

Instruction of use

External Fixator



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Service and Maintenance

Maintenance and cleaning are very important for long service life and correct function of instruments.

Possible causes for corrosion on stainless steel instruments:

Corrosion results from damages or wear due to chemical reactions caused by:

1. Damaged surfaces.
2. Reactions with surgical segregations: blood, pus or other secretions in long term contact with the instruments
3. Excessive exposal to certain chemical solutions such as salt, iodine, chloride solutions, strong acid or alkaline solutions as well as improper use of disinfection liquids.
4. Bad quality of water used for cleaning, steam sterilization or rinsing of instruments, e.g. rusty water conduits, penetration of rust particles into steam autoclaves etc.
5. Insufficient maintenance of instruments; rust may be transmitted to other instruments (do avoid any contact, very dangerous for sterilization). Frequent use leads to natural wear which reduces the service life of the instruments. Frequently used instruments have to be replaced regularly.

Measures for prevention of corrosion

1. Accurate preparation of correctly packed and sterilized instruments before starting the operation. The choice of the instruments depends on the nature of the operation. Check intact packing and sterilization date of all sterilized instruments.
2. Make sure that the sterilization indicator inside the basket confirms that the contents has been sterilized.
3. Arrange the instruments in subsequent order. Instruments that are not used should remain in the basket. Do not prepare the instruments too early before you start the operation.
4. During the operation remove blood and other segregations from the instruments and put them back to the allocated place after use.
5. Cannulated instruments have to be rinsed to avoid adhesion of drying blood or bone material to the instrument.
6. Cleaning: Use Ringer-Laktat or salt solution but do not dip the instruments into the liquid.
7. Start cleaning immediately after the operation: all instruments used during the operation are considered as being-contaminated. Instruments used for patients with possible infections must be handled in the same way, i.e. remove blood, bone or tissue particles.
8. A special space for cleaning of instruments has to be designated within the operation tract. If the instruments leave directly to the central sterilization area please cover them with cloths to avoid contamination of staff and environment. Wear protection clothes during removal of contaminated instruments.

Cleaning and disassembly of instruments

Instruments with removable parts should be disassembled by a skilled person. Make sure that screws, nuts, bolts and other small parts do not get lost. Remove blood or bone material from the different parts so that they cannot adhere to the instrument during sterilization and cause irreparable damages.

Desinfection

Use of desinfection liquids is severely submitted to the instructions given by the corresponding manufacturer; in any case they always have to be diluted. In case of thermal desinfection with hot water make sure that the water is absolutely clean. Please note: Instruments made of anodized aluminium should not get in contact with certain desinfection agents or cleaning liquids. Check the liquid carefully before exposing the metal to chemical reaction.

Cleaning

It is important to choose the correct cleaning liquid according to the cleaning process (mechanical or manual). Please heed application and diulution instructions. Recommended ph-value: between 7.0 and 8.5.

1. Mechancial cleaning

This is the most frequent method. Please observe the instructions for use supplied by the manufacturer of the cleaning machine. Instruments must be prepared carefully. Multiple instruments have to be disassembled, instruments with ratches, serrations or hinges have to be cleaned in open condition. It is recommended to clean pointed and delicated instruments manually. Do not overload wire baskets, dispose heavy instruments on the bottom of the basket. Very dirty

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instruments (cannulated instruments) should be bathed and rinsed before entering the cleaning machine.

2. Ultrasonic cleaning (belongs to mechanical cleaning methods).

Remove all segregations before plunging the instrument into the ultrasonic bath. This cleaning method is recommended for taps or other instruments with deep grooves. Proceed to standard rinsing process after ultrasonic cleaning.

3. Manual cleaning

Requires nylon brushes, blast tubes and nozzles, clean pneumatic systems, cleaning liquids and solvents. Please observe the instructions of use given by the manufacturers of the cleaning liquids. Do not use steel wool, file brushes or similar. Take special care to instruments made of anodized aluminium. Make sure to remove all residues after brush cleaning.

4. Drying

Each instrument has to be dried completely inside and outside to avoid rust and malfunction. Compressed air can be used for drying of hollow parts or hinges. Please note: if the instruments are destined to immediate use and sterilization without packing drying is not necessary.

5. Lubrication

Instruments with moving parts have to be lubricated after use and cleaning. Use biological oils without acids; it is recommended to use bone oil. If special instrument oil solutions are used the instruments can be immersed in the solution for a certain time. Some special machines for instrument cleaning are provided with an automatic lubrication cycle; in this case rinsing is not necessary. The instruments can be packed immediately after drying and removal of excessive oil.

STERILIZATION INSTRUCTIONS FOR INSTRUMENTATION

Clean and dry all instruments immediately after use. Do not use acid or alkaline cleaning/desinfection agents (e.g. soda, soda lye or other acids)! The most careful method is mechanical cleaning as already indicated above.

INSTRUMENTATION SHOULD BE STERILIZED WITH STEAM ONLY

Before starting the sterilization process check function and safety of the instruments.

Autoclave:

Steam autoclave, temperature = 121° to 123° C, pressure = 1-1,2 bar (15-17 psi), at least 30 minutes in packed condition. At temperatures of 131° up to 133° Celsius, 1-1,2 bar (15-17 psi) the pressure is reduced to approx. 20 minutes.

Autoclave:

Autoclave with backing pressure: during the backing pressure cycle the air is evacuated from the chamber before steam is let in. Standard sterilization time for packed instruments: 132° to 135° C at 2-3 bar (27-30 psi) minimum 4 to 10 minutes.

IMPORTANT REMARKS:

Check the function of all parts of the instruments before use or sterilization.

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