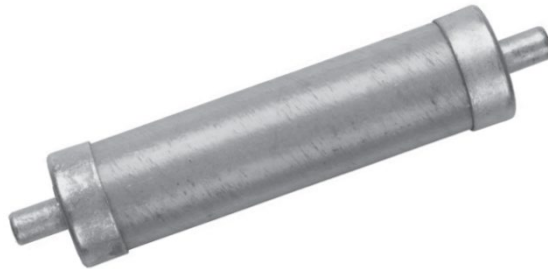


Fuses, 15.5 kV, Full-Range, Current-Limiting, Type X, Clip Style**1. Scope**

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:

Stock No.	Type
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.

2. Application

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

When used with S&C fuse holder, Stock No. 014998, these fuses could also be installed in live-front PMH switchgear and dead-front Federal Pacific Electric PSE switchgear. See SCL 6840.10 and SCL 4507.95 for details.

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

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

Standard Coordinator
Muneer Shetab

Standards Engineering Supervisor
Brett Hanson

Division Director
Bob Risch

4. Requirements

Fuses shall meet the requirements shown in Table 4.

Table 4. Requirements

Class per IEEE C37.42	A
Fuse type	Non-expulsion
Fuse element	Silver
Rated maximum voltage, kV	15.5
Rated current, A (rms)	25, 40, 65
Rated maximum interrupting current, kA (rms), symmetrical	50
Rated lightning impulse withstand voltage (BIL), kV	125
Fuse tube design	Reinforced fiberglass
Tube color	Gray
Blown fuse indicator type	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 4.

Fuses shall have no external element solder joints.

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

Figure 4. X-Limiter Fuse Dimensions

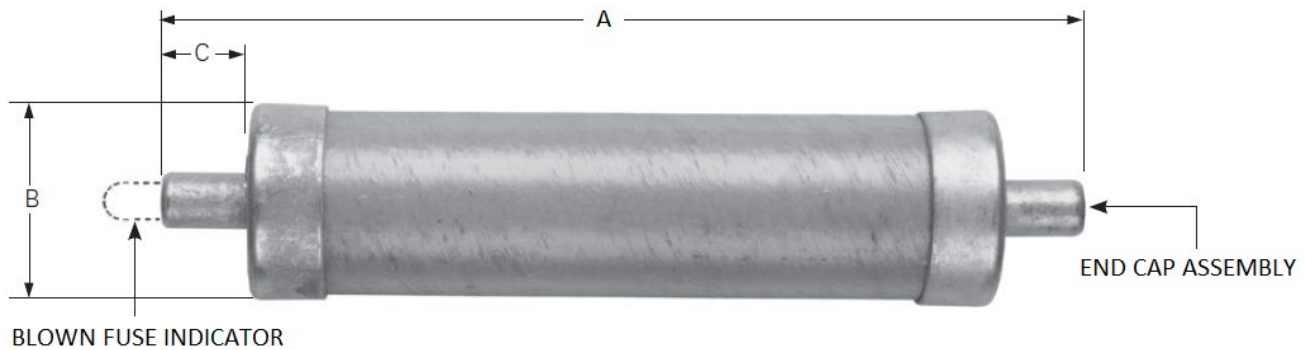


Table 4. X-Limiter Fuse Dimensions

Stock No.	Dimensions (in)			Weight (lb)
	A	B	C	
014775	14.21–14.37	2.15–2.18	1.0	3.0
014776	14.21–14.37	2.15–2.18	1.0	3.0
014777	17.02–17.50	2.18–3.16	1.0–1.19	4.25–8.0

5. Testing

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

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)

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.

