

Size 1* to 3, DIN 43653, 170M

690 V a.c. (IEC), 700 V a.c. (UL), 40 to 2000 A



Catalogue symbol

- FWA-(amps)A10F (5 to 30 A)
- FWA-(amps)A21F (35 to 60 A)

Description

Square body DIN 43653 bolted tags high speed fuse links, for the protection of DC common bus, DC drives, power converters/rectifiers and reduced rated voltage.

Technical data

- Rated voltage:
 - 690 V a.c. (IEC)
 - 700 V a.c. (UL)
- Rated current: 40 - 2000 A
- Breaking capacity: 200 kA RMS Sym
- Operating class: aR

Agency information

- CE
- Designed and tested to IEC 60269 part 4
- UL recognised E125085.JFHR2
- CSA Certified Class 53787, File 1422-30
- CCC expect where specified

Features and benefits

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

Typical applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Pack quantity

- Body size 1*: 6 per pack
- Body size 1: 3 per pack
- Body size 2: 3 per pack
- Body size 3:
 - 3 per pack for -/80 and -TN/80
 - 1 per pack for -KN/80, -/110, -TN/110 and -KN/110

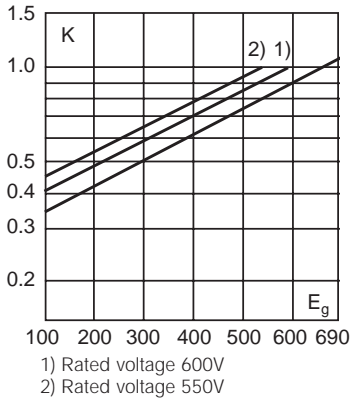
Fuse link weight

- Body size 1*: 0.07 kg
- Body size 1: 0.18 kg
- Body size 2: 0.23 kg
- Body size 3: 0.63 kg

Electrical characteristics

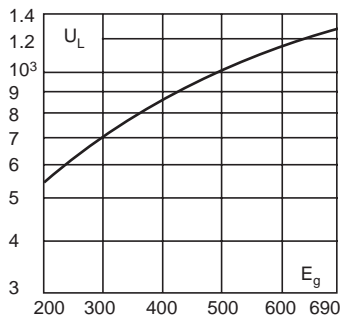
Total clearing I²t

The total clearing I²t at rated voltage and at a power factor of 15 percent are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (RMS).



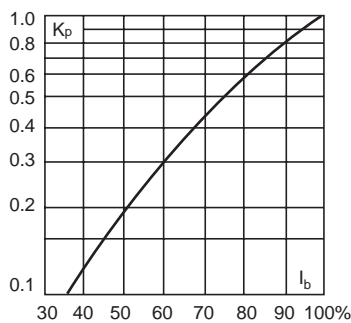
Arc voltage

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



Watts losses

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



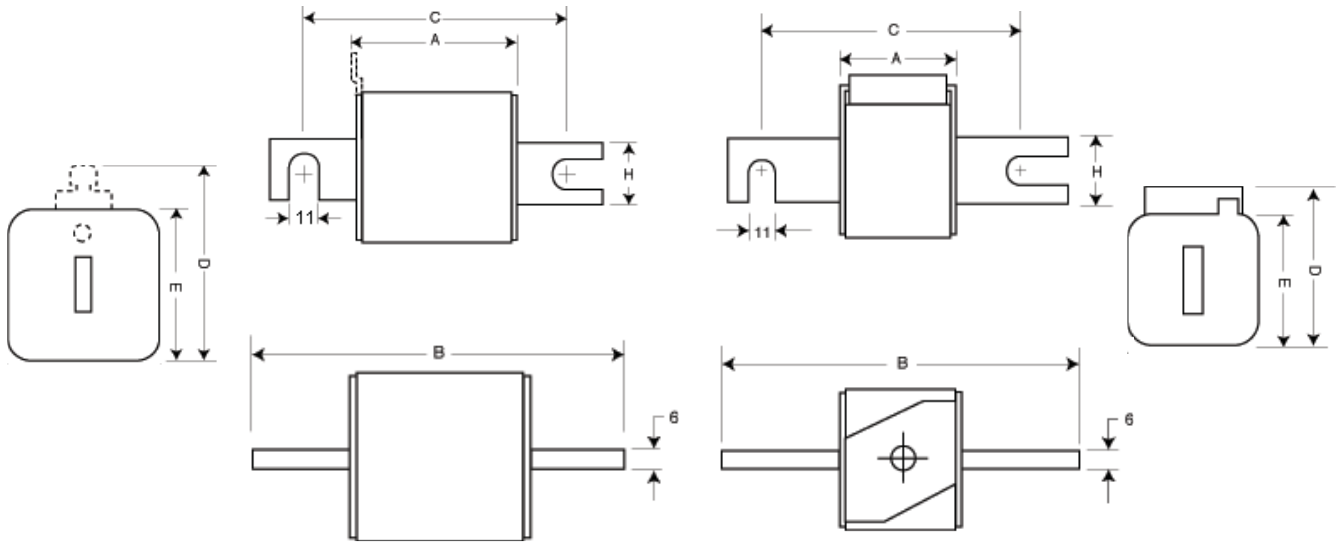
Technical data

| Fuse link body size | Rated voltage | Rated current (Amps) | I ² t (A ² Sec) | | | Catalogue numbers | | | | | |
|---------------------|------------------|------------------------|---------------------------------------|------------------------|----------------|-----------------------|-----------------------------------|-----------------------------------|------------------------|------------------------------------|------------------------------------|
| | | | Pre-arcing | Clearing at 660 V a.c. | Watts loss (W) | -/80 Visual indicator | -TN/80 Type T indicator for micro | -KN/80 Type K indicator for micro | -/110 Visual indicator | -TN/110 Type T indicator for micro | -KN/110 Type K indicator for micro |
| 1* | 690 V a.c. (IEC) | 40 | 40 | 270 | 9 | 170M3008 | 170M3058 | 170M3108 | 170M3158 | 170M3208 | 170M3258 |
| | | 50 | 77 | 515 | 11 | 170M3009 | 170M3059 | 170M3109 | 170M3159 | 170M3209 | 170M3259 |
| | | 63 | 115 | 770 | 14 | 170M3010 | 170M3060 | 170M3110 | 170M3160 | 170M3210 | 170M3260 |
| | | 80 | 185 | 1250 | 18 | 170M3011 | 170M3061 | 170M3111 | 170M3161 | 170M3211 | 170M3261 |
| | | 100 | 360 | 2450 | 21 | 170M3012 | 170M3062 | 170M3112 | 170M3162 | 170M3212 | 170M3262 |
| | | 125 | 550 | 3700 | 26 | 170M3013 | 170M3063 | 170M3113 | 170M3163 | 170M3213 | 170M3263 |
| | | 160 | 1100 | 7500 | 30 | 170M3014 | 170M3064 | 170M3114 | 170M3164 | 170M3214 | 170M3264 |
| | | 200 | 2200 | 15,000 | 35 | 170M3015 | 170M3065 | 170M3115 | 170M3165 | 170M3215 | 170M3265 |
| | 700 V a.c. (UL) | 250 | 4200 | 28,500 | 40 | 170M3016 | 170M3066 | 170M3116 | 170M3166 | 170M3216 | 170M3266 |
| | | 315 | 7000 | 46,500 | 50 | 170M3017 | 170M3067 | 170M3117 | 170M3167 | 170M3217 | 170M3267 |
| | | 350 | 10,000 | 68,500 | 55 | 170M3018 | 170M3068 | 170M3118 | 170M3168 | 170M3218 | 170M3268 |
| | | 400 | 15,000 | 105,000 | 60 | 170M3019 | 170M3069 | 170M3119 | 170M3169 | 170M3219 | 170M3269 |
| | | 450 | 21,000 | 140,000 | 65 | 170M3020 | 170M3070 | 170M3120 | 170M3170 | 170M3220 | 170M3270 |
| | | 500 | 27,000 | 180,000 | 70 | 170M3021 | 170M3071 | 170M3121 | 170M3171 | 170M3221 | 170M3271 |
| | | 550 | 34,000 | 230,000 | 75 | 170M3022 | 170M3072 | 170M3122 | 170M3172 | 170M3222 | 170M3272 |
| | | 630 | 48,500 | 325,000 | 80 | 170M3023 | 170M3073 | 170M3123 | 170M3173 | 170M3223 | 170M3273 |
| 1 | 690 V a.c. (IEC) | 200 | 1650 | 11,500 | 45 | 170M4008 | 170M4058 | 170M4108 | 170M4158 | 170M4208 | 170M4258 |
| | | 250 | 3100 | 21,000 | 55 | 170M4009 | 170M4059 | 170M4109 | 170M4159 | 170M4209 | 170M4259 |
| | | 315 | 6200 | 42,000 | 58 | 170M4010 | 170M4060 | 170M4110 | 170M4160 | 170M4210 | 170M4260 |
| | | 350 | 8500 | 59,000 | 60 | 170M4011 | 170M4061 | 170M4111 | 170M4161 | 170M4211 | 170M4261 |
| | | 400 | 13,500 | 91,500 | 65 | 170M4012 | 170M4062 | 170M4112 | 170M4162 | 170M4212 | 170M4262 |
| | 700 V a.c. (UL) | 450 | 17,000 | 120,000 | 70 | 170M4013 | 170M4063 | 170M4113 | 170M4163 | 170M4213 | 170M4263 |
| | | 500 | 25,000 | 170,000 | 72 | 170M4014 | 170M4064 | 170M4114 | 170M4164 | 170M4214 | 170M4264 |
