

# STERILIZING EQUIPMENT FOR PHARMACEUTICAL INDUSTRIES AND HOSPITALS



*Integral solutions in Processing  
and Packaging equipment*

# XG1 SERIES STERILIZER

XG1.H Series Sliding Door Pulse Vacuum Sterilizer is fully automatic sterilizer, it is designed for the sterilization of biology products, utensils, aseptic clothes, medical instruments and dressings in fields of biology project, healthcare, animal laboratory and pharmaceutical industry, etc.



## FEATURES

- The sealing door is automatic up and down sliding, sealing with compressed air to reduce labor cost and it can save space.
- Touch screen as interface makes the operation more easy.
- The parameters such as time, temperature, pressure, etc in process can be displayed and adjusted by screen, these parameters also can be printed by built-in printer.
- Program is fully automatic after starting, manual operation is also available.
- It adopts SIEMENS PLC to control the process, high efficiency with the function of reliability and flexibility.
- The vacuum step is completed by pulse vacuum with feeding steam several times so as to ensure air exhaustion is over
- 99%, to avoid temperature dead angle and small volume effect to ensure the good result of sterilization.
- Critical control components and valves are high quality imported to improve the reliability and stability of machine.
- Chamber and jacket is fully stainless steel of 6 mm thickness.
- The door gasket is made of medical silicon rubber, it is on step molding and without joint.
- Shelf or loading trolley and transfer trolley is standard accessories.
- Air compressor is optional.
- Material for chamber, jacket and piping can be customized.

## SAFETY FEATURES

- The process can not be started when the door is unlocked.
- The door can not be opened if there is pressure in chamber for ensuring the safety of both operators and machine.
- For double door type, only one door can be opened at same time.
- The filtering precision of air filter can reach 0.2 micron, to ensure no second pollution after sterilization.
- The door detect sensor can detect and prevent closure if there is any obstruction
- Password is needed for parameters modification.
- Emergency switch can stop any abnormal operation occurs.
- Safety valves will release pressure of chamber and jacket if pressure is out of range.
- Various alarms can stop operation and indicate the trouble spot.



CHAMBER DIMENSIONS	VOLUME m <sup>3</sup>
1170x610x910	0.6
1500x610x910	0.8
1700x610x910	1.0
1500x680x1180	1.2
1810x680x1180	1.5
1700x1000x1200	2.0
2100x1000x1200	2.5
2500x1000x1200	3.0
1900x1370x1520	4.0
2350x1370x1520	5.0
2900x1370x1520	6.0
3500x1370x1520	7.0
3900x1370x1520	8.0

### OPTIONAL

- One or two doors.
- Sliding or sealing (mechanical) door.

La prueba de fugas se lleva a cabo dos veces con agua coloreada para asegurar la detección de estas.

Model	Main uses	Ideal for
XG1.O/S	Ampoule, oral liquids and IV bottles sterilization. Ampoule external washing.	Pharmaceutical companies, Hospitals.
XG1.DM	Sterilization of biology products, utensils, aseptic clothes, medical instruments and dressings in fields of biology project, healthcare, animal laboratory and pharmaceutical industry.	Pharmaceutical companies,, Hospitals, Research Labs.
XG1.DW	Sterilization of clothes, medical instruments, non corrosive liquids.	Pharmaceutical companies, Hospitals.
XG1.DT	Sterilization of clothes, medical instruments, non corrosive liquids.	Pharmaceutical companies, Hospitals.
XG1-GM/ GW	Sterilization of ampoules, vials and biological products. According to GAMP5, FDA, cGMP, FDA, CFR21 Part 11.	Pharmaceutical and Bio - technological industries.

