



# Specialist Fuse Guide

# Specialist Fuse Guide

## Welcome

Our branch network has been supplying fuses and fuse products to customers throughout the UK for decades. The Specialist Fuse business continues this fine tradition, supplying all types of unusual fuses and fuse products to our customers.

As an integral part of Hagemeyer UK, a division of one of the world's leading business-to-business (B2B) distribution services companies, Specialist Fuses has an unrivalled relationship with all of the main fuse manufacturers worldwide. This enables us to stock and find a truly vast range of standard and those less popular and 'hard to find' fuses of the kind typically used in more specialist applications – the type of products that your average wholesaler would not have available from stock nor, in many cases, even know from where to source.

To complement our vast stockholding, we have the technical expertise to handle your enquiries via our dedicated team of fuse specialists.

All orders are dispatched the same day from stock and we take particular pride in our ability to deliver even the most delicate of items to our customers when promised and completely intact.

To order any of the products featured in this catalogue contact your local branch or ring us direct for help on **01905 791500**.

- Next day delivery, direct to your site via your local branch
- Our team of experts is on hand to help solve your problems
- Free application advice and technical support
- Dedicated fuses resource with over 2000 products in stock
- If we haven't got it in stock, we will get it for you quickly and reliably

# Specialist Fuse Guide

**We are pleased to work with the following suppliers:**



# Specialist Fuse Guide

## Sourcing a fuse? – Follow these helpful tips

There are 1000s of different fuses from many manufacturers worldwide. When trying to source a fuse the following information will be very useful.

**Manufacturer**

**Part Number**

**Dimensions**

(Length of fuse body, diameter, overall length, width)

**Amperage**

If you have obtained the information above, there is no need to proceed any further, however if you do not have this information you will need to ask:

**Voltage** (AC or DC)?

**Characteristic** (eg: gL, aM, gR)?

**Are approvals required** (eg: UL, IEC)?

**Fixing centres** (how far apart - if relevant)?

**How is the fuse mounted** (If relevant)?

**What is the fuse protecting?**

**Does the fuse have an indicator?**

**Does the fuse have a striker to operate a microswitch?**

### Fuse Identification

#### Miniature fuses

FF = Ultra Rapid

F or QA or QB = Fast Blow

M or MD = Medium Blow

T or SB = Slow Blow

TT = Ultra Slow

#### Bottle fuses

DIAZED

500V Bottle Fuses D1 (E16), D11 (E27), D111 (E33)

NEOZED

380V Bottle Fuses D01 (E14), D02 (E18)

SILAZED

Ultra Rapid Bottle Fuses D11 (E27), D111 (E33)

#### Industrial fuses

aR or gR or uR = Ultra Rapid

gL/gG = General Line

aM = Motor Rated

gF/gTF = Transformer/Cable Protection

gB = Mining Fuses

## Fuses

|                                                                                                                               |    |
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# BS88 HRC FUSES

## Industrial, commercial and domestic fuses for use in a wide range of applications.

High rupturing capacity (HRC) with bolted connections are for use in industrial and commercial installations and may be fitted in fuse-units or fuse gear, two hole fixing. The fuse links comply with the revised standard BS88: part2 :IEC60269 part 2 specifying characteristics for fuse links for use by authorised persons (mainly for industrial applications) and additional requirements for fuse links with bolted connections.

### BS88 INDUSTRIAL FUSE COMPARISON CHART

| BS88 REF. | RATING AMPS | SIBA      | GE POWER (GEC) | LAWSON | COOPER BUSSMANN | MEM  | BRUSH |
|-----------|-------------|-----------|----------------|--------|-----------------|------|-------|
| -         | 2-32        | 50-086-01 | NS             | NS     | NSD             | SN2  | FO6   |
| -         | 2-20        | 50-013-01 | SS             | SS     | SSN             | SS   | DO4   |
| A1        | 2-32        | 50-085-01 | NIT            | NIT    | NITD            | SA2  | F21   |
| A2        | 2-32        | 50-001-01 | TIA            | TIA    | AAO             | SB3  | HO7   |
| A3        | 32-63       | 50-002-01 | TIS            | TIS    | BAO             | SB4  | KO7   |
| -         | 2-63        | 50-006-01 | TB             | TB     | BC              | SE4  | KO8   |
| B1        | 2.63        | 50-007-01 | TBC            | TBC    | AD/BD           | SF3  | KO9   |
| B1        | 80-100      | 50-008-01 | TC             | TC     | CD              | SF5  | LO9   |
| B2        | 125-200     | 50-009-01 | TF             | TF     | DD              | SF6  | MO9   |
| A4        | 63-100      | 50-003-01 | TCP            | TCP    | CEO             | SD5  | L14   |
| -         | 125-200     | 50-004-01 | TFP            | TFP    | DEO             | SD6  | M14   |
| B3        | 250-315     | 50-010-01 | TKF            | TKF    | ED              | SF7  | NO9   |
| B4        | 355-400     | 50-110-01 | TMF            | TMF    | ED              | SF8  | PO9   |
| C1        | 250-315     | 50-011-01 | TKM            | TKM    | EFS             | SG7  | N11   |
| C1        | 255-400     | 50-039-01 | TM             | TM     | EF              | SH8  | P11   |
| C2        | 450-630     | 50-040-01 | TTM            | TTM    | FF              | SH9  | R11   |
| C3        | 560-800     | 50-041-01 | TLM            | TLM    | GF              | SH10 | S11   |
| -         | 250-400     | 50-104-01 | TMT            | TMT    | -               | -    | P12   |
| -         | 450-630     | 50-042-01 | TT             | TT     | FG              | SY9  | R12   |
| -         | 670-800     | 50-043-01 | TLT            | TLT    | GG              | SY10 | S12   |

### NIT/ NITD/ SA2



- 80kA at 550V
- Total length 55mm
- Diameter 13.8mm
- Fixing centres 44mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| NITD2       | 2A   | 1050152875 |
| NITD4       | 4A   | 1050152876 |
| NITD6       | 6A   | 1050152877 |
| NITD10      | 10A  | 1050152878 |
| NITD16      | 16A  | 1050152879 |
| NITD20      | 20A  | 1050152880 |
| NITD25      | 25A  | 1050152881 |
| NITD32      | 32A  | 1050152882 |

Available at your local Newey & Eyre branch

# BS88 HRC FUSES

## TIA/ AAO/ SB3



- 80kA at 550V
- Total length 85mm
- Diameter 13.7mm
- Fixing centres 73mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| AAO2        | 2A   | 1050152883 |
| AAO4        | 4A   | 1050152884 |
| AAO6        | 6A   | 1050152885 |
| AAO10       | 10A  | 1050152886 |
| AAO16       | 16A  | 1050152887 |
| AAO20       | 20A  | 1050152888 |
| AAO25       | 25A  | 1050152889 |
| AAO32       | 32A  | 1050152890 |

Available at your local Newey & Eyre branch

## TIS/ BAO/ SB4



- 80kA at 550V
- Total length 87mm
- Diameter 21mm
- Fixing centres 73mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| BAO40       | 40A  | 1050152891 |
| BAO50       | 50A  | 1050152892 |
| BAO63       | 63A  | 1050152893 |

Available at your local Newey & Eyre branch

## TCP/ CEO/ SD5



- 80kA at 550V
- Total length 110mm
- Diameter 21mm
- Fixing centres 94mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| CEO80       | 80A  | 1050152894 |
| CEO100      | 100A | 1050152895 |

Available at your local Newey & Eyre branch

# BS88 HRC FUSES

## TFP/ DEO/ SD6



- 80kA at 415V AC
- Total length 110mm
- Diameter 31mm
- Fixing centres 94mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| DEO125      | 125A | 1050027739 |
| DEO160      | 160A | 1050027769 |
| DEO200      | 200A | 1050027740 |
| 125SD6      | 125A | 1050071726 |
| 160SD6      | 160A | 1050071727 |
| 200SD6      | 200A | 1050071728 |

Available at your local Newey & Eyre branch

## NS/ NSD/ SN2



- 80kA at 415V AC
- Total length 58.5mm
- Diameter 13.8mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| NSD2        | 2A   | 1050027814 |
| NSD4        | 4A   | 1050027815 |
| NSD6        | 6A   | 1050027816 |
| NSD10       | 10A  | 1050027817 |
| NSD16       | 16A  | 1050027818 |
| NSD10       | 10A  | 1050027817 |
| NSD25       | 25A  | 1050027820 |
| NSD32       | 32A  | 1050027821 |
| 2SN2        | 2A   | 1050071644 |
| 4SN2        | 4A   | 1050071645 |
| 6SN2        | 6A   | 1050071646 |
| 10SN2       | 10A  | 1050071647 |
| 16SN2       | 16A  | 1050071651 |
| 20SN2       | 20A  | 1050071648 |
| 25SN2       | 25A  | 1050071650 |
| 32SN2       | 32A  | 1050071653 |

Available at your local Newey & Eyre branch

# BS88 HRC FUSES

## TC/ CD/ SF5



- 80kA at 550V AC
- Total length 126mm
- Diameter 21mm
- Fixing centres 111mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| CD80        | 80A  | 1050027733 |
| CD100       | 100A | 1050027734 |

 Available at your local Newey & Eyre branch

## TF/ DD/ SF6



- 80kA at 550V AC
- Total length 136mm
- Diameter 31mm
- Fixing centres 111mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| DD125       | 125A | 1050027737 |
| DD160       | 160A | 1050027768 |
| DD200       | 200A | 1050027738 |

 Available at your local Newey & Eyre branch

## BS88 HRC FUSES

### ESD



- 80kA at 440V
- Total length 69mm
- Body size 39mm x 17.5mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| ESD16       | 16A  | 1050064036 |
| ESD20       | 20A  | 1050063346 |
| ESD32       | 32A  | 1050063347 |
| ESD40       | 40A  | 1050063348 |
| ESD50       | 50A  | 1050063349 |
| ESD63       | 63A  | 1050063350 |

### TKF/ TMF/ ED / SF7/ SF8



- 80kA at 550V AC
- Total length 136mm
- Diameter 38mm
- Fixing centres 111mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| ED250       | 250A | 1050063933 |
| ED315       | 315A | 1050063934 |
| ED355       | 355A | 1050063318 |
| ED400       | 400A | 1050063319 |

# BS88 HRC FUSES

## SS/ SSD



- 20kA at 240V
- Total length 47mm
- Diameter 12mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| SSD4        | 4A   | 1050065416 |
| SSD6        | 6A   | 1050063343 |
| SSD10       | 10A  | 1050063344 |
| SSD16       | 16A  | 1050063345 |
| SSD25       | 25A  | 1050064034 |
| SSD32       | 32A  | 1050064035 |

## TM/ EF / SH8



- 80kA at 550V AC
- Total length 209mm
- Diameter 38mm
- Fixing centres 133mm inner holes  
184mm outer holes

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 355 SH8     | 355A | 1050063320 |
| 400 SH8     | 400A | 1050063321 |

# BS88 HRC FUSES

## TTM/ FF / SH9



- 80kA at 550V AC
- Total length 210mm
- Diameter 74mm
- Fixing centres 133mm inner holes  
184mm outer holes

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 450SH9      | 450A | 1050063322 |
| 500SH9      | 500A | 1050063323 |
| 560SH9      | 560A | 1050063324 |
| 630SH9      | 630A | 1050063325 |

## TLM/ GF / SH10



- 80kA at 550V AC
- Total length 210mm
- Diameter 83mm
- Fixing centres 133mm inner holes  
184mm outer holes

| PART NUMBER    | AMPS | ORDER CODE |
|----------------|------|------------|
| 50-041-01/630A | 630A | 1050063326 |
| 50-041-01/670A | 670A | 1050063327 |
| 710SH10        | 710A | 1050063328 |
| 50-041-01/750A | 750A | 1050063329 |
| 800SH10        | 800A | 1050063330 |

# BS88 HRC MOTOR RATED FUSES

## NIT/ NITD/ SA2 aM



- 80kA at 415V AC
- Total length 55mm
- Diameter 17.5mm
- Fixing centres 44mm

| PART NUMBER | AMPS  | ORDER CODE |
|-------------|-------|------------|
| NITD20M25   | 20M25 | 1050063385 |
| NITD20M32   | 20M32 | 1050063386 |
| NITD32M40   | 32M40 | 1050063387 |
| NITD32M50   | 32M50 | 1050063388 |
| NITD32M63   | 32M63 | 1050063389 |

## TIA/ AAO/ SB3 aM



- 80kA at 550V AC
- Total length 85mm
- Diameter 21mm
- Fixing centres 73mm

| PART NUMBER   | AMPS  | ORDER CODE |
|---------------|-------|------------|
| 50-001-16/10A | 6M10  | 1050063361 |
| 50-001-16/16A | 10M16 | 1050063362 |
| 50-001-16/25A | 20M25 | 1050063363 |
| 50-001-16/32A | 25M32 | 1050063364 |
| 32SB3M35      | 32M35 | 1050063365 |
| AAO32M40      | 32M40 | 1050063366 |
| AAO32M50      | 32M50 | 1050063367 |
| AAO32M63      | 32M63 | 1050063368 |

# BS88 HRC MOTOR RATED FUSES

## TIS/ BAO/ SB4 aM



- 80kA at 550V AC
- Total length 87mm
- Diameter 21mm
- Fixing centres 73mm

| PART NUMBER   | AMPS   | ORDER CODE |
|---------------|--------|------------|
| 50-002-16/50A | 40M50  | 1050063369 |
| 50-002-16/63A | 50M63  | 1050063370 |
| BAO63M80      | 63M80  | 1050063371 |
| BAO63M100     | 63M100 | 1050063372 |

## TCP/ CEO / SD5 aM



- 80kA at 550V AC
- Total length 110mm
- Diameter 31mm
- Fixing centres 94mm

| PART NUMBER   | AMPS    | ORDER CODE |
|---------------|---------|------------|
| 50-003-16/80  | 63M80   | 1050063373 |
| 50-003-16/100 | 80M100  | 1050063375 |
| CEO100M125    | 100M125 | 1050063376 |
| CEO100M160    | 100M160 | 1050063377 |
| CEO100M200    | 100M200 | 1050063378 |

## BS88 HRC MOTOR RATED FUSES

### NS/ NSD / SN2 aM



- 80kA at 415V AC
- Total length 58.5mm
- Diameter 17.5mm

| PART NUMBER | AMPS  | ORDER CODE |
|-------------|-------|------------|
| NSD20M25    | 20M25 | 1050063390 |
| NSD20M32    | 20M32 | 1050063391 |
| NSD32M40    | 32M40 | 1050063392 |

### TB/ BC / SE4 aM



- 40kA at 250V DC
- 80kA at 550V ac
- Total length 113.5mm
- Diameter 21mm
- Fixing centres 97.5mm

| PART NUMBER | AMPS  | ORDER CODE |
|-------------|-------|------------|
| 63SE4M80    | 63M80 | 1050065411 |

## BS88 HRC MOTOR RATED FUSES

### TC/ CD/ SF5 aM



- 80kA at 550V AC
- Total length 136mm
- Diameter 31mm
- Fixing centres 111mm

| PART NUMBER  | AMPS    | ORDER CODE |
|--------------|---------|------------|
| 50-008-16/80 | 63M80   | 1050063379 |
| CD100M125    | 100M125 | 1050063380 |
| CD100M160    | 100M160 | 1050063381 |
| CD100M200    | 100M200 | 1050063932 |

### TF/ DD/ SF6 aM



- 80kA at 550V AC
- Total length 136mm
- Diameter 31mm
- Fixing centres 111mm

| PART NUMBER | AMPS    | ORDER CODE |
|-------------|---------|------------|
| DD200M250   | 200M250 | 1050063383 |
| DD200M315   | 200M315 | 1050063384 |

# BS88 HRC MOTOR RATED FUSES

TKF/ ED/ SF7 aM



- 80kA at 550V AC
- Total length 136mm
- Diameter 59mm
- Fixing centres 111mm

| PART NUMBER | AMPS    | ORDER CODE |
|-------------|---------|------------|
| 315SF7M400  | 315M400 | 1050063382 |

## MINIATURE FUSES

A range of fuses for protection of electrical circuits and consumer appliances. Glass fuses are ICN breaking capacity, ceramic are high breaking capacity.

