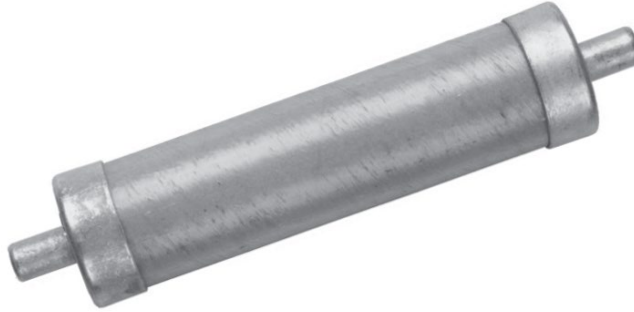


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**Fuses, 15.5 kV, Full-Range, Current-Limiting, Type X, Clip Style**



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**1. Scope**

This standard covers the requirements for 15.5 kV, full-range, current-limiting, type X, clip-style fuses designed to fit S&C Electric Company (S&C) padmount, dead-front, PME switchgear.

This standard applies to the following Seattle City Light (SCL) stock numbers:

<b>Stock No.</b>	<b>Type</b>
014775	Fuse, full-range, type 25X, 25 A
014776	Fuse, full-range, type 40X, 40 A
014777	Fuse, full-range, type 65X, 65 A

Switchgear and fuse holders are outside the scope of this standard. See SCL 4507.80.

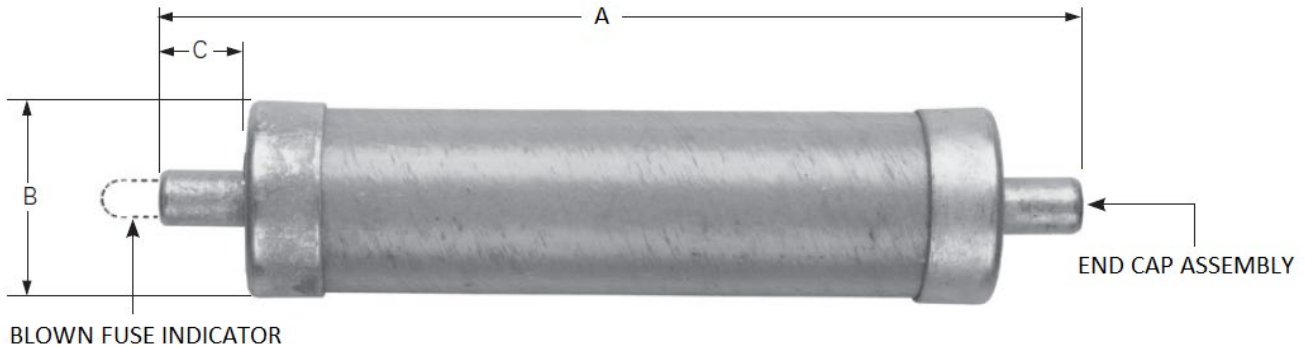
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**2. Application**

Type X fuses are designed to be used with S&C 27 kV padmount PME switchgear for the SCL underground electrical distribution system.

For fuse time-current characteristics curves, see Appendices A and B.

**Figure 2. X-Limiter Fuse Dimensions**



**Table 2. X-Limiter Fuse Dimensions**

Stock No.	Dimensions, in (mm)			Weight, lb (kg)
	A	B	C	
014775	14.37 (365)	2.15 (55)	1.0 (25)	3.0 (1.4)
014776	14.37 (365)	2.15 (55)	1.0 (25)	3.0 (1.4)
014777	17.5 (444)	3.16 (80)	1.19 (30)	8.0 (3.6)

### 3. Industry Standards

Fuses shall meet the applicable requirements of the latest revision of the following industry standards:

**IEEE C37.41-2016**; IEEE Standard Design Tests for High-Voltage (>1000V) Fuses

**IEEE C37.42-2016**; IEEE Standard Specifications for High-Voltage (>1000V) Fuses and Accessories

### 4. Requirements

Fuses shall meet the requirements shown in Table 4.

