SIZING OF SUPPLY CIRCUIT BREAKERS FOR BEHLEN STRIP JOINERS

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Proper sizing is related to the high inrush current generated when the motor switches from the forward to reverse direction. The motor direction is instantly switched once the depth switch is initiated.

NFPA 79 Electrical Standards for Industrial Machinery
7.3.3.2 - Short-time-rated or high-reversing duty motors cannot be adequately protected by external overload devices they shall be protected by a thermal device mounted in the motor and sensitive to the temperature of the motor, or to both motor temperature and current.

Based on this standard, our motor contains an integral temperature limit which is engineered to protect the motor. The circuit breakers and wiring provided by the customer must be sized to allow for proper operation of the motor. The following recommendations are guidelines that are helpful in selecting a properly sized breaker. However, the final selection by the installer must conform to all national and local regulations that would apply to this installation.

If you are using an instantaneous trip circuit breaker, it must be have the proper HP rating and be adjustable. The allowable adjustment limit can be up to 2000% of the full load amp rating shown on the motor name plate. A breaker with both a Fixed Thermal Trip and an Adjustable Magnetic Trip is common choice for this application. The Fixed Thermal Trip must be larger than the FLA and the Adjustable Magnetic Trip must have capacity range of at least 20X the full load amp rating.

For example a 100hp motor with a rating of 112 full load amps, you would take 112 x 20 = 2,240 amps. So the adjustable magnetic trip feature of the breaker would need to have a rating of 2,240 amps or higher. A typical breaker for this 100hp motor might have the following ratings:

250 Amp Fixed Thermal Trip
1,500-2,500 Amp Adjustable (Typical of many breakers is a 10X adjustable of the fixed)

The service wire size must be adequate to handle the amperage and duty cycle related to your application.