| | | 550 | 34,000 | 230,000 | 75 | 170M4015 | 170M4065 | 170M4115 | 170M4165 | 170M4215 | 170M4265 |
| | | 630 | 52,000 | 350,000 | 80 | 170M4016 | 170M4066 | 170M4116 | 170M4166 | 170M4216 | 170M4266 |
| | | 700 | 69,500 | 465,000 | 85 | 170M4017 | 170M4067 | 170M4117 | 170M4167 | 170M4217 | 170M4267 |
| 2 | 690 V a.c. (IEC) | 800 | 105,000 | 725,000 | 95 | 170M4018 | 170M4068 | 170M4118 | 170M4168 | 170M4218 | 170M4268 |
| | | 900 ² | 155,000 | 850,000 ² | 100 | 170M4019 ¹ | 170M4069 ¹ | 170M4119 ¹ | 170M4169 ¹ | 170M4219 ¹ | 170M4269 ¹ |
| | | 400 | 11,000 | 74,000 | 65 | 170M5008 | 170M5058 | 170M5108 | 170M5158 | 170M5208 | 170M5258 |
| | | 450 | 15,500 | 105,000 | 70 | 170M5009 | 170M5059 | 170M5109 | 170M5159 | 170M5209 | 170M5259 |
| | | 500 | 21,500 | 145,000 | 75 | 170M5010 | 170M5060 | 170M5110 | 170M5160 | 170M5210 | 170M5260 |
| | | 550 | 28,000 | 190,000 | 80 | 170M5011 | 170M5061 | 170M5111 | 170M5161 | 170M5211 | 170M5261 |
| | 700 V a.c. (UL) | 630 | 41,000 | 275,000 | 90 | 170M5012 | 170M5062 | 170M5112 | 170M5162 | 170M5212 | 170M5262 |
| | | 700 | 60,500 | 405,000 | 95 | 170M5013 | 170M5063 | 170M5113 | 170M5163 | 170M5213 | 170M5263 |
| | | 800 | 86,000 | 575,000 | 105 | 170M5014 | 170M5064 | 170M5114 | 170M5164 | 170M5214 | 170M5264 |
| | | 900 | 125,000 | 840,000 | 110 | 170M5015 | 170M5065 | 170M5115 | 170M5165 | 170M5215 | 170M5265 |
| | | 1000 | 180,000 | 1,250,000 | 115 | 170M5016 | 170M5066 | 170M5116 | 170M5166 | 170M5216 | 170M5266 |
| | | 1100 ³ | 245,000 | 1,600,000 | 120 | 170M5017 | 170M5067 | 170M5117 | 170M5167 | 170M5217 | 170M5267 |
| 3 | 690 V a.c. (IEC) | 1250 ³ | 365,000 | 2,400,000 | 130 | 170M5018 | 170M5068 | 170M5118 | 170M5168 | 170M5218 | 170M5268 |
| | | 500 | 14,000 | 95,000 | 95 | 170M6008 | 170M6058 | 170M6108 | 170M6158 | 170M6208 | 170M6258 |
| | | 550 | 19,500 | 135,000 | 100 | 170M6009 | 170M6059 | 170M6109 | 170M6159 | 170M6209 | 170M6259 |
| | | 630 | 31,000 | 210,000 | 105 | 170M6010 | 170M6060 | 170M6110 | 170M6160 | 170M6210 | 170M6260 |
| | | 700 | 44,500 | 300,000 | 110 | 170M6011 | 170M6061 | 170M6111 | 170M6161 | 170M6211 | 170M6261 |
| | | 800 | 69,500 | 465,000 | 115 | 170M6012 | 170M6062 | 170M6112 | 170M6162 | 170M6212 | 170M6262 |
| | | 900 | 100,000 | 670,000 | 120 | 170M6013 | 170M6063 | 170M6113 | 170M6163 | 170M6213 | 170M6263 |
| | 700 V a.c. (UL) | 1000 | 140,000 | 945,000 | 125 | 170M6014 | 170M6064 | 170M6114 | 170M6164 | 170M6214 | 170M6264 |
| | | 1100 | 190,000 | 1,300,000 | 130 | 170M6015 | 170M6065 | 170M6115 | 170M6165 | 170M6215 | 170M6265 |
| | | 1250 | 290,000 | 1,950,000 | 140 | 170M6016 | 170M6066 | 170M6116 | 170M6166 | 170M6216 | 170M6266 |
| | | 1400 | 370,000 | 2,450,000 | 155 | 170M6017 | 170M6067 | 170M6117 | 170M6167 | 170M6217 | 170M6267 |
| | | 1500 | 460,000 | 3,100,000 | 160 | 170M6018 | 170M6068 | 170M6118 | 170M6168 | 170M6218 | 170M6268 |
| | | 1600 | 580,000 | 3,900,000 | 160 | 170M6019 | 170M6069 | 170M6119 | 170M6169 | 170M6219 | 170M6269 |
| | | 1800 ⁴ | 880,000 | 5,250,000 ⁴ | 165 | 170M6020 | 170M6070 | 170M6120 | 170M6170 | 170M6220 | 170M6270 |
| 2000 ⁵ | 1,150,000 | 6,350,000 ⁵ | 175 | 170M6021 | 170M6071 | 170M6121 | 170M6171 | 170M6221 | 170M6271 | | |

