

## NX Indoor Current-Limiting Fuses

### GENERAL

Cooper Power Systems Type NX current-limiting fuses provide overload protection for all indoor and underground cable distribution systems 2.4 through 34.5 kV. NX fuses are noiseless and expel no hot gases or burning particles while interrupting currents from minimum melt to maximum fuse rating (50,000 A through 23 kV, 35,000 A through 27 and 38 kV). Their current-limiting capability greatly reduces the momentary duty on protected equipment, extending the life and, in some cases, reducing the original cost of that equipment.

The ability of an NX fuse to interrupt low-current faults eliminates the need for auxiliary devices to handle these troublesome current levels. An NX fuse extends system coordination because it is fast clearing and current-limiting – conductor and equipment damage caused by high currents is virtually eliminated.

### Clip-Style NX Fuse

The basic NX fuse unit (see Figure 1) is designed to mount in a clip-style mounting. Basic clip-style NX fuses are available in 4.3, 5.5, 8.3, 15.5, 23, 27, and 38 kV ratings.

### NX Fuse with Arc-Strangler Loadbreak Device

An NX fuse with an Arc-Strangler loadbreaking device, (see Figure 2) that mounts in a hinge-style mounting is available on 4.3, 5.5, 8.3, and 15.5 kV fuses. All current magnitudes from excitation current through 200 A can be interrupted positively and safely by opening the fuse with a switch disconnect stick.

These units have the same operating characteristics as the basic clip-style fuse, along with loadbreaking capabilities.

### Arc-Strangler Switchblade

Switchblades with the Arc-Strangler loadbreaking device are available in 8.3 and 15.5 kV, 200 A continuous current ratings (see Figure 3).



Figure 1.  
Clip-style NX fuses.



Figure 2.  
NX fuse with Arc-Strangler loadbreaking device.

TABLE 1  
Electrical Characteristics

| Fuse Type                                  | Full Range                       |
|--------------------------------------------|----------------------------------|
| Maximum Interrupting Current (symmetrical) | 4.3 kV through 23 kV<br>50,000 A |
|                                            | 27 kV and 38 kV<br>35,000 A      |

TABLE 2  
NX Fuse Time Current Characteristic (TCC) Curves

| Voltage Rating (kV) | TCC Curve  |
|---------------------|------------|
| 4.3                 | R240-91-30 |
| 5.5                 | R240-91-31 |
| 8.3                 | R240-91-32 |
| 15.5                | R240-91-33 |
| 23                  | R240-91-34 |
| 27.38               | R240-91-35 |

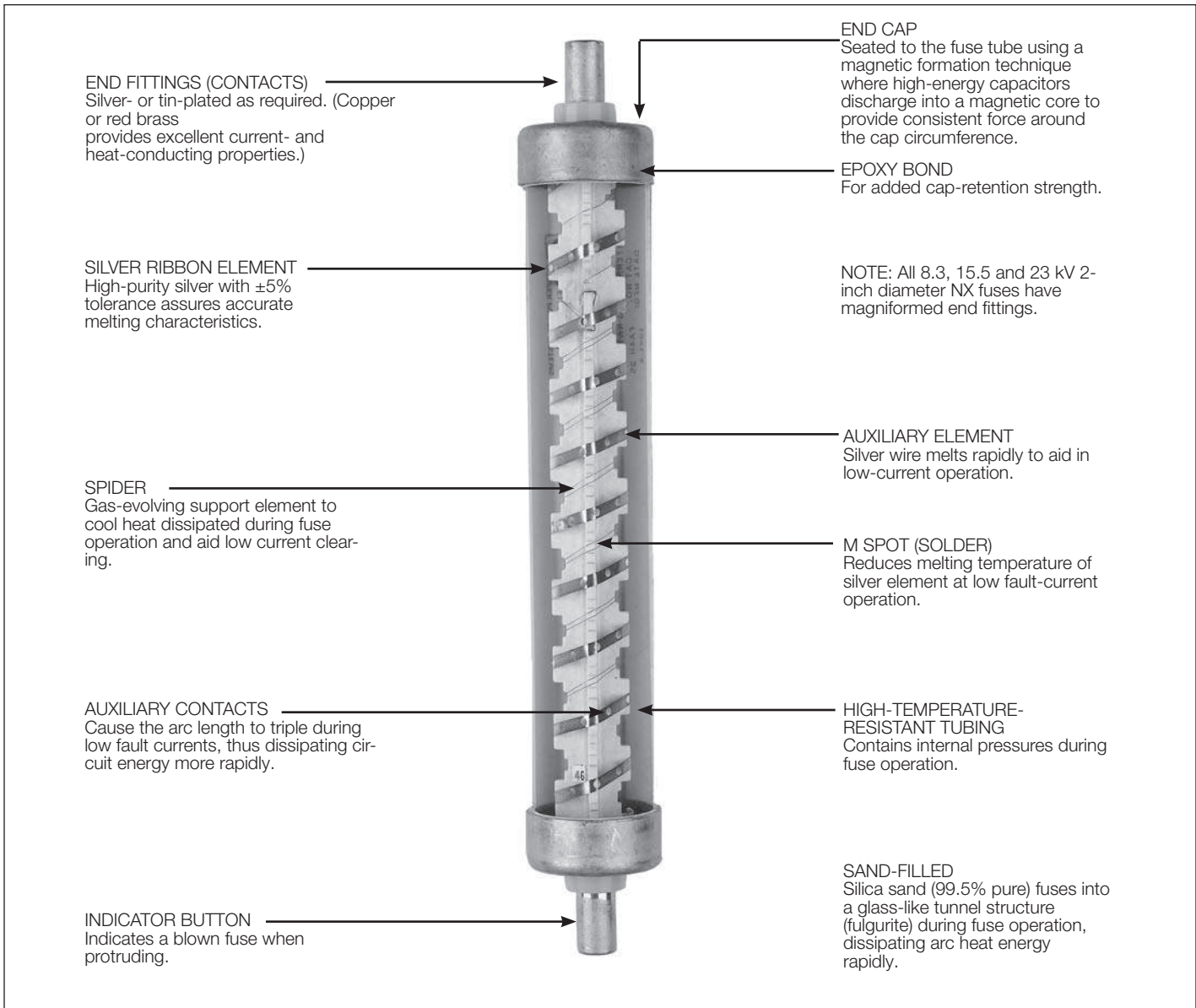
### INSTALLATION

The NX clip- and hinge-style fuses are designed to fit industry standard mountings. Each fuse is marked with its mounting code number. The mounting code number defines the mounting's insulation level, contact spacing and contact type. NX clip-style fuses fit 5/8" standard clip-style mountings in pad-mounted



Figure 3.  
Arc-Strangler switchblade.

transformers, switchgear, sectionalizing enclosures, industrial vaults, and metal clad switchgear. The NX hinge-style fuses fit the standard hinge-style mountings. The mounting code number of the fuse and the mount must be the same. Refer to catalog section 240-59,



**Figure 4.**  
Basic components of the NX current-limiting fuse.

for more detailed information on clip-  
and hinge-style mountings.

