



MEDICAL WASTE STERILIZATION SYSTEMS

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akarmak

Advanced Technology Sterilization Systems For Medical Waste Sterilization

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ABOUT US

Akarmak, established in 1990, manufactures autoclaves for various industries including Medical Waste Sterilization, Glass Industry, Tire Retreading / Rubber Vulcanization, Building Materials, Composite Materials etc.. Our machines are operational in more than 50 countries worldwide.

We have good capability to offer autoclaves for the above mentioned industries with our 25+ years of experience and know-how. Our manufacturing capacity is up to 5 meters in diameter and 50 meters in length. We are capable of providing turn-key and boutique solutions for our customers starting from the "Customer Requirement Acquisition" stage up to "Design", "Manufacturing", "Testing", "Delivery" and "On-Site Commissioning".

Akarmak has the following certifications:

- Pressure Equipment Directive 2014/68/EU
- ASME SEC VIII D.1.
- EAC
- EN 3834-2
- AD2000
- ISO9001-2015
- Other certificates that may be required by different countries and jurisdictions

We work with internationally well-known certificate agencies such as Bureau Veritas, TÜV and Hartford Steam Boilers to certify our autoclaves.

For more information, please visit us at;

www.akarmak.com.tr



MEDICAL WASTE STERILIZATION

Medical Waste Sterilization Systems are manufactured in our state-of-the-art manufacturing facilities in Eskişehir/Turkey, in close proximity to major cities and ports. We have the widest capacity range along with both pre-shredded and post-shredded types.

Our systems are designed using advanced design tools and software, meeting the highest safety and quality standards. We approach every project as unique and therefore can provide custom-made solutions by considering "Customer Specific Request"s. Our manufacturing is carried out by experienced, highly trained and certified labor force and technical personnel.

Upon manufacturing, our machine is inspected for sterilization level as per International Standards (Robert Koch Institute & STAATT Level IV etc.). We share this Inspection Report with our customers.



QUICK FACTS

- 8log10 Microbial Inactivation
- Inspection Report for Sterilization Level as per International Standards (Robert Koch Institute & STAATT Level IV etc.)
- Strong and Long-Lasting Shredder
- Up to 80% Volume Reduction
- Archimedes Screw: Avoids waste sticking on the interior wall of the machine
- References in 50+ Countries
- 25+ Years of Experience and Know-How
- Durability and Safety
- Bayonet: Safest Door Type for Autoclaves
- Siemens Touch Panel
- Technical Support & Maintenance by Certified Experts

8log10 Microbial Inactivation

PRE-SHREDDED SYSTEMS FOR CLINICS &
MEDIUM AND LARGE HOSPITALS

AKR250L **AKR500L** **AKR1000L**

**8log10 Microbial Inactivation**

PRE-SHREDDED SYSTEMS FOR CENTRALIZED
COLLECTING PLANTS

AKR2500L

**6log10 Microbial Inactivation**

POST-SHREDDED SYSTEMS FOR CENTRALIZED
COLLECTING PLANTS

AKR500A **AKR1000A** **AKR1500A**

**AKARMAK MEDICAL WASTE STERILIZATION SYSTEM DATA SHEET**

Code	Design Values					Consumption / Cycle	
	Cycle Time (min)	Sterilization Capacity (kg/cycle)	Power Supply (kW) [1]	Feeding Unit Volume (lt)	Autoclave Unit Volume (lt)	Electric (kWh) [1]	Steam (kg)
AKR250L	30-35	20-30	17	250	450	2-3	15
AKR500L	30-35	50-70	17	500	600	3-5	25
AKR1000L	40-45	100-130	17	1000	600	5-7	35
AKR2500L	50-60	250-300	45	2500	1500	20-25	80
AKR500A	35-40	500-700	45	-	5000	12-15	400
AKR1000A	45-50	1000-1200	50	-	8500	15-20	600
AKR1500A	50-55	1500-1800	60	-	12000	22-30	800

[1]

