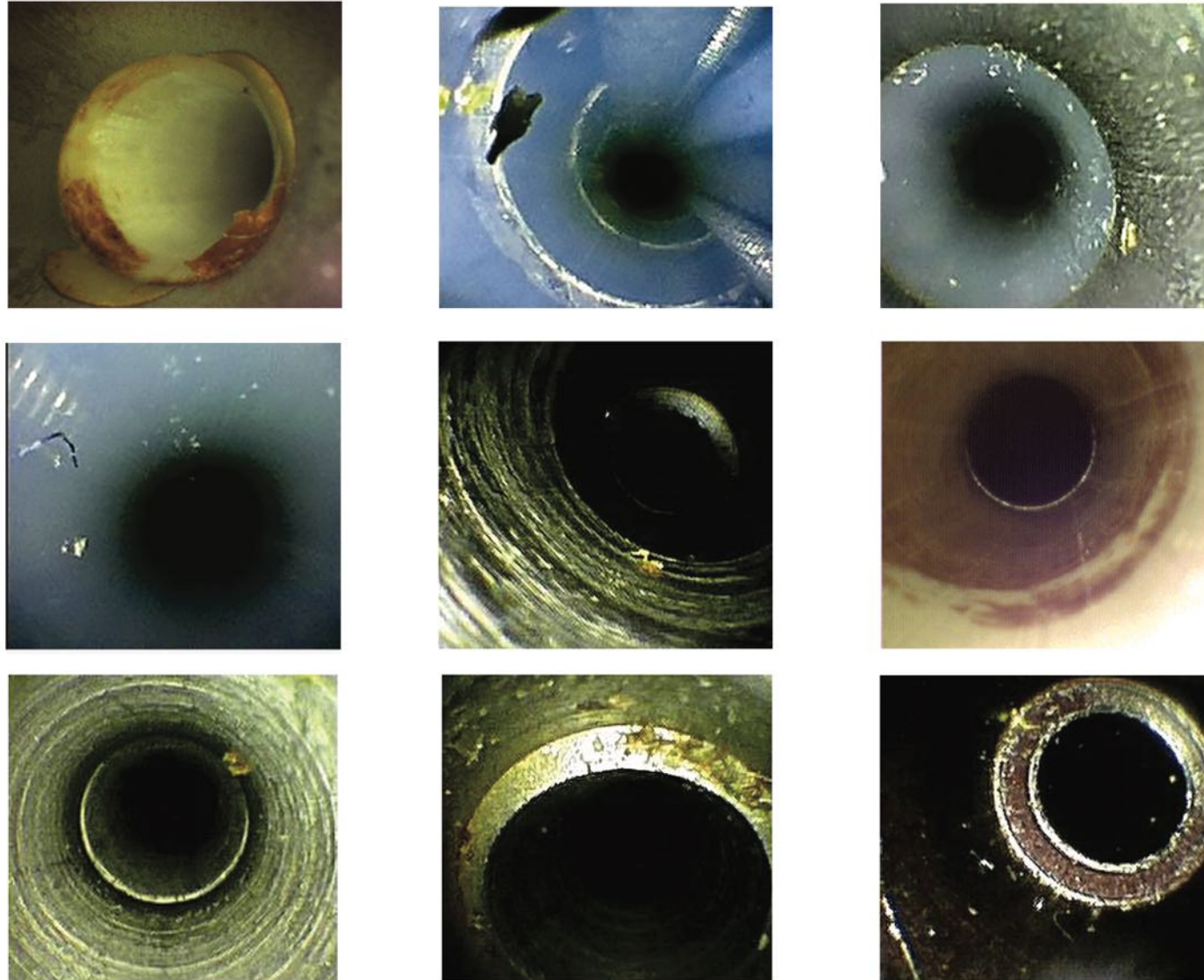
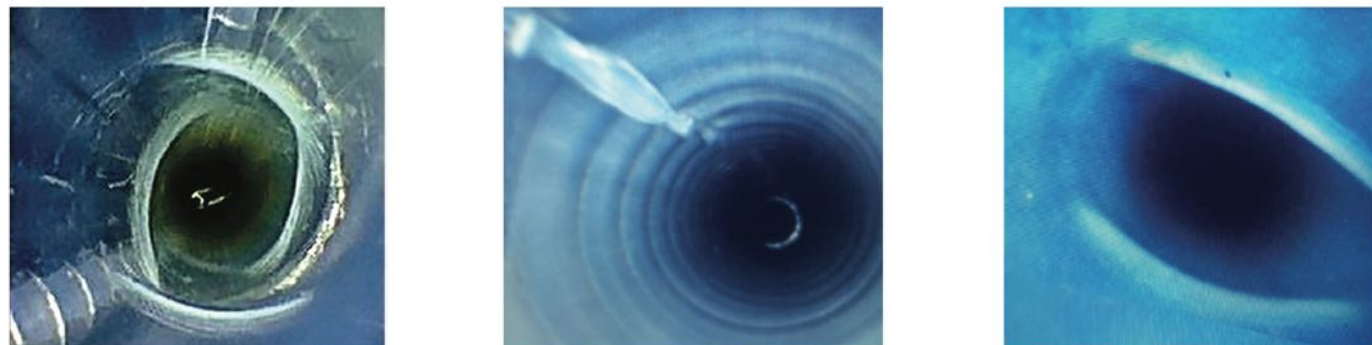