**Table 4. Requirements**

<b>Class per IEEE C37.42</b>	A
<b>Fuse type</b>	Non-expulsion
<b>Fuse element</b>	Silver
<b>Rated maximum voltage, kV</b>	15.5
<b>Rated current, A (rms)</b>	25, 40, 65
<b>Rated maximum interrupting current, kA (rms), symmetrical</b>	50
<b>Rated lightning impulse withstand voltage (BIL), kV</b>	125
<b>Fuse tube design</b>	Reinforced fiberglass
<b>Tube color</b>	Gray
<b>Blown fuse indicator type</b>	Red button

Fuses shall be compatible with S&C 3123-A1 fuse holders found in S&C padmount PME switchgear.

Following operation, fuses shall activate the red button blown-fuse target from the upper end fitting. See Figure 2.

Fuses shall have no external element solder joints.

Fuses shall be suitable for outdoor use inside a PME switch cabinet

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## 5. Testing

Data that establishes compliance with the requirements of IEEE C37.41, IEEE C37.42, and this standard shall be provided upon request.

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## 6. Marking

Each fuse unit shall be marked according to the requirements of IEEE C37.42, Section 10.2, which includes:

- Manufacturer name or symbol
- Manufacturer type or identification
- Rated current
- Rated maximum voltage
- Rated minimum interrupting current
- Rated maximum interrupting current
- Rated frequency
- Identifying date code (month and year)

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## 7. Packaging

Each fuse shall be packaged individually to prevent damage during shipping, handling, and storage.

Shipping containers shall be legibly marked with the SCL purchase order number.

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## 8. Issuance

Stock Unit: EA

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## 9. Approved Manufacturers

Stock No.	Type	Continuous Current (A)	Eaton/Cooper Power Series Catalog No.
014775	25 X	25	155F025-I
014776	40 X	50	155F040-I
014777	65 X	65	155F065-I

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## 10. Sources

**Fusing Equipment Catalog Data CA132050EN**; "X-Limiter full-range current-limiting fuse," Cooper Power Series, December 2019

**S&C PME Pad-Mounted Gear, Instruction Sheet 660-501**, S&C Holders for Use with Current-Limiting Fuses, June 2010

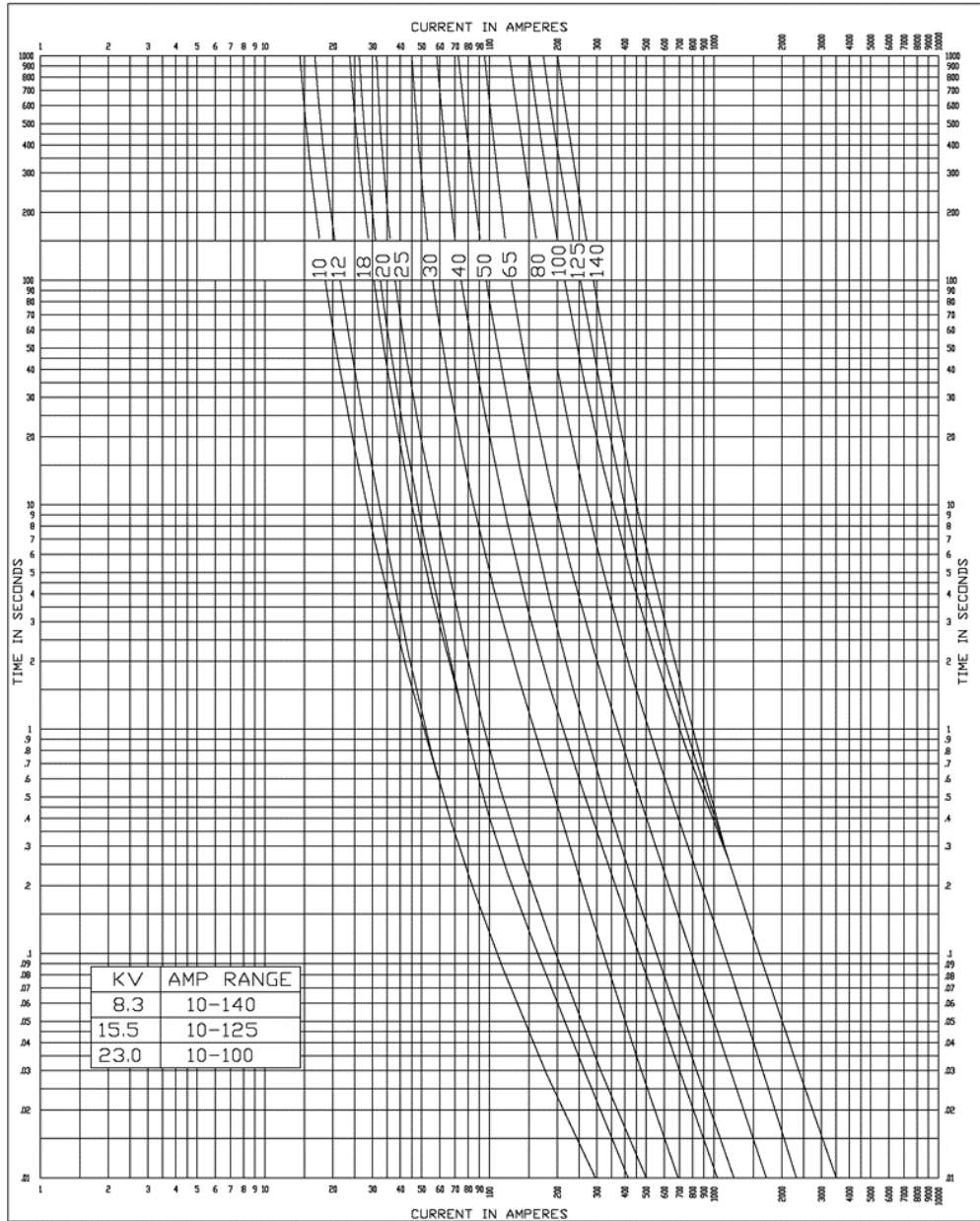
**SCL Material Standard 6840.10**; "Fuses, 15.5 kV, Full-Range, Current-Limiting, Type X Shetab, Muneer; SCL Standards Engineer, originator, and subject matter expert for 6840.15

