



Operating Instructions



Leak Controller 2000

Watch Servicing Unit

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General

The present Operating Instructions are part of the delivered equipment. They must be ready for use at any time and remain with the unit in case of resale.

Reprints, translations and copying of any kind, including of parts of the document, must be authorized by the editor.

The copy right remains with the editor.

These Operating Instructions are not automatically revised. For the latest revised issue please contact the manufacturer and editor of these Operating Instructions.

The manufacturer's address is indicated on the last page of the Operating Instructions.

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Important safety warnings

To be read before initial operation!

Intended use

This Elma Leak Controller is intended for the water leakage test of wrist-watches.

Transport damages

Check the unit and mains cable for transport damages. In case of visible damages do not put the unit into operation but contact your supplier.

Mains connection



For safety reasons, this electrical appliance must be connected to a correctly grounded socket only. The technical details indicated on the nameplate must correspond with the available mains connection details, in particular those of the mains voltage.

Placement

Place the unit onto a stable surface. Keep the unit dry!

Prevention of electrical accidents

In order to prevent electrical accidents keep the working surface, the unit and the mains plug dry!



In case of damages on the Super Elite or the mains cable do not connect the unit to the mains!
The unit must be opened by authorized and specialized personnel only! Unplug the mains cable before opening the unit!



In order to avoid overheating of the vacuum pump, the pump should not be operated continuously for more than 2 min.

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Product description

Unit for the checking of leaks in wrist watches. The easy operation of the unit guarantees correct testing after exchange of the battery even by apprentices or unschooled personnel. At the same time, the machine is a reliable and maintenance-free watch testing unit for the professional watchmaker.

Functioning of the unit:

By means of the integrated vacuum pump, the machine creates a difference of pressure between inside and outside of the watch. The measuring gauge is sensitive to any movement of the watch case down to 1/1000 mm and instantly detects any pressure compensation in which case the watch has a leak. If the difference of pressure remains the same, the watch is watertight. The machine has a mechanical design and even allows the testing of low-price watches with easily deformable watch-glasses (no risk of breaking).

The Elma Leak Controller 2000 instrument operates without water. Fast and reliable testing is carried out with the instrument by a vacuum process.

Instruments for testing for water tightness and operating without water generally only indicate whether the tested watch or clock is tight or leaks, without supplying information about the location of the leak.

The Elma Leak Controller 2000 rapidly and reliably locates the leak point and does this without using water (see capital 5.2).

3.1 CE conformity

The present device complies with the CE criteria with regard to

- the low-voltage-directive 73 / 23 / EWG (EEC)
- the EMC directive 89 / 336 / EWG (EEC)

The declaration of conformity is available from the manufacturer.

3.2 Designation of the elements



- A** plexi-glass hood
- B** dial gauge
- C** watch holder
- D** measuring pin
- E** knurled knob
- F** exhaust key
- G** power switch (pump on / off)

3.3 Technical details

Mains voltage (as per version) (Vac)	100-120 or 240-240
Mains frequency (Hz)	50 / 60
Input (W)	ca. 60
External measurements (mm)	155 / 315
Weight (Kg)	3,5
Material of housing	Steel sheet painted

4 Putting into Operations

Preparation Compare voltage on type-plate with the voltage in your workshop.

Place the unit onto a stable surface. Keep the unit dry!

Connect unit to the mains Connect the equipment to the mains supply. The prescribed supply voltage can be taken from the name plate on the back of the machine.

5 Proceeding leakage test

Placing of the watch Place the watch to be tested on the holder under the dial gauge.

Loosen the knurled screw, push holder with watch to be tested to measuring pin and tighten knurled screw to keep in place.



Ensure that the initial voltage shown on the dial gauge comes within the measuring range of 1 - 4 mm (see small pointer on dial).

Set dial gauge Set the dial gauge to zero, by turning the outer black milled ring on the dial gauge.

Place plexi-glass hood on the instrument.

Switch on vacuum pump Switch on the vacuum pump with green switch and observe pointer deflection on dial gauge.



In order to avoid overheating of the vacuum pump, the pump should not be operated continuously for more than 2 min.



Ensure that the deformation does not exceed 0,02 mm (20 graduations on the dial gauge), as otherwise the glass or back may spring out of the case.



If the watch has a significant leak, the dial gauge pointer will remain on its position zero during the pump process or will move into the negative range (against scale number 100).

This movement depends on the various designs (waterproof joints) of the watches. However, it has no influence on the testing result.

Switch off vacuum pump

Switch off the vacuum pump manually at the main switch. Switch off the pump when a deformation of 10 (10/100mm) is displayed.

Observe dial gauge

Allow a resting time of about 60 seconds, and observe dial gauge pointer (Chapter 5.1).

End test procedure

Press the red button at the bottom of the housing to ventilate the interior of the plexi-glass hood.

Remove the plexi-glass hood. The equipment is now ready for the next test operation.

5.1

Interpretation of the measuring result

- The dial gauge pointer remains stationary at test deflection: the watch can be considered as absolutely watertight.
- The dial gauge pointer moves to a maximum of 20% of the total deflection in relation to the zero position: the watch has a small leak, which means that it can no longer be regarded as watertight. To locate the leak, see chapter 5.2.
- The dial gauge moves back by more than 20 % of total indication range: the watch has a leak, which means that it can no longer be regarded as watertight. To locate the leak, see chapter 5.2.
- The dial gauge pointer shows no deflection during testing or moves into the negative range of the dial gauge (against scale number 100): the watch has a large leak.

5.2

Locating leaks

The Leak Controller 2000 is the only equipment which operates without water and permits location of leak in a leaking clock or watch.

Possible leak points (edge of glass, crown, push-piece or back) are coated in succession with the sealing compound Vacu-Proof (Order-No. 580 220 0000), and the clock or watch is replaced in the test compartment of the Leak Controller 2000. When air is extracted by the built in vacuum pump, any air remaining in the watch is sucked out. Small air bubbles occur at places covered with Vacu-Proof, the bubbles burst during the suction process and give a visual indication of a leak location.

Vacu-Proof does not harm clocks or watches, does not harden and does not attack the seals. Once testing has been completed, the residue of Vacu-Proof on crown, etc. can be wiped away with a soft absorbent cloth.



Watches and clocks into which water has visibly penetrated from outside do not necessarily mean that the instrument will indicate „leak“. Watches, which are already visibly leaky from the outside, are first repaired and then tested for absolute water tightness with the Leak Controller 2000.

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Machine maintenance

The equipment is generally maintenance-free and there are no serviceable parts inside the unit. In case of damages, please contact your supplier or the manufacturer of the unit.

Cleaning

Remove occasionally carefully the dust in the equipment

Mains cable and mains connection

For your own safety, we recommend that you check at regular intervals the mains cable and the mains connection on the unit for damage.

Repair

In case of technical faults please contact your supplier or the manufacturer of the unit.

Opening by authorized specialized personnel only

Repair and maintenance works which require the unit to be connected and opened must be carried out by authorized and specialized personnel only.



DANGER

Separate the unit from the mains before opening up the housing. The manufacturer cannot be held responsible for any damages caused by unauthorized repair works.

In case of damage please contact the manufacturer or your supplier.

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Accessories

Vacu-Proof	order number	580 220 0000
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Putting out of action and waste disposal



The unit can be taken to metal and electronics recycling stations or returned to the manufacturer.