

Masterpact MTZ circuit breaker operating conditions

Masterpact™ MTZ

FUTURE READY



Designed for durability in harsh environments, Masterpact MTZ circuit breakers are built to withstand a variety of conditions in terms of temperature, humidity, vibration, altitude, corrosive atmospheres, and electromagnetic disturbances.

Masterpact MTZ circuit breakers have successfully passed tests defined by the following standards.

Ambient temperature

- Operating ambient temperatures: -25 °C to +70 °C
- Shipping and storage temperatures: -40 °C to +85 °C
- Damp heat: relative humidity 95%, temperature +55 °C
- Dry cold temperature tests defined by IEC 60068-2-1
- Dry heat temperature tests defined by IEC 60068-2-2
- Damp heat tests defined by IEC 60068-2-30

Vibrations

- 2 to 13.2 Hz: amplitude ± 1 mm
- 13.2 to 100 Hz: constant acceleration 0.7 g
- Vibrations tests defined by IEC 60068-2-6 and IEC 60068-2-27

Vibrations testing to these levels is required by merchant marine inspection organizations (Veritas, Lloyd's, etc.).

Vibrations, shocks, and shakes in operational conditions are compliant with IEC 60721-3-3 level 3M4.

Examples of applications with high vibration profiles:

- Wind turbines
- Power frequency converters installed in the same switchboard or close to the Masterpact MTZ circuit breaker
- Emergency generators
- High-vibration marine applications such as thrusters, anchor positioning systems, etc.

Industrial environmental atmospheric conditions

- Pollution degree: up to 4 (IEC 60947)
- Salt mist: level 2 (IEC 60068-2-52)
- Corrosive industrial atmospheres: category 3C3 (IEC 60721-3-3)
- Sea salts (IEC 60721-2-5)
- Mechanically active substances (sand, dust): category 3S3 (IEC 60721-3-3)

Altitude

Up to 2000 m, plus derating from 2000 m to 5000 m

Electromagnetic disturbances

Masterpact MTZ circuit breakers are protected against:

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

Masterpact MTZ circuit breakers have successfully passed the electromagnetic-compatibility tests defined by the following international standards:

- IEC 60947-2, appendix F
- IEC 60947-2, appendix B (trip units with earth-leakage function)

These tests ensure that no nuisance tripping occurs, and tripping times are respected.

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