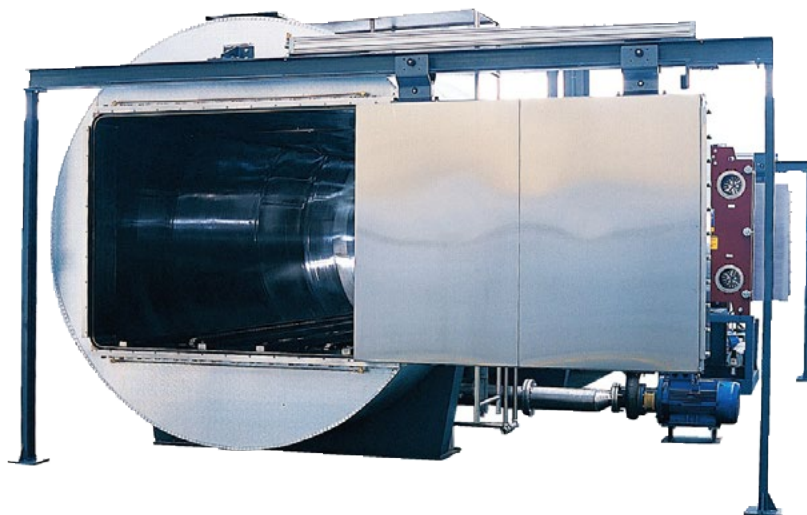
### TECHNICAL PARAMETERS

Rated working pressure:	0.21 MPa
Rated working temperature:	132 °C
Range of pulse times:	0 – 99
Range of time for sterilization:	0 – 9999 segundos
Range of time for drying	0 – 9999 segundos
Safety valve	Open pressure 0.23 MPa Close pressure a 0.21 MPa
Pulse vacuum range	Positive pressure 0.065 MPa - 0.09 MPa Negative pressure -0.05 MPa - 0.09 MPa

## WATER SHOWER STERILIZER

In accord with sterilizing requirements of all kinds of packing, such as glass bottle, plastic bottle and soft bags, as well as Ampoule oral liquid in plastical bottles.

The machine adopts circulating overheat water as medium to spray from the top or three sides, which can realize uniform sterilization under relatively low temperature, eliminate temperature dead leg caused by cold air in steam sterilization, and avoid recontamination of IV solution caused by unclean cooling air in the cooling process. Special technique of pressure balancing is adopted in the sterilization process, which guarantees that plastic bags can be kept in good shape without bulging after sterilization.



Overheat water of high temperature is adopted as medium to sterilize products. The heat energy released from the water is to heat up the sterilized products, by which the microorganism is heated to degenerate and die, achieving the sterilizing effect.

**Convenience:** Over heat water as the sterilizing medium, Over heat water is generated by steam in heat exchanger. Steam of high temperature is easy to generate and transfer.

**Economy:** low consumption of sterilizing steam, and low cost for generating steam.

**Reliability:** Easy to achieve the required temperature and pressure for sterilization, strong penetrability, suitable for all kinds of products.

**Verification:** moist heat sterilization adopts the simple mode to verificate, easy operation, correct and reliable verification.

Double doors structured, in full accordance with the requirements of national GMP regulations, USA FDA and European cGMP standards.

It adopts overheat water as medium and water spraying to heat up and sterilize drug. The forced convection of spraying water forms a uniform temperature field, which can realize uniform sterilization, improve sterilization quality and shorten sterilization time, and avoid recontamination of IV solution caused by unclean cooling air in the cooling process.

The cooling after sterilization depends on circulating water to lower temperature indirectly, which ensures no exploding bottle(bag) and realize uniform sterilization under relative low temperature.

MODEL	CHAMBER DIMENSIONS mm (L x W x H)	VOLUME m <sup>3</sup>
PSM500	1500 x 680 x 1180	1.2
PSM1000	2000 x 860 x 1300	2.2
PSM200	3810 x 860 x 1300	4.2
PSM2520	4000 x 1000 x 1300	5.2
PSM3150	4900 x 1000 x 1100	6.3
PSM3120	Ø 2000 x 4200	7.1
PSM4160	Ø 2000 x 5400	9.1
PSM5200	Ø2000 x 6600	11.2
PSM6240	Ø 2000 x 7800	13.2
PSM7280	Ø 2000 x 9000	15.2
PSM8320	Ø2000 x 10200	17.2
PSM9504	Ø2500 x 6270	17.27
PSM11080	Ø 2500 x 7270	20.02
PSM12672	Ø2500 x 8670	23.88
PSM14256	Ø2500 x 9670	26.64

## XPSM ROTARY WATER BATH STERILIZER

The sterilizers are widely used in pharmaceutical and biological enterprises for the sterilization of bottled emulsion, suspension and other easy-to-precipitate pharmaceutical liquid, such as fat milk, radiography milk, etc. It adopts hot water as working medium for heating and sterilizing packed techdom by means of spraying, the moving process of sterilization results in a uniform heating, thus improves the quality of sterilization.



