

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

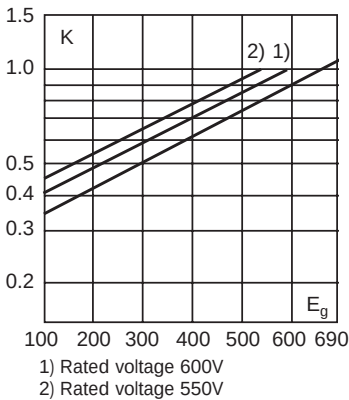
Fuse link weight

- 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

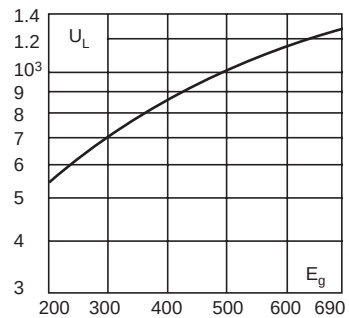
Total clearing I²t

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



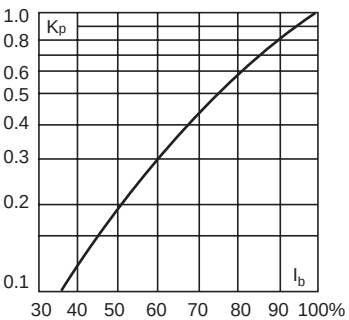
Arc voltage

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.

