

# Eaton's Bussmann series 17.5 kV Medium voltage fuse links



## Product description

Eaton's Bussmann series range of 17.5 kV DIN Medium voltage fuse links are suitable for transformer protection.

These fuse links can be used even where there is no secondary LV protection, provided they are used with fuse switches fitted with instantaneous striker tripping.

## Standard features

- Cool running, low watts loss and power dissipation thanks to the M-effect ensuring high levels of substation utilisation.
- Silver elements ensuring high conductivity and low power (revenue) loss.
- 100% X-ray, all our medium voltage fuse links are X-rayed ensuring the highest possible standards are maintained.

**EATON***Powering Business Worldwide*

**Catalogue symbol:**

- 17.5AILSJ(amp)
- 17.5TDLSJ(amp)
- 17.5TFLSJ(amp)
- 17.5TDMEJ(amp)
- 17.5THMEJ(amp)
- 17.5TKMEJ(amp)

**Technical data:**

- Volts: 17.5 kV
- Amps: 6.3 to 125 A
- Breaking capacity: 35.5 to 50 kA
- Class of operation: Back-up as IEC 60282-1 (2005)
- Suitable for outdoor and indoor use
- RoHS compliant

**Standards/Approvals:**

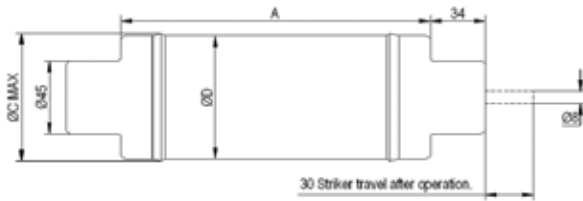
- DIN 43625
- VDE 0670 part 4 and 402
- IEC 60282-1 (2005)

**Packaging:**

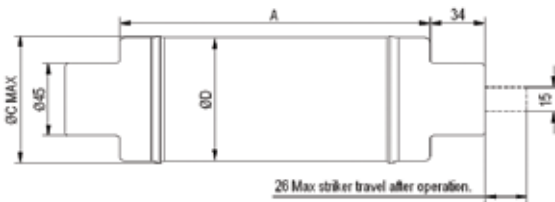
- MOQ 3

**Dimensions - mm**

EJ Outline



SJ Outline

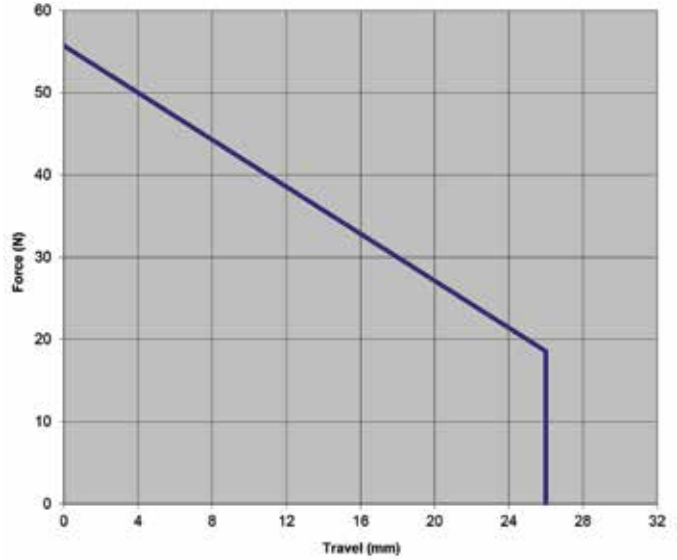


Fuse reference	A	C	D	Weight (Kg)
AILSJ	442	79	76	4.5
TDLSJ	292	54	51	1.7
TFLSJ	292	80	76	3.1
TDMEJ	442	54	51	2.5
THMEJ	442	67	64	3.7
TKMEJ	442	80	76	5.1

**Striker diagrams**

S = Spring diagram 50N to DIN 43625 and IEC 60282-1 designation 'medium'

Force x Travel diagram for 50N DIN striker



E = Spring striker 80N to IEC 60282-1 designation 'medium'

