

# Bussmann

## 24 kV Medium voltage fuse links



### Product description

Bussmann's range of 24 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.

**Catalogue symbol:**

- 24AFMSJ(amp)
- 24AIMSJ(amp)
- 24TDMEJ(amp)
- 24THMEJ(amp)
- 24TFMEJ(amp)
- 24TXMEJ(amp)

**Technical data:**

- Volts: 24 kV
- Amps: 6.3 to 160 A
- Breaking capacity: 20 to 63 kA
- Class of operation: Back-up as IEC 60282-1 (2005)
- Suitable for outdoor and indoor use
- RoHS compliant

**Standards/Approvals:**

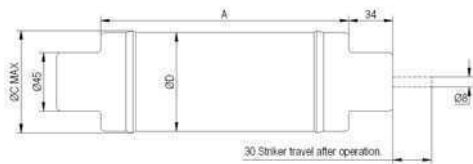
- DIN 43625
- VDE 0670 part 4 and 402
- IEC 60282-1 (2005)

**Packaging:**

- MOQ 3

**Dimensions - mm**

EJ Outline



Fuse reference	A	C	D	Weight (Kg)
AFMSJ	442	79	76	4.5
AIMSJ	442	79	76	4.5
TDMEJ	442	54	51	2.5
THMEJ	442	67	64	3.7
TFMEJ	442	80	76	5.1
TXMEJ	442	91	88	5.9

**Striker diagram**

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

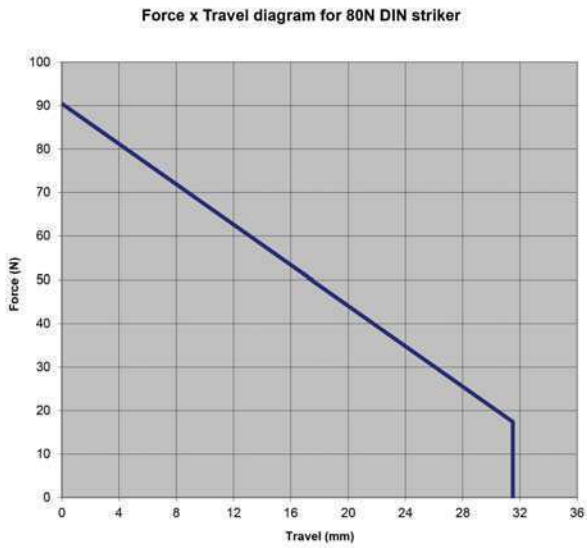


Table 1. Part numbers

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			
24AFMSJ50	50	20	137	29.5	102	$1.8 \times 10^3$	$2.9 \times 10^4$	442	76	4.5
24AFMSJ63	63	20	125	23.6	130	$3.2 \times 10^3$	$4.5 \times 10^4$	442	76	4.5
24AIMSJ71	71	20	176	15.1	106	$6.3 \times 10^3$	$8.5 \times 10^4$	442	76	4.5
24TDMEJ6.3	6.3	50	23	444	20	$9.8 \times 10^1$	$1 \times 10^3$	442	51	2.5
24TDMEJ10	10	50	34	262	32	$2.8 \times 10^2$	$2.3 \times 10^3$	442	51	2.5
24TDMEJ16	16	50	56	109	34	$2.6 \times 10^2$	$3.9 \times 10^3$	442	51	2.5
24TDMEJ20	20	50	73	78.2	38	$5.2 \times 10^2$	$5.4 \times 10^3$	442	51	2.5
24TDMEJ25	25	50	92	62.4	49	$8.1 \times 10^2$	$8.4 \times 10^3$	442	51	2.5
24TDMEJ31.5	31.5	50	92	46.8	59	$1.4 \times 10^3$	$1.5 \times 10^4$	442	51	2.5
24TDMEJ40	40	50	118	34.3	79	$2.4 \times 10^3$	$2.5 \times 10^4$	442	51	2.5
24TDMEJ50	50	50	185	27	98	$2.8 \times 10^3$	$3.1 \times 10^4$	442	51	2.5
24THMEJ63	63	50	217	21.1	127	$4.3 \times 10^3$	$4.7 \times 10^4$	442	64	3.7
24TFMEJ80	80	50	265	15.7	153	$7.9 \times 10^3$	$9.1 \times 10^4$	442	76	5.1
24TFMEJ100*	100	63	430	18	400	$2.8 \times 10^4$	$9.4 \times 10^4$	442	76	5.1
24TXMEJ125*	125	40	760	11	340	$9.7 \times 10^4$	$3.5 \times 10^5$	442	88	5.9
24TXMEJ160*	160	31.5	900	9.60	515	$1.3 \times 10^5$	$5 \times 10^5$	442	88	5.9

