

# Eaton's Bussmann series 12 kV Medium voltage fuse links



## Product description

Eaton's Bussmann series range of 12 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:**

- 12AILSJ(amp)
- 12TDLEJ(amp)
- 12THLEJ(amp)
- 12TKLEJ(amp)
- 12TXLEJ(amp)
- 12TFMSJ(amp)

**Technical data:**

- Volts: 12 kV
- Amps: 6.3 to 200 A
- Breaking capacity: 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)

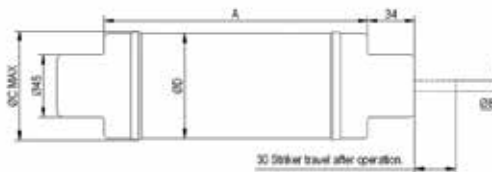
**Packaging:**

- MOQ 3

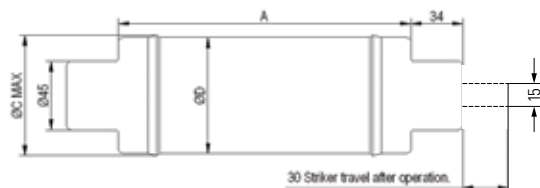
**Table 1. Technical data**

**Dimensions - mm**

EJ Outline



SJ Outline



Fuse reference	A	C	D	Weight (Kg)
AILSJ	292	79	76	3.3
TDLEJ	292	54	51	1.7
THLEJ	292	67	64	2.6
TKLEJ	292	80	76	3.5
TXLEJ	292	88	88	3.7
THMEJ	442	67	64	3.7
TFMSJ	442	80	76	5.1

Part numbers	Current I <sub>n</sub> (A)	Breaking capacity I <sub>b</sub> (kA)	Minimum breaking current I <sub>3</sub> (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			
12TDLEJ6.3	6.3	63	23	222	10	9.8 x 10 <sup>1</sup>	1 x 10 <sup>3</sup>	292	51	1.7
12TDLEJ10	10	63	35	131	16	2.8 x 10 <sup>2</sup>	2.3 x 10 <sup>3</sup>	292	51	1.7
12TDLEJ16	16	63	53	54.6	16	2.6 x 10 <sup>2</sup>	3.9 x 10 <sup>3</sup>	292	51	1.7
12TDLEJ20	20	63	73	39.1	18	5.2 x 10 <sup>2</sup>	5.4 x 10 <sup>3</sup>	292	51	1.7
12TDLEJ25	25	63	87	31.2	24	8.1 x 10 <sup>2</sup>	8.4 x 10 <sup>3</sup>	292	51	1.7
12TDLEJ31.5	31.5	63	111	23.4	28	1.4 x 10 <sup>3</sup>	1.5 x 10 <sup>4</sup>	292	51	1.7
12TDLEJ40	40	63	143	17.2	36	2.4 x 10 <sup>3</sup>	2.5 x 10 <sup>4</sup>	292	51	1.7
12TDLEJ50	50	63	168	13.5	47	2.8 x 10 <sup>3</sup>	3.1 x 10 <sup>4</sup>	292	51	1.7
12TDLEJ63	63	63	235	10.6	60	4.3 x 10 <sup>3</sup>	4.7 x 10 <sup>4</sup>	292	51	1.7
12THLEJ80	80	63	272	7.81	72	7.9 x 10 <sup>3</sup>	9.1 x 10 <sup>4</sup>	292	64	2.6
12THLEJ100	100	63	388	5.74	85	2 x 10 <sup>4</sup>	1.4 x 10 <sup>5</sup>	292	64	2.6
12AILSJ100*	100	31.5	176	53	70	1.4 x 10 <sup>4</sup>	2 x 10 <sup>5</sup>	292	76	3.3
12TKLEJ125	125	63	687	3.99	93	4 x 10 <sup>4</sup>	3.5 x 10 <sup>5</sup>	292	76	3.5
12TXLEJ160**	160	63	560	4.3	217	1.1 x 10 <sup>5</sup>	5 x 10 <sup>5</sup>	292	88	3.7
12TXLEJ200**	200	63	610	3.8	333	1.5 x 10 <sup>5</sup>	6.5 x 10 <sup>5</sup>	292	88	3.7
12THMEJ100	100	63	272	5.74	85	2 x 10 <sup>4</sup>	1.4 x 10 <sup>5</sup>	442	64	3.7
12TFMSJ160	160	50	485	3.65	139	5 x 10 <sup>4</sup>	3.5 x 10 <sup>5</sup>	442	76	5.1

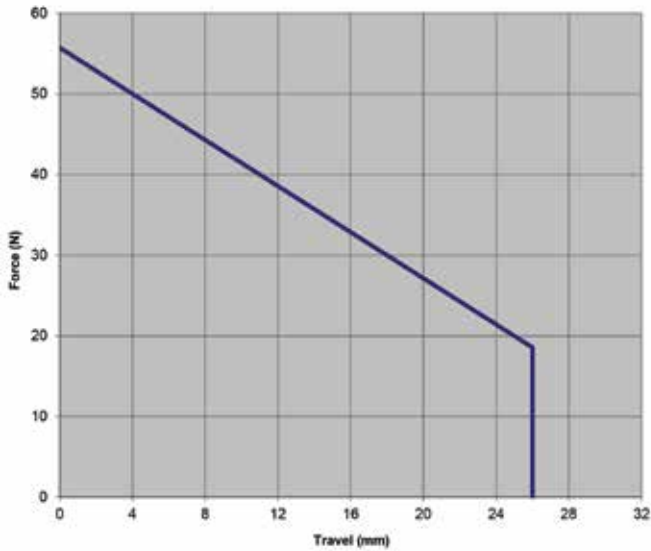
\* Not suitable for outdoor use / \*\* Not compliant with VDE 0670 part 402