**TABLE 3**  
**Electrical Ratings**

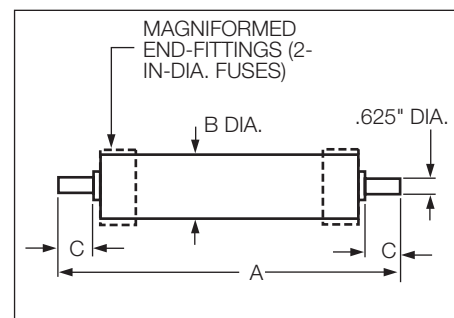
| Contin-<br>uous<br>Current<br>Rating<br>(A) | Maximum Design Voltage                                              |                                                                               |                                                                     |                                                                               |                                                                     |                                                                               |                                                                     |                                                                               |                                                                     |                                                                               |                                                                     |                                                                               |                                                                     |                                                                               |
|---------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|
|                                             | 4.3 kV                                                              |                                                                               | 5.5 kV                                                              |                                                                               | 8.3 kV                                                              |                                                                               | 15.5 kV                                                             |                                                                               | 23 kV                                                               |                                                                               | 27 kV                                                               |                                                                               | 38 kV                                                               |                                                                               |
|                                             | Min.<br>Melt I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Max. Let<br>through<br>I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Min.<br>Melt I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Max. Let<br>through<br>I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Min.<br>Melt I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Max. Let<br>through<br>I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Min.<br>Melt I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Max. Let<br>through<br>I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Min.<br>Melt I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Max. Let<br>through<br>I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Min.<br>Melt I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Max. Let<br>through<br>I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Min.<br>Melt I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> | Max. Let<br>through<br>I <sup>2</sup> t<br>(A <sup>2</sup> S)x10 <sup>3</sup> |
| 1.5                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 0.01                                                                | 0.15                                                                          | 0.01                                                                | 0.15                                                                          | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 2.9                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 3                                           | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 0.05                                                                | 0.30                                                                          | 0.05                                                                | 0.59                                                                          | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 4.5                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 0.05                                                                | 0.30                                                                          | 0.05                                                                | 0.59                                                                          | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 6                                           | —                                                                   | —                                                                             | 0.13                                                                | 0.60                                                                          | 0.13                                                                | 0.76                                                                          | 0.13                                                                | 1.44                                                                          | 0.13                                                                | 1.8                                                                           | 0.08                                                                | 1.6                                                                           | 0.08                                                                | 3.5                                                                           |
| 8                                           | —                                                                   | —                                                                             | 0.35                                                                | 1.05                                                                          | 0.34                                                                | 1.5                                                                           | 0.21                                                                | 2.90                                                                          | 0.21                                                                | 3.5                                                                           | 0.21                                                                | 2.5                                                                           | 0.21                                                                | 4.7                                                                           |
| 10                                          | —                                                                   | —                                                                             | 0.52                                                                | 2.0                                                                           | 0.52                                                                | 3.6                                                                           | 0.52                                                                | 6.65                                                                          | 0.52                                                                | 7.8                                                                           | 0.53                                                                | 3.8                                                                           | 0.53                                                                | 5.6                                                                           |
| 12                                          | —                                                                   | —                                                                             | 1.15                                                                | 4.0                                                                           | 1.15                                                                | 6.3                                                                           | 1.15                                                                | 10.4                                                                          | 1.15                                                                | 13.5                                                                          | 0.72                                                                | 6.0                                                                           | 0.73                                                                | 9.0                                                                           |
| 15                                          | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 0.74                                                                | 6.0                                                                           | 0.74                                                                | 10.5                                                                          |
| 18                                          | 1.5                                                                 | 7.9                                                                           | 1.25                                                                | 10.0                                                                          | 1.25                                                                | 11.0                                                                          | 1.25                                                                | 10.5                                                                          | 1.25                                                                | 16.2                                                                          | 1.30                                                                | 7.0                                                                           | 1.15                                                                | 10.5                                                                          |
| 20                                          | —                                                                   | —                                                                             | 1.65                                                                | 14.0                                                                          | 1.65                                                                | 13.0                                                                          | 1.65                                                                | 16.5                                                                          | 1.65                                                                | 18.0                                                                          | 1.65                                                                | 9.4                                                                           | 1.65                                                                | 13.8                                                                          |
| 25                                          | 2.9                                                                 | 12.5                                                                          | 3.0                                                                 | 38.0                                                                          | 2.0                                                                 | 24.0                                                                          | 2.0                                                                 | 27.0                                                                          | 2.0                                                                 | 28.0                                                                          | 2.95                                                                | 16.0                                                                          | 3.00                                                                | 19.5                                                                          |
| 30                                          | —                                                                   | —                                                                             | 3.0                                                                 | 46.0                                                                          | 4.0                                                                 | 31.0                                                                          | 4.0                                                                 | 34.0                                                                          | 4.0                                                                 | 36.0                                                                          | 4.60                                                                | 26.0                                                                          | 4.60                                                                | 29.0                                                                          |
| 35                                          | 2.9                                                                 | 25.0                                                                          | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 40                                          | —                                                                   | —                                                                             | 5.3                                                                 | 67.0                                                                          | 8.0                                                                 | 50.0                                                                          | 8.0                                                                 | 57.0                                                                          | 8.0                                                                 | 62.0                                                                          | 5.25                                                                | 29.5                                                                          | 5.13                                                                | 35.00                                                                         |
| 45                                          | 6.6                                                                 | 69.0                                                                          | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 50                                          | 9.0                                                                 | 75.0                                                                          | 9.0                                                                 | 98.0                                                                          | 11.6                                                                | 72.0                                                                          | 11.6                                                                | 90.0                                                                          | —                                                                   | —                                                                             | 11.30                                                               | 65.0                                                                          | 11.60                                                               | 80.00                                                                         |
| 60*                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 15.8                                                                | 125.0                                                                         | 16.0                                                                | 132.0                                                                         | —                                                                   | —                                                                             | 18.40                                                               | 104.0                                                                         | 18.50                                                               | 117.0                                                                         |
| 65                                          | 18.2                                                                | 100.0                                                                         | 18.2                                                                | 167.0                                                                         | 26.5                                                                | 130.0                                                                         | 26.5                                                                | 200.0                                                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 75                                          | 26.5                                                                | 150.0                                                                         | 26.5                                                                | 244.0                                                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 80                                          | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 47.0                                                                | 220.0                                                                         | 46.5                                                                | 340.0                                                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 80*                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 32.5                                                                | 200.0                                                                         | 32.5                                                                | 225.0                                                                         | —                                                                   | —                                                                             | 20.10                                                               | 118.0                                                                         | 21.20                                                               | 140.0                                                                         |
| 100                                         | 45.5                                                                | 240.0                                                                         | —                                                                   | —                                                                             | 100.0                                                               | 450.0                                                                         | 100.0                                                               | 580.0                                                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 100*                                        | —                                                                   | —                                                                             | 36.0                                                                | 380.0                                                                         | —                                                                   | —                                                                             | 47.0                                                                | 370.0                                                                         | —                                                                   | —                                                                             | 26.00                                                               | 260.0                                                                         | 47.00                                                               | 320.0                                                                         |
| 125                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 125*                                        | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 130*                                        | 73.0                                                                | 400.0                                                                         | 73.0                                                                | 790.0                                                                         | 102.0                                                               | 520.0                                                                         | 102.0                                                               | 790.0                                                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 140                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 150*                                        | 106.0                                                               | 620.0                                                                         | 105.0                                                               | 980.0                                                                         | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 160*                                        | —                                                                   | —                                                                             | —                                                                   | —                                                                             | 187.0                                                               | 800.0                                                                         | 187.0                                                               | 1380.0                                                                        | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |
| 200*                                        | 185.0                                                               | 960.0                                                                         | —                                                                   | —                                                                             | 400.0                                                               | 1800.0                                                                        | 400.0                                                               | 2350.0                                                                        | —                                                                   | —                                                                             | —                                                                   | —                                                                             | —                                                                   | —                                                                             |

\*Indicates two smaller fuses in parallel.

**TABLE 4**  
**NX Clip-Style Fuse Dimensional Information (See Figure 5 for Dimensional Drawing)**

| Fuse<br>Description                     | Mounting<br>Code<br>Number* | Dimensions – inches (mm) |             |           |
|-----------------------------------------|-----------------------------|--------------------------|-------------|-----------|
|                                         |                             | A                        | B           | C         |
| 1 1/8" diameter fuse for clip mounting  | 4                           | 10.0 (254)               | 1.13 (28.6) | 1.00 (25) |
| 2" diameter fuse for clip mounting      | 4                           | 10.0 (254)               | 2.00 (51)   | 1.00 (25) |
|                                         | 5                           | 14.31 (363)              | 2.00 (51)   | 1.00 (25) |
|                                         | 6                           | 17.13 (435)              | 2.00 (51)   | 1.00 (25) |
| 3 7/16" diameter fuse for clip mounting | 5                           | 14.69 (373)              | 3.44 (87)   | 1.19 (30) |
|                                         | 6                           | 17.5 (445)               | 3.44 (87)   | 1.19 (30) |
|                                         | 9                           | 27.38 (695)              | 3.44 (87)   | 1.19 (30) |
|                                         | 10                          | 35.38 (899)              | 3.44 (87)   | 1.19 (30) |

\*Code number of mounting must match code number of fuse.