\* Not compliant with VDE 0670 part 402

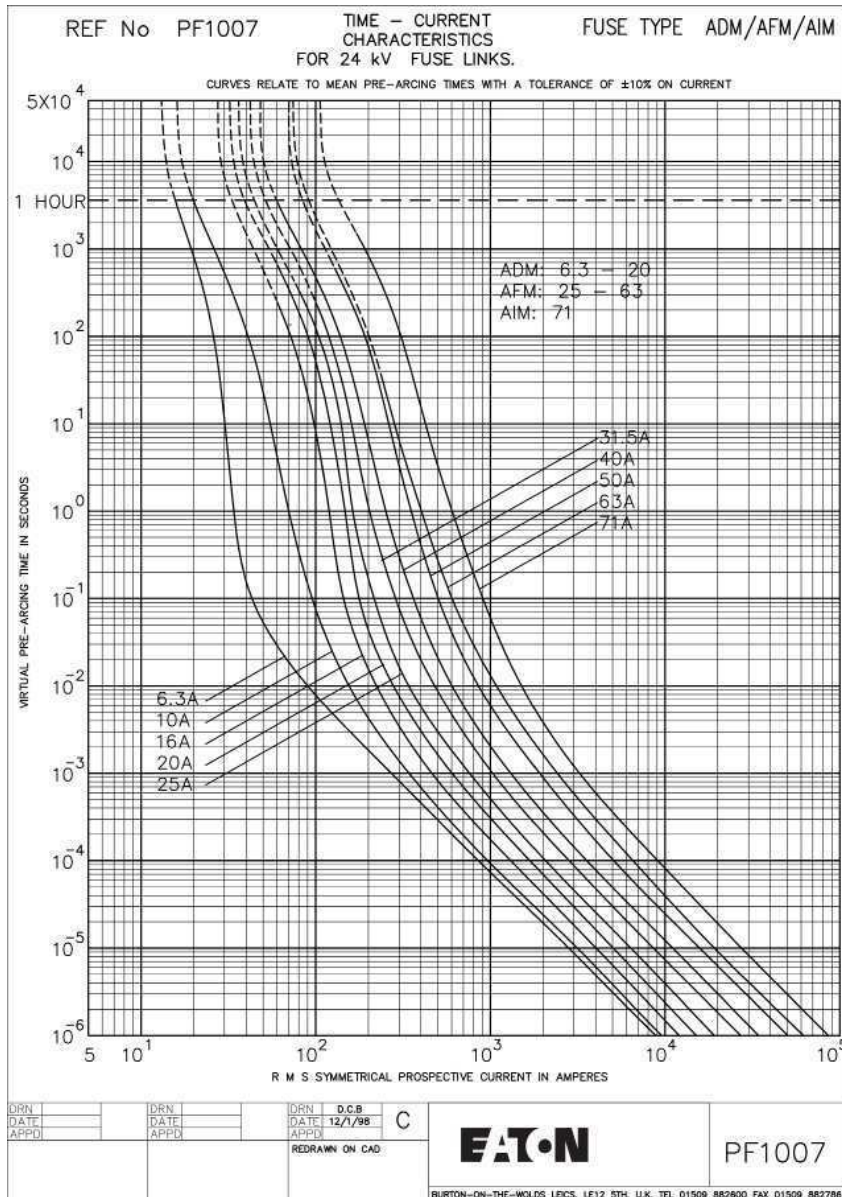
Table 2. Cross reference

Bussmann	EFEN	SIBA	MESA	ETI 80N Striker	ETI 50N Striker	Merlin Gerin	Inael	ABB
24TDMEJ6.3	67140.0060	3000613	CF-24/6,3	4256005	4255005	51006 538 M0	IB-D1	1YMB531044M0001
24TDMEJ10	67140.0100	3000613	CF-24/10	4256006	4255006	51006 539 M0	IB-D1	1YMB531044M0002
24TDMEJ16	67140.0160	3000613	CF-24/16	4256007	4255007	51006 540 M0	IB-D1	1YMB531044M0003
24TDMEJ20	67140.0200	3000613	CF-24/20	4256008	4255008	51006 541 M0	IB-D1	1YMB531044M0004
24TDMEJ25	67140.0250	3000613	CF-24/25	4256009	4255009	51006 542 M0	IB-D1 & IB-D2	1YMB531004M0004
24TDMEJ31.5	67140.0320	3000613	CF-24/31.5	4256010	4255010	51006 543 M0	IB-D1 & IB-D2	1YMB531004M0012
24TDMEJ40	67140.0400	3000613	CF-24/40	4256011	4255011	51006 544 M0	IB-D1 & IB-D2	1YMB531004M0005
24TDMEJ50	67140.0500	3001413	CF-24/50	4253012	4255012	51006 545 M0	IB-D2	1YMB531004M0021
24THMEJ63	67140.0630	3001413	CF-24/63	4253013	4255013	51006 546 M0	IB-D2	1YMB531004M0022
24TFMEJ80	67140.0800	3001413	CF-24/80	4253014	4255014	51006 547 M0	IB-D3	1YMB531022M0001
24TFMEJ100	67240.1000	3002213	CF-24/100	4253015	4255015	51006 548 M0	IB-D3	1YMB531022M0002
24TXMEJ125	67240.1250	3002213	N/A	4253016	4255016	N/A	N/A	1YMB531022M0003
24TXMEJ160	67240.1600	N/A	N/A	N/A	N/A	N/A	N/A	N/A