**Striker diagrams**

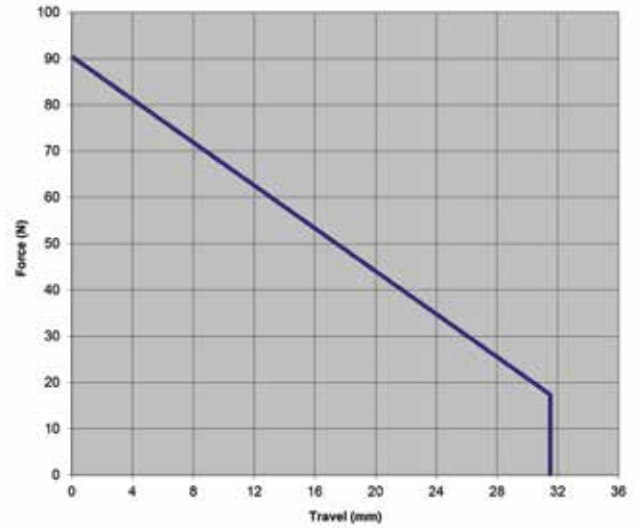
S = Spring diagram 50N to DIN 43625 and IEC 60282-1 designation 'medium'

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

**Force x Travel diagram for 50N DIN striker**



**Force x Travel diagram for 80N DIN striker**



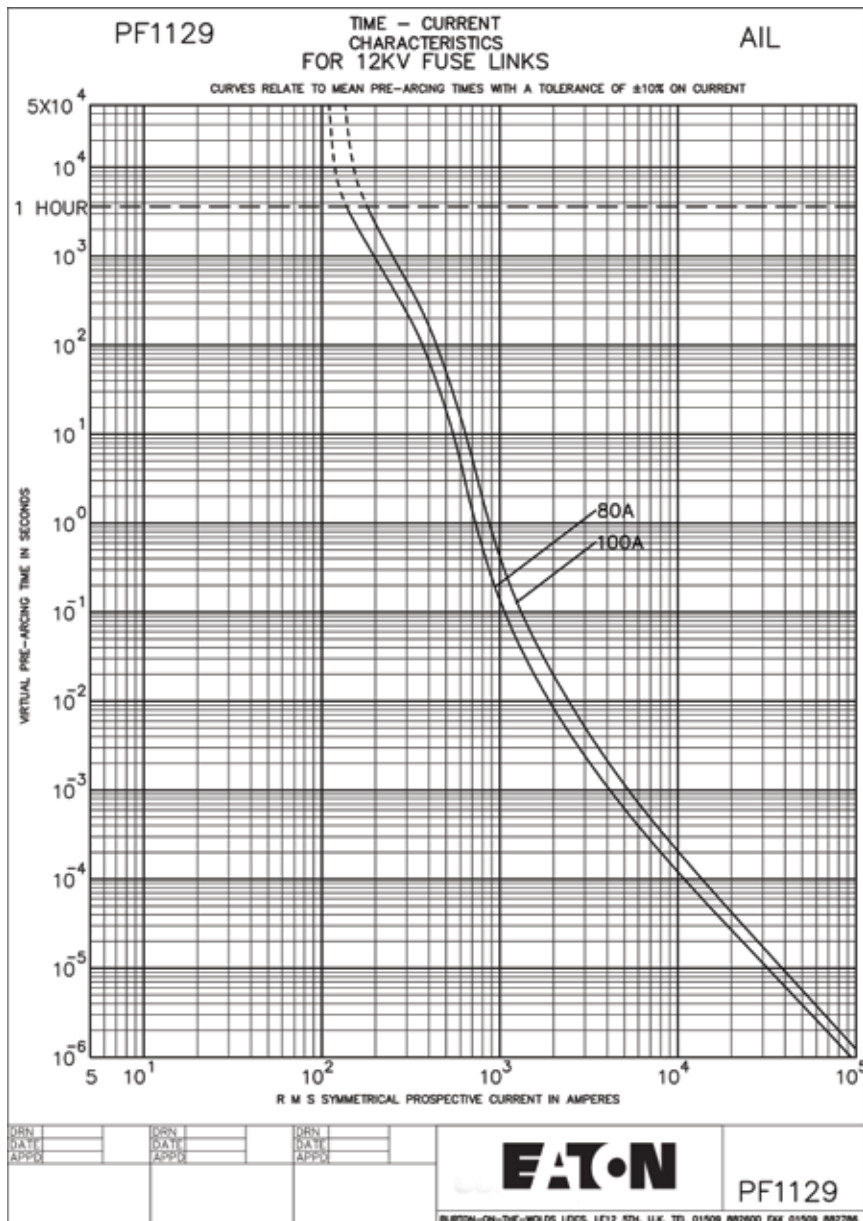
**Table 2. Cross-reference**

Eaton's Bussmann series	EFEN	SIBA	MESA	ETI 80N Striker	ETI 50N Striker	Merlin Gerin	Inael	ABB
12TDLEJ6.3	67120.0060	3000413	CF-12/6,3	4236005	4235005	51006 511 M0	IB-D1	1YMB531042M0001
12TDLEJ10	67120.0100	3000413	CF-12/10	4236006	4235006	51006 512 M0	IB-D1	1YMB531042M0002
12TDLEJ16	67120.0160	3000413	CF-12/16	4236007	4235007	51006 513 M0	IB-D1	1YMB531042M0003
12TDLEJ20	67120.0200	3000413	CF-12/20	4236008	4235008	51006 514 M0	IB-D1	1YMB531042M0004
12TDLEJ25	67120.0250	3000413	CF-12/25	4236009	4235009	51006 515 M0	IB-D1 & IB-D2	1YMB531002M0004
12TDLEJ31.5	67120.0320	3000413	CF-12-31,5	4236010	4235010	51006 516 M0	IB-D1 & IB-D2	1YMB531002M0014
12TDLEJ40	67120.0400	3000413	CF-12/40	4236011	4235011	51006 517 M0	IB-D1 & IB-D2	1YMB531002M0005
12TDLEJ50	67120.0500	3000413	CF-12/50	4236012	4235012	51006 518 M0	IB-D2	1YMB531002M0006
12TDLEJ63	67120.0630	3001213	CF-12/63	4236013	4235013	51006 519 M0	IB-D2	1YMB531002M0007
12THLEJ80	67120.0800	3001213	CF-12/80	4236014	4235014	51006 520 M0	IB-D3	1YMB531002M0021
12THLEJ100	67120.1000	3001213	CF-12/100	4236015	4235015	51006 521 M0	IB-D3	1YMB531002M0022
12TKLEJ125	67120.1250	3001213	N/A	4236016	4235016	N/A	N/A	1YMB531043M0010
12TXLEJ160	67220.1600	3002013	N/A	4236017	4235017	N/A	N/A	N/A
12TXLEJ200	67220.2000	3002014	N/A	N/A	N/A	N/A	N/A	N/A