### GLASS 20MM X 5MM QUICK BLOW 250V



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| 70-001-34/100mA | 100mA | 1050063057 |
| 70-001-34/125mA | 125mA | 1050066457 |
| 70-001-34/250mA | 250mA | 1050068363 |
| 70-001-34/315mA | 315mA | 1050068364 |
| 70-001-34/500mA | 500mA | 1050063058 |
| 70-001-34/630mA | 630mA | 1050068365 |
| 70-001-34/800mA | 800mA | 1050068676 |
| 70-001-34/1A    | 1A    | 1050063059 |
| 70-001-34/1.25A | 1.25A | 1050068366 |
| 70-001-34/1.6A  | 1.6A  | 1050068367 |
| 70-001-34/2A    | 2A    | 1050063060 |
| 70-001-34/2.5A  | 2.5A  | 1050068368 |
| 70-001-34/3.15A | 3.15A | 1050063061 |
| 70-001-34/4A    | 4A    | 1050068369 |
| 70-001-34/5A    | 5A    | 1050063062 |
| 70-001-34/6.3A  | 6.3A  | 1050063063 |
| 70-001-34/8A    | 8A    | 1050063064 |
| C641            | 10A   | 1050063065 |

# MINIATURE FUSES

## GLASS 20MM X 5MM SLOW BLOW 250V



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| S506-100mA-R    | 100mA | 1050064025 |
| S506-125mA-R    | 125mA | 1050066458 |
| S506-160mA-R    | 160mA | 1050068677 |
| S506-250mA-R    | 250mA | 1050063066 |
| S506-315mA-R    | 315mA | 1050068678 |
| S506-500mA-R    | 500mA | 1050063067 |
| S506-800mA-R    | 800mA | 1050068679 |
| S506-1A         | 1A    | 1050063068 |
| S506-1.25A      | 1.25A | 1050068680 |
| S506-1.6A       | 1.6A  | 1050068681 |
| S506-2A         | 2A    | 1050063069 |
| S506-2.5A       | 2.5A  | 1050068682 |
| S506-3.15A      | 3.15A | 1050063070 |
| S506-4A         | 4A    | 1050068683 |
| S506-5A         | 5A    | 1050063071 |
| S506-6.3A       | 6.3A  | 1050063072 |
| S506-8A         | 8A    | 1050063073 |
| S506-10A        | 10A   | 1050063074 |
| 70-001-35/12.5A | 12.5A | 1050063075 |
| 70-001-35/16A   | 16A   | 1050063076 |

## MINIATURE FUSES

### GLASS 32MM X 6MM QUICK BLOW 250V



| PART NUMBER | AMPS  | ORDER CODE |
|-------------|-------|------------|
| AGC100mA    | 100mA | 1050068371 |
| AGC250mA    | 250mA | 1050064026 |
| AGC500mA    | 500mA | 1050063077 |
| AGC800mA    | 800mA | 1050068684 |
| AGC1A       | 1A    | 1050063078 |
| AGC1.5A     | 1.5A  | 1050063079 |
| AGC2A       | 2A    | 1050063080 |
| AGC2.5A     | 2.5A  | 1050068685 |
| AGC3A       | 3A    | 1050063081 |
| AGC4A       | 4A    | 1050068686 |
| AGC5A       | 5A    | 1050063082 |
| AGC6.3A     | 6.3A  | 1050063083 |
| AGC8A       | 8A    | 1050063084 |
| AGC10A      | 10A   | 1050063085 |
| AGC15A      | 15A   | 1050063086 |
| AGC20A      | 20A   | 1050063087 |

# SPECIALIST

## Stockist of Moflash Beacons and Klaxon Sounders

## MINIATURE FUSES

### GLASS 32MM X 6MM SLOW BLOW 250V



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| 70-059-61/500mA | 500mA | 1050068687 |
| 70-059-61/1A    | 1A    | 1050063088 |
| 70-059-61/2A    | 2A    | 1050063089 |
| 70-059-61/3A    | 3A    | 1050063090 |
| 70-059-61/5A    | 5A    | 1050063091 |
| 70-059-61/6.3A  | 6.3A  | 1050063092 |
| 70-059-61/8A    | 8A    | 1050063093 |
| 70-059-61/10A   | 10A   | 1050063094 |
| 70-059-61/12.5A | 12.5A | 1050066459 |
| 70-059-61/16A   | 16A   | 1050063095 |
| 70-059-61/20A   | 20A   | 1050063096 |

# SPECIALIST

Stockist of Heatrae, Santon  
and Zip Water Spares

## MINIATURE FUSES

### CERAMIC 20MM X 5MM QUICK BLOW 250V



| PART NUMBER | AMPS  | ORDER CODE |
|-------------|-------|------------|
| S501-100mA  | 100mA | 1050063097 |
| S501-500mA  | 500mA | 1050063098 |
| S501-1A     | 1A    | 1050063099 |
| S501-2A     | 2A    | 1050063100 |
| S501-3.15mA | 3.15A | 1050063101 |
| S501-5A     | 5A    | 1050063102 |
| S501-6.3A   | 6.3A  | 1050063103 |
| S501-8A     | 8A    | 1050063104 |
| S501-10A    | 10A   | 1050063105 |
| S501-16A    | 16A   | 1050063106 |

### CERAMIC 20MM X 5MM SLOW BLOW 250V



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| 70-007-65/250mA | 250mA | 1050063107 |
| 70-007-65/500mA | 500mA | 1050063108 |
| 70-007-65/1A    | 1A    | 1050063109 |
| 70-007-65/2A    | 2A    | 1050063110 |
| 70-007-65/3.15A | 3.15A | 1050063111 |
| 70-007-65/5A    | 5A    | 1050063112 |
| 70-007-65/6.3A  | 6.3A  | 1050063113 |
| 70-007-65/8A    | 8A    | 1050063114 |
| 70-007-65/10A   | 10A   | 1050063115 |

## MINIATURE FUSES

### CERAMIC 25MM X 5MM QUICK BLOW 250V



| PART NUMBER    | AMPS | ORDER CODE |
|----------------|------|------------|
| 70-010-04/2A   | 2A   | 1050063146 |
| 70-010-04/4A   | 4A   | 1050063147 |
| 70-010-04/5A   | 5A   | 1050063148 |
| 70-010-04/6.3A | 6.3A | 1050063149 |
| 70-010-04/10A  | 10A  | 1050063150 |

### CERAMIC 25MM X 5MM MEDIUM BLOW 250V



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| 70-010-05/0.5A  | 500mA | 1050063151 |
| 70-010-05/1A    | 1A    | 1050063152 |
| 70-010-05/2A    | 2A    | 1050063153 |
| 70-010-05/3.15A | 3.15A | 1050063154 |
| 70-010-05/4A    | 4A    | 1050063155 |
| 70-010-05/6.3A  | 6.3A  | 1050063156 |
| 70-010-05/10A   | 10A   | 1050063157 |

## MINIATURE FUSES

CERAMIC 32MM X 6MM QUICK BLOW 500V 250mA-16A / 400V 20-25A



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| 70-065-63/500mA | 500mA | 1050063116 |
| 70-065-63/1A    | 1A    | 1050063117 |
| 70-065-63/2A    | 2A    | 1050063118 |
| 70-065-63/3A    | 3A    | 1050063119 |
| 70-065-63/4A    | 4A    | 1050063120 |
| 70-065-63/5A    | 5A    | 1050063121 |
| 70-065-63/7A    | 7A    | 1050063122 |
| 70-065-63/10A   | 10A   | 1050063123 |
| 70-065-63/16A   | 16A   | 1050063124 |

Confused about fuses

Phone your **SPECIALIST**

on: **01905 791500**

## MINIATURE FUSES

CERAMIC 32MM X 6MM SLOW BLOW 500V 500mA-16A / 400V 20-25A / 250V 32A



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| 70-065-65/500mA | 500mA | 1050068370 |
| 70-065-65/1A    | 1A    | 1050063125 |
| 70-065-65/2A    | 2A    | 1050063126 |
| 70-065-65/3.15A | 3.15A | 1050063127 |
| 70-065-65/5A    | 5A    | 1050063128 |
| 70-065-65/6.3A  | 6.3A  | 1050063129 |
| 70-065-65/8A    | 8A    | 1050063130 |
| 70-065-65/10A   | 10A   | 1050063131 |
| 70-065-65/12.5A | 12.5A | 1050063132 |
| 70-065-65/16A   | 16A   | 1050063133 |
| 70-065-65/20A   | 20A   | 1050063134 |
| 70-065-65/25A   | 25A   | 1050063135 |
| 70-065-65/32A   | 32A   | 1050063136 |

# SPECIALIST

## Stockist of Santon Industrial Immersion Heaters

# MINIATURE FUSES

CERAMIC 32MM X 6MM ULTRA RAPID 700V 250mA-2A / 500V / 2.5A - 20A



| PART NUMBER     | AMPS  | ORDER CODE |
|-----------------|-------|------------|
| 70-125-40/1A    | 1A    | 1050063137 |
| 70-125-40/2A    | 2A    | 1050063138 |
| 70-125-40/3.15A | 3.15A | 1050063139 |
| 70-125-40/5A    | 5A    | 1050063140 |
| 70-125-40/6.3A  | 6.3A  | 1050063141 |
| 70-125-40/10A   | 10A   | 1050063142 |
| 70-125-40/12.5A | 12.5A | 1050063143 |
| 70-125-40/16A   | 16A   | 1050063144 |
| 70-125-40/20A   | 20A   | 1050063145 |

## SPECIALIST

we are pleased to work with the following suppliers:

**COOPER**

**Bussmann®**

Productivity Through Protection™

**MEM**

**SIBA**  
SICHERUNGSELEMENTE

**Ferraz**  
**Shawmut**

## FUNCTIONS & APPLICATIONS

### gL / gG

#### FUNCTIONS

Industrial fuse, gG curve (black marking) - standard NF EN 60269-1 and 2-1  
Protection of cables and electrical devices. Discrimination ensured between two fuses for which there is a margin of two current ratings (e.g. 160a and 100a)

#### APPLICATIONS

Protection at all levels of electrical distribution against overloads and short circuits.  
Main switchboard, feeder switchboards, main cubicles.

### aM

#### FUNCTIONS

Industrial fuse, aM curve (green marking) - standard NF EN 60269-1 and 2-1  
Direct protection of motors, must operate in conjunction with an external protection device (thermal relay). Easy discrimination with the gG fuses positioned upstream.  
Discrimination ensured between two fuses where there is a margin of two current ratings (e.g. 160a and 100a)

#### APPLICATIONS

Protection of all low voltage motors.

### gR

#### FUNCTIONS

Ultra fast protection fuse for semi conductors, very current limiting, low  $I^2t$ .  
Full range fuse.

#### APPLICATIONS

Power semi conductor protection of soft starters, static relays, uninterruptible power supplies (UPS), variable speed drives, frequency converters.

# FRENCH INDUSTRIAL FUSES AND ACCESSORIES

## 8MM X 32MM gL/gG



■ 400V 20kA

| PART NUMBER      | AMPS | ORDER CODE |
|------------------|------|------------|
| 15013 - Q219227J | 2A   | 1050063158 |
| 15019 - W222958J | 4A   | 1050063159 |
| 15023 - A211025J | 6A   | 1050063160 |
| 15031 - A214613J | 10A  | 1050063161 |
| 15035 - P216650J | 16A  | 1050063162 |
| 15037 - F217677J | 20A  | 1050068361 |
| 15039 - D218710J | 25A  | 1050068362 |

## 8MMX 32MM FUSE HOLDERS



■ Din Rail Mounting

| PART NUMBER      | DESCRIPTION      | ORDER CODE |
|------------------|------------------|------------|
| 24000 - D305006K | CMS 8/10 NEUTRAL | 1050063189 |
| 24002 - X305000K | CMS 1P           | 1050063163 |

## FRENCH INDUSTRIAL FUSES AND ACCESSORIES

10MM X 38MM gL/gG



- 500V 120kA up to 25A
- 400V 120kA 32A

| PART NUMBER      | AMPS | ORDER CODE |
|------------------|------|------------|
| 16011- B212061J  | 1A   | 1050063750 |
| 16013 - D213098J | 2A   | 1050063164 |
| 16019 - X213598J | 4A   | 1050063165 |
| 16023 - K215128J | 6A   | 1050063166 |
| 16027 - D217169J | 8A   | 1050063167 |
| 16031- S218194J  | 10A  | 1050063168 |
| 16033 - W219761J | 12A  | 1050063169 |
| 16035 - G200750J | 16A  | 1050063170 |
| 16037 - D211028J | 20A  | 1050063171 |
| 16039 - E213099J | 25A  | 1050063172 |
| 16043 - A214107J | 32A  | 1050063173 |

# SPECIALIST

## Stockist of Vent Axia and Xpelair Fan Spares

# FRENCH INDUSTRIAL FUSES AND ACCESSORIES

## 10MM X 38MM aM (MOTOR RATED)



- 500V 120kA up to 20A
- 400V 120kA up to 25A - 32A

| PART NUMBER      | AMPS         | ORDER CODE |
|------------------|--------------|------------|
| 16513 - H218714J | 2A           | 1050063174 |
| 16519 - W219232J | 4A           | 1050063175 |
| 16523 - F222208J | 6A           | 1050063176 |
| 16527 - Z201295J | 8A           | 1050063177 |
| 16531 - Y211552J | 10A          | 1050063178 |
| 16533 - A213601J | 12A          | 1050063179 |
| 16535 - F214618J | 16A          | 1050063180 |
| 16537 - X216151J | 20A          | 1050063181 |
| 16539 - G217172J | 25A          | 1050063182 |
| 16543 - J218715J | 32A          | 1050063183 |
| 19100 - R211569J | NEUTRAL LINK | 1050063184 |

## 10MM X 38MM gR (ULTRA RAPID)



- 600V 200kA

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| C330006J    | 4A   | 1050063485 |
| E330008J    | 6A   | 1050063486 |
| G330010J    | 10A  | 1050063487 |
| J330012J    | 16A  | 1050063488 |
| K330013J    | 20A  | 1050063489 |
| L330014J    | 25A  | 1050063490 |
| M330015J    | 30A  | 1050063491 |

# FRENCH INDUSTRIAL FUSES AND ACCESSORIES

## 10MM X 38MM FUSE HOLDERS



■ Din Rail Mounting

| PART NUMBER      | DESCRIPTION        | ORDER CODE |
|------------------|--------------------|------------|
| 24202 - T305020K | CMS10 1P           | 1050063185 |
| 24206 - V305021F | CMS10 1P + NEUTRAL | 1050063186 |
| 24212 - W305022F | CMS10 2P           | 1050063187 |
| 24214 - X305023D | CMS10 3P           | 1050063188 |

## 14MM X 51MM gL/gG



■ Rated at 80kA at 690V  
 ■ Rated at 120kA at 400V - 500V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| Y219234J    | 2A   | 1050063190 |
| A219765J    | 4A   | 1050063191 |
| H222210J    | 6A   | 1050063192 |
| L200754J    | 10A  | 1050063193 |
| A211554J    | 16A  | 1050063194 |
| Z212588J    | 20A  | 1050063195 |
| C213603J    | 25A  | 1050063196 |
| W216656J    | 32A  | 1050063197 |
| X218198J    | 40A  | 1050063198 |
| Z219235J    | 50A  | 1050063199 |

# FRENCH INDUSTRIAL FUSES AND ACCESSORIES

## 14MM X 51MM aM (MOTOR RATED)



- Rated at 80kA at 690V
- Rated at 120kA at 400V - 500V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| S215135J    | 6A   | 1050063200 |
| Z216659J    | 10A  | 1050063201 |
| Q217686J    | 16A  | 1050063202 |
| P218720J    | 20A  | 1050063203 |
| E219769J    | 25A  | 1050063204 |
| M222214J    | 32A  | 1050063205 |
| Q200758J    | 40A  | 1050063206 |
| E211558J    | 50A  | 1050063207 |

