

# PROCESSING INSTRUCTIONS

## ARTip solo

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## 1 Introduction



Except for the UNIVERSAL JOINT, the JOYSTICK, the TENSION SLEEVE, the MOUNT-1A and the ENDOSCOPE CLAMP - the ARTip solo as well as the POWER SUPPLY are **not** suited for the mechanical/ automated cleaning or disinfection process!

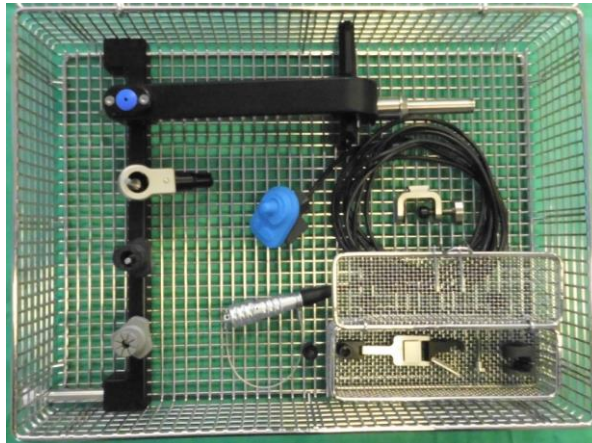


fig. 1: Fully equipped STERILISATION TRAY

The term "**STERILISABLE ARM COMPONENTS**" used in the following refers to the **UNIVERSAL JOINT**, the **JOYSTICK**, the **MOUNT-1A**, the **ENDOSCOPE CLAMP** and the **TENSION SLEEVES**.



Never put the STERILISABLE ARM COMPONENTS into a disinfection bath together with contaminated surgical instruments.





After use, do not store the STERILISABLE ARM COMPONENTS together with contaminated surgical instruments in a container.

### General basics:

The STERILISABLE ARM COMPONENTS must be cleaned, disinfected and sterilised prior to each use; this also applies in particular for the first time use after the delivery as all STERILISABLE ARM COMPONENTS are not delivered in a sterilised condition (clean and disinfect the components after the removal of the protective transport packaging; sterilise the components according to the corresponding packaging). An effective cleaning and disinfection is absolutely necessary for an effective sterilisation.

Within the scope of your responsibility, please ensure the sterility during use:

- by generally using only sufficiently device-specific and product-specific validated processes for the cleaning/disinfection and sterilisation,
- by inspecting and maintaining the devices (disinfector, steriliser) on a regular basis
- by adhering with the validated parameters with every cycle.



	Please additionally observe the legal regulations valid in your country as well as the hygiene regulations in your department. This applies especially to the various requirements in regard to an effective prion deactivation. Please note that thermal prion inactivation considerably reduces the life span of the JOYSTICK.
	If there is any suspicion that instruments have been contaminated with prions, we recommend disposing of these instruments and no longer using them!

## 2 Cleaning, disinfection and sterilisation

### *Basics:*

You should preferably use a mechanised process (disinfector) for the cleaning and disinfection. A mere manual cleaning / disinfection process should be applied only if a mechanised process is not available and then only by following very carefully the manual cleaning / disinfection step as the effectiveness and reproducibility is significantly lower. The JOYSTICK may not be processed by manual cleaning / disinfection method. The effectiveness of manual cleaning / process is not sufficient enough for the JOYSTICK.

The pre-treatment is to be carried out in both cases.

	The use of a manual cleaning and disinfection process must be secured by an additional product- and process-specific validation in the responsibility of the user.
	Only UNIVERSAL JOINT, MOUNT-1A, TENSION SLEEVE and ENDOSCOPE CLAMP can be proceeded mere manual! The JOYSTICK cannot be proceeded manually!

### 2.1 Pre-treatment

Rough contaminations on the STERILISABLE ARM COMPONENTS must be removed directly after use (within a maximum of 2 h).

Use running water or an disinfection solution; the disinfection solution should be free of aldehyde (otherwise fixation of blood contaminations), should have a proven effectiveness (e.g. VAH/DGHM FDA approvals or CE label), be suitable for the disinfection of the STERILISABLE ARM COMPONENTS and be compatible with them (see "Material resistance").

For the manual removal of contaminations, use only a soft brush or a clean soft cloth that you use for only this purpose. Never use metal brushes or steel wool.








Step	Description
	<p>Make sure that the O-ring (red) inside the protective cap is present and intact.</p> <p>The O-ring inside the protective cap prevents the cleaning/disinfection solution from entering.</p>
	Attach the protective cap to the JOYSTICK connector.
	Remove the MOUNT-1A from the JOYSTICK (if not already done).
	Rinse the MOUNT-1A with running water or disinfectant solution at the threaded lead-through of the screw, whereby the screw must be screwed back and forth. This is necessary to effectively remove dirt from the threads.
	Detach the ENDOSCOPE CLAMP from the UNIVERSAL JOINT by pressing the unlocking button (if it has not already been done).
	Unscrew the TENSION SLEEVE from the ENDOSCOPE CLAMP (if it has not already been done).

