS-RK-(AMP)SP	TIME-DELAY, 600V, CLASS RK5 FUSES	1017/1018
JKS-(AMP)	LPJ-(AMP)SP	FAST-ACTING, 600V, CLASS J FUSE	1026/1027
KLU-(AMP)	KRP-C-(AMP)SP	TIME-DELAY, CLASS L FUSE	1013
KTK-(AMP)	KTK-R-(AMP)	FAST-ACTING, 600V, 1/2" X 1 1/2" FUSE	1011
KTK-R-(AMP)	LP-CC-(AMP)	FAST-ACTING, 600V, CLASS CC FUSE	1015
KTN-R-(AMP)	LPN-RK-(AMP)SP	FAST-ACTING, 250V, CLASS RK1 FUSE	1043
KTS-R-(AMP)	LPS-RK-(AMP)SP	FAST-ACTING, 600V, CLASS RK1 FUSE	1044
KTU-(AMP)	KPR-C-(AMP)SP	FAST-ACTING, 600V, CLASS L FUSE	1010
MDL-(AMP)	MDA-(AMP)	TIME-DELAY, 1/4" X 1 1/4" FUSE	2004
MDL-V-(AMP)	MDA-V-(AMP)	TIME-DELAY, 1/4" X 1 1/4" FUSE WITH LEADS	2004
MTH-(AMP)	ABC-(AMP)	FAST-ACTING, 1/4" X 1 1/4" FUSE	
NON-(AMP)	LPN-RK-(AMP)SP	GENERAL PURPOSE, 250V, CLASS H FUSES	1030
NOS-(AMP)	LPS-RK-(AMP)SP	GENERAL PURPOSE, 600V, CLASS H FUSES	1030
REN-(AMP)	LPN-RK-(AMP)SP	250V RENEWABLE FUSELINK	1028
RES-(AMP)	LPS-RK-(AMP)SP	600V RENEWABLE FUSELINK	1028
SL-(AMP)	S-(AMP)	TIME-DELAY, 125V, PLUG FUSE	1033
TL-(AMP)	T-(AMP)	TIME-DELAY, 125V, PLUG FUSE	1035

Cooper Bussmann Electrical Trademarks

The following word trademarks are registered to Cooper Industries, Inc. for the use of the Cooper Bussmann division, electrical business unit: Buss®

Bussmann®

Edison®

Fusetron®

Limitron®

Low-Peak®

Magnum®

Optima®

Telpower®

Tron®

Typower®

The following trademarks are not yet registered:

Coordination Module™

CUBEFuse™

Dura-Lag™

easyID™

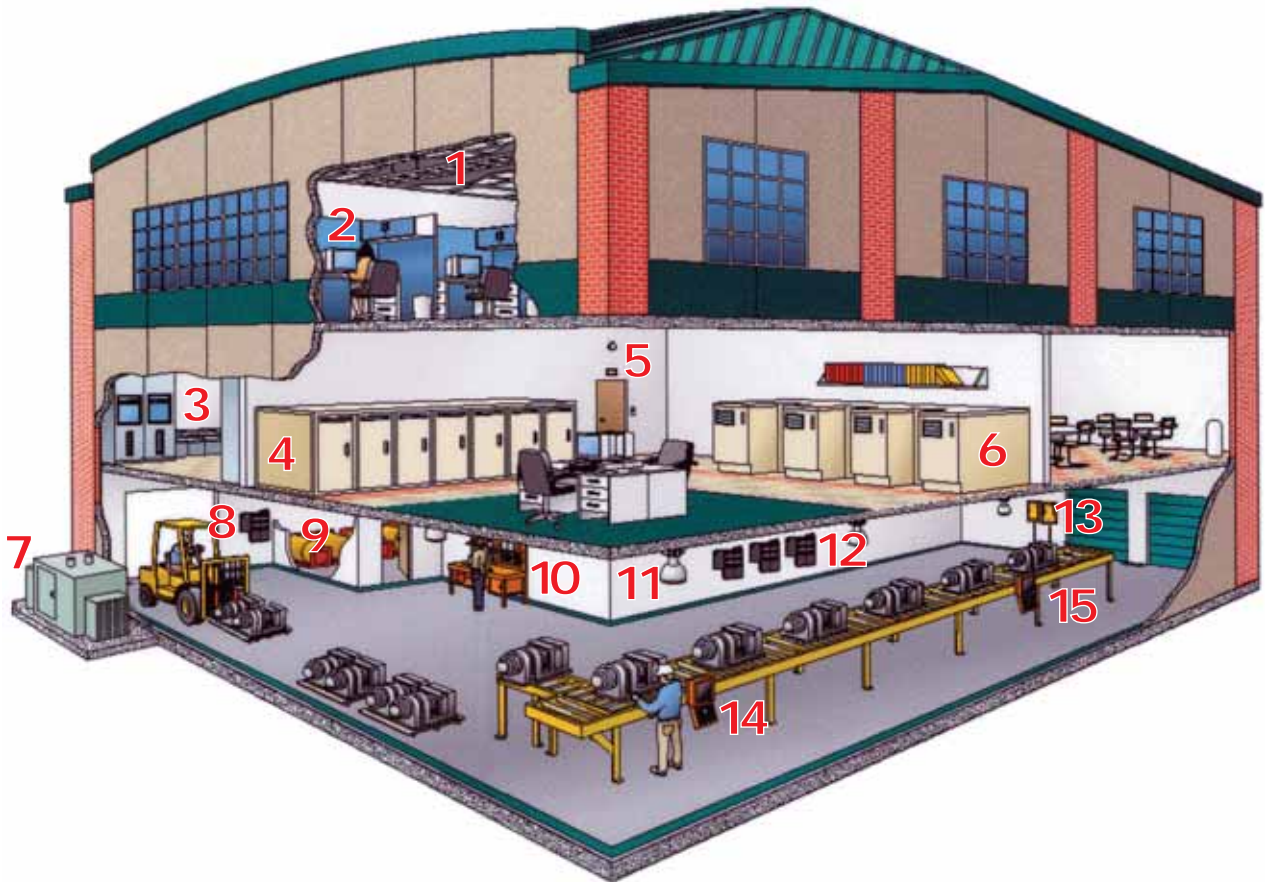
Power Module™

Safety J™

Safety Module™

Surge3™

Industrial fuse applications



Industrial Applications

- | | |
|------------------------------------|--------------------------------------|
| 1. Interior Lighting | 8. Forklift Battery Charging Station |
| 2. Computer Power | 9. HVAC Chillers/Blowers |
| 3. Switchboards | 10. Welding Circuits |
| 4. Motor Control Center | 11. Plant Lighting |
| 5. Emergency Lighting | 12. Distribution Panels |
| 6. UPS Backup Power Supplies | 13. Disconnect Switches |
| 7. Transformer/Emergency Generator | 14. Programmable Logic Circuits |
| | 15. Conveyor System |

Commercial fuse applications



Commercial Applications

1. Interior Lighting
2. HVAC Blowers
3. Computer Power
4. Branch Circuits
5. Emergency Lighting
6. Load Centers
7. Disconnect/Distribution Panels
8. HVAC/Chillers
9. Switchboards/Motor Control Centers
10. UPS Backup Power Supplies
11. Elevator Control Centers
12. Transformer/Emergency Generator

