

## INSTRUMENTS INSTRUCTIONS FOR USE

### CONTENTS: Non-Sterile Instruments

**CAUTION:** Federal (U.S.A) law restricts this instrument to sale by or on the order of a physician.

**NOTE:** Carefully read all instructions and be familiar with the surgical technique(s) prior to the use of any of SpineCraft's systems. Review the instructions for use associated with any SpineCraft Spine implant or instrument to be used in conjunction with any of SpineCraft's systems. Use universal precautions when handling contaminated or biohazardous components.

### INSTRUMENTS MATERIALS:

Stainless Steel  
Aluminum  
Polymeric Materials

### DESCRIPTION:

All SpineCraft's systems comprise custom and generic instruments and perforated instrument cases that are generally comprised of aluminum, stainless steel, and/or polymeric materials. The instrument cases may be multi-layered with various trays, holders and silicone mats to hold surgical instrumentation in place during handling and storage.

The perforated instrument cases will allow sterilization of the contents to occur in a steam autoclave utilizing a cleaning, sterilization, and drying cycles that have been validated. Instrument cases do not provide a sterile barrier and must be used in conjunction with a sterilization wrap to maintain sterility.

### PROCESSING:

All instruments must be cleaned, disinfected and sterilized before each use; this applies especially to the first-time use after delivery because all instruments are shipped in non-sterile condition (clean and disinfect after removing the transport packaging and sterilize after packaging). Effective cleaning and disinfection is an indispensable prerequisite for effective sterilization. When using instruments, please make sure to keep dirty instruments separate and do not place them back into the instrument tray in order to prevent serious contamination of the equipped instrument tray. Clean/disinfect the dirty instruments, sort them and place them back in the instrument tray, then sterilize the entire equipped instrument tray.

Within the scope of your responsibility for instrument sterility, please ensure that only cleaning/disinfection and sterilization processes which have been appropriately validated in a device-specific and product-specific manner are used, that the employed devices (disinfecting machine, sterilizer) undergo regular maintenance and inspections and that the validated parameters are complied with during each cycle. In addition, please follow all applicable laws in your country as well as the hygiene regulations of the medical practice or hospital in question. This applies especially to the various requirements regarding effective prion inactivation.

### INSTRUMENTS CARE AND HANDLING:

- Failure to follow the instructions provided in this insert may result in instrument breakage and potential adverse effects on user or patient.
- Use only instruments specifically designed for use with their associated instruments.
- Surgical instruments and instrument cases are susceptible to damage from prolonged use, and through misuse or rough handling. The following instructions should be followed to minimize damage:
  - Inspect the instruments and instrument case for damage when purchased and after each use and cleaning. Incompletely cleaned instruments should be re-cleaned, and those that need repair set aside for repair service or return to SpineCraft.
  - Thoroughly clean and dry instruments, whether or not they were used or were inadvertently contacted with blood or saline, to reduce corrosion and potential cross-contamination.
- Health care personnel should conduct testing in the health care facility to assure that the conditions essential to sterilization can be achieved and that specific configuration of the contents is acceptable for the sterilization process and for the requirements at the point of use.

- AORN and ANSI/AAMI standards, practices and guidelines should be consulted for detailed guidelines for related to proper care, maintenance and handling of surgical instruments and container systems.

### WARNINGS AND PRECAUTIONS:

Following are specific warnings, precautions, and adverse effects. These warnings do not include all adverse effects, which can occur with surgery in general; common surgical risks should be explained to the patient prior to surgery.

- Instruments must be thoroughly cleaned prior to sterilization. Instruments that are not clean may not be effectively sterilized.
- Automated cleaning may not be effective. A thorough, manual cleaning process is recommended.
- When handling sharp instruments, use extreme caution to avoid injury.
- Unless otherwise indicated, instrument sets are provided non-sterile and must be sterilized prior to use.
- Do not reuse instruments labeled for single use only. Reuse may adversely affect performance of the instrument.
- Flash autoclaving is not permissible.
- Instruments should never be flash-autoclaved in an instrument case.
- Follow the instructions and warnings issued by the suppliers of any cleaning and equipment used.
- Do not use heated air or radiation sterilization.
- All instruments, instrument trays and sterilization containers must not be exposed to temperatures of 140°C (284°F) during reprocessing steps.
- Avoid exposure to saline and hypochlorite solutions, as these will promote corrosion.
- Remove excessive soil with a disposable wipe.