Table 1: Pre-treatment

	<p>The protective cap on the connector of the JOYSTICKS protects the electrical contacts against the cleaning and disinfection solution.</p> <p>The entire cleaning and disinfection may be carried out only if the protective cap has been attached! Non-compliance may lead to a malfunctioning of the ARTip solo!</p>
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Please note that the disinfection solution applied during the pre-treatment is only for the personal protection and that it is no substitute for the subsequent disinfection to be carried out – after the cleaning!

## 2.2 Mechanical cleaning and disinfection

(Disinfectant)

When selecting the disinfectants, make sure

- that the disinfectant's effectiveness has been tested (e.g. DGHM or FDA approval and/or CE label in accordance with DIN EN ISO 15883),
- that, if possible, a tested program for the thermal disinfection (AO value > 3000 or – in case of older devices – at least 5 min at 90 °C) is used (in case of a chemical disinfection there is a risk of residues from the disinfection solutions on the UNIVERSAL JOINT),
- that the program used is suitable for the STERILISABLE ARM COMPONENTS and that it has a sufficient number of rinse cycles,
- only low-germ (max. 10 germs/ml) water low in endotoxins (max. 0.25 endotoxin units/ml) (e.g. purified /highly purified water) is used for the flushing,
- that the air used for the drying is filtered and
- that the disinfectant is maintained and inspected on a regular basis.

When selecting the cleaning agent system, make sure

- that it is generally suited for the cleaning of metal and plastic instruments,
- that - unless a thermal disinfection is applied - a suitable disinfection solution with a proven effectiveness (e.g. VAH/DGHM and/or FDA approval and/or CE label) is used in addition and that it is compatible with the cleaning agent used and
- that the chemicals used are compatible with the STERILISABLE ARM COMPONENTS (see "Material resistance").




The concentrations provided by the manufacturer of the cleaning / disinfection solutions must be adhered to.

Procedure:



Step	Description
	Move the screw on the MOUNT-1A to the centre position, if it has not been done yet.
	Check whether the protective cap is attached to the JOYSTICK connector.
	Place the JOYSTICK and the MOUNT-1A into the STERILISATION TRAY. Attach the UNIVERSAL JOINT, the ENDOSCOPE CLAMP and the TENSION SLEEVE to the rinse pipe of the STERILISATION TRAY as shown.
	Insert the prepared STERILISATION TRAY into the disinfectant and connect the STERILISATION TRAY via the Luer-lock connection to the rinse supply of the disinfectant. Start the program.

Table 2: Mechanical cleaning and disinfection

	<p>Please ensure the correct position of the parts in the STERILISATION TRAY (as shown):</p> <p>Do not place the JOYSTICK in the rinse shadow of the cable.</p>
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Remove the individual parts from the disinfectant after the end of the program.



Step	Description
	Grasp the ribbed sliding sleeve and the ribbed protective cap as shown in the picture. By pulling between these two parts, the sliding sleeve unlocks the protective cap.
	Remove the protective cap from the JOYSTICK connector.

*Table 3: Preparation for sterilisation with the protective cap removed*

Inspect and package the STERILISABLE ARM COMPONENTS as soon as possible after the removal (see "Inspection" "Maintenance" and "Sterilisation", if necessary, at a clean location after an additional drying with filtered air).

The proof for the general suitability for an effective mechanical cleaning and disinfection has been provided by an independent accredited test lab using the disinfectant G 7836 CD (thermal disinfection, Miele & Cie. GmbH & Co., Gütersloh) and the alkaline cleaning agent Neodisher MediClean Forte (Dr. Weigert GmbH & Co. KG, Hamburg). The procedure described above has been used for this.

#### *Check:*

Check all individual parts after the cleaning or the cleaning/disinfection for corrosion, damaged surfaces, chippings and contaminations and separate the damaged individual parts (limited number of reuse, see "Reusability"). Individual parts still contaminated must be cleaned and disinfected again.




#### *Maintenance:*

Maintenance of the STERILISABLE ARM COMPONENTS is generally not required. An assembly of the individual STERILISABLE ARM COMPONENTS is not required.

Do **not** use instrument oil under any circumstances.

## 2.3 Steam pressure sterilisation (fractional vacuum process)

For the sterilisation, only a **steam pressure sterilisation using the fractional vacuum process** is permitted. All other sterilisation processes are not permitted.

