### Fuse Diagnostic Sizing Charts

#### Ballasts

<table>
<thead>
<tr>
<th>Indoor</th>
<th>Fluorescent</th>
<th>Consult fixture manufacturer for size and type.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Other (Mercury, Sodium, etc.)</td>
<td>Consult fixture manufacturer for size and type.</td>
</tr>
</tbody>
</table>

#### Capacitors (NEC® 460)

<table>
<thead>
<tr>
<th>Protected by Time-Delay Fuses.</th>
<th>150% to 175% of Full Load Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected by Non-Time-Delay Fuses.</td>
<td>250% to 300% of Full Load Current.</td>
</tr>
<tr>
<td>On Load Side of Motor Running Overcurrent Device.</td>
<td>Protection recommended as shown, but not required.</td>
</tr>
</tbody>
</table>

#### Fuse Recommendations

<table>
<thead>
<tr>
<th>Volts</th>
<th>Fuse(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-250</td>
<td>LPN-RK, SP, FRN-R</td>
</tr>
<tr>
<td>0-600</td>
<td>LPS-RK, SP, FRS-R</td>
</tr>
<tr>
<td>0-600</td>
<td>LPJ_SP, LP-CC, FNQ-R, TCF</td>
</tr>
</tbody>
</table>

### Fuse & Holder Recommendations

- **Indoor**
- **Ballasts**
- **Capacitors (NEC® 460)**
- **Fuse Recommendations**
- **Fuse & Holder Recommendations**
- **Fuse & Holder Recommendations**
**Fuse Diagnostic Sizing Charts**

**Electric Heat (NEC® 424)**

---

**Electric Space Heating**

Size at 125% or next size larger but in no case larger than 60 amps for each subdivided load.

**Fuse Recommendation**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Fuse(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-250</td>
<td>LPN-RK_SP, FRN-R, NON</td>
</tr>
<tr>
<td>0-300</td>
<td>JNN</td>
</tr>
<tr>
<td>0-480</td>
<td>SC 25 to SC 60</td>
</tr>
<tr>
<td>0-600</td>
<td>LPJ-RK_SP, FRS-R, NOS</td>
</tr>
<tr>
<td>0-600</td>
<td>JJS</td>
</tr>
<tr>
<td>0-600</td>
<td>LPJ_SP, LP-CC, FNQ-R, JKS, KTK-R, TCF, SC ½ to SC 20</td>
</tr>
</tbody>
</table>

---

**Electric Boilers with Resistance Type Immersion Heating Elements in an ASME Rated and Stamped Vessel**

Size at 125% or next size larger but in no case larger than 150 amps for each subdivided load.

---

**Mains, Feeders, Branches**

**Feeder Circuits (600A & Less)**

- **No Motor Load**: 100% of non-continuous load plus 125% of continuous load.

**Fuse Recommendations**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Fuse(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-250</td>
<td>LPN-RK_SP, FRN-R</td>
</tr>
<tr>
<td>0-300</td>
<td>JNN</td>
</tr>
<tr>
<td>0-600</td>
<td>LPJ-RK_SP, FRS-R</td>
</tr>
<tr>
<td>0-600</td>
<td>JJS</td>
</tr>
<tr>
<td>0-600</td>
<td>LPJ_SP, LP-CC, JKS, KTK-R</td>
</tr>
</tbody>
</table>

- **Combination Motor Loads and Other Loads**: 150% of the FLA of largest motor (if there are two or more motors of same size, one is considered to be the largest) plus the sum of all the FLA for all other motors plus 100% of non-continuous, non-motor load plus 125% of continuous, non-motor load.

**Fuse Recommendations**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Fuse(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-250</td>
<td>LPN-RK_SP, FRN-R</td>
</tr>
<tr>
<td>0-300</td>
<td>JNN</td>
</tr>
<tr>
<td>0-600</td>
<td>LPJ-RK_SP, FRS-R</td>
</tr>
<tr>
<td>0-600</td>
<td>JJS</td>
</tr>
<tr>
<td>0-600</td>
<td>LPJ_SP, LP-CC, JKS, KTK-R</td>
</tr>
</tbody>
</table>

- **Motor Loads**: 150% of the FLA of largest motor (if there are two or more motors of same size, one is considered to be the largest) plus the sum of all the FLA for all other motors.