Compressor and steam generator are excluded

* Cycle capacity has been calculated according to 100-120 kg/m³ waste density



AKR 250L-500L-1000L PRE-SHREDDED SYSTEMS FOR CLINICS & MEDIUM & LARGE HOSPITALS

MEDICAL WASTE STERILIZATION SYSTEM WITH PRE-SHREDDED AUTOCLAVE METHODS

- 8log10 Microbial Inactivation
- Inspection Report for Sterilization Level as per International Standards (Robert Koch Institute & STAATT Level IV etc.)
- Strong and Long-Lasting Shredder
- Up to 80% Volume Reduction
- Archimedes Screw: Avoids waste sticking on the interior wall of the machine
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TECHNICAL FEATURES

DESCRIPTIONS

	AKR250L	AKR500L	AKR1000L
Sterilization Capacities (kg/cycle)	20-30	50-70	100-130
Process Method	Full Automatic, Pre-Shredded, Steam Sterilization		
Pressure Vessel and Shredder Hopper Materials	Stainless-steel AISI316L		
Approximate Total Weight	2200	2500	2900
Waste Feeding System	Automatic and manual options		
Total Design Power (Excluding Steam Generator) (kW)	17	17	17
Dimensions (Width x Length x Height) (mm) Without Lifter	3000x3300x2750	3000x3300x3150	3000x3300x3600
Dimensions (Width x Length x Height) (mm) With Lifter	3000x3300x4000	3000x3300x4150	3000x3300x4400
Shredder's Electric Motor Power	4kW x 11kW		
Auto Reverse System for Shredder in Case Of Waste Jamming	✓	✓	✓
Sterilization Temperature: 135-140°C (Programmable)	✓	✓	✓
Sterilization Pressure: 3-4 bar (Programmable)	✓	✓	✓
Sterilization Level	8log10 (99,9999%)		
Inspection Report For Sterilization Level	As per International Standard (Robert Koch Institute & STAATT Level IV etc.)		
Waste Volume Reduction	Up to 80%		



- 1 Waste loading**
Full automatic loading option.



- 2 Shredding**
Current control in case of waste jamming. The shredder rotates reverse to unjam and process continues.

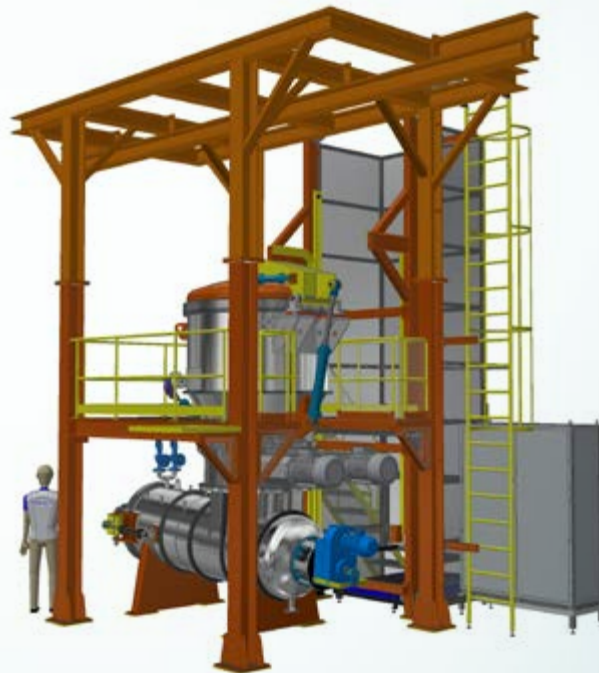


- 3 Sterilization**
Full automatic mode during vacuuming, steam charging and depressurising.



- 4 Waste Discharging**
Sterilized waste is discharged automatically through archimedes screw.

AKR 2500L PRE-SHREDDED SYSTEMS FOR CENTRALIZED COLLECTING PLANTS



- 8log10 Microbial Inactivation.
- Inspection Report as per International Standards (Robert Koch Institute & STAATT Level IV etc.)
- International Standards including CE, ASME, EAC.
- Up to 80% Volume Reduction.
- Capacity Up To 300Kg per hour.
- Autoclave and Shredder are integrated to each other.
- Ideal for Big Plants.
- Turn-key Solutions.
- Multiple Safety Control Features.
- Advanced Reporting and Monitoring Features.