**Figure 5.**  
**NX clip style dimensional drawing. (See Table 4 for dimensions.)**

TABLE 5

**NX Hinge-Style Switchblade Electrical Ratings and Dimensional Information (See Figure 6 for Dimensional Drawing)**

| Electrical Ratings |                                      | Description       | Mounting Code Number* | Dimension A in. (mm) |
|--------------------|--------------------------------------|-------------------|-----------------------|----------------------|
| Voltage (kV)       | Continuous and Loadbreak Current (A) |                   |                       |                      |
| 8.3                | 200                                  | Blade             | 1                     | 14 (356)             |
| 15.5               | 200                                  | Short 15 kV blade | 1                     | 14 (356)             |
| 15.5               | 200                                  | Long 15 kV blade  | 2                     | 18.5 (470)           |

\*Code number of mounting must match code number of switchblade.

TABLE 6

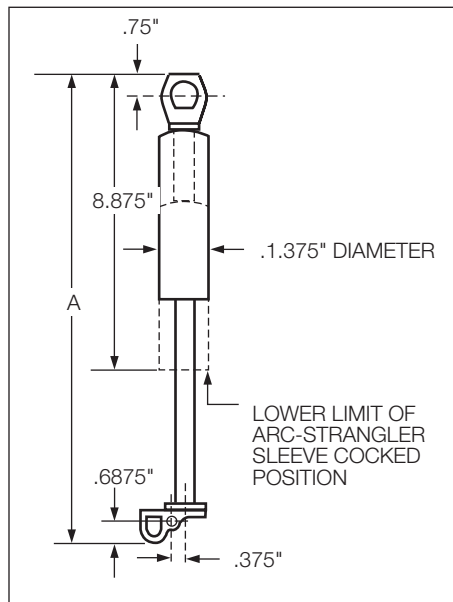
**NX Hinge-Style Fuse Dimensional Information (See Figures 7 and 8 for Dimensional Drawing)**

| Fuse Description              | Voltage Rating (kV) | Mounting Code Number* | Dimensions - inches (mm) |            |           |           |             |
|-------------------------------|---------------------|-----------------------|--------------------------|------------|-----------|-----------|-------------|
|                               |                     |                       | A                        | B          | C         | D         | R           |
| 1 1/8" diameter hinged fuse** | 4.3, 5.5, and 8.3   | 1                     | 14.0 (356)               | 8.88 (226) | 1.38 (35) | 0.38 (10) | 13.31 (338) |
|                               | 15.5                | 2                     | 18.5 (470)               | 8.88 (226) | 1.38 (35) | 0.38 (10) | 17.81 (452) |
| 2" diameter hinged fuse***    | 4.3, 5.5, and 8.3   | 1                     | 13.75 (349)              | 8.94 (227) | 2.44 (62) | 1.44 (37) | 13.31 (338) |
|                               | 15.5                | 2                     | 18.25 (463)              | 8.94 (227) | 2.44 (62) | 1.44 (37) | 17.81 (452) |

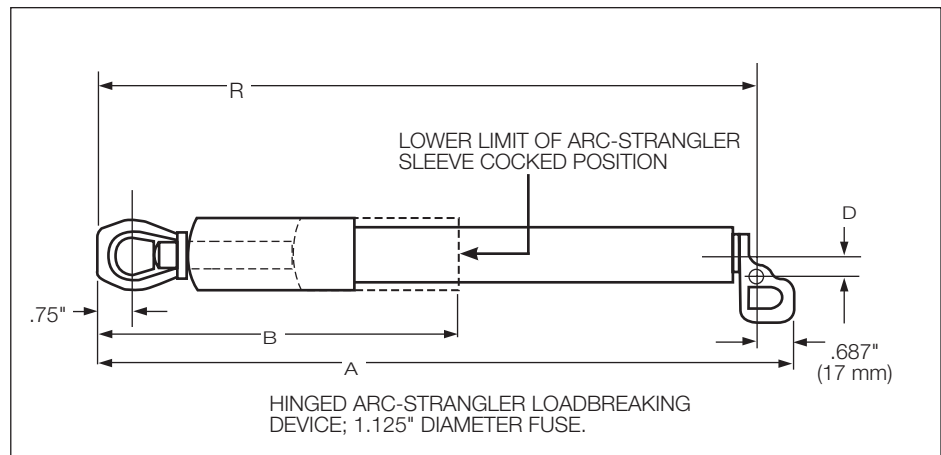
\* Code number of mounting must match code number of fuse.

\*\* See Figure 11 for dimensional drawing.

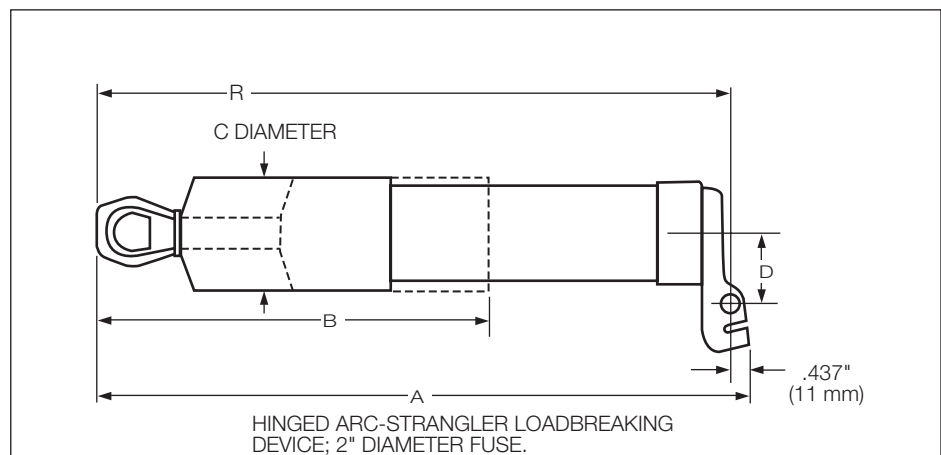
\*\*\* See Figure 12 for dimensional drawing.



**Figure 6.**  
NX hinge-style switchblade with Arc-Strangler loadbreaking device. (See Table 5 for dimensions.)



**Figure 7.**  
NX hinge-style (1.125" dia.) fuse dimensional drawing.



**Figure 8.**  
NX hinge-style (2" dia.) fuse dimensional drawing.

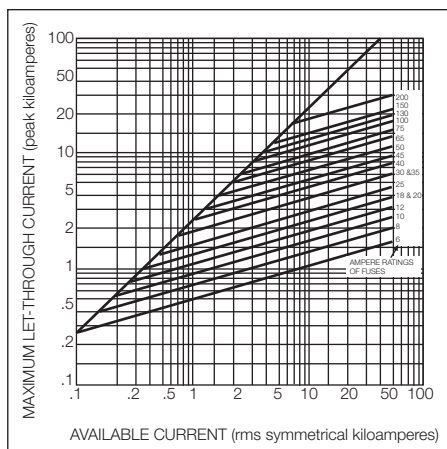
## Protective Characteristics

### LET-THROUGH CURRENTS

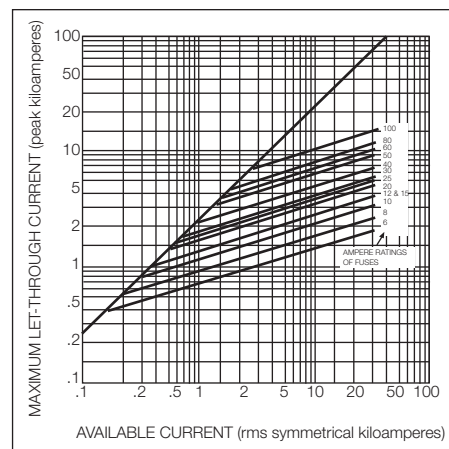
Type NX fuses have the ability to limit system fault currents, frequently to a fraction of system fault capability. This greatly reduced value is referred to as let-through current.

The operating advantages, along with fast clearing, include greatly reduced burning at the point of fault and minimal line damage. In addition, there is less chance of damage, both electrical and mechanical (by magnetic forces), to other equipment in the faulted circuit. Figures 9, 10, and 11 show maximum let-through current values.

