H&Shah

SUN STERI & MEDI CARE
ASSOCIATE

ETO STERILIZER
(ETHYLENE OXIDE STERILIZER)

APPLICATION OF ETO STERILIZER

Neurosurgeons – Research Centers – Multispecialty Hospitals - Specialty Laboratories- Pharmaceuticals Applications- Specialty Hospitals- CATH Labs – Medical Institutes- Eye Specialists - Ortho Specialists – General Surgery Centers- Gynaec Care Units – Cardiothoracic Surgeons-Interventional Cardiologist – Plastic / Cosmetic Surgeons.

FEATURES OF ETO STERILIZER

- √ Dimensional Accuracy
- √ Unmatched Quality
- √ Low Maintenance
- √ Automation
- √ Strong Construction
- √ Easy Installation
- √ Safety Parameters

PRINCIPAL OF ETO STERILIZATION

Sterility occurs when an EO gas molecule reacts with and destroys the microbial DNA. The process requires the simultaneous control of four variables, but interdependent parameters: gas concentration, temperature, relative humidity, and time of exposure.

PHASES OF ETO STERILIZATION PROCESS

The EtO process can be broken down into four basic phases, each of which needs careful planning to ensure a safe and efficacious process. The main four phases are: (1) air removal, (2) steam injection and conditioning dwell, (3) EtO injection and gas dwell, and (4) gas purge and air in bleed.

STERILIZATION PROCESS

Through the use of a vacuum-based process, EO sterilization can efficiently penetrate surfaces of most medical devices and its lower temperature makes it an ideal process for a wide variety of materials.

User can define the cycle time according to their criteria & material.

PROCESS Example

Sterilization Temp.	:	45°C
Sterilization Time	:	300 minutes
Aeration Time	:	90 minutes

Start > Pre-Conditioning (Heating) Approx. 30 Minutes > Air Removal (Vacuum) approx. 3 minutes > Vacuum Hold (Chamber Leak test) Approx. 10 Minutes > RH%(Humidification) Approx. 12 Minutes >EO Gas Injection approx. 2 Minutes > EO Gas Exposure approx. 300 Minutes (5 Hours) > EO Gas Removal approx. 5 Minutes > EO gas flushing & Aeration approx. 90 Minutes > Stop.