### CLEANING:

#### **Limitations and Restrictions**

- Neutral pH enzymatic and cleaning agents are recommended and preferred for cleaning SpineCraft instruments. Alkaline agents with pH≤12 may be used to clean stainless steel and some polymer instruments in countries where required by law or local ordinance; or where prion diseases such as Transmissible Spongiform Encephalopathy (TSE) and Creutzfeldt-Jakob disease (CJD) are a concern.
- Automated cleaning using a washer/disinfector alone may not be effective for Spinal and Biologics Devices. A thorough, manual or combination manual/automated washer cleaning/disinfection process is recommended. It is critical that alkaline cleaning agents be completely and thoroughly neutralized and rinsed from instruments.
- Instruments must be removed from metal or polymer trays for manual or automated cleaning procedures. Instrument trays, cases, and lids must be cleaned separately. Non-sterile, single-use plate and screw implants are an exception to this rule. Plates and screws may remain in the tray or caddy for reprocessing.
- Use of hard water should be avoided. Softened tap water may be used for initial rinsing. Purified water should be used for final rinsing to eliminate mineral deposits on instruments. One or more of the following processes may be used to purify water: ultra-filter (UF), reverse-osmosis (RO), deionized (DI), or equivalent.

#### **Manual Cleaning/Disinfection Procedure**

<b>Step 1</b>	Rinse/flush instrument and internal components with an enzyme solution while actuating instrument (if applicable).
<b>Step 2</b>	Scrub instrument with soft bristle brush until visibly clean.
<b>Step 3</b>	Soak in enzyme solution while sonicating for 30 minutes at 40– 50kHz.
<b>Step 4</b>	Shake instrument for 30 minutes on mechanical shaker at 250 oscillations per minute.
<b>Step 5</b>	Thoroughly and aggressively flush lumens, holes, and other difficult to reach areas with fresh enzyme solution while actuating instrument (if applicable).
<b>Step 6</b>	Rinse instrument in purified water for at least 3 minutes or until there is no sign of blood or soil on the instrument or in the rinse stream. Thoroughly and aggressively flush lumens, holes, and other difficult to reach areas.
<b>Step 7</b>	Place prepared cleaning agents in a sonication unit. Completely submerge

	instrument in cleaning solution and sonicate for 30 minutes at 40-50kHz.
<b>Step 8</b>	Thoroughly and aggressively flush lumens, holes, and other difficult to reach areas with prepared cleaning agent while actuating instrument (if applicable).
<b>Step 9</b>	Repeat the rinse steps (step 6).
<b>Step 10</b>	Remove excess moisture from the instrument with a clean, absorbent, and non-shedding wipe.

**Combination Manual/Automated Washer Cleaning/Disinfection Procedure**

<b>Step 1</b>	Use a soft nylon-bristled brush to gently scrub the instrument until all visible soil has been removed. Particular attention must be given to crevices, lumens, mated surfaces, connectors, and other hard-to clean areas. Lumens should be cleaned with a long, narrow, soft nylon bristled brush.
<b>Step 2</b>	Rinse/flush instrument and internal components with enzyme solution. Place prepared cleaning agents in a sonication unit. Completely submerge instrument in enzyme solution and sonicate for 15 minutes at 40-50kHz.
<b>Step 3</b>	Remove instruments from the enzyme solution and rinse in purified water for a minimum of 1 minute. Thoroughly and aggressively flush lumens, holes, and other difficult to reach areas.
<b>Step 4</b>	Place instruments in a suitable washer/disinfector basket. Set washer/disinfector to process parameters listed in steps 5–13.
<b>Step 5</b>	Pre-Wash (X2): cold softened tap water: 4 minutes
<b>Step 6</b>	Enzyme Spray: hot softened tap water: 20 seconds
<b>Step 7</b>	Enzyme Soak: 4 minutes
<b>Step 8</b>	Rinse (X2): cold softened tap water: 15 seconds
<b>Step 9</b>	Detergent Wash: hot softened tap water: (66-68°C/150-154°F): 4 minutes
<b>Step 10</b>	Rinse (X2): hot softened tap water: 4 minutes
<b>Step 11</b>	Thermal Rinse: hot softened tap water: (83-92°C/181-198°F): 5 minutes
<b>Step 12</b>	Purified Water Rinse: (83-92°C/181-198°F). 10 seconds
<b>Step 13</b>	Hot Air Dry: (75°C/ 167°F): 15-30 minutes