Force x Travel diagram for 80N DIN striker

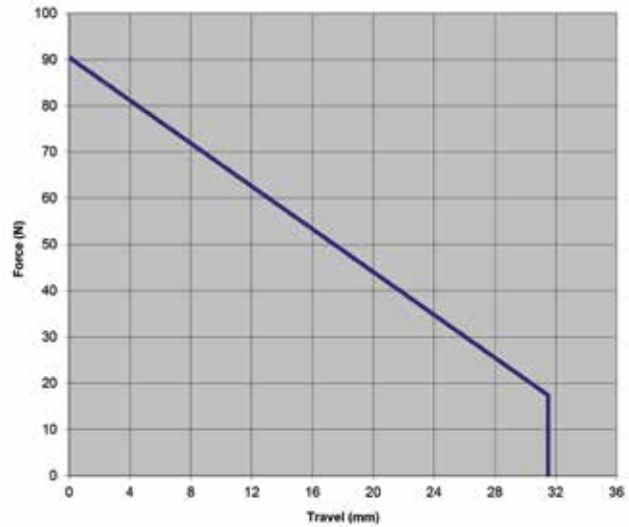


Table 1. Part numbers

Part numbers	Current $I_n$ (A)	Breaking capacity $I_1$ (kA)	Minimum breaking current $I_3$ (A)	Cold resistance & Watts loss in free air		Joule integral (I <sup>2</sup> t)		Length mm	Diameter mm	Weight kg
				mΩ	W	Minimum Pre-arcing	Maximum operating			
17.5AILSJ40*	100	25	176	7.33	102	1.4 x 10 <sup>4</sup>	2 x 10 <sup>5</sup>	442	76	4.5
17.5AILSJ50*	50	20	137	29.5	102	1.8 x 10 <sup>3</sup>	2.9 x 10 <sup>4</sup>	442	76	4.5
17.5AILSJ63*	63	20	125	23.6	130	3.2 x 10 <sup>3</sup>	4.5 x 10 <sup>4</sup>	442	76	4.5
17.5TDLSJ6.3*	6.3	35.5	23	313	15	4.8 x 10 <sup>1</sup>	6.1 x 10 <sup>2</sup>	292	51	1.7
17.5TDLSJ10*	10	35.5	19	185	23	2.8 x 10 <sup>2</sup>	4 x 10 <sup>3</sup>	292	51	1.7
17.5TDLSJ16*	16	35.5	59	104	34	2.9 x 10 <sup>2</sup>	2 x 10 <sup>3</sup>	292	51	1.7
17.5TDLSJ20*	20	35.5	80	69.2	38	5.7 x 10 <sup>2</sup>	4.4 x 10 <sup>3</sup>	292	51	1.7
17.5TDLSJ25*	25	35.5	100	55.4	48	8.9 x 10 <sup>2</sup>	6.6 x 10 <sup>3</sup>	292	51	1.7
17.5TDLSJ31.5*	31.5	35.5	118	41.4	58	5.1 x 10 <sup>2</sup>	1.1 x 10 <sup>4</sup>	292	51	1.7
17.5TDLSJ40*	40	35.5	148	31.1	76	8 x 10 <sup>2</sup>	1.8 x 10 <sup>4</sup>	292	51	1.7
17.5TFLSJ50*	50	35.5	225	17.3	62	8.1 x 10 <sup>3</sup>	6 x 10 <sup>4</sup>	292	76	3.1
17.5TDMEJ6.3	6.3	50	25	324	14	9.8 x 10 <sup>1</sup>	1 x 10 <sup>3</sup>	442	51	2.5
17.5TDMEJ10	10	50	36	192	24	2.8 x 10 <sup>2</sup>	2.3 x 10 <sup>3</sup>	442	51	2.5
17.5TDMEJ16	16	50	55	79.6	23	2.6 x 10 <sup>2</sup>	3.9 x 10 <sup>3</sup>	442	51	2.5
17.5TDMEJ20	20	50	69	57	27	5.2 x 10 <sup>2</sup>	5.4 x 10 <sup>3</sup>	442	51	2.5
17.5TDMEJ25	25	50	87	45.5	34	8.1 x 10 <sup>2</sup>	8.4 x 10 <sup>3</sup>	442	51	2.5
17.5TDMEJ31.5	31.5	50	87	34.1	41	1.4 x 10 <sup>3</sup>	1.5 x 10 <sup>4</sup>	442	51	2.5
17.5TDMEJ40	40	50	111	25	53	2.4 x 10 <sup>3</sup>	2.5 x 10 <sup>4</sup>	442	51	2.5
17.5TDMEJ50	50	50	174	19.7	69	2.8 x 10 <sup>3</sup>	3.1 x 10 <sup>4</sup>	442	51	2.5
17.5TDMEJ63	63	50	200	15.4	89	4.3 x 10 <sup>3</sup>	4.7 x 10 <sup>4</sup>	442	51	2.5
17.5THMEJ80	80	50	270	11.5	108	7.9 x 10 <sup>3</sup>	9.1 x 10 <sup>4</sup>	442	64	3.7
17.5THMEJ100	100	50	376	8.38	127	2 x 10 <sup>4</sup>	1.4 x 10 <sup>5</sup>	442	64	3.7
17.5TKMEJ125	125	50	467	5.95	146	3.4 x 10 <sup>4</sup>	3.5 x 10 <sup>5</sup>	442	76	5.1

\* Not suitable for outdoor use

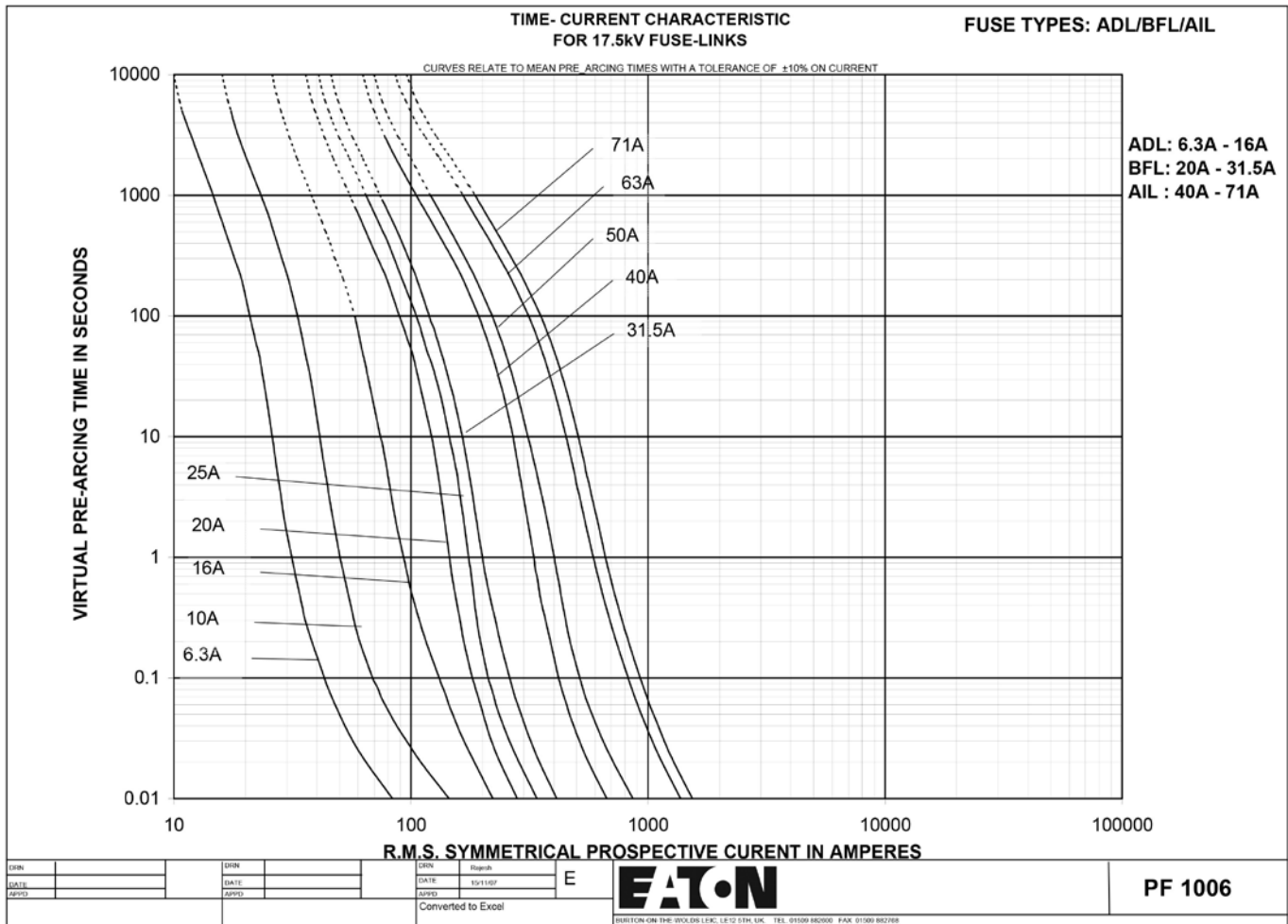
Table 2. Cross reference

Eaton's Bussmann series	SIBA	MESA	Merlin Gerin	Inael	ABB
17.5TDLSJ6.3	3025513	N/A	N/A	IB-D1	1YMB531003M0001
17.5TDLSJ10	3025513	CFR-17,5/10	51006 522 M0	IB-D1	1YMB531003M0002
17.5TDLSJ16	3025513	CFR-17,5/16	51006 523 M0	IB-D1	1YMB531003M0003
17.5TDLSJ20	3022113	N/A	N/A	IB-D1	1YMB531003M0013
17.5TDLSJ25	3022113	CFR-17,5/25	51006 524 M0	IB-D1 & IB-D2	1YMB531003M0004
17.5TDLSJ31.5	3022113	CFR-17,5/31.5	51006 525 M0	IB-D1 & IB-D2	1YMB531003M0014
17.5TDLSJ40	3022113	CFR-17,5/40	51006 526 M0	IB-D1 & IB-D2	1YMB531003M0021
17.5TFLSJ50	3022113	N/A	N/A	IB-D2	1YMB531003M0022
17.5TDMEJ6.3	3023113	N/A	N/A	IB-D1	1YMB531037M0001
17.5TDMEJ10	3023113	N/A	N/A	IB-D1	1YMB531037M0002
17.5TDMEJ16	3023113	N/A	N/A	IB-D1	1YMB531037M0003
17.5TDMEJ20	3023113	N/A	N/A	IB-D1	1YMB531037M0013
17.5TDMEJ25	3023113	N/A	N/A	IB-D1	1YMB531037M0004
17.5TDMEJ31.5	3023113	N/A	N/A	IB-D1	1YMB531037M0014
17.5TDMEJ40	3023113	N/A	N/A	IB-D1	1YMB531037M0021
17.5TDMEJ50	3023213	N/A	N/A	N/A	1YMB531037M0006
17.5TDMEJ63	3023213	N/A	N/A	IB-D2	1YMB531037M0007
17.5THMEJ80	3023213	N/A	N/A	N/A	1YMB531037M0008
17.5THMEJ100	3023313	N/A	N/A	IB-D2	1YMB531003M0009
17.5TKMEJ125	3023314	N/A	N/A	N/A	1YMB531003M0010