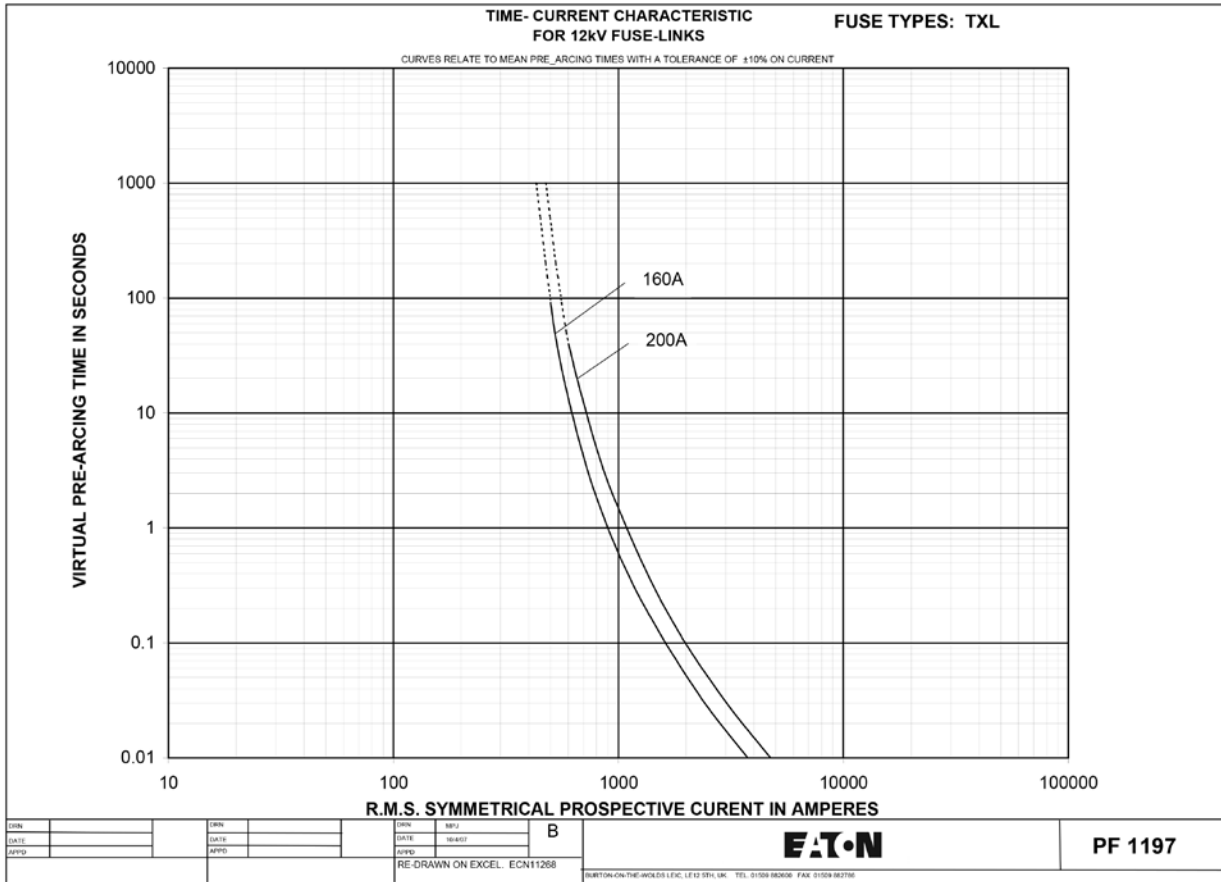
**Table 3. Watts loss comparison**

Eaton's Bussmann series	Eaton's Bussmann series	Efen	SIBA	MESA	ETI	Merlin Gerin	INAEI	ABB
12TDLEJ6.3	10	19	14	16	15	16	12	46
12TDLEJ10	16	29	23	18	10	18	19	25
12TDLEJ16	16	21	28	37	19	37	27	34
12TDLEJ20	18	25	23	42	23	42	28	38
12TDLEJ25	24	31	29	52	33	52	29	47
12TDLEJ31.5	28	39	38	59	46	59	36	41
12TDLEJ40	36	46	50	74	56	74	50	52
12TDLEJ50	47	62	56	70	44	70	52	70
12TDLEJ63	60	60	63	82	65	82	64	78
12THLEJ80	72	82	76	102	77	102	95	82
12THLEJ100	85	96	104	120	104	120	120	101
12TKLEJ125	93	117	159		152			125
12TXLEJ160	217	217	173		200			
12TXLEJ200	333	333	292					

