

Eaton's Bussmann series 24 kV Medium voltage fuse links



Product description

Eaton's Bussmann series 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:

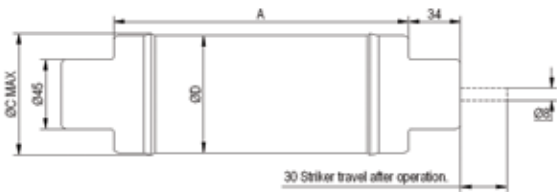
- DIN 43625
- VDE 0670 part 4 and 402
- IEC 60282-1 (2005)

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'

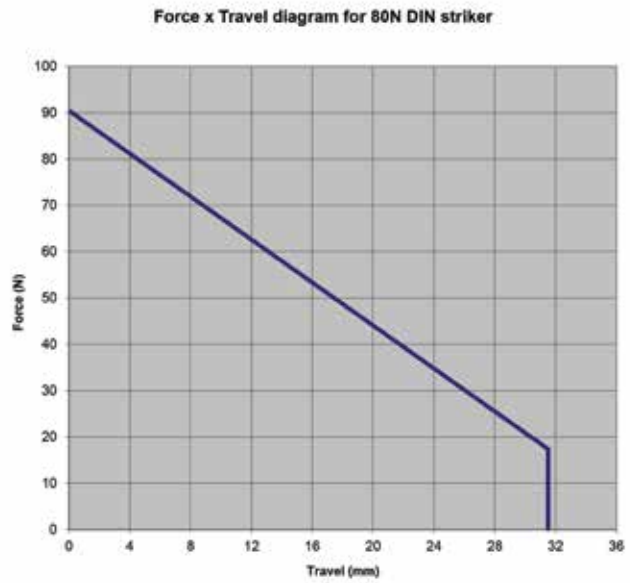


Table 1. Part numbers

| 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^2t) | | Length mm | Diameter mm | Weight kg |
|--------------|----------------------|------------------------------------|---|---|-----|---------------------------|----------------------|--------------|----------------|--------------|
| | | | | mΩ | W | Minimum Pre-arcing | Maximum operating | | | |
| 24AFMSJ50 | 50 | 20 | 137 | 29.5 | 102 | 1.8 x 103 | 2.9 x 104 | 442 | 76 | 4.5 |
| 24AFMSJ63 | 63 | 20 | 125 | 23.6 | 130 | 3.2 x 103 | 4.5 x 104 | 442 | 76 | 4.5 |
| 24AIMSJ71 | 71 | 20 | 176 | 15.1 | 106 | 6.3 x 103 | 8.5 x 104 | 442 | 76 | 4.5 |
| 24TDMEJ6.3 | 6.3 | 50 | 23 | 444 | 20 | 9.8 x 101 | 1 x 103 | 442 | 51 | 2.5 |
| 24TDMEJ10 | 10 | 50 | 34 | 262 | 32 | 2.8 x 102 | 2.3 x 103 | 442 | 51 | 2.5 |
| 24TDMEJ16 | 16 | 50 | 56 | 109 | 34 | 2.6 x 102 | 3.9 x 103 | 442 | 51 | 2.5 |
| 24TDMEJ20 | 20 | 50 | 73 | 78.2 | 38 | 5.2 x 102 | 5.4 x 103 | 442 | 51 | 2.5 |
| 24TDMEJ25 | 25 | 50 | 92 | 62.4 | 49 | 8.1 x 102 | 8.4 x 103 | 442 | 51 | 2.5 |
| 24TDMEJ31.5 | 31.5 | 50 | 92 | 46.8 | 59 | 1.4 x 103 | 1.5 x 104 | 442 | 51 | 2.5 |
| 24TDMEJ40 | 40 | 50 | 118 | 34.3 | 79 | 2.4 x 103 | 2.5 x 104 | 442 | 51 | 2.5 |
| 24TDMEJ50 | 50 | 50 | 185 | 27 | 98 | 2.8 x 103 | 3.1 x 104 | 442 | 51 | 2.5 |
| 24THMEJ63 | 63 | 50 | 217 | 21.1 | 127 | 4.3 x 103 | 4.7 x 104 | 442 | 64 | 3.7 |
| 24TFMEJ80 | 80 | 50 | 265 | 15.7 | 153 | 7.9 x 103 | 9.1 x 104 | 442 | 76 | 5.1 |
| 24TFMEJ100* | 100 | 63 | 430 | 18 | 400 | 2.8 x 104 | 9.4 x 104 | 442 | 76 | 5.1 |
| 24TXMEJ125* | 125 | 40 | 760 | 11 | 340 | 9.7 x 104 | 3.5 x 105 | 442 | 88 | 5.9 |
| 24TXMEJ160* | 160 | 31.5 | 900 | 9.60 | 515 | 1.3 x 105 | 5 x 105 | 442 | 88 | 5.9 |

