

Rev3.0



The new WELLNER L1 3.0 is a fully automatic washing machine for watch movement parts and movements. Due to its construction and sophisticated safety system it is the first classical designed watch parts cleaning machine meeting the strict requirements to use flammable liquids certified by TÜV Süd.

It provides 6 cleaning tanks including one with ultrasonic cleaning function.

The ultrasonic tank uses sweep function to avoid resonance for secure and smooth cleaning. Also the power of the ultrasonic tank is adjustable within the single cleaning programs from 0%-100%.

30 cleaning programs with up to 32 single cleaning steps can be created and stored. They can be given alphanumeric names and started at a single push on the start button left of the display.

The creation and selection of the cleaning programs is easy and intuitive and all done with a single turning knob right of the display.

All 6 cleaning tanks as well as the drying position can be programmed as single steps in arbitrary order, so very specific cleaning programs can be created.

The cleaning motion, cleaning time, spinning velocity, spinning time can all be defined for each single step.

Even the turning angle and speed while oscillating movements can be adjusted in the machine settings.

The usage of brushless servo motors enables a very silent and dynamic movement of the axes. With the servo motor driven spindle the cleaning basket can do smooth turnarounds and also very fast and aggressive movements. Using the Vibrasonic mode it even can vibrate for cleaning assembled movements.

All 6 tanks can be given alphanumeric names – for example with the contained cleaning solution – and a maximum age or cycles of usage. As soon as the cleaning solution reaches the maximum age or cycles, the machine gives the advice to change the cleaning solution.

All the cleanings which are done with the machine are logged with date, time, used tanks, and state of the used cleaning solutions. All the data then can be exported to a SD card on the back of the machine and used for quality assurance.



For software updates, special cleaning programs, optional functions and customization the machine can be connected to a PC by USB.

The whole electronics is separated from the interior in a electric cabinet at the back side, which is ventilated to the outside. The temperature controlled PTC fan heater is placed above the cleaning solutions, inside of the machine and has an external air intake.

The electric cabinet, the inner space of the machine and the fan heater are all temperature controlled and monitored. The front door is monitored so all moving axes stop when it is opened.

The air exhaust has an overrun and all the cleaning tanks are closed and sealed while cleaning, standby and even spinning. All fans and airflows are monitored for maximum security. The complete construction of the machine is made of stainless steel and aluminum.

The machine is completely developed, designed and manufactured in Germany.



Overview:

Functions:

- 5 cleaning tanks PLUS one removable ultrasonic tank (can be switched off to use as normal tank)
- Ultrasonic power 50 Watt – Frequency 40kHz - sweep function - programmable - power adjustable 0-100%
- 30 cleaning programs storable with up to 32 cleaning steps each
- Adjustable temperature of drying air
- Monitoring of the state of the cleaning solutions
- Log function of all cleanings for quality assurance purpose (stored to SD card)
- USB connection for updates and customization
- 9 innovative cleaning movements programmable and adjustable (see next page)
- Works with all common cleaning baskets on the market (64mm and 80mm)
- Clear text menu in German/English/French
- Master slave control for external exhaust system
- Log function for quality assurance
- Fully adjustable cleaning movements
- Emulation of Vibasonic movement for cleaning assembled watch movements

Technical info:

- Brushless servo motors with state of the art AC servo drives for high dynamic and silent movements
- Modular control concept according to industrial standards
- SPS with motion controller, CAN Bus and RS485 to fully integrate in professional workshop or factory environment
- LCD graphics display with backlight

Security:

- All cleaning tanks covered and sealed while standby, cleaning and spinning
- Electronics separated from the machine inside and ventilated to the outside
- Brushless commutation of all motors to prevent arcing
- Exhaust with monitored follow up airflow control
- Door monitoring
- PTC fan heater with external air intake
- 3 zone temperature monitoring
- removable ultrasonic tank with continuous contacting
- Monitoring of the fan function

Mechanical facts:

- Very stable and solid construction of aluminum and stainless steel
- The inside is completely stainless steel
- Powder coated aluminum panels outside
- 6mm acrylic door and side windows
- Spindle with high pressure PTFE sealing
- all spindle parts are made of stainless steel -> water based solutions can be used without risk of corrosion

Technical facts:

- 480mm x 480mm x 770mm
- ca 80kg
- 230 VAC 50/60Hz (110V AC on request)
- Maximum power consumption while drying 450 Watt / standby 33 Watt / cleaning 40 Watt

Delivery contents:

- WELLNER L1 automatic cleaning machine
- 5 glass jars
- 1 ultrasonic cleaning tank
- 5 wave-breakers
- Power cord
- Manual

Options:

- Exhaust with pipe joint
- Voltage 110VAc / 230VAc

Cleaning functions in detail

The creation of a cleaning program is made in so called „steps“. Each single step can contain the following parameters:

- The cleaning tank/solution which shall be used
- only tank no.1: use with or without ultrasonic (power adjustable 0%-100%)
- the type of cleaning movement which shall be used while cleaning in the tank
- duration of cleaning in the tank
- spinning yes/no
- spinning speed (low / medium / high)
- duration of spinning

For drying, which can also be programmed as a step on any position of the program:

- duration of drying
 - temperatur of the air flow (cold / medium / hot)
- (These temperatures can be adjusted to your preference in the settings menu)

All these steps can be created in any order, so fully customized cleaning programmes are possible.

Cleaning movements:

- ST - slowly turning - turns slowly half of the time in one direction, then changes direction - speed of rotation adjustable
- FT - fast turning - turns fast half of the time in one direction, then changes direction - speed of rotation adjustable
- SA - slowly alternating - turns clockwise and counterclockwise - speed of rotation adjustable / adjustable number of revolutions)
- FA - fast alternating- turns clockwise and counterclockwise - speed of rotation adjustable / adjustable number of revolutions)
- SO - slowly oscillating - turns clockwise and 0.7 times counterclockwise - speed of rotation adjustable / adjustable angle of rotation)
- FO - fast oscillating - turns clockwise and 0.7 times counterclockwise - speed of rotation adjustable / adjustable angle of rotation)
- SX - slowly oscillating and up/down - same as LO but also moves up and down - speed of rotation adjustable / adjustable angle of rotation)
- FX - fast oscillating and up/down - same as SO but also moves up and down - speed of rotation adjustable / adjustable angle of rotation)
- ST - only dips the basket for a definite time