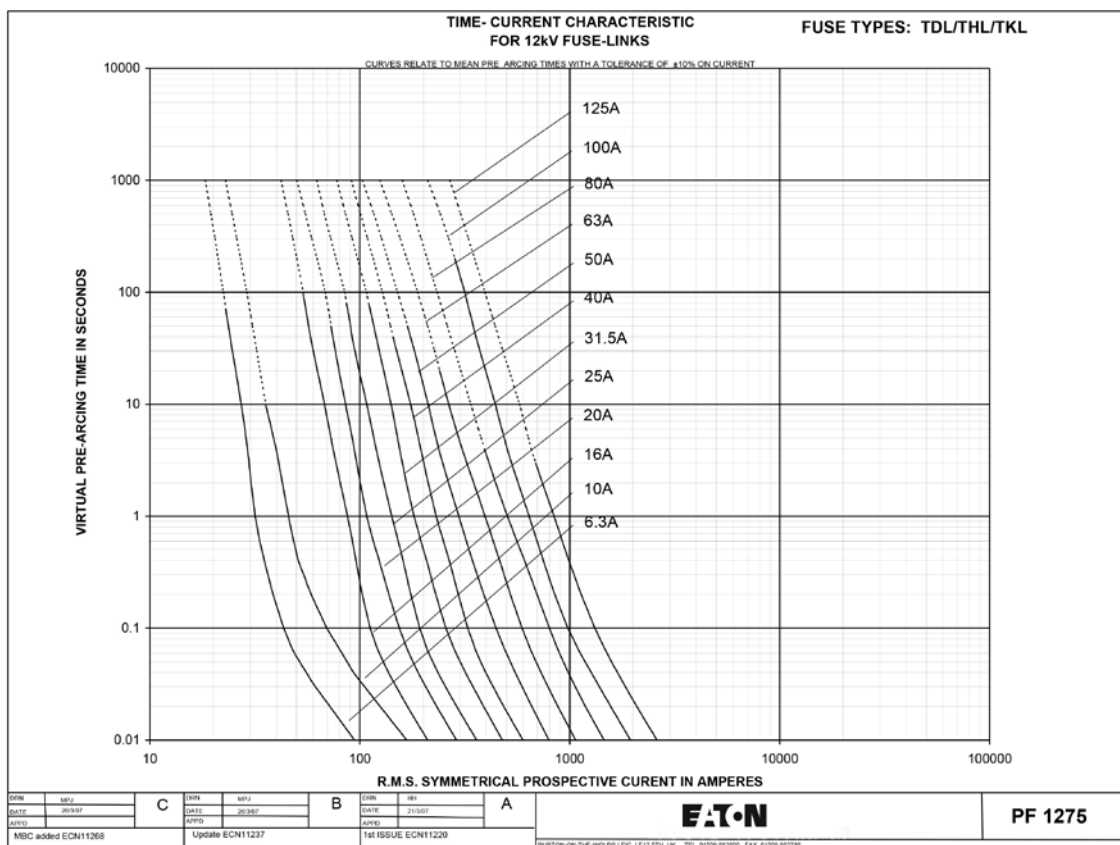
**Time current curve - Fuse type AILS**



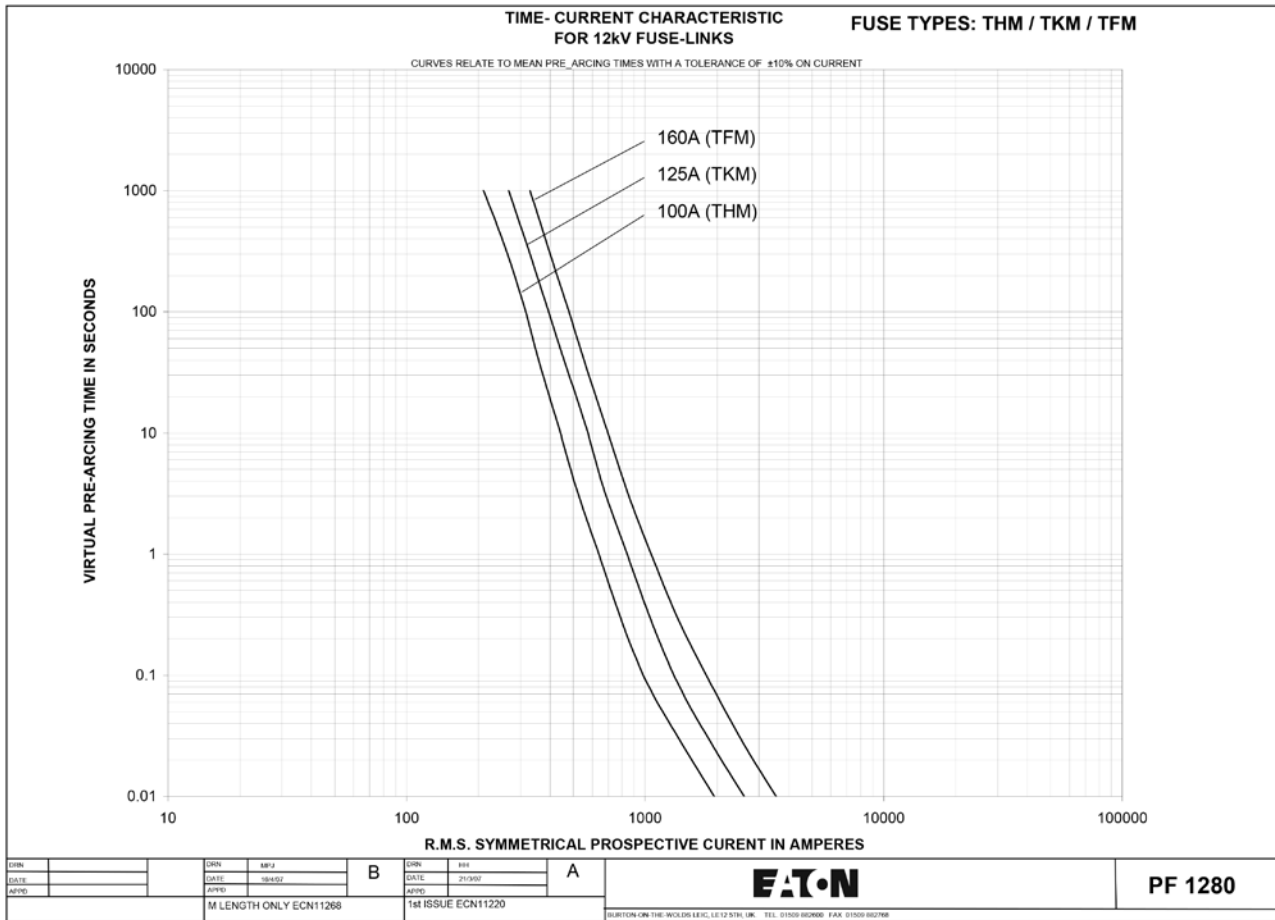
Time current curve - Fuse type TXL



Time current curve - Fuse types TDL,THL,TKL



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



