ALC 2000 – Watch leak test unit for use in both the service and production departments

- Reliable water tightness test using the deformation principle
- Universally usable for all types of watch, with or without bracelet
- Automatic executed test cycle with pressure and vacuum
- Automatic determination of the necessary stabilisation & measuring times for reliable tests
- Numerical results for the leakage rate
- Automatic good / leaky evaluation
- Standard test program with fixed parameters
- Easy programming of 10 test programs with individual parameters
- Messages and instructions in clear text in a choice of 9 languages
- Automatic locking and release of the test chamber
- RS232 interface for a printer or PC

witschi

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Applications

All types of watch, with or without a bracelet, can be tested by the ALC 2000 without the need for extensive adaptation.

Operation is very simple thanks to the incorporation of a standard measurement program with fixed parameters and a largely automatic test procedure. Measurements on any special properties of a watch can readily be undertaken by making use of the possibility to program application-specific test routines.

The instrument is therefore ideal for use in a repair department as well as for testing small batches of various types of watch on the production floor.

Measurement technique

The ALC 2000 checks the water tightness of a watch by means of the deformation principle.

The watch to be tested is placed in a highly sensitive measuring system which constantly monitors the thickness of the watch. The watch is subjected to the specified test pressure once the measurement chamber has been closed.

The pressure causes a certain amount of deformation of the watch. This deformation remains constant in the case of a fully sealed watch provided that the pressure remains constant. In the case of a leaky watch the air seeping into the watchcase results in an internal pressure equalisation which relaxes the deformation.

A microprocessor-based measurement system monitors any change in the deformation and calculates the leakage rate. This indicates by what percentage the original deformation is reduced per minute. The leakage rate is always referred back to a pressure of 2 bar to ease the comparison of measurements taken under differing pressures. A numerical result such as this is an objective quantification of the leakiness.

Thanks to the extremely high resolution of the deformation sensor and the intelligent evaluation of the measurements made through a microprocessor system, the ALC 2000 can also carry out very reliable tests even on hard watch cases.

Measurement procedure

The ALC 2000 permits an automatic test cycle with both vacuum and pressure to be carried out during which all types of leakage are positively identified. Both the test pressure and the leakage limits can be programmed by the user in various ways.

The stabilisation and measurement period is calculated automatically on the basis of the measurement parameters and the measured deformation. As a result are liable measurement is obtained in the briefest possible time.

Locking and release of the measurement chamber occurs automatically.

Technical Data

- Measurement cycle: automatic execution cycle with one or two test pressures, respectively with vacuum and pressure. Locking / release of the test chamber occur automatically.
- Measurement period: automatic determination on the basis of the programmed tolerance value and the measured deformation or is programmable from 10 - 300 s.
- Stabilisation time: automatic determination on the basis of the stability of the measured deformation or is programmable from 10 - 300 s.
- Results: numerical results for the relaxation of the deformation in % per minute, referred to 2 bar.
- Measurement range: 0.1 - 9.9% per min. Above "big leakage" display. Additional "ok / reject" display.
- Measurement program: one standard program with fixed parameter settings, 10 user-programs with freely programmable parameter values.
- Pressure range: -0.8 bar vacuum to 10 bar pressure.
- Tolerance setting: programmable, 0.1 - 3% per min.
- Display: LCD-display with 2 x 20 characters, rear-lit.
- Operator guidance: display of the results, messages and instructions in clear text. Language is selectable by user.
- Result print-out: RS232 interface for the connection of a printer. The instrument can be connected to a PC for the preparation of statistical results.
- Watch holder: rapid adjustment for all types of housing, with or without a bracelet. Exchangeable mounting rings for various sizes of watch.
  LED indicates the correct positioning of the watch.
- Compressed air connection: pressure at least 1 bar higher than the required test pressure, 5 bar min.,11 bar max. Built-in vacuum generator.
- Mains connection: plug supply adapter available for 230 V~ or 120 V~, power 12 VA.
- Housing: black lacquered hardwood case, base-plate and front panel of anodised aluminum, cast aluminum test chamber.
  Dimensions: 230 x 320 x 215 mm (w x d x h).
  Weight: 5.5 kg.

Accessories

- 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), 230 V~.
  - DP-1014.0132A , with graphic mode and universal mains adapter, 90 V~ - 264 V~.
  - Thermo printer "Martel" for 230 V~ or 120 V~.
- Switchbox: to connect 2 instruments on DP-1014.0132A.
- Autoprint: PC-software to capture and print out the measuring results.