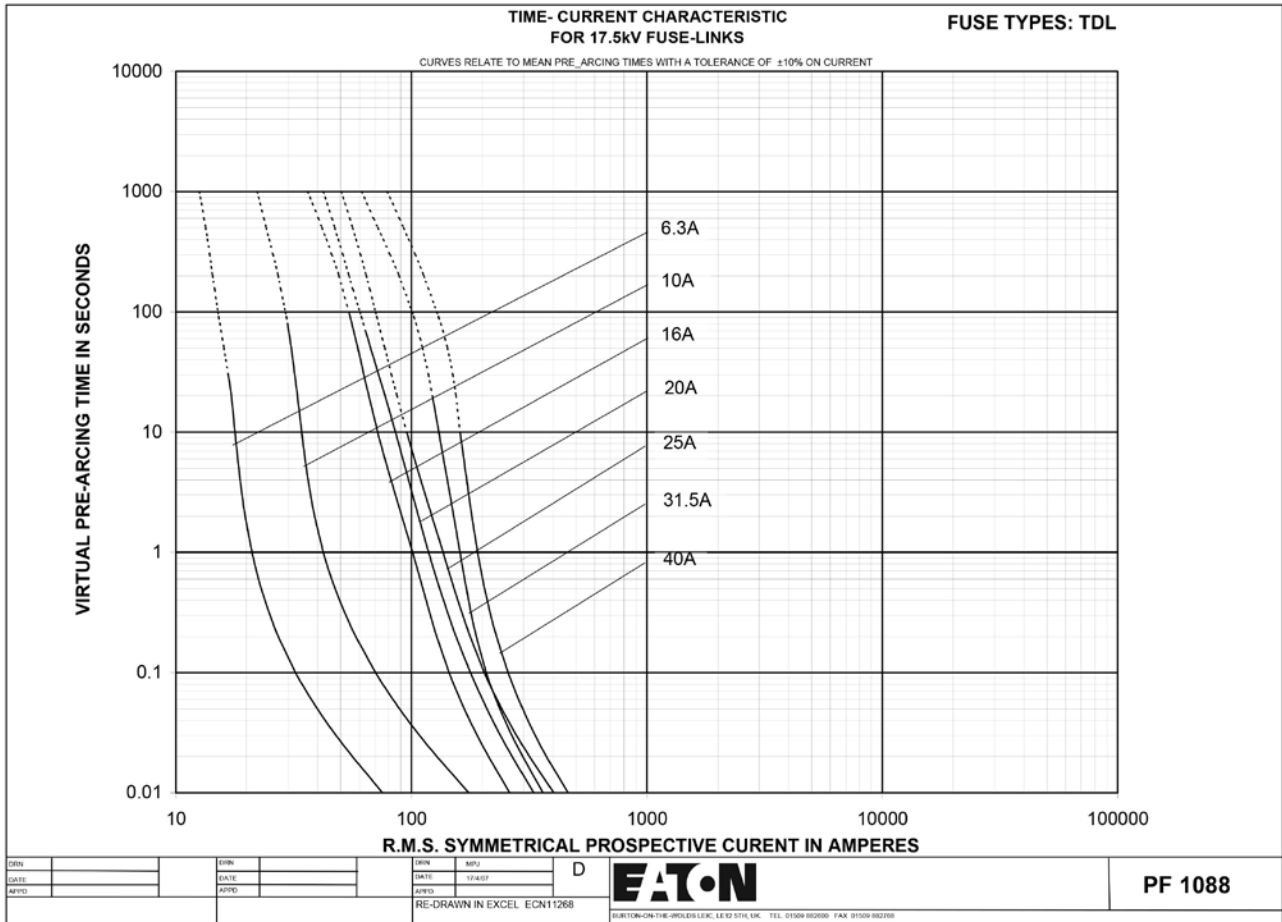
**Table 3. Watts loss comparison**

Eaton's Bussmann series	Eaton's Bussmann series	SIBA	MESA	Merlin Gerin	ABB
17.5TDLSJ6.3	15	25			54
17.5TDLSJ10	23	48	23	23	41
17.5TDLSJ16	34	37	47	47	67
17.5TDLSJ20	38	40			52.6
17.5TDLSJ25	48	56	72	72	64
17.5TDLSJ31.5	58	65	78	78	56.7
17.5TDLSJ40	76	84	90	90	80
17.5TFLSJ50	62	101			90
17.5TDMEJ6.3	14	31			54
17.5TDMEJ10	24	48			41
17.5TDMEJ16	23	37			67
17.5TDMEJ20	27	42			52.6
17.5TDMEJ25	34	56			64
17.5TDMEJ31.5	41	69			56.7
17.5TDMEJ40	53	84			80
17.5TDMEJ50	69	101			90
17.5TDMEJ63	89	106			100
17.5THMEJ80	106	137			124
17.5THMEJ100	128	182			136
17.5TKMEJ125	146	229			175