Cut-off curve - Fuse types TDL, THL, TKL

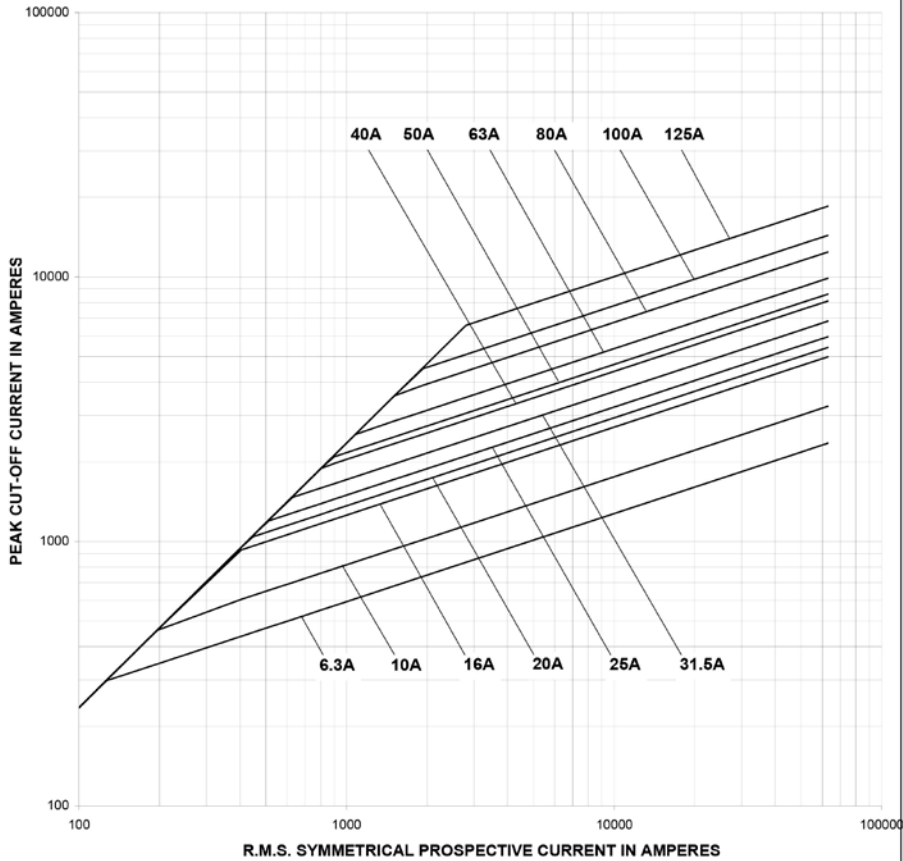
REF. No. PF 2275

CUT-OFF CURRENT  
CHARACTERISTIC  
FOR 12kV FUSE-LINKS

FUSE TYPE  
TDL/THL/TKL

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.