## 14MM X 51MM gR (ULTRA RAPID) NO STRIKER



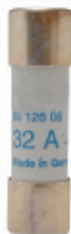
- Rated at 200kA at 690V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| R220907J    | 10A  | 1050063492 |
| P220905J    | 16A  | 1050063493 |
| E220735J    | 20A  | 1050063494 |
| N220904J    | 25A  | 1050063495 |
| W220819J    | 32A  | 1050063496 |
| M220903J    | 40A  | 1050063497 |

Care must be taken of de-rating the above fuses where necessary when using accessories

# FRENCH INDUSTRIAL FUSES AND ACCESSORIES

## 14 X 51MM gR (ULTRA RAPID) WITH STRIKER



■ Rated at 300kA at 660V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| X220935J    | 16A  | 1050063498 |
| W220934J    | 20A  | 1050063499 |
| V220933J    | 25A  | 1050063500 |
| V220818J    | 32A  | 1050063501 |
| M220949J    | 40A  | 1050063502 |

*Care must be taken of de-rating the above fuses where necessary when using accessories*

## 14MM X 51MM FUSE HOLDERS



■ Din Rail Mounting

| PART NUMBER       | AMPS                 | ORDER CODE |
|-------------------|----------------------|------------|
| 222990 - F222990F | Single Pole CMS14 1P | 1050063208 |
| 29014 - J212091B  | Three pole CMS14 3P  | 1050063209 |

# FRENCH INDUSTRIAL FUSES AND ACCESSORIES

## 22MM X 58MM gL/gG



- Rated at 80kA at 690V
- Rated at 120kA at 400V - 500V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| P214626J    | 50A  | 1050063210 |
| Y215646J    | 63A  | 1050063211 |
| Q217180J    | 80A  | 1050063212 |
| E218205J    | 100A | 1050063213 |
| J215773J    | 125A | 1050063214 |

## 22MM X 58MM aM (MOTOR RATED)



- Rated at 80kA at 690V
- Rated at 120kA at 400V - 500V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| V213113J    | 32A  | 1050065419 |
| N213613J    | 40A  | 1050063215 |
| R214122J    | 50A  | 1050063216 |
| C215650J    | 63A  | 1050063218 |
| H216667J    | 80A  | 1050063219 |
| Y217693J    | 100A | 1050063220 |
| J218209J    | 125A | 1050063221 |

# FRENCH INDUSTRIAL FUSES AND ACCESSORIES

## 22MM X 58MM gR (ULTRA RAPID) NO STRIKER



■ Rated at 200kA at 690V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| Z220914J    | 40A  | 1050063503 |
| Y220913J    | 50A  | 1050063504 |
| X220912J    | 63A  | 1050063505 |
| Y220821J    | 80A  | 1050063506 |
| W220911J    | 100A | 1050063507 |

*Care must be taken of de-rating the above fuses where necessary when using accessories*

## 22MM X 58MM gR (ULTRA RAPID) WITH STRIKER



■ Rated at 200kA at 690V

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| E220919J    | 40A  | 1050063508 |
| D220918J    | 50A  | 1050063509 |
| C220733J    | 63A  | 1050063510 |
| X220820J    | 80A  | 1050063511 |
| C220917J    | 100A | 1050063512 |

*Care must be taken of de-rating the above fuses where necessary when using accessories*

## 22MM X 58MM FUSE HOLDERS



■ Din Rail Mounting

| PART NUMBER      | AMPS      | ORDER CODE |
|------------------|-----------|------------|
| 29202 - E213628F | CMS 22 1P | 1050063222 |
| 29214 - Z216682B | CMS 22 3P | 1050063223 |

# SPECIALIST

## Stockist of Dimplex and Creda Heating Spares

## DIAZED BOTTLE FUSES

Diazed fuses, commonly called “bottle” fuses, are available in five sizes, ND to 25amp, D11 to 25amp, D111 to 63amps, DIV\*\* to 100amp and DV\*\* to 200amp. Fuse accessories are sized to match these five sizes.

## NEOZED BOTTLE FUSES

Neozed fuses are more compact than Diazed fuses. Three sizes are available, D01 to 16amp, D02 to 63amp and D03 to 100amp. Fuse accessories are sized to match these three sizes.

On both types, each size fuse body has a different diameter to fit only into the appropriate screw cap and fuse base. Also, the tips have different diameters, depending on their current rating. The diameter of the tip matches the diameter of the hole in the adaptor screw to ensure that no fuse with a higher rating than intended for the circuit can be installed. This prevents damage to the circuit or equipment the fuse protects. Additionally, fuses and adaptor screws are colour coded to avoid mismatching; for example: 10amp bottle fuses have red pop-out indicators in their head, matching the red ring of the 10amp adaptor screw. When a 10amp bottle fuse has blown, the colour coded indicator on the head of the fuse will pop out, giving visible indication through a glass window in the screw cap.

The fuse is held in place by the screw cap, which is screwed into the fuse base. Fuse bases are available in one and three pole designs. Fuse bases can be panel mounted or snapped onto a standard 35mm DIN rail.

\*\* For DIV and DV please contact us.

## OPERATING CLASSES

**gL/gG** - slow blow protects cable and conductors from damage due to overload and short circuits.

Typical markings: gL/gG

**gR** - super fast blow protects semiconductors like diodes, SCRS, etc. Current limiting super fast blow characteristic for short circuit protection.

Typical markings: Ultra rapid, Reticur, gR.

# BOTTLE FUSES

## D01 (E14) gL/gG (NEOZED) 11MM X 36MM



■ Rated at 400V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 2NZ01       | 2A   | PINK        | 1050063224 |
| 4NZ01       | 4A   | BROWN       | 1050063225 |
| 6NZ01       | 6A   | GREEN       | 1050063226 |
| 10NZ01      | 10A  | RED         | 1050063227 |
| 16NZ01      | 16A  | GREY        | 1050063228 |

## D02 (E18) gL/gG (NEOZED) 15.3MM X 36MM



■ Rated at 400V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 20NZ02      | 20A  | BLUE        | 1050063229 |
| 25NZ02      | 25A  | YELLOW      | 1050063230 |
| 35NZ02      | 35A  | BLACK       | 1050063231 |
| 50NZ02      | 50A  | WHITE       | 1050063232 |
| 63NZ02      | 63A  | COPPER      | 1050063233 |

## BOTTLE FUSES

### D02 (E18) gR (NEOZED) 15.3MM X 36MM



- Ultra Rapid
- Rated at 400V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 20NZ02R     | 20A  | BLUE        | 1050063513 |
| 25NZ02R     | 25A  | YELLOW      | 1050063514 |
| 35NZ02R     | 35A  | BLACK       | 1050063515 |
| 50NZ02R     | 50A  | WHITE       | 1050063516 |
| 63NZ02R     | 63A  | COPPER      | 1050063517 |

### D1 (E16) gL/gG (DIAZED) 12.5MM X 50MM



- Rated at 500V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 2D16        | 2A   | PINK        | 1050063234 |
| 4D16        | 4A   | BROWN       | 1050063235 |
| 6D16        | 6A   | GREEN       | 1050063236 |
| 10D16       | 10A  | RED         | 1050063237 |
| 16D16       | 16A  | GREY        | 1050063238 |
| 20D16       | 20A  | BLUE        | 1050063239 |
| 25D16       | 25A  | YELLOW      | 1050063240 |

# BOTTLE FUSES

## D11 (E27) gL/gG (DIAZED) 22MM X 50MM



■ Rated at 500V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 2D27        | 2A   | PINK        | 1050063241 |
| 4D27        | 4A   | BROWN       | 1050063242 |
| 6D27        | 6A   | GREEN       | 1050063243 |
| 10D27       | 10A  | RED         | 1050063244 |
| 16D27       | 16A  | GREY        | 1050063245 |
| 20D27       | 20A  | BLUE        | 1050063246 |
| 25D27       | 25A  | YELLOW      | 1050063247 |

## D11 (E27) gR (DIAZED) 22MM X 50MM



■ Ultra Rapid  
■ Rated at 500V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 2D27R       | 2A   | PINK        | 1050063518 |
| 4D27R       | 4A   | BROWN       | 1050063519 |
| 6D27R       | 6A   | GREEN       | 1050063520 |
| 10D27R      | 10A  | RED         | 1050063521 |
| 16D27R      | 16A  | GREY        | 1050063522 |
| 20D27R      | 20A  | BLUE        | 1050063523 |
| 25D27R      | 25A  | YELLOW      | 1050063524 |
| 30D27R      | 30A  | BLACK       | 1050063525 |

## BOTTLE FUSES

### D111 (E33) gL/gG (DIAZED) 27MM X 50MM



■ Rated at 500V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 35D33       | 35A  | BLACK       | 1050063248 |
| 50D33       | 50A  | WHITE       | 1050063249 |
| 63D33       | 63A  | COPPER      | 1050063250 |

### D111 (E33) gR (DIAZED) 27MM X 50MM



■ Ultra Rapid  
■ Rated at 500V AC

| PART NUMBER | AMPS | COLOUR CODE | ORDER CODE |
|-------------|------|-------------|------------|
| 35D33R      | 35A  | BLACK       | 1050063526 |
| 50D33R      | 50A  | WHITE       | 1050063527 |
| 63D33R      | 63A  | COPPER      | 1050063528 |

# ACCESSORIES FOR BOTTLE FUSES

## D11/E27 ACCESSORIES



| PART NUMBER | DESCRIPTION           | ORDER CODE |
|-------------|-----------------------|------------|
| SFD27       | SINGLE POLE FUSE BASE | 1050063251 |
| CD27        | SCREWCAPS             | 1050063252 |
| 2GD27       | GAUGE PIECE 2A        | 1050063253 |
| 4GD27       | GAUGE PIECE 4A        | 1050063254 |
| 6GD27       | GAUGE PIECE 6A        | 1050063255 |
| 10GD27      | GAUGE PIECE 10A       | 1050063256 |
| 16GD27      | GAUGE PIECE 16A       | 1050063257 |
| 20GD27      | GAUGE PIECE 20A       | 1050063258 |
| 25GD27      | GAUGE PIECE 25A       | 1050063259 |

## D11/E33 ACCESSORIES



| PART NUMBER | DESCRIPTION           | ORDER CODE |
|-------------|-----------------------|------------|
| SFD33       | SINGLE POLE FUSE BASE | 1050063260 |
| CD33        | SCREW CAP             | 1050063261 |
| 35GD33      | GAUGE PIECE 35A       | 1050063262 |
| 50GD33      | GAUGE PIECE 50A       | 1050063263 |
| 63GD33      | GAUGE PIECE 63A       | 1050063264 |

## CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)

**NH fuses are typically used for distribution applications to large electrical devices such as motors and drives etc. They are available in seven sizes with a current range of 3 to 1600 amps.**

**NH fuses have knife blades at both ends which mount into one or three pole fuse bases. Fuse bases can be panel or DIN rail mounted.**

### OPERATING CLASSES

**gL/gG** - offers protection at every level. Typically used for distribution circuit or resistive loads.

**aM** - offers protection for all low voltage motors. Fast acting short circuit protection but slow acting overload protection.

**aR** - Semi conductor protection partial range, short circuit protection for

### SIZE C00 (000) gL/gG 500V



- Total length 78.5mm
- Body size 49mm x 43mm x 21mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| B211946C    | 2A   | 1050064027 |
| M212462C    | 4A   | 1050064028 |
| D213995C    | 6A   | 1050063265 |
| B219651C    | 10A  | 1050063266 |
| K222097C    | 16A  | 1050063267 |
| A222847C    | 20A  | 1050063268 |
| E201185C    | 25A  | 1050063269 |
| Z211438C    | 32A  | 1050063270 |
| C211947C    | 35A  | 1050063271 |
| N212463C    | 40A  | 1050063272 |
| T212974C    | 50A  | 1050063273 |
| E213996C    | 63A  | 1050063274 |
| Y216543C    | 80A  | 1050063275 |
| B219122C    | 100A | 1050063276 |

## CONTINENTAL NH BLADE TYPE FUSES (DIN)

### SIZE C00 (000) gR (ULTRA RAPID) 660V 80MM BASE



- Total length 100mm
- Body Size 54mm x 40mm x 20mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| X330277C    | 16A  | 1050063943 |
| K330174C    | 25A  | 1050063944 |
| L330175C    | 32A  | 1050063945 |
| M330176C    | 40A  | 1050063946 |
| N330177C    | 50A  | 1050063947 |
| P330178C    | 63A  | 1050063948 |
| T330182C    | 80A  | 1050063949 |
| V330183C    | 100A | 1050063950 |
| W330184C    | 125A | 1050063951 |
| X330185C    | 160A | 1050063952 |
| Y330186C    | 200A | 1050063953 |

### SIZE C00 (000) gR (ULTRA RAPID) 660V SOLID TAG



- Total length 78.5mm
- Body Size 49mm x 43mm x 21mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 170M1558    | 10A  | 1050063954 |
| Y210609C    | 16A  | 1050063955 |
| Z210610C    | 20A  | 1050063956 |
| A210611C    | 25A  | 1050063529 |
| B210612C    | 35A  | 1050063530 |
| C210613C    | 40A  | 1050063531 |
| D210614C    | 50A  | 1050063532 |
| E210615C    | 63A  | 1050063533 |
| F210616C    | 80A  | 1050063534 |

# CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)

## SIZE C00 (000) URB (ULTRA RAPID) 690V SOLID TAG



- Total length 78.5mm
- Body Size 49mm x 43mm x 21mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| Q320059C    | 80A  | 1050063546 |
| V320063C    | 100A | 1050063547 |
| B320069C    | 160A | 1050063548 |
| D320071C    | 200A | 1050063957 |
| H320075C    | 250A | 1050063958 |
| M320079C    | 315A | 1050063959 |

## SIZE 00 gL/gG 500V



- Total length 78.5mm
- Body Size 49mm x 38mm x 30mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| R201863C    | 125A | 1050063277 |
| P211084C    | 160A | 1050063278 |

## SIZE 00 aM (MOTOR RATED) 690V



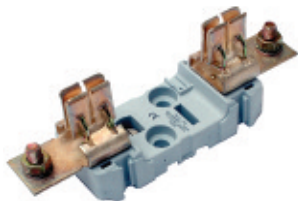
- Total length 78.5mm
- Body Size 49mm x 38mm x 30mm

| PART NUMBER         | AMPS | ORDER CODE |
|---------------------|------|------------|
| A227861C            | 50A  | 1050063279 |
| F227866C            | 80A  | 1050063280 |
| G227867C            | 100A | 1050063281 |
| H227868C            | 125A | 1050063282 |
| J227869C (500V max) | 160A | 1050063283 |



## CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)

### SIZE 00 FUSE HOLDERS AND ACCESSORIES



| PART NUMBER                | DESCRIPTION             | ORDER CODE |
|----------------------------|-------------------------|------------|
| Z217211K (ceramic 40002)   | SINGLE POLE CERAMIC     | 1050063284 |
| F215170C (polyester 41002) | SINGLE POLE POLYESTER   | 1050063285 |
| R216192C                   | SINGLE POLE RAIL FIXING | 1050063286 |
| W212654B                   | PB00 SEPARATING PLATE   | 1050063287 |
| M222513F                   | COVER SHIELDS           | 1050063288 |
| G213170C                   | FUSE COVER              | 1050063289 |
| P215592A                   | FUSE PULLER             | 1050063290 |
| F210156C                   | MICRO SWITCH            | 1050063291 |
| L234081A                   | LOAD SWITCH 3 POLE      | 1050063622 |

NB. 2 pole and 3 pole can be made up from using single pole holders plus a separating plate.  
The polyester bases clip together.