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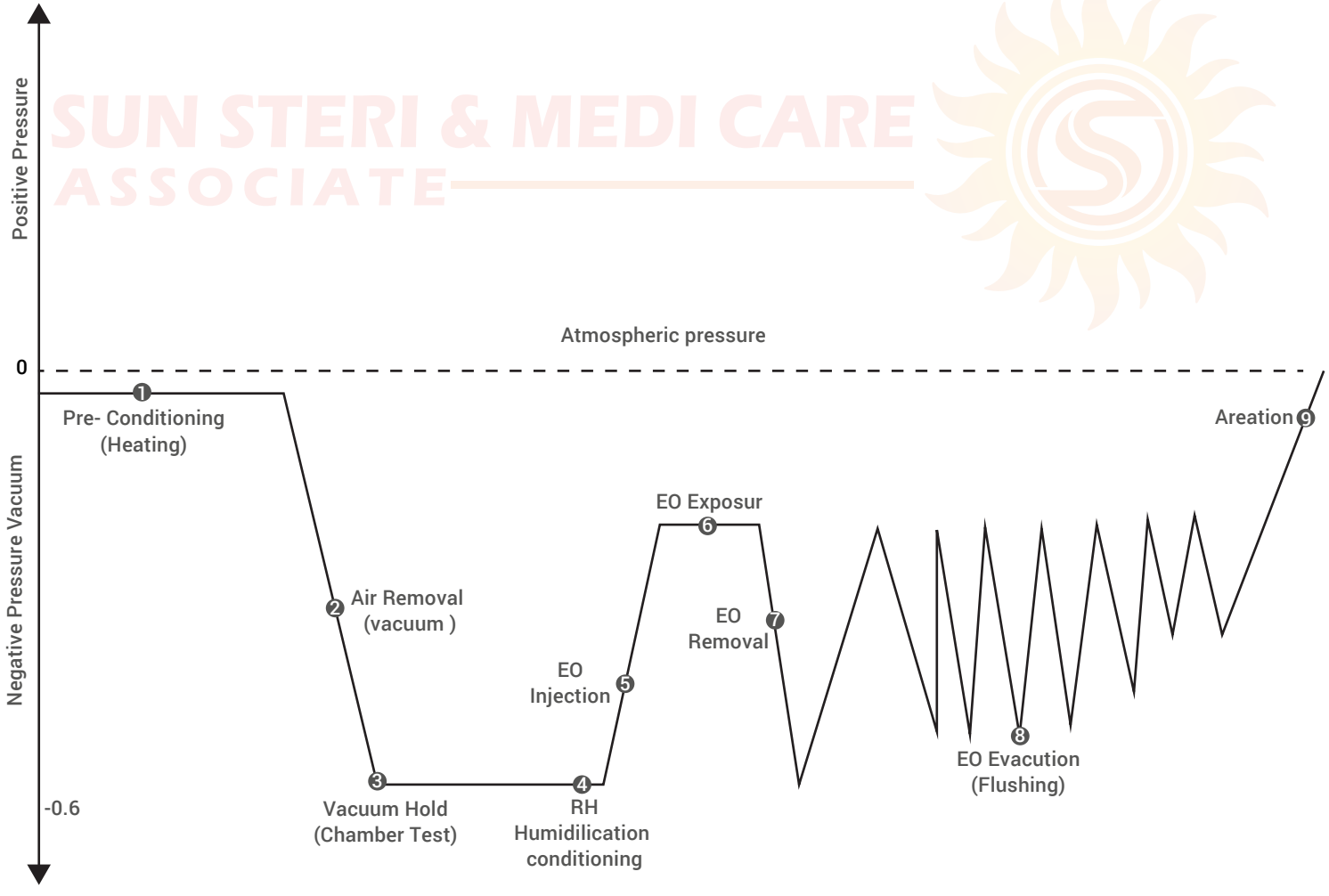
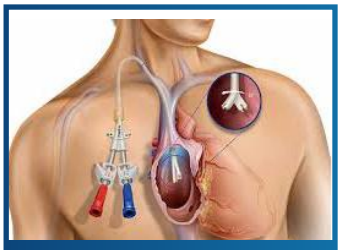


PRODUCT LIST

We design, manufacture, control and qualify Ethylene Oxide Sterilizers (EO/ETO) for the sterilization of thermo sensitive products (sensitive to heat and humidity) like syringes, catheters, dialysis cartridges, plastic dressings, sutures, Cystoscopes, Ureteroscopes, Bronchoscopes, Duodenoscopes, Colonoscopes, Gastrovideoscopes, Choledocoscopes, Delicate hand-pieces and associated cording, Mix-material instruments or trays, Volk lenses/loops, Implants, Sharps, Plastic, Rubber, Non-woven/Cellulose, Fiber optics, Other Electronics, Batteries, etc.