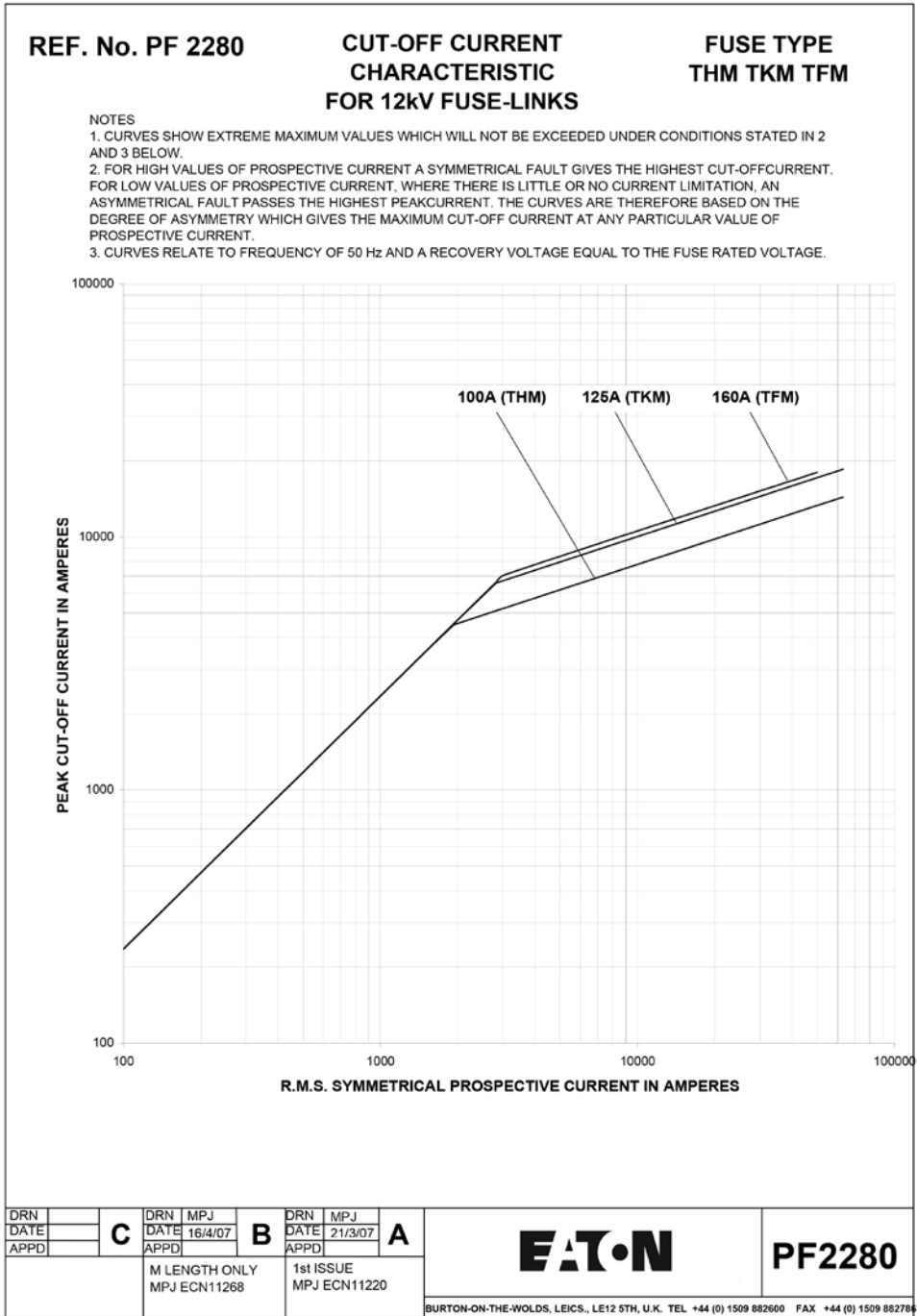
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