### SIZE 0 gL/gG 500V



- Total length 125mm
- Body Size 68mm x 48mm x 30mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| N218765C    | 63A  | 1050063292 |
| C219284C    | 80A  | 1050063293 |
| D219814C    | 100A | 1050063294 |
| P222492C    | 125A | 1050063295 |
| F222013C    | 160A | 1050063296 |

# CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)

## SIZE 1 gL/gG 500V



- Total length 135mm
- Body Size 68mm x 50mm x 44mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| L214669C    | 63A  | 1050063297 |
| S215687C    | 80A  | 1050063298 |
| X216703C    | 100A | 1050063299 |
| Q217732C    | 125A | 1050063300 |
| A218247C    | 160A | 1050063301 |
| P218766C    | 200A | 1050063302 |
| E219815C    | 250A | 1050063303 |

## SIZE 1 aM (MOTOR RATED) 690V



- Total length 135mm
- Body Size 68mm x 50mm x 44mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 100NH1M     | 100A | 1050063304 |
| 200NH1M     | 200A | 1050063305 |

# CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)

## SIZE 1 gR (ULTRA RAPID)



- 63 - 100A 690V
- 125 - 400A 500V
- Total length 135mm
- Body Size 68mm x 50mm x 44mm

| PART NUMBER   | AMPS | ORDER CODE |
|---------------|------|------------|
| M320355C (aR) | 63A  | 1050063963 |
| K320399C (aR) | 80A  | 1050063964 |
| W320363C (aR) | 100A | 1050063965 |
| Y301252C      | 125A | 1050063966 |
| Z301253C      | 160A | 1050063967 |
| A301254C      | 200A | 1050063549 |
| B301255C      | 250A | 1050063550 |
| R301177C      | 315A | 1050063968 |
| E301258C      | 350A | 1050063969 |
| V301226C      | 400A | 1050063970 |

## SIZE 1 FUSE HOLDERS AND ACCESSORIES



| PART NUMBER | DESCRIPTION           | ORDER CODE |
|-------------|-----------------------|------------|
| R219274C    | SINGLE POLE CERAMIC   | 1050063306 |
| A223008C    | SINGLE POLE POLYESTER | 1050063307 |
| L201881F    | COVER SHIELD          | 1050063308 |
| K214691C    | FUSE COVER            | 1050063309 |
| K235828A    | LOAD SWITCH 3 POLE    | 1050063623 |
| L201881F    | COVER SHIELD          | 1050063308 |

NB. 2 pole and 3 pole can be made up from using single pole holders plus a separating plate.  
The polyester bases clip together.

CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)

SIZE 2 gR/uR (ULTRA RAPID) 690V



- Total length 150mm
- Body Size 68mm x 61mm x 51mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| F320487C    | 500A | 1050063971 |
| G320488C    | 550A | 1050063972 |
| H320489C    | 630A | 1050063973 |
| J320490C    | 700A | 1050063974 |

SIZE 3 gL/gG 500V



- Total length 150mm
- Body Size 73mm x 73mm x 72mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| M217223A    | 500A | 1050063316 |
| S217734A    | 630A | 1050063317 |

**CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)**

**SIZE 3 gR/uR (ULTRA RAPID) 690V**



- Total length 150mm
- Body Size 73mm x 73mm x 72mm

| PART NUMBER | AMPS  | ORDER CODE |
|-------------|-------|------------|
| R320589A    | 630A  | 1050063975 |
| S320590A    | 700A  | 1050063976 |
| T320591A    | 800A  | 1050063977 |
| V320592A    | 900A  | 1050063978 |
| W320593A    | 1000A | 1050063979 |

**Confused about fuses**  
**Phone your **SPECIALIST****  
**on: 01905 791500**

## CONTINENTAL NH BLADE TYPE FUSES (DIN FUSES)

### SIZE 2 gL/gG 500V



- Total length 150mm
- Body Size 68mm x 61mm x 51mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| M214670C    | 100A | 1050063310 |
| R217733C    | 200A | 1050063311 |
| R222494C    | 250A | 1050063312 |
| E201346C    | 315A | 1050063313 |
| Q201862C    | 355A | 1050063314 |
| N211083C    | 400A | 1050063315 |

### SIZE 2 FUSE HOLDERS AND ACCESSORIES

| PART NUMBER | DESCRIPTION        | ORDER CODE |
|-------------|--------------------|------------|
| T2999001    | LOAD SWITCH 3 POLE | 1050063624 |

NB. 2 pole and 3 pole can be made up from using single pole holders plus a separating plate.  
The Polyester bases clip together.

# SPECIALIST

## Stockist of Santon Industrial Immersion Heaters

## J TYPE (WEDGE FUSES)

Fuses available in 82mm and 92mm fixing centre sizes up to 400A and 800A respectively for wedge tightening contacts. For use by the electricity supply industry in distribution systems.

### 82MM FIXING CENTRES 415V



| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 20MJ30-8    | 20A  | 1050063919 |
| 32MJ30-8    | 32A  | 1050063920 |
| 40MJ30-7    | 40A  | 1050063921 |
| 63MJ30-7    | 63A  | 1050063331 |
| 80MJ30-7    | 80A  | 1050063922 |
| 100MJ30-7   | 100A | 1050063332 |
| 125MJ30-7   | 125A | 1050065421 |
| 160MJ30-7   | 160A | 1050063333 |
| 200MJ30-7   | 200A | 1050063334 |
| 250MJ30-7   | 250A | 1050063335 |
| 315MJ30-7   | 315A | 1050063336 |
| 400PJ30-7   | 400A | 1050063337 |

## J TYPE (WEDGE FUSES)

### 92MM FIXING CENTRES 415V



| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 20MJ31-8    | 20A  | 1050328980 |
| 32MJ31-8    | 32A  | 1050063923 |
| 40MJ31-8    | 40A  | 1050065413 |
| 50MJ31-8    | 50A  | 1050063924 |
| 63MJ31-8    | 63A  | 1050063925 |
| 80MJ31-7    | 80A  | 1050063926 |
| 100MJ31-7   | 100A | 1050063927 |
| 125MJ31-7   | 125A | 1050065410 |
| 160MJ31-7   | 160A | 1050063928 |
| 200MJ31-7   | 200A | 1050063929 |
| 250MJ31-7   | 250A | 1050063930 |
| 315MJ31-7   | 315A | 1050065420 |
| 400MJ31-7   | 400A | 1050063338 |
| 500RJ31-7   | 500A | 1050063339 |
| 630SJ31-6   | 630A | 1050063340 |

# SPECIALIST

we are pleased to work with the following suppliers:

**COOPER**

**Bussmann**

Productivity Through Protection™

**MEM**

**SIBA**  
SICHERUNGSEIFUSEN

**Ferraz**  
**Shawmut**

# STREET LIGHTING TYPES

For street lighting applications.

## STD 33kA 240V



- Total length 47mm
- Diameter 11mm
- Fixing centres 35mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| STD2        | 2A   | 1050064030 |
| STD4        | 4A   | 1050064031 |
| STD6        | 6A   | 1050063374 |
| STD10       | 10A  | 1050063341 |
| STD16       | 16A  | 1050063342 |
| STD25       | 25A  | 1050064032 |
| STD32       | 32A  | 1050064033 |

## XS



- Total length 80mm
- Body Size 38mm x 26.4mm

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| XS63        | 63A  | 1050064037 |
| XS80        | 80A  | 1050064038 |
| XS100       | 100A | 1050064039 |
| XS125       | 125A | 1050064040 |

## STREET LIGHTING TYPES CROSS REFERENCE

| BUSSMANN | MEM | LAWSON | GEC  | BRUSH |
|----------|-----|--------|------|-------|
| STD*     | LS* | LST*   | LST* | D19L  |
| ESD*     | *SP | MES*   | ES*  | *G05  |
| —        | —   | —      | XS*  | —     |

# HOUSE SERVICE CUT-OUTS

## KR85/4R 415V



- Length 57mm
- Diameter 22.2mm
- For use in domestic and commercial installations mainly in supply authorities cut-outs.

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 154R        | 15A  | 1050063916 |
| 204R        | 20A  | 1050063917 |
| 304R        | 30A  | 1050063351 |
| 404R        | 40A  | 1050063352 |
| 454R        | 45A  | 1050063918 |
| 504R        | 50A  | 1050063353 |
| 604R        | 60A  | 1050063354 |
| 804R        | 80A  | 1050063355 |
| 1004R       | 100A | 1050064041 |

## LR85/4RL 415V



- Length 57mm
- Diameter 30.2mm
- For use in domestic and commercial installations mainly in supply authorities cut-outs.

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 60LR85      | 60A  | 1050063688 |
| 80LR85      | 80A  | 1050063689 |
| 100LR85     | 100A | 1050063699 |

# HOUSE SERVICE CUT-OUTS

## LC TYPE 240V



- 5A 23mm x 5.35mm
- 10A - 20A 26mm x 10.32mm
- 30A 29mm x 12.7mm
- For use in domestic and commercial installations mainly for lighting and heating circuits.

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| 5LC         | 5A   | 1050063356 |
| 1510LC      | 10A  | 1050063357 |
| 15LC        | 15A  | 1050063358 |
| 20LC        | 20A  | 1050063359 |
| 30LC        | 30A  | 1050063360 |

## SMD



- Length 29mm
- Diameter 12.5mm
- For general purpose use in industrial and commercial installations.

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| SMD2        | 2A   | 1050063690 |
| SMD4        | 4A   | 1050063691 |
| SMD6        | 6A   | 1050063692 |
| SMD8        | 8A   | 1050063693 |
| SMD10       | 10A  | 1050063694 |
| SMD16       | 16A  | 1050063695 |
| SMD20       | 20A  | 1050063696 |
| SMD25       | 25A  | 1050063697 |
| SMD32       | 32A  | 1050063698 |

## AMERICAN FUSES

### ATMR CLASS CC - FAST ACTING 600V



- 10.3mm x 38.1mm
- 200kA IR
- Current limiting
- The smallest dimension fuse suitable for branch circuit protection.

| PART NUMBER          | AMPS | ORDER CODE |
|----------------------|------|------------|
| ATMR1 (L216256J)     | 1A   | 1050063393 |
| ATMR1-1/2 (K216761J) | 1.5A | 1050063394 |
| ATMR2 (A200859J)     | 2A   | 1050063395 |
| ATMR3 (N212693J)     | 3A   | 1050063396 |
| ATMR5 (M216257J)     | 5A   | 1050063397 |
| ATMR8 (D217780J)     | 8A   | 1050063398 |
| ATMR10 (P219870J)    | 10A  | 1050063399 |
| ATMR12 (D222551J)    | 12A  | 1050063400 |
| ATMR15 (V223072J)    | 15A  | 1050063401 |
| ATMR20 (Z211139J)    | 20A  | 1050063402 |
| ATMR25 (Q211660J)    | 25A  | 1050063403 |
| ATMR30 (C215236J)    | 30A  | 1050063404 |

# SPECIALIST

## Stockist of Santon Industrial Immersion Heaters

## ATQR CLASS CC TIME DELAY 600V



- 10.3mm x 38.1mm
- 200kA IR
- For transformer protection.

| PART NUMBER          | AMPS | ORDER CODE |
|----------------------|------|------------|
| ATQR1/2 (C211142J)   | 0.5A | 1050063935 |
| ATQR1 (F218827J)     | 1A   | 1050063936 |
| ATQR3 (T218310J)     | 3A   | 1050063938 |
| ATQR3-1/2 (G218828J) | 3.5A | 1050063939 |
| ATQR5 (W211665J)     | 5A   | 1050063940 |
| ATQR7-1/2 (E214732J) | 7.5A | 1050063941 |
| ATQR10 (S212697J)    | 10A  | 1050063942 |

# SPECIALIST

## Stockist of Moflash Beacons and Klaxon Sounders

# AMERICAN FUSES

## ATDR CLASS CC - DUAL ELEMENT TIME DELAY 600V



- 10.3mm x 38.1mm
- 200kA IR
- For motor protection.

| PART NUMBER       | AMPS | ORDER CODE |
|-------------------|------|------------|
| ATDR1 (T217275J)  | 1A   | 1050063405 |
| ATDR2 (S212168J)  | 2A   | 1050063406 |
| ATDR3 (Y215232J)  | 3A   | 1050063407 |
| ATDR4 (V217276J)  | 4A   | 1050063408 |
| ATDR5 (K218302J)  | 5A   | 1050063409 |
| ATDR6 (L219338J)  | 6A   | 1050063410 |
| ATDR7 (A222548J)  | 7A   | 1050063411 |
| ATDR8 (X200856J)  | 8A   | 1050063412 |
| ATDR10 (J201396J) | 10A  | 1050063413 |
| ATDR12 (X201914J) | 12A  | 1050063414 |
| ATDR15 (V211135J) | 15A  | 1050063415 |
| ATDR20 (R214214J) | 20A  | 1050063416 |
| ATDR25 (V214723J) | 25A  | 1050063417 |
| ATDR30 (G216758J) | 30A  | 1050063418 |

## MIDGET FUSES FAST ACTING 600VAC



■ For supplementary over current protection.

| PART NUMBER       | AMPS | ORDER CODE |
|-------------------|------|------------|
| SBS1/2 (T216769J) | 0.5A | 1050063451 |
| SBS1 (G214734J)   | 1A   | 1050063452 |
| SBS2 (K218831J)   | 2A   | 1050063453 |
| SBS3 (D223080J)   | 3A   | 1050063454 |
| SBS10 (G217287J)  | 10A  | 1050064042 |

## MIDGET FUSES FAST ACTING 600V



■ 10.3mm x 38.1mm  
 ■ For lighting, heating, and control circuits. Suitable for circuits where time delay is not required.

| PART NUMBER      | AMPS | ORDER CODE |
|------------------|------|------------|
| ATM1 (W217277J)  | 1A   | 1050063439 |
| ATM2 (Z201916J)  | 2A   | 1050063440 |
| ATM3 (L212691J)  | 3A   | 1050063441 |
| ATM4 (E215744J)  | 4A   | 1050063442 |
| ATM5 (K216255J)  | 5A   | 1050063443 |
| ATM8 (B217788J)  | 8A   | 1050063444 |
| ATM10 (B222549J) | 10A  | 1050063445 |
| ATM12 (Y200857J) | 12A  | 1050063446 |
| ATM15 (L201398J) | 15A  | 1050063447 |
| ATM20 (N211658J) | 20A  | 1050063448 |
| ATM25 (V212170J) | 25A  | 1050063449 |
| ATM30 (N213705J) | 30A  | 1050063450 |

# AMERICAN FUSES

## TRM MIDGET FUSES TIME DELAY 250V



- 10.3mm x 38.1mm
- Used for lighting, solenoid, motors, transformers and control circuits.

| PART NUMBER          | AMPS | ORDER CODE |
|----------------------|------|------------|
| TRM1/2 (V217782J)    | 0.5A | 1050063455 |
| TRM1 (M214210J)      | 1A   | 1050063456 |
| TRM1-4/10 (Y215738J) | 1.4A | 1050063457 |
| TRM2 (S200852J)      | 2A   | 1050063458 |
| TRM2-1/2(T201911J)   | 2.5A | 1050063459 |
| TRM3 (H213700J)      | 3A   | 1050063460 |
| TRM5 (G218299J)      | 5A   | 1050063461 |
| TRM8 (T200853J)      | 8A   | 1050063462 |
| TRM10 (V218817J)     | 10A  | 1050063463 |
| TRM15 (W222544J)     | 15A  | 1050063465 |
| TRM20 (F212686J)     | 20A  | 1050063466 |
| TRM25 (Q213201J)     | 25A  | 1050063467 |
| TRM30 (Z215739J)     | 30A  | 1050063468 |

## ATQ MIDGET FUSES TIME DELAY 500V



- 10.3mm x 38.1mm
- Used for lighting, solenoid, motors, transformers and control circuits.