The AORN, SGNA & CDC all state visual inspection is a separate step after manual cleaning and before HLD or sterilization..

The following images are examples of debris remaining in channels and lumens after manual cleaning and prior to high level disinfection



Interior damage in endoscopes found with a borescope



The images were taken with INSPEKTOR CT

## The Value of Channel and Lumen Inspection

### National Guidelines & Processes on Visual Inspection For Flexible Endoscopes and Surgical Instruments





National Organizations Recommended  
Processes And Guidelines On Visual Inspection

IAHCSMM  
Endoscope Reprocessing Manual, 2017

“The most important areas for inspection are the lumens that run through the endoscope. Lumens pose a cleaning challenge because of their narrow structure that prevents visualization during the cleaning; therefore, it is important to always check lumens for cleanliness after cleaning. Visual inspection of lumens can be accomplished using a borescope, a small flexible fiberoptic device that enables visualization of otherwise inaccessible areas within endoscope lumens.”

FDA/CDC/American Society for Microbiology  
Duodenoscope Surveillance Sampling and Culturing Protocols, February 2018  
A5.3.1.4 Sampler: Before sampling the duodenoscope, perform a visual inspection of its distal end for any debris or other concerns using 10x magnification.

2017 Edition AORN  
Guidelines for Perioperative Practices - Flexible Endoscopes ,Recommendations VII  
“Flexible endoscopes accessories and associated equipment should be visually inspected for cleanliness, integrity, and function before use, during the procedure, after the procedure, after cleaning and before disinfection or sterilization. VII.c. Lighted magnification should be used to inspect endoscopes and accessories for cleanliness and damage. 12.13. 65 [2: High Evidence]  
An endoscope that appears clean may harbor debris that cannot be seen without magnification. Lighted magnification may increase the ability to identify residual soil or damage. VII.c.1. Internal Channels of flexible endoscopes may be inspected using an endoscopic camera or borescope. [2: High evidence]  
Endoscopic cameras and borescopes penetrate the lumen and allow for improved visual inspection.”

CDC  
Recommendations of the Healthcare Infection Control Practices Advisory Committee  
CDC - June 28, 2017 Visual Inspection  
a) After manual cleaning, visually inspect the endoscope and its accessories. Visual inspection provides additional assurance that the endoscope and its accessories are clean and free of defects. Complex devices such as flexible endoscopes may require the use of lighted magnification or additional methods to assist with the inspection process.

SGNA’s 2016  
Standards of Infection Prevention in Reprocessing of Flexible Gastrointestinal Endoscopes  
“Visual inspection is recommended to make sure the endoscope is visibly clean (AAMI, 2015; Rutala et al., 2008). It is not a guarantee that decontamination from manual cleaning is complete, but it can be considered a safety stop or “time out” to ensure the endoscope is visually clean before proceeding to the next step of HLD.  
a. Visually inspect for conditions that could affect the disinfection process (e.g., cracks, corrosion, discoloration, retained debris) (FDA, 2009; AAMI, 2015).  
b. Use magnification and adequate lighting to help assist in visual inspection (AAMI, 2015).  
c. Repeat manual cleaning step(s) if not clean”

ANSI/AAMI  
ST91: 2015  
Flexible and semi-rigid endoscope processing in health care facilities states in 12.4.2:  
“Tools such as video borescopes of an appropriate dimension (length and diameter) may be used to visually inspect the internal channels of some medical devices.”

ANSI/AAMI & AORN Guidelines on Visual Inspection  
SPD/CS

ANSI/AAMI ST79:2017 - Comprehensive guide to steam sterilization and sterility assurance in health care facilities

7.6.4.5 Verification of the cleaning process  
After completing the cleaning process, personnel should visually inspect each item carefully to detect any visible soil.

7.3 Manufacturer’s written IFU  
The device manufacturer’s current written IFU should be accessible, reviewed, and followed. If there are no specific written IFU in the labeling, then the manufacturer should be contacted and requested to provide a documented method of cleaning.

Stryker Shaver Handpieces User Guide	Arthrex Shaver Handpieces IFU
375-701-500, -501 - Formula® Shaver Handpiece 375-704-500, -501 - Formula® Hand-Controlled Shaver Handpiece 375-708-500,-501 - Formula® 180 Shaver Handpiece 275-601-500, -501 - TPS Small Joint	Arthrex Adapteur Power System™ II (APS II) Shaver Handpieces
➤ Page 21 Section	➤ INSPECTION AND MAINTENANCE
<ul style="list-style-type: none"><li>• Visually inspect the handpiece, including all internal surfaces, for remaining soil. <b>Use an endoscopic camera and endoscope if necessary to see the inner surface of the lumen.</b></li><li>• If soil remains, repeat the manual+12:24 cleaning procedure, focusing on those areas.</li></ul>	<ol style="list-style-type: none"><li>1. Arthrex shaver handpieces are precision medical instruments and must be used with care.</li><li>2. Inspect the device for damage prior to use and at all stages of handling thereafter.</li><li>3. If damage is detected, consult your Arthrex representative for guidance.</li><li>4. <b>Check device for visible soil. It is recommended that the cannulation be inspected with an illuminated, magnifying scope.</b> Clean the device using the guidelines for manual cleaning if any soil is visible.</li><li>5. Lubricate all moving parts with a soluble instrument lubricant prior to sterilization.</li></ol>

AORN Guidelines for perioperative Practices - 2017 Edition  
INSTRUMENT CLEANING - Recommendations #10  
**10.a.3** “Lighted magnification should be used to inspect hard to clean areas of devices for cleanliness. “  
“An instrument that appears clean to the naked eye may harbor debris that cannot be seen without magnification. Lipscomb et al compared the results of 202 cleaned and decontaminated instruments by first visually examining them and then examining them using microscopic analysis (ie, episcopic differential interference contract microscopy). Visual inspection by the researchers showed 37% of the instruments (75 of 202) had a low level of contamination and 4% (8 of 202) had a high level of contamination. The microscopic assessment showed 66% (133 of 202) were severely contaminated and 27% (55 of 202) were moderately contaminated.”  
**10. a.4.** “The internal channels of reusable arthroscopic shavers should be inspected using an endoscopic camera or borescope.”