Catalog number index

Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page
1025	*	1A1907-	63	2605	*	3743	272	NO.550	*
11 Type	344	1A2294	*	2607	*	3794	*	NO.552	*
11239-3PR	257	1A2650	*	2608	*	3823	*	558730	*
11239-3SR	257	1A3398-	63	2610	*	3828	271	5591-	65
11240-3PR	257	1A3399-	62	2611	*	3833	*	5592-	65
11240-3SR	257	1A3400-	64	2650	*	3835	272	5623	*
11241-3PR	257	1A3746	*	2654	*	3839	*	5672-	65
11241-3SR	257	1A4533-	63	2698	*	3959	*	5674-	65
11242-3PR	257	1A4534-	63	2703	*	3998	*	5678	*
11242-3SR	257	1A4544	*	2714	*	39E	*	5681-	65
11675-	278	1A4708	*	2772	*	4070	*	5682-	65
11725-	278	1A4806	*	2778	*	4121	*	NO.575	*
11960	*	1A5018-	62	2795	*	4164	*	NO.577	*
13195	*	1A5041	*	2833	*	4178	*	5950	*
13926	*	1A5220	*	2834	*	4180	*	5956-	65
14002	280	1A5600-	64	2837	*	4202	*	5958	*
14004	280	1A5601-	62	2838	*	4207	*	5960-	65
15087	342	1A5602-	62	2839	*	4261	*	5961	*
15100	338	1A5603	*	2860	*	4287	*	5TPH	359
15149	330	1A5779	*	2960	*	4386	*	60/100BS	230
15188	286	1A5940	*	2989	*	4393	271	60/100LSC	230
15200	338	1A6004	*	2992	*	4399	*	6125	*
15242	*	1A6049	*	2A066	*	4402	*	6125TD	*
15288	286	1A8654	*	2A8	*	4405	270	6374	*
15506 KDM	42	1A9619	*	30LSC	230	4406	270	63A-DUMMY	*
15515 KDR	42	1B0021	*	323A2433P6	*	4407	*	64 _ _ _	42
15595	*	1B0048	*	32BS	230	4408	*	6415	*
15600	*	1B0049	*	3356	*	4410	*	6417	*
15602	*	1B0089	*	3373	*	4411	*	6418	*
15660	*	1BR021	*	3375	*	4412	*	6419	*
15800	336	1BR048	*	3411	*	4413	*	6420	*
15900	*	1BS1 _ _ _	106	3429	*	4415	*	64200	*
15968	*	1CIF	*	3434	*	4421	272	6422	*
160_ _	278	2004	*	3512	*	4422	*	6424	*
162_ _ _	278, 279	2081	*	3513	*	4423	*	6427	*
163_ _	276, 278, 279	20BS	230	3515	*	4427	*	64913	*
164_ _ _	*	20LSC	230	3519	*	4428	*	64926	*
165_ _ _	278, 279	21010	*	3520	*	4467	*	6525-25-0341	*
1683A75H08	*	21040	*	3521	*	4482	*	65372	*
170E	*	21050	*	3525	*	4483	*	65398	*
170H_ _ _ _	179-180	21065	*	3528	*	4512	*	6725	*
170L_ _ _	*	21100	*	3531	*	4513	*	675	*
170M_ _ _ _	110-178	21200	*	353837	*	4514	*	68100	*
170N_ _ _ _	*	2127	*	3544	*	4515	272	68_ _ _	42
170R_ _ _ _	*	2177	*	3545	*	4520	271	6NZ01	*
170T_ _ _ _	*	2178	*	3552	*	4522	*	7 Type	344
171A_ _ _	*	2201	*	3553	*	4525	*	70 Series	342
17415	*	2245	*	3554	*	4528	*	70-	342
175GDMSJD	*	NO.232	*	3555	*	4529	*	71-0192	*
175GXQNJD	*	2322	*	3556	*	4530	*	72	*
1768A40H	*	NO.233	*	3562	*	4532	*	74 Type	344
19315	*	NO.234	*	3569	*	4534	*	75 Type	345
19320	*	24 Type	344	3571	*	4535	*	76 Type	345
1976	*	2429	*	3572	*	4537	*	NO.756	*
1A0065	86	2430	*	3575	*	4561	*	NO.757	*
1A0835	*	2432	*	3576	*	4567	*	NO.758	*
1A1119-	63	246B9949BG	*	3578	*	4574	270	NO.759	*
1A1120-	63	2487	*	3580	*	4586	*	NO.760	*
1A1310	*	2494	*	3591	*	4648	*	NO.761	*
1A1360	*	2499	270	3594	*	4909	*	NO.762	*
1A1478	*	25499	*	3595	*	4NZ01	*	NO.763	*
1A1837	*	2601	*	3604	*	510	*	80 Type	345
1A1838	*	2602	*	3723	272	51215	*	80910	*
1A1853	*	2604	*	3742	272	51235	*	81 Type	345

* Not listed in this catalog. Call Cooper Bussmann Customer Satisfaction for more information. Call 636-527-3877.

