



**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™ (Patent Pending)

STERIDRY™ DRY HEAT Sterilization

Lower Cost, Worry-Free & Green



TPS™
Thermal Product Solutions



Industries

Solar Energy
Defense and Aerospace
Pharmaceutical
Medical Devices
Automotive
Lab Ovens
Electronics
Petroleum and Natural Gas
Battery Test Chambers
Machinery
Material Processing
Semiconductors
Telecommunications
Test and Measurement
Composite Curing Ovens
Paints, Inks and Coatings
Rubbers and Plastics
Lab Animal Sciences

Products

Environmental Test Chambers and Rooms
Steady State Chambers and Rooms
Industrial Ovens
Sterilizers and Dryers
Lab Furnaces
Battery Test Solutions
Out of Autoclave Solutions
Process Controls
Custom Industrial Ovens

Thermal Product Solutions is a global engineering designer, manufacturer, and service provider of standard and custom thermal-processing equipment. With three distinct brands of industrial and laboratory ovens and furnaces and environmental temperature-cycling and stability test chambers, our Blue M, Gruenberg and Tenney product lines accommodate a comprehensive range of applications and configurations to meet virtually every thermal-processing need.





Truck-In Sterilizers

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 (*Patent Pending*)
- HEPA Filters
- Data acquisition capabilities
- Panelized design



Single Truck Sterilizers

Features and Benefits

- Greener operation with lower total energy consumption
- Uses only one utility – electricity
- Lower total cost of ownership
- Modular design provides flexible installation and customization
- Uniform heat distribution
- Quiet operation (won't disturb staff or noise-sensitive animals)
- Validated sterilization cycles for assured results
- Easy-to-use controls and access to cages
- Also available in Pass-Thru configuration



POD Sterilizers

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



Cabinet Sterilizers

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



TPS[™]
Thermal Product Solutions



Hold the Steam

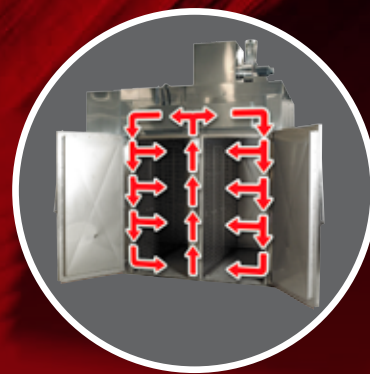
Dry heat sterilization systems use forced-air convection technology for reduced energy consumption.

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.



 **PRECISION FLO**[™]
***100% focused
forced-air
convection
technology.***

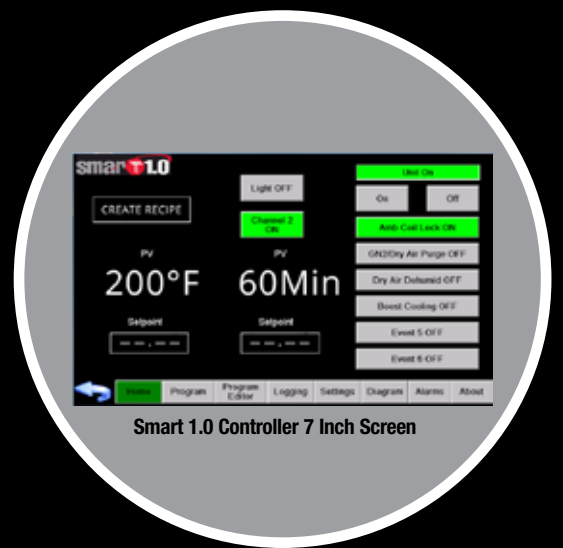
**Patent Pending*



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



Smartest Kid on the Block

smar**1.0**

The main features of the 7" Windows based PLC Smart 1.0 are the high resolution graphical touch screen, Smart 1.0 graphical user interface, 32 bit RISC 400 MHz central processing unit, 4GB (SD Card) flash storage, capable of storing up to 100 profiles with 100 steps each. Test data retrieval and profile data transfer/sharing is accomplished through a local FTP server via Ethernet connection. Individual PID control loops allow for precise process control.

Features included with Smart 1.0:

- Real-time and historical color graph displays for temperature and humidity as well as set point values.
- System can run in Single set point or Programmed modes.
- Alarm, Program, and Datalog files can be easily transferred to and from controller via Ethernet connection
- Built-in TCP/IP networking via Ethernet 10/100 communication port
- Ethernet communications are standard. RS485, RS232 and IEEE GPIB are all available as options
- Analog signal re-transmit out to peripheral devices such as optional chart recorders, etc.
- Remote access via Smartphone, iPad, etc. with internet connection and VNC phone application.



TPS[™]
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