* Not compliant with VDE 0670 part 402

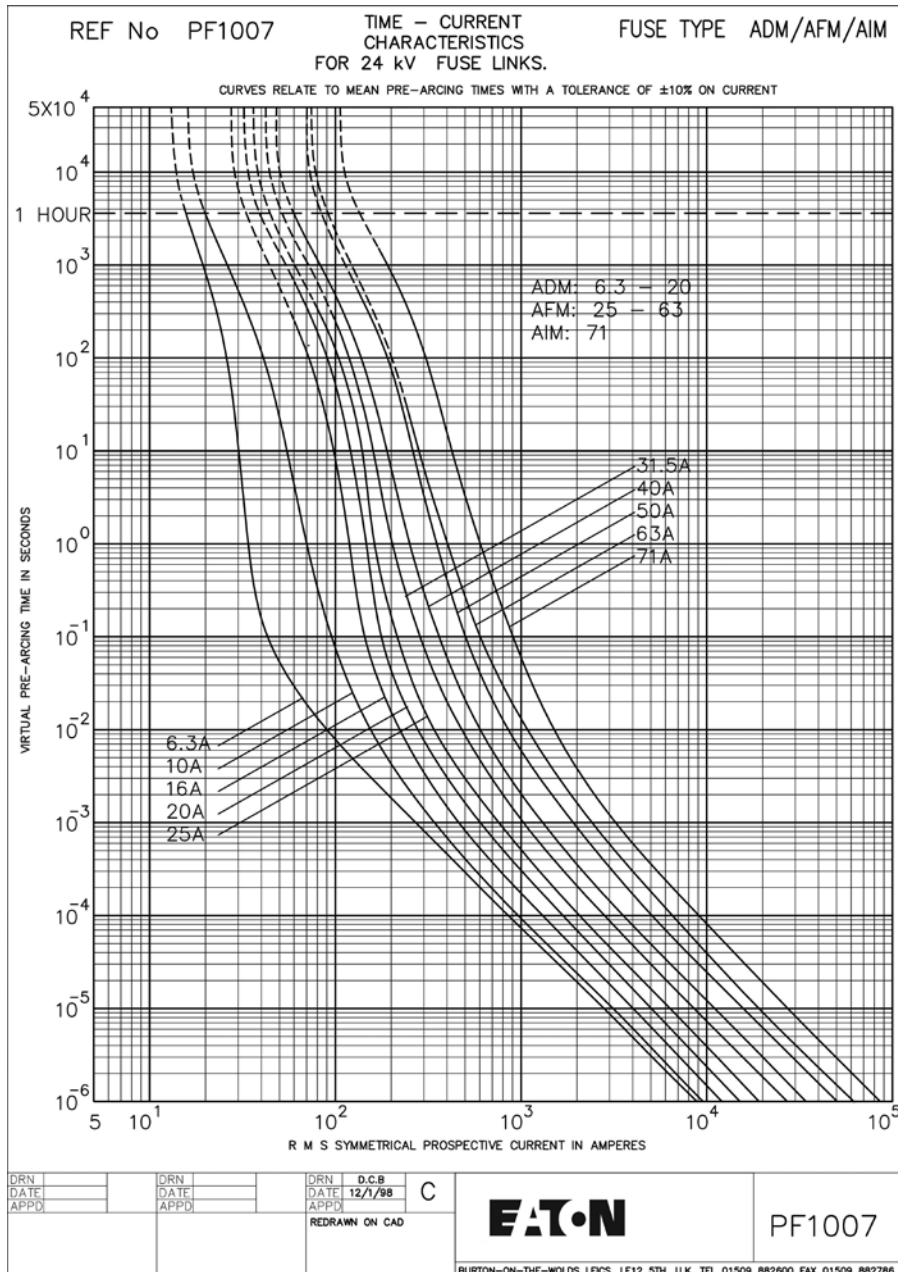
Table 2. Cross reference

| Eaton's Bussmann series | 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 |

