



ISO 2281 water-resistant watches standard

The [International Organization for Standardization](#) issued a standard for water resistant watches which also prohibits the term *waterproof* to be used with watches, which many countries have adopted. The international standard **ISO 2281 Horology -- Water-resistant watches** defines the water resistance of watches. This standard was only designed for watches intended for ordinary daily use during exercises under water for a short period under conditions where water pressure and temperature vary.

The ISO 2281 standard specifies a detailed testing procedure for each mark that defines not only pressures but also test duration, water temperature, and other parameters. Besides this **ISO 2859-2 Sampling plans indexed by limiting quality (LQ) for isolated lot inspection** and **ISO 2859-3 Sampling procedures for inspection by attributes -- Part 3: Skip-lot sampling procedures** concerning procedures regarding lot sampling testing come into play, since not every single watch has to be tested for ISO 2281 approval.

ISO 2281 water resistance testing of a watch consists of:

- Immersion of the watch in 10 cm of water for 1 hour.
- Immersion of the watch in 10 cm of water with a force of 5 N perpendicular to the crown and pusher buttons (if any) for 10 minutes.
- Immersion of the watch in 10 cm of water at the following temperatures for 5 minutes each, 40°C, 20°C and 40°C again, with the transition between temperatures not to exceed 5 minutes. No evidence of water intrusion or condensation is allowed.
- Immersion of the watch in a suitable pressure vessel and subjecting it to the rated pressure for 1 hour. No evidence of water intrusion or condensation is allowed.
- Exposing the watch to an overpressure of 2 bar. The watch shall show no air-flow exceeding 50 µg/min.
- No magnetic or shock resistance properties are required.
- No negative pressure test is required.
- No strap attachment test is required.
- No corrosion test is required.



Except the thermal shock resistance test all further ISO 2281 testing should be conducted at 18°C to 25°C temperature. Regarding pressure ISO 2281 defines: 1 bar = 105 Pa = 105 N/m².

In practice, the survivability of the watch will depend not only on the water depth, but also on the age of the sealing material, past damage, temperature, and additional mechanical stresses.

None of the tests defined by ISO 2281 are suitable to qualify a watch for scuba diving. Such watches are designed for everyday life and must be water resistant during exercises such as swimming. They can be worn in different temperature and pressure conditions but are under no circumstances designed for diving with underwater breathing apparatus.

Water resistance rating	Suitability	Remarks
Water Resistant 30 m or 50 m	Suitable for water related work and fishing.	NOT suitable for swimming or diving.
Water Resistant 100 m	Suitable for recreational surfing, swimming, snorkeling, sailing and water sports.	NOT suitable for diving.
Water Resistant 200 m	Suitable for professional marine activity and serious surface water sports.	NOT suitable for diving.