	The gravity method is generally not permitted.
	The flash sterilisation method is generally not permitted.
	Also, do not use hot air sterilisation, radiation sterilisation, sterilisation using the low temperature plasma method (Sterrad; H2O2) as well as no formaldehyde or ethylenoxide sterilisation.

Packaging:




Step	Description
	Properly place the cleaned and disinfected STERILISABLE ARM COMPONENTS into the corresponding STERILISATION TRAY.
	Also check whether the protective cap on the JOYSTICK connector has been removed.

Table 4: Packaging

	The steam pressure sterilisation of the JOYSTICK is <u>not</u> permitted when the protective cap is still attached!
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Please package the STERILISABLE ARM COMPONENTS and/or the fully loaded STERILISATION TRAY into suitable sterile barrier systems (sterilisation containers) that meet the following requirements:

- DIN EN ISO/ANSI AAMI ISO 11607
- suitable for steam pressure sterilisation (temperature resistance up to at least 138 °C (280°F), sufficient steam permeability)
- sufficient protection of the instruments or sterilisation packages against mechanical damage
- regular maintenance according to the specifications of the manufacturers (sterilisation container)

#### Steam sterilisation:

- fractional vacuum process
- Steam steriliser according to DIN EN 13060 or DIN EN 285
- validated according to DIN EN ISO17665 and ANSI AAMI ST79 (valid IQ/OQ (commissioning) and product-specific performance assessment (PQ))
- maximum sterilisation temperature 134 °C (273 °F; plus tolerance according to DIN EN ISO 17665 (previously: DIN EN 554/ANSI AAMI ISO 11134))
- Sterilisations time (exposure time at the sterilisation temperature) at least 5 min (or 18 min in case of a prion deactivation) at 132 °C (270 °F) / 134 °C (273 °F)

The proof for the general suitability of the STERILISABLE ARM COMPONENTS for an effective steam pressure sterilisation has been provided by an independent accredited test lab using the steam steriliser Zirbus 6x6x6 (Zirbus technology GmbH, Bad Grund) and the fractional vacuum process. The typical conditions in the clinic as well as the procedure described above have been used for this.

#### Storage:



Once sterilised, the STERILISABLE ARM COMPONENTS must be stored dry and dust-free in the sterile barrier system.

#### Material resistance:

Please note that the STERILISABLE ARM COMPONENTS are made of the plastic **PPSU** (polyphenylsulfone) and **stainless steel** (1.4301(=AISI 304) and 1.4305(=AISI 303)). Do not use any chemicals that could attack these materials during the entire reprocessing process!

When selecting the cleaning and disinfection solutions, please make sure that it does not include the following ingredients:

- Organic, mineral and oxidizing acids with a pH value < 5
- Bases with a pH value > 11
- Oxidation agents (e.g. hydrogen peroxides)
- Organic solvents (e.g. alcohol, ether, ketones, benzene)
- Halogens (chlorine, iodine, bromine)
- Aromatic/halogenated hydrocarbons

	If the STERILISABLE ARM COMPONENTS have been treated with unsuitable detergents, disinfectants or rinse aids, or if you suspect that they contain incompatible chemicals, stop using the STERILISABLE ARM COMPONENTS and dispose of them!
	We recommend the use of gentle neutral-enzymatic cleaning solutions or alkaline cleaning solutions (pH < 11) for the mechanical cleaning.

Never use metal brushes or steel wool to clean the STERILISABLE ARM COMPONENTS and the STERILISATION TRAY.

All STERILISABLE ARM COMPONENTS as well as the STERILISATION TRAY may not be exposed to temperatures higher than 138 °C (280 °F)!

*Reusability:*

UNIVERSAL JOINT, ENDOSCOPE CLAMP and MOUNT-1A



These components can be – with the corresponding care and if they are not damaged and not contaminated – reused for at least 500 times; the user is responsible for any use beyond that number or the use of damaged and/or contaminated parts.

TENSION SLEEVE

This component can be – with the corresponding care and if they are not damaged and not contaminated – reused for at least 100 times; the user is responsible for any use beyond that number or the use of damaged and/or contaminated parts.

JOYSTICK

This component can be – with the corresponding care and if it is not damaged and contaminated – reused for up to 150 times. The JOYSTICK is fitted with a counter. This component is turned off after 150 uses and can then no longer be used.

	<p>The number of reprocessing cycles can be achieved by using the standardised sterilisation time of 5 minutes.</p> <p>In contrast, the application of a sterilisation time of 18 minutes (attempt at thermal prion inactivation) leads to accelerated ageing and premature destruction of the components.</p>
	<p>If there is any suspicion that instruments have been contaminated with prions, we recommend disposing of these instruments and no longer using them!</p>





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