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**Optics and optical instruments —  
Environmental test methods —**

**Part 13:**

Combined shock, bump or free fall and dry  
heat or cold

*Optique et instruments d'optique — Méthodes d'essais d'environnement —  
Partie 13: Essai combiné choc, secousse ou chute libre et chaleur sèche ou  
froid*



## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9022-13 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*, Subcommittee SC 1, *Fundamental standards*.

This second edition cancels and replaces the first edition (ISO 9022-13:1994), which has been technically revised.

ISO 9022 consists of the following parts, under the general title *Optics and optical instruments — Environmental test methods*:

- Part 1: *Definitions, extent of testing*
- Part 2: *Cold, heat, humidity*
- Part 3: *Mechanical stress*
- Part 4: *Salt mist*
- Part 5: *Combined cold, low air pressure*
- Part 6: *Dust*
- Part 7: *Drip, rain*
- Part 8: *High pressure, low pressure, immersion*

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- *Part 9: Solar radiation*
- *Part 10: Combined sinusoidal vibration and dry heat or cold*
- *Part 11: Mould growth*
- *Part 12: Contamination*
- *Part 13: Combined shock, bump or free fall and dry heat or cold*
- *Part 14: Dew, hoarfrost, ice*
- *Part 15: Combined digitally controlled broad-band random vibration and dry heat or cold*
- *Part 16: Combined bounce or steady-state acceleration and dry heat or cold*
- *Part 17: Combined contamination, solar radiation*
- *Part 18: Combined damp heat and low internal pressure*
- *Part 19: Temperature cycles combined with sinusoidal or random vibration*
- *Part 20: Humid atmosphere containing sulfur dioxide or hydrogen sulfide*
- *Part 21: Combined low pressure and ambient temperature or dry heat*