Biopsy_Punches


Catheter


Surgical Drapes


Gown


Endotracheal Tubes


Feeding Tube

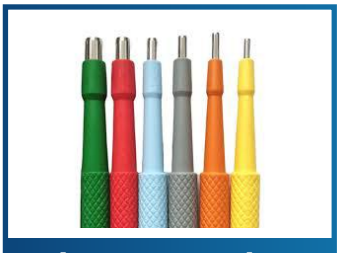

Cotton Wool


Dilators

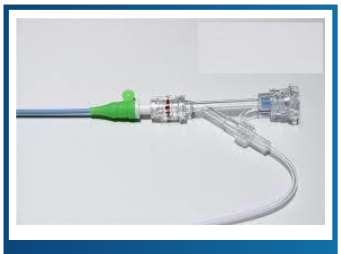

Drills


Electrical_Saws


Dental_Instruments

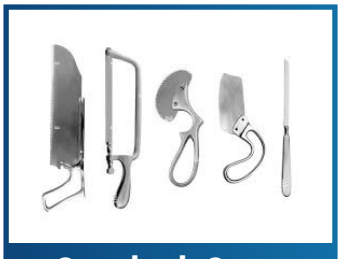

Biopsy_Punches


Drills

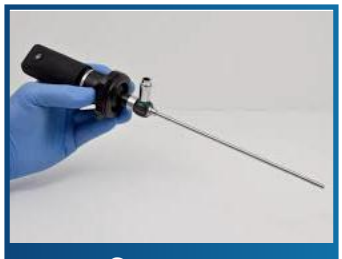

Dilatort


Clippers

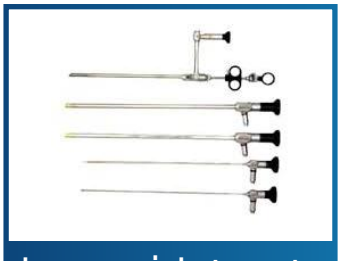

Suction Tubest

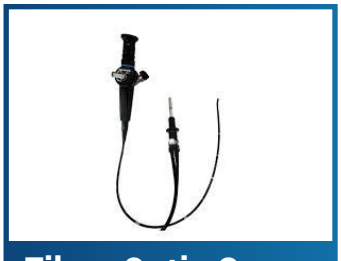

Surgical_Saws


Catheter


Camera


Catheters


Laparoscopic Instruments


Fiber_Optic Scope


Gloves


Mask

Bandages

Scissors

Skin Stapler

Medical Gauze

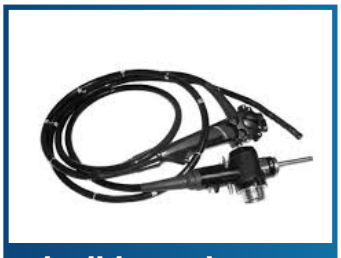
Nasal Tubes

Scissors

Scalpels And Sharps

Speculis

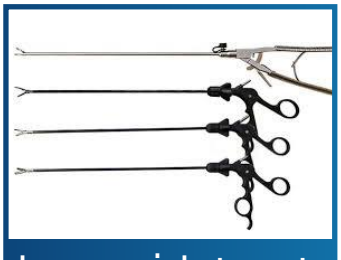
Pacemaker



Flexible_Endoscope

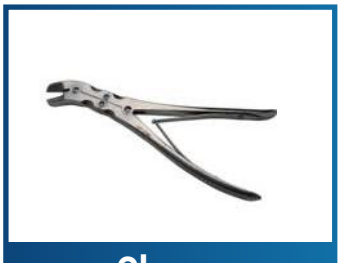
Forceps

IV Sets



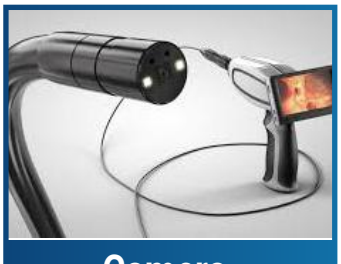
Laparoscopic Instruments

Dremel Drills



Clamps

Scalpels and Sharps

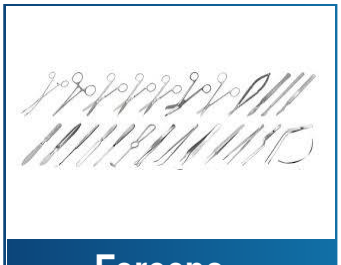


Camera

Medical Tourch Light

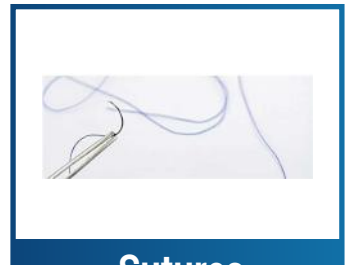
Stethoscopes

Speculis



Forceps

Needles



Sutures

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Process Challenge Device

Process Challenge Device are externally placed on pallets to assure terminal sterilization of medical devices. PCDs have defined resistance values that match internal sterilization challenges. PCDs have unique patented packaging of a variety of B. atrophaeus biological indicators to match your process. Built into the purge probe handle to ensure the 10-6 biological indicator is consistently placed in the most difficult location for EO to reach in every cycle – providing data driven results, regardless of the operator.