Catalog number index

Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page
82048	*	ANN	48	C10M	228	CBF	*	CIK	219
8414677	*	ASZ350B3	*	C10NL	240	CBP	*	CIL	219
84345	*	AT	*	C14G	227	CBS	*	CJ	218
8456A85H	*	ATC	49	C14G_S	229	CBT	*	CM ___ CF	230
847966108	*	ATF	*	C14M	228	CBU	*	CM ___ CF	*
8583A36H	*	ATM	49	C14M_S	229	CCB	*	CP14002	*
8588A81H	*	B22-	329	C14NL	240	CCC	*	CPB16_	278
88914568	*	B40	*	C19	*	CCE	*	CPDB-	278
9078A67G04	86	B48	*	C22G	227	CCG	*	CPS-C	*
9435	*	B83	*	C22G_S	229	CCSK-45	355	CS/XMAS-6F	*
9483	*	B84	*	C22M	228	CD	222	CT	185
9732	*	B93	*	C22M_S	229	CD1	*	CUG	*
9789	*	BAF	43	C22NL	240	CD100	*	D125	223
9834	*	BAN	43	C2617	*	CD27	*	D16	223
9835	*	BAO	221	C2791	*	CD33	*	D27	223
9838	*	BBS	46	C2909	*	CDAUX ___	311	D33	223
9841	*	BBU	69	C30BS	230	CDB	*	DCM	44
9843	*	BBU-EFID	*	C30F	230	CDBY_ _ _ _ _	320	DD	222
A3354705	*	BC	222	C30FBS	230	CDC	*	DEO	221
A3354710	86	BC603 ___	256	C4044	*	CDE	*	DFC	*
A3354720	*	BCA603 ___	255	C4534	*	CDH4	310	DIA	*
A3354730	86	BCC	*	C4559	*	CDHX _ _ _ 310, 313, 315, 321, 323, 326		DLN-R	30
A3354745	*	BCCM	*	C515	54	CDHZX_	322	DLS-R	30
A404302	*	BCCM603	*	C517	54	CDH_S 308, 315, 320, 322		DRA-1	358
AAO	221	BCF	*	C518	54	CDMB	*	DRA-2	358
ABC	58	BD	222	C519	54	CDMC1	320	DRLC-A	*
ABC-V	58	BDAUX_	324	C520	54	CDN	215	E-6188	*
ABCNA	82	BDDHK	*	C5237	*	CDN63P	*	EBI055-	71
ABFNA	82	BDF	*	C5268-	106	CDNF ___	320, 321, 322	ECF	*
ABGNA	82	BDFH	*	C5898	*	CDS	215	ECL055-	71
ABS	*	BDFL	*	C60BS	230	CDS ___ T	321	ECL155-	72
ABU	*	BDH _ _ 310, 313, 315, 321, 323, 326		C60F	230	CDS ___ P	309, 321	ECNR	*
ABWNA	82	BDH79	309	C60FBS	230	CDS ___ S	308, 320	ECSR	*
AC	222	BDNF	323	C6344	*	CDS6	*	ED	222
ACB	*	BDS ___ 310, 312, 323		C7018	*	CDS8	*	EDA	*
ACF	*	BDST ___ 310		C7019	*	CDS9	*	EET	185
ACH	*	BDTA ___ 311, 313		C7020	*	CDSWM	320	EF	222
ACK	*	BDTL ___ 311, 313, 323		C7024-	350	CDTL	*	EFC-	314, 316, 317
ACL	*	BDS ___ 324		CAV	82	CDTS	*	EFF	*
ACO	*	BDZD	*	CAVH	82	CEO	221	EFH	*
AD	222	BDZW	*	CB123	*	CFC60J	311	EFJ-	314, 316, 317
ADL	*	BDZX ___ 324		CB174	*	CFCV100	311	EFL	*
ADLSJ	81	BFW	*	CB174B	*	CFD-	307-310	EFN	222
ADOSJ	81	BG30 ___ 256		CB174M	*	CFZ_	311	EK	*
AF	*	BGH	*	CB181F	*	CFTS100	311	ELN	*
AFS	*	BH- ___ 257		CB181P	*	CFZ	*	EN6	*
AFX	*	BH- _ XXX 106		CB184F	*	CGL	216	ENA	*
AGA	57	BM603 ___ 256		CB184P	*	CH _ _ J _ 236		ENF-	325, 326, 327, 328
AGA-V	57	BMA603 ___ 255		CB185	*	CH _ _ J _ I 236		ENN	*
AGC	58	BNQ21-WH 289		CB185P	*	CH08 ___ 239		EP _ M230 _ _ GCC 305	
AGC-V	58	BP/AGX	*	CB1911	*	CH10	*	ERK-28 356	
AGS	*	BP/GLH	*	CB1921	*	CH10CL	*	ERS2	*
AGU	*	BP/MAS	*	CB203107S2105	*	CH10CM	*	ERS30	*
AGW	57	BP/XMAS	*	CB211	*	CH14 ___ 239		ESD	221
AGX	57	BP655	*	CB212	*	CH14-HP 240		ET	185
AGX-V	57	BOE	*	CB221	*	CH14MS- _ D 240		ETF	*
AGY	*	BQ041-WH 289		CB222	*	CH22 ___ 239		EVF	*
AL-D	240	BRT	*	CB223	*	CH810-HP 240		F01A	*
ALS	*	BRW	*	CB3	*	CHCC _ _ 239		F02A	*
ALW	*	C08G	227	CB5	*	CHM ___ 239		F02B	*
AMG	*	C08M	228	CBB	*	CIF06	217	F03A	*
AMI	*	C08NL	240	CBC	*	CIF21	217	F03B	*
AMWNA	82	C10G	227	CBD	*	CIH	219	F06A	*
ANL	48							F07A	*

* Not listed in this catalog. Call Cooper Bussmann Customer Satisfaction for more information. Call 636-527-3877.

Catalog number index

Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page
F09A	*	FNM	45	H25	242	HKP-W	264	HVT	83
F09B	*	FNO	45	H60	245	HKQ	*	HVU	83
F10A	*	FNO-R	31	HAC-R	*	HKR	267	HVW	83
F15A	*	FNW	*	HAS-R	*	HKT	267	HVX	83
F15B	*	FP-2	359	HBC	*	HKU	267	HWA	*
F16A	*	FP-3	359	HBH-I	61	HKX	267	IXL70F	*
F16B	*	FP-4	359	HBH-M	61	HLA	*	J-13	360
F19B	*	FP-6	359	HBM	*	HLD	267	J-16	316
F29A	*	FP-A3	359	HBO	*	HLO	51	J-21	360
F38-	346	FR-1000	*	HBP-	*	HLR	52	J-23	360
F380	*	FRN-R	22	HBS-	*	HLS	343	J-26	360
F60C	*	FRS-R	24	HBV-I	61	HLT	343	J-41	360
F61C	*	FSD	*	HBV-M	61	HM	260	J-42	360
F62C	*	FT-2	359	HBW-I	61	HME	*	J-62	360
F63C	*	FT-3	359	HBW-M	61	HMF	*	J-63	360
F64C	*	FTI	*	HC-	*	HMG	*	J-64	360
F65C	*	FTM	*	HC1	*	HMH	*	J-	360
F7036-	348	FWA	91, 93, 192	HC2	*	HMI	*	J101/J	*
FA02	*	FWC	200	HC3	*	HMJ	*	J201/J	*
FA2A	*	FWH	97, 196-199	HC7	*	HMK	*	J301/J	*
FA4H	*	FWJ	104, 208	HC8	*	HMR	*	J60	248
FBI	61	FWK	206	HCM	*	HN-1	*	J70100	211
FBM	61	FWL	210	HEB	261	HN-3	*	JB1	*
FBP	*	FWP	101, 202-205	HEC	261	HN-5	*	JB3	*
FC	*	FWS	210	HEF	*	HOB	*	JCA	*
FCB	*	FWX	95, 194	HEG	261	HOF	*	JCD-	74
FCC	*	G30060	*	HEH	261	HPC-D	269	JCE-	74
FCU	*	GBA	47	HEJ	261	HPD	268	JCG-	77
FD	312	GBB	58	HET	261	HPF	268	JCH-	77
FDM	*	GBB-V	58	HEX	261	HPG	268	JCI-	74
FE	185	GBC	*	HEY	261	HPL	*	JCK-	77
FE2475-	347	GDA	55	HFA	260	HPM	269	JCK-A-	77
FEE	185	GDA-V	55	HFB	259	HPS	268	JCK-B-	77
FEH	*	GDB	55	HFB-10	259	HPS2	269	JCL-	77
FF	222	GDB-V	55	HGA	*	HR	260	JCL-A-	77
FG	222	GDC	55	HGB	*	HRC	220	JCL-B-	77
FH2	*	GDC-V	55	HGC	*	HRE	*	JCM	*
FHL	*	GF	222	HGB	259	HRF	*	JCN	*
FHN	*	GFA	*	HHC	50	HRG	*	JCP	*
FL-	*	GG	222	HHD	50	HRH	*	JCO-	74
FL11H	85	GH	222	HHF	50	HRI	*	JCR-A	77
FL11K	85	GKB	*	HHG	50	HRJ	*	JCR-B-	77
FL11N	*	GKJ	*	HHH	*	HRK	259	JCT-	74
FL11T	85	GLD	47	HHI	*	HSK	*	JCU-	75
FL12K	85	GLH	*	HHJ	*	HTB-	265-266	JCW-	74
FL1A5	*	GLN	*	HHK	*	HTC-10M	*	JCX-	75
FL3H	*	GLP	230	HHL	50	HTC-140M	62	JCY-	75
FL3K	85	GLO	51	HHM	50	HTC-15M	62	JCZ-	75
FL3T	85	GLR	52	HHN	*	HTC-200M	62	JDN	*
FLB	*	GLX	*	HHR	*	HTC-210M	62	JDZ-	75
FLD	*	GMA	56	HHT	260	HTC-30M	263	JF1	*
FLF	*	GMA-V	56	HHX	50	HTC-35M	263	JJN-	32
FLM	*	GMC	56	HIF	*	HTC-40M	263	JJS-	33
FLN	*	GMC-V	56	HJL	267	HTC-45M	60	JKS	25
FLS	*	GMD	56	HJM	*	HTC-50M	60	JN	*
FM	185	GMD-V	56	HK-	267	HTC-55M	263	JP60030	250
FM01A	*	GMF	52	HKA	*	HTC-60M	60	JPA-3	*
FM08A	*	GMQ	51	HKL	*	HTC-65M	60	JSK-36	355
FM09A	*	GMT	343	HKP	264	HTC-70M	263	JT(N)60030	237
FM09B	*	GMT-A	343	HKP-BBHH	264	HVA	83	JT(N)60060	237
FMM	185	GMW	*	HKP-HH	264	HVB	83	JT60030	237
FMX	*	GOB	*	HKP-L	264	HVJ	83	JT60060	237
FNA	47	GRF	52	HKP-LW-HH	264	HVL	83	JTN60030	237
FNJ	*	GSK-260	355	HKP-OO	264	HVR	83	JTN60060	237