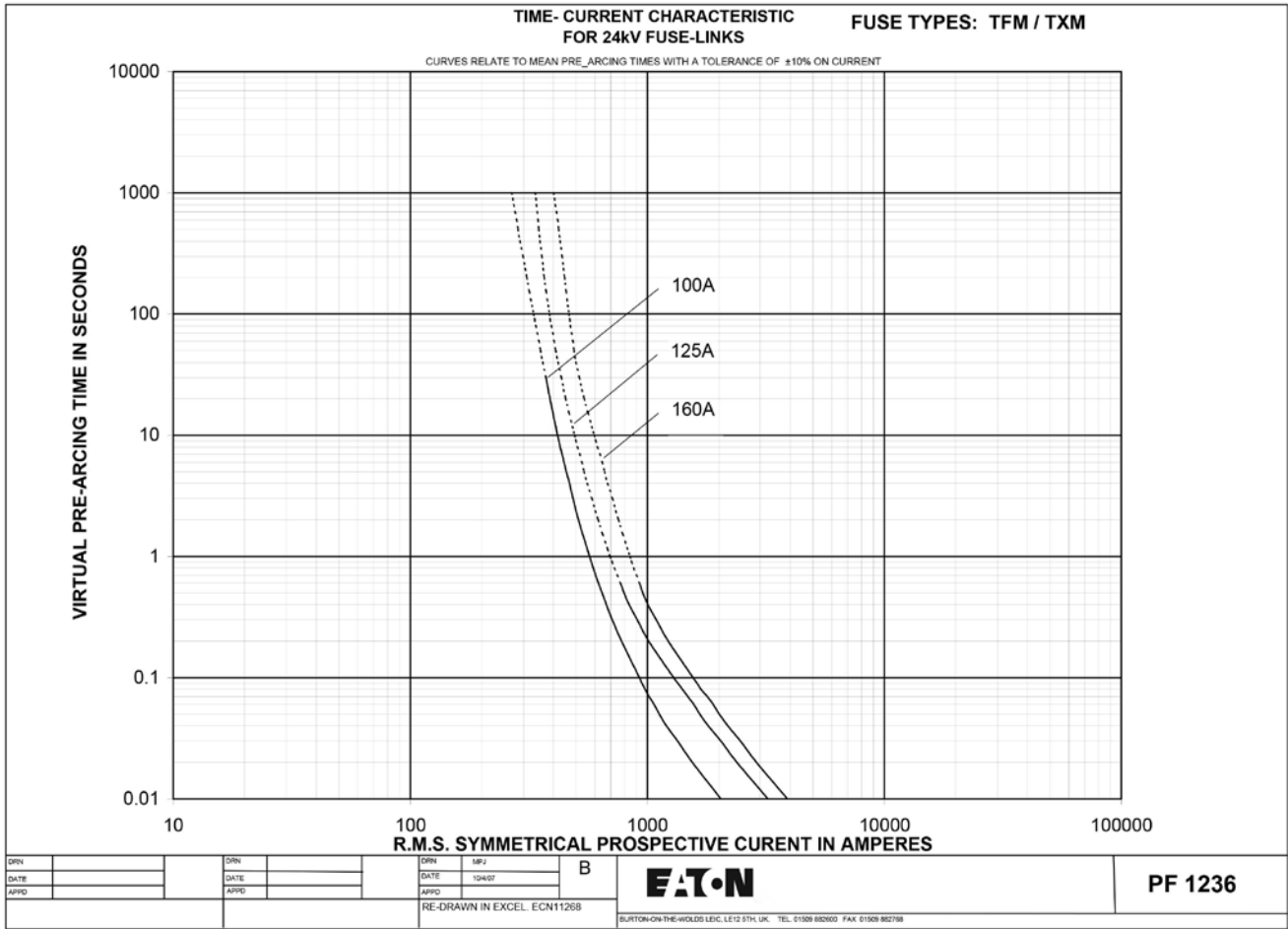
Table 3. Watts loss comparison

| Eaton's Bussmann series | Eaton's Bussmann series | EFEN | SIBA | MESA | ETI | Merlin Gerin | INAEL | 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 |