| PART NUMBER          | AMPS  | ORDER CODE |
|----------------------|-------|------------|
| ATQ1/4 (Q212695J)    | 0.25A | 1050063419 |
| ATQ1/2 (Y212173J)    | 0.5A  | 1050063420 |
| ATQ6/10 (F215239J)   | 0.6A  | 1050063421 |
| ATQ1 (E217791J)      | 1A    | 1050063422 |
| ATQ1-1/2 (Q218307J)  | 1.5A  | 1050063423 |
| ATQ1.6/10 (X223074J) | 1.6A  | 1050063424 |
| ATQ2 (P216259J)      | 2A    | 1050063425 |
| ATQ2-1/2 (N216764J)  | 2.5A  | 1050063426 |
| ATQ3 (G222554J)      | 3A    | 1050063427 |
| ATQ4 (T211663J)      | 4A    | 1050063428 |
| ATQ5 (B213211J)      | 5A    | 1050063429 |
| ATQ6 (Z214221J)      | 6A    | 1050063430 |
| ATQ7 (P216765J)      | 7A    | 1050063431 |
| ATQ8 (C217283J)      | 8A    | 1050063432 |
| ATQ10 (R213708J)     | 10A   | 1050063433 |
| ATQ12 (Y214220J)     | 12A   | 1050063464 |
| ATQ15 (E215238J)     | 15A   | 1050063435 |
| ATQ20 (S219344J)     | 20A   | 1050063436 |
| ATQ25 (S219873J)     | 25A   | 1050063437 |
| ATQ30 (B211141J)     | 30A   | 1050063438 |

# AMERICAN FUSES

## CLASS RK5 DUAL ELEMENT TIME DELAY 250V



- 50.8mm x 14.3mm
- 200kA IR
- Motor overcurrent, motor controller and transformer protection.

| PART NUMBER      | AMPS | ORDER CODE |
|------------------|------|------------|
| TR5R (E214709J)  | 5A   | 1050063597 |
| TR10R (D200839J) | 10A  | 1050063598 |
| TR15R (D211120J) | 15A  | 1050063599 |
| TR20R (D214708J) | 20A  | 1050063600 |

## CLASS RK5 DUAL ELEMENT TIME DELAY 600V



- 10-30A 127mm x 20.6mm
- 35-40A 139.7mm x 27mm
- 200kA IR
- Motor overcurrent, motor controller and transformer protection.

| PART NUMBER       | AMPS | ORDER CODE |
|-------------------|------|------------|
| TRS10R (N218811J) | 10A  | 1050063601 |
| TRS15R (B201389J) | 15A  | 1050063602 |
| TRS20R (P217777J) | 20A  | 1050063603 |
| TRS25R (B219329J) | 25A  | 1050063604 |
| TRS30R (K213196J) | 30A  | 1050063605 |
| TRS35R (J214207J) | 35A  | 1050063606 |
| TRS40R (Q217778J) | 40A  | 1050063607 |

## CLASS K5 DUAL ELEMENT TIME DELAY 600V



- Energy limiting
- Lower cost protection for circuits
- Serving heating, lighting and other non motor loads.

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| T212146J    | 6A   | 1050063627 |
| K216232J    | 10A  | 1050063628 |
| X217255J    | 15A  | 1050063629 |
| Z218798J    | 20A  | 1050063630 |
| L219315J    | 25A  | 1050063631 |
| B222526J    | 30A  | 1050063632 |

# SPECIALIST

## Stockist of Dimplex and Creda Heating Spares

# AMERICAN FUSES

## AMERICAN FUSES

| BUSSMANN | FERRAZ | LITTLEFUSE |
|----------|--------|------------|
| KTKR     | ATMR   | KLKR       |
| FNQR     | ATQR   | KLDR       |
| LPCC     | ATDR   | CCMR       |
| BBS      | SBS    | BLS        |
| KTK      | ATM    | KLK        |
| FNM      | TRM    | FLM        |
| FNQ      | ATQ    | FLQ        |
| BAN      | OTM    | BLN        |
| BAF      | OTMF   | BLF        |
| FNA      | GFN    | FLA        |
| SC       | AG     | SLC        |

## AMERICAN POWER FUSES

| BUSSMANN | FERRAZ | LITTLEFUSE |
|----------|--------|------------|
| FRN/FRNR | TR-R   | FLNR       |
| FRS/FRSR | TRS-R  | FLSR       |
| NOS      | OTS    | NLS        |
| NON      | OT     | NLN        |
| KTN-F    | A2K-R  | KLNR       |
| KS       | A6K-R  | KLSR       |
| REN      | RF     | RLN        |
| KBC      | RES    | RLS        |
| JKS/JS   | A4J    | JLS        |
| LPJ-SP   |        | JTD        |

## FORK LIFT TRUCK FUSES

### OPEN TYPE 22MM X 82MM



| PART NUMBER    | AMPS | ORDER CODE |
|----------------|------|------------|
| 90-030-05/50A  | 50A  | 1050063481 |
| 90-030-05/100A | 100A | 1050063482 |
| 90-030-05/200A | 200A | 1050063483 |
| 90-030-05/250A | 250A | 1050063484 |

Confused about fuses

Phone your **SPECIALIST**

on: **01905 791500**

## FORK LIFT TRUCK FUSES

### ENCLOSED TYPE 22MM X 82MM



| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| A218385E    | 50A  | 1050063469 |
| Y219947E    | 80A  | 1050063470 |
| K201995E    | 100A | 1050063471 |
| K211218E    | 125A | 1050063472 |
| W212769E    | 160A | 1050063473 |
| J213287E    | 200A | 1050063474 |
| J214299E    | 250A | 1050063475 |
| J214805E    | 275A | 1050063476 |
| L215313E    | 300A | 1050063477 |
| X216841E    | 355A | 1050063478 |
| T217873E    | 400A | 1050063479 |
| Q218905E    | 500A | 1050063480 |

# SPECIALIST

## Stockist of Santon Industrial Immersion Heaters

## BS88 RECTIFIER FUSES

Used for the protection of semi conductor devices requiring high speed protection from faults.

### LCT gR/uR ULTRA RAPID 250V



- Total length 47mm
- Diameter 8mm
- Fixing centres 38mm
- 100kA

| PART NUMBER      | AMPS | ORDER CODE |
|------------------|------|------------|
| LCT5 (M082489J)  | 5A   | 1050063551 |
| LCT10 (L082488J) | 10A  | 1050063552 |
| LCT16 (K082487J) | 16A  | 1050063553 |
| LCT20 (J082486J) | 20A  | 1050063554 |

### LET gR/uR ULTRA RAPID 250V



- Total length 56mm
- Diameter 17.7mm
- Fixing centres 41.8mm
- 100kA

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| M076647J    | 7A   | 1050064043 |
| N076648J    | 10A  | 1050063555 |
| Q076650J    | 16A  | 1050063556 |
| L097507J    | 20A  | 1050063557 |
| R076651J    | 25A  | 1050063558 |
| S076652J    | 32A  | 1050063559 |
| T076653J    | 35A  | 1050063560 |
| V076654J    | 50A  | 1050063561 |
| Z085559J    | 80A  | 1050063562 |
| Y08558J     | 100A | 1050063563 |
| G097526J    | 125A | 1050063564 |
| W085556J    | 150A | 1050063565 |
| H097527J    | 160A | 1050064044 |
| N097532J    | 180A | 1050063915 |

## BS88 RECTIFIER FUSES

### LMT FPA gR/uR (ULTRA RAPID) 250V



- Total length 84mm
- Diameter 34.6mm
- Fixing centres 59mm
- 100kA

| PART NUMBER       | AMPS | ORDER CODE |
|-------------------|------|------------|
| 150FPA (Q082469C) | 160A | 1050063565 |
| 200FPA (P082468C) | 200A | 1050063566 |
| 250FPA (N082467C) | 250A | 1050063567 |
| 315FPA (M082466C) | 315A | 1050063568 |
| 355FPA (L082465C) | 355A | 1050063569 |

### CT/ GSB gR/uR (ULTRA RAPID) 660V



- Total length 74.6mm
- Diameter 8mm
- Fixing centres 64.3mm
- 200kA

| PART NUMBER     | AMPS | ORDER CODE |
|-----------------|------|------------|
| 6CT (X097057J)  | 6A   | 1050063570 |
| 10CT (C082457J) | 10A  | 1050063571 |
| 16CT (B082456J) | 16A  | 1050063572 |
| 20CT (A082455J) | 20A  | 1050063573 |

# BS88 RECTIFIER FUSES

## GSGB/ FRB gR/uR (ULTRA RAPID) 660V



- Total length 77mm
- Diameter 17.5mm
- Fixing centres 63mm
- 200kA

| PART NUMBER      | AMPS | ORDER CODE |
|------------------|------|------------|
| 10FRB            | 10A  | 1050063574 |
| 16FRB (G075883C) | 16A  | 1050063575 |
| 20FRB (H075884C) | 20A  | 1050063576 |
| 25FRB (J075885C) | 25A  | 1050063577 |
| 32FRB (K075887C) | 32A  | 1050063578 |
| 35FRB (L075887C) | 35A  | 1050063579 |
| 40FRB (M075888C) | 40A  | 1050063580 |
| 45FRB (N075889C) | 45A  | 1050063581 |
| 50FRB (P075890C) | 50A  | 1050063582 |
| 55FRB (Q075891C) | 55A  | 1050063583 |
| 63FRB (R075892C) | 63A  | 1050063584 |
| 75FRB (S075893C) | 75A  | 1050063585 |
| 80FRB (T075894C) | 80A  | 1050063586 |

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# BS88 RECTIFIER FUSES

## GSGB/ FUB gR/uR (ULTRA RAPID) 660V



- Total length 113mm
- Diameter 35mm
- Fixing centres 85mm
- 200kA

| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| P097165C    | 100A | 1050063587 |
| Q097166C    | 160A | 1050063588 |
| T097169C    | 200A | 1050063589 |
| W097171C    | 250A | 1050063590 |

## GSGB/ FUB2 gR/uR (ULTRA RAPID) 660V



- Twin bodied fuse
- Fixing centres 81.7mm
- 2 x 34.6mm x 113M
- 200kA

| PART NUMBER   | AMPS | ORDER CODE |
|---------------|------|------------|
| F097272C      | 200A | 1050063591 |
| J097275C      | 225A | 1050063592 |
| 50-075-06/250 | 250A | 1050063593 |
| R097282C      | 315A | 1050063594 |
| S097283C      | 355A | 1050063595 |
| Y097288C      | 450A | 1050063931 |
| Z097289C      | 500A | 1050063596 |

## BS88 RECTIFIER FUSES

### AMERICAN gR RECTIFIER (SEMICONDUCTOR) FUSES 500V



- 250A - 400A
  - Total length 110mm
  - Diameter 38mm
  - Fixing centres 86.5mm
- 500A - 600A
  - Total length 113.5mm
  - Diameter 50.8mm
  - Fixing centres 89.7mm
- 800A
  - Total length 164.3mm
  - Diameter 63.5mm
  - Fixing centres 117.5mm

| PART NUMBER           | AMPS | ORDER CODE |
|-----------------------|------|------------|
| A50QS250-4 (W211251A) | 250A | 1050063608 |
| A50QS300-4 (D212799A) | 300A | 1050063609 |
| A50QS350-4 (T215343A) | 350A | 1050063610 |
| A50QS400-4 (B216362A) | 400A | 1050063611 |
| A50QS500-4 (L218418D) | 500A | 1050063612 |
| A50QS600-4 (Q219457D) | 600A | 1050063613 |
| A50QS800-4 (C202287A) | 800A | 1050063614 |

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# BS88 RECTIFIER FUSES

## AMERICAN gR RECTIFIER (SEMI CONDUCTOR) FUSES 700V



- 25-30A
  - Total length 50.8mm
  - Diameter 14.3mm
- 50A
  - Total length 111mm
  - Diameter 25.4mm
  - Fixing centres 96mm
- 100A
  - Total length 111mm
  - Diameter 31mm
  - Fixing centres 93.7mm
- 200A
  - Total length 129.4mm
  - Diameter 38.1mm
  - Fixing centres 105.6mm
- 300-400A
  - Total length 129.4mm
  - Diameter 50.8mm
  - Fixing centres 105.6mm

| PART NUMBER          | AMPS | ORDER CODE |
|----------------------|------|------------|
| A70P25.1 (N216373J)  | 25A  | 1050063615 |
| A70P30.1 (B230024J)  | 30A  | 1050063616 |
| A70P50.4 (W202695E)  | 50A  | 1050063617 |
| A70P100.4 (J218945E) | 100A | 1050063618 |
| A70P200.4 (K218946E) | 200A | 1050063619 |
| A70P300.4 (P212809E) | 300A | 1050063620 |
| A70P400.4 (L218947E) | 400A | 1050063621 |

## PLUG TOP FUSES

### BS1362 PLUG TOP FUSE



| PART NUMBER | AMPS | ORDER CODE |
|-------------|------|------------|
| F1          | 1A   | 1050152901 |
| F2          | 2A   | 1000015794 |
| F3          | 3A   | 1000015795 |
| F5          | 5A   | 1000015796 |
| F7          | 7A   | 1050152902 |
| F10         | 10A  | 1000015797 |
| F13         | 13A  | 1000015822 |

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# SPECIALIST

## Stockist of Heatrae, Santon and Zip Water Spares

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|           | fuse 57mm x 22.2mm. ....                        | 54   | BS88 rectifier fuse gR/uR ultra rapid 250v. . 67 |
| **4RL     | house service cut out fuse                      |      | **LET                                            |
|           | 57mm x 30.2mm. ....                             | 54   | **LMT                                            |
| **CT      | BS88 rectifier fuse gR/uR                       |      | **LO9                                            |
|           | ultra rapid 660v. ....                          | 68   | **LO9M**                                         |
| **DO4     | BS88 HRC fuse                                   | 9    | **LR                                             |
| **DI6     | d1/e16 gL/gG bottle fuse                        |      | **LR71                                           |
|           | 12.5mm x 50mm. ....                             | 37   | **LR85                                           |
| **DI9L    | street lighting fuse                            | 53   | **LST                                            |
| **D27     | d1/e27 gL/gG bottle fuse 22mm x 50mm . 38       |      | **MJ30-7                                         |
| **D27R    | d1/e27 gR ultra rapid bottle                    |      | **MJ30-8                                         |
|           | fuse 22mm x 50mm. ....                          | 38   | **MJ31-7                                         |
| **D33     | d1/e33 gL/gG bottle                             |      | **MMT                                            |
|           | fuse 27mm x 50mm. ....                          | 39   | **MT                                             |
| **D33R    | d1/e33 gR ultra rapid bottle                    |      | **MO9                                            |
|           | fuse 27mm x 50mm. ....                          | 39   | **MO9M**                                         |
| **ER      | house service cut out fuse                      |      | **MT                                             |
|           | 57mm x 22.2mm. ....                             | 54   | **NH00B                                          |
| **ESD     | BS88 HRC fuse                                   | 8    | **NH0B                                           |
| **ET      | BS88 rectifier fuse gR/uR                       |      | **NH1B                                           |
|           | ultra rapid 660v. ....                          | 69   | **NH1G                                           |
| **FO6     | BS88 HRC fuse                                   | 6    | **NH1M                                           |
| **FO6M**  | BS88 HRC motor rated fuse                       | 13   | **NH2B                                           |
| **F21     | BS88 HRC fuse 44mm fixing centres               | 4    | **NH2G                                           |
| **F21M**  | BS88 HRC motor rated fuse                       |      | **NH3B                                           |
|           | 44mm fixing centres. ....                       | 11   | **NH3G                                           |
| **FMA     | BS88 rectifier fuse gR/uR ultra rapid 250v . 67 |      | **NHC00B                                         |
| **FMM     | BS88 rectifier fuse gR/uR ultra rapid 660v . 70 |      | **NHC00G                                         |
| **FNA     | BS88 rectifier fuse gR/uR ultra rapid 250v . 67 |      | **NHC00M                                         |
| **FPA     | BS88 rectifier fuse gR/uR ultra rapid 250v . 68 |      |                                                  |
| **FRB     | BS88 rectifier fuse gR/uR ultra rapid 660v . 69 |      | **NO9                                            |
| **FSB     | BS88 rectifier fuse gR/uR ultra rapid 660v . 68 |      | **NO9M**                                         |
| **FUB     | BS88 rectifier fuse gR/uR ultra rapid 660v . 70 |      |                                                  |
| **FUB2    | BS88 rectifier fuse gR/uR ultra rapid 660v . 70 |      | **NZ01                                           |
| **GD27    | d1/e27 gauge pieces                             | 40   | **NZ02                                           |
| **GD33    | d1/e33 gauge pieces                             | 40   | **NZ02R                                          |
| **GO5     | BS88 HRC fuse                                   | 8    |                                                  |
| **HO7     | BS88 HRC fuse 73mm fixing centres               | 5    | **PI1                                            |
| **HO7M**  | BS88 HRC motor rated fuse                       |      | **PJ30-7                                         |
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| **JCS82   | J type fuse 82mm fixing centres. ....           | 51   | **PO9                                            |
| **JCS92   | J type fuse 92mm fixing centres                 | 52   | **PO9M**                                         |
| **K7      | BS88 HRC fuse 73mm fixing centres               | 5    |                                                  |
| **K7M**   | BS88 HRC motor rated fuse                       |      | **RI1                                            |
|           | 73mm fixing centres. ....                       | 12   | **RJ31-7                                         |
| **KO8M**  | BS88 HRC motor rated fuse                       |      | **SI1                                            |
|           | 97mm fixing centres. ....                       | 13   | **SA2                                            |
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|           | fuse 57mm x 22.2mm. ....                        | 54   |                                                  |
| **LI4     | BS88 HRC fuse 94mm fixing centres               | 5    | **SB3                                            |
| **LI4M**  | BS88 HRC motor rated fuse                       |      | **SB3M**                                         |
|           | 94mm fixing centres. ....                       | 12   |                                                  |
| **LA      | house service cut out fuse                      | 55   | **SB4                                            |
| **LC      | house service cut out fuse                      | 55   | **SB4M**                                         |
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|           |                                                 |      | BS88 rectifier fuse gR/uR ultra rapid 250v. . 67 |
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|           |                                                 |      | house service cut out fuse 57mm x 30.2mm . 54    |
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|           |                                                 |      | J type fuse 82mm fixing centres. .... 51         |
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|           |                                                 |      | J type fuse 92mm fixing centres. .... 52         |
|           |                                                 |      | BS88 HRC fuse 111mm fixing centres. .... 8       |
|           |                                                 |      | BS88 HRC motor rated fuse                        |
|           |                                                 |      | 111mm fixing centres. .... 15                    |
|           |                                                 |      | BS88 HRC fuse 133/184mm fixing centres. . 10     |
|           |                                                 |      | J type fuse 92mm fixing centres. .... 52         |
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|           |                                                 |      | BS88 HRC motor rated fuse                        |
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|           |                                                 |      | BS88 HRC fuse 73mm fixing centres. .... 5        |
|           |                                                 |      | BS88 HRC motor rated fuse                        |
|           |                                                 |      | 73mm fixing centres. .... 12                     |