**TCC R240-91-109, Cooper Power Systems**; Time-Current Characteristics Curves; Minimum Melt Time-Current Characteristics Curves

**TCC R240-91-109, Cooper Power Systems**; Time-Current Characteristics Curves; Max Clear Time-Current Characteristics Curves

## Appendix A. Eaton (Cooper Power Systems) TCC Fuse Curves

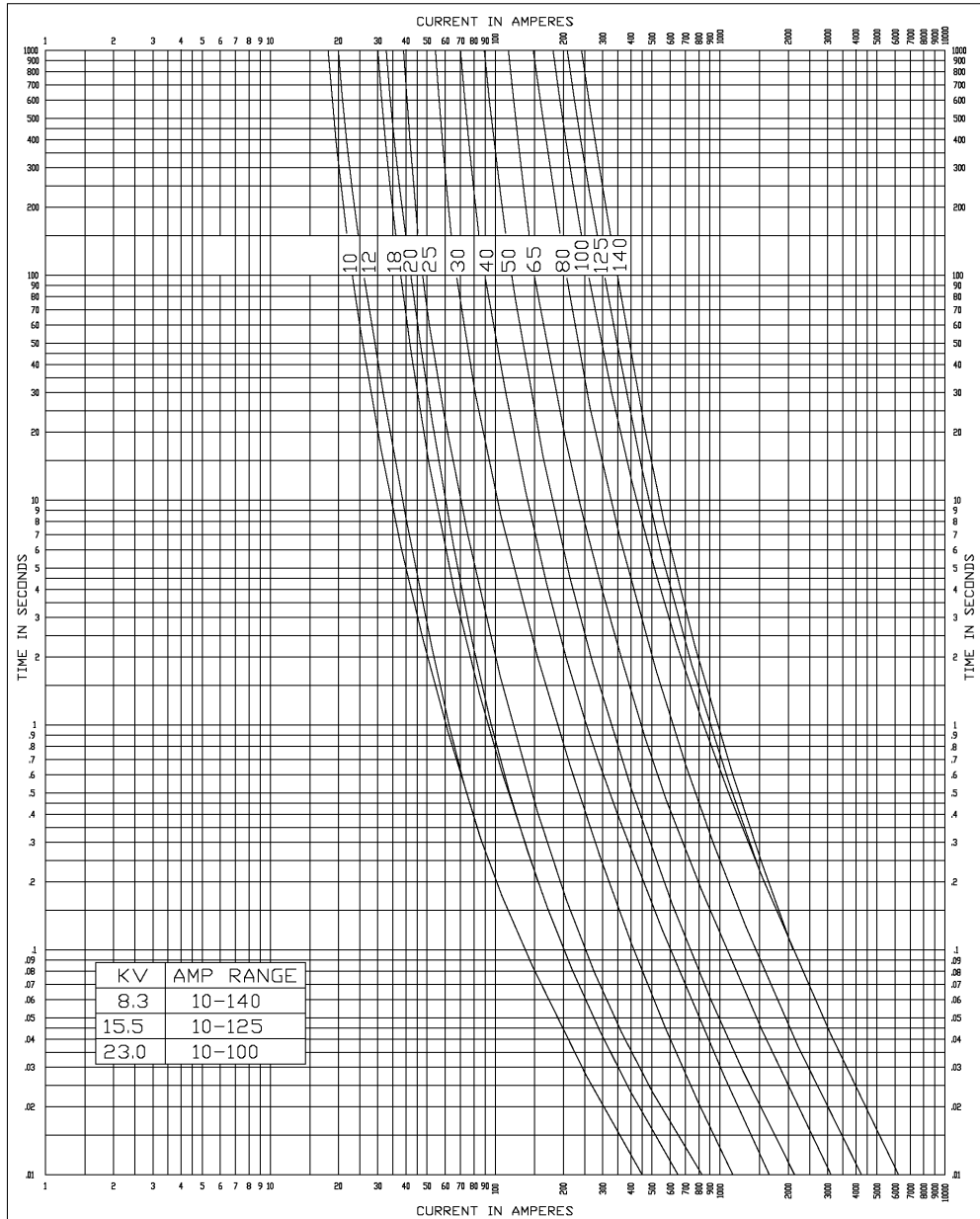
Time-Current Characteristics Curves; Minimum Melt  
 TCC Number: TCC R240-91-109