**Main, Branch & Feeder Circuits (601-6000A)**

- **No Motor Load**: 150% to 225% of full load current of largest motor plus 100% of full load current of all other motors plus 125% of continuous non-motor load plus 100% of non-continuous non-motor load.

**Fuse Recommendation**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Fuse(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-600</td>
<td>KRP-C_SP</td>
</tr>
</tbody>
</table>
Fuse Diagnostic Sizing Charts

Motor Loads (NEC® 430)

600V & Less
- Protected by Time-Delay Fuses
- Short-Circuit Only

Fuse Sizing for:
- Backup Overload or Motor Starter & Short-Circuit Protection
- 125% of motor FLA or next size larger.
- 130% of motor FLA or next size larger.
- Short-Circuit Only
- 175%* of motor FLA or next size larger. (If 175% does not correspond to a standard size), if this will not allow motor to start, due to higher than normal inrush currents or longer than normal acceleration times (5 sec. or greater), fuse may be sized up to 225% or next size smaller.

Fuse Recommendations
- Volts: 0-250
  - FRN-R
  - LPS-RK_SP
- Volts: 0-600
  - FRN-R
  - LPS-RK_SP

Fuse Recommendations
- Volts: 0-250
  - LPJ_SP, TCF
- Volts: 0-600

Above 600V
- Short-Circuit Only
- Max. of 300%* of motor FLA or next size larger (if 300% does not correspond to a standard size). If this will not allow motor to start due to higher than normal inrush currents or longer than normal acceleration times (5 sec. or greater), fuses through 600 amps may be sized up to 400% or next size smaller.

Fuse Recommendations
- Volts: 0-250
  - KTJ-R, NON
  - JJN
  - KTS-R, NOS
  - JJS
  - LP-CC, JKS, KTK-R

*150% for wound rotor and all DC motors.

Branch Circuit Fuses
- Size at 125% or next size smaller.

Fuse Recommendations
- Volts: 0-250
  - Best: LPN-RK_SP
  - FRN-R
  - LPS-RK_SP
  - FRS-R
  - LPS-RK_SP, FRN-R
  - LPS-RK_SP, FRS-R
  - LPJ_SP, TCF

Supplementary Fuses
- Size at 125% or next size larger.

Fuse Recommendations
- Volts: 0-32
  - MDL 8-30A, FNIM 20-30A
  - DDA 25-30A, FNIM 12-15A
  - MDL ½-8A, MDA ½-20A, FNIM ½-10A, FNW 12-30A, MDQ ½-7A
  - FNQ ½-30A

Solenoids (Coils)

Branch Circuit Fuses
- Size at 125% or next size smaller.

Fuse Recommendation
- Volts: 0-250
  - Best: LPN-RK_SP, FRS-R

Supplementary Fuses
- Size at 125% or next size larger.

Fuse Recommendation
- Volts: 0-32
  - MDL 8-30A, FNIM 20-30A
  - DDA 25-30A, FNIM 12-15A
  - MDL ½-8A, MDA ½-20A, FNIM ½-10A, FNW 12-30A, MDQ ½-7A
  - FNQ ½-30A
Fuse Diagnostic Sizing Charts

Transformers 600V Nominal or Less (NEC® 450.3)

Primary Protection Only

- Rated primary current less than 2 amps: 125% or next size larger
- Rated primary current greater than or equal to 2 amps but less than 9 amps: 125% or next size larger
- Rated primary current greater than or equal to 9 amps: 125% or next size larger

Primary And Secondary Protection

- Without Thermal Overload Protection:
  - Rated secondary current less than 9 amps: Optimum Protection
  - Rated secondary current 9 amps or greater: Optimum Protection

- With Thermal Overload Protection:
  - Transformer Impedance of 6% or Less:
    - Rated secondary current less than 9 amps: Optimum Protection
    - Rated secondary current 9 amps or greater: Optimum Protection
  - Transformer Impedance of More Than 6% But Less Than 10%:
    - Rated secondary current less than 9 amps: Optimum Protection
    - Rated secondary current 9 amps or greater: Optimum Protection