Material stability

When choosing the cleaning agent and disinfectant, make sure that they do not contain the following components:

- Anticorrosive/corrosion inhibitors (triethanolamines are particularly problematic)
- Strong organic, mineral and oxidizing acids
- Relatively strong bases (pH must not exceed 12 for instruments made of metal and 10.5 for aluminium/ferrozell ones; neutral or weakly alkaline cleaning agents are recommended)
- Solvents (such as alcohols and acetone) and gasoline
- Oxidizing agents
- Ammonia
- Chlorine and iodine

**NOTE: Certain solutions, such as those that are alkaline-based or contain bleach, glutaraldehyde, or formalin may damage some instruments, particularly soft metal instruments. These solutions should not be used on aluminum or anodized aluminum.**

PREPARATION FOR DECONTAMINATION:

If possible, the instruments must be reprocessed in a disassembled or opened state.

LIMITATIONS ON REPROCESSING

1. Repeated processing has minimal effects on instrument life and function.
2. End of useful life is generally determined by wear or damage due to surgical use. Carefully inspect instruments between uses to verify proper functioning. Send damaged instruments to a supplier of authorized repair or refurbishment services.

CLEANING INSPECTION

1. Carefully inspect each instrument before sterilization or storage to ensure the complete removal of soil from surfaces, lumens, holes, and moveable parts, such as push-buttons/release buttons or hinges.
2. If areas are difficult to inspect visually, check for blood by immersing or flushing the instrument in a 3% hydrogen peroxide solution. If bubbling is observed, blood is present. Rinse instruments for a minimum of 1 minute with warm, 85°F - 104°F (30°C - 40°C), tap water after using hydrogen peroxide solution.
3. Instruments that are still dirty must be cleaned and disinfected again.

STERILIZATION:

ISO 8828 or AORN recommended practices for in-hospital sterilization should be followed for all components. In a properly functioning calibrated steam sterilizer effective sterilization may be achieved using the following parameters:

METHO D	CYCLE	TEMPERATUR E	EXPOSUR E TIME	DRY TIME
Steam	Pulsed Pre-Vacuum	4 preconditioning pulses at 270° F (132° C)	4 Minutes	30 Minutes

**Wrap:** The wrap should be FDA cleared for the proposed cycle specifications.  
Or

**Reusable Rigid Sterilization Containers:**

Testing has demonstrated that t SpineCraft Instrument Systems, when processed in Aesculap JN443 and JK445 rigid containers (with corresponding JK490 lid and Aesculap single use filters US751 or US994), can be sterilized to a 10-6 sterility assurance level (SAL) in a pre-vacuum steam sterilization cycle when processed using the required sterilization cycle.

Ensure that the supplied reusable rigid sterilization container is in proper working order prior to sterilization.

Aesculap rigid containers JN443 and JK445 have been validated ONLY with Aesculap single use filters US751 or US994. For more information on the use of the Rigid Sterilization Containers please consult the Instructions for Use of the Manufacturer (<https://www.aesculapusa.com/products/instructions-for-use>).

THE STERILIZATION PARAMETERS PROVIDED IN THIS INSTRUCTIONS FOR USE SUPERCEDE THOSE LISTED IN THE AESCULAP INSTRUCTIONS FOR USE. ALL OTHER USAGE, CARE AND MAINTENANCE INSTRUCTIONS SPECIFIED IN AESCULAP DOCUMENTATION REMAIN APPLICABLE.

Monitor every load with a PCD containing a BI and a Class 5 integrating indicator.

**NOTE:** Because of the many variables involved in sterilization, each medical facility should calibrate and verify the sterilization process (e.g. temperatures, times) used for their equipment.

Instruments should be positioned to allow the sterilant to come into contact with all surfaces. All jointed instruments should be in the open or unlocked position with ratchets not engaged. Instruments composed of more than one part or with sliding pieces or removable parts should be disassembled.