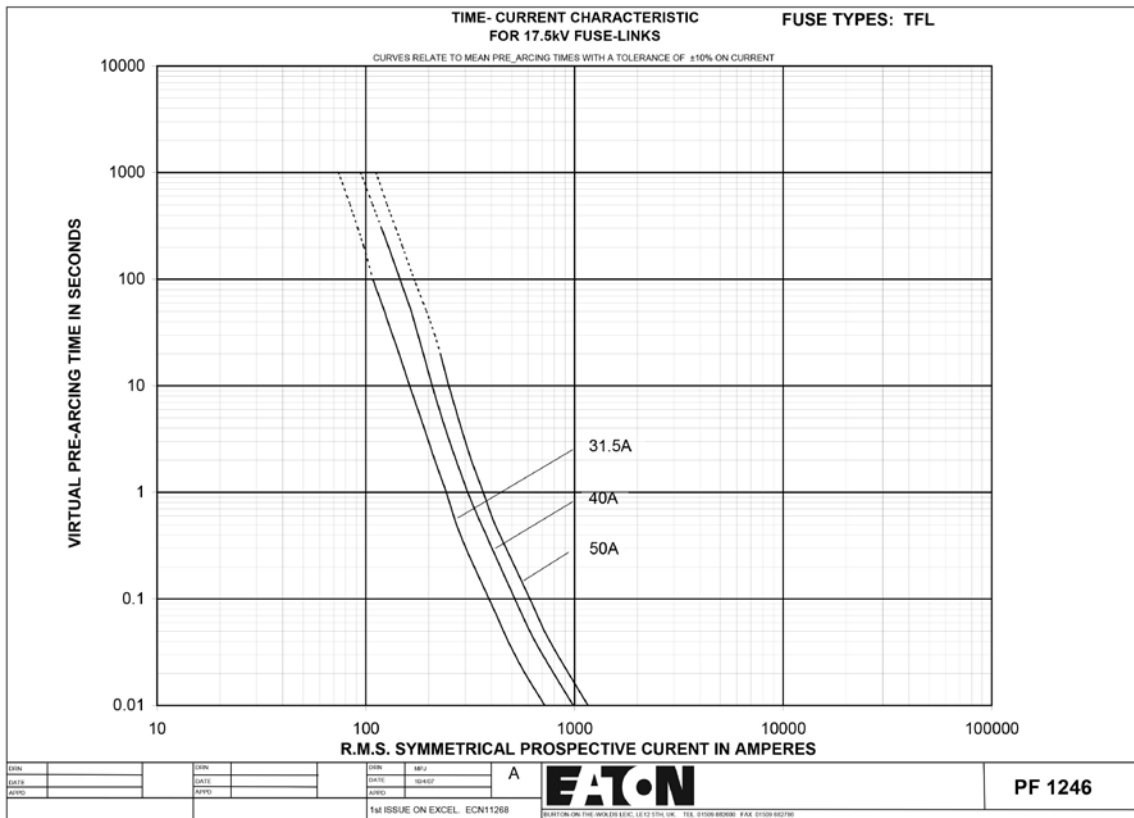
**Time current curve - Fuse type AIL**



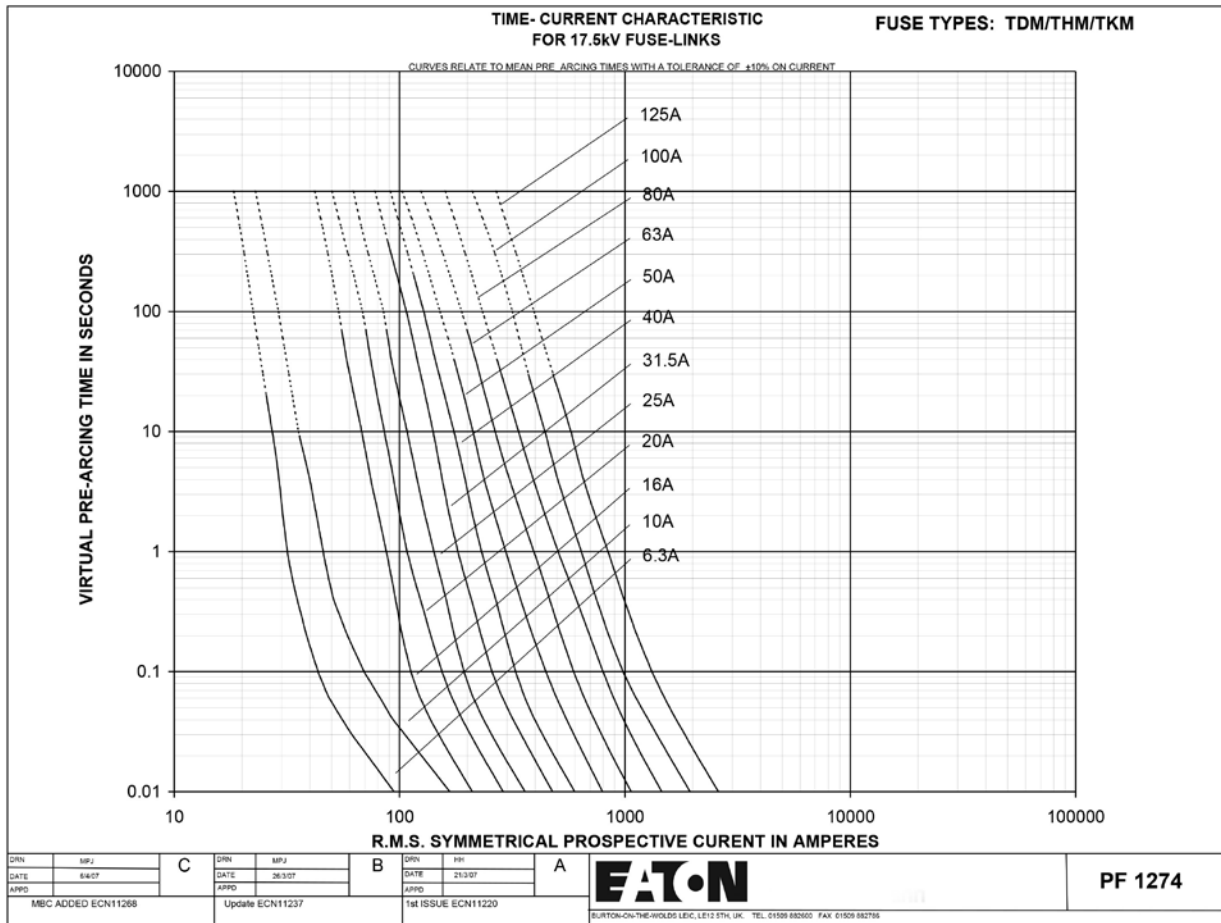
Time current curve - Fuse type TDL



Time current curve - Fuse type TFL



**Time current curve - Fuse types TDM, THM, TKM**

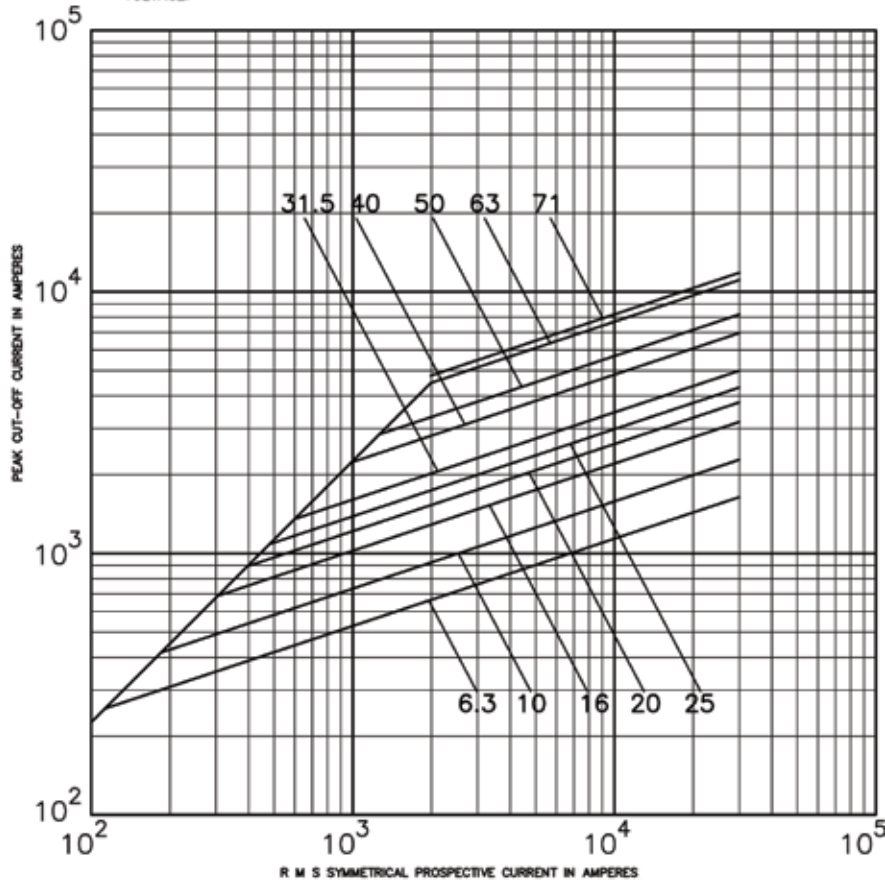


Cut-off curve - Fuse type AILS

REF No PF 2006 CUT-OFF CURRENT CHARACTERISTICS FOR 17.5 kV FUSE LINKS. FUSE TYPE ADL BFL AIL

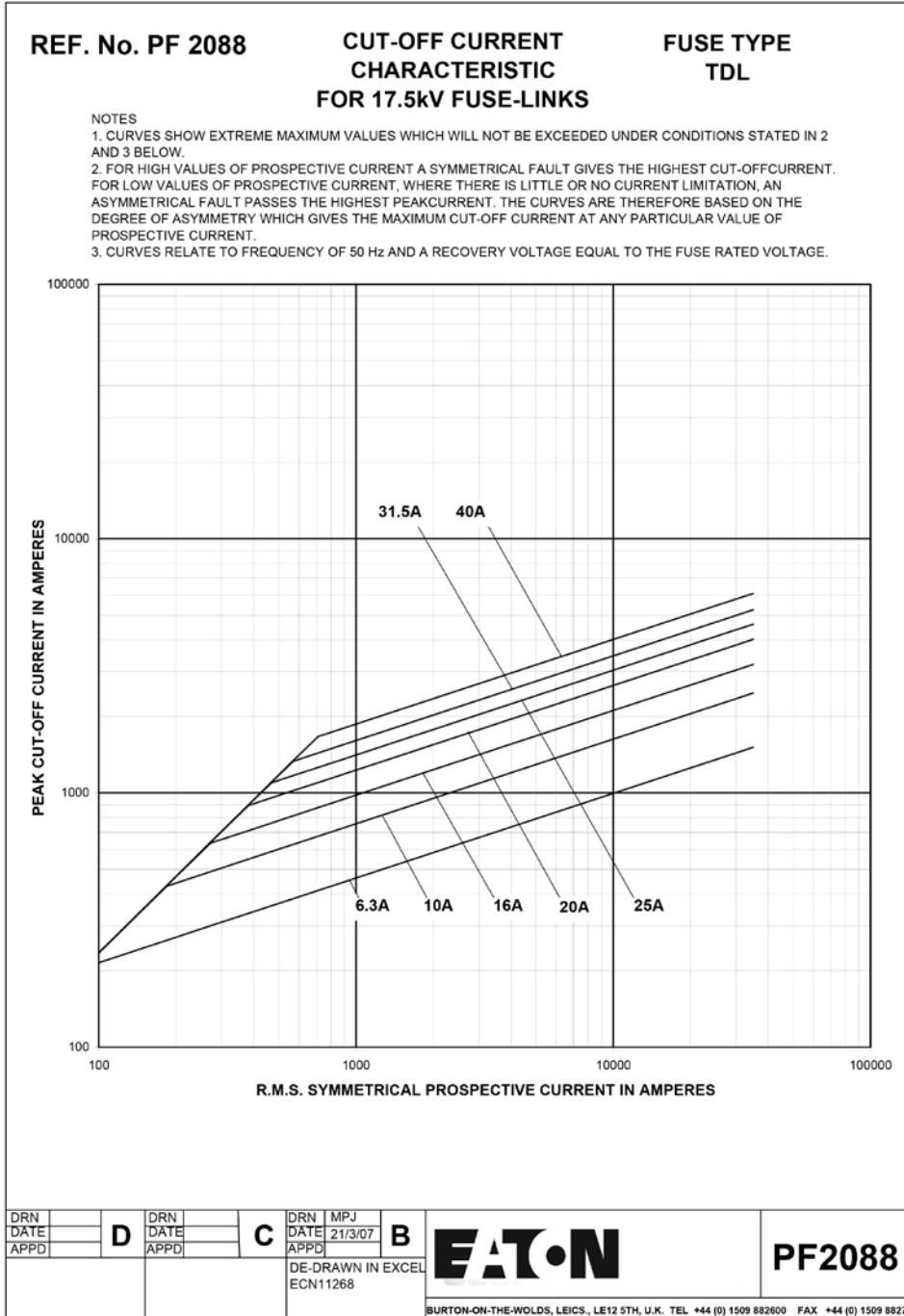
NOTES

- 1 CURVES SHOW EXTREME MAXIMUM VALUES WHICH WILL NOT BE EXCEEDED UNDER CONDITIONS STATED IN (2) AND (3) BELOW.
