

# Integrated Medical Waste Autoclave with Shredder

## Model MWI-300



### 2.2.1 Operation process chart



1.Loading    2.Shredding    3.Sterilization    4.Cooling    5.Vacuum    6.Unloading

### 2.2.2 Process description

**Loading:** medical waste is loaded into loading chamber by an automatic dumper through the top door.

**Shredding:** The shredder rotates forwards and backwards to shred the waste into unrecognizable pieces which then fall into the sterilizing chamber.

**Sterilizing:** in the sterilization process, the saturated steam is injected into the chamber to heat the

**Cooling and drainage:** the cold water is sprayed into the chamber to decrease the temperature and then be drained out.

**Post-vacuum:** post-vacuum process is to remove the residual vapor and moisture to reduce the odor, and the treated waste is cooled and dry at end of the cycle.

**Unloading:** the bottom door open, and the sterile waste is unloaded.

### 2.3 Technical specification & main parameter for one unit of MWI-300

MWI Series	Unit	MWI-300
<b>General Parameters</b>		
Dimension (L×W×H)	mm	3800×2700×5100*
Chamber Material	-	Stainless Steel SS316L
Net Weight	ton	3.5
Rated Power	kW	11
Loading	-	Vertical loading, by automatic dumper
Disposal Volume	liter/cycle	300
Waste Density*	kg/m <sup>3</sup>	100
Disposal Weight	kg/cycle	60
Cycle Time	min	30
Working Temperature	°C	121-138
Working Pressure	MPa	-0.06-0.25
Design Temperature	°C	152
Design Pressure	MPa	-0.1-0.4
Microbial Inactivation	-	8 Log10 (99.999999%)
Volume Reduction	%	80

\*Dimension may be modified according to local circumstance, please subject to the final product.

\*Please note the actual waste density is according to local conditions.

### **3. System Composition**

The integrated autoclave with shredder system is mainly composed of autoclave with built-in shredder unit, hydraulic ring vacuum pump, control system, valves and instruments, and material handling system including loading and unloading containers, automated dumper, platform and steam generator etc.

#### **3.1 Autoclave**

High temperature, high pressure, and high vacuum autoclave sterilization system with built-in shredder, computerized by control plus PLC for centralized medical waste treatment.

##### **3.1.1 Standard**

The autoclave is manufactured and tested in accordance to GB and certified by CE 2014/68/EU.

##### **3.1.2 Autoclave material**

Autoclave chamber material is stainless steel SS316L.

##### **3.1.3 Autoclave door system**

Automatic & quick opening door with mechanical interlock devices; PLC interlock controlled with double safety design assure that no steam going into autoclave when door is unlocked and no door opening while under pressure. Autoclave door ring is sealed by inflatable sealing ring.

#### **3.2 Built-in shredder**

To match with the autoclave system, medical waste shredders are designed to render waste into unrecognizable short pieces. The shredder features of:

- WIPO patent of special disassembling structure of the shredder.
- Double-shaft shredder with special wear-resistant blades, strong and durable.
- The shredder identifies waste jamming and change rotating direction alternatively to crush the waste thoroughly.
- Low speed torsion, crush all kinds of medical waste.
- Controlled by PLC, automated recognize forwarding & reversing, overload protection etc.



Fig.: Shredder Blades & Shafts

### 3.3 Vacuum pump

High efficiency hydraulic ring vacuum is capable to evacuating air to negative pressure in a short time.

### 3.4 Control system

Microprocessor control system for autoclaves including safety instrument to monitor and control the autoclave operation. Powerful features including but not limited:

- Siemens HMI color touch screen 10'' or similar brand.
- All electrical components are provided by world famous brand such as Siemens.
- Visible live treatment process, real-time temperature and pressure.
- Updatable and super-micro programmable logic controller (PLC).
- Automatically recording/data memory.
- Micro-printer to print operation data every cycle.
- Safety interlocks for door operation.
- Failure alarm and emergency stop.
- Auto/manual switch mode available.
- Multiple languages available.



Fig. Colorful Touch Screen with Live Process

### 3.5 Material handling system

#### 3.5.1 Dumper

The heavy-duty dumper can be customized and matched to work with the containers, which works to lift the container and dump the waste into the autoclave loading chamber.

#### 3.5.2 Loading container

The containers are for transportation and loading the waste. Volume: 240L.

#### 3.5.3 Unloading system

Gient provides either unloading cart/container or automated unloading system according to site circumstance.

#### 3.5.4 Maintenance platform including ladder etc.

The maintenance platform including ladder etc. is to help operator to inspect the machines at a time of repair or maintenance etc.

### 3.6 Steam generator

Gient supplies steam generator to each autoclave system, which is special suitable for medical waste treatment and match the operation of MWI-300.

#### 3.6.1 Standard

The boiler is manufactured and tested in accordance to GB and certified by CE 2014/68/EU.

#### 3.6.2 Technical specifications of boiler

Boiler system includes a **water supply pump, water softener, and control cabinet etc.**

Steam generator	Unit	WDR0.1-0.7
Dimension (L×W×H)	mm	1400×1000×1100
Net Weight	kg	400
Rated Evaporation	kg	110
Rated Power	kW	90
Fuel Type	-	Electricity

\*Specification for reference, please subject to final confirmation.

