

# Oil-immersed current-sensing weak link cartridge fuse



## General

Eaton's Cooper Power™ series oil-immersed current-sensing weak link cartridge fuse is an internal, "weak link" expulsion fuse. It is designed for use in transformer oil or approved equivalent on the high voltage or primary side of distribution transformers.

This cartridge fuse provides an economical means of fusing because it protects distribution systems from failed transformers, and also protects transformers from excessive overloads and fault conditions.

Current-sensing cartridge fuses can be used alone or combined in a two-fuse protection system where high fault currents may be encountered. In a two-fuse system, the cartridge fuse is connected in series and coordinated with the primary current-limiting fuse. This arrangement allows low-current faults and overloads to be cleared by the internal cartridge fuse, while high-current faults are cleared by the current-limiting fuse.

## Installation

No special tools are required. The cartridge fuse is either bushing or terminal board-mounted inside the transformer tank with the fuse lead end downward at least 2.0 inches (51 mm) beneath the level of the dielectric fluid. The minimum required distance from ground is:

8.3 kV	2.0 in. (51 mm)
15.5 kV	3.5 in. (89 mm)

Refer to Service Literature S240-31-1 for installation instructions.

## Production tests

Tests are conducted in accordance with Eaton requirements.

- Physical Inspection
- Periodic Dissection

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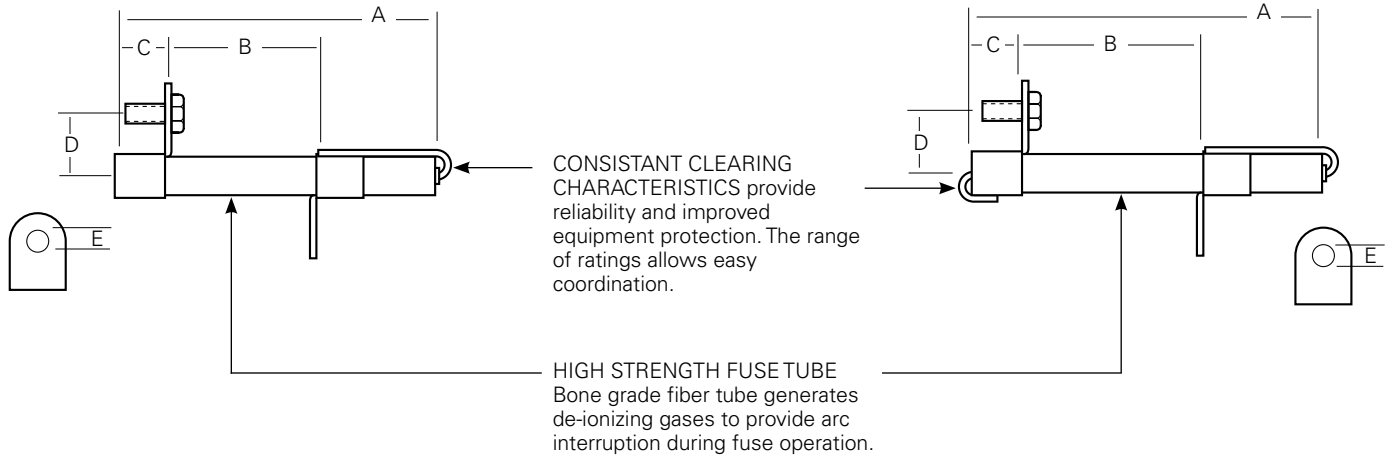
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**Table 1. Electrical Ratings and Characteristics**

Maximum Rated Voltage (kV)	Continuous Current Ratings (A)	Maximum Single-Phase Interrupting Ratings (Asymmetrical) (A)*
8.3	10-140	2000
15.5	10-140	1000

\* IEEE Std C37.41™-2000 (See Certified Test Report CP0807)

**Features and detailed description**



**Figure 1. (3437718C\_M; 8.3 kV, 2000 A Interrupt)**

**Figure 2. (3437719C\_M; 15.5 kV, 2000 A Interrupt)**

**Table 2. Dimensional Information**

Figure	Dimensions in./(mm)					
	A	B	C	D	E	Dia.
1	5.18 (131.6)	3.12 (79.2)	0.87 (22.1)	0.87 (22.1)	0.24 (6.1)	0.50 (12.7)
2	6.37 (161.8)	4.06 (103.1)	0.87 (22.1)	0.87 (22.1)	0.24 (6.1)	0.50 (12.7)

**Note:** Thread size is 1/4 in. x 20-0.75 in.

**Ordering information**

To order a current-sensing weak link cartridge fuse, determine the amperage and voltage requirements of the application and specify the fuse required from Table 3.

