

TIP SHEET

CLASS H FUSES AND SAFETY DISCONNECT SWITCHES

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Most safety disconnect switches on the market today are designed to accept Class H dimension fuses as the manufacturer's standard option. However, as this tip sheet will explain, using Class H fuses may introduce some safety and code compliance concerns. This is because many manufacturers offer kits to convert the switch to accept Class R or J fuses only.

Class H fuses can be built as non renewable or renewable fuses as stated in UL 248-6 and UL 248-7 respectively. They are not current-limiting and can safely interrupt (IR) a maximum of only 10,000 amps. Renewable fuses are essentially the original design for a fuse and while they had provided adequate protection when introduced they are now extremely outdated and better protection options now exist.

As electrical systems have grown, so has the need for current limiting and high interrupting rated fuses. This resulted in the development of Class K fuses (UL 248-9) which are non renewable, have an increased IR of 50,000 amps but are still not considered current-limiting. Class R fuses (UL 248-12) are current-limiting, non renewable and have an IR of 200,000 amps. Conveniently, both Class K and R have the same physical dimensions as Class H and therefore can easily be used as upgrades.

Many electricians would admit to stacking renewable elements or over fusing at some point

because of "nuisance" fuse openings. While this prevents future "nuisance" openings, they've likely doubled the amp rating of the fuse by stacking two of the same elements. This means the fuse will need twice as much current to open under fault conditions which may not protect the equipment properly. Element stacking also increases the hazard for anyone working in the panel.

In 2005, the National Electrical Code® (NEC) added article 240.60(D) which states "Class H fuses of the renewable type shall only be permitted to be used for replacement in existing installations where there is no evidence of over fusing or tampering." Forty-seven states are currently using the 2008 or newer NEC. See NEC adoption map on reverse side.

Class R fuses provide the best equipment protection for Class H safety disconnects. There are two types of Class R fuses: RK5 and RK1. They have the same voltage and IR rating and are physically identical, however RK1 is 80% more current limiting than RK5. This means that RK1 fuses will provide better equipment protection and will help to lower the arc flash hazard.

Contact Mersen Technical Services at TechnicalServices.EP@mersen.com for additional information on selecting the correct fuse for your application.

