TPS
Thermal Product Solutions

WHY GRUENBERG DRY HEAT STERILIZATION?

- Design assistance from leader in lab animal science sterilization
- Lowest total cost of ownership
- Greater output in a smaller footprint
- Safer operation
- Extended cage life
- Healthier environment (less heat, less moisture)
- PrecisionFlo™

GRUENBERG STERIDRY™ STERILIZERS

DRY HEAT Sterilization
Lower Cost, Worry-Free & Green

Gruenberg

Hold the Steam

Dry heat sterilization systems use forced-air convection technology for reduced energy consumption.

PRECISIONFLO™

100% focused forced-air convection technology.

*Patent Pending

Pharmaceutical, Medical Device and Life Science Research sterilization has recently seen a demand for greener technologies that require less maintenance. This puts the pressure on equipment engineers to develop innovative ways to approach sterilization. While traditional steam autoclaves use water; dry heat sterilization provides an alternative to steam that uses no water, less energy, and requires less maintenance.

Compared with steam; dry heat is a greener technology that eliminates water usage, provides more flexibility for installation locations, and costs less to own and operate.

Modern dry heat sterilization systems using focused forced air convection technology are consistently decreasing the cycle time. Depending on the load configuration and cool down requirements, the typical cycle lasts less than 3 hours.

The initial cost of available dry heat systems is about 60% of equivalent sized steam autoclaves. A dry heat sterilizer is two to three times lighter than an equivalent steam system. Because the dry heat sterilizer can be rigged in place as modules, there are considerably less rigging challenges and costs. The dry heat sterilizer does not need to be pit mounted.

About the Company

Thermal Product Solutions designs and manufactures sterilizers, industrial and laboratory ovens and furnaces, as well as environmental temperature cycling and stability test chambers.

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Truck-In Sterilizers

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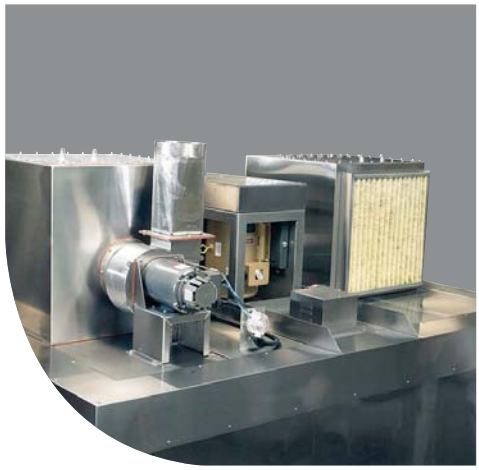

Features and Benefits

- Green operation with lower total energy consumption
- Economical cost
- Flexible installation and customization options
- Validated sterilization cycles for assured results
- Energy efficient electrical heating system
- Easy to use controls
- PrecisionFlo™ Full focused airflow
- HEPA Filters
- Data acquisition capabilities
- Panelized design

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Cabinet Sterilizers

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Features and Benefits

- Green operation with lower total energy consumption
- Lower total cost of ownership
- Flexible installation options
- Flexible design allows customization to suit every application
- Validated sterilization cycles
- Fits into small spaces and through 42" x 84" doorways
- Modular design for ease of installation
- Easy to use controls

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POD Sterilizers

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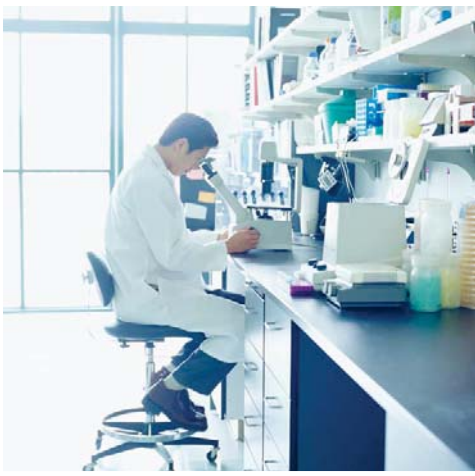

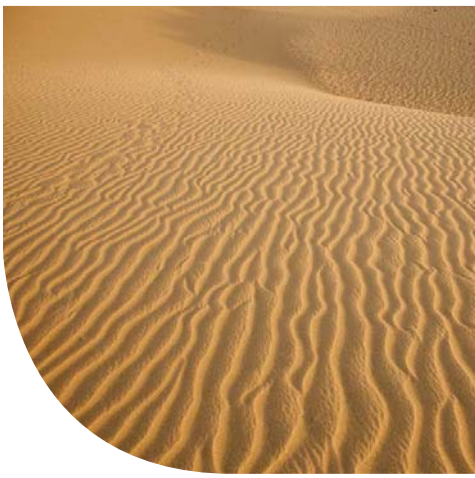

Features and Benefits

- Green operation with lower total energy consumption
- Economical cost
- Flexible installation and customization options
- Validated sterilization cycles for assured results
- Easy to use controls and access to containers
- Conditioning unit can be used with multiple PODs
- Modular design allows for simple rearranging
- Perfect for change station sterilization

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Superior Results. Superior Controller.

USER EXAMPLE:

Advantages of Dry Heat vs. Steam

	Dry Heat Sterilizer	New Steam Autoclave
Volume (CU FT)	139	139
Footprint (SQ FT)	34.3	Sterilizer 48.5 Pit 91.2
Minimum Dimension of Parts (IN)	31.5	62.4
Utilities	Electric Power	Steam, cold water, drain, pit, electric, compressed air
Water Usage (GAL)	0	700
Cost Per Cycle (Calculated)	Half of Autoclave	****

Measured Energy Consumption–Dry Heat

300 ° F Soak: 60 Minutes SteriDry™				
Stage	Time (min)	Power (kW)	Energy (kWH)	Cost ($)
Ramp Up	20	61	20.3	$2.64
Soak	60	12	11.7	$1.53
Cool	100	4	5.4	$0.83
Total	180		37.4	$4.99

- Multifunction programmable controller
- Color touchscreen
- Real-time data with recipe setup and storage
- SCADA compliant

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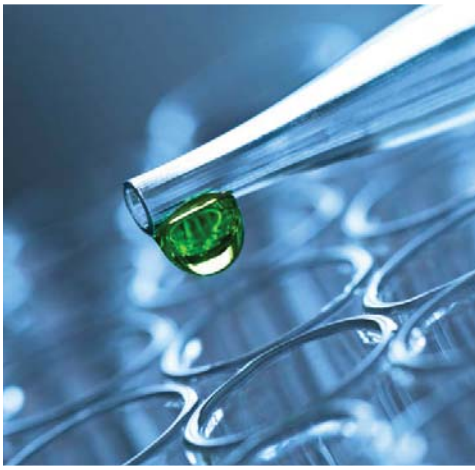
Scan with your smartphone to see more about our dry heat sterilizers.

Our SteriDry™ engineers are always here to help you design and implement our standard or custom sterilizers to meet your project's specific needs, no matter how demanding.



Sterilizer Design Possibilities:

- Proof of concept and proof of process
- Development of test platforms and prototype units
- Optimizing production processes
- Pharmaceutical process research and testing
- Custom process controls to solve manufacturing challenges

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Specifications and Product Information are subject to change without notice.

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