* Not listed in this catalog. Call Cooper Bussmann Customer Satisfaction for more information. Call 636-527-3877.

Catalog number index

Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page
JU	*	KGT	*	LPT	*	NFTA	*	OPMNGSA	234
KA	*	KGX	*	LS1D3	*	NH__G-690	226	OPMNGSAAUX	234
KAB	*	KGY	*	MA-5	*	NH__M	226	OPMRH	320
KAC	99	KIG	42	MAI	*	NHG__B	224	OSD	221
KAD	*	KJA	*	MAS	*	NI	*	OSP	*
KAF	*	KJB	*	MAX	49	NITD	221	PCB	*
KAJ	*	KLC	*	MB-	*	NNB	360	PCC	*
KAL	*	KLM	43	MBO	*	NNB-R	360	PCD	*
KAW	*	KLP	*	MCRW	*	NNC	360	PCF	*
KAX	*	KLU	29	MDA	59	No. 1	358	PCG	*
KAZ	48	KMH-C	*	MDA-V	59	No. 100	*	PCH	*
KBC	100	KOS15	*	MDF	*	No. 140	357	PCI-	*
KBD	*	KPF	42	MDL	59	No. 15	*	PCT	343
KBJ	*	KOO	42	MDL-V	59	No. 2	358	PF1	*
KBO	*	KOT	42	MDM	*	No. 200	*	PLK3-	288
KBR	*	KOV	42	MDO	59	No. 201	*	PLU1-WH	287
KBT	*	KOW-M	*	MDO-V	59	No. 204	*	PLU11	*
KBY	*	KRP-CL	21	MDX	*	No. 205	*	PLU111	*
KCA	42	KRP-C_SP	20	MEQ	*	No. 213	360	PLU3-	287
KCB	42	KS-19392-L36	*	MFN	*	No. 216	360	PMP	306
KCC	42	KT3-RE	*	MIC	47	No. 220	357	PON	215
KCD	42	KT3-WH	288	MIJ	*	No. 226	360	PS	306
KCE	42	KT4-WH	288	MIN	47	No. 242	360	PS1RPLSW	*
KCF	42	KTE	*	MIS	48	No. 2621	360	PSU1-WH	287
KCH	42	KTJ	*	MKA	*	No. 263	360	QC202/J	*
KCJ	42	KTK	43	MKB	*	No. 2641	360	QC203/J	*
KCM	42	KTk-R	28	MKG	*	No. 2642	360	R25__-_-	243
KCM-B	42	KTN-R	26	MMB	*	No. 2661	360	R60__-_-	246
KCR	42	KTN-S	*	MMT	185	No. 2662	360	REG	*
KCS	42	KTO	46	MP2	*	No. 2664	360	REN	*
KCV	42	KTS-R	27	MP2A	*	No. 270	357	RES	*
KCY	42	KTS-S	*	MPR	*	No. 2880	*	RFI	*
KCZ	42	KTU	29	MS100	*	No. 36	356	RFL	*
KDA	42	KU-	299	MSK-45	355	No. 4	358	RK1SK-39	355
KDB	42	KWN-R	*	MSL	*	No. 5	358	RK5SK-39	355
KDC	42	KWS-R	*	MSW710	*	No. 6	358	RLA	*
KDD	42	LA	*	MT	185	No. 7	358	RLC	*
KDE	42	LA8D324	*	MT12	*	No. 8	358	RYA	*
KDF	42	LAA	*	MTC6	*	NON	35	RYC	*
KDH	42	LAC	*	MTH	*	NOS	35	S-	37
KDJ	42	LAG	*	MTMU	*	NPL	*	S-8001	270
KDM	42	LAN	*	MV055-	73	NRA37	*	S-8002	270
KDP	42	LAR	*	MV155-	73	NSD	221	S-8101	270
KDR	42	LCT	182	N512-BK	284	NSE3-WH	285	S-8102	270
KDT	42	LCU	*	NBB	*	NSS3-WH	285	S-8201	270
KDU	42	LD1	*	NBC	*	NTN-R-	360	S-8202	270
KDY	42	LD2	*	NBE	*	NTQ23-WH	289	S-8203	270
KEF	*	LEF	*	NC3-WH	285	NTS-R-	360	S-8301	270
KEM	*	LET	182	ND-1260	*	NUE	*	S3Holder	*
KER	*	LKB	*	NDN	282	NXA	*	S500	*
KEW	42	LKC	*	NDN1-WH	283	NXC	*	S501	*
KEX	42	LKN	*	NDN111-	283	NZ01	223	S504	*
KFH-A	42	LKS	*	NDN3-	282	NZ02	223	S505	*
KFM	42	LMMT	182	NDN63-	282	NZ__	223	S506	*
KFT	42	LMT	182	NDNA100	311	OEFMA	84	SA-	37
KFZ	42	LP-CC	19	NDNAS	*	OEGMA	84	SAMI-	241
KGC	*	LPF1-	*	NDND1	*	OHFMA	84	SB	*
KGJ	*	LPJ-SPI	15	NDNF1-WH	273	OHGMA	84	SC	34
KGJ-A	*	LPJ_SP	15	NDNFD1	*	OIA	*	SCV15	*
KGJ-E	*	LPN-RK_SP	16	NDNLFD1	273	OJ	*	SCV20	*
KGL	*	LPN-RK_SPI	16	NDNV4-	282	OLGMA	84	SCY	258
KGO-E	*	LPRK-28	356	NFA	*	OPM-1038	232, 233	SDA	*
KGS	*	LPS-RK_SP	16	NFT2-WH	284	OPM-NG-SC3	234	SDLSJ	81
KGS-A	*	LPS-RK_SPI	16	NFT3-	284	OPM-NG-SM3	234	SDMSJ	81