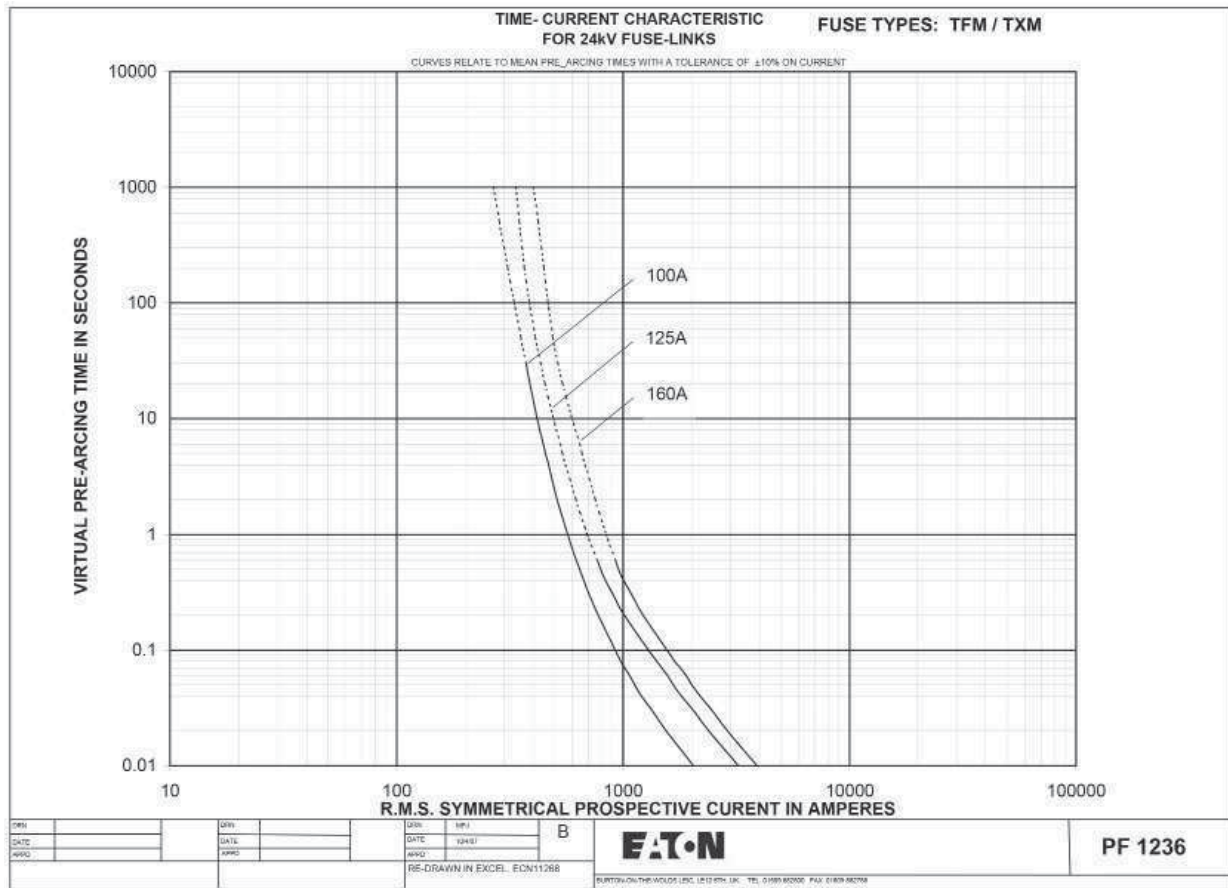
**Table 3. Watts loss comparison**

Bussmann	Bussmann	EFEN	SIBA	MESA	ETI	Merlin Gerin	INAEI	ABB
24TDMEJ6.3	20	32	31	25	29	25	20	91
24TDMEJ10	32	48	52	31	19	31	42	62
24TDMEJ16	34	43	59	58	33	58	57	72
24TDMEJ20	38	53	46	67	47	67	60	61
24TDMEJ25	49	64	56	79	61	79	64	79
24TDMEJ31.5	59	85	72	96	81	96	77	98
24TDMEJ40	79	103	106	119	97	119	115	106
24TDMEJ50	99	146	108	136	81	136	112	130
24THMEJ63	127	163	132	144	125	144	140	147
24TFMEJ80	155	196	174	200	151	200	225	165
24TFMEJ100	400	400	234	240	228	240	260	186
24TXMEJ125	340	340	320	N/A	301	N/A	N/A	234
24TXMEJ160	515	515	N/A	N/A	N/A	N/A	N/A	N/A

