Fuses, 17.2 kV, Full-Range, Current-Limiting, Molded

1. Scope

This standard covers the requirements for 17.2 kV, full-range, molded current-limiting fuses (MCLFs) and accessories.

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

Stock No.	Description
012276	Fuse, 25 MCL
012277	Fuse, 40 MCL
012278	Fuse, 65 MCL
012279	Wall mounting bracket assembly
012280	Tilt mounting adapter (optional)

2. Application

MCLFs are designed with a fuse element that has both low and high fault current interrupting capability. The low current section clears fault in less than one half cycle. The high current section limits the system available fault current to prevent disruptive failures by limiting let-through current and energy released into the faulted equipment.

MCLFs are designed to operate in a solidly grounded, wye-connected, 27 kV looped radial electrical distribution system. In rare cases, when transformers or loads are delta-connected, the 17.2 kV MCL fuses specified in this standard can be used.

FCLs are dead-front, fully submersible, and designed to be used in underground and in-building vaults.

For overhead applications see SCL 6840.10.

Use with loadbreak bushing inserts, Stock No. 686449.

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

3. Industry Standards

Fuses and accessories shall meet the applicable requirements of the following industry standards:

IEEE C37.40-1996; IEEE Standard Service Conditions and Definitions for External Fuses for Shunt Capacitors; Supplement to IEEE Std C37.40-1993

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

IEEE C37.47-2011; IEEE Standard Specification for High-Voltage (>1000V) Distribution Class Current-Limiting Type Fuses and Fuse Disconnecting Switches

IEEE Std 386-1995; IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Above 600 V

IEEE C37.42-2011; IEEE Standard Specification for High-Voltage (>1000V) Fuses and Accessories

IEEE Std 592; IEEE Standard for Exposed Semiconducting Shields on High Voltage Cable Joints and Separable Connectors

4. Requirements

MCLFs are encapsulated in rubber with standard 200 A separable connector interface for connection between cable or between a cable and apparatus bushings.

Fuses shall meet the following requirements:

Class per IEEE C37.42	A
Terminals	200 A deepwell on both ends
Fuse type	Non-expulsion, submersible
Rated maximum voltage, kV	17.2
One minute withstand voltage, kV	40
Rated lightning impulse withstand voltage (BIL), kV	125
Rated current, A (rms)	25, 40, 65
Rated minimum interrupting current, kA (rms), symmetrical	50
Fuse tube material	Reinforced fiberglass or equivalent
Mold material	EDPM rubber or equivalent

Figure 4a. Molded Current Limiting Fuse with End Fittings

Figure 4b. Molded Current Limiting Fuse Assembly with End Fitting and Wall Bracket

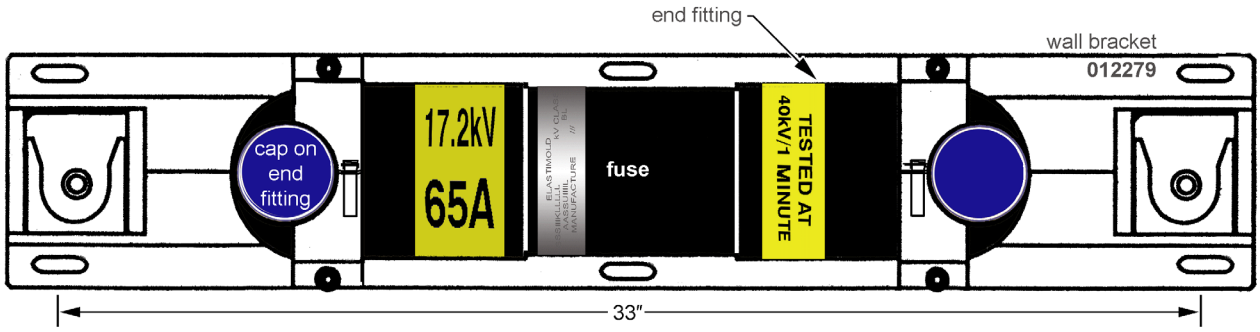
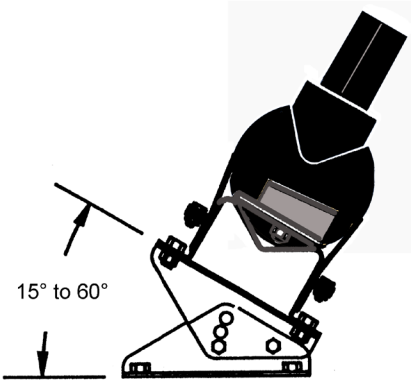


Figure 4c. Molded Curent Limiting Fuse with Tilt Mounting Adapter, Side View



5. Testing

Data that establishes compliance with the requirements of the standards listed in Section 3, and this standard, shall be provided upon request.