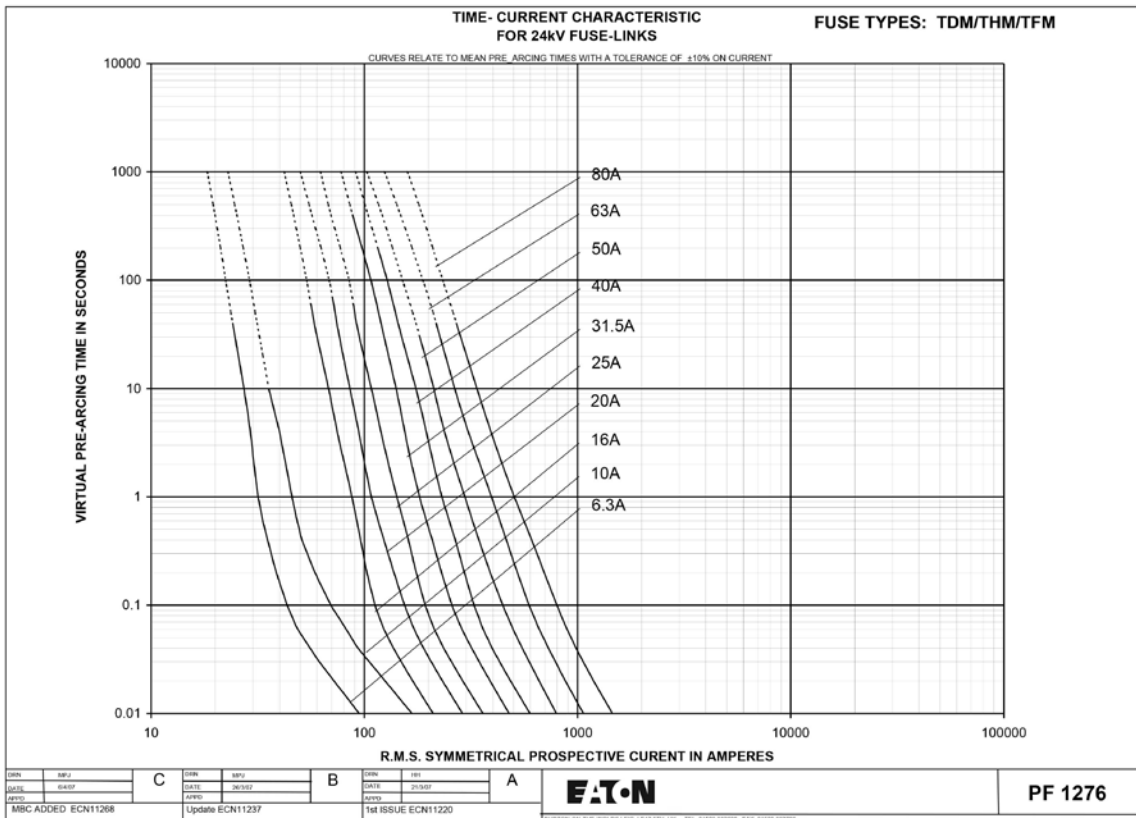
Time current curve - Fuse type AFM



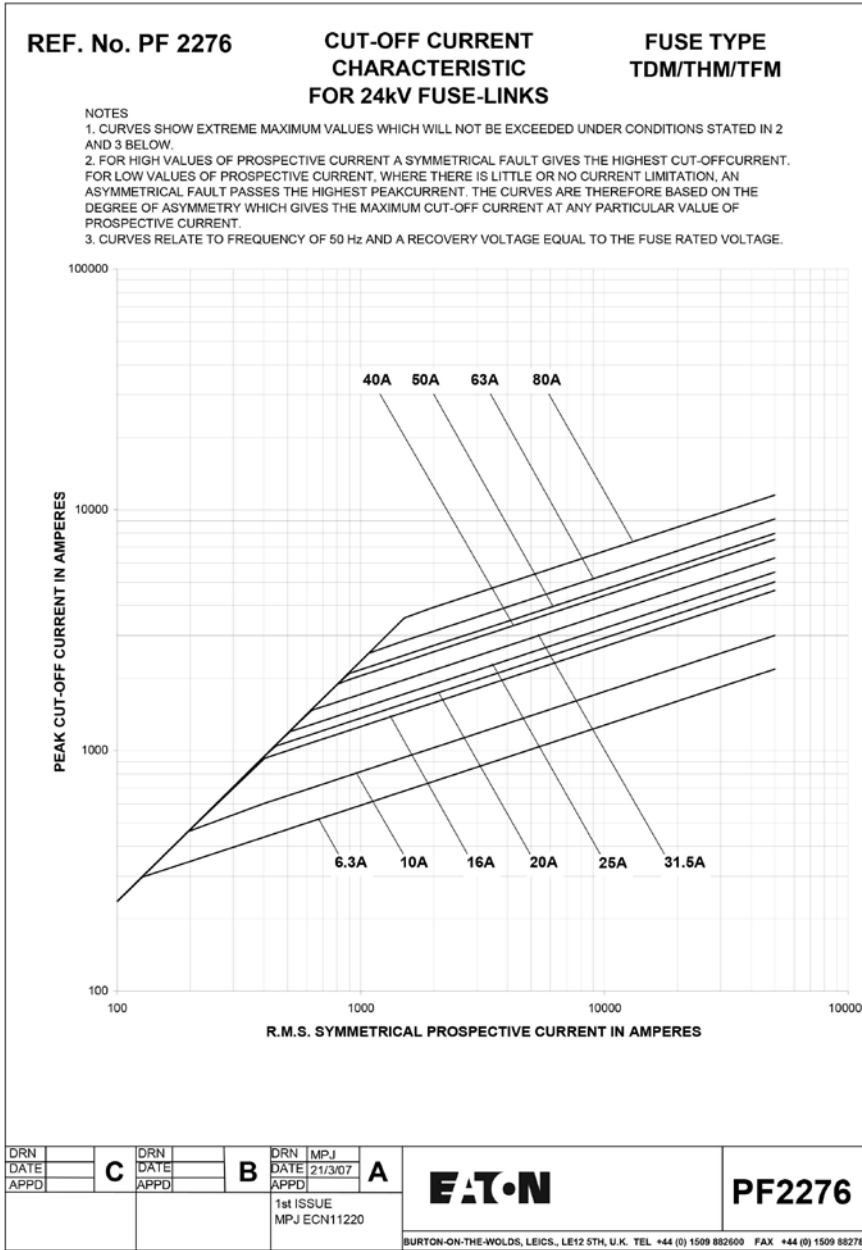
Time current curve - Fuse types TFM/TXM



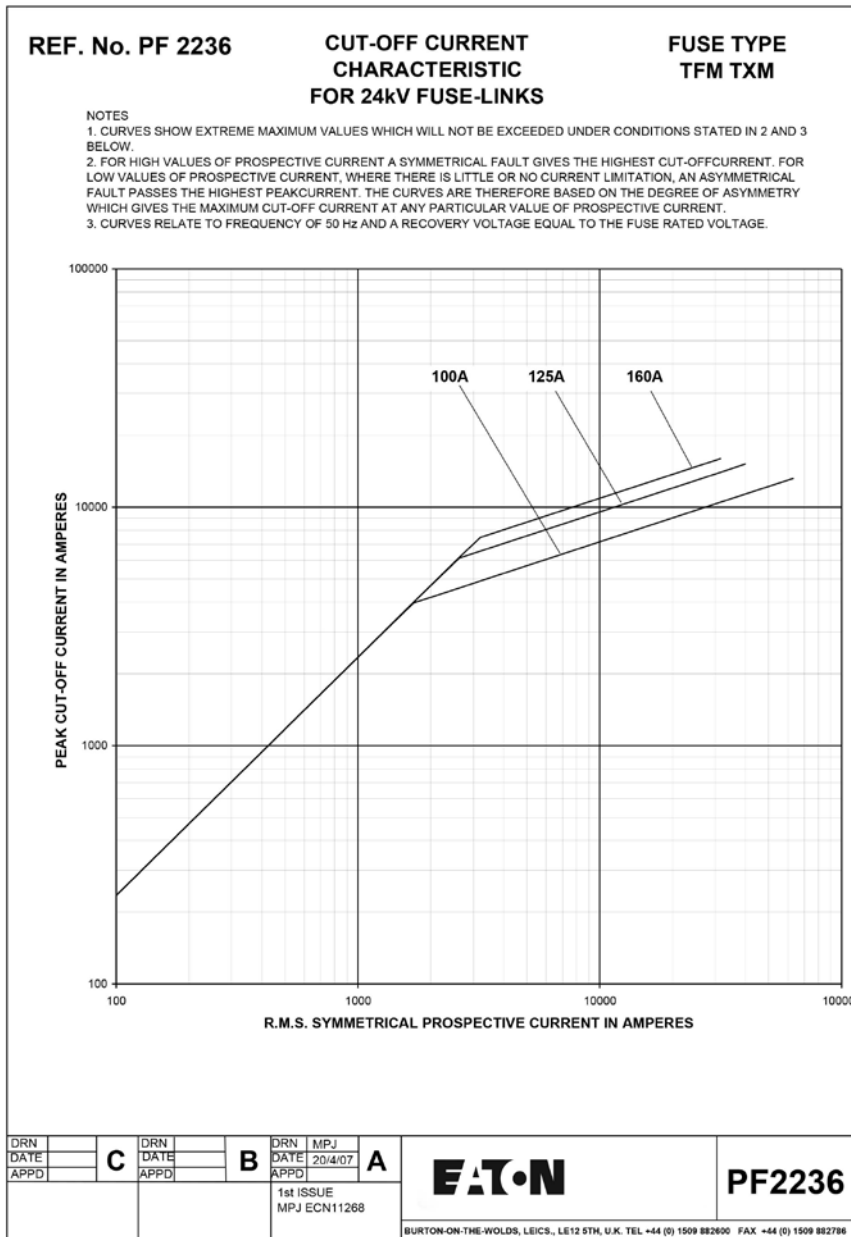
Time current curve - Fuse types TDM/THM/TFM



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 | Series 1 | Type 24TDMEJ6.3 | 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 | Series 4 | Type 24TDMEJ40 | Rated Voltage 24kV | Rated Current 40A | Rated Frequency 50Hz |
| | | Type 24TDMEJ50 | Rated Voltage 24kV | Rated Current 50A | Rated Frequency 50Hz |
| Series 5 | Series 5 | Type 24THMEJ63 | Rated Voltage 24kV | Rated Current 63A | Rated Frequency 50Hz |
| Series 6 | Series 6 | Type 24TFMEJ80 | Rated Voltage 24kV | Rated Current 80A | Rated Frequency 50Hz |

DESIGNATION: Types "24TDMEJ6.3 to 50, 24THMEJ63, 24TFMEJ80"
MANUFACTURER: Cooper Bussmann India Private Limited, Evt 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.



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: 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.

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 |
|-------------|---------------------|-------------------------------|--------------------|-------------------------------|-----------------------|
| 24TMEJ50 | 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 50 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 |
|-------------|---------------------|-------------------------------|--------------------|-------------------------------|-----------------------|
| 24TDEJ40 | 24 | 50 | 40 | 118 | 50 |
| 24TDEJ60 | 24 | 50 | 50 | 185 | 50 |
| 24THMEJ3 | 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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