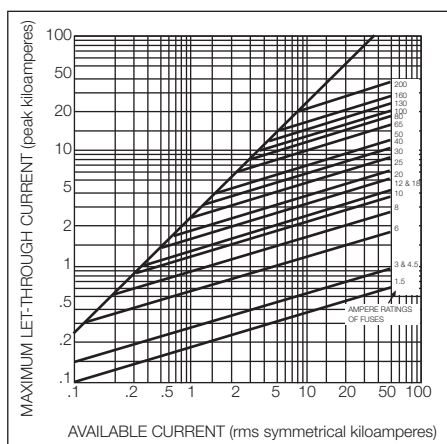
The maximum let-through curves provide an indication of the amount of current-limiting action provided by NX fuses: Assume an 8.3 kV circuit has a 20,000 A (rms sym.) fault current available. Extend a line upward on the curve in Figure 10 and note that there would be an unlimited maximum fault current of 48,000 peak amperes. Protecting this circuit with a 40 A NX fuse allows a maximum let-through current of 7800 peak amperes. This is equivalent to an unprotected circuit having a maximum fault available of 3200 A (rms sym.).



**Figure 9.**  
Maximum let-through current for NX  
current-limiting fuses – 4.3 and 5.5 kV.



**Figure 11.**  
Maximum let-through current for NX  
current-limiting fuses – 27 and 38 kV.



**Figure 10.**  
Maximum let-through current for NX  
current-limiting fuses – 8.3, 15.5 and  
23 kV.

## APPLICATION

### Voltage Rating Selection

To determine the correct voltage rating for a current-limiting fuse, proper consideration must be given to the type of distribution system, the system voltage, the transformer winding connection, and neutral grounding. In general, single-phase fusing permits the use of a fuse with phase-to-neutral voltage rating; whereas, three-phase fusing usually requires a fuse with phase-to-phase voltage rating. However, where it is desirable (because of economics, standardization, oil space, etc.), NX fuses with phase-to-neutral voltage ratings may be used on three-phase applications provided certain parameters are met. See "Three-Phase Applications". Allowance is normally given for voltages slightly exceeding the normal system voltage. (Standards consider the maximum service voltage as 5 to 6% over normal.) Since each current-limiting fuse has a maximum design voltage, application must be such that the post-interruption voltage impressed across the fuse does not exceed that maximum design voltage.

Table 7 lists the recommended voltage ratings for current-limiting fuses applied on the most commonly encountered distribution systems.

### AMPERE RATING SELECTION

Another consideration in the selection of a current-limiting fuse is the ampere rating. The rating must be such that the inrush currents that can occur in a transformer will not cause the fuse to operate.

Two rules of thumb should be used for this consideration:

1. A fuse should be able to withstand 12 times the transformer-rated current for 0.1-second without element damage.
2. The element must be able to withstand 25 times the transformer-rated current for one-half cycle.

This second rule was established because of the magnitude of the first loop of inrush current which can far exceed 12 times the transformer rated current and thus cause element damage and the steep slope in the melting characteristics of the current-limiting fuse. Because TCC curves only extend down to the 0.01-second melt time, it is satisfactory to compare the 25 times rated current to the 0.01-second minimum melt of a fuse. This will provide only a slightly more conservative comparison than using

**TABLE 7**  
Recommended Current-Limiting Fuse Voltage Ratings

| System Voltage (kV)                   |                                      | Recommended NX Fuse Rating (kV)  |                          |                      |                      |
|---------------------------------------|--------------------------------------|----------------------------------|--------------------------|----------------------|----------------------|
| Nominal                               | Maximum                              | Four-Wire Multi-Grounded Neutral |                          | Delta                |                      |
|                                       |                                      | Single-Phase                     | Three-Phase              | Single-Phase         | Three-Phase          |
| 2.4<br>2.4/4.16                       | 2.54<br>2.54/4.4                     | —<br>4.3                         | —<br>5.5*                | 4.3<br>—             | 4.3<br>—             |
| 4.16<br>4.8<br>4.8/8.32               | 4.4<br>5.1<br>5.1/8.8                | —<br>—<br>5.5                    | —<br>—<br>8.3*           | 4.3<br>5.5<br>—      | 4.3<br>5.5<br>—      |
| 6.9<br>6.93/12                        | 7.26<br>73/12.7                      | —<br>8.3                         | —<br>15.5*               | 8.3<br>—             | 8.3<br>—             |
| 7.2<br>7.2/12.47<br>7.97<br>7.97/13.8 | 7.62<br>7.62/13.2<br>8.4<br>8.4/14.5 | —<br>8.3<br>—<br>8.3             | —<br>15.5*<br>—<br>15.5* | 8.3<br>—<br>8.3<br>— | 8.3<br>—<br>8.3<br>— |
| 8.32<br>8.32/14.4                     | 8.8<br>8.8/15.2                      | —<br>8.3                         | —<br>15.5*               | 8.3<br>—             | 8.3<br>—             |
| 12/20.8<br>12.47                      | 12.7/22<br>13.2                      | 15.5<br>—                        | 23*<br>—                 | —<br>15.5            | —<br>15.5            |
| 13.2/22.9<br>13.2                     | 14/24.2<br>14.5                      | 15.5<br>—                        | 23*<br>—                 | —<br>15.5            | —<br>15.5            |
| 14.4/24.9<br>14.4                     | 15.2/26.4<br>15.2                    | 15.5<br>—                        | 27*<br>—                 | —<br>15.5            | —<br>15.5            |
| 19.9/34.5<br>34.5                     | 21.1/36.5<br>36.5                    | 23<br>—                          | 38*<br>—                 | —<br>38              | —<br>38              |

\*A line-to-neutral rating may be used if certain parameters are met.

the 0.0083-second value. Although, theoretically, higher values of inrush current are possible, test data and field experience indicate that they are quite unlikely to exceed this value.

The second consideration for selecting the fuse ampere rating is the maximum load current that the fuse is expected to carry without fuse damage. This includes the allowable transformer overloading for certain periods of time. Transformer fusing tables normally list the ranges of overload provided. If the long-time minimum-melt current is known for the fuse size in question, it can be compared to the transformer-rated current to determine the exact percentage of overload permitted. Since fuse heating plus transformer heating would probably raise the ambient temperature for the fuse, the long-time minimum-melt current should be reduced accordingly. An ambient of 40°C is often assumed for this condition. Of course, the proposed current-limiting fuse must be capable of carrying such currents without damage, and it must interrupt minimum-melt currents and all higher values.

Transformer primary fuses are not usually applied to coordinate with the ANSI transformer safe-loading requirement; namely, melting at 300% kVA rating in 5 minutes and sensing 200% kVA in about 30 minutes. This duty would require a fuse size that would be subject to inrush-current damage. In addition, it would respond too rapidly to short-time, high overloads. Common practice is to fuse to interrupt overload currents in the 200 to 300% range after several hours' duration. Specification recommendations are shown in Tables 8 and 9.



**TABLE 8**  
**Overload Protection of Oil-Insulated – Self-Cooled, and Dry-Type Transformers<sup>1</sup> (Single-Phase Application)**