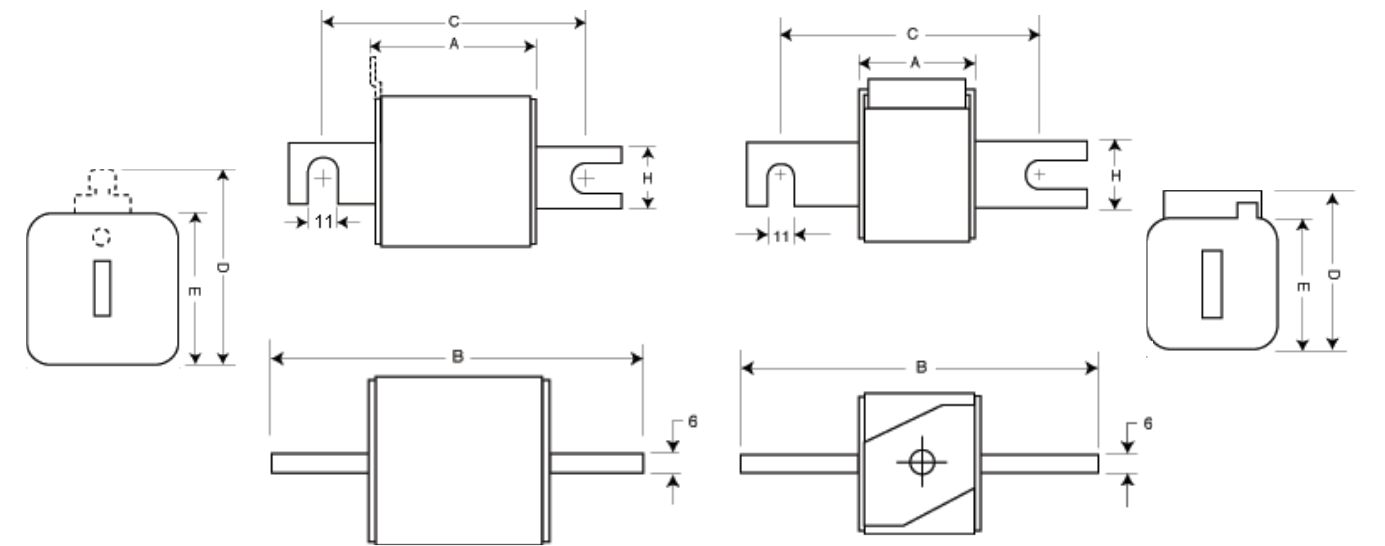


Technical data

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
		450	17,000	120,000	70	170M4013	170M4063	170M4113	170M4163	170M4213	170M4263
	700 V a.c. (UL)	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
		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
2	690 V a.c. (IEC)	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
		630	41,000	275,000	90	170M5012	170M5062	170M5112	170M5162	170M5212	170M5262
		700	60,500	405,000	95	170M5013	170M5063	170M5113	170M5163	170M5213	170M5263
	700 V a.c. (UL)	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
		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
3	690 V a.c. (IEC)	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
		1000	140,000	945,000	125	170M6014	170M6064	170M6114	170M6164	170M6214	170M6264
	700 V a.c. (UL)	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. UL⁵ 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

¹ Valid for fuse links type -/110, -TN/110.
² Valid for Fuse type -TN/80 and -TN/110.

1mm = 0.0394"

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

³ Valid for fuse links type -KN/110.
1mm = 0.0394"

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Square Body fuse accessories

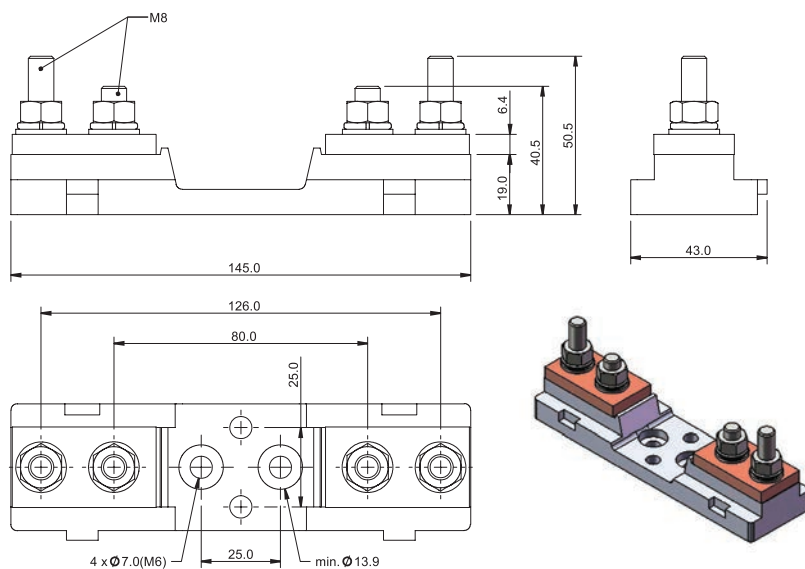
Fixed center fuse blocks for DIN 43653 fuses

Fuse blocks for use with DIN 43653 square body fuses with center distances of 80 and 110mm. Available for sizes 000, 00, 1*, 1, 2 and 3.

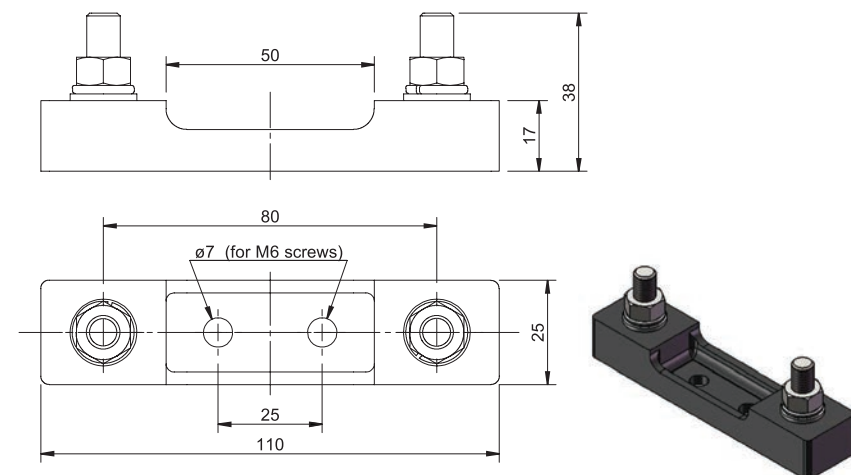
Sizes 000 to 00

Catalog no.	Max rated voltage	Max fuse amp rating	Center distance (mm)	Fuse sizes
170H1007	1000	400	80	00, 000
170H1013	690	200	80	0000, 000

