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Don't be confused by your fuse:

MCA and MOP for your humidifier explained

Before we start, we need first to understand what MCA and MOP are. The minimum circuit ampacity (MCA) and maximum overcurrent protection (MOP) ratings provide a guide for safely connecting field-wired equipment to the building mains. Understanding these ratings, and their relationship to each other, is critical to properly selecting wire and circuit breaker sizes.

What is MCA?

Minimum Circuit Ampacity (MCA) is a calculated value that specifies the minimum main power wire size. It is also used to determine the minimum wire size required for a field wired product. This specification is necessary in order to guarantee that the wiring will not overheat under expected operating conditions. The wire size takes into account the normal current draw, aging of components and anticipated faults. More specifically, the MCA is the highest steady-state electrical current that the unit should see when operating correctly.

What is MOP?

Maximum Over-Current Protection (MOP) is a calculated value that determines the maximum size of the over-current protection device (fuse or breaker). There are different MOP equations depending on your application. The maximum overcurrent protection (MOP) is the maximum circuit breaker size required to properly protect the equipment under anticipated fault conditions. The MOP takes into account startup surges and component aging.

Supply wiring must be rated to carry the amps shown as MCA. By comparison, the overcurrent protection device (either a breaker or fuses) must be sized to prevent the unit from drawing more current than the MOP.

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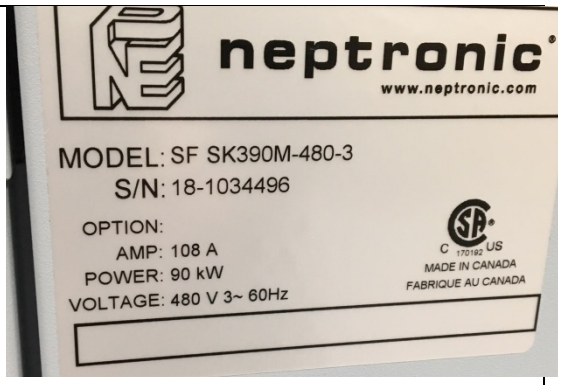
Minimum Current Ampacity (MCA)

MCA = 1.25 x Amperage value of humidifier

The amperage value is indicated on the humidifier label which is adhered to the side of the humidifier cabinet. In this example, the SK390M-480-3 is rated with an amperage value of 108 Amps.	

Maximum Overcurrent Protection (MOP)

The MOP (for humidifiers only) value is determined from the calculated value of the MCA.

The MOP is made equal to the MCA and then rounded up to the nearest standard fuse size, typically a multiple of 5. In other words, the MOP shall not be less than the MCA.

If the MOP is less than 15, it shall be rounded up to 15 amps. This is the minimum size of fuse or circuit breaker permitted by code.
Standard Fuse Sizes: 15, 20, 25, 30, 35, 40, 45, 50, 70, 80, 90, 100, 110, 125 and 150
The calculations for the MCA and MOP are based on requirements of NFPA 70, the National Electrical Code (NEC) and CSA C22.1, the Canadian Electrical Code (CEC).

The wiring of the humidifier should be done by a qualified electrician, and conforming to the procedure, regulation and local codes.

To recap, the MCA is the minimum wire size needed to guarantee that the wiring will not overheat under all operating conditions for the life of the product. The MOP is the maximum allowable circuit breaker size that will properly disconnect power to the equipment under any anticipated fault condition.

Reference: https://yorkcentraltechtalk.wordpress.com/2013/07/20/mca-and-mop-what-are-they-and-how-are-they-calculated/