MODEL	CHAMBER DIMENSIONS mm (LxWxH)	VOLUME m <sup>3</sup>
X.ASMDC 1.0	850 x 1000 x 1200	1.0
X.ASMDC 1.5	1250 x 1000 x 1200	1.5
X.ASMDC 2.0	1700 x 1000 x 1200	2.0
X.ASMDC 2.5	2100 x 1000 x 1200	2.5
X.ASMDC 3.0	2500 x 1000 x 1200	3.0
X.ASMB 4.0	3030 x 1000 x 1300	4.0
X.ASMB 5.2	4000 x 1000 x 1300	5.2
X.PSMB .500	Ø 3030 x 1000 x 1300	3.9
X.PSMB .700	Ø 4000 x 1000 x 1300	5.2
X.PSMD .1000	Ø 2000 x 3150	9.9
X.PSMD .1500	Ø 2000 x 4350	13.6
X.PSMD .2000	Ø 2000 x 5550	17.4
X.PSMD .2500	Ø 2000 x 6750	21.2
X.PSMD .3000	Ø 2000 x 7950	25
X.PSMD .3500	Ø 2000 x 9150	28.7

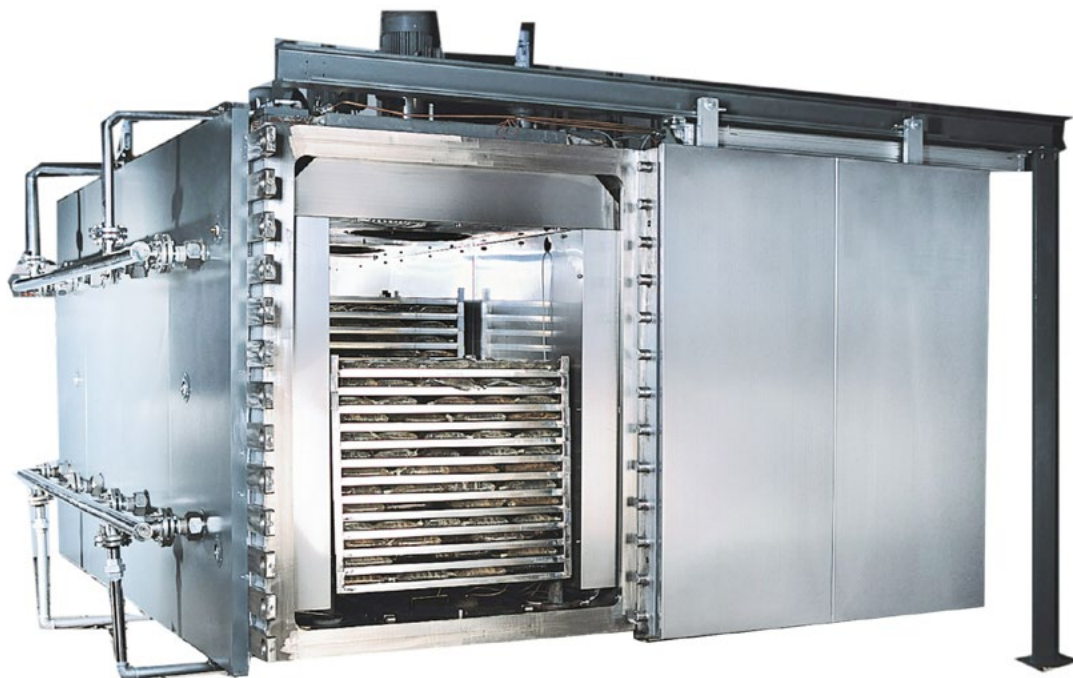
### ADVANTAGES

- The safe, reliable and easy operating pneumatic sliding door or power lifting door.
- Equipment with OMRON auto orientation system, which enables the movement of chamber to stop at the designed position.
- Stainless steel loading trolleys are suitable for different requirements.
- Touch panel-DCS remote monitoring system.
- Temperature graph is adjustable as different sterilization requirements of pharmaceutical preparations.
- Power input system of static sealing coping with adjustable speed of frequency control.
- GMP validation port is equipped for validation anywhere and anytime



## RFM SERIES IV SOLUTION VENTILATION-DRY STERILIZER

RFM series sterilizer is used for the sterilization of IV solution packages, such as PVC or non PVC soft bags. It adopts saturated steam as medium and heats quickly. The temperature in chamber is distributed uniformly. After sterilization, cooling water is used to cool and eddy air is used to dry.