\*\* Denotes Amperage

?? Denotes other number relating to but not Amperage (Amps would still need to be established)

| PART CODE     | DESCRIPTION                                   | PAGE |               |                                                    |
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| **SD5         | BS88 HRC fuse 94mm fixing centres . . . . .   | 5    | 150**         | french industrial fuse                             |
| **SD5M**      | BS88 HRC motor rated fuse                     |      | 150??         | 22mm x 58mm aM motor rated . . . . . 32            |
|               | 94mm fixing centres . . . . .                 | 12   | 153**         | french industrial fuse 8mm x 32mm gL/gG . 26       |
| **SD6         | BS88 HRC fuse 94mm fixing centres . . . . .   | 6    | 160??         | french industrial fuse 22mm x 58mm gL/gG 32        |
| **SE4M**      | BS88 HRC motor rated fuse                     |      | 165??         | french industrial fuse 10mm x 38mm gL/gG 27        |
|               | 97mm fixing centres . . . . .                 | 13   |               | french industrial fuse                             |
| **SF5         | BS88 HRC fuse 111mm fixing centres . . . . .  | 7    | 170??         | 10mm x 38mm aM motor rated . . . . . 28            |
| **SF5M**      | BS88 HRC motor rated fuse                     |      | 170M14??      | french industrial fuse 14mm x 51mm gL/gG 29        |
|               | 111mm fixing centres . . . . .                | 14   |               | continental NH fuse size C00/000 gR ultra          |
| **SF6         | BS88 HRC fuse 111mm fixing centres . . . . .  | 7    | 170M15??      | rapid 80mm base . . . . . 42                       |
| **SF6M**      | BS88 HRC motor rated fuse                     |      |               | continental NH fuse size c00/000 gR                |
|               | 111mm fixing centres . . . . .                | 14   | 170M15??      | ultra rapid . . . . . 42                           |
| **SF7         | BS88 HRC fuse 111mm fixing centres . . . . .  | 8    |               | continental NH fuse size C00/000                   |
| **SF7M**      | BS88 HRC motor rated fuse                     |      | 170M15??      | urb ultra rapid solid tag . . . . . 43             |
|               | 111mm fixing centres . . . . .                | 15   | 170M26**      | continental NH fuse size 00 gR, aR                 |
| **SF8         | BS88 HRC fuse 111mm fixing centres . . . . .  | 8    |               | ultra rapid 80mm base . . . . . 44                 |
| **SF8M**      | BS88 HRC motor rated fuse                     |      | 170M38??      | continental NH fuse size 1 gR ultra rapid. . 47    |
|               | 111mm fixing centres . . . . .                | 15   | 170M58??      | continental NH fuse size 2 gR ultra rapid. . 48    |
| **SH10        | BS88 HRC fuse 133/184mm fixing centres. . 10  |      | 170M68**      | continental NH fuse size 3 gR/uR ultra rapid. . 49 |
| **SH8         | BS88 HRC fuse 133/184mm fixing centres. . 9   |      | 170N10??      | 14mm x 51mm gR ultra rapid no striker . . 30       |
| **SH9         | BS88 HRC fuse 133/184mm fixing centres. . 10  |      | 170N11??      | french industrial fuse                             |
| **SJ31-6      | J type fuse 92mm fixing centres. . . . .      | 52   |               | 14mm x 51mm gR ultra rapid with striker . 31       |
| **SN2         | BS88 HRC fuse . . . . .                       | 6    | 170N20??      | french industrial fuse                             |
| **SN2M**      | BS88 HRC motor rated fuse . . . . .           | 13   |               | 22mm x 58mm gR ultra rapid no striker . . 33       |
| **SP          | BS88 HRC fuse . . . . .                       | 8    | 170N21??      | french industrial fuse 22mm x 58mm                 |
| **SS          | BS88 HRC fuse . . . . .                       | 9    |               | gR ultra rapid with striker . . . . . 33           |
| 10-002-04/3** | d1/e16 gL/gG bottle fuse 12.5mm x 50mm . 37   |      | 175??         | french industrial fuse                             |
| 10-005-04/3** | d1 l/e27 gL/gG bottle fuse 22mm x 50mm . 38   |      | 180??         | 14mm x 51mm aM motor rated . . . . . 30            |
| 10-005-07/3** | d1 l/e27 gR ultra rapid bottle                |      |               | french industrial fuse                             |
|               | fuse 22mm x 50mm . . . . .                    | 38   | 185??         | 22mm x 58mm gL/gG . . . . . 32                     |
| 10-005-08/3** | d1 l/e27 gR ultra rapid bottle fuse           |      |               | french industrial fuse                             |
|               | 22mm x 50mm . . . . .                         | 38   | 20-000-04/3** | 22mm x 58mm aM motor rated . . . . . 32            |
| 10-007-04/3** | d1 l l/e33 gL/gG bottle fuse 27mm x 50mm. 39  |      |               | continental NH fuse size c00/000 gR                |
| 10-007-07/3** | d1 l l/e33 gR ultra rapid bottle fuse         |      |               | ultra rapid . . . . . 42                           |
|               | 27mm x 50mm . . . . .                         | 39   | 20-000-13/3** | continental NH fuse                                |
| 10-027-04/3** | d01/e14 gL/gG bottle fuse 11mm x 36mm. . 36   |      |               | size C00/000 gL/gG . . . . . 41                    |
| 10-028-04/3** | d02/e18 gL/gG bottle fuse 15.3mm x 36mm 36    |      | 20-001-04/3** | continental NH fuse                                |
| 10-028-07/3** | d02/e18 gR ultra rapid bottle fuse            |      |               | size C00/000 urb ultra rapid solid tag. . . . 43   |
|               | 15.3mm x 36mm. . . . .                        | 37   | 20-001-13/3** | continental NH fuse size 00 gL/gG . . . . . 43     |
| 102**         | miniature ceramic fuse                        |      | 20-002-13/3** | continental NH fuse size 0 gL/gG . . . . . 45      |
|               | 20mm x 5mm quick blow . . . . .               | 20   | 20-003-04/3** | continental NH fuse size 1 gR ultra rapid. . 47    |
| 10G**         | french industrial fuse                        |      | 20-003-13/3** | continental NH fuse size 1 gL/gG . . . . . 46      |
|               | 10mm x 38mm gL/gG. . . . .                    | 27   | 20-004-13/3** | continental NH fuse size 2 gL/gG . . . . . 50      |
| 10M**         | french industrial fuse                        |      | 20-005-13/3** | continental NH fuse size 3 gL/gG . . . . . 48      |
|               | 10mm x 38mm aM motor rated . . . . .          | 28   | 20-211-08/3** | continental NH fuse size                           |
| 123**         | french industrial fuse 8mm x 32mm gL/gG. . 26 |      |               | 1 aM motor rated . . . . . 46                      |
| 130**         | french industrial fuse 10mm x 38mm aM         |      | 20-412-20/3** | continental NH fuse size                           |
|               | motor rated . . . . .                         | 28   |               | 00 gR, aR ultra rapid 80mm base . . . . . 44       |
| 133**         | french industrial fuse 10mm x 38mm gL/gG 27   |      | 216**         | miniature ceramic fuse                             |
| 140**         | french industrial fuse                        |      |               | 20mm x 5mm quick blow . . . . . 20                 |
|               | 14mm x 51mm aM motor rated . . . . .          | 30   | 217**         | miniature glass fuse                               |
| 143**         | french industrial fuse 14mm x 51mm gL/gG 29   |      |               | 20mm x 5mm quick blow . . . . . 16                 |
| 14G**         | french industrial fuse 14mm x 51mm gL/gG 29   |      | 218**         | miniature glass fuse                               |
| 14M**         | french industrial fuse                        |      |               | 20mm x 5mm slow blow . . . . . 17                  |
|               | 14mm x 51mm aM motor rated . . . . .          | 30   | 221100??      | d01/e14 gL/gG bottle                               |
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| 22M***        | french industrial fuse<br>22mm x 58mm aM motor rated              | 32   |
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| 29014         | 14mm x 51mm three pole fuse holder                                | 31   |
| 29202         | 22mm x 58mm single pole fuse holder                               | 34   |
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| 3NA12??       | continental NH fuse size 1 gL/gG                                  | 46   |
| 3NA13??       | continental NH fuse size 2 gL/gG                                  | 50   |
| 3NA14??       | continental NH fuse size 3 gL/gG                                  | 48   |
| 3NA30??       | continental NH fuse size 0 gL/gG                                  | 45   |
| 3NA31??       | continental NH fuse size 1 gL/gG                                  | 46   |
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| 3NA33??       | continental NH fuse size 3 gL/gG                                  | 48   |
| 3NA38??       | continental NH fuse size C00/000 gL/gG                            | 41   |
| 3NA38??       | continental NH fuse size 00 gL/gG                                 | 43   |
| 50-001-01/*** | BS88 HRC fuse 73mm fixing centres                                 | 5    |
| 50-001-16/*** | BS88 HRC motor rated<br>fuse 73mm fixing centres                  | 11   |
| 50-002-01/*** | BS88 HRC fuse 73mm fixing centres                                 | 5    |
| 50-002-16/*** | BS88 HRC motor rated<br>fuse 73mm fixing centres                  | 12   |
| 50-003-01/*** | BS88 HRC fuse 94mm fixing centres                                 | 5    |
| 50-003-16/*** | BS88 HRC motor rated fuse<br>94mm fixing centres                  | 12   |
| 50-004-01/*** | BS88 HRC fuse 94mm fixing centres                                 | 6    |
| 50-006-16/*** | BS88 HRC motor rated fuse<br>97mm fixing centres                  | 13   |
| 50-008-01/*** | BS88 HRC fuse 111mm fixing centres                                | 7    |
| 50-008-16/*** | BS88 HRC motor rated fuse<br>111mm fixing centres                 | 14   |
| 50-009-01/*** | BS88 HRC fuse 111mm fixing centres                                | 7    |
| 50-009-16/*** | BS88 HRC motor rated fuse<br>111mm fixing centres                 | 14   |
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| 50-010-16/*** | BS88 HRC motor rated fuse<br>111mm fixing centres                 | 15   |
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| 50-026-01/*** | J type fuse 92mm fixing centres                                   | 52   |
| 50-039-01/*** | BS88 HRC fuse 133/184mm fixing centres                            | 9    |
| 50-040-01/*** | BS88 HRC fuse 133/184mm fixing centres                            | 10   |
| 50-041-01/*** | BS88 HRC fuse 133/184mm fixing centres                            | 10   |
| 50-053-06/*** | BS88 rectifier fuse gR/uR ultra rapid 250v                        | 67   |
| 50-054-06/*** | BS88 rectifier fuse gR/uR ultra rapid 250v                        | 68   |
| 50-073-06/*** | BS88 rectifier fuse gR/uR ultra rapid 660v                        | 69   |
| 50-074-06/*** | BS88 rectifier fuse gR/uR ultra rapid 660v                        | 70   |
| 50-075-06/*** | BS88 rectifier fuse gR/uR<br>ultra rapid 660v 250a                | 70   |
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| 50-085-16/*** | BS88 HRC motor rated<br>fuse 44mm fixing centres                  | 11   |
| 50-086-01/*** | BS88 HRC fuse                                                     | 6    |
| 50-086-16/*** | BS88 HRC motor rated fuse                                         | 13   |
| 50-110-01/*** | BS88 HRC fuse 111mm fixing centres                                | 8    |
| 50-124-06/*** | french industrial fuse<br>14mm x 51mm gR ultra rapid no striker   | 30   |
| 50-126-06/*** | french industrial fuse 14mm x 51mm<br>gR ultra rapid with striker | 31   |
| 50-140-06/*** | french industrial fuse 22mm x 58mm<br>gR ultra rapid no striker   | 33   |
| 50-142-06/*** | french industrial fuse 22mm x 58mm<br>gR ultra rapid with striker | 33   |
| 520??         | french industrial fuse 10mm x 38mm<br>gR ultra rapid              | 28   |
| 522??         | french industrial fuse 14mm x 51mm<br>gR ultra rapid no striker   | 30   |
| 523??         | french industrial fuse 14mm x 51mm<br>gR ultra rapid with striker | 31   |
| 524??         | french industrial fuse 22mm x 58mm<br>gR ultra rapid no striker   | 33   |
| 525??         | french industrial fuse 22mm x 58mm<br>gR ultra rapid with striker | 33   |
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| 5SB2??        | d11/e27 gL/gG bottle fuse 22mm x 50mm                             | 38   |
| 5SB4??        | d111/e33 gL/gG bottle fuse 27mm x 50mm                            | 39   |
| 5SD4??        | d11/e27 gR ultra rapid bottle<br>fuse 22mm x 50mm                 | 38   |
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| 5SE20***      | d02/e18 gL/gG bottle fuse 15.3mm x 36mm                           | 36   |
| 60-033-05/*** | french industrial fuse 10mm x 38mm<br>gR ultra rapid              | 28   |
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| 70-001-35/*** | miniature glass fuse 20mm x 5mm<br>slow blow                      | 17   |
| 70-007-33/*** | miniature ceramic fuse 20mm x 5mm<br>quick blow                   | 20   |
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| 70-010-04/*** | miniature ceramic fuse 25mm x 5mm<br>quick blow                   | 21   |
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| 70-059-60/*** | miniature glass fuse 32mm x 6mm<br>quick blow                     | 18   |
| 70-059-61/*** | miniature glass fuse 32mm x 6mm<br>slow blow                      | 19   |
| 70-065-63/*** | miniature ceramic fuse 32mm x 6mm<br>quick blow                   | 22   |

