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The following section replaces 3.2.1.

3.2.1 Applications at Altitudes Above 3300 ft (1000 m).

Correction factors for voltage and correction factors for continuous current to be applied to circuit breaker ratings and related required capabilities when a circuit breaker is installed and operated at altitudes above 3300 ft (1000 m) are listed in Table 1 of American National Standard C37.04-1979. These correction factors were developed on the basis that both the dielectric properties and the thermal cooling properties of air vary inversely with altitude.

EXAMPLE: Consider a circuit breaker, having ratings and related capabilities as noted below, that is to be installed and operated at an altitude of 7000 ft (2100 m). Interpolating between the values for correction factors given for 5000 ft and 10 000 ft (1500 m and 3000 m) yields the following correction factors (ACF) applicable at 7000 ft (2100 m) altitude.

ACF for voltage =

$$\left[0.95 - (0.95 - 0.80) \left(\frac{7000 - 5000}{10\,000 - 5000} \right) = 0.890 \right]$$

ACF for continuous current =

$$\left[0.99 - (0.99 - 0.96) \left(\frac{7000 - 5000}{10\,000 - 5000} \right) = 0.978 \right]$$

Outdoor Oil Circuit Breaker	Rating Values	ACF	Corrected Values for 7000 ft Altitude Rating	Notes
Rated maximum voltage	38 kV	0.890	33.8 kV	*, †
Rated voltage range factor <u>K</u>	1.65	N/A	1.65	‡
Rated withstand test voltages:				
Low frequency—1 minute dry	80 kV	0.890	71.2 kV	**
Low frequency—10 second wet	75 kV	0.890	66.8 kV	**
Full wave crest (BIL)	200 kV	0.890	178 kV	**
Chopped wave—2 microsecond crest	258 kV	0.890	230 kV	**
Chopped wave—3 microsecond crest	230 kV	0.890	205 kV	**
Rated continuous current	1200A	0.978	1174 A	
Rated short-circuit current at rated maximum voltage	22 kA	N/A	22 kA	‡
Rated interrupting time	5 cycles	N/A	5 cycles	‡
Rated maximum voltage divided by <u>K</u>	23 kV	0.890	20.5 kV	*
Maximum symmetrical interrupting capability (<u>K</u> times rated short-circuit current)	36 kA	N/A	36 kA	‡

*For some types of circuit breakers; for example, those with sealed interrupters, it may not be necessary to apply the ACF for voltage to rated maximum voltage. The manufacturer should be consulted.

†When the rated maximum voltage as corrected for altitude is less than maximum system voltage, select a circuit breaker having a higher rated maximum voltage or consult the manufacturer.

‡Rated short-circuit and related required currents, rated voltage range factor, and rated interrupting time are not corrected for altitude.

**In order to correlate the corrected dielectric strength of a circuit breaker with expected transient voltages, surge protective device application practices may have to be considered. Suitable protection levels for circuit breakers applied at altitudes above 3300 ft (1000 m) may have to be lower than would be required for applications at 3300 ft (1000 m) or less.