



TEKNOMAR®

HRF 3000

HYDROGEN PEROXIDE H₂O₂

PLASMA STERILIZATION DEVICE



MODEL	S75	S125
TYPE	HRF 3000	HRF 3000
SCREEN	Touch Screen 7"	Touch Screen 7"
EXTERIOR DIMENSIONS (W-D-H) mm	730x955x1860	730x955x1860
INTERIOR DIMENSIONS (W-D-H) mm	440x370x700	440x500x700
CHAMBER VOLUME (Lt)	113	154
CHAMBER EFFECTIVE VOLUME (Lt)	92	131
MAXIMUM POWER (Watt)	3200	3200
WORKING VOLTAGE	220/230 VAC, 50-60 Hz	220/230 VAC, 50-60 Hz
PROTECTION CLASS	IP20	IP20
EXTERIOR CHASSIS MATERIAL	STAINLESS STEEL 304	STAINLESS STEEL 304
CHAMBER MATERIAL	STAINLESS STEEL 316	STAINLESS STEEL 316

Double door models could also be produced optionally.

HRF 3000 HYDROGEN PEROXIDE

Plasma Sterilization Device is a new generation ecological sterilization device that sterilizes all kinds of reusable, heat and humidity sensitive medical materials such as all kinds of metal, plastic, polymer, inorganic, medical-grade, electromechanical instruments and surgical instruments, etc.

It offers fast, safe, environmentally friendly, and low-cost solutions for sterile services departments.

The device is effective on all microorganisms, bacterial forms, viruses, fungal forms, and prions on the product to be sterilized together with Hydrogen Peroxide (H_2O_2) sterilization agent, under vacuum and in the low-temperature range of 37-55°C.

HRF 3000 Hydrogen Peroxide plasma sterilizer is used for sterilization of heat and humidity sensitive instruments/ materials in places where surgical procedures are performed and the material is required to be reused, such as hospitals, polyclinics, veterinary clinics.

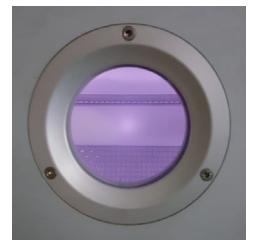
Products that can be applied EO and Gamma Sterilization can be easily sterilized with H_2O_2 plasma sterilizers. Used for sterilization of medical materials those need to be sterilized at low temperatures.

WORKING PRINCIPLE

(After the chamber temperature reaches the set value)

- **Preparation** (vacuum test, conditioning, drying etc.)
- **Sterilization** (H_2O_2 injection, sterilization, diffusion, plasma, etc.)
- **Ventilation** (Air Washing)

All phases start and end automatically without the need for user intervention. For safety reasons, as long as there is Hydrogen Peroxide (H_2O_2) in the chamber, the doors of the sterilizer cannot be opened without air washing.



**NO RESIDUE IN
THE PRODUCT WITH
HRF COLD PLASMA
TECHNOLOGY IN
CHAMBER**

PROGRAMS

SHORT

27 Minutes
H₂O₂

LONG

45 Minutes
H₂O₂

LUMEN

60 Minutes
H₂O₂

HRF 3000 Hydrogen Peroxide Sterilization Devices use a fixed-programmed sterilization cycle, which eliminates user error in sterilization safety.

Offers simple and fast use with language selection and pre-determined program options for sterilization on the large touch screen. The device complies with ISO 14937 sterilization validation standards. There are 3 working programs in the HRF 3000 Hydrogen Peroxide Sterilization Device as seen on the right.

INSTALLATION & MAINTENANCE

The device is a mobile type and has 4 wheels, 2 of which are locked, for easy transportation and installation. No need for any installation or infrastructure other than electricity.

No need for an additional waste disposal system.

Vacuum Pump and Maintenance Periods: In 6 months (350 cycles) and 1 year (700 cycles), the vacuum pump oil is changed and the device is also maintained.



SHORT STERILIZATION PROGRAM

Used in materials with low product amount and no lumen, in cases where sterilization is urgent. Short Sterilization Program performs the sterilization process faster than other programs. It provides a quick and economical solution when the number of products to be sterilized is low.

LONG STERILIZATION PROGRAM

Used in the sterilization of non-lumen products and classical materials where the chamber volume of the products to be sterilized is more than half.

LUMEN STERILIZATION PROGRAM

Used for sterilization of products such as Laryngoscope with Lumen, Arthroscope, Laparoscope, Trocar Cannula, Trocar Sheath, Resectoscope, Bronchoscope, Ureteroscope, Hysteroscope, Cystoscope, Cholescope etc.

No need for additional apparatus like a booster to connect the lumen.



Hydrogen Peroxide Plasma Sterilizer, specified below; performs the sterilization of, in addition to endoscopes, devices and instruments, conventional-type disposable materials, medical products and other materials with similar characteristics. No apparatus is needed like a booster for sterilization of non-complex lumen material in H₂O₂ plasma sterilization device.