TECHNICAL FEATURES

DESCRIPTIONS	AKR2500L
Sterilization Capacities (kg/cycle)	250-300
Process Method	Full Automatic, Pre-Shredded, Steam Sterilization
Pressure Vessel and Shredder Hopper Materials	Stainless-steel AISI316L
Approximate Total Weight (kg)	10000
Feeding Unit Volume (lt)	2500
Autoclave Unit Volume (lt)	1500
Waste Feeding System	Full Automatic Including Lifter, Container Feeding System
Total Design Power (Excluding Steam Generator) (kW)	38
Installation Space Dimensions (Width x Length x Height) (mm)	6000x8000x6500
Shredder's Electric Motor Power	15kW x 22kW
Automatic Weighing System	✓
Auto Reverse System for Shredder in Case Of Waste Jamming	✓
Sterilization Temperature: 135-140°C (Programmable)	✓
Sterilization Pressure: 3-4 bar (Programmable)	✓
Sterilization Level	8log10 (99,9999%)
Inspection Report For Sterilization Level	As per International Standard (Robert Koch Institute & STAATT Level IV etc.)
Waste Volume Reduction	Up to 80%



- 1 **Waste loading**
Full automatic loading.



- 2 **Shredding**
Current control in case of waste jamming. The shredder rotates reverse to unjam and process continues.



- 3 **Sterilization**
Full automatic mode during vacuuming, steam charging and depressurising.



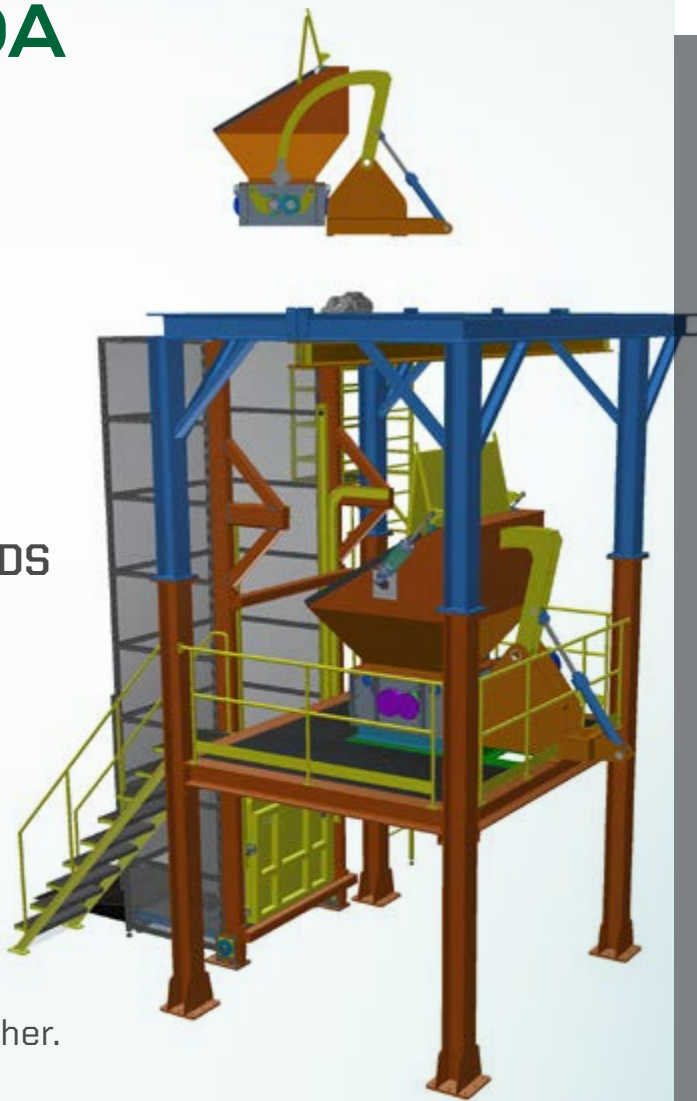
- 4 **Waste Discharging**
Sterilized waste is discharged automatically through archimedes screw.