* Not listed in this catalog. Call Cooper Bussmann Customer Satisfaction for more information. Call 636-527-3877.

Catalog number index

Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page	Catalog Number	Page
SDQ	*	TDC	*	WFOH6	80	WYG	*		
SDQSJ	81	TDC10	*	WFOSJ	81	WYM	*		
SEW-5B	*	TDC11	*	WGA	*	WZC	*		
SF25H	*	TDC180	*	WHA	*	WZJ	*		
SFB1030	*	TDC600	*	WHN	*	WZK	*		
SFC-FUSE-CAB	359	TDP	*	WIE	*	WZL	*		
SFD27	*	TFC	*	WJON6	80	WZX	*		
SFE	*	TFF	*	WKB	*	XL25X	*		
SFLSJ	81	TFL	*	WKFH0	80	XL50F	*		
SFMSJ	81	TGC	*	WKH	*	XL70F	*		
SFQ SJ	81	TGH	*	WKJ	*				
SFR	*	THL	*	WKK	*				
SFR1	*	TIQ	*	WKL	*				
SKA	258	TJD	*	WKLSJ	81				
SKLSJ	81	TL-	36	WKMSJ	80 & 81				
SL-	36	TPMDA-B-30	*	WKNHO	80				
SM363	304	TP158HC	337	WKS	*				
SNF-7K	*	TP15900	*	WKU	*				
SNF-7M	*	TP15900-4	335	WKV	*				
SNL-7K	*	TP15914	334	WLF	*				
SOA72	*	TP2	*	WMB	*				
SOU	258	TP3	*	WMM	*				
SOW	258	TP4	*	WMO	*				
SOX	258	TPA	335	WPO	*				
SOY	258	TPA-B	335	WQL	*				
SOY-B	258	TPB	*	WON	*				
SPJ	*	TPC	332	WOP	*				
SPP	*	TPCDS	332	WSE	*				
SRA-R	*	TPH	*	WSH	*				
SRD	*	TPHCS-	339	WSL	*				
SRT-A	*	TPJ	*	WSM	*				
SRU	258	TPL	340	WSP	*				
SRU-BC	*	TPM	333	WSQ	*				
SRW	258	TPMDS	333	WST	*				
SRX	258	TPN	341	WSU	*				
SRY	258	TPS	336	WTJ	*				
SSD	221	TPSFH-	359	WTK	*				
SSN	*	TPW	*	WTT	*				
SSU	258	TPWDS	*	WTZ	*				
SSW	258	TR6/MCRW	*	WUC	*				
SSX	258	TRF	*	WUD	*				
SSY	258	TS-	300-302	WUE	*				
SSY-RL	258	TVS-	352	WUG	*				
STD	221	TVSS-	353	WUH	*				
STI	*	UCB	*	WUI	*				
STM	*	UHA	*	WUO	*				
STY	258	UHC	*	WUR	*				
SYC	*	UHJ	*	WUU	*				
SZQ	*	UHS	*	WUV	*				
T-	37	UHT	*	WUW	*				
T1320-2R	*	UHW	*	WUY	*				
T30	251	ULR	*	WVA	*				
T60	253	VFNHA	80	WVQ	*				
TB100-	290	VKNHA	80	WVR	*				
TB200-	292	W-	36	WWD	*				
TB200HB-	292	WDFHO	80	WWE	*				
TB300-	294	WDLSJ	80 & 81	WWF	*				
TB345-	294	WDOH6	80	WWG	*				
TB400-	298	WDOSJ	81	WWI	*				
TBM-14M	42	WER	344	WWK	*				
TC	*	WFFHO	80	WWL	*				
TCF	13	WFLSJ	80 & 81	WWU	*				
TCFH	13	WFMSJ	80	WWV	*				
TCP	*	WFNHO	80	WWX	*				

