Based on questions I receive, there appears to be quite a bit of confusion in the industry about the meaning of various voltage and current ratings applied to circuit breakers used in metal-clad switchgear. This PTB will attempt to clarify some of the more commonly discussed ratings, as these ratings appear in the ANSI circuit breaker standards.

First, there is no such thing as an MVA rating for a circuit breaker. See PTB 45 for a detailed discussion of MVA. Other important ratings are as follows:

**Rated Maximum Voltage \( V \):** The highest rms (root mean square) voltage for which the circuit breaker is designed, and the upper limit for operation.

**Rated Voltage Range Factor \( K \):** The ratio of the rated maximum voltage to the lower limit of the range of operating voltage in which the required symmetrical and asymmetrical interrupting capabilities vary in inverse proportion to operating voltage. For more on \( K \), see PTB 46.

**Rated Short Circuit Current \( I \):** The highest value of rms symmetrical current which the circuit breaker is required to interrupt at rated maximum voltage.

**Maximum Symmetrical Interrupting Capability:** The highest value of rms symmetrical current which the circuit breaker is required to interrupt. It is required to interrupt this current at a voltage of \( V/K \) and at any lower voltage. Numerically, this current is equal to \( KI \). Interrupting capabilities at voltages between \( V \) and \( V/K \) are calculated by a formula given in PTB 46.

**Rated Short Time Current:** This is the rms value of the current which the circuit breaker is required to carry for 3 seconds. It is not an interrupting rating; the breaker is not required to interrupt this current until it has cooled down to operating temperature. Numerically, this current is equal to \( KI \), the maximum symmetrical interrupting capability.

**Closing and Latching Capability:** This is the peak, or crest, current that the circuit breaker must be capable of making and immediately thereafter, latching. Numerically, this current is equal to \( 2.7KI \). The circuit breaker must also be able to withstand this same value of current in the closed position as a part of the short time current test. This capability is sometimes referred to as the "momentary current" rating, although this term does not appear in the ANSI standards.
Since interrupting ratings vary with voltage, it is absolutely imperative that purchaser and supplier communicate clearly about the voltage at which a specified interrupting rating applies.

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