8. Issuance

Stock Unit: EA

9. Approved Manufacturers

Stock No.	Type	Continuous Current (A)	Eaton/Cooper Power Series Catalog No.	Hi-Tech Catalog No.
014775	25 X	25	155F025-I	HTFX 241025
014776	40 X	50	155F040-I	HTFX 241040
014777	65 X	65	155F065-I	HTFX 241065

10. References

SCL Material Standard 4507.90; "Switchgear, 27 kV, Three-Phase, Live-Front, Padmount"

SCL Material Standard 6840.10; "Fuses, 15.5 kV, Full-Range, Current-Limiting, Type X, Hinge-Mounted"

11. 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

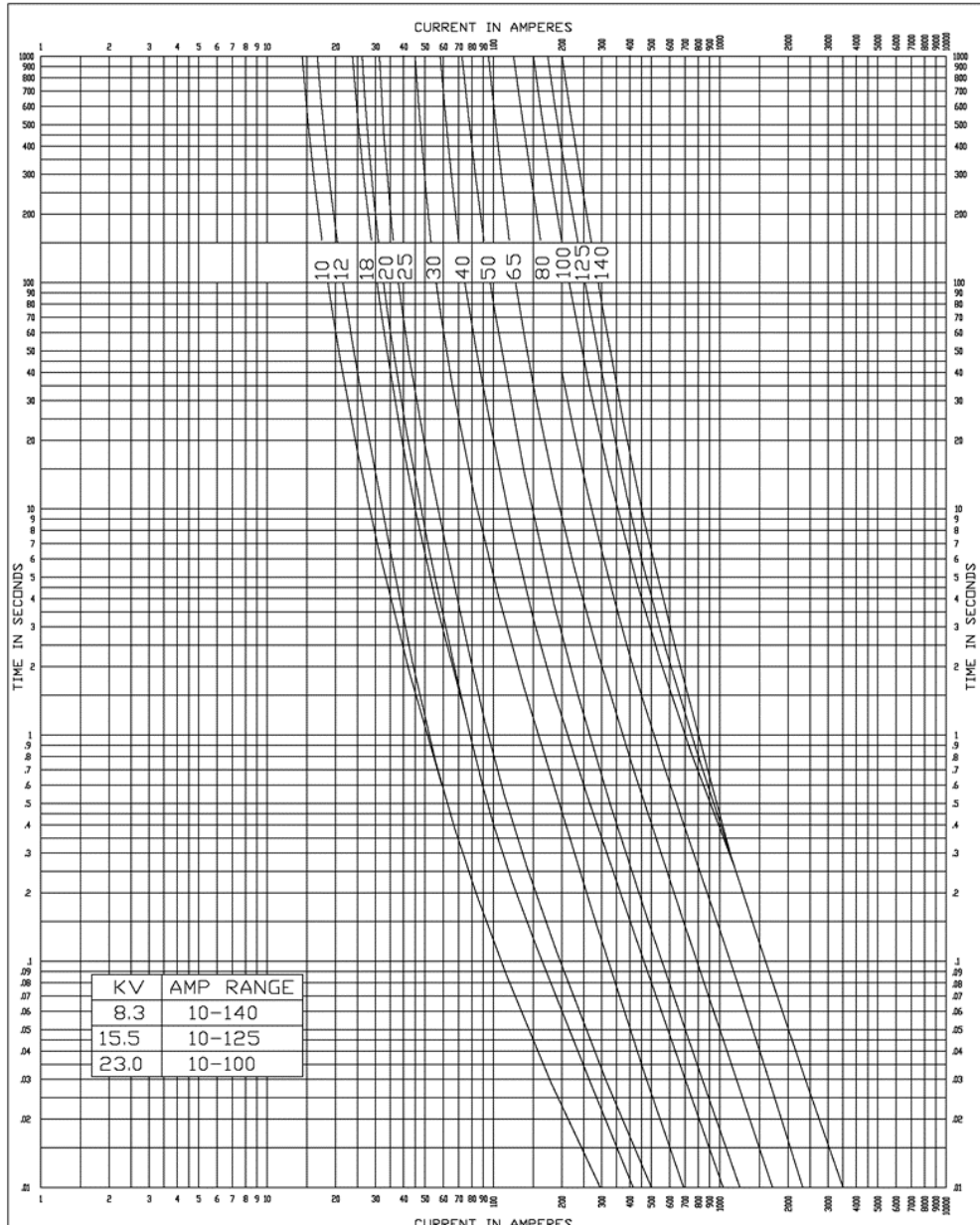
Shetab, Muneer; SCL Standards Engineer, originator, and subject matter expert for 6840.15