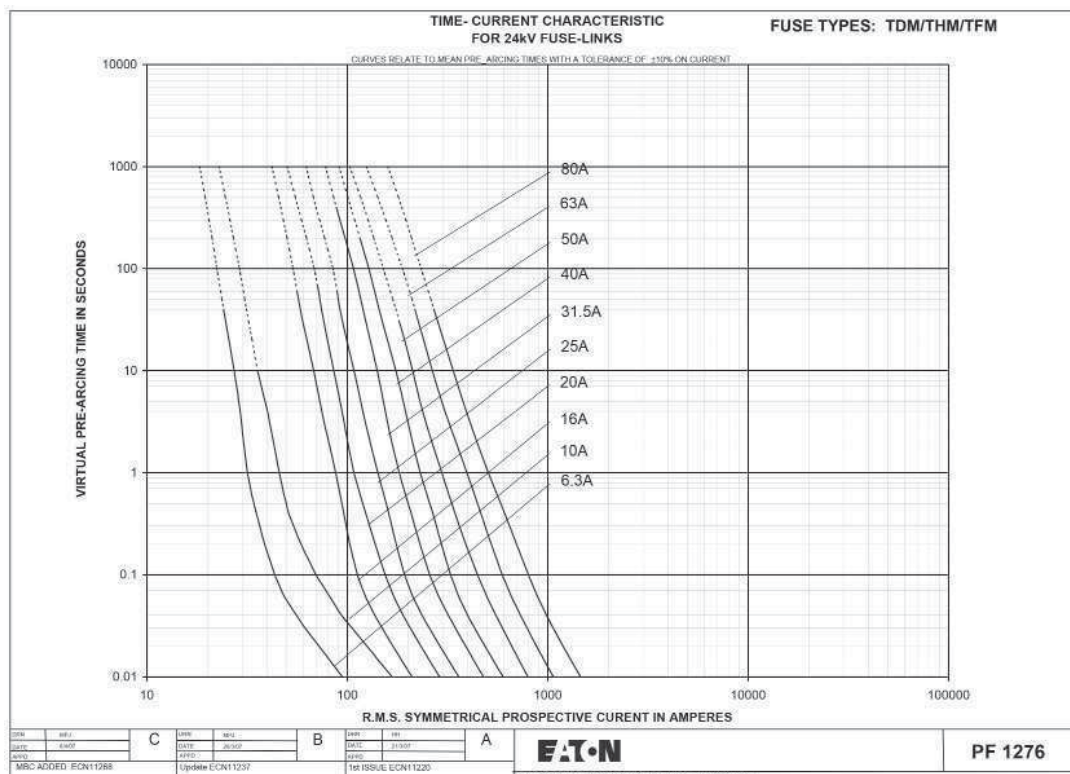
**Time current curve - Fuse type AFM**



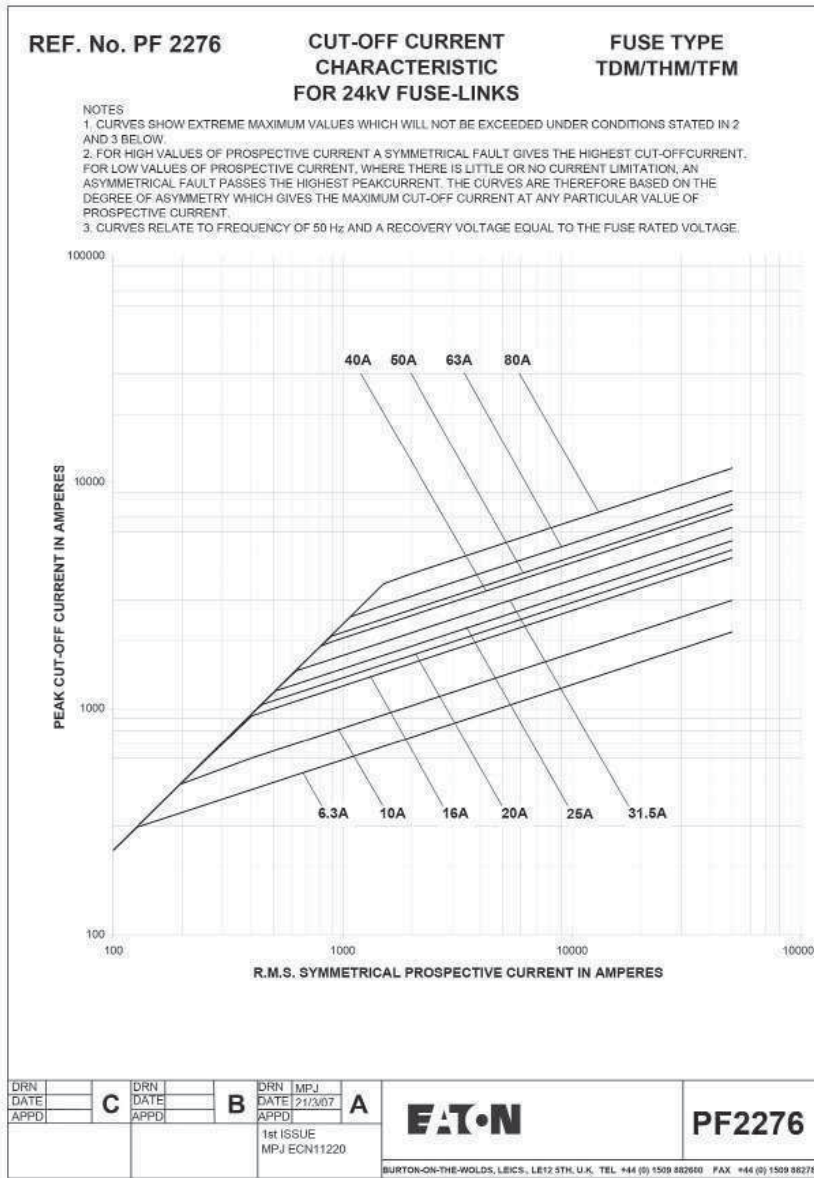
Time current curve - Fuse types TFM/TXM



Time current curve - Fuse types TDM/THM/TFM

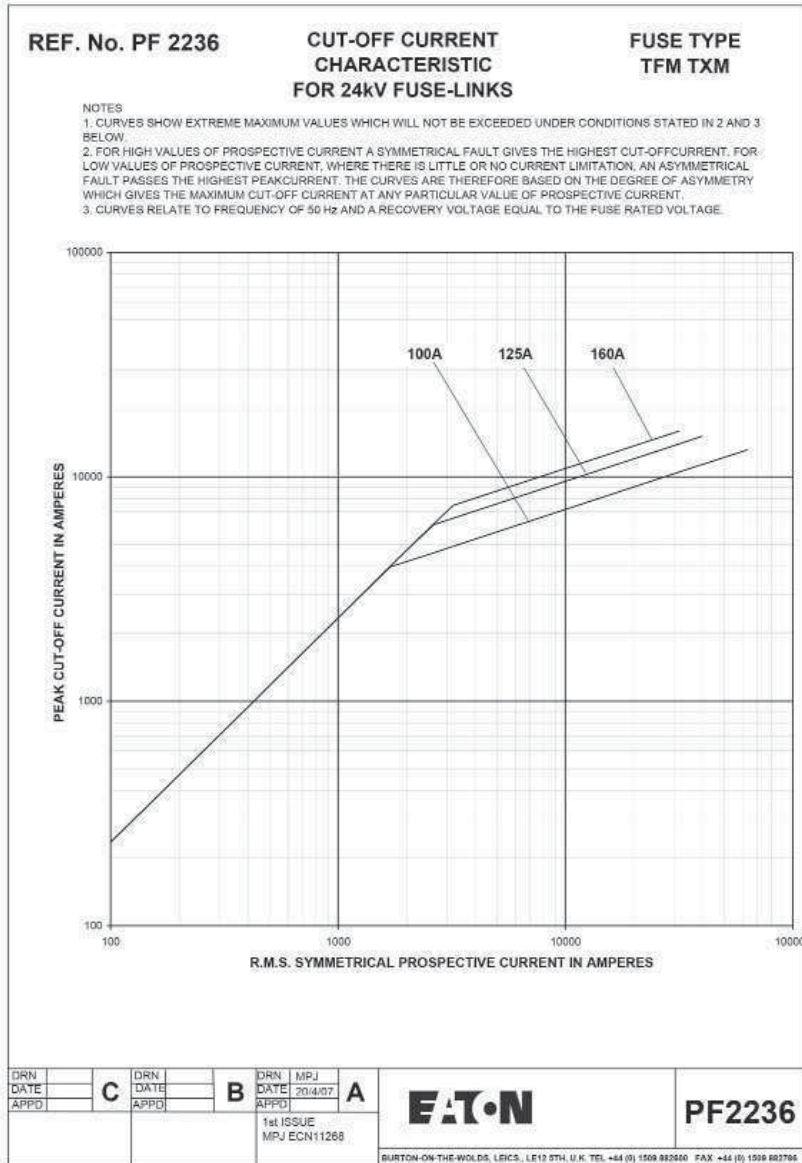


Cut-off curve - Fuse types TDM/THM/TFM





Cut-off curve - Fuse types TFM/TXM



ASTA certificate

# ASTA

## CERTIFICATE OF SELECTED TYPE TESTS

Laboratory Ref. No: DHK007-03

Certificate No. 16597