| Transformer (kVA) | Nominal Single-Phase Voltage Across Transformer Terminals (kV)                                                                                 |                 |                  |                 |     |                |     |                |                  |                  |          |                  |                  |                  |                 |                |                  |                |                  |                |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|-----------------|-----|----------------|-----|----------------|------------------|------------------|----------|------------------|------------------|------------------|-----------------|----------------|------------------|----------------|------------------|----------------|
|                   | 2.4                                                                                                                                            |                 | 4.16             |                 |     |                | 4.8 |                | 7.2-7.96         |                  | 12-12.47 |                  | 13.2-14.4        |                  | 19.9            |                | 24.9             |                | 34.5             |                |
|                   | Recommended Fuse Voltage (kV)                                                                                                                  |                 |                  |                 |     |                |     |                |                  |                  |          |                  |                  |                  |                 |                |                  |                |                  |                |
|                   | 4.3                                                                                                                                            |                 | 4.3              |                 | 5.5 |                | 5.5 |                | 8.3              |                  | 15.5     |                  | 15.5             |                  | 23              |                | 27               |                | 38               |                |
|                   | Recommended Fuse-Current Ratings (amperes) <sup>2, 5</sup><br>Column A – 140-200% Transformer Rating<br>Column B – 200-300% Transformer Rating |                 |                  |                 |     |                |     |                |                  |                  |          |                  |                  |                  |                 |                |                  |                |                  |                |
|                   | A                                                                                                                                              | B               | A                | B               | A   | B              | A   | B              | A                | B                | A        | B                | A                | B                | A               | B              | A                | B              | A                | B              |
| 1.5               |                                                                                                                                                | 18 <sup>3</sup> |                  | 18 <sup>3</sup> |     | 6 <sup>3</sup> |     | 6 <sup>3</sup> |                  | 1.5 <sup>3</sup> |          | 1.5 <sup>3</sup> |                  | 1.5 <sup>3</sup> |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 3                 |                                                                                                                                                | 18 <sup>3</sup> |                  | 18 <sup>3</sup> |     | 6 <sup>3</sup> |     | 6 <sup>3</sup> |                  | 1.5 <sup>3</sup> |          | 1.5 <sup>3</sup> |                  | 1.5 <sup>3</sup> |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 5                 |                                                                                                                                                | 18 <sup>3</sup> |                  | 18 <sup>3</sup> |     | 6 <sup>3</sup> |     | 6 <sup>3</sup> |                  | 1.5 <sup>3</sup> |          | 1.5 <sup>3</sup> |                  | 1.5 <sup>3</sup> |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 7.5               |                                                                                                                                                | 18 <sup>3</sup> |                  | 18 <sup>3</sup> |     | 6 <sup>3</sup> |     | 6 <sup>3</sup> |                  | 1.5 <sup>3</sup> |          | 1.5 <sup>3</sup> |                  | 1.5 <sup>3</sup> |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 10                |                                                                                                                                                | 18 <sup>3</sup> |                  | 18 <sup>3</sup> |     | 6 <sup>3</sup> |     | 6 <sup>3</sup> |                  | 3 <sup>3</sup>   |          | 1.5              |                  | 1.5 <sup>3</sup> |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 15                |                                                                                                                                                | 18 <sup>3</sup> |                  | 18 <sup>3</sup> |     | 6              |     | 6              |                  | 3                |          | 3                |                  | 1.5              |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 25                |                                                                                                                                                | 18              |                  | 18 <sup>3</sup> |     | 10             |     | 8              |                  | 6                |          | 3                |                  | 3                |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 37.5              |                                                                                                                                                | 25              |                  | 18 <sup>3</sup> |     | 18             |     | 12             |                  | 10               |          | 6                |                  | 6                |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 50                | 25                                                                                                                                             | 45              | 18               | 25              |     | 20             |     | 18             |                  | 12               |          | 8                |                  | 6                |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |
| 75                | 45                                                                                                                                             | 75              | 25               | 35              | 25  | 30             |     | 25             |                  | 18               |          | 10               |                  | 10               |                 | 8              |                  | 6              |                  | 6 <sup>3</sup> |
| 100               | 50                                                                                                                                             | 100             | 35               | 50              | 30  | 50             | 25  | 40             |                  | 25               |          | 12               |                  | 12               |                 | 10             |                  | 8              |                  | 6              |
| 150               | 100                                                                                                                                            | 150             | 45               | 100             | 50  | 75             | 40  | 65             | 25               | 40               | 18       | 25               | 18               | 20               |                 | 12             |                  | 10             |                  | 8              |
| 167               | 100                                                                                                                                            | 150             | 50               | 100             | 50  | 75             | 50  | 75             | 30               | 50               | 20       | 30               | 18               | 25               | 12              | 18             |                  | 12             |                  | 10             |
| 200               | 130                                                                                                                                            | 200             | 65               | 130             | 75  | 100            | 50  | 75             | 30               | 65               | 25       | 40               | 20               | 30               | 12              | 20             | 12               | 15             |                  | 12             |
| 250               | 150                                                                                                                                            | 200             | 75               | 150             | 75  | 130            | 65  | 100            | 40               | 80               | 30       | 50               | 25               | 40               | 18              | 25             | 15               | 20             |                  | 12             |
| 333               | 200                                                                                                                                            |                 | 130              | 200             | 100 | 150            | 100 | 150            | 65               | 100              | 30       | 65               | 30               | 50               | 25              | 40             | 20               | 30             |                  | 15             |
| 500               |                                                                                                                                                |                 | 150              |                 | 150 |                | 130 |                | 100              | 160              | 50       | 100              | 50               | 80               | 30              |                | 30               | 50             | 20               | 30             |
| 750               |                                                                                                                                                |                 | 200 <sup>4</sup> |                 |     |                |     |                | 130              | 200              | 80       | 130              | 80               | 130              | 40 <sup>4</sup> |                | 40               | 60             | 30               | 50             |
| 1000              |                                                                                                                                                |                 |                  |                 |     |                |     |                | 200              |                  | 100      | 200              | 100              | 160              |                 |                | 60               | 100            | 40               | 60             |
| 1250              |                                                                                                                                                |                 |                  |                 |     |                |     |                | 200 <sup>4</sup> |                  | 130      | 200              | 130              | 160              |                 |                | 80               | 100            | 50               | 80             |
| 1500              |                                                                                                                                                |                 |                  |                 |     |                |     |                |                  |                  | 200      |                  | 160              |                  |                 |                | 80               |                | 60               | 100            |
| 1667              |                                                                                                                                                |                 |                  |                 |     |                |     |                |                  |                  | 200      |                  | 160              |                  |                 |                | 100              |                | 60               | 100            |
| 2000              |                                                                                                                                                |                 |                  |                 |     |                |     |                |                  |                  | 200      |                  | 160 <sup>4</sup> |                  |                 |                | 100 <sup>4</sup> |                | 80               | 100            |
| 2500              |                                                                                                                                                |                 |                  |                 |     |                |     |                |                  |                  |          |                  |                  |                  |                 |                |                  |                | 100              |                |
| 3000              |                                                                                                                                                |                 |                  |                 |     |                |     |                |                  |                  |          |                  |                  |                  |                 |                |                  |                | 100 <sup>4</sup> |                |

Notes:

- Recommendations are based on fuse-melting characteristics at an ambient temperature of 40°C (See R240-60-2).
- To prevent fuse blowing on transformer inrush, DO NOT USE FUSES SMALLER THAN RECOMMENDED without specific approval of the manufacturer.
- Fuses allow in excess of 300% of load.
- Fuses allow less than 140% of load.
- Ratings in shaded area are for parallel-fuse combinations.

TABLE 9

Overload Protection of Oil-Insulated – Self-Cooled, and Dry-Type Transformers<sup>1</sup> (Three-Phase Application)