### ADVANTAGES

- Main body manufacture under strict quality and safety standard safe, reliable airproof door easy to be operated.
- Reliable, nice pipeline system, convenient for maintenance.
- Stainless steel loading vehicles are suitable for different requirements.
- Stable and reliable PLC+computer monitoring system
- Control software with multi-function
- Specially designed drying program assures drying effect of products after sterilization.
- GMP validation port is equipped for validation anywhere and anytime.

MODEL	CHAMBER DIMENSIONS mm $\varnothing$ x L	VOLUME m <sup>3</sup>
RFM 2160	$\varnothing$ 2000 x 4200	7.1
RFM 2880	$\varnothing$ 2000 x 5400	9.1
RFM 3600	$\varnothing$ 2000 x 6600	11.2
RFM 4320	$\varnothing$ 2000 x 7800	13.2
RFM 5040	$\varnothing$ 2000 x 9000	15.2
RFM 5760	$\varnothing$ 2000 x 10200	17.2
RFM 6480	$\varnothing$ 2000 x 11400	19.2
RFM 7200	$\varnothing$ 2000 x 12600	21.2

# LOW TEMPERATURE PLASMA STERILIZER

## MAIN FEATURES

Hydrogen peroxide injection system with high precision measuring pump, it can be adjusted the injection level, the reliability and the precision of injection can be increased. One time injection can be used for 50 cycles.

Hydrogen peroxide refrigerating system can realize low temperature storage. Safety and the stability of the chemical properties can be ensured.

High capacity of storage to store the initial data.

Colorful touch screen makes operation easier. All the parameters can be displayed and printed. Each step and any error can be displayed on touch screen.

Easy installation, only a 220V 50Hz power is needed.

## Inapplicable materials and instruments

- Stainless steel tube: inside diameter less than  $\Phi 1$ , length longer than 400mm
- Moisture absorption (woody apparatus, fibrin, cotton fabric) gauze etc.)
- Disposable instrument (disposable waterproof weave, disposable operative gown etc.)
- Liquid or powder
- Incomplete articles
- Dead end lumen
- Implant
- Can not sustain vacuum and the mark can only use am sterilizing equipments.



## TECHNICAL PARAMETERS

Chamber Dimensions	750 x 450 x 400 mm (L x W x H) 135 Lts
Overall Dimensions	940 x 860 x 1700 mm (L x W x H)
Weight	400 Kg
Microbicide	Peróxido de hidrógeno al 60%
Consumption	4.4 ml por ciclo
Sterilization Time	50 min
Sterilization Temperature	50 °C $\pm$ 5
Chamber vacuum compression	10 – 60 pa
Power supply	3 Kw

## STERILIZATION PROCESS

Phase	Vacuum level	Time
Vacuum	$\leq 66$ Pa	13 - 15 min.
Diffusion	$\geq 1332$ Pa	6 min.
Vacuum	$\leq 66$ Pa	6 - 8 min.
Plasma	$\leq 66$ Pa	2 min.
Diffusion	$\geq 1332$ Pa	6 min.
Vacuum	$\leq 66$ Pa	6 - 8 min.
Plasma	$\leq 66$ Pa	2 min.
Haul-back	100 kPa	1 min.

# ETHYLENE OXIDE PURE GAS STERILIZER

## (For hospital uses)

Ethylene oxide pure gas is taken as sterile medium with new design, it can kill all kinds of microbe, virus, sporangium, bacillus and propagator with its strong penetrability-broad-spectrum. Ethylene oxide gas can perform its function under lower temperature without damage to the materials to be sterilized. So it is widely used in medical, sanitary, trade units and bank, archeology, archive and culture relic departments, and appears its special advantages in sterilization for those without resistance to heat, humidity and erosion.

The sealing door is automatic up and down sliding, sealing with compressed air to reduce labor cost and it can save space. Touch screen as interface makes the operation more easy. The parameters such as time, temperature, humidity etc in process can be displayed and adjusted by screen, these parameters also can be printed by built-in printer. Chamber is made of aluminium alloy, it makes chamber temperature distribution more equality.