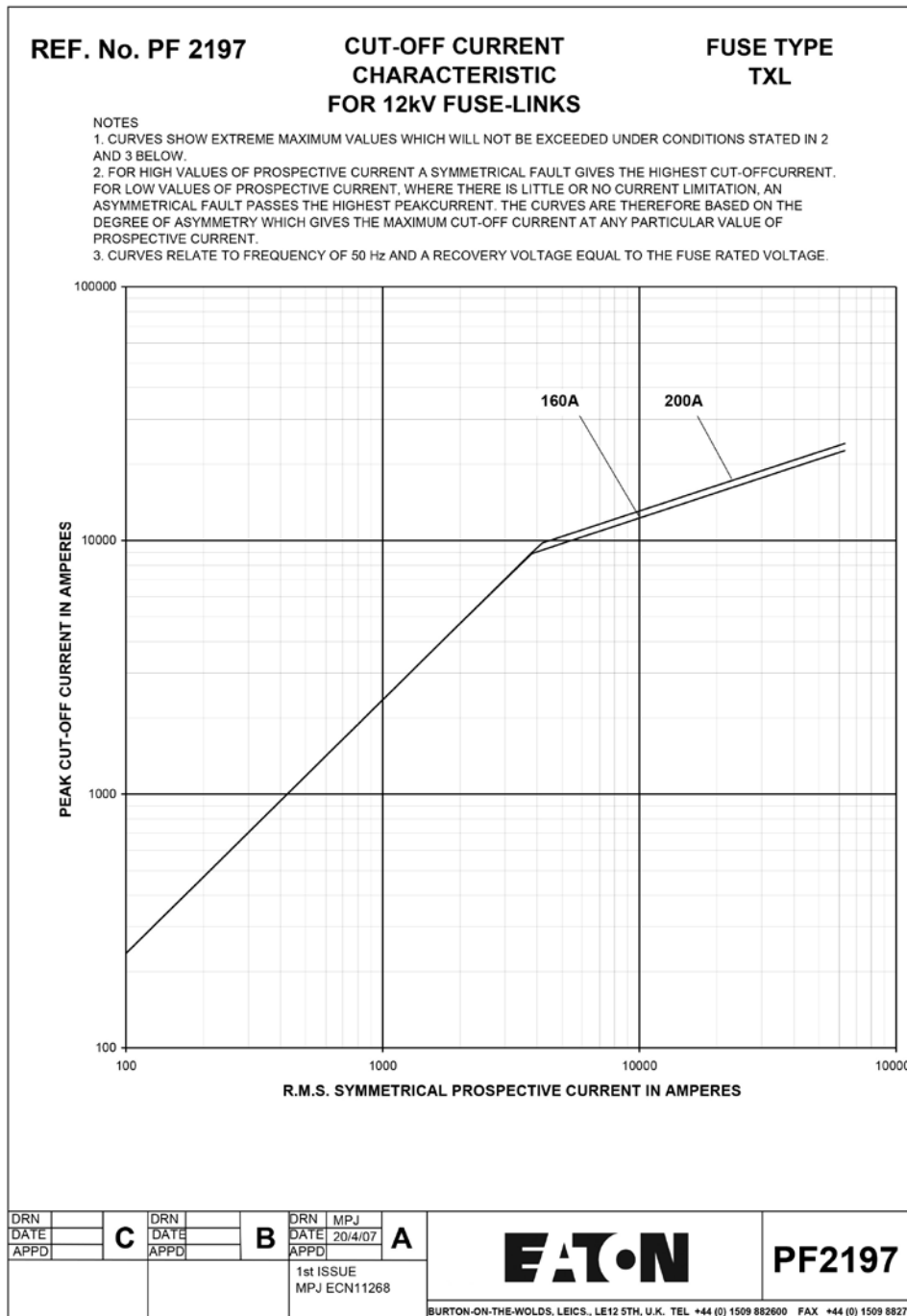
BURTON-ON-THE-WOLDS, LEICS., LE12 5TH, U.K. TEL +44 (0) 1509 882600 FAX +44 (0) 1509 882786