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| 70-125-40 <sup>/f**</sup>         | miniature ceramic fuse<br>32mm x 6mm ultra rapid                   | 24   |
| 90-030-05 <sup>/f**</sup>         | fork lift truck fuse open type                                     | 65   |
| 90-058-05 <sup>/f**</sup>         | fork lift truck fuse enclosed type                                 | 66   |
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| A200859J                          | american fuse class cc fast<br>acting 600v 2a                      | 56   |
| A210611C                          | continental NH fuse size c00/000<br>gR ultra rapid 25a             | 42   |
| A211025J                          | french industrial fuse 8mm x 32mm<br>gL/gG 6a                      | 26   |
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| A213601J                          | french industrial fuse 10mm x 38mm<br>aM motor rated 12a           | 28   |
| A214107J                          | french industrial fuse 10mm x 38mm<br>gL/gG 32a                    | 27   |
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| A222548J                          | american fuse class cc dual<br>element time delay 600v 7a          | 58   |
| A222847H                          | continental NH fuse size<br>C00/000 gL/gG 20a                      | 41   |
| A223008C                          | NH size l single pole polyester fuse holder                        | 47   |
| A227861C                          | continental NH fuse size 00 aM<br>motor rated 50a                  | 43   |
| A301254C                          | continental NH fuse size l gR<br>ultra rapid 200a                  | 47   |
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| A70P <sup>**</sup>                | BS88 rectifier fuse gR ultra<br>rapid 700v                         | 72   |
| AAO <sup>**</sup>                 | BS88 HRC fuse 73mm fixing centres                                  | 5    |
| AAO <sup>**</sup> M <sup>**</sup> | BS88 HRC motor rated<br>fuse 73mm fixing centres                   | 11   |
| AGC <sup>**</sup>                 | miniature glass fuse 32mm x 6mm<br>quick blow                      | 18   |
| ATDR <sup>**</sup>                | american fuse class cc dual<br>element time delay 600v             | 58   |
| ATM <sup>**</sup>                 | american midget fuse fast acting 600v                              | 59   |
| ATMR <sup>**</sup>                | american fuse class cc fast acting 600v                            | 56   |
| ATQ <sup>**</sup>                 | american midget fuse time delay 500v                               | 61   |
| ATQR <sup>**</sup>                | american fuse class cc time delay 600v                             | 57   |
| B082456J                          | BS88 rectifier fuse gR/uR ultra<br>rapid 660v 16a                  | 68   |
| B201389J                          | american fuse RK5 dual element<br>time delay 600v 15a              | 62   |
| B210612C                          | continental NH fuse size c00/000<br>gR ultra rapid 35a             | 42   |
| B211141J                          | american midget fuse time delay 500v 30a                           | 61   |
| B211946H                          | continental NH fuse size C00/000 gL/gG 2a                          | 41   |
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| C10G <sup>**</sup>                | french industrial fuse<br>10mm x 38mm gL/gG                        | 27   |
| C10M <sup>**</sup>                | french industrial fuse l<br>0mm x 38mm aM motor rated              | 28   |
| C14G <sup>**</sup>                | french industrial<br>fuse 14mm x 51mm gL/gG                        | 29   |
| C14M <sup>**</sup>                | french industrial<br>fuse 14mm x 51mm aM motor rated               | 30   |
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\*\* Denotes Amperage

?? Denotes other number relating to but not Amperage (Amps would still need to be established)

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| M330015J  | french industrial fuse 10mm x 38mm<br>gR ultra rapid 30a . . . . . 28            |      |
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| ME**      | house service cut out fuse<br>57mm x 22.2mm . . . . . 54                         |      |
| MES**     | BS88 HRC fuse . . . . . 8                                                        |      |
| MF**      | house service cut out fuse<br>57mm x 30.2mm . . . . . 54                         |      |
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| MSG**     | street lighting fuse . . . . . 53                                                |      |
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| N211658J  | american midget fuse fast acting<br>600v 20a . . . . . 59                        |      |
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| N213705J  | american midget fuse fast acting 600v 30a . . . 59                               |      |
| N216373J  | BS88 rectifier fuse gR ultra rapid 700v 25a . . 72                               |      |
| N216764J  | american midget fuse time delay 500v 2.5a . . 61                                 |      |
| N218765C  | continental NH fuse size 0 gL/gG 63a . . . . 45                                  |      |
| N218811J  | american fuse RK5 dual element<br>time delay 600v 10a . . . . . 62               |      |
| N220904J  | french industrial fuse 14mm x 51mm<br>gR ultra rapid no striker 25a . . . . . 30 |      |
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| NH03**    | continental NH fuse size 3 gL/gG . . . . . 48                                    |      |
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| NHG00**   | continental NH fuse size 00 gL/gG . . . . . 43                                   |      |
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| NITD**    | BS88 HRC fuse 44mm fixing centres . . . . . 4                                    |      |
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| NOS**     | american fuse K5 dual element time<br>delay 600v . . . . . 63                    |      |
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| NSD**     | BS88 HRC fuse . . . . . 6                                                        |      |
| NSD**M**  | BS88 HRC motor rated fuse . . . . . 13                                           |      |
| OTS**     | american fuse K5 dual element<br>time delay 600v . . . . . 63                    |      |
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| P216259J  | american midget fuse time<br>delay 500v 2a . . . . . 61                          |      |
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\*\* Denotes Amperage

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\*\* Denotes Amperage

?? Denotes other number relating to but not Amperage (Amps would still need to be established)

## Ampere

The measurement of intensity of rate of flow of electrons in an electric circuit. An ampere is the amount of current that will through a resistance of one ohm under a pressure of one volt.

## Ampere Rating

The current-carrying capacity of a fuse. When a fuse is subjected to a current above its ampere rating, it will open the circuit after a determined period of time.

## Ampere squared seconds, I<sup>2</sup>t

The measurement of heat energy developed within a circuit during the fuses clearing. It can be expressed as "melting I<sup>2</sup>t", "arcing I<sup>2</sup>t" or the sum of them as "clearing I<sup>2</sup>t". "I" stands for effective let-through current (RMS), which is squared, and "t" stands for time of opening in seconds.

## 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, 200,000 ampere interrupting rating, branch circuit fuses with overall dimensions of 13/32 x 1 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 13/32 x 1 \_ fuses. They are available from 1/10 amp through to 30 amps.

## Class G fuses

480v, 100,000 ampere interrupting rating branch circuit fuses that are size rejecting to eliminate overfusing. The fuse diameter is 13/32 while the length varies from 1 5/16 to 2 1/4. These are available in ratings from 1 amp through to 60 amps.

## Class H fuses

250v and 600v, 10,000 ampere interrupting rating branch circuit fuses that may be renewable or non-renewable. These are available in ampere ratings of 1 amp through to 600 amps.

## Class J fuses

These fuses are rated to interrupt a minimum of 200,000 amperes AC. They are labelled as "current-limiting", are rated for 600 volts AC, 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 I<sup>2</sup>t and I<sub>p</sub> maximums. These are dimensionally the same as class H fuses, and they have interrupting ratings of 50,000, 100,000 or 200,000 amps. These fuses are current-limiting. However, they are not marked "current-limiting" on their label, as they do not have a rejection feature.

## Class L fuses

These fuses are rated for 601 through 6000 amperes, and are rated to interrupt a minimum of 200,000 amperes AC. They are labelled "current-limiting" and are rated for 600 volts AC. 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 1/10 - 600 amps in 250 volt and 600 volt ratings. All are marked "current limiting" on their label and all have a minimum of 200,000 amp 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 300 volt and 600 volt ratings from 1 amp through 1200 amps. They are physically very small and can be applied where space is at a premium. They are fast acting and time-lag fuses, with an interrupting rating of 200,000 amps RMS.

## Classes of fuses

The industry has developed basic physical specifications and electrical performance requirements for fuses with voltage ratings of 600 volts or less. These are known as standards. If a type of fuse meets

# GLOSSARY

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 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.

## Dual element fuse

Fuse with a special design that utilises 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

The 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 energised. After a few cycles or seconds the current "settles down" to the full load running current.

## Interrupting capacity

See interrupting rating.

## Interrupting rating (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 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 amperes, 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 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 energised, the current rises instantly to its steady-state value, without first rising to a higher value.

## **R.M.S current**

The R.M.S (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.

## **Semi conductor 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 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.

## **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 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.

## **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.

# GLOSSARY

## BRITISH STANDARD LOW VOLTAGE INDUSTRIAL FUSE LINK - APPLICATION INFORMATION

The Bussmann standard range of high breaking capacity fuse links for low voltage industrial and general purpose applications meet the requirements of BS88 and IEC60269. By using advanced fuse technology the current ratings up to 400A have compact dimensions but still within the standardised dimensional and performance requirements. These designs have been optimised for 415/240V systems. The standard range of fuse links are available from 2-1250A in the following tag forms: OFFSET BLADED - OFFSET BOLTED - CENTRE BOLTED.

Supplementary ranges cover applications up to 690V a.c. and 500V d.c. including those with non-standard tag fixings.

Bussmann fuse links are manufactured under Quality Systems independently assessed to ISO 9001 and appropriate ratings carry the ASTA 20 endorsement.

### APPLICATION DATA

One of the long standing advantages of fuse protection is that fuse selection is relatively simple and effective.

The following notes cover the majority of applications. For further information contact Bussmann technical services on 01509 882699.

Reference should also be made to the appropriate Wiring Installation rules, in the UK the 16th Edition of the IEE Wiring Regulations for Electrical Installations which aligns with IEC 60364.

### CIRCUIT LOADING

The current rating of the fuse link 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

There is an increasing move away from 70°C P.V.C. insulation to materials which 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. In accordance with clause 512-02-01 of the Wiring Regulations 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 consideration.

### CABLE PROTECTION

Bussmann fuse links with gG characteristics protect associated cables against both overload and short circuit current, provided that the current rating of the fuse link  $I_n$  is equal or less than the current carrying capacity of the cable  $I_z$ .

In motor circuits, the motor starter will provide the overload protection and the fuse links will provide the short circuit protection. The maximum size of fuse link that can be used depends upon the type of cable used and is determined in accordance with the Wiring Regulations using the appropriate K factor. The following table gives maximum sizes of fuse links that are recommended for two popular cables with copper conductors, 70°C P.V.C. (K=115) and 90°C thermosetting (K=143).

| Cable Size<br>mm <sup>2</sup> | Max. Fuse Rating |              |
|-------------------------------|------------------|--------------|
|                               | K = 115<br>A     | K = 143<br>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

### Zs OHMS IMPEDANCE VALUES

The rules for protection against indirect contact are given in Chapter 413 of the Wiring Regulations.

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) corresponding to a disconnecting time of 5s for nominal voltage to earth (Uo) of 240V for Bussmann gG fuse links.

| Rating (A) | Zs Ohms<br>Ω | Rating (A) | Zs Ohms<br>Ω |
|------------|--------------|------------|--------------|
| 2          | 60           |            |              |
| 4          | 27           |            |              |
| 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

A de-rating in terms of current of 0.5% per °C above an ambient of 35°C is recommended.

### BREAKING CAPACITY

The standardised values of Breaking Capacity are 80kA for voltages of 415V a.c. and above, and 40kA for d.c. applications.

### DISCRIMINATION

All fuse links will give a discrimination 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 discriminate with a downstream fuse rated at 100A.

### CURRENT AND ENERGY LIMITATION

The Bussmann range of fuse links have pre-arcing I<sup>2</sup>t values towards the bottom limits of the standards. 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 fuse links.

### TRANSFORMERS

When fuse links are used on the primary side of transformers the normal current rating of the fuse links should be at least twice the nominal transformer primary current.

### FLUORESCENT LIGHTING

The normal current rating of the fuse link should be at least twice the normal full load current of the maximum number of lights to be switched simultaneously.

### CAPACITOR CIRCUITS

In capacitor circuits, for example power factor correction, the fuse link should be chosen with a current rating greater than 1.5 times the rated capacitor current. This takes account of the high transient inrush current, circuit harmonics and capacitor tolerances.

### MOTOR CIRCUITS

In motor circuits the fuse link has to withstand the starting current of the motor and often requires a higher rating than the full load current of the motor.

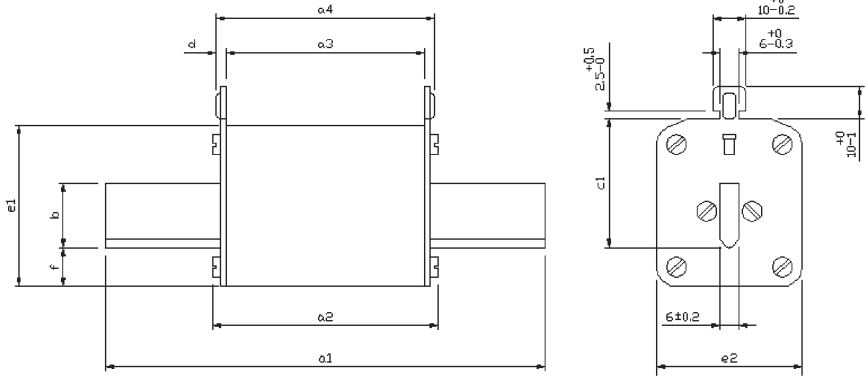
Co-ordination recommendations are made by the manufacturers of motor starters in accordance with IEC 60947-4-1. To give the desirable type 2 co-ordination with fuse links, tests are performed with the latest gG or gM fuse links, to BS88 or IEC60269 which have pre-arcing I<sup>2</sup>t values toward the bottom specified limits. This means that Bussmann fuse links are suitable to give type 2 co-ordination.

Extended dual ratings of motor circuit protection fuse links with gM characteristics are available in most popular sizes of fuse links to extend the use of associated equipment with appropriate economies. In the majority of applications, gG fuse links are used. It is not essential for gM fuse links to be used for motor circuit protection, they simply extend the utilisation of standard equipment.

