

Infectious Waste Steam Autoclaves:

JSD260L

JSD440L

Capacity 45kg of hospital infectious waste per cycle

JSD1300L

Capacity 135kg of hospital infectious waste per cycle

Capacity 720kg of hospital infectious waste per cycle

JSD14000L

Capacity 720kg of hospital infectious waste per cycle

JSD14000L

Capacity 1440kg of hospital infectious waste per cycle



Earths ability to absorb waste is a major influence on the adaptation of waste-treatment technologies.



Affordable non-incineration technology available for Africa.



The key objectives in considering any technology or protocol should be the:

- hazardous factor to healthcare workers, communities and the environment
- sustainability, simplicity, reliability, viability and effectivity of the equipment
- initial capital layout of the equipment
- long term cost effectivity of the equipment
- 'ease of use' of the equipment
- back up service and onsite technical support
- Energy efficiency
- Water usage
- Chamber load capacity



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The key features of the technology are as follows:

- An autoclave uses pressurized steam at 134°C alternating with vacuum cycles to achieve high levels of sterilization. It was tested with sterilizing indicators and bacterial spores far more resistant to steam or than the Ebola virus.
- Microbial destruction exceeds the international STAATT II standard for medical waste by an order of magnitude.
- Medi-Clave Infectious waste autoclaves were developed in collaboration with the United Nations Development Programme's Global Environment Facility (GEF) Project on Healthcare Waste.
- Stockholm Convention on POPs
 - o Article 5:

Countries shall promote the use of best environmental practices (BEP) Countries shall require the use of best available techniques (BAT)

Annex C

"Priority consideration" should be given to alternative technologies that avoid formation of dioxins & furans

- Meets international pressure vessel standard.
- Ease of operation and easy sliding door
- From Science to Action, working for a safer tomorrow.

Developed in collaboration with the
United Nations Development Programme's
Global Environment Facility
(GEF) Project

(GEF) Project
on Healthcare Waste

October 2014





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WASTE STEAM AUTOCLAVE

United Nations Development Programme

Barrel Loading System



- * Effective, easy to use, robust, affordable, and appropriate for the conditions in Africa
- * Multiple vacuum autoclave with sterilization at 134°C or 121°C
- * Manufactured by Medi-Clave Pty Ltd (Pretoria, RSA)
- * Developed in collaboration with the GEF/UNDP Project
- * 260 440 litres chamber, 1 to 1.5 hours cycle time per cycle
- * Dimensions: 1.1m x 1.5m x 2m high
- * Certified to meet or exceed international autoclave standards (ASME, STAATT)
- * Includes boiler, all stainless steel construction
- * Easy sliding door
- * Low maintenance and reliable
- * Special trolley with barrel to collect waste; the whole barrel slides into the autoclave to be sterilized after treatment, the barrel rotates to dump out treated waste



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Operational instructions



WASTE STEAM AUTOCLAVE

United Nations Development Programme

JSD 260 - 440 L Barrel Loading System



Place waste inside stainless steel barrel and close the lid



When barrel is full, take to autoclave



Slide barrel into autoclave



Close sliding door



Barrel and trolley are ready to pick up more waste



Unlock & rotate barrel to dump treated waste at the bottom



When finished, open the door and remove sterilized barrel



Start heating, multi-vacuum and sterilization cycles



www.medi-clave.co.za



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Medi-Clave Key Advantages:

- In the 'health-care sector' a "wet-load" is considered as "Un-Sterilize! With this mind set and technology at hand, our processed waste emerges more compact and drier making the sterilized waste contents much easier to handled and shred, posing a huge advantage over other imported waste-autoclaves.
- In the health-care sector it also all about steam-penetration Medi-Clave waste units ensure deep penetration with preprogramable pulsation cycles drastically shortened cycle times which do not rely on steam gravity displacement for penetration ensuring rapid and uniform disinfection deep within.
- 'Water Saving Technology' is introduced to reduce water consumption and each autoclave records the water usage per cycle along with all the cycle parameters for record keeping purposes.
- Medi-Clave has a team of Service Technicians based across South Africa and Africa with locally sourced parts for reduced costs and downtime.



