



Care & Handling

STAINLESS STEEL INSTRUMENTS



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Required Cleaning Items:

- Distilled water with a neutral pH.
- Enzymatic Cleaning Solution with a neutral pH of is highly recommended.
- Detergent with a neutral pH.
- Lubricant (BR82-12050) or Instrument Milk.
- BR Brushes with nylon bristles (BR82-17005), or approved stainless steel bristles (BR82-17004).

New Instruments: Should be disassembled and thoroughly cleaned BEFORE sterilization to remove manufacturing residue or foreign debris.

Distilled Water: Immediately after use, submerge instrument(s) in distilled water. Keep submerged until the cleaning steps begin.

Enzymatic Soak: Disassemble instruments and submerge them in an approved enzymatic solution following the manufacturer's recommendation. All instruments must be in the unlocked, un-ratcheted, jaws-open position to expose as much of the instruments' surfaces as possible. This helps to keep blood, debris and protein matter from sticking to the instrument surfaces and crevices.

Rinse to Remove the Enzymatic Solution and Loose Bio-debris: Rinse the instruments with filtered, distilled, or de-ionized water before instrument cleaning/scrubbing begins.

Cleaning Instruments: Instruments should be scrubbed using approved brushes and a detergent with a neutral pH. Immerse instrument in the detergent solution and clean with a small nylon bristled brush concentrating on the box-lock, hinged areas, ratchets, serrated jaws and tip areas. Use caution while cleaning sharp tip instruments and instruments with teeth so not to damage those delicate areas. A soft cloth or lap sponge can be used to clean the shafts and shanks of the instrument. Stainless steel wire brushes approved for use on surgical instruments can be used for cleaning difficult areas such as serrations, bone rasp and instrument handles with grooved areas.

Rinse: Immediately after scrubbing, rinsing the instruments in distilled water is preferred. Open the instruments to expose all surfaces to ensure all the detergent residues are wiped off all possible surfaces. Pay particular attention to the box lock, hinged areas, and small crevice areas.

Inspection: Visually inspect each instrument to ensure cleanliness and performance. Inspection should include checking scissor blade closure, thumb forceps with 1x2 teeth and with serrations, and are properly aligned when closed. Hemostats and needle holders should open and close smoothly with uniform jaw closure.

Drying by Hand: Instruments must be thoroughly dried before being wrapped or placing them in a basket for sterilization. **IMPORTANT STEP:** Any cleaning moisture left on the instruments may contain detergents or minerals that will cause spotting, staining, discoloration, corrosion and will lower the performance and life expectancy of the device.

Lubrication: Lubrication should be applied before each sterilization. Instruments should be soaked or sprayed with water soluble instrument milk on the hinges and sliding parts of the instruments. This helps the instruments move freely during use. The instrument lubricant also helps build up a passivation layer on the instrument surface. This layer acts like a wax coating to help resist blood, debris and or other protein matter from sticking to the instruments. It also helps resist mineral deposits on the instrument surface. Silicon or Petroleum based lubricants are not recommended for surgical instruments. Instruments can now be made ready for the sterilizer.



Sterilization: Sterilize as recommended by the AAMI Standards and Recommended Practices, Volume 1, 1992, and the sterilizer manufacturer's written instructions for cycle parameters including pH balanced distilled water.

Sterilization of instruments may be accomplished by Autoclave or Ethylene Oxide. Time and temperature parameters required for sterilization vary according to type of sterilizer, cycle design, and packaging material.

- Do not sterilize instruments at temperatures over 141°C (285°F).
- All ring handled instruments must be autoclaved in the fully open position to prevent cracking of the box lock.
- Always verify parameters with sterilizer manufacturer's written instructions.

Parameters for Wrapped Instruments in Steam Sterilization

Sterilization	Temperature	Exposure	Drying
Gravity Displacement	121°C (250°F)	30 Minutes	45 Minutes
	182°C (270°F)	15 Minutes	46 Minutes
Pre-vacuum Sterilization	132°C (270°F)	4 Minutes	30 Minutes
	136°C (275°F)	3 Minutes	16 Minutes

Parameters for Wrapped Instruments in Ethylene Oxide (ETO) Sterilization

Concentration	Temperature	Exposure	Humidity
600 (100%)	55°C (131°F) to 2°C (3.6°F)	145 Minutes	55% to 5%

Storage:

- After Sterilization, instruments should remain in sterilization wrap and be stored in a clean, dry cabinet or storage case.
- Care must be taken to protect the jaws from damage.

Common Instrument Post Cleaning Complaints and Causes

Corrosion: Bio-debris, residues, high alkaline water, and chloride-based detergents used for cleaning or sterilization that is not pre-cleaned and thoroughly dried before sterilization or short drying cycles that leaves the instruments moist and left to dry outside the sterilizer.

Pitting: The most common causes of pitting are chloride based detergents, saline solutions and blood left on the instruments due to improper cleaning and scrubbing.

Rust: Sterilizing instruments of different metals in the same cycle will cause rusting. An electrolytic action will transfer carbon particles from exposed non-stainless to stainless metals. The rapid oxidation of those carbon particles results in a surface film of rust.

Stains: It is common for instruments to become stained or spotted even when following standard protocol. In most cases these problems are resulting from mineral deposits on the instrument surfaces. Following proper Care & Handling techniques can help prevent and minimize most staining situations.

Brown Stains: Most brown stains are from detergents that contain phosphates and dissolve copper elements in the sterilizer which result in copper being deposited on the instruments by an electrolytic reaction.

Blue Stains: These are usually the result of cold sterilization techniques. It is necessary to follow exact instructions and mixture levels according to the manufacturer.

Black Stains: These stains are typically the result of contact with ammonia. This may also be the result of amine deposits from the steam in the sterilizer. Amine solutions are often used to clean the sterilizers. Distilled water cycled through the sterilizer can help eliminate the amine problem.

Other Spotting: Other spotting situations can be the result of slow water vaporization or condensation on the instruments. Distilled water will also help eliminate these spots.