Optimum Protection

- 125% or next size larger
- 125% or next size larger
- 125% or next size larger
- Primary and secondary fuses at 125% of primary and secondary FLA or next size larger

NEC® Maximums

- Max. 300% or next size smaller (See NEC® 430.72(C) for control circuit transformer maximum of 500%)
- Max. 167% or next size smaller
- Max. of 125% or next larger

% of Primary FLA (or next FLA size smaller)

- A = 250%
- B = 250%
- C = 600%
- D = 600%
- E = 400%
- F = 400%

% of Secondary FLA

- A = 167% or next size smaller
- B = 125% or next size larger*
- C = 167% or next size smaller
- D = 125% or next size larger*
- E = 167% or next size smaller
- F = 125% or next size larger*

*When 125% of FLA corresponds to a standard rating, the next larger size is not permitted.

Fuse Recommendations

- Volts: 250V, 600V
- Fuses: LPN-RK_SP, FRN-R, KRP-C_SP, LPJ_SP, LPS-RK_SP, FNQ-R, FRS-R, TCF

Note: Components on the secondary still need overcurrent protection.

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Fuse Diagnostic Sizing Charts

Transformers Over 600V Nominal (NEC® 450.3)

Supervised Installations

- Primary Protection Only
- Primary and Secondary Protection

Unsupervised Installations

- Transformer Impedance Less Than or Equal to 6%
- Transformer Impedance Greater Than 6% But Less Than 10%

Note: Components on the secondary still need overcurrent protection

Fuse Recommendations

<table>
<thead>
<tr>
<th>Volts</th>
<th>Fuses(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250V</td>
<td>LPN-RK_SP, FRN-R</td>
</tr>
<tr>
<td>600V</td>
<td>LPS-RK_SP, LPJ_SP, KRP-C_SP, FRS-R, FNO-R, TCF</td>
</tr>
<tr>
<td>2475V</td>
<td>JCD</td>
</tr>
<tr>
<td>2750V</td>
<td>JCX</td>
</tr>
<tr>
<td>2750/5000V</td>
<td>JOW</td>
</tr>
<tr>
<td>5500V</td>
<td>JCE, JQ, JCY, JCU, 5.5 ABWNA, 5.5 AMWNA, 5.5 FFN</td>
</tr>
<tr>
<td>7200V</td>
<td>7.2 ABWNA, 7.2 SDLSJ, 7.2 SFLSJ</td>
</tr>
<tr>
<td>8300V</td>
<td>JCZ, JDZ, 8.25 FN</td>
</tr>
<tr>
<td>15500V</td>
<td>JCN, JDN, JDM, 15.5 CAH</td>
</tr>
<tr>
<td>17500V</td>
<td>17.5 CAH, 17.5 SDM</td>
</tr>
<tr>
<td>24000V</td>
<td>24 SDM, 24 SFM, 24 FFM</td>
</tr>
<tr>
<td>38000V</td>
<td>36 CAV, 36 SDQ, 36 SFQ</td>
</tr>
<tr>
<td>38000V</td>
<td>38 CAV</td>
</tr>
</tbody>
</table>

Solid State Devices (Diodes, SCRs, Triacs, Transistors)

Short-Circuit Protection Only

-F, "S", "K", & 170M Series fuses sized up to several sizes larger than full load RMS or dc rating of device.

Fuse Recommendations

<table>
<thead>
<tr>
<th>Volts</th>
<th>Fuses(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-130</td>
<td>FWA</td>
</tr>
<tr>
<td>0-250</td>
<td>FWX</td>
</tr>
<tr>
<td>0-500</td>
<td>FWJ</td>
</tr>
<tr>
<td>0-600</td>
<td>FWC, KAC, KBC</td>
</tr>
<tr>
<td>0-700</td>
<td>FWP, 170M Series, SSP</td>
</tr>
<tr>
<td>0-1000</td>
<td>FWJ, 170M Series, SPJ</td>
</tr>
</tbody>
</table>