6. Marking

Fuse units 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 maximum interrupting current
- Identifying date code (month and year)

To be fit for use, each fuse body must be marked with the following yellow labels:

- "TESTED AT 40 kV / 1 MINUTE"
- Fuse rated maximum voltage (17.2 kV) and ampere rating (25 A, 40 A, or 65 A)

7. Packaging

Fuses shall be packaged as a single unit 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.	Description	ABB / Thomas & Betts / Elastimold
012276	Fuse, 25 MCL	M27CLF025-22
012277	Fuse, 40 MCL	M27CLF040-22
012278	Fuse, 65 MCL	M27CLF065-22
012279	Wall mounting bracket assembly	WMBQ-1
012280	Tilt mounting adapter (optional)	TMA-EM

10. References

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

11. Sources

SCL Stock Catalog page 68-11; February 24, 2016

Shetab, Muneer; SCL Standards Engineer, subject matter expert, and originator of 6839.45

Thomas & Betts Catalog # PC-FUSES-0105; "Fuses, Protection and Control"; 2004

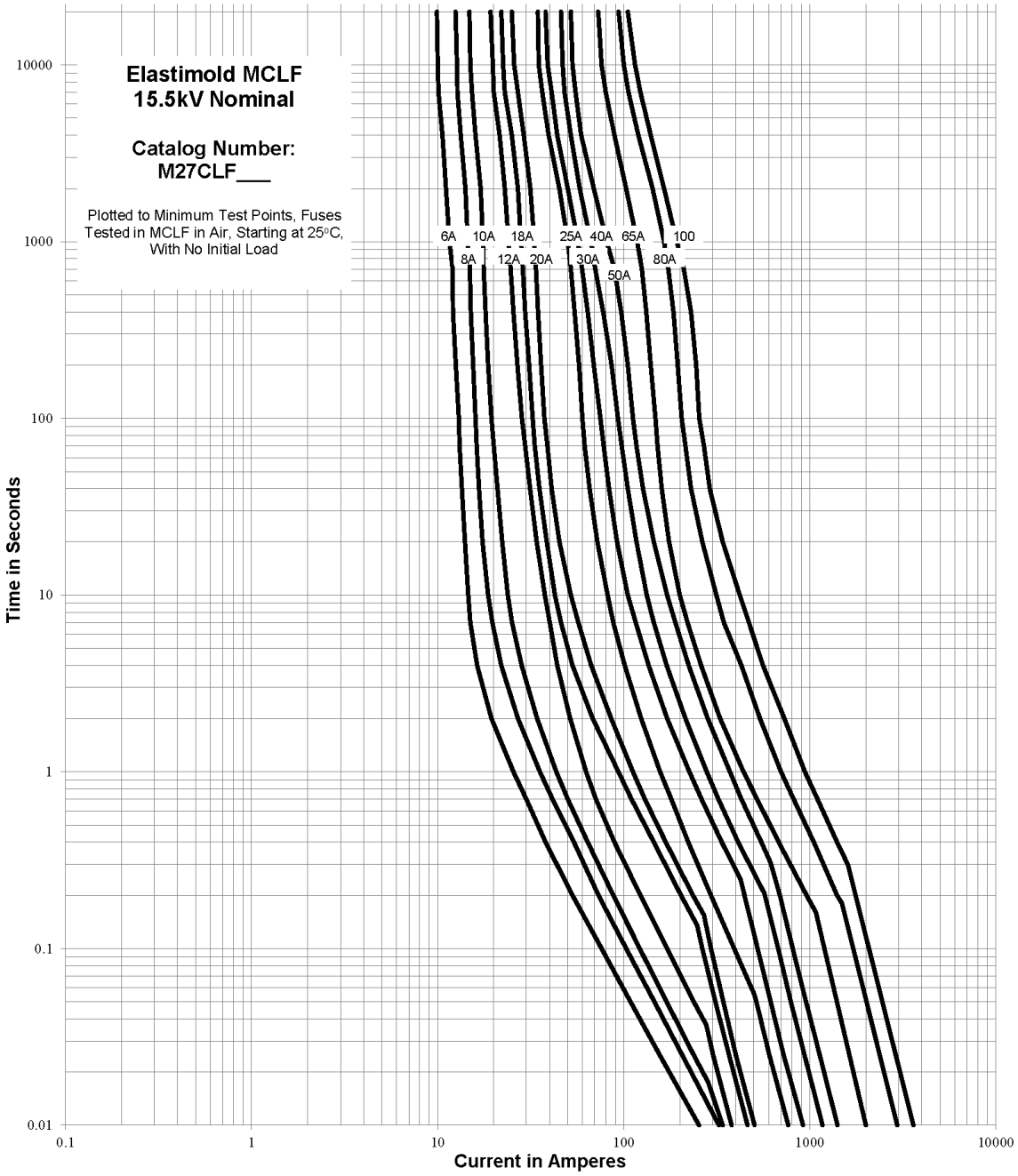
Appendix A. ABB (Hi-Tech) Minimum Melting Time-Current Fuse Curves

Hi-Tech™

ELASTIMOLD® MCLF
Molded Full-Range Current-Limiting Fuses

Publication #FC-029b Date: 8-04

Minimum Melting Time-Current Curves 15.5kV Nominal Voltage Rating



Appendix B. ABB (Hi-Tech) Total Clearing Time-Current Fuse Curves

Hi-Tech™

ELASTIMOLD® MCLF
Molded Full-Range Current-Limiting Fuses

Publication #FC-076b Date: 8-04

Total Clearing Time-Current Curves 15.5kV Nominal Voltage Rating