

Ambient Temperature



Masterpact MTZ devices are designed to operate in ambient temperature between -25°C (-13°F) and +70°C (+158°F), providing that the temperature around the circuit breaker inside the enclosure does not exceed +70°C (+158°F). If this condition cannot be fulfilled, dedicated measures such as HVAC must be taken.

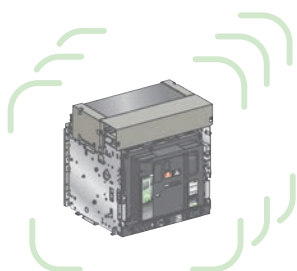
Masterpact MTZ devices have successfully passed the tests defined by the following standards for extreme atmospheric conditions:

- Dry cold at -40°C (-40°F) (IEC 60068-2-1)
- Dry heat at +85°C (+185°F) (IEC 60068-2-2)
- Damp heat (temperature +55°C (+131°F), relative humidity 95%) (IEC 60068-2-30)

Masterpact MTZ Circuit Breakers Ambient Temperatures

Shipping & Storage		Installation & Commissioning		Inside the Electrical Equipment Containing the Circuit Breaker	
Temperature	Relative Humidity	Temperature	Relative Humidity	Temperature	Relative Humidity
-40°C / +85°C (-40°F / +185°F)	0 to 95%	-25°C / +70°C (-13°F / +158°F)	0 to 95%	-25°C / +70°C (-13°F / +158°F) ⁵²	0 to 95%

Vibration Tests

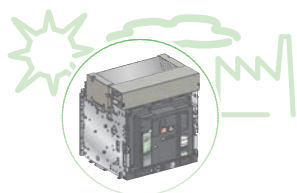


Masterpact MTZ devices have successfully passed testing in compliance with IEC 60068-2-6 for the following vibration levels:

- 2 to 13.2 Hz: amplitude ±1 mm
- 13.2 to 100 Hz: constant acceleration 0.7 g

Vibration testing to these levels is required by merchant marine inspection organizations (such as Veritas, and Lloyd's).

Industrial Environmental Atmospheric Conditions



Masterpact MTZ devices have successfully passed the tests defined by IEC 60068-2-52 level 2: salt mist for extreme atmospheric conditions:

Masterpact devices can operate in the industrial environments defined by standard IEC/EN 60947-1 (pollution degree up to 3).

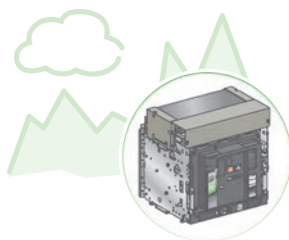
It is nevertheless advised to check that the devices are installed in suitably cooled electrical equipment without excessive dust.

Profile	Pollutions	Active Substances
Corrosive industrial atmospheres	Category 3C3 compliant with IEC 60721-3-3	
Sea salts	Compliant with IEC 60721-2-5	0.8 to 8 mg/(m ² . day) Average over the year
Mechanically active substances	Category 3S3 compliant with IEC 60721-3-3	

Beyond these conditions, Masterpact MTZ devices must be installed inside electrical equipment with an enclosure rating equal to or greater than a NEMA 13 rating.

52. Manual closing of circuit breaker (using pushbutton) is possible down to -35°C (-31°F).

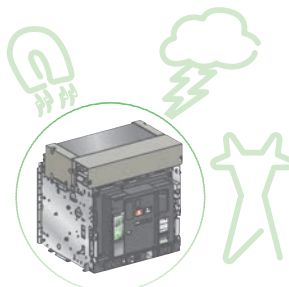
Altitude



Altitude Correction Factors per ANSI C37.20.1 par. 7.1.4.1

Altitude	< 2000 m (6600 ft.)	2600 m (8500 ft.)	3900 m (13,000 ft.)
Voltage	1.00	0.95	0.80
Current	1.00	0.99	0.96

Electromagnetic Disturbances



Masterpact MTZ devices are protected against:

- Overvoltages caused by devices that generate electromagnetic disturbances.
- Overvoltages caused by atmospheric disturbances or by a distribution-system outage (for example, failure of a lighting system).
- Devices emitting radio waves (radios, walkie-talkies, radar, etc.).
- Electrostatic discharges produced by users.

Masterpact MTZ devices have successfully passed the electromagnetic compatibility tests (EMC) defined by IEC/EN 60947-2, Annex F.

This testing reduces the chance of:

- Nuisance tripping
- Tripping times outside of published curves

Immunity: ability of a device to operate without damage in the presence of an electromagnetic disturbance.

Susceptibility: inability of a device to operate without damage in the presence of an electromagnetic disturbance.

Conducted interference: disturbances generated by the device and transmitted by the conductors (of power supply, signalling, or control) in the form of electrical voltage.

Radiated interference: disturbances generated by the device and radiated in the environment in the form of electromagnetic waves.