### SAFETY FEATURES

- The whole process is under negative pressure, even any leakage during any step, the gas in chamber will never come out because of the vacuum.
- The process can not be started when the door is unlocked.
- Leakage test is requisite before sterilization step.
- The door can not be opened if there is pressure or gas in chamber.
- Chamber pressure real time monitoring, if chamber pressure goes up abnormally, sterilizer will send alarm and process will go to aeration step automatically.
- Gas cartridge will be pierced automatically by a pierced cylinder only after vacuum, temperature and humidity reach the preset value, this can avoid the operation risk.
- Password is needed for parameters modification.
- Emergency switch can stop any abnormal operation occurs.
- Various alarms can stop operation and indicate the trouble spot.

### MAIN PARAMETERS

Rated working pressure	0.09 - 0 Mpa
Rated working temperature	37 - 63 °C
Working medium	% ethylene oxide gas according to customer request.
Relative humidity	50 - 80%
Gas concentration	740 - 860 mg/L

SPECIFICATIONS / MODEL	XG2.DCZ-130	XG2.DCV-220
Chamber dimensions (L x W x H)	750 x 4050 x 400	1250 x 450 x 400
Volume (L)	135	220
Overall dimensions (L x W x H)	950 x 860 x 1730	1450 x 860 x 1730
Net weight (Kg)	300	400
Power (220/60 ) Kw	3	4
Sterilization temperature	37°C / 55°C	37°C / 55°C
EO gas consumption/cycle (gr)	100	100



# ETHYLENE OXIDE MIXED GAS STERILIZER

## (Large production)

Ethylene oxide sterilizer Blending gas is used as sterilization medium, this series of sterilizers is mainly used to sterilize sanitation material and medicines that cannot be heated or damped. It has functions of auto control to medicine, time, temperature and residue gas disposal. Sterilizing by this means has advantages such as broad-spectrum sterilizing, high penetrability; no damage to materials when sterilized.



### FEATURES

- Rectangular Interlayer structure of main body, strict quality and safety standards.
- The airproof door has pneumatic translating structure, cog locking and pneumatic airproof. The silicon rubber sealing ring is heat resistant and it is durable.
- Hexahedron heating technology is used in the chamber, which makes temperature equal and reliable.
- Manual and PLC technology are both available for the control system; they can be combined freely according to customer requirements.
- They can be controlled and monitored by PC.
- Water cycle vacuum pump discharges the residue of Ethylene Oxide in the chamber forcibly.
- All the parts being provided by famous companies in the world, the advancing and operation without failure over long time are ensured.
- Ethylene Oxide blending gas is selected as sterilizing medium.
- Steam or electricity can be used for heating.

### MAIN PARAMETERS

Rated working pressure	0.075 - 0.15 Mpa
Rated working temperature	37 - 63 °C
Working medium	% ethylene oxide gas according to customer request.
Relative humidity	45 - 75%
Gas concentration	450 - 1200 mg/L

MODEL	Chamber dimensions (LXWXH)	VOLUME m <sup>3</sup>
X-0.36	1000 x 600 x 600	0.36
E-0.6	1200 x 610 x 910	0.6
H-0.8	1450 x 610 x 910	0.8
A-1.0	1700 x 610 x 910	1.0
B-1.2	1500 x 750 x 1080	1.2
F-1.5	1850 x 750 x 1080	1.5
M-2.0	1670 x 1000 x 1200	2.0
G-2.5	2100 x 1000 x 1200	2.5
T-3.0	2500 x 1000 x 1200	3.0
K-5.0	4000 x 1000 x 1200	5.0



## ASM SERIES STERILIZER

ASM series sterilizer is mainly used for the sterilization, leak test and cleaning of preparations such as ampoule, oral liquid ( $\leq 20\text{ml}$ ) and glass bottles with IV solution. Double leak test of vacuum with color water is executed after sterilization to ensure the detection rate of wastes. Water of high temperature is sprayed to the sterilizing bottles for heating and sterilization. The uniform sterilization between  $70^{\circ}\text{C}$  -  $127^{\circ}\text{C}$  can be achieved, which has the features of uniform temperature, wide temperature control range and reliable regulation and control.