AKR 500A-1000A-1500A POST-SHREDDED SYSTEMS FOR CENTRALIZED COLLECTING PLANTS

MEDICAL WASTE STERILIZATION SYSTEM WITH POST-SHREDDED AUTOCLAVE METHODS

- 6log10 Microbial Inactivation.
- Inspection Report as per International Standards (Robert Koch Institute & STAATT Level IV etc.)
- International Standards including CE, ASME, EAC.
- Up to 80% Volume Reduction.
- Capacities from 500Kg to 1800Kg per hour.
- Autoclave and Shredder are separated from each other.
- Ideal for Big Plants.
- Turn-key Solutions.
- Multiple Safety Control Features.
- Advanced Reporting and Monitoring Features.



DESCRIPTIONS

	AKR500A	AKR1000A	AKR1500A
Sterilization Capacities (kg/h)	500-700	1000-1200	1500-1800
Process Method	Full Automatic, Post-Shredded, Steam Sterilization		
Pressure Vessel and Shredder Hopper Materials	P295GH		
Approximate Total Weight	19500	21500	23000
Autoclave Unit Volume (lt)	14000	20000	26000
Waste Feeding System Into Shredder's Hopper	Full Automatic Including Lifter , Covered With Transparent Fences. Container Feeding System		
Autoclave Door System	Full Automatic , Hydraulic Closing / Opening, Hydraulic Locking / Unlocking		
Total Design Power (Excluding Steam Generator and Compressor) (kW)	40-45kW	45-50kW	55-60kW
Dimensions (Inner Dimensions x Length)	Ø2000x4000	Ø2000x6500	Ø2000x8500
Autoclave Trolley (mm)	1200x1200x1200	1200x1200x1200	1200x1200x1200
Shredder's Electric Motor Power	15kW x 22kW	22kW x 22kW	22kW x 30kW
Autoclave Car Material	AISI316L		
Autoclave Trolley Quantity Per Cycle	3	5	7
Feeding Hopper Capacity For Shredding Unit (lt)	2000	2000	2000
Waste Loading into Shredding Unit	Full Automatic Loading into Shredder		
Dimensions for Shredding Unit (Width x Length x Height) (mm)	6000x5600x6500	6500x6200x6500	6500 x 6200 x 6500
Optimum Building Area Needs (mm)	15000x15000x8000	18000x15000x8000	20000x15000x8000
Sterilization Temperature : 140-155°C (Programmable)	✓	✓	✓
Sterilization Pressure: 4-5 bar (Programmable)	✓	✓	✓
Sterilization Level	6log10 (99,9999%)		
Inspection Report For Sterilization Level	As per International Standard (Robert Koch Institute & STAATT Level IV etc.)		
Waste Volume Reduction	Up to 80%		

TECHNICAL FEATURES



Waste loading
Manual loading with stainless steel trolleys into the autoclave. Automatic weighing in front of the autoclave. Automatic sterilization process.



Car loading
Full automatic loading into the shredder.



Sterilization
Current control in case of waste jamming. The shredder rotates reverse to unjam and process continues.



Waste Discharging
Sterilized waste is discharged automatically to truck or container.

CERTIFICATIONS

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2018-11-12

Inspection report BI 21946

AKAR MAKİNA San. Tic. A.Ş.

Examination of disinfection method for porous materials according to RKI, EN 285, DIN 58949-3, EN 12740 and STAATT Level IV

Ordered by:

AKAR MAKİNA San. Tic. A.Ş.
Organize Sanayi Bölgesi 14.Cad. No:8
Osib / Odunpazarı / Eskişehir
TURKEY

Date of order:

2018-09-03

Inspection order:

Examination of disinfection method according to RKI, EN 285, DIN 58949-3, EN 12740 and STAATT Level IV

Inspection item:

Medical waste sterilization system; AKR2000L

Date of inspection:

2018-10-20

Inspection by:

Monika Feltgen
HygCen Austria GmbH

Inspection period / test period:

2018-10-20; 2018-10-29 - 2018-11-04

Participants of the inspection:

Bülent Deveci; UMS Medical

Inspection method:

Examination of disinfection method (134° C for porous materials based on Robert-Koch-Institute (RKI) Germany Guideline), EN 285 and DIN 58949-3, EN 12740 and the STAATT Level IV





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