Reprocessing of Endoscopic Components & Accessories

Hygiene & Reprocessing Training Material
This training material is a summary of the steps necessary to properly reprocess endoscopic components & accessories. Always follow the detailed steps instructed in the latest ENDOSCOPE INSTRUCTION FOR USE (REPROCESSING MANUAL).

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Click on the "I agree"-button to start
During reprocessing, the inner and outer surfaces need to get in contact with cleaning & disinfection solutions and rinse water.

- Some components / accessories used for manual cleaning / disinfection must be reprocessed separately from the endoscope with exactly the same steps as the endoscope itself.

- Some other accessories are manually cleaned / disinfected with the endoscope during the manual cleaning and disinfection of the endoscope.

Examples*:

- Biopsy valve (MB-358)
- Air/water valve (MH-438)
- Suction valve (MH-443)
- AW channel cleaning adapter (MH-948)
- Mouthpiece (MB-142)

*Source: Olympus
Reprocessing of Endoscopic Components & Accessories

- Some components / accessories used for manual cleaning / disinfection must be reprocessed separately from the endoscope with exactly the same steps as the endoscope itself.

- Some other accessories are manually cleaned / disinfected *with* the endoscope during the manual cleaning and disinfection of the endoscope.

Examples*:

- Suction cleaning adapter (MH-856)
- ETO cap (MB-156)
- Channel plug (MH-944)
- Injection tube (MH-946)
- Auxiliary water tube (MAJ-855)

*Source: Olympus

During reprocessing, the inner and outer surfaces need to get in contact with cleaning & disinfection solutions and rinse water.
Cleaning of Endoscopic Components & Accessories

Purpose
Remove any organic residues and other substances from the medical device
- Wash off
- Any following reprocessing step like disinfection and sterilization might be ineffective if there are any residues left on the device

Methods
- Automated
  - In a washer-disinfector (WD) / endoscope washer-disinfector (EWD/AER) according to EN ISO 15883
- Manually
  - At room temperature with cleaning chemicals, e.g. enzymes, mild alcaline (pH < 10.8)
  - Always follow the cleaning chemical manufacturers' instructions in terms of concentration, exposure time, temperature
  - Eventually including ultrasound bath (IFU)

Whenever possible according to IFU: Automated reprocessing is the preferred method!
Reprocessing of Endoscopic Components & Accessories (manually)

All components as well as accessories used for cleaning must be reprocessed with exactly the same steps as the endoscope itself:

- Clean the external surfaces
- Valves have to be brushed as described in the IFU

Valves pose a high risk of cross-contamination if not reprocessed correctly

Examples*:

*Source: Olympus
Flush the components / accessories with detergent solution

Examples*:

1. Spring
2. Rotate

1. Syringe
2. Hole

*Source: Olympus
Flush the components / accessories with detergent solution

Examples*:

1. MH-443
2. MH-438
3. MH-948
4. MB-358
5. MH-856
6. MH-946
7. MH-944

*Source: Olympus
Flush the components / accessories with detergent solution

Examples*:

MH-443
MH-438
MH-948
MH-358
MH-856
MH-946
MH-944

*Source: Olympus
Reprocessing of Endoscopic Components & Accessories (manually)

**Flush** the components / accessories with detergent solution

Examples*:

*Source: Olympus

MH-443

MH-438

MH-948

MB-358

MH-856

MH-946

MH-944
Flush the components / accessories with detergent solution

Examples*:
- MH-443
- MH-438
- MH-948
- MB-358
- MH-856
- MH-946
- MH-944

*Source: Olympus
Reprocessing Basics of flexible endoscopes, adapters & accessories

Flush the components / accessories with detergent solution.

Examples*:

MH-443
MH-438
MH-948
MB-358
MH-856
MH-946
MH-944

*Source: Olympus
Reprocessing of Endoscopic Components & Accessories (manually)

**Rinse** the components / accessories to remove all detergent

- Immerse the accessories in water
- Depress and release the valves
- Flush cleaning adapters

**Dry external surfaces**

**Examples**:  
- MH-443
- MH-438
- MH-948
- MB-358
- MH-856
- MH-946
- MH-944

*Source: Olympus*
Disinfection

**Purpose**
Killing / inactivation of microorganisms except for large numbers of bacterial spores
- Medical product does not pose a risk of infection

**Methods**
**Automated** in a WD and/or EWD/AER according to EN ISO 15883
- Chemo-thermal at max. temperature 60 °C
- Thermal without chemicals at approx. 90 °C ($A_0$ concept)

**Manually** at room temperature with minimum disinfectant activity:
- Bactericidal (incl. mycobactericidal)
- Fungicidal
- Virucidal (sporicidal)

Glutaraldehyde (GDA)
Peracetic acid (PAA)

Always follow the chemical manufacturers’ instructions in terms of concentration, exposure time & temperature
Reprocessing of Heat Stable Endoscopic Components & Accessories in a WD

Thermal disinfection

- Preferred method for heat stable medical devices!

$A_0$ concept for thermal disinfection with moist heat in a WD

- $A_0$ is defined as time equivalent in seconds at 80 °C for microorganisms having a $Z$-value of 10

- According to EN ISO 15883-1 the minimum $A_0$ value of a WD should be 600 to a maximum of not less than 3000

<table>
<thead>
<tr>
<th>$A_0$ value</th>
<th>Temperature</th>
<th>Holding time</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>90 °C</td>
<td>1 min</td>
</tr>
<tr>
<td>600</td>
<td>80 °C</td>
<td>10 min</td>
</tr>
<tr>
<td>3000</td>
<td>90 °C</td>
<td>5 min</td>
</tr>
</tbody>
</table>
Reprocessing of Endoscopic Components & Accessories (manually)

Disinfection by
- Flushing all accessories with disinfectant solution
- Immersing all accessories
- Detaching all adapters

Take care on the exposure time

Rinsing two times with water of adequate water quality and air purge to expel residue water

Optional (depending on local regulations):
- PLUS alcohol flush
Drying

Remove the accessories from the rinse basin and place them into a sterile basin

- **Purge** the channels with air of a quality defined in local regulation

Never touch the reprocessed accessories with the air gun

**Wipe** all accessories from outside with a lint-free, sterile cloth

Optional (depending on local regulations):

- Potable water + 70 % isopropyl or ethyl alcohol

If accessories have to be sterilized:

- Prepare them for sterilization (wrapping, packaging)
# Sterilization

Validated process used to render product free from viable microorganisms (Source: EN ISO 11139)
Required for **critical** medical devices (Spaulding classification)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Method</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td><strong>Thermal</strong></td>
<td>By steam sterilization 134 °C – 137 °C, 3 bar, 3 - 18 min.</td>
<td>The most common method <strong>for heat stable</strong>, critical, surgical <strong>instruments whenever possible</strong></td>
</tr>
</tbody>
</table>
| **Chemical**       | Ethylenoxide, Formaldehyde Low temperature < 60°C | **EO used to be very common for heat sensitive**, **critical instruments**  
|                    |                                             | • But: EO is toxic and has to degas for a long time                  |
| **Hydrogen peroxide** | Low temperature < 60 °C                  | More and more common **for heat sensitive critical instruments**     |

At all times, please follow the IFUs.