**APPARATUS:** Six 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	24TDMEJ63	Type 24TDMEJ63	Rated Voltage 24kV	Rated Current 6.3A	Rated Frequency 50Hz
		Type 24TDMEJ10	Rated Voltage 24kV	Rated Current 10A	Rated Frequency 50Hz
		Type 24TDMEJ16	Rated Voltage 24kV	Rated Current 16A	Rated Frequency 50Hz
		Type 24TDMEJ20	Rated Voltage 24kV	Rated Current 20A	Rated Frequency 50Hz
		Type 24TDMEJ25	Rated Voltage 24kV	Rated Current 25A	Rated Frequency 50Hz
		Type 24TDMEJ31.5	Rated Voltage 24kV	Rated Current 31.5A	Rated Frequency 50Hz
Series 4	24THMEJ50	Type 24TDMEJ40	Rated Voltage 24kV	Rated Current 40A	Rated Frequency 50Hz
		Type 24TDMEJ50	Rated Voltage 24kV	Rated Current 50A	Rated Frequency 50Hz
		Type 24THMEJ63	Rated Voltage 24kV	Rated Current 63A	Rated Frequency 50Hz
Series 6	24TFMEJ80	Type 24TFMEJ80	Rated Voltage 24kV	Rated Current 80A	Rated Frequency 50Hz

**DESIGNATION:** Types "24TDMEJ63 to 50, 24THMEJ63, 24TFMEJ80"

**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 48 pages, 1 diagram, 3 oscillograms, 7 photographs, 12 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.



