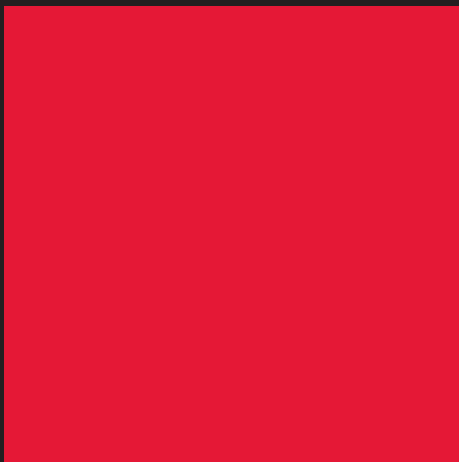


CUSTOM SOLUTIONS



Environmental Testing and Thermal Processing Equipment



TPSTM
Thermal Product Solutions

Defining Innovation



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.





A comprehensive line of
environmental test chambers
and rooms

»» Tenney

Environmental testing at its very best

From -70°C to 200°C in fewer than ten seconds. Think your product can handle it?

How about 98 percent relative humidity for three days straight, an altitude of 200,000 feet, an afternoon at -73°C, or an earthquake that pushes 9.8 on the Richter scale? If a product can survive the limits of a Tenney temperature and humidity test chamber, it should be able to handle just about anything.

Tenney chambers are used in a variety of industries, because they have an impressive range of uses. Applications include ICH general-stability conditions

for room-temperature storage; intermediate storage; accelerated-shelf-life studies; steady-state, reliability, and stability testing; burn-in; curing; controlled-temperature storage; clean-room and biomedical-research testing; and production-process applications.

And when it comes to vibrational testing, our chambers feature a sound-friendly design that vents operating air and noise through the top of the unit and are available with a range of standard compressor packages.

It's no wonder that our Tenney brand is considered by many to be the gold standard in product-testing solutions.

- Temperature
- Altitude
- Humidity
- Vacuum
- Steady State
- Constant Climate





Custom industrial ovens,
sterilizers and dryers

»»» Gruenberg

The specialists in custom thermal processing

A source of heat as high as 1,500°F. We're talking about the kinds of temperatures found in pyroclastic flows, temperatures that are achievable by our Gruenberg industrial ovens. But unlike an erupting volcano, our ovens are stable, reliable, and built to precise safety standards. Plus, they can be integrated into your process or stand alone, be designed as continuous or in batch-type configurations, and offer various airflows.

We also design and manufacture a complete line of standard and custom pharmaceutical sterilizers and depyro-

generation ovens. Configurations include laboratory, cabinet, truck-in, pass-through, and continuous arrangements.

Our standard and custom granulation dryers are especially suited for the pharmaceutical industry, with work-space capacities of 15 to 800 cubic feet.

And when it comes to the animal-lab science market, our Gruenberg SteriDry™ sterilizers are specially designed to sterilize habitat cages with dry-heat sterilization, while operating smoothly and quