

ALC 7000 – Leak test instrument for watches, for production line and laboratory use



- Quick and precise measurements, using a new differential measuring method
- Test sequence with vacuum and pressure
- Reliable measurements irrespective of the hardness or nature of the watch case material
- Numerical test results in μg of air per minute
- Leak test in accordance with the ISO 2281 standard
- Simple programming of 10 test routines with individual parameters
- Messages and instructions in clear text, in a choice of 5 languages
- Automatic determination of the stabilisation and measuring time
- Automatic locking and release of the test chamber
- RS232 interface for a printer or PC



Measurement technique

The leak test instrument ALC 7000 is based on a new differential pressure method, giving fast and precise leakage measurements with numerical results.

The instrument has two identical, exchangeable test chambers, matched to the size of the watch. A watch is placed in each test chamber and the test pressure is applied. In the event of a leak, air flows from the chamber into the watch under test, thereby reducing the pressure in that chamber. The instrument analyses the variation of the pressure difference between the two chambers and calculates the relevant leak rate in μg of air per minute.

A large leak, producing an instantaneous pressure equalisation, is detected by an additional volume measurement of the watch.

Thanks to the symmetrical configuration of the test set up, all disturbing effects are largely compensated. Only a very short stabilisation time is needed for a measurement with utmost precision.

Measurement procedure

The ALC 2000 permits an automatic test cycle with both vacuum and pressure. The ALC 7000 can perform a test sequence with vacuum and pressure. With this double test any type of leakage is positively detected. The relevant test parameters, such as test pressure and leakage limits can be individually programmed by the user.

From the specified test parameters, the powerful test software automatically calculates the adequate stabilisation and measuring times for an accurate measurement. The reliability of the measurements is further improved by a continuous analysis of the process and by filtering out any irregularities.

Up to 10 different watches specific test routines can be programmed and stored.

Applications

The ALC 7000 performs a fast and reliable leak test in conformity with the ISO 2281 standard. The main application is therefore the quality control in the production process.

Because of the high precision and reliability, the instrument is equally at home in laboratories or pretentious service centers.

Technical Data

- Results: Numerical, in μg of air per minute. Additional pass/fail indication by means of LED's.
- Measurement range: 2 - 999 $\mu\text{g}/\text{min}$, beyond indication Large leak.
- Tolerance: Programmable, 10 - 300 $\mu\text{g}/\text{min}$
- Precision: $\pm 25\%$ of the set tolerance.
- Test pressure: Programmable, 0.8 bar vacuum to 10 bar pressure.
- Test programs: 10 different test routines with programmable parameters.
- Alpha numeric LCD display, 2 x 20 characters with back light.
- Operator guidance: Display of the results, messages and instructions in clear text. Language selectable by the user.
- Chamber closure: Automatic, motor driven locking and opening of the test chambers.
- Production capacity: Dependent on the test parameters; typically 150 - 300 watches/hour.
- RS232 interface for the connection of a printer or a PC for the preparation of statistical results.
- Compressed air connection: pressure at least 1 bar higher than the required test pressure, 5 bar min., 11 bar max. Built-in vacuum generator.
- Casing: Aluminum, anodized in black and clear. Dimensions: 220 x 315 x 120 mm (w x d x h). Weight: 8 kg
- Mains connection: commutable 230 V~ / 120 V~, 15 VA.

Accessories

- Standard chambers: 4 different positioning plate pairs and 9 different test chamber pairs.
- Special chambers: Optimally adapted test chamber pairs can be supplied for mass production.
- Compressor: JUN AIR 6M, 14 bar, for 230 V~ or 120 V~.
- Air filter: with water separator, for connection to an existing compressed air line.
- Printer: CITIZEN CBM 910 (no graphic mode), for 230 V~ or 120 V~. Or: DP-1014.0132A, with graphic mode and universal mains adapter, 90 V~ - 264 V~
- Switchbox: to connect 2 instruments on DP-1014.0132A.