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

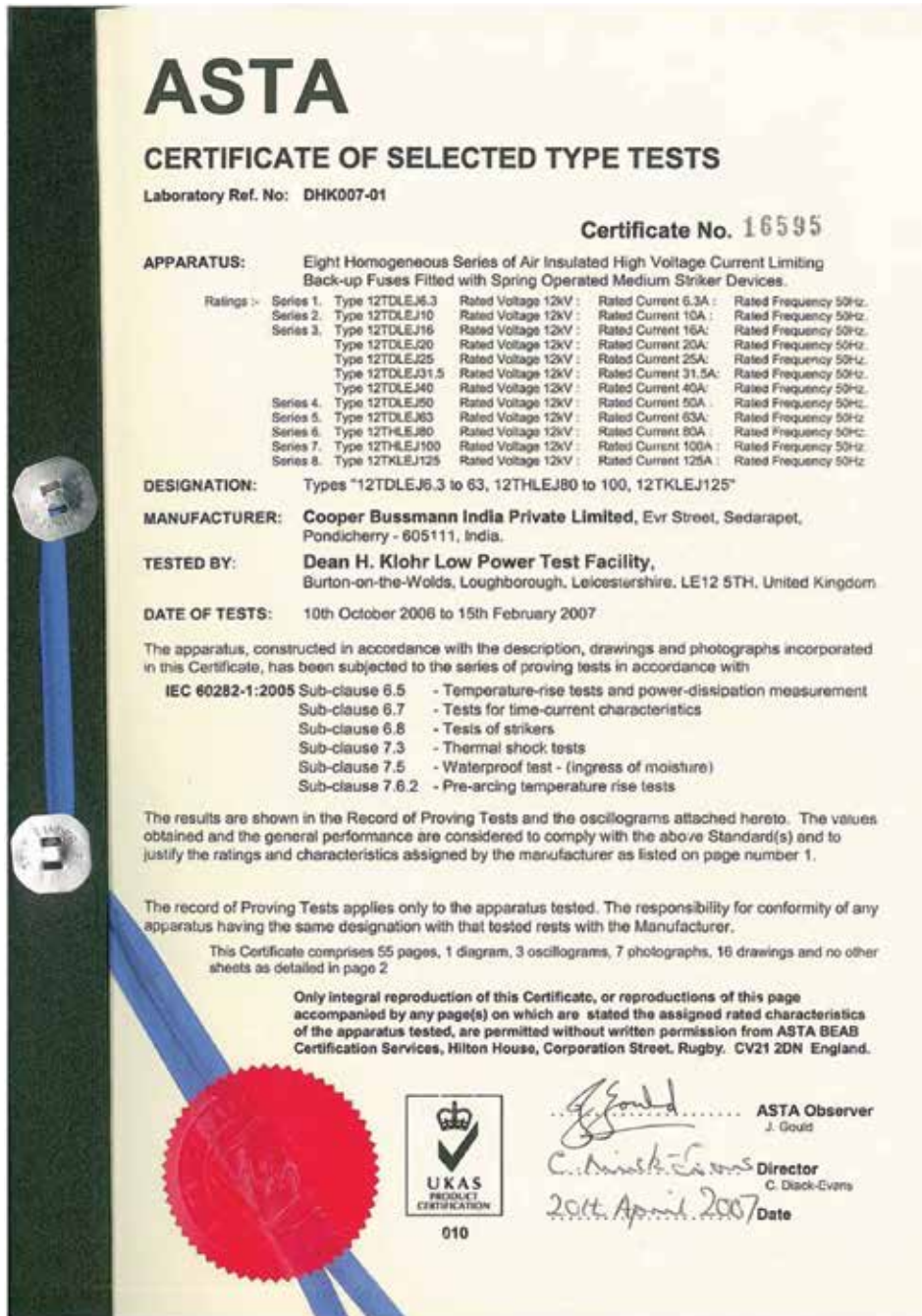




Cut-off curve - Fuse type TXL



ASTA certificate



**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: 12TDLEJ6.3, 12TDLEJ10, 12TDLEJ16, 12TDLEJ20,  
12TDLEJ25, 12TDLEJ31.5, 12TDLEJ40, 12TDLEJ50,  
12TDLEJ63, 12THLEJ80, 12THLEJ100, 12THMEJ100,  
12TKLEJ125

Rating: 12 kV – 63 kA – 50 Hz

The test object passed the specification of test duties of

**IEC 60282-1**

The test results are recorded in Certificate No.

**137-06**

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**


137-06

### 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
12TDLEJ6.3	12	63	6,3	23	50
12TDLEJ10	12	63	10	35	50
12TDLEJ16 (1)	12	63	16	53	50
12TDLEJ20 (1)	12	63	20	73	50
12TDLEJ25 (1)	12	63	25	87	50
12TDLEJ31,5 (1)	12	63	31,5	111	50
12TDLEJ40 (1)	12	63	40	143	50
12TDLEJ50	12	63	50	168	50
12TDLEJ63	12	63	63	235	50
12THLEJ80	12	63	80	272	50
12THLEJ100, 12THMEJ100 (1)	12	63	100	388	50
12TKLEJ125	12	63	125	687	50

(1) See notes 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** 25, 26, 27 September, 19 October, 3 November 2006, 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.**


This Certificate applies only to the apparatus tested. The responsibility for conformity of any apparatus having other dimensions with that tested rests with the Manufacturer.

This Certificate consists of 2 pages in total.

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

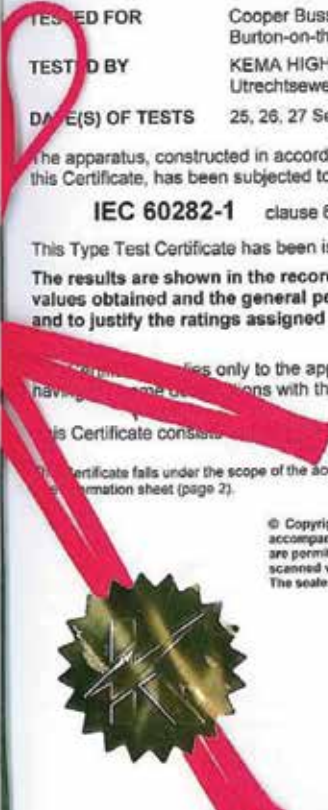
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KEMA Nederland B.V.




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

Arnhem, 17 April 2007



**KEMA certificate**



**REPORT OF PERFORMANCE** **589-06**

**APPARATUS** Current limiting fuses

Designation	Rated voltage kV	Rated breaking capacity kA	Rated current A	Minimum breaking current A	Rated frequency Hz
12TDLEJ63	12 (1)	63 (1)	63	236	50
12THLEJ100	12 (1)	63 (1)	100	388	50
12TKLEJ125	12 (1)	63 (1)	125	687	50

(1) See note (1) on page 4.

**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.

This report consists of 33 sheets in total.

This report falls under the scope of the accreditation certificate L 020 of the Dutch Council for Accreditation.


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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** **239-07**

**APPARATUS** Current limiting fuses

Designation	Rated voltage kV	Rated breaking capacity kA	Rated current A	Minimum breaking current A	Rated frequency Hz
12TDLEJ63	12	50	63	235	50
12THLEJ100	12	50	100	365	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** 16 January 2007

**TEST SPECIFICATION** The tests have been carried out in accordance with the client's instructions.

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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

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