<b>EATON</b>		<b>TIME-CURRENT CHARACTERISTIC CURVES</b>	
		MINIMUM MELT TIME-CURRENT CHARACTERISTIC CURVES: 8.3, 15.5, 23 KV X-LIMITER FULL RANGE FUSE	
DRAWN BY ALJ	CHK'D NRH	Tests made at LDW Volts ac at HIGH pf at 25°C with no initial load	
DATE 05/03/12	DATE 07/31/12	Standards used as basis for data: ANSI C37.47-1981 (R1992)	
REPLACES	REV 00 REQ NO. 27127	MINIMUM TEST POINTS PLOTTED SO VARIATIONS SHOULD BE PLUS	
DWG NO. R240-91-109		THIS DRAWING WAS PRODUCED ON A CAD SYSTEM, ANY MANUAL REVISION WILL VOID IT.	
CATALOG NUMBERS:			
83FXXX-I    83FXXX-II 155FXXX-1    155FXXX-II 23FXXX-I    23FXXX-II 83F050-DW, 155F050-DW, 23F050-DW			

## Appendix B. Eaton (Cooper Power Systems) TCC Fuse Curves

Time-Current Characteristics Curves; Max Clear  
 TCC Number: TCC R240-91-109



**TIME-CURRENT CHARACTERISTIC CURVES**

MAX CLEAR TIME-CURRENT CHARACTERISTIC CURVES:  
 8.3, 15.5, 23 KV X-LIMITER FULL RANGE FUSE

DRAWN BY ALJ	CHK'D NRH	Tests made at RATED Volts ac at LDW pf at 25°C with no initial load
DATE 05/03/12	DATE 07/31/12	Standards used as basis for data: ANSI C37.47-1981 (R1992)
REPLACES	REV 00 REG NO. 27127	MAXIMUM TEST POINTS PLOTTED SO VARIATIONS SHOULD BE MINUS
DWG NO. R240-91-109	THIS DRAWING WAS PRODUCED ON A CAD SYSTEM, ANY MANUAL REVISION WILL VOID IT.	

CATALOG NUMBERS:

- 83FXXX-I    83FXXX-II
- 155FXXX-1    155FXXX-II
- 23FXXX-I    23FXXX-II
- 83F050-DW, 155F050-DW, 23F050-DW