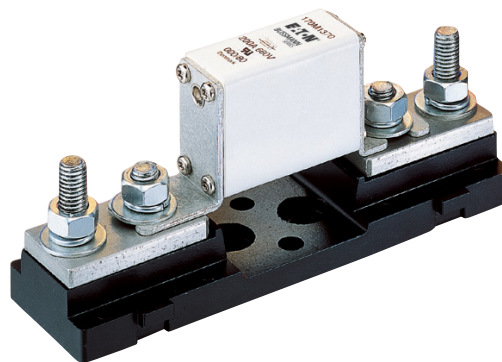
Dimensions — mm



170H1007



170H1013



Square Body fuse accessories

Fixed center fuse blocks for DIN 43653 fuses

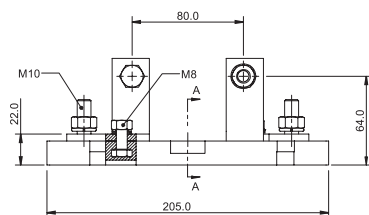
Sizes 1* to 3

Catalog no.	Max rated voltage	Max fuse amp rating	Center distance (mm)
170H3003	1000	630	80
170H3004†	1000	1250	80
170H3005	1400	630	110
170H3006†	1400	1250	110

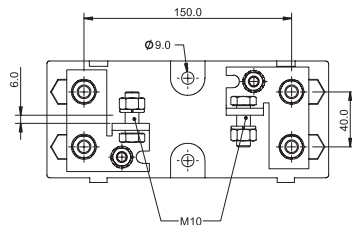
† Fuses with ratings higher than 1250 A can be used with 170H3004 or 170H3006 if the maximum load current is derated according to this table.

Fuse amp rating	Max. amp load in fuse block
1400	1325
1500	1400
1600	1500
1800	1650
2000	1800

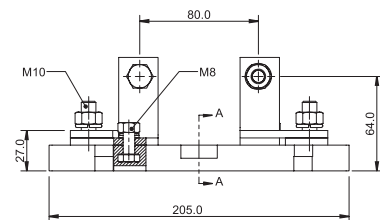
Dimensions — mm



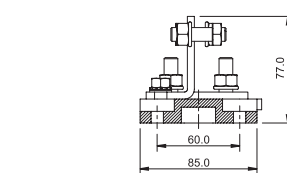
170H3003



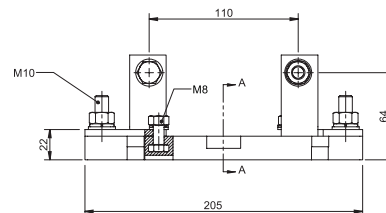
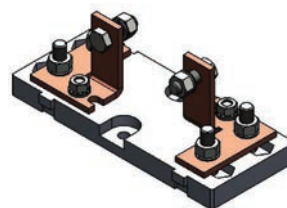
170H3004



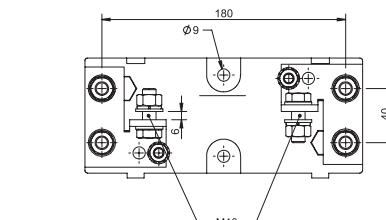
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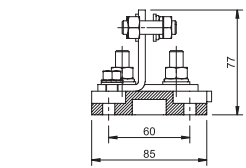
SECTION A-A