| Transformer (kVA) | Nominal Three-Phase Voltage Across Transformer Terminals                                                                        |                 |      |                 |                  |                |          |                |      |     |                  |     |                  |     |                  |     |                 |                |                  |                |     |                |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------|------|-----------------|------------------|----------------|----------|----------------|------|-----|------------------|-----|------------------|-----|------------------|-----|-----------------|----------------|------------------|----------------|-----|----------------|
|                   | 2.4                                                                                                                             |                 | 4.16 |                 | 4.8              |                | 7.2-7.96 |                | 8.32 |     | 12.47            |     | 13.2-14.4        |     | 20.8             |     | 22.9-24.9       |                | 34.5             |                |     |                |
|                   | Recommended Fuse Voltage (kV)                                                                                                   |                 |      |                 |                  |                |          |                |      |     |                  |     |                  |     |                  |     |                 |                |                  |                |     |                |
|                   | 4.3                                                                                                                             |                 | 4.3  |                 | 5.5              |                | 5.5      |                | 8.3  |     | 15.5             |     | 15.5             |     | 15.5             |     | 23              |                | 27               |                | 38  |                |
|                   | Recommended Fuse-Current Ratings (amperes) 2, 5<br>Column A–140-200% Transformer Rating<br>Column B–200-300% Transformer Rating |                 |      |                 |                  |                |          |                |      |     |                  |     |                  |     |                  |     |                 |                |                  |                |     |                |
| A                 | B                                                                                                                               | A               | B    | A               | B                | A              | B        | A              | B    | A   | B                | A   | B                | A   | B                | A   | B               | A              | B                | A              | B   |                |
| 15                |                                                                                                                                 | 18 <sup>3</sup> |      | 18 <sup>3</sup> |                  | 6 <sup>3</sup> |          | 6 <sup>3</sup> |      | 1.5 |                  | 1.5 |                  | 1.5 |                  | 1.5 |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |     | 6 <sup>3</sup> |
| 22.5              |                                                                                                                                 | 18 <sup>3</sup> |      | 18 <sup>3</sup> |                  | 6 <sup>3</sup> |          | 6 <sup>3</sup> |      | 3   |                  | 3   |                  | 1.5 |                  | 1.5 |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |     | 6 <sup>3</sup> |
| 30                |                                                                                                                                 | 18 <sup>3</sup> |      | 18 <sup>3</sup> |                  | 8              |          | 6              |      | 4.5 |                  | 4.5 |                  | 3   |                  | 3   |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |     | 6 <sup>3</sup> |
| 45                |                                                                                                                                 | 18              |      | 18 <sup>3</sup> |                  | 10             |          | 10             |      | 6   |                  | 6   |                  | 3   |                  | 3   |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |     | 6 <sup>3</sup> |
| 75                | 25                                                                                                                              | 35              |      | 18              | 12               | 20             | 12       | 18             |      | 10  |                  | 10  |                  | 6   |                  | 6   |                 | 6 <sup>3</sup> |                  | 6 <sup>3</sup> |     | 6 <sup>3</sup> |
| 100               | 35                                                                                                                              | 50              |      | 25              | 20               | 25             | 18       | 25             | 12   | 18  |                  | 12  |                  | 10  |                  | 8   |                 | 6              |                  | 6 <sup>3</sup> |     | 6 <sup>3</sup> |
| 112.5             | 45                                                                                                                              | 65              |      | 25              | 25               | 30             | 18       | 30             | 12   | 18  |                  | 12  |                  | 10  |                  | 10  |                 | 6              |                  | 6              |     | 6 <sup>3</sup> |
| 150               | 50                                                                                                                              | 100             | 25   | 45              | 25               | 40             | 25       | 40             | 18   | 25  |                  | 18  |                  | 12  |                  | 12  |                 | 8              |                  | 8              |     | 6 <sup>3</sup> |
| 200               | 65                                                                                                                              | 100             | 45   | 65              | 40               | 65             | 30       | 50             | 20   | 30  | 18               | 25  |                  | 18  | 12               | 18  |                 | 10             |                  | 10             |     | 6 <sup>3</sup> |
| 225               | 75                                                                                                                              | 130             | 45   | 75              | 40               | 75             | 40       | 65             | 25   | 40  | 20               | 30  |                  | 18  | 12               | 20  |                 | 10             |                  | 10             |     | 8              |
| 300               | 100                                                                                                                             | 200             | 50   | 100             | 50               | 75             | 50       | 75             | 30   | 50  | 25               | 50  | 20               | 25  | 18               | 25  |                 | 12             |                  | 12             |     | 10             |
| 500               | 200                                                                                                                             |                 | 100  | 150             | 100              | 150            | 75       | 130            | 50   | 100 | 50               | 80  | 30               | 50  | 30               | 50  | 20              | 25             | 18               | 25             |     | 15             |
| 750               | 200 <sup>4</sup>                                                                                                                |                 | 130  | 200             | 130              |                | 130      |                | 80   | 130 | 65               | 130 | 40               | 80  | 40               | 80  | 25              | 40             | 25               | 40             | 18  | 25             |
| 1000              |                                                                                                                                 |                 | 200  |                 | 150 <sup>4</sup> |                | 150      |                | 100  | 160 | 100              | 160 | 65               | 100 | 65               | 100 | 30              |                | 30               | 50             | 25  | 30             |
| 1500              |                                                                                                                                 |                 |      |                 |                  |                |          |                | 160  | 200 | 130              | 200 | 100              | 160 | 80               | 160 | 40 <sup>4</sup> |                | 50               | 80             | 30  | 50             |
| 2000              |                                                                                                                                 |                 |      |                 |                  |                |          |                | 200  |     | 200              |     | 130              | 200 | 130              | 160 |                 |                | 60               | 100            | 40  | 60             |
| 2500              |                                                                                                                                 |                 |      |                 |                  |                |          |                |      |     | 200 <sup>4</sup> |     | 160              | 200 | 160              |     |                 |                | 80               |                | 50  | 100            |
| 3000              |                                                                                                                                 |                 |      |                 |                  |                |          |                |      |     |                  |     | 200              |     | 160              |     |                 |                | 100              |                | 60  | 100            |
| 3500              |                                                                                                                                 |                 |      |                 |                  |                |          |                |      |     |                  |     | 200              |     | 160 <sup>4</sup> |     |                 |                | 100 <sup>4</sup> |                | 80  | 100            |
| 3750              |                                                                                                                                 |                 |      |                 |                  |                |          |                |      |     |                  |     | 200 <sup>4</sup> |     |                  |     |                 |                | 100 <sup>4</sup> |                | 80  |                |
| 4000              |                                                                                                                                 |                 |      |                 |                  |                |          |                |      |     |                  |     | 200 <sup>4</sup> |     |                  |     |                 |                |                  |                | 80  |                |
| 5000              |                                                                                                                                 |                 |      |                 |                  |                |          |                |      |     |                  |     |                  |     |                  |     |                 |                |                  |                | 100 |                |

## Notes:

- Recommendations are based on fuse-melting characteristics at an ambient temperature of 40°C (See R240-60-2).
- To prevent fuse blowing on transformer inrush, DO NOT USE FUSES SMALLER THAN RECOMMENDED without specific approval of the manufacturer.
- Fuses allow in excess of 300% of load.
- Fuses allow less than 140% of load.
- Ratings in shaded area are for parallel-fuse combinations.



## Derating NX Fuses – Raised Ambient Temperatures

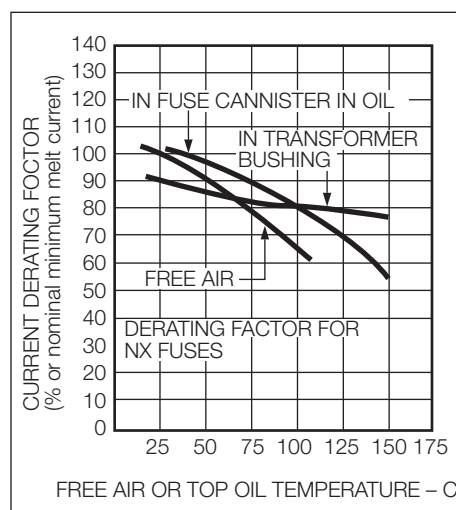
To determine the proper NX fuse size for carrying desired current and percent overload available at raised ambient temperatures, the minimum-melt current must be derated. The curves in Figure 12 show the derating factors for NX fuse applications at raised ambient temperatures in air, in canisters suspended in oil, and in transformer bushings. (These curves are based on a six-hour melting time, not the maximum pre-melt current.)

By using these curves in conjunction with minimum-melt current values from the minimum-melting characteristic table for NX fuses, Table 10, which is based on a 25° C ambient temperature and a six-hour melting time, the proper fuse size can be determined.

### Example

To derate the minimum-melt current of a 5.5 kV, 20 A NX fuse mounted in free air at a raised ambient temperature of 75° C:

1. On Figure 12, draw a vertical line at 75° C to intersect the free-air curve.
2. From the intersection point, draw a horizontal line to the vertical axis to determine the derating factor which, in this case, is 79%.
3. From Table 10, find the minimum-melt current for the 5.5 kV, 20 A fuse which, in this case, is 28 A.
4. Multiply this value by the derating factor to determine the derated minimum-melt current: 28 A x .79 = 22 A.



**Figure 12.**  
Derating curves for NX fuse application at raised ambient temperatures.

## ORDERING INFORMATION

To order a Cooper Power Systems Clip-style mounting NX fuse and the hinge-style fuse, first determine the voltage rating (Table 7) and amperage ratings of the fuse(s) (Table 8 & Table 9) device, and then select the appropriate catalog number from Table 11 or 12. For parallel fusing, order two fuses.

To order an NX hinge-style switchblade, choose the appropriate catalog number from Table 13.