- 2 FOR HIGH VALUES OF PROSPECTIVE CURRENT A SYMMETRICAL FAULT GIVES THE HIGHEST CUT-OFF CURRENT. FOR LOW VALUES OF PROSPECTIVE CURRENT, WHERE THERE IS LITTLE OR NO CURRENT LIMITATION, AN ASYMMETRICAL FAULT PASSES THE HIGHEST PEAK CURRENT. THE CURVES ARE THEREFORE BASED ON THE DEGREE OF ASYMMETRY WHICH GIVES THE MAXIMUM CUT-OFF CURRENT AT ANY PARTICULAR VALUE OF PROSPECTIVE CURRENT.
- 3 CURVES RELATE TO FREQUENCY OF 50 Hz AND A RECOVERY VOLTAGE EQUAL TO THE FUSE RATED VOLTAGE.



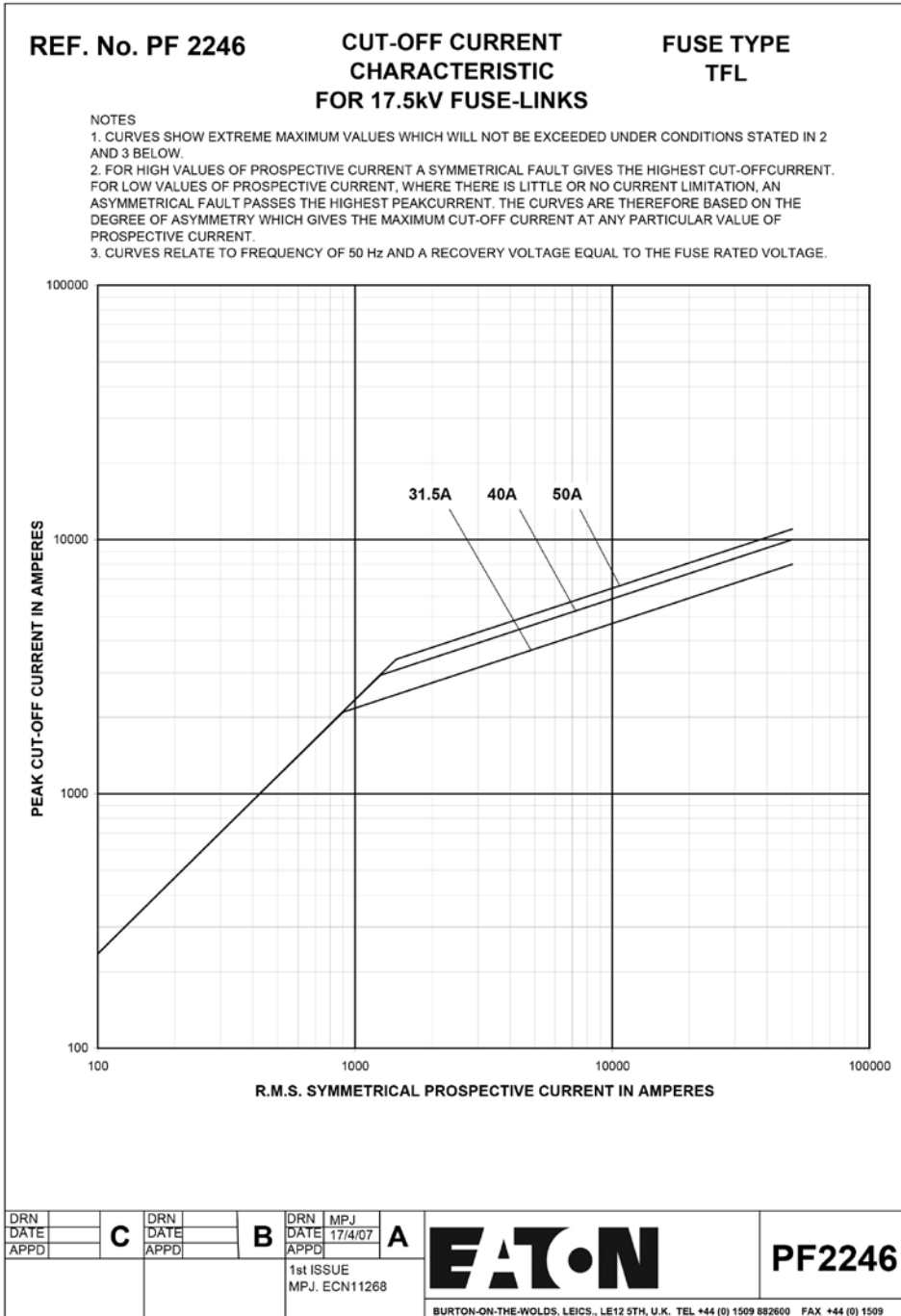
REV	DATE	BY	APPD	REV	DATE	BY	APPD	REV	DATE	BY	APPD		PF 2006
C	12/06/04			B	11/01/02			A	25/07/98				
71A added		Redrawn on CAD		AS DRAWN		BURTON-ON-THE-WOLDS LEICS. LE12 5TH. U.K. TEL. 01509 882800 FAX 01509 882798							