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

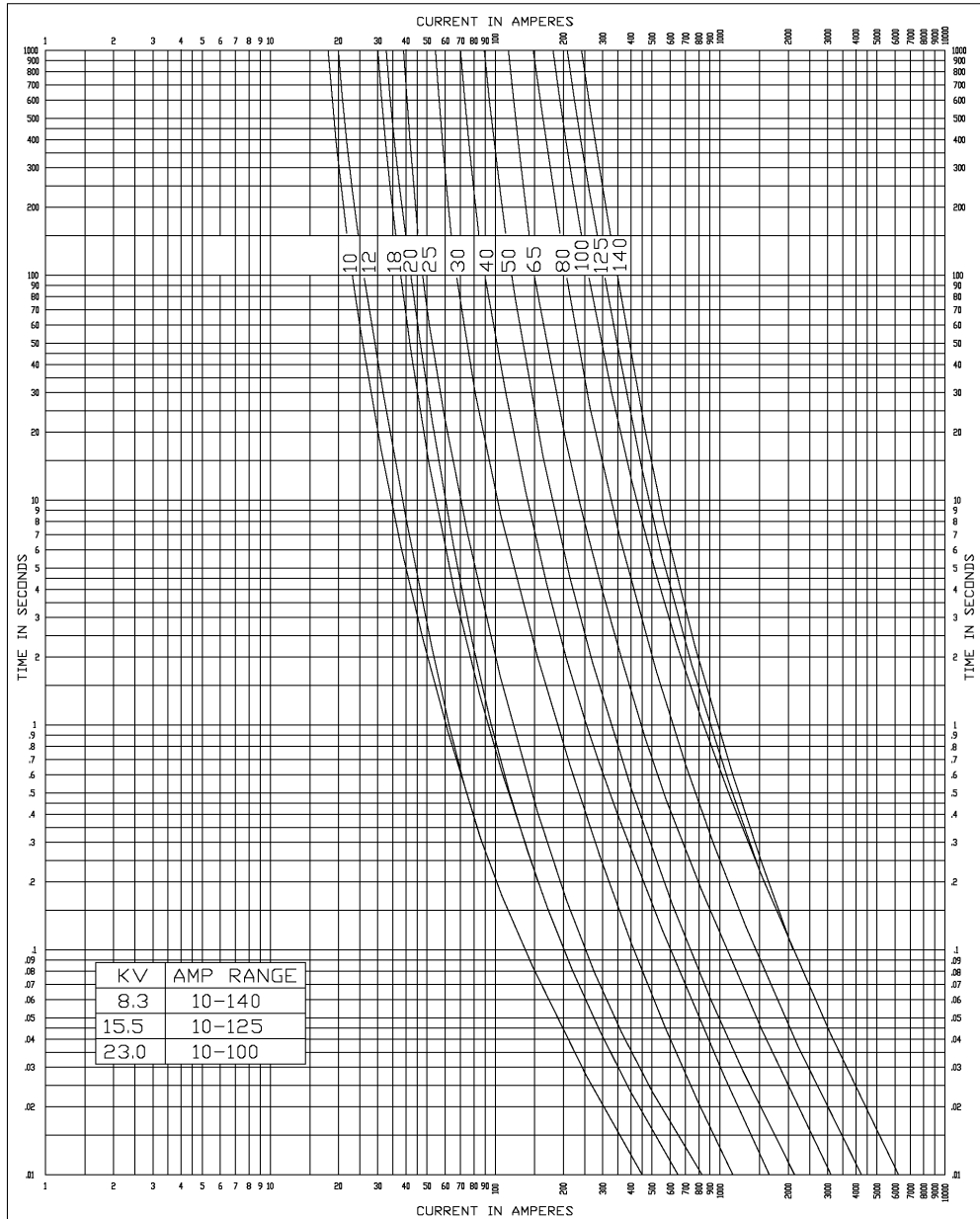
Time-Current Characteristics Curves; Minimum Melt
 TCC Number: TCC R240-91-109



EATON		TIME-CURRENT CHARACTERISTIC CURVES	
		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