* Not listed in this catalog. Call Cooper Bussmann Customer Satisfaction for more information. Call 636-527-3877.

Sales Support & Manufacturing Facilities

World Headquarters

Cooper Bussmann
P. O. Box 14460
St. Louis, Missouri 63178-4460 USA
Telephone: 636/394-2877
Fax: 800/544-2570
Email: fusebox@cooperbussmann.com

Asian Headquarters

Cooper Bussmann
Cooper Electric (Shanghai) Co. Ltd.
28th Floor Yu An Building
738 Dongfang Road
Pudong, Shanghai 200122 China
Telephone: 8621-5831-6805
Fax: 8621-6876-5532

European Headquarters

Cooper (UK) Ltd.
Bussmann Division
Burton-on-the-Wolds
Leicestershire LE12 5th England
Telephone: 44-1509-882737
Fax: 44-1509-882786

Bussmann Asia-Pacific

1 Jalan Kilang Timor
#06-01 Pacific Tech Centre
Singapore 159303
Republic of Singapore
Telephone: 65-6278-6151
Fax: 65-6278-3151
Email: bussasia@cooperbussmann.com

Bussmann Australia

205 – 209 Woodpark Road
P O Box 2577
Smithfield NSW 2164
Australia
Telephone: 61-2-8787-2700
Fax: 61-2-9609-2746

Bussmann Brasil

Bussmann do Brasil Ltda.
Rodovia Santos Dumont, km 23
13.300-000, Caixa Postal 095
Itu – Sao Paulo Brasil
Telephone: 55-11-4024-8400
Fax: 55-11-4024-8424

Bussmann Denmark

5 Literbuen
DK-2740 Skovlunde
Copenhagen Denmark
Telephone: 45-4485-0900
Fax: 45-4485-0901

Bussmann India

#3 EVR Street, Sedarapet
Pondicherry – 605 111
India
Telephone: 91-413-2678203
or 91-413-2678204
Fax: 91-413-267-7010

Bussmann Mexico

Cooper Wiring Devices
Poniente 148 No. 933
Industrial Vallejo
02300 Mexico, D.F. Mexico
Telephone: 52-55-57-47-4519, Ext 3219
Fax: 52-55-57-52-5336

Cooper Bussmann Transportation

175 Hansen Court
Wood Dale, IL 60191
Telephone: 630/422-2400
Fax: 630/422-2500

Cooper Electronic Technologies

3601 Quantum Blvd.
Boynton Beach, FL 33426
Telephone: 561/752-5000
Fax: 561/742-0134

Enbray Contactors

Enbray Cooper (U.K.) Limited
Salterbeck Industrial Est.
Workington, Cumbria CA14 5DT England
Telephone: 44-1946-839000
Fax: 44-1946-833000
Email: enbray@enbray.co.uk