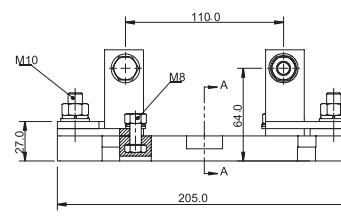
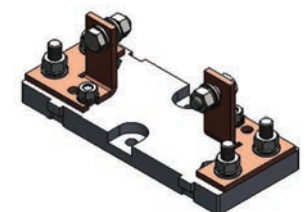
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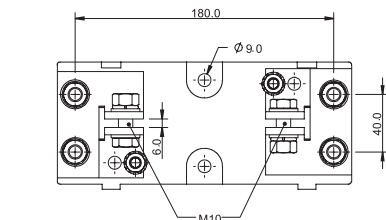
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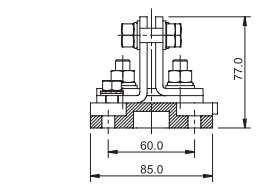
SECTION A-A



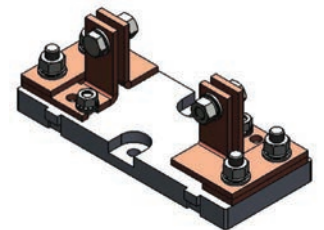
170H3006



170H3006



SECTION A-A



Square Body fuse accessories

Indicators

High speed square body fuses are available with the following indicators.

Visual indicator

The indicator situated in one end plate is clearly visible as soon as the fuse has operated. The minimum rated voltage for operating the indicator is 20 V.

Type T indicator

The indicator is situated on one cover plate with a cover plate tag to accommodate an auxiliary switch. The minimum rated voltage for operating the indicator is 20 V. A special low rated voltage indicator (1.5 V) is available on request.

Type K indicator

The indicator is situated on the fuse body. It is covered by an adapter for snap-on mounting of a microswitch. The rated operating voltage of the indicator is 1.5 V. As a matter of safety, the factory mounted adapter must not be removed from the fuse.

Microswitches

High speed square body fuses with either Type T or K indicators can be equipped with a microswitch for remote signaling of fuse operation. All microswitches have one normally open (NO) and one normally closed (NC) contact.

Ratings

- Volts 250 Vac
- Amps 5 A

Catalog numbers

Fuse size	DIN 43653		DIN 43620		French style		Flush-end		US style	Quick connect terminal size (mm)
	Type T	Type K	aR	gR and dual indication	Type T	Type K	Type T	Type K	Type K	
000	170H0236	—	170H0236	170H0236	—	—	—	—	—	6.3x0.8
	170H0238	—	170H0238	170H0238	—	—	—	—	—	2.8x0.5
00	170H0235	—	170H0236	170H0236	—	—	170H0235	—	—	6.3x0.8
	170H0237	—	170H0238	170H0238	—	—	170H0237	—	—	2.8x0.5
1*	170H0235	170H0069	170H0235	—	170H0236	170H0069	—	170H0069	170H0069	6.3x0.8
	170H0237	—	170H0237	—	170H0238	—	—	—	—	2.8x0.5
1	170H0235	170H0069	170H0235 ¹	170H0236	170H0236	170H0069	—	170H0069	170H0069	6.3x0.8
	170H0237	—	170H0237 ¹	170H0238	170H0238	—	—	—	—	2.8x0.5
2	170H0235	170H0069	170H0235	170H0236	170H0236	170H0069	—	170H0069	170H0069	6.3x0.8
	170H0237	—	170H0237	170H0238	170H0238	—	—	—	—	2.8x0.5
3	170H0235	170H0069	170H0236	170H0236	170H0236	170H0069	—	170H0069	170H0069	6.3x0.8
	170H0237	—	170H0238	170H0238	170H0238	—	—	—	—	2.8x0.5
4	—	—	—	—	—	—	—	170H0069	—	6.3x0.8
23	—	—	—	—	—	—	—	170H0069	—	
24	—	—	—	—	—	—	—	170H0069	—	

1 DIN2* (55x55), if DIN2 then use microswitch 170H0236, 170H0238.

For special microswitches, double microswitches, microswitches with DC ratings, lower/higher signal levels and for insulation voltages please contact Eaton's Bussmann Division: bulehighspeedtechnical@eaton.com.