Upper computer adopts LENOVO commercial computer as HMI, which the working process can be displayed dynamically, making the operation more visual and convenient. Users can also manually operate the equipment and make special configuration if needed.

MODEL	CHAMBER DIMENSIONS (LXWXH)	VOLUME $\text{m}^3$
ASMD	1200x610x910	0.6
ASMDA	1700x610x910	1.0
ASMDB	1500x680x1180	1.2
ASMDC	1870x680x1180	1.5
ASMDD	2500x680x1180	2.0
ASMDE	2100x1000x1200	2.5
ASMDN	2500x1000x1200	3.0
ASMDF	3400x1000x1200	4.0
ASMDG	4200x1000x1200	5.0
ASMDK	5200x1000x1200	6.0



## HOT DRY STERILIZER

Dry heat sterilizing equipment is in full accordance with Chinese GMP of newest version, USA FDA and EU cGMP regulations. This equipment is used for sterilization and depyrogenation of heat-resistant material, such as glass bottles, vials, glass vessels, metal containers and equipment components. For users' different technical requirement, this equipment has two series: GD Series Dry Heat Sterilizing Oven and GC Series Class 100 Depyrogenation Sterilizer.

## FEATURES

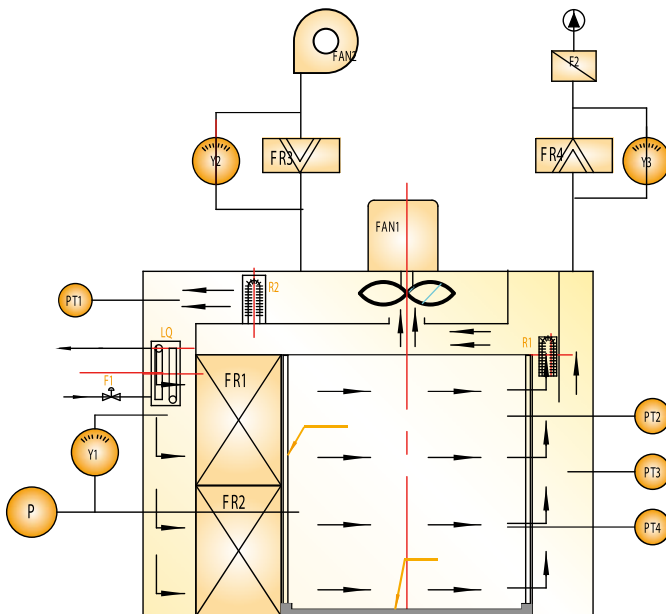
- Sealing door adopts the electrical lock to realize the safe interlock of front and back door.
- Sealing gasket of silicon rubber can operate under high temperature of 300°C for a long time, which avoid the contamination to products.
- The loading side is equipped with validation, which is convenient for validation.
- The air spreading plate and bottom air channel are specially designed for better air distribution.
- Chamber air entering, air in chamber and chamber air exhausting are filtered by HEPA filter, whose filtering efficiency is up to 99.99%.
- Temperature is distributed uniformly in chamber, and the temperature precision is controlled within the range of  $\pm 5^{\circ}\text{C}$ .
- The surface temperature of parts contacting people cannot be more than 45°C.



## WORKING PRINCIPLE

With the working of circulating fan, heating tube and dehumidifying fan, the drying chamber heat quickly.

At the same time, clear and dry air enters chamber through HEPA, absorbs water on products surface, and be exhausted by circulating channel. Then dry air flows in constant circulation under the action of fan. With gradual decrease of vapour and interval supplement of fresh filtered air, the chamber is under slight positive pressure. When chamber temperature reaches preset value, the sterilizer is in heat preservation to sterilize products.



MODEL	CHAMBER SIZE (L)	COOLING METHOD
GDX 0.36	360	Air
GDH 0-6	600	Air
GDE 0.6	600	Air
G DA 1	1,000	Air or water
G DB 1.2	1,200	Air or water
G DF 1.5	1,500	Air or water
G DM 2.0	2,000	Air or water
G DG 2.5	2,500	Air or water
GDT 3.0	3,000	Air or water
GDL 4.0	4,000	Air or water
GDK 5.0	5,000	Air or water
GDQ 6.0	6,000	Air or water



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