8 to 10 Hours Sterilization:

Achieves Standard-required 10^6 sterility assurance level for terminal sterilization of medical devices.
EO-absorbent items may require additional aeration. User can define, change the cycle time as per their criteria & material.

Maintain Environment

Warm air circulates throughout the chamber walls to controlled a constant temperature – ensuring effective sterilization and aeration.

EO Gas Cartridges

Use individual gas canister of 100% ethylene oxide Per Cycle.

Easy Installation

Requires only a 240v outlet One and 8v Outlet and a 1" dedicated exhaust line.

Lock Mechanism

Door manually locks at the start of the cycle and unlocks at the end. Double Locking Protection.

Active Aeration in Same Chamber

Material with packing pouches flushes with a constant flow of fresh air at the end of the cycle – no need to transfer items to a separate area. EO-absorbent items may require additional aeration.

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Simplified Controls

The hardware is a PLC along with a touch screen HMI (human machine interface) display. Monitoring, controlling and viewing of on-line parameters by the supervisor / administrator who is viewing only the computer is thus possible. The operator only has to load the machine and press START from the panel on the machine. He too can view all the various parameters like time, temperature, pressure, instrument status, current phase etc. on the Touch Screen. If SCADA Software is opted for, then reports in three formats are stored in the memory of the PC (1) Detailed Data (2) Single Page Cycle-Summary and (3) Graph reports. These digital reports can then be reprinted whenever required by NABH auditors.

Easy to use touch screen interface and colour display. Sterilization status and cabinet temperature, humidity (RH%) , cycle time , phases , pressure shown throughout the cycle & continuously from start to end of the cycle.

Shelf Life

The Standard has cleared EO sterilization loads wrapped with Sterisheet or Tyvek Sterilization Pouches with Chevron Seal – both have a shelf life of at least 3 months to 1 Years.

Free Operator Training

It's like having a sterilization expert on staff. Free operator training for the life of your sterilizer and free 24/7 support.

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TECHNICAL SPECIFICATIONS

Sr. No.	Item	Description
1	Inner Seal (Chamber) Chamber Operating Pressure Chamber Testing pressure Door Gasket Outer cover Heating	SS 304 L Negative pressure cycle 0.5 Kg/cm2 Vacuum: Full SS 304L Silicon Gasket (10/12 mm special section) Powder-coated MS , Stainless Steel (Optional) Heaters on all sides of the Chamber for uniform heating throughout the load.
2	Temperature Sensor	For accurate measuring and controlling of Temp. in the chamber
3	Operating Temperature	Maximum: 65°C (chamber)
4	RH% Sensor	For measuring and controlling the humidity of the chamber
5	Pressure Transmitter	For measuring and controlling the pressure-vacuum that the load is subjected to during removal and charging of Gas.
6	All fittings on the machine	SS 304
7	Safety Valves	SS 304
8	All Valves for Automation	SS 304, Teflon construction valves, operated by Comp. Air supply through Solenoid valves.
9	Humidification	Special Humidifier for the purpose of humidification of the load and heating of the gas.
10	Vacuum	Special Noise-less Vacuum device provided for vacuum and aeration of the load.
11	Automation Hardware	PLC Make: GE Fanuc / Delta/Reputed Other HMI Make: GE Fanuc / Delta / RENU/Reputed Other
12	Software	SCADA Make: 50 tags Run-time software
13	Process Reports	Reports are generated by the software for each and every cycle in three formats, viz. (i) Graph Report (ii) Single page Summary report and (iii) Detailed Report
14	Testing	Pressure / Vacuum testing as per specified standards. (1.5 times the working pressure)
15	Operation	All functions are electro-pneumatically operated. Door closing is manual
16	Cycles	Cold Cycle: 40°C , Ster. Hold 3 Hours Warm Cycle: 55°C, Ster. Hold 1 Hour Additionally User can configure (n) no. of users defined cycles.
17	Printer	Thermal Printer provided for online print sterilization process
18	In built Storage	USB Port 32 GB – Save date HMI to Pen Drive as well as SCADA (Trial Version) for PC save data.
19	Process Report Format Details	Hospital Name , Date , Time , Batch No. , Operator name , Pressure , Temperature , Rh , phase. Start and end time for each phase is highlighted. Complete NABH traceability.
20	Soft Copy Of Report	Yes. Save in Pen Drive or In your PC (By Client Scope)
21	Network Connectivity	Yes. RS 232 Port provided for SCADA software.
22	Humidifier	Special built-in unit which provides moisture free mist injection.
23	Insulation	Yes. 50 mm Glass Wool.
24	EO Cartridge	Proposed to be used with 100% EO Cartridge
25	Air Filter	0.2-micron bacteria retentive filter for air intake.
26	Safety & Alarms	Comprehensive safety features and alarms for highest level of safety