Cut-off curve - Fuse type TDL





Cut-off curve - Fuse type TFL



**Cut-off curve - Fuse types TDM, THM, TKM**

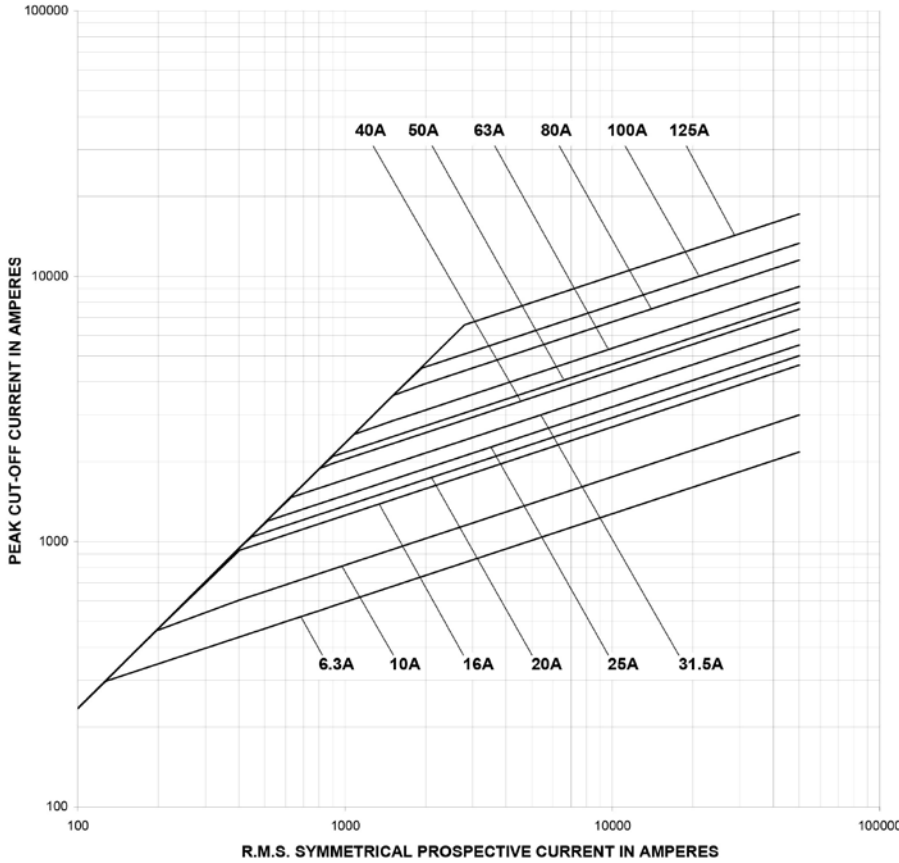
**REF. No. PF 2274**

**CUT-OFF CURRENT  
 CHARACTERISTIC  
 FOR 17.5kV FUSE-LINKS**

**FUSE TYPE  
 TDM/THM/TKM**

**NOTES**

1. CURVES SHOW EXTREME MAXIMUM VALUES WHICH WILL NOT BE EXCEEDED UNDER CONDITIONS STATED IN 2 AND 3 BELOW.
2. FOR HIGH VALUES OF PROSPECTIVE CURRENT A SYMMETRICAL FAULT GIVES THE HIGHEST CUT-OFF CURRENT. FOR LOW VALUES OF PROSPECTIVE CURRENT, WHERE THERE IS LITTLE OR NO CURRENT LIMITATION, AN ASYMMETRICAL FAULT PASSES THE HIGHEST PEAK CURRENT. THE CURVES ARE THEREFORE BASED ON THE DEGREE OF ASYMMETRY WHICH GIVES THE MAXIMUM CUT-OFF CURRENT AT ANY PARTICULAR VALUE OF PROSPECTIVE CURRENT.
3. CURVES RELATE TO FREQUENCY OF 50 Hz AND A RECOVERY VOLTAGE EQUAL TO THE FUSE RATED VOLTAGE.



DRN		DRN		DRN	MPJ	<b>A</b>
DATE		DATE		DATE	21/3/07	
APPD		APPD		APPD		
<b>C</b>		<b>B</b>		1st ISSUE MPJ ECN11220		



**PF2274**

BURTON-ON-THE-WOLDS, LEICS., LE12 5TH, U.K. TEL +44 (0) 1509 882600 FAX +44 (0) 1509 882785

ASTA certificate

# ASTA

## CERTIFICATE OF SELECTED TYPE TESTS

Laboratory Ref. No: DHK007-02

Certificate No. 16596

**APPARATUS:** Eight Homogeneous Series of Air Insulated High Voltage Current Limiting Back-up Fuses Fitted with Spring Operated Medium Striker Devices.

Ratings	Series	Type	Rated Voltage	Rated Current	Rated Frequency
Series 1	Type 17.5TDMEJ63	Rated Voltage 17.5kV	Rated Current 6.3A	Rated Frequency 50Hz	
	Type 17.5TDMEJ10	Rated Voltage 17.5kV	Rated Current 10A	Rated Frequency 50Hz	
	Type 17.5TDMEJ16	Rated Voltage 17.5kV	Rated Current 16A	Rated Frequency 50Hz	
	Type 17.5TDMEJ25	Rated Voltage 17.5kV	Rated Current 25A	Rated Frequency 50Hz	
	Type 17.5TDMEJ31.5	Rated Voltage 17.5kV	Rated Current 31.5A	Rated Frequency 50Hz	
	Type 17.5TDMEJ40	Rated Voltage 17.5kV	Rated Current 40A	Rated Frequency 50Hz	
Series 4	Type 17.5TDMEJ50	Rated Voltage 17.5kV	Rated Current 50A	Rated Frequency 50Hz	
	Type 17.5TDMEJ63	Rated Voltage 17.5kV	Rated Current 63A	Rated Frequency 50Hz	
Series 5	Type 17.5THMEJ30	Rated Voltage 17.5kV	Rated Current 30A	Rated Frequency 50Hz	
	Type 17.5THMEJ100	Rated Voltage 17.5kV	Rated Current 100A	Rated Frequency 50Hz	
Series 6	Type 17.5TKMEJ125	Rated Voltage 17.5kV	Rated Current 125A	Rated Frequency 50Hz	