**Table 3. Oil-Immersed Current Sensing Weak Link Cartridge Fuses**

Continuous Current Rating (A)	Catalog Number
<b>8.3 kV, 2000 A Interrupting</b>	
10	3437718C05M
15	3437718C07M
25	3437718C10M
40	3437718C12M
65	3437718C16M
140	3437718C18M
<b>15.5 kV, 1000 A Interrupting</b>	
10	3437719C05M
15	3437719C07M
25	3437719C10M
40	3437719C12M
65	3437719C16M
140	3437719C18M

## Method A

### Using the correlation tables

To order an oil-immersed current-sensing weak link cartridge fuse for transformer primary voltages up to 8.32 kV, complete catalog number 3437718\_\_M using Table 4.

To order a fuse for transformer primary voltages from 12.0 kV and up, consult the shaded portion of the chart and complete catalog number 3437719\_\_M.

Correlation is based on IEEE C57.92™ and IEEE C57.109™ standards and *Reference Data TD132004EN Pad-Mounted Transformer Fusing Philosophies*.

## Dual voltage transformer application

Current-sensing internal cartridge fuses may also be applied in single-phase dual-voltage transformers of the following transformer primary voltage configurations:

2.4/4.8 4.8/7.62

2.4/7.2 4.8/14.4

2.4/7.62 7.2/14.4

2.4/7.96

Specify two fuses for each application using Table 4.

## Method B

### Using time current curves

To determine or confirm the cartridge fuse that will coordinate with upstream and downstream systems requirements, use time-current curves and specify the fuse indicated from Table 3.

For full size time-current curves, contact your Eaton representative.

**Table 4. Internal Current-Sensing Cartridge Fuses**

Transformer kVA	Transformer Primary Voltage (kV)							
	2.4	4.16	4.8	7.2, 7.62, 7.96	8.32	12.0, 12.47	13.2, 13.8	14.4
<b>Single-Phase Transformers (Phase-to -Ground)</b>								
10	C05	C05*	C05*	C05*	C05*	C05*	C05*	C05*
15	C07	C05	C05*	C05*	C05*	C05*	C05*	C05*
25	C10	C07	C07	C05 <sup>a</sup>	C05*	C05*	C05*	C05*
37.5	C12	C10	C10*	C07	C05	C05*	C05*	C05*
50	C16*	C10	C10	C07	C07	C05	C05	C05
75	C16	C12	C12	C10	C10	C07	C07	C07
100	C18*	C16*	C16*	C12	C10	C10	C07	C07
167	–	C18*	C16	C16*	C16*	C12	C12*	C10
250	–	C18	C18	C16	C16	C16*	C12	C12
333	–	–	C18	C18*	C18*	C16	C16 <sup>b</sup>	C16*
500	–	–	–	–	C18	C18*	C18*	C16
<b>Transformer kVA</b>	<b>2.4</b>	<b>4.16</b>	<b>4.8</b>	<b>7.2, 7.62, 7.96</b>	<b>8.32</b>	<b>12.0,12.47</b>	<b>13.2</b>	<b>13.8 14.4</b>
<b>Three-Phase Transformers (Phase-to -Phase)</b>								
30	C07	C05	C05	C05*	C05*	C05*	C05*	C05*
45	C10	C07	C07	C05	C05	C05*	C05*	C05*
75	C12	C10	C10	C07	C07	C05*	C05*	C05*
112.5	C16	C12	C12	C10	C07	C07	C05*	C05*
150	C16*	C16*	C12	C10	C10	C07	C05	C05
225	C18	C16	C16	C12	C12	C10	C10	C10
300	C18	C18*	C16	C12	C12	C12	C12	C10
500	–	C18	C18	C18	C16	C16*	C16*	C12
750	–	–	–	C18	C18	C16	C16	C16
1000	–	–	–	–	–	C18	C18	C18
1500	–	–	–	–	–	C18	C18	C18

**Note:** Recommendations are based on fuse melting at 3 to 4 times transformer rated current at 5 minutes. Recommended fuses meet inrush current requirement of 12 times transformer rated current for 0.1 second. Recommendations are based on conventional transformers. For completely self-protected (CSP) transformers, refer to Reference Data TD132006EN.

\* Recommended fuses provide more than 6 times transformer rated current for 5 minutes.

a. 4 to 6 times rated current for 7.2 kV; 6 times for 7.62 kV.

b. 4 to 6 times rated current for 13.2 kV; 6 times for 13.8 kV.

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