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CAPACITY AND DIMENSION

HOSPITAL USE ETO STERILIZER

Size in Feet / mm (H x W X D)	Capacity (in Liter)	Cubic Feet (CFT)
1 x 1 x 1 in feet / 300 x 300 x 300 in mm	28 Ltr	1 CFT
1 x 1 x 2 in feet / 300 x 300 x 600 in mm	56 Ltr	2 CFT
1 x 1 x 2.6 in feet / 300 x 300 x 750 in mm	73 Ltr	2.5 CFT
1 x 1 x 2.6 in feet / 300 x 300 x 750 in mm	85 Ltr	3 CFT
1 x 1 x 4 in feet / 300 x 300 x 1200 in mm	113 Ltr	4 CFT
1.25 x 1.6 x 3 in feet / 375 x 450 x 900 in mm	140 Ltr	5 CFT
1.5 x 1.5 x 3.5 in feet / 450 x 450 x 1050 in mm	226 Ltr	8 CFT

CUSTOMIZE SIZE AVAILABLE

SMALL SIZE OF MEDICAL / SURGICAL PRODUCT ETO STERILIZER

Size in Feet / mm (H x W X D)	Capacity (in Liter)	Cubic Feet (CFT)
1.35 x 1.35 x 2.85 in feet / 410 x 410 x 870 in mm	140 Ltr	5 CFT
1.35 x 1.35 x 4.5 in feet / 410 x 410 x 1375 in mm	232 Ltr	8 CFT
2 x 2 x 4 in feet / 600 x 600 x 1200 in mm	450 Ltr	16 CFT
2 x 2 x 6 in feet / 600 x 600 x 1800 in mm	680 Ltr	24 CFT

CUSTOMIZE SIZE AVAILABLE

LARGE SIZE OF MEDICAL / SURGICAL INDUSTRIAL PRODUCT ETO STERILIZER

Size in Feet / mm (H x W X D)	Capacity (in Liter)	Cubic Feet (CFT)
3 x 3 x 5 in feet / 900 x 900 x 1500 in mm	1275 Ltr	45 CFT
3 x 3 x 8 in feet / 900 x 900 x 2400 in mm	2000 Ltr	72 CFT
4 x 4 x 8 in feet / 1200 x 1200 x2400 in mm	3500 Ltr	128 CFT
5 x 5 x 10 in feet / 1500 x 1500 x 3000 in mm	7000 Ltr	250 CFT
6 x 6 x 15 in feet / 1800 x 1800 x 4500 in mm	15000 ltr	540 CFT

CUSTOMIZE SIZE AVAILABLE

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