The attached table shows the recommended fuse links at 415V. In most applications the run-up time is less than five seconds and duty is infrequent - no more than twice per hour. The next larger rating should be used for more arduous conditions.

| Motor Rating |     | Direct On-line |                    | Asst Start<br>Standard (gG) |
|--------------|-----|----------------|--------------------|-----------------------------|
|              |     | Standard (gG)  | Motor Circuit (gM) |                             |
| kW           | A   | 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             | -                  | 10                          |
| 2.2          | 5.0 | 16             | -                  | 10                          |
| 3.0          | 6.5 | 20             | -                  | 16                          |
| 4.0          | 8.4 | 20             | -                  | 16                          |
| 5.5          | 11  | 25             | 20M25              | 20                          |
| 7.5          | 15  | 40             | 32M40              | 25                          |
| 11.0         | 20  | 50             | 32M50              | 32                          |
| 15.0         | 27  | 63             | 32M63              | 40                          |
| 18.5         | 33  | 80             | 63M80              | 50                          |
| 22.0         | 38  | 80             | 63M80              | 50                          |
| 30.0         | 54  | 100            | 63M100             | 80                          |
| 37.0         | 66  | 125            | 100M125            | 80                          |
| 45.0         | 79  | 160            | 100M160            | 100                         |
| 55.0         | 98  | 160            | 100M160            | 100                         |
| 75.0         | 135 | 250            | 200M250            | 160                         |
| 90.0         | 155 | 250            | 200M250            | 160                         |
| 110.0        | 185 | 315            | 200M315            | 200                         |
| 132.0        | 220 | 355            | 315M400            | 250                         |
| 150.0        | 250 | 355            | 315M400            | 315                         |
| 185.0        | 310 | 450            | 400M500            | 355                         |
| 200.0        | 335 | 500            | 400M500            | 400                         |
| 225.0        | 375 | 560            | -                  | 400                         |
| 250.0        | 415 | 560            | -                  | 450                         |
| 280.0        | 460 | 630            | -                  | 500                         |
| 335.0        | 562 | 710            | -                  | 630                         |
| 355.0        | 596 | 800            | -                  | 710                         |

## DIMENSIONAL DATA FOR NH FUSES



Dimensions in millimetres

| Fuse Size | $I_n$<br>(A) | $a_1$ | $a_2$ | $a_3$ | $a_4$ | $b$ (min) | $c_1$ | $D$ | $e_1$ | $e_2$ | $f$ |
|-----------|--------------|-------|-------|-------|-------|-----------|-------|-----|-------|-------|-----|
| C00       | 63           | 78.5  | 53    | 45.5  | 49    | 15        | 35    | 1.7 | 39.5  | 20.5  | 7   |
| 00        | 160          | 78.5  | 53    | 45.5  | 49    | 15        | 35    | 1.7 | 38    | 29    | 7   |
| 01        | 160          | 135   | 69    | 62    | 67    | 15        | 40    | 2.5 | 45    | 29    | 12  |
| 1         | 250          | 135   | 69    | 61    | 67    | 20        | 40    | 3   | 50    | 44.5  | 12  |
| 02        | 250          | 150   | 69    | 61    | 67    | 20        | 48    | 3   | 50    | 44.5  | 12  |
| 2         | 400          | 150   | 70    | 61    | 67    | 25        | 48    | 3   | 58    | 50    | 12  |
| 03        | 400          | 150   | 70    | 61    | 68    | 25        | 60    | 3   | 58    | 50    | 12  |
| 3         | 630          | 150   | 73    | 61    | 68    | 32        | 60    | 3   | 73    | 71    | 15  |
| 4a        | 1000         | 200   | 84    | 84    | 90    | 50        | 85    | 3   | 102   | 87    | 30  |
| 4a        | 1600         | 200   | 84    | 84    | 90    | 50        | 85    | 3   | 110   | 95    | 30  |

# TERMS & CONDITIONS

## General

All orders for goods (the "Goods") to be supplied by Hagemeyer (UK) Limited or any of its subsidiary companies as the case may be (hereinafter referred to as the "Company") are subject to these conditions of sale and the placing of an order by a Buyer ("the Buyer") constitutes acceptance of these conditions.

These conditions may not be modified or varied unless the Company agrees in writing and the Company will not be deemed to accept any other conditions nor waive any of these conditions by failing to object to provisions contained in any purchase order or other communications from the Buyer. No person has authority on behalf of the Company to vary any conditions imposed by a written Variation signed by a director or the company secretary.

## Validity of Quotations

Quotations from the Company are stated to be open for such time as may be specified in each such quotation and provided it is not withdrawn by the Company in such period it remains capable of acceptance. No binding contract will be created by the acceptance by the Buyer of the Company's quotation until notice of such acceptance has been given in a purchase order and has either been signed by the Company's duly authorised representative or the Company has indicated to the Buyer orally or in writing its acceptance of such order.

If the Buyer places an order with the Company without requesting a quotation from the Company or before such a quotation has been provided, all deliveries carried out in satisfaction of such order will be subject to these conditions.

## New Accounts

Prospective customers wishing to open a credit account are requested to furnish two trade references and one Banker's reference. Until the opening of a credit account has been confirmed a remittance should accompany the order, otherwise delivery will not be made until after the references have proved acceptable to the Company.

## Settlement Terms

Accounts are payable by the last working day of the month following the month in which delivery of the Goods takes place. Time for payment will be of the essence. If the Buyer has exceeded any agreed credit terms, the Company may demand immediate payment of all amounts outstanding from the Buyer to the Company on any account. The Company reserves the right to refuse credit at any time and demand immediate payment of all monies outstanding. Receipts will only be issued against payments made by cheque if specifically requested.

The Company, at its discretion, reserves the right to charge interest on accounts outstanding beyond the time specified in this condition. The rate of interest will be 3% per annum over Barclays Bank base lending rate from time to time in non-payment. The Company may exercise this right in addition to any other rights it may have in respect of the Goods or non-payment.

Where the contract is to be or may be fulfilled in separate instalments deliveries or parts, payment for each such instalment delivery or part will be made as if the same constituted a separate contract. Failure by the Buyer to pay for an instalment in accordance with this clause will entitle the Company without prejudice to its other rights and remedies to suspend further deliveries of Goods under any other contract to the Buyer pending payment by the Buyer.

The Buyer will indemnify the Company against all costs, losses and liability including but not limited to all legal expenses and disbursements incurred by the Company in recovering any amount which is overdue from the Buyer to the Company pursuant to this Agreement or otherwise.

## Prices

Unless otherwise agreed in writing all orders are executed subject to prices and any relevant discounts ruling at the date of receipt of the order and any price list of the Company whether published or not will not affect the right of the Company to charge for Goods in accordance with this clause. All prices are subject to the addition of value Added Tax at the appropriate rate.

In the event of termination, variation or suspension of a contract on the Buyer's instruction or by lack of instruction, the contract price will be adjusted to reflect the additional costs incurred by the Company. Where a price per unit has been quoted and the Buyer requires a smaller number of units to be delivered than those quoted for, the Company reserves the right to adjust the rates of prices applicable thereto.

## Credit

Any contract will be subject to the Company being satisfied as to the Buyer's credit worthiness and without prejudice to the generality of the foregoing the Company may in its absolute discretion, having informed the Buyer that the Goods are to be delivered for delivery, refrain from delivering the Goods until such time as the Buyer tenders the purchase money to the Company in a form satisfactory to the Company.

## Orders

The Buyer may place orders by post, fax, email or telephone.

Where Orders are sent by post fax or e-mail in confirmation of telephone instructions the Buyer will ensure they are clearly marked as such, failing which any additional expense incurred by the Company as a result of duplication of orders will be charged to the Buyer.

## Delivery

Delivery dates (if any) given by the Company are given in good faith to indicate estimated delivery times but will not amount to any contractual obligation to deliver at the times stated. The Company will not be liable for any loss including (but not limited to) loss of profit, costs, damages, charges or expenses caused directly or indirectly by any delay in the delivery of the Goods (even if caused by the Company's negligence) nor unless any delay exceeds 180 days will such delay entitle the Buyer to terminate or reject the contract.

Failure by the Company to deliver any more or more (but not all) instalments in accordance with this contract will not entitle the Buyer to treat this contract as repudiated.

If the Buyer fails to take delivery of any of the Goods when they are ready for delivery or fails to provide any instructions or authorisations required to enable the Goods to be delivered on time the Goods will be deemed to have been delivered and (without prejudice to its other rights) the Company may: store the Goods until actual delivery or sale and charge the Buyer for all related costs and expenses (including, without limitation, storage and insurance); and/or following written notice to the Buyer, sell any of the goods at the best price reasonably obtainable in the circumstances and charge the Buyer for any shortfall below the price agreed with the Buyer.

## Passing of Title/Risk

Risk of damage to or loss of the Goods will pass to the Buyer upon delivery.

Ownership of the Goods will not pass to the Buyer until the Company has received in full (in cash or cleared funds) all sums due to it in respect of the Goods and all other sums which are or which become due to the Company from the Buyer on any account.

Until ownership of the Goods has passed to the Buyer, the Buyer must:

hold the Goods on a fiduciary basis as the Company's bailee;

store the Goods (at its own cost) separately from all other goods of the Buyer or any third party so that they are identifiable as the Company's property; not destroy, deface or obscure any identifying mark or packaging on or relating to the Goods;

maintain the Goods in satisfactory condition insured on the Company's behalf for their full price against all risks to the reasonable satisfaction of the Company. On request the Buyer will produce evidence of the policy of insurance to the Company; and hold any proceeds of such insurance on trust for the Company separately from any other money, and not pay the proceeds into an overdrawn bank account.

The Buyer may resell the Goods before ownership has passed to it provided such sale is:

in the ordinary course of the Buyer's business at full market value and the Buyer will account to the Company accordingly; and on the Buyer's own behalf and the Buyer deals as principal when making such sale.

If the Company cannot determine which goods are the Goods, the Buyer will be deemed to have sold all goods sold by the Company to the Buyer in the order in which they were invoiced to the Buyer.

The Company will be entitled to recover payment for the Goods notwithstanding that ownership of any Goods has not passed from the Company.

The Buyer grants the Company, its agents and employees an irrevocable licence at any time to enter any premises where the Goods are or may be stored in order to inspect them, or, where the Buyer's right of possession has terminated, to recover them.

## Delivery / Carriage

The Company normally makes no charge for delivery from its own warehouses within its normal delivery area but reserves the right to charge carriage for delivery outside such delivery area.

Where Goods are specially ordered and a carriage charge is made by such manufacturers, the Company reserves the right to recover this charge from the Buyer.

## Packaging

The Company may impose additional charges in respect of packaging it uses for transportation and delivery of the Goods. Any such charges will either be contained or referred to in the applicable quotation. For the avoidance of doubt, the parties envisage that such additional charge will be levied in respect of Goods which are dispatched in crates, drums, cases, pallets or other similar packaging and may be levied at the Company's discretion in the case of any other packaging.

Where the Company charges for packaging pursuant to clause 11.1, unless otherwise specified by the Company, the Buyer will be entitled to a full credit for such additional charges, to be credited against subsequent invoices, so long as such packaging is returned undamaged to the Company carriage paid within 14 days of the date of the invoice for the Goods.

## Damage in transit and shortages

The Company will, when the price quoted includes delivery, repair or replace free of charge Goods damaged in transit provided that the Company and its designated carriers receive written notification of such damage within three days of delivery. Goods received in a damaged or unsatisfactory condition must be signed for as such.

On receipt Goods should be checked by the Buyer with the advice note enclosed with the Goods. Shortage claims will be considered if the Company and its designated carriers receive written notification of any such shortage within 3 days of delivery failing which no liability will be admitted. In any such case, the packaging and contents should be retained for inspection.

## Returns

Goods correctly supplied may not be returned without the Company's prior written agreement. Goods so returned must be consigned carriage paid and accompanied by a packing note stating the Company's invoice number and date thereof together with the reason for return. In such circumstances, the Company may impose a restocking charge.

If the Goods (or any of them) are returned and are subsequently lost in transit the Company will only issue credit if it can conclusively prove that the Company or its agents have actually removed the Goods from the Buyer's premises.

## Quality

Unless the Company specifies otherwise in its quotation, the Company will not be liable for any defect in quality of any of the Goods, and the obligations of the Company in such respect will be restricted to applying its reasonable endeavours to: transfer to the Buyer the benefit of any warranty or guarantee provided by the Company in respect of the Goods; or make and pursue any available claim under the terms of any warranty or guarantee as mentioned in clause 14.1. In the event of a claim being made, the Company will promptly account to the Buyer (to the extent of the Buyer's claim and subject to the deduction of an amount equal to the Company's reasonable costs incurred in making and pursuing such claim) for any proceeds resulting to the Company.

## Descriptive matter, specifications and illustrations

All descriptive and forwarding specifications drawings and particulars of weights and dimensions issued by the Company are approximate only and intended only to present a general idea of the goods to which they refer and will not form part of the contract.

The Company's policy is one of continuous improvement and it reserves the right to make reasonable changes to product specifications at its discretion. When placing an order with the Company, the Buyer must satisfy himself that the Company's then current specification of all the Goods is appropriate for its (or its customer's) requirements.

## Limitations of Liability

Nothing in these terms and conditions excludes or limits the liability of the Company for death or personal injury caused by the Company's negligence or fraudulent misrepresentation, or the conditions as to title implied by section 12 of the Sale of Goods Act 1979 as amended from time to time.

Any quotation includes only such Goods accessories and work in the quantities and to the specifications which are stated therein.

Subject to clause 14.1 and 16.2:

the Company's total liability in contract tort (including negligence or breach of statutory duty) misrepresentation or otherwise, arising in connection with the performance of this contract will be limited to the price agreed for the Goods; and the Company will not be liable to the Buyer by reason of any representation or any implied warranty, condition or other, or any duty at law or under the express terms of this contract for any indirect or consequential loss or damage (whether for loss of profits, loss of business, depletion of goodwill or otherwise); costs, expenses or other claims for consequential compensation (whether caused by the negligence of the Company, its employees, agents or subcontractors) which arise out of or in connection with this contract.

## Patents

In the event of any claim being made or action being brought against the Buyer in respect of infringement of British Patents by the use or sale of Goods supplied by the Company, the Buyer will notify the Company immediately and the Company will be at liberty with the Buyer's assistance if required but at the Company's expense to conduct through the Company's own lawyers and experts all negotiations for the settlement of the same or any litigation that may arise therefrom subject to such notifications and provided that no Goods or any part thereof will be used for any purpose other than that for which the Company supplied them and the Company will indemnify the Buyer in respect of any such claims.

Where the Company supplies Goods produced in accordance with designs or specifications provided by the Buyer, the Buyer warrants that to the best of its knowledge and belief such Goods do not infringe any third party right. The Buyer will indemnify and hold the Company harmless from all liability, claims, damages and costs and any other expenses in respect of any patent, trade-mark, design rights, know-how or other intellectual property which may be infringed (or alleged to be infringed) by the manufacture, sale or use of the Goods so supplied.

## Termination

Without prejudice to any other rights or remedies under the contract, either party may by written notice to the other, terminate the contract or (in the case of the Company) suspend future deliveries if:

the other fails to comply with any material obligation hereunder and such failure has not been remedied within ten days of written notification from the party requiring remedy;

the Buyer fails to furnish the Company with any information or instruction it requires to fulfil any order;

any director or executive is levied upon the Goods of the Buyer or if he makes or offers to make any arrangement with or for the benefit of his creditors or commits any act of bankruptcy or, being a limited company has a receiver appointed of its undertaking or assets or any part thereof or for the purpose of a reconstruction or amalgamation without solvency goes into liquidation or has an administrator or administrative receiver appointed

## Copyright

All drawings, descriptions and other information submitted by the Company will remain the property of the Company together with the copyright therein.

## Value Added Tax

Where chargeable Value Added Tax will be charged at the rate applicable at the date the Goods are dispatched.

## Legal Construction

Unless otherwise agreed by the Company in writing these conditions will in all respects be construed and operated as an English contract, in conformity with English Law, and the parties submit to the exclusive jurisdiction of the English courts.

Any provision of this contract which is held by any competent authority to be invalid, void, voidable, unenforceable or unreasonable (in whole or part) will to the extent of such invalidity, voidness, unenforceability or unreasonableness be deemed severable and the other provisions of this contract and the remainder of such provisions will not be affected.

Failure by the Company to enforce or partially enforce any provision of this contract will not be construed as a waiver of any of its rights under this contract.

## Samples

Any samples submitted to the Buyer at the Buyer's request must be returned to the Company in good condition within ninety days of receipt or use. Where payment is given to the Company may specify the market value of the market value of all samples not so returned. Such market value will be the market value on the date when the sample was due to be returned.

## Cancellation of an order

The Company reserves the right to refuse to accept any cancellation of an order other than in accordance with the provisions of conditions 10 and 11. Where payment is given to the Company and cancellation is written by the Company. In the event of any cancellation the Buyer must pay any expenses incurred by the Company.

## Minimum Invoice value

The Company reserves the right to impose a surcharge on orders less than GB£ net value exclusive of VAT and a minimum invoice charge of GB£5 plus VAT will be applied.

## Certification

A Buyer requiring Goods from a quality assured source or certificates of conformity must specify its requirements in writing at the time of placing the order.

## Force Majeure

The Company will not be liable to the Buyer in any manner or be deemed to be in breach of this contract (subject to condition 16) because of any delay in performing or any failure to perform any of the Company's obligations under this contract if the delay or failure was due to any cause beyond the Company's reasonable control.

Without prejudice to the generality of condition 26.1 the following will be included as causes beyond the Company's reasonable control: governmental actions, war or threat of war, national emergency, civil disturbance, sabotage or requisition;

Act of God, fire, explosion, flood, epidemic or accident;

import or export regulations or embargoes;

labour disputes not including disputes involving the Company's work-force; or inability to obtain or delay in obtaining supplies of adequate or suitable material, fuel, parts, machinery or labour.

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