Remove all packaging material prior to sterilization. Only sterile implants and instruments should be used in surgery. Always immediately re-sterilize all implant and instrument kits used in surgery as well as any unused kits that were in the surgical suite.

Individual users must validate the cleaning and autoclaving procedures used on-site, including the on-site validation of the recommended minimum cycle parameters provided in this insert.

INSPECTION / FUNCTIONAL TESTING:

1. Inspect all the instruments after cleaning or cleaning/disinfecting for corrosion, damaged surfaces, chips and impurities and separate out all damaged instruments.
2. Visually inspect instruments and instrument cases for damage and / or wear.
3. Check instruments with long slender features (particularly rotating instruments) for distortion.
4. For cutting features, check edges for distortion/large nicks. Edges should be continuous.
5. Articular surfaces for Trials should be smooth and free of cracks and deep nicks.
6. Check action of moving parts to ensure proper operation.
7. For Hinged Instruments, check for smooth movement of hinge without excessive "play."
8. Check locking mechanisms for action.
9. Ensure disassembled instruments readily assemble with mating components and ensure that mating parts fit together without complications.
10. Check instruments with driving or cutting tip to make sure that they are still in good condition. Inspect ends for distortion, cracks and large nicks
11. Screwdrivers tips should be carefully inspected before and after every surgery. SpineCraft recommends that screwdrivers should be replaced at the following maximum intervals:
  - T15, T20 & T22 Drivers should be replaced every 6 months
  - Polyaxial Screwdrivers should be replaced every 6 months
  - Torque-limiting Handles should be carefully inspected before and after every surgery and should be sent back to SpineCraft for torques setting verification & recalibration at the following frequencies:
    - Every 6 months or,
    - After 200 autoclave cycles or,
    - After approximately 3000 actuations (clicks), whichever comes first.

NOTES:

- **If damage or wear is noted that may compromise the proper function of the instrument or instrument case, do not use and contact SpineCraft's customer service or your distributor immediately for a replacement.**
- **If corrosion is noted, do not use and contact SpineCraft's customer service or your distributor for a replacement.**
- **SpineCraft cannot be responsible for performance of instruments if the above recommended timeframes are not adhered to.**

MAINTENANCE:

Reassemble all disassembled instruments. Subject all instruments to a functional test.

Apply surgical-grade lubricant to instruments with hinged/mating surfaces while in the open position.

Apply surgical-grade lubricant to all moveable parts such as push-buttons, sliding sleeves, closures on tongs, latches, threaded spindles, etc.

Surgical-grade lubricant should not be used other than for the above purpose whenever possible. Only surgical-grade lubricant (white oil) should be used which – taking into consideration the maximum applied sterilization temperature – are approved for steam sterilization and feature proven biocompatibility.

**NOTE: As a rule, no surgical-grade lubricant may be applied to silicone parts.**

PACKAGING:

It's recommended to use instrument trays to contain instruments that are provided in sets. Double wrap instruments in accordance with local procedures, using standard wrapping techniques such as those described in the current revision of ANSI/AAMI ST79.

CONTAINMENT AND TRANSPORTATION:

1. Reprocess instruments as soon as is reasonably possible after use.
2. Follow hospital protocols when handling contaminated and bio-hazardous materials.
3. Instruments should be cleaned within 30 minutes after use to minimize the potential of staining, damage, and drying.
4. If cleaning must be delayed, immerse instruments in a compatible detergent solution, spray with an instrument pre-soak solution, or cover instruments with a towel moistened with purified water to prevent drying and encrustation of surgical soil.
5. Place the device in its respective position within the instrument tray.
6. The image of the device is marked in its intended position within the tray.

STORAGE:

Store sterile packaged devices in a manner that provides protection from dust, moisture, insects, vermin, and extremes of temperature and humidity.

LIMITED WARRANTY:

SpineCraft's non-sterile, instruments are sold with a limited warranty to the original purchaser against defects in workmanship and materials. Any other express or implied warranties, including warranties of merchantability or fitness, are hereby disclaimed.

If more than 2 years have elapsed between the date of issue/revision of this document, and the date of patient consultation, contact SpineCraft for current information.

For product information or questions pertaining to service or any non-conformities, please contact your local distributor or SpineCraft customer service by calling 1 877-731-SPINE (877-731-7746) or 630-920-7300.



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