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After
Note: Dryness Factor &
_Reduction In Volume









JSD 1300L Fully Automatic PLC Controlled Unit



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JSD 7000L Fully Automatic PLC Controlled Unit



- Custom made stainless bins as per client requirements
- Three Bins loaded per cycle
- Autoclave bags or cardboard boxes loaded into bins
- Bins emptied into shredder for disposal











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JSD 7000L Fully Automatic PLC Controlled Unit

TECHNICIAL SPESIFICATIONS: Model JSD7000

TYPE: Fully Automatic Sterilizing Cycles with Sliding Door

INFECTIOUS WASTE 134: Sterilizing 134°C @15min Drying -60Kpa@5min

INFECTIOUS WASTE 121: Sterilizing 121°C @30min Drying -60Kpa@5min

PROCESSING CYCLE TIME: 30min's - 50min's (Cycle configuration and load dependant)

CHAMBER CAPACITY: 7000 Litres

INNER SIZE (Chamber): $4150 \text{mm} \times 1200 \text{mm} \times 1400 \text{mm} \text{ (L)} \times \text{ (B)} \times \text{ (H)}$

OUTER SIZE (Footprint Required): 6000mm x 2500mm (L) x (B)

NET WEIGHT: +/- 8Ton

VOLTAGE:

DRAIN:

CHAMBER: Horizontal rectangular high polished stainless steel.

JACKET: Unique cell design jacket chamber with 15year life expectancy.

(square chamber ensures higher volume throughput)

(heated chamber ensures drier loads post decontamination)

380-400 V ,3 Phase L1,L2,L3,Neultral + Earth (6kw)

50mm Galvanised open drain

BOILER: Electrical steam generator bank 8 x 48Kw Steam generators

VOLTAGE: 380-400 V,3 Phase L1,L2,L3,Neultral + Earth 610 Amp Per Phase



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JSD 7000L Fully Automatic PLC Controlled Unit

MAXIMUM STEAM DEMAND (Kg)

STEAM USAGE PER CYCLE (KG)

MICROBIAL DESTRUCTION:

750kg/h

350kg (per cycle load dependant)

Exceeds STAATT II microbial inactivation standard by a factor of 10

WATER SUPPLY: Soft water 3/4" pipe @ 300Kpa

Water usage per cycle including condensed steam - 520lts (load dependant)

COMPRESSED AIR (mPa): 0,5-0,8 (Pneumatic Air Valves)

VACCUUM PUMP: Rapid deep penetrating, silent operating, low maintenance

DESIGNED TEMPERATURE: 141°C

WORKING TEMPERATURE: 134°C or 121°C

FULLY AUTOMATIC: Fully automatic PLC operated control system with soft touch 7" Display

DESIGN PRESSURE: 300Kpa

CHAMBER MATERIAL: Stainless Steel 3CR12 / 304 / 316 / Duplex or Boiler Plate

ACCESSORIES INCLUDED: 6 x Transport Bins (1600lt per bin)

PROCESSING VOLUME: $3 \times 1600lt = 4800lts/cycle \times 150kg/m3 = 720kg/cycle$

STANDARDS: ASME VIII, ISO 3834 Accreditation



Affordable non-incineration technology available for Africa.

JSD 14000L Fully Automatic PLC Controlled Unit

TECHNICIAL SPESIFICATIONS: Model JSD14000

TYPE: Fully Au

INFECTIOUS WASTE 134:

INFECTIOUS WASTE 121:

PROCESSING CYCLE TIME:

CHAMBER CAPACITY:

INNER SIZE (Chamber):

OUTER SIZE (Footprint Required):

NET WEIGHT:

CHAMBER:

JACKET:

VOLTAGE:

DRAIN:

BOILER:

Fully Automatic Sterilizing Cycles with Sliding Door

Sterilizing 134°C @15min Drying -60Kpa@5min

Sterilizing 121°C @30min Drying -60Kpa@5min

30min's - 50min's (Cycle configuration and load dependant)

14000 Litres

8300mm x 1200mm x 1400mm (L) x (B) x (H)

1000mm x 2500mm (L) x (B)

+/- 14Ton

Horizontal rectangular high polished stainless steel.

Unique cell design jacket chamber with 15year life expectancy.

(square chamber ensures higher volume throughput)

(heated chamber ensures drier loads post decontamination)

380-400 V ,3 Phase L1,L2,L3,Neultral + Earth (12Kw)

110mm Galvanised open drain

Electrical steam generator bank 16 x 48Kw Steam generators

VOLTAGE: 380-400 V ,3 Phase L1,L2,L3,Neultral + Earth 610 Amp Per Phase



Affordable non-incineration technology available for Africa.

