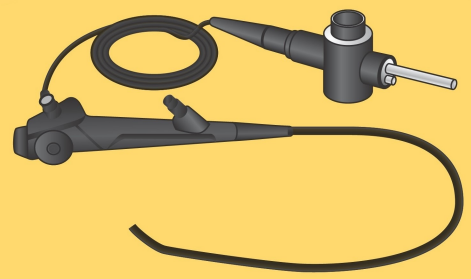


HYDROGEN PEROXIDE GAS STERILIZER  
**ES series**

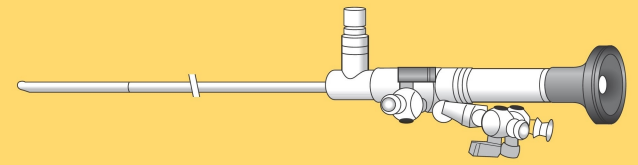


**Flexible Endoscope**



- ① Non Lumen
  - Single-channel
- ② Lumen
  - Inside material: Teflon™(PTFE)
  - Inside diameter >  $\phi 1.2$
  - Length < 600 mm

**Rigid Endoscope**



- ① Non Lumen
  - Single-channel
- ② Lumen
  - Inside material: Stainless steel
  - Inside diameter >  $\phi 2.0$
  - Length < 500 mm

This summary illustrates structural and material requirements in terms of efficacy evaluations, inferred from numerous test trials for medical devices. The trials were conducted by ES-700/ES-1400 half cycle.

**Tubes**



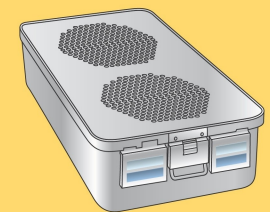
- ① Teflon™(PTFE)
  - Inside diameter >  $\phi 1.0$  mm
  - Length < 300 mm
- ② Polyethylene
  - Both open ends
  - No attachment

**Metal instruments**



- Simple structure
- Non-lumened devices

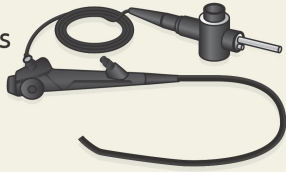
**Sterilizing tray, container**



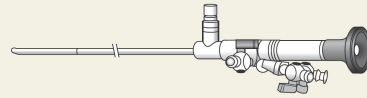
- ① Aluminum
- ② Stainless steel
- ③ Polyethylene
- ④ Polypropylene
- ⑤ Radel®(PPSU)

## Typical devices sterilized in the ES series

Flexible endoscopes



Rigid endoscopes



Camera heads	Light cords	Fiberoptic cables
Power cables	Micro drills	Batteries
Robotic-assisted surgical endoscopes	Teflon™(PTFE) tubing	Ultrasound probes
Scissors / Forceps	Micro instruments	Resin trays / containers
Aluminum trays / containers	Endoscopic instruments	Laryngoscope blades

Please ask the medical device vendors for information on how to properly sterilize the device.

ATTENTION : Towel, paper, wood pulp, sponge, single-use devices are NOT suitable for vaporized hydrogen peroxide technology.

## Internal lumen diameter [Conversion]

Millimeters	Inches	French size
1.0	0.039	3.0
2.0	0.078	6.0
3.0	0.118	9.0
4.0	0.157	12.0
5.0	0.197	15.0
6.0	0.236	18.0

Please refer to the user manuals for details.

## Material compatibility study with the ES series

Below table indicates evaluations for material compatibility by the number of ★. 100 test trials were conducted through ES-1400 Soft Mode/Full Cycle.

Evaluation criteria - Observation of surface by visual check.  
- Observation of surface by microscope.  
- Composition change examined by Fourier Transform Infrared(FTIR) spectroscopy.

- ★★★★ No apparent changes
- ★★★ Changes recognized by FTIR spectroscopy analysis
- ★★ Changes visible by a microscope
- ★ Changes apparent with visual check

Category/Abbreviation	Material	Evaluation
<b>Metal</b>		
	Aluminum*	★★★★
	Stainless steel	★★★★
	Pure Titanium*	★★★★
	Titanium Alloy*	★★★★
	Brass	★
<b>Resin</b>		
ABS	ABS resin+	★★★
EVA	Ethylene-vinylacetate Copolymer+	★★★
GPPS	General purpose Polystyrene+	★★★
HDPE	High-density Polyethylene+	★★★
LDPE	Low-density Polyethylene	★★★★
LCP	Liquid Crystal Polymer+	★★★
PA	Polyamide(Nylon)+	★★
PC	Polycarbonate+	★★★
PE	Polyethylene	★★★★
PEEK	Polyetheretherketone+	★★★
PEI	Polyetherimide+	★★★
PI	Polyimide+	★★★
PMMA	Polymethylmethacrylate+	★★★
POM	Polyacetal+	★★★
PP	Polypropylene+	★★★
PTFE	Polytetrafluoroethylene(Teflon™)	★★★★
PPSU	Polyphenylsulfone(Radel®)+#	★★★
PU	Polyurethane+#	★★★
PVC	Polyvinyl chloride+#	★★★
<b>Rubber</b>		
SR	Silicon rubber#	★★★★
CR	Chloroprene rubber#	★★
PUR	Polyurethane rubber	★
<b>Glass</b>		
	Glass	★★★★

\* : Discoloration might be seen on surface.

+ : Lifetime might be influenced by numerous sterilization cycles.

# : Be particularly careful about overloading the chamber because of high-absorbent materials.

Radel® is a registered trademark of Solvay S.A.

Teflon™ is a registered trademark of The Chemours Company.