

MASTER PRESERVATION GUIDE: The Life Cycle of Ecowell/Surgiwell Instruments

For Ecowell/Surgiwell, a surgical instrument is not a consumable, but a high-precision asset. This manual will guide you through the technical protocol to ensure your instruments maintain their cutting capacity, grip, and resistance for decades, in strict compliance with European Union health regulations.

STEP 1: Immediate Commitment (Pre-immersion)

Maintenance does not begin in the sterile services department, but in the operating theatre. As soon as the instrument is no longer in use, a race against time begins.

- **The barrier against drying:** If you allow blood or tissues to dry, they become corrosive and difficult to remove.
- **Action:** If you cannot process the instruments immediately, submerge them in a neutral pH enzymatic solution. This keeps residues "soft" and ready for the next step.

STEP 2: Initial Rinse (Removal of gross soil)

Once the instruments reach the cleaning area, visible dirt must be removed before applying any chemical disinfectant.

- **Lukewarm water, not Hot:** Rinse with plenty of running lukewarm water. Important: Hot water "cooks" blood proteins, bonding them to the steel forever. Cold water does not dissolve them well. Lukewarm is the exact requirement.
- **Separation by families:** Never mix steel instruments with those made of aluminium, copper, or chrome-plated materials. Water acts as a conductor and can cause "metal transfer," which will irreversibly stain your Ecowell pieces.

STEP 3: Safety Disinfection (Staff protection)

Before handling the instruments for deep cleaning, their biological hazard must be reduced.

- **Certified Chemistry:** Submerge the pieces completely in CE-marked disinfectants, following the manufacturer's exact contact times.
- **Prohibited Zone (Bleach):** Never, under any circumstances, use bleach (hypochlorite). Bleach is poison to stainless steel; it eats away the metal's protective layer, voids the warranty, and weakens the instrument's internal structure.

STEP 4: Deep Cleaning (The key to success)

An instrument may be disinfected but still remain dirty. Sterilisation is only effective if the steam directly touches the clean metal.

- **Ultrasonic Cleaning (The crown jewel of the process):** This is the method most recommended by Ecowell/Surgiwell. Vibrations reach where the eye cannot see: hinges, ratchets, and joints. Remember to place the instruments in a fully open position.
- **Manual Cleaning:** If you choose to brush, use only hard nylon bristles. The use of steel wool or wire brushes is strictly prohibited, as they scratch the metal and create breeding grounds for bacteria.
- **THE WATER NUANCE (Final Protection):** For this step and the final rinse, use distilled or demineralised water. Tap water in Spain and Portugal often contains high levels of limescale and chlorine, which cause black or brown spotting during the autoclave heat cycle.

STEP 5: Inspection and Quality Control

Now that the instrument is physically clean, we must verify that its mechanics remain surgical grade.

- **Tension Test:** Scissors should open and close with silk-like smoothness.
- **Precision Alignment:** Check that the teeth of forceps and needle holders match exactly. The tips must close first before the rest of the jaw follows.
- **Lubrication:** If you notice any stiffness, use only medical-grade lubricants (steam-permeable).

STEP 6: Critical Drying

Instruments must never reach the steriliser while damp.

- **Moisture = Oxidation:** Water trapped in a hinge turns into corrosive steam inside the autoclave, causing "pitting" in the metal.
- **Method:** Use lint-free cloths or compressed air to ensure that joints are completely dry.

STEP 7: Autoclave Sterilisation (The final destination)

This is where the instrument reaches a sterile state (total absence of microorganisms).

- **Sterilisation Parameters:** For Ecowell/Surgiwell steel instruments, the recommended standard European cycles are:

- **134°C for a minimum of 3.5 to 5 minutes** (Standard high-efficiency cycle).
 - **134°C for 18 minutes** (Recommended cycle for prion prevention protocols).
 - **121°C for a minimum of 15 to 20 minutes** (For more sensitive materials).
- **THE GOLDEN RULE:** Forceps and needle holders **MUST BE OPEN** (without engaging the ratchet). If sterilised while closed, the thermal expansion from the heat can crack the hinge due to tension.
 - **Bagging:** Use medical-grade pouches large enough so that the instrument is not under tension and steam can circulate over its entire surface.

STEP 8: Special Cases (Chemical Sterilisation)

Only for instruments that cannot withstand heat (heat-sensitive).

- **Limitations:** Requires extremely long immersion times (10 hours) which can stain the steel if the time is not strictly controlled.
- **Tungsten Carbide Warning:** If your instrument has gold handles (tungsten carbide inserts), avoid this method, as the chemicals can dissolve the bonding of the jaws.

SUMMARY FOR THE TEAM:

- **STERILE:** Total safety for the patient. Complete absence of microbial life.
- **DISINFECTED:** Safe for staff to handle and clean, but **NOT** suitable for surgery.

ALWAYS REMEMBER: Clean with neutral pH, rinse with distilled water, dry 100%, and always sterilise with the ratchet open.

By following this protocol, Ecowell/Surgiwell instruments will maintain their precision and shine as if they were new, protecting your investment and the safety of your patients.