**TABLE 10**  
Minimum-Melting Characteristic for NX Current-Limiting Fuses Based on a 25°C Ambient Temperature and a Six-Hour Melting Time

| Voltage Rating (kV) | Continuous Current Rating (amp) | Minimum Melt Current (Amp) |
|---------------------|---------------------------------|----------------------------|
| 4.3                 | 18                              | 27                         |
|                     | 25                              | 37                         |
|                     | 35                              | 50                         |
|                     | 45                              | 64                         |
|                     | 50                              | 68                         |
|                     | 65                              | 78                         |
|                     | 75                              | 90                         |
|                     | 100                             | 110                        |
|                     | 130*                            | 156                        |
|                     | 150*                            | 180                        |
| 5.5                 | 200*                            | 220                        |
|                     | 6                               | 9                          |
|                     | 8                               | 12                         |
|                     | 10                              | 14                         |
|                     | 12                              | 17                         |
|                     | 18                              | 27                         |
|                     | 20                              | 28                         |
|                     | 25                              | 37                         |
|                     | 30                              | 42                         |
|                     | 40                              | 55                         |
|                     | 50                              | 68                         |
|                     | 65                              | 78                         |
|                     | 75                              | 90                         |
|                     | 100*                            | 136                        |
|                     | 130*                            | 156                        |
|                     | 150*                            | 180                        |
| 8.3                 | 1.5                             | 2.3                        |
|                     | 3                               | 4.5                        |
|                     | 4.5                             | 6.7                        |
|                     | 6                               | 9                          |
|                     | 8                               | 12                         |
|                     | 10                              | 14                         |
|                     | 12                              | 17                         |
|                     | 18                              | 26                         |
|                     | 20                              | 28                         |
|                     | 25                              | 35                         |
|                     | 30                              | 41                         |
|                     | 40                              | 52                         |
|                     | 50                              | 63                         |
|                     | 50*                             | 70                         |
|                     | 60*                             | 82                         |
|                     | 65                              | 80                         |
|                     | 80                              | 96                         |
|                     | 80*                             | 104                        |
| 15.5                | 100                             | 120                        |
|                     | 100*                            | 126                        |
|                     | 130*                            | 160                        |
|                     | 160*                            | 192                        |
|                     | 200*                            | 240                        |
| 23                  | 6                               | 9                          |
|                     | 8                               | 12                         |
|                     | 10                              | 15                         |
|                     | 12                              | 18                         |
|                     | 18                              | 26                         |
|                     | 20                              | 28                         |
|                     | 25                              | 35                         |
|                     | 30                              | 41                         |
| 27 and 38           | 40                              | 52                         |
|                     | 6                               | 9                          |
|                     | 8                               | 12                         |
|                     | 10                              | 15                         |
|                     | 12                              | 18                         |
|                     | 15                              | 22                         |
|                     | 18                              | 26                         |
|                     | 20                              | 28                         |
|                     | 25                              | 35                         |
|                     | 30                              | 41                         |
|                     | 40                              | 52                         |
|                     | 50                              | 63                         |
|                     | 60*                             | 82                         |
|                     | 80*                             | 104                        |
|                     | 100*                            | 126                        |

\*Indicates parallel fuses.

**TABLE 11**  
**NX Clip-Style Current-Limiting Fuse (Refer to Figure 5)**

| Voltage<br>(kV) | Rating*                   |    | Mounting Code<br>Number | Fuse Diameter<br>(in.) | Catalog<br>Number |
|-----------------|---------------------------|----|-------------------------|------------------------|-------------------|
|                 | Continuous Current<br>(A) |    |                         |                        |                   |
| 4.3             | 18                        | 4  |                         | 1.125                  | FA1H18            |
|                 | 25                        | 4  |                         | 1.125                  | FA1H25            |
|                 | 35                        | 4  |                         | 1.125                  | FA1H35            |
|                 | 45                        | 4  |                         | 2                      | FA1H45            |
|                 | 50                        | 4  |                         | 2                      | FA1H50            |
|                 | 65                        | 4  |                         | 2                      | FA1H65            |
|                 | 75                        | 4  |                         | 2                      | FA1H75            |
| 5.5             | 105                       | 4  |                         | 2                      | FA1H100           |
|                 | 6                         | 4  |                         | 1.125                  | FA2H6             |
|                 | 8                         | 4  |                         | 1.125                  | FA2H8             |
|                 | 10                        | 4  |                         | 1.125                  | FA2H10            |
|                 | 12                        | 4  |                         | 1.125                  | FA2H12            |
|                 | 18                        | 4  |                         | 1.125                  | FA2H18            |
|                 | 20                        | 4  |                         | 2                      | FA2H20            |
|                 | 25                        | 4  |                         | 2                      | FA2H25            |
|                 | 30                        | 4  |                         | 2                      | FA2H30            |
|                 | 40                        | 4  |                         | 2                      | FA2H40            |
| 8.3             | 50                        | 4  |                         | 2                      | FA2H50            |
|                 | 65                        | 4  |                         | 2                      | FA2H65            |
|                 | 75                        | 4  |                         | 2                      | FA2H75            |
|                 | 1.5                       | 4  |                         | 1.125                  | FA3H1             |
|                 | 3                         | 4  |                         | 1.125                  | FA3H3             |
|                 | 4.5                       | 4  |                         | 1.125                  | FA3H4             |
|                 | 6                         | 4  |                         | 1.125                  | FA3H6             |
|                 | 8                         | 4  |                         | 1.125                  | FA3H8             |
|                 | 10                        | 4  |                         | 1.125                  | FA3H10            |
|                 | 12                        | 4  |                         | 1.125                  | FA3H12            |
|                 | 18                        | 4  |                         | 2                      | FA3H18            |
|                 | 20                        | 4  |                         | 2                      | FA3H20            |
|                 | 25                        | 4  |                         | 2                      | FA3H25            |
|                 | 30                        | 4  |                         | 2                      | FA3H30            |
| 15.5            | 40                        | 4  |                         | 2                      | FA3H40            |
|                 | 50                        | 5  |                         | 3.438                  | FA3H50            |
|                 | 65                        | 5  |                         | 3.438                  | FA3H65            |
|                 | 80                        | 5  |                         | 3.438                  | FA3H80            |
|                 | 100                       | 5  |                         | 3.438                  | FA3H100           |
|                 | 1.5                       | 5  |                         | 1.125                  | FA4H1             |
|                 | 3                         | 5  |                         | 1.125                  | FA4H3             |
|                 | 4.5                       | 5  |                         | 1.125                  | FA4H4             |
|                 | 6                         | 5  |                         | 2                      | FA4H6             |
|                 | 8                         | 5  |                         | 2                      | FA4H8             |
| 23              | 10                        | 5  |                         | 2                      | FA4H10            |
|                 | 12                        | 5  |                         | 2                      | FA4H12            |
|                 | 18                        | 5  |                         | 2                      | FA4H18            |
|                 | 20                        | 5  |                         | 2                      | FA4H20            |
|                 | 25                        | 5  |                         | 2                      | FA4H25            |
|                 | 30                        | 5  |                         | 2                      | FA4H30            |
|                 | 40                        | 5  |                         | 2                      | FA4H40            |
|                 | 50                        | 6  |                         | 3.438                  | FA4H50            |
|                 | 65                        | 6  |                         | 3.438                  | FA4H65            |
|                 | 80                        | 6  |                         | 3.438                  | FA4H80            |
|                 | 100                       | 6  |                         | 3.438                  | FA4H100†          |
|                 | 6                         | 6  |                         | 2                      | FA5H6             |
|                 | 8                         | 6  |                         | 2                      | FA5H8             |
|                 | 10                        | 6  |                         | 2                      | FA5H10            |
| 27              | 12                        | 6  |                         | 2                      | FA5H12            |
|                 | 18                        | 6  |                         | 2                      | FA5H18            |
|                 | 20                        | 6  |                         | 2                      | FA5H20            |
|                 | 25                        | 6  |                         | 2                      | FA5H25            |
|                 | 30                        | 6  |                         | 2                      | FA5H30            |
|                 | 40                        | 6  |                         | 2                      | FA5H40            |
|                 | 6                         | 9  |                         | 3.438                  | FA9H6             |
|                 | 8                         | 9  |                         | 3.438                  | FA9H8             |
|                 | 10                        | 9  |                         | 3.438                  | FA9H10            |
|                 | 12                        | 9  |                         | 3.438                  | FA9H12            |
| 38              | 15                        | 9  |                         | 3.188                  | FA9H15            |
|                 | 18                        | 9  |                         | 3.438                  | FA9H18            |
|                 | 20                        | 9  |                         | 3.438                  | FA9H20            |
|                 | 25                        | 9  |                         | 3.438                  | FA9H25            |
|                 | 30                        | 9  |                         | 3.438                  | FA9H30            |
|                 | 40                        | 9  |                         | 3.438                  | FA9H40            |
|                 | 50                        | 9  |                         | 3.438                  | FA9H50            |
|                 | 6                         | 10 |                         | 3.438                  | FA10H6            |
|                 | 8                         | 10 |                         | 3.438                  | FA10H8            |
|                 | 10                        | 10 |                         | 3.438                  | FA10H10           |
|                 | 12                        | 10 |                         | 3.438                  | FA10H12           |
|                 | 18                        | 10 |                         | 3.438                  | FA10H18           |
|                 | 20                        | 10 |                         | 3.438                  | FA10H20           |
|                 | 25                        | 10 |                         | 3.438                  | FA10H25           |
|                 | 30                        | 10 |                         | 3.438                  | FA10H30           |
|                 | 40                        | 10 |                         | 3.438                  | FA10H40           |
|                 | 50                        | 10 |                         | 3.438                  | FA10H50           |