ENDOSCOPES	
RIGID ENDOSCOPES/LUMEN	FLEXIBLE ENDOSCOPES/LUMEN
Laryngoscope Arthroscope Laparoscopes Trocar Cannula Trocar Case Resectoscope etc.	Bronchoscope Ureteroscope Hysteroscope Cystoscope Choledoscope etc.
DEVICE & TOOLS	
Implants Defibrillator Pedals Electrocautery Products Oesophagus Dilators Kri-Probes Doppler Head Pressure Transducer Cables Endoscopic Products etc.	Fiber Optic Cables Laser Hand Products Fiber Accessories Ophthalmic Lenses Radiation Therapy Instruments Surgical Power Equipment Drilling Tools Ultrasound Probes Video Camera and Connection Apparatus etc.

Compatible Packaging Materials are Tyvek® Sterilization Roll, Wrap Papers, Various Surgical Container Systems. Fabric, cellulosic materials (paper, cloth) silvery materials, liquid sterilization, powder, copper, natural rubber etc. are not suitable for this sterilization method.

SECURITY FEATURES



- Audible and visual warning system showing error and error codes that may occur during sterilization phases,
- In power failure; The process continues according to the sterilization stage, or it terminates the program and informs the user in writing and visually that the sterilization has not been completed.
- In case of failure to reach the sterilization requirements, it cancels the cycle for safety reasons and warns the user.
- Overload and excessive humidity warning,



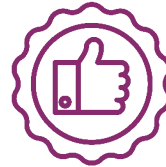
- PLC and Microprocessor control that continuously controls values such as heat, pressure, etc. and plans to work according to these values by showing the sterilization stages,
- The system is controlled by Microprocessor and PLC and makes the necessary arrangements automatically.



- Supporting monitorization with chemical and biological indicators,
(no brand dependency in the chemical and biological indicator)



- Emergency stop button.




Advantages

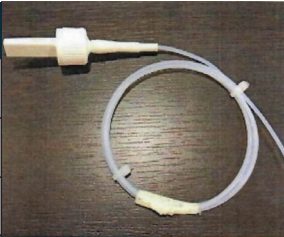
- **Automatically detects damp load, dries and continues sterilization process uninterrupted.**
- Delivers a Sterility Assurance Level (SAL) of 10^{-6} .
- Suitable for heat and humidity-sensitive materials.
- It does not harm plastic and electronic materials because it sterilizes at low temperatures, and it is safe for sterilization of instruments such as camera heads, fiber optic cables, rigid and flexible endoscopes.
- Easy, comfortable, and safe use.
- Short sterilization cycle time. Shortens the sterilization process time in sterilization centers (CSSD).
- Sterilization cost is low.
- Extends the life of medical devices and instruments.

Within Group, our Hydrogen Peroxide Plasma Sterilization device; To validate the Hydrogen Peroxide Sterilization and its plasma effect, EN ISO 14937 validation tests performed at full load by the Accredited Organization HYGCEN Gmbh

HygCen - White PTFE PCD	
Material	PTFE
Length	1200 mm
Ø Diameter	2 mm



HygCen - White PTFE PCD	
Material	PTFE
Length	850 mm
Ø Diameter	1 mm



Within the scope of EN ISO 14937:2009; Fourier Transform Infrared Spectrophotometer (FTIR) and Scanning Electron Microscope (SEM) tests were carried out at İzmir Katip Çelebi University Central Research Laboratory Application and Research Center and have been proven that the device does not cause any residue or corrosion on the sterilized materials.

The ELISA test was performed in KUBTUAM, and the effectiveness of the device on Prions has been proven.

Program	Length	1 mm	2 mm	3 mm	4 mm	5 mm	6 mm
LUMEN	2000 mm						
	1500 mm						
	1000 mm						
LONG	800 mm						
	600 mm						
	500 mm						
	400 mm						
SHORT	300 mm						
	200 mm						
Diameter		1 mm	2 mm	3 mm	4 mm	5 mm	6 mm



CERTIFICATES / TEST REPORTS

- MDD 93/42/EEC, CE Certificate
- EN ISO 13485:2016
- EN ISO 9001:2015
- TUR Technological Product Experience Certificate
- Domestic Goods Certificate
- Certificate of Free Sale
- TEYDEP Project Success Certificate
- LVD Test Report / EN 60601-1
- EMC Test Report / EN 60601-1-2
- EN ISO 14937 Validation Test
- Prion Test
- Lumen Material Sterilization Test
- Residue Test
- Corrosion Test
- ELISA Test
- Device Type Test

**LUMEN CHART
SUITABLE FOR STANDARDS**

With the lumen program of the Hydrogen Peroxide Plasma Sterilization Device, safe sterilization of lumen materials can be performed in the lengths and diameters given in the table.


According to the standards;

- Suitable for sterilization
- Sterilization should be checked and verified



Automatically detects damp load,
dries and continues sterilization process uninterrupted.

*“Your sterilization
is never interrupted.”*

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