**DESIGNATION:** Types "17.5TDMEJ6.3 to 63, 17.5THMEJ30 to 100, 17.5TKMEJ125"  
**MANUFACTURER:** Cooper Bussmann India Private Limited, Evr Street, Sedarapet, Pondicherry - 605111, India.  
**TESTED BY:** Dean H. Klohr Low Power Test Facility, Burton-on-the-Wolds, Loughborough, Leicestershire, LE12 5TH, United Kingdom.  
**DATE OF TESTS:** 12th October 2006 to 15th February 2007

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this Certificate, has been subjected to the series of proving tests in accordance with  
**IEC 60282-1:2005**  
 Sub-clause 6.5 - Temperature-rise tests and power-dissipation measurement  
 Sub-clause 6.7 - Tests for time-current characteristics  
 Sub-clause 6.8 - Tests of strikers  
 Sub-clause 7.3 - Thermal shock tests  
 Sub-clause 7.5 - Waterproof test - (ingress of moisture)  
 Sub-clause 7.6.2 - Pre-arcing temperature rise tests

The results are shown in the Record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standard(s) and to justify the ratings and characteristics assigned by the manufacturer as listed on page number 1.

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

This Certificate comprises 55 pages, 1 diagram, 3 oscillograms, 7 photographs, 16 drawings and no other sheets as detailed in page 2

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



010

*J. Gould* ..... ASTA Observer  
 J. Gould  
*C. Dick Evans* ..... Director  
 C. Dick Evans  
 20th April 2007 ..... Date

**KEMA certificate**



**Type test Certificate of  
breaking performance**

**Cooper Bussmann India  
Private Limited**  
Sedarapet, Pondicherry, India

has successfully passed the type test sequence on

**Current limiting fuses**

Type: 17.5TDLEJ8.3, 17.5TDMEJ6.3, 17.5TDLEJ10,  
17.5TDMEJ10, 17.5TDMEJ16, 17.5TDMEJ20,  
17.5TDMEJ25, 17.5TDMEJ31.5, 17.5TDMEJ40,  
17.5TDMEJ50, 17.5TDMEJ63, 17.5THMEJ80,  
17.5THMEJ100, 17.5TKMEJ125

Rating: 17,5 kV – 50 kA – 50 Hz

The test object passed the specification of test duties of

**IEC 60282-1**

The test results are recorded in Certificate No.

**104-06**

This Certificate is issued on 17 April 2007

KEMA Nederland B.V.




P.G.A. Bus  
KEMA T&D Testing Services  
Managing Director




Copyright © KEMA Nederland B.V.  
Please note that this document has been issued for information purposes only, and that the original bound  
and sealed paper copy of the Certificate including the results of the tests of the apparatus will prevail. This  
document does not imply that KEMA has certified or approved any apparatus other than the specimen tested.

Experience you can trust

**KEMA certificate**




104-06

**TYPE TEST CERTIFICATE OF BREAKING PERFORMANCE**

**APPARATUS** Current limiting fuses

Designation	Rated voltage	Rated breaking capacity	Rated current	Minimum breaking current	Rated frequency
	kV	kA	A	A	Hz
17.5TDLEJ6.3, 17.5TDMEJ6.3 (1)	17.5	50	8.3	25	50
17.5TDLEJ10, 17.5TDMEJ10 (1)	17.5	50	10	30	50
17.5TDMEJ16 (1)	17.5	50	16	35	50
17.5TDMEJ20 (1)	17.5	50	20	40	50
17.5TDMEJ25 (1)	17.5	50	25	47	50
17.5TDMEJ31.5 (1)	17.5	50	31.5	47	50
17.5TDMEJ40 (1)	17.5	50	40	111	50
17.5TDMEJ60	17.5	50	60	174	50
17.5TDMEJ80	17.5	50	80	200	50
17.5THMEJ80	17.5	50	80	270	50
17.5THMEJ100	17.5	50	100	270	50
17.5THMEJ125	17.5	50	125	467	50

(1) See notes on page 7.

**MANUFACTURER** Cooper Bussmann India Private Limited,  
Sedarapet, Pondichery, India

**TESTED FOR** Cooper Bussmann (UK) Limited,  
Burton-on-the-Wolds, United Kingdom

**TESTED BY** KEMA HIGH-POWER LABORATORY  
Utrechtseweg 310 - 6812 AR Arnhem - The Netherlands

**DATE(S) OF TESTS** 6, 7, 8 September 2006 and 15, 16 January, 1 February 2007

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this Certificate, has been subjected to the series of proving tests in accordance with  
**IEC 60282-1** clause 6.6 (test duty 1, 2 and 3).

This Type Test Certificate has been issued by KEMA following exclusively the STL Guides.

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standard and to justify the ratings assigned by the manufacturer as listed on page 6.


The Certificate applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

This Certificate consists of 195 sheets in total.

Certificate falls under the scope of the accreditation certificate L 020 of the Dutch Council for Accreditation, information sheet (page 2).

© Copyright: Only integral reproduction of this Certificate, or reproductions of this page accompanied by any (parts) on which are stated the authorized ratings of the apparatus tested, are permitted without written permission from KEMA. Electronic copies in e.g. PDF-format or scanned version of this Certificate may be available and have the status "for information only". The sealed and bound version of the Certificate is the only valid version.

KEMA Nederland B.V.



P.G.A. BUS  
KEMA T&D Testing Services  
Managing Director

Arnhem, 17 April 2007

Changes to the products, to the information contained in this document, and to prices are reserved; so are errors and omissions. Only order confirmations and technical documentation by Eaton is binding. Photos and pictures also do not warrant a specific layout or functionality. Their use in whatever form is subject to prior approval by Eaton. The same applies to Trademarks (especially Eaton, Moeller, and Cutler-Hammer). The Terms and Conditions of Eaton apply, as referenced on Eaton Internet pages and Eaton order confirmations.

**Eaton Industries Manufacturing GmbH**  
Electrical Sector EMEA  
Route de la Longeraie  
71110 Morges, Switzerland  
Eaton.eu