¹ Not UL Approved ² Rated voltage: 550 V a.c. IEC ³ Rated voltage: 600 V a.c. IEC, 700 V a.c. UL ⁴ Rated voltage: 600 V a.c. IEC, 500 V a.c. UL

⁵ Rated voltage: 550 V a.c. IEC, 500 V a.c. UL

Dimensions - mm



Type -/80, -TN/80, -/110, -TN/110

| Size | A | B | B ¹ | C | C ¹ | D ² | E | H |
|------|----|-----|----------------|----|----------------|----------------|----|----|
| 1* | 50 | 104 | 134 | 78 | 108 | 58 | 45 | 22 |
| 1 | 50 | 108 | 138 | 78 | 108 | 66 | 53 | 25 |
| 2 | 50 | 108 | 138 | 78 | 108 | 75 | 61 | 25 |
| 3 | 51 | 109 | 139 | 78 | 108 | 90 | 76 | 30 |

Type -KN/80, -KN/110

| Size | A | B | B ³ | C | C ³ | D | E | H |
|------|----|-----|----------------|----|----------------|----|----|----|
| 1* | 50 | 104 | 134 | 78 | 108 | 59 | 45 | 22 |
| 1 | 50 | 108 | 138 | 78 | 108 | 69 | 53 | 25 |
| 2 | 50 | 108 | 138 | 78 | 108 | 77 | 61 | 25 |
| 3 | 51 | 109 | 139 | 78 | 108 | 92 | 76 | 30 |

¹ Valid for fuse links type -/110, -TN/110.

² Valid for Fuse type -TN/80 and -TN/110.

³ Valid for fuse links type -KN/110.

1mm = 0.0394"

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