#### 3.6.3 Features of Steam Generator

- Fast and large quantity steam supply special designed for medical waste treatment.
- With a larger water volume
- Stable high quality steam supply & energy saving design

Infrastructure				
	Name	Unit	Value	Remark
1	Water source	MPa	0.3	Client shall prepare the qualified booster pump if the water pressure does not meet the requirement on site.
2	Steam source	MPa	0.7	Client can choose Gient boiler to provide steam source.
3	Compressed air source	MPa	0.8	Client shall prepare the qualified air compressor if the compressed air does not meet the requirement on site.
4	Power supply	kW	105	Power specification will be in accordance with local power supply. The local power supply shall be stable.
5	Sewage system	-	-	Sewage/waste gas will enter to user's sewage/exhaust gas treatment system, the corresponding treatment systems is determined by the local laws and regulations.
6	Waste gas	-	-	
Building Requirements				
1	Operation dimension	mm		L×W×H
2	The minimum size of the plant	m		L×W×H
3	Floor strength	-	-	Weight of the equipment
Building requirements and layout design drawings will be according to local requirements and be given after local requirements are confirmed.				

#### CLEAN AND EFFECTIVE

- Green process without emission of harmful substance (VOCs such as dioxin, furan etc.).
- Clean process and filters reducing 90% nuisance odors on-site.
- Respect strict environmental standard worldwide.
- Microbial inactivation efficacy test exceeds 8 Log10 (99.999999%).
- Final product is rendered unrecognizable same as household waste.

## ECONOMICAL AND RELIABLE

- Proven lowest operation cost.
- Water recycling option available.
- Low maintenance cost budget.
- Spare parts available at low budget for lifetime.



## CERTIFICATE OF QUALITY MANAGEMENT SYSTEM CERTIFICATION

Certificate No.016CQ21Q30596R7M  
Unified social credit code:91500112202914572F

This is to Certify that the Quality Management System of

**CHONGQING GIENT HEATING INDUSTRY CO., LTD.**

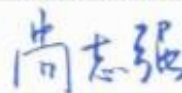
is in conformity with  
GB/T19001-2016 idt ISO9001:2015 Standard, applies to

DESIGN AND MANUFACTURE OF D1 CLASS PRESSURE VESSELS; MANUFACTURE OF GRADE B  
BOILERS

REGISTERED ADDRESS:NO.3, GAOBAOHU EAST RD., KONGGANG INDUSTRIAL ZONE,  
CHONGQING, P.R.C.  
OPERATION ADDRESS:NO.3, GAOBAOHU EAST RD., KONGGANG INDUSTRIAL ZONE,  
CHONGQING, P.R.C.

Date of Initial Issuance: Jan. 11, 2001  
Date of Re-certification Issuance:Mar. 23, 2021  
Date of Expiration: Jul. 9, 2024

BCC Inc.  
President:



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# CERTIFICATE OF ENVIRONMENT MANAGEMENT SYSTEM CERTIFICATION

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CHONGQING, P.R.C.

Date of Initial Issuance: Apr. 8, 2015  
Date of Re-certification Issuance:Mar. 23, 2021  
Date of Expiration: Apr. 7, 2024

BCC Inc.  
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环境管理体系  
认证证书  
管理体系  
认证证书  
MANAGEMENT SYSTEM  
CNAS C016-M



# CERTIFICATE OF OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM CERTIFICATION

Certificate No.016CQ21S30579R2M  
Unified social credit code:91500112202914572F

This is to Certify that the Occupational Health and Safety Management System of

**CHONGQING GIANT HEATING INDUSTRY CO., LTD.**

is in conformity with  
GB/T 45001-2020 idt ISO 45001:2018 Standard, applies to

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CHONGQING, P.R.C.

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Αριθμ. Πιστοποιητικού Διαπίστευσης ΕΔΥΔ 853-3

Θεσσαλονίκη, 5-9-2017

Αριθμ.Πρωτ.: 14/5-9-17

### ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ

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Για τη Eurolab

Ο Διευθυντής

Δρ. Ιωάννης Παπάτσος  
Κτηνίατρος

Η Υπεύθυνη Ποιότητας

**EUROLAB**  
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Δρ. Ευανθία Πετρίδου  
Κτηνίατρος- Μικροβιολόγος

# Sterilization Efficiency Test Report of MWI-2500 by CNAS



## Chongqing Centers for Disease Control and Prevention (CDC) Report of Test Results



中国认可  
国际互认  
TESTING  
CNASL1095

YJKXZ[2015] No.795

Page 1 of 1

Name of sample: Tablets for monitoring 2 units of MWI2500 system for disposing medical wastes by high temp. & press. steam Trademark: ----

Manufactured by: ---- Sample source: delivered for test

Sampled organization: ---- Quantity of samples: 20 tabs.

Sampling organization: ---- Sampled by: ----

Delivering organization: Chongqing Gient Heating Industry Co., Ltd. Delivered by: Yang Chao

Sample status and package: white paper Date of reception: Dec. 17, 2015

Date of manufacture/batch No.: ---- Date of inspection: Dec. 17, 2015


Test item: Sterilization Efficacy for MWI2500 System


Test standard: Ministry of Health, Technical Standard for Disinfection (2002 Edition) 3.17.2.1


### Test results:

The tablet with bacteria (B.stearotherophilus spores ATCC7953  $5.0 \times 10^5 \sim 5.0 \times 10^6$  cfu/tab, produced by the Beijing Sihuan Disinfection Co.Ltd), delivered by the said organization for monitoring 2 units of MWI2500 system(unit A & B) for disposing medical waste by high temperature and pressure steam. Each unit with continuing 5 cycles, 2 pieces per cycle, and total sample quantity is 20 pieces. The samples has been inoculated with bromcresol purple glucose peptone water matrix and found free of bacteria growth after being cultured.



Tested by:   
(signature)

Reviewed by:   
(signature)

Issued by:   
(signature)

Add: Changjiang Rd No.8, Yuzhong Dis., Chongqing, China 400042

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