

Frequently applied standards in the field of Climatic environmental simulation

Energy Technology

Cold	DIN EN/IEC 60068-2-1
Dry Heat	DIN EN/IEC 60068-2-2
Salt Fog	DIN EN/IEC 60068-2-11
Low Air Pressure	DIN EN/IEC 60068-2-13
Change of Temperature	DIN EN/IEC 60068-2-14
Damp Heat, cyclic	DIN EN/IEC 60068-2-30
Composite Temperature/Humidity Cyclic Test	DIN EN/IEC 60068-2-38
Salt Fog, cyclic	DIN EN/IEC 60068-2-52
Sand and Dust	DIN EN/IEC 60068-2-68
Damp Heat, steady state	DIN EN/IEC 60068-2-78

We also test to these standards for earthquake qualification and vibration, among others:

IEE 693 • GR-63-CORE NEBS • ICC-ES-AC156 • DIN EN 62271-207 • IEC TS 62271-210 • IEC/TR 62271-300 • IEC 60068-3-3 • IEC/IEEE 60980-344 • IEC/IEEE 607780-323 • RCC-E

Railway Industry

Cold	DIN EN 60068-2-1
Dry heat	DIN EN 60068-2-2
Salt mist	DIN EN 60068-2-11
Low air pressure	DIN EN 60068-2-13
Change of temperature	DIN EN 60068-2-14
Damped heat, cyclic	DIN EN 60068-2-30
Composite temperature/humidity cyclic test	DIN EN 60068-2-38
Salt mist, cyclic	DIN EN 60068-2-52
Dust and sand	DIN EN 60068-2-68 (La2)
Damp heat, steady state	DIN EN 60068-2-78
Corrosion tests in artificial atmospheres • Salt spray tests	DIN EN ISO 9227
Degrees of protection provided by enclosures (IP-Code)	DIN EN 60529
Railway applications – Environmental conditions for equipment • Part 1: Rolling stock and on-board equipment	DIN EN 50125-1
Road vehicles • Degrees of protection (IP code)	ISO 20653



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Automotive LV124 (e. g. VW80000, GS 95024-3-1 & MBN 10306)

K-01	High/low temperature storage	K-15	Condensation test with assemblies
K-02	Step temperature storage	K-16	Temperature shock (without housing)
K-03	Low temperature operation	K-17	Sun exposure
K-04	Recoating temperature	K-18	Noxious gas test
K-05	Temperature shock (component)	K-19	Climatic test for components with watertight enclosures
K-06	Salt spray test with operation, outdoor room		
K-07	Salt spray test with operation, interior	M-03	Dust test
K-08	Humid heat, cyclic	M-08	Protection against foreign objects • IP0x to IP4x, A , B, C, D
K-09	Humid heat, cyclic (with frost)	M-09	Leak test
K-10	Water Protection • IPX0 to IPX6K		
K-11	High pressure / steam jet cleaning	C-01	Chemical tests
K-12	Thermal shock with surge water		
K-13	Temperature Shock Diving	L-02	Lifetime test high temperature endurance test
K-14	Humidity heat, constant	L-03	Lifetime test temperature cycling

In addition to the climatic environmental simulation, we also test according to **M-01: Free fall** • **M-02: Stone chip test** • **M-04: Vibration test** • **M-05: Mechanical shock** • **M-06: Permanent mechanical shock** and further relevant standards such as RTCA DO-160, MIL-STD-810, DIN EN 60068-2-ff.



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Aviation Industry

	RTCA DO-160
Temperature and Altitude	Section 4
Temperature Variation	Section 5
Humidity	Section 6
Explosive Atmosphere	Section 9
Waterproofness	Section 10
Fluids Susceptibility	Section 11
Sand and Dust	Section 12
Fungus Resistance	Section 13
Salt Fog	Section 14
Icing	Section 24

Defence Industry

	MIL-STD-810	AECTP-300
Low Pressure	○	○
High Temperature	○	○
Low Temperature	○	○
Thermal Shock/Temperature Shock	○	○
Solar Radiation (Sunshine)	○	○
Humid Heat/Humidity	○	○
Immersion	○	○
Mould Growth/Fungus	○	○
Salt Fog	○	○
Rain/Watertightness	○	○
Icing/Freezing Rain	○	○
Sand and Dust	○	○
Contamination by Fluids	○	○
Freeze/Thaw	○	○
Explosive Atmosphere	○	○
Temperature/Humidity/Altitude	○	○



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IP Rating Tests

	DIN EN 60529	ISO 20653
IP1X Protection against foreign objects (Ø 50 mm)	○	○
IP2X Protection against foreign objects (Ø 12 mm)	○	○
IP3X Protection against foreign objects (Ø 2.5 mm)	○	○
IP4X Protection against foreign objects (Ø 1 mm)	○	○
IP5X Protection against foreign objects (dust-protected)	○	n/a
IP5KX Protection against foreign objects (dust-protected)	n/a	○
IP6X Protection against foreign objects (dust-tight)	○	n/a
IP6KX Protection against foreign objects (dust-tight)	n/a	○
IPX1 Protection against vertical water drips/vertical dripping	○	○
IPX2 Protection against water drips (15° inclination)/dripping (15° tilted)	○	○
IPX3 Protection against water spray/spraying	○	○
IPX4 Protection against splash water/splashing	○	○
IPX4K Protection against splash water with increased pressure	n/a	○
IPX5 Protection against high-velocity water/jetting	○	○
IPX6 Protection against strong high-velocity water/powerful jetting	○	○
IPX6K Protection against strong high-velocity water with increased pressure	n/a	○
IPX7 Protection against temporary immersion	○	○
IPX8 Protection against continuous submersion	○	○
IPX9 Protection against high-pressure and high jet water temperature	○	n/a
IPX9K Protection against high-pressure/steam-jet cleaning	n/a	○