\* 4.3, 5.5, 8.3, 15.5, 23 kV have 50,000 A symmetrical rating, 27 and 38 kV have 35,000 A symmetrical rating.

\*\* Code number of mounting must match code number of fuse or switchblade.

**TABLE 12**  
**NX Hinge-Style Current-Limiting Fuses (with Arc-Strangler Loadbreaking Device)**  
 (Refer to Figures 7 & 8)

| Rating                                              |                              | Mounting<br>Code<br>Number* | Fuse<br>Diameter<br>(in.)* | Catalog<br>Number |
|-----------------------------------------------------|------------------------------|-----------------------------|----------------------------|-------------------|
| Voltage<br>(kV)                                     | Continuous<br>Current<br>(A) |                             |                            |                   |
| For Single- and Parallel-Unit Hinge-Style Mountings |                              |                             |                            |                   |
| 4.3                                                 | 18                           | 1                           | 1.125                      | FA1A18            |
|                                                     | 25                           | 1                           | 1.125                      | FA1A25            |
|                                                     | 35                           | 1                           | 1.125                      | FA1A35            |
|                                                     | 45                           | 1                           | 2                          | FA1A45            |
|                                                     | 50                           | 1                           | 2                          | FA1A50            |
|                                                     | 65                           | 1                           | 2                          | FA1A65            |
|                                                     | 75                           | 1                           | 2                          | FA1A75            |
| 5.5                                                 | 100                          | 1                           | 2                          | FA1A100           |
|                                                     | 6                            | 1                           | 1.125                      | FA2A6             |
|                                                     | 8                            | 1                           | 1.125                      | FA2A8             |
|                                                     | 10                           | 1                           | 1.125                      | FA2A10            |
|                                                     | 12                           | 1                           | 1.125                      | FA2A12            |
|                                                     | 18                           | 1                           | 1.125                      | FA2A18            |
|                                                     | 20                           | 1                           | 2                          | FA2A20            |
|                                                     | 25                           | 1                           | 2                          | FA2A25            |
|                                                     | 30                           | 1                           | 2                          | FA2A30            |
|                                                     | 40                           | 1                           | 2                          | FA2A40            |
| 8.3                                                 | 50                           | 1                           | 2                          | FA2A50            |
|                                                     | 65                           | 1                           | 2                          | FA2A65            |
|                                                     | 75                           | 1                           | 2                          | FA2A75            |
|                                                     | 1.5                          | 1                           | 1.125                      | FA3A1             |
|                                                     | 3                            | 1                           | 1.125                      | FA3A3             |
|                                                     | 4.5                          | 1                           | 1.125                      | FA3A4             |
|                                                     | 6                            | 1                           | 1.125                      | FA3A6             |
|                                                     | 8                            | 1                           | 1.125                      | FA3A8             |
|                                                     | 10                           | 1                           | 1.125                      | FA3A10            |
|                                                     | 12                           | 1                           | 1.125                      | FA3A12            |
| 15.5                                                | 18                           | 1                           | 2                          | FA3A18            |
|                                                     | 20                           | 1                           | 2                          | FA3A20            |
|                                                     | 25                           | 1                           | 2                          | FA3A25            |
|                                                     | 30                           | 1                           | 2                          | FA3A30            |
|                                                     | 40                           | 1                           | 2                          | FA3A40            |
|                                                     | 1.5                          | 2                           | 1.125                      | FA4A1             |
|                                                     | 3                            | 2                           | 1.125                      | FA4A3             |
|                                                     | 4.5                          | 2                           | 1.125                      | FA4A4             |
|                                                     | 6                            | 2                           | 2                          | FA4A6             |
|                                                     | 8                            | 2                           | 2                          | FA4A8             |
|                                                     | 10                           | 2                           | 2                          | FA4A10            |
|                                                     | 12                           | 2                           | 2                          | FA4A12            |
|                                                     | 18                           | 2                           | 2                          | FA4A18            |
|                                                     | 20                           | 2                           | 2                          | FA4A20            |
|                                                     | 25                           | 2                           | 2                          | FA4A25            |
|                                                     | 30                           | 2                           | 2                          | FA4A30            |
|                                                     | 40                           | 2                           | 2                          | FA4A40            |

\* Code number of mounting must match code number of fuse or switchblade.

\*\* All 2" diameter fuses have magniformed end fittings with stamped hinge.

## ADDITIONAL LITERATURE

Cooper Power Systems has additional reference information available on NX fuses. For copies of any of the following bulletins, contact your local Cooper Power Systems representative.

- R240-60-2 NX Current-Limiting Fuses –Minimum Melting Characteristics
- R240-60-3 Coordination of NX Fuses With EEI-NEMA Fuse Links
- R240-60-5 Maximum Total and Minimum Melt Comparison of NX Fuses
- R240-60-6 Mounting Clearances – Type NX Fuses
- R240-60-7 Parallel Operation of NX Fuses
- R240-60-8 A Guide to Secondary Cable Fault Clearing With NX Fuses
- R240-60-9 Properties of Molded Box for NX Fuses With Arc-Strangler Switch
- R240-60-11 Specifications–NX Fuses With Arc-Strangler Switch
- R240-60-13 NX Fuse Recommended Transformer Applications

**TABLE 13**  
**NX Hinge-Style Switchblades (with Arc-Strangler Loadbreaking Devices) (Refer to Figure 6)**

| Rating          |                                         | Description       | Mounting<br>Code<br>Number* | Catalog<br>Number |
|-----------------|-----------------------------------------|-------------------|-----------------------------|-------------------|
| Voltage<br>(kV) | Continuous and Loadbreak<br>Current (A) |                   |                             |                   |
| 8.3             | 200                                     | Blade             | 1                           | FA1B1             |
| 15.5            | 200                                     | Short 15 kV blade | 1                           | FA4B1             |
| 15.5            | 200                                     | Long 15 kV blade  | 2                           | FA3B1             |

\* Code number of mounting must match code number of fuse or switchblade.



© 2009 Cooper Industries. All Rights Reserved.  
Cooper Power Systems, NX and Arc-Strangler are valuable trademarks of Cooper Industries in the U.S. and other countries. You are not permitted to use the Cooper Trademarks without the prior written consent of Cooper Industries.

2300 Badger Drive  
Waukesha, WI 53188 USA  
[www.cooperpower.com](http://www.cooperpower.com)

---

**Calle 55 Mzna WW2 Lote 13 Urb. La Floresta de Pro - Los Olivos Whatsapp 901664250 930976197**  
**Correos: [ventas@corpellima.pe](mailto:ventas@corpellima.pe) - [corpellima@gmail.com](mailto:corpellima@gmail.com) Página Web: [www.corpellima.pe](http://www.corpellima.pe)**