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*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: 24TDMEJ6.3, 24TDMEJ10, 24TDMEJ16, 24TDMEJ20,  
24TDMEJ25, 24TDMEJ31.5, 24TDMEJ40, 24TDMEJ50,  
24THMEJ63, 24TFMEJ80

Rating: 24 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.

**136-06**

This Certificate is issued on 17 April 2007

KEMA Nederland B.V.




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



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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**


136-06

## TYPE TEST CERTIFICATE OF BREAKING PERFORMANCE

**APPARATUS** Current limiting fuses

Designation	Rated voltage kV	Rated breaking capacity kA	Rated current A	Minimum breaking current A	Rated frequency Hz
24TDMEJ6.3	24	50	6,3	24	50
24TDMEJ10	24	50	10	34	50
24TDMEJ16 (1)	24	50	16	56	50
24TDMEJ20 (1)	24	50	20	73	50
24TDMEJ25 (1)	24	50	25	92	50
24TDMEJ31.5 (1)	24	50	31,5	92	50
24TDMEJ40 (1)	24	50	40	118	50
24TDMEJ50	24	50	50	185	50
24THMEJ63	24	50	63	217	50
24TFMEJ80	24	50	80	265	50

(1) See note on page 7.

**MANUFACTURER** Cooper Bussmann India Private Limited,  
Sedarapet, Pondicherry, 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** 18 and 19 October 2006

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.**

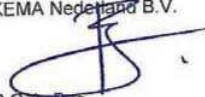
The Certificate applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

This Certificate consists of 158 sheets in total.

This Certificate is under the scope of the accreditation certificate L 020 of the Dutch Council for Accreditation. (Information sheet page 2).


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KEMA Nederland B.V.




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

Arnhem, 17 April 2007



KEMA certificate



**REPORT OF PERFORMANCE** **523-06**

**APPARATUS** Current limiting fuses

Designation	Rated voltage kV	Rated breaking capacity kA	Rated current A	Minimum breaking current A	Rated frequency Hz
24TDM EJ50	24	50	50	168	50
24THMEJ63	24	50	63	235	50
24TFMEJ80	24	50	80	272	50

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

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

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

**DATE(S) OF TESTS** 19 October 2006

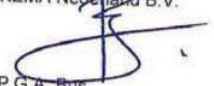
**TEST SPECIFICATION** The tests have been carried out in accordance with the client's instructions.  
Test procedure and test parameters were based on IEC 60282-1.

This report consists of 55 sheets in total.

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

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KEMA Nederland B.V.




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

Arnhem, 17 April 2007

This report of performance details 24kV DIN-rated fuse links tested in accordance with IEC 60282-1:2005 to demonstrate correct operation on a 12kV system.

**KEMA certificate**



**REPORT OF PERFORMANCE** **221-07**

**APPARATUS** Current limiting fuses

Designation	Rated voltage kV	Rated breaking capacity kA	Rated current A	Minimum breaking current A	Rated frequency Hz
24TDMEJ40	24	50	40	118	50
24TDMEJ50	24	50	50	165	50
24THMEJ63	24	50	63	217	50
24TFMEJ80	24	50	80	265	50

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

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

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


**DATE(S) OF TESTS** 15 January 2007


**TEST SPECIFICATION** The tests have been carried out in accordance with the client's instructions.  
Test procedure and test parameters were based on IEC 60282-1.

This report consists of 59 sheets in total.

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

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KEMA Nederland B.V.  
  
P.G.A. Bus  
KEMA T&D Testing Services  
Managing Director  
Arnhem, 17 April 2007.



This report of performance details 24kV DIN-rated fuse links tested in accordance with IEC 60282-1:2005 to demonstrate correct operation on a 25kV system.

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