JSD 14,000L Fully Automatic PLC Controlled Unit

MAXIMUM STEAM DEMAND (Kg)

STEAM USAGE PER CYCLE (KG)

MICROBIAL DESTRUCTION:

1200kg/h

700kg (per cycle load dependant)

Exceeds STAATT II microbial inactivation standard by a factor of 10

WATER SUPPLY: Soft water 3/4" pipe @ 300Kpa

Water usage per cycle including condensed steam - 1000lts (load dependant

COMPRESSED AIR (mPa): 0,5-0,

VACCUUM PUMP:

0,5-0,8 (Pneumatic Air Valves)

Rapid deep penetrating, silent operating, low maintenance

DESIGNED TEMPERATURE: 141°C

WORKING TEMPERATURE: 134°C or 121°C

FULLY AUTOMATIC: Fully automatic PLC operated control system with soft touch 7" Display

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CHAMBER MATERIAL: Stainless Steel 3CR12 / 304 / 316 / Duplex or Boiler Plate

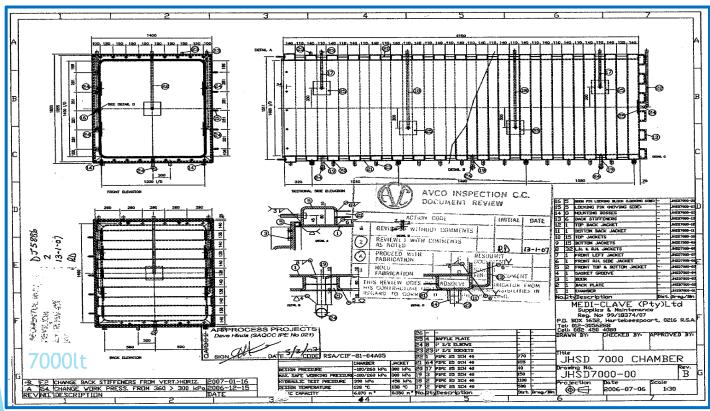
ACCESSORIES INCLUDED: $12 \times Transport Bins (1,3m \times 1,1m \times 1,2m = 1600lt per bin)$

PROCESSING VOLUME: 6 x 1600lt = 9600lts/cycle x 150kg/m3 = 1440kg/cycle

STANDARDS: ASME VIII, ISO 3834 Accreditation



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contaminants may have a deleterious effects on autoclaves and may void warrantees, normal austenitic stainless steels are susceptible to stress corrosion cracking induced by chlorides and will lead to premature material failure

The amount of chlorides and chloride gasses from the steam supply or load

Life expectance on a duplex stainless steel is 15 years plus

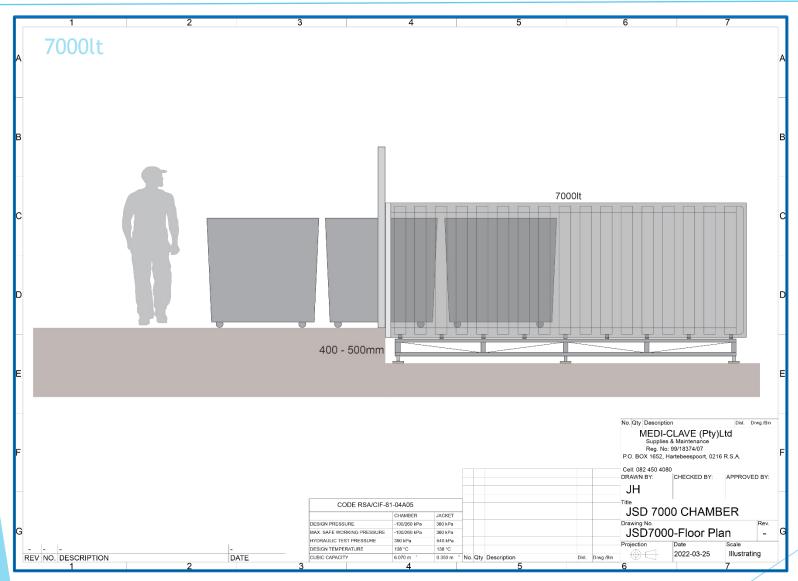
Our standard monocoque design and all stainless-steel rectangular type autoclave chamber is uniquely constructed in such a manner that the jacket and the chamber acts as a single structure ensuring excellent integral strength, it is extremely energy efficient and boasts a superior 6 year pressure vessel integrity warranty if fully maintained by Medi-Clave.

APPROVED PRESSURE VESSEL DESIGN BY SANAS **ACCREDITED THIRD PARTY INSPECTORS** ASME VIII, ISO 3834 Accreditation

COUNTRY OF ORIGIN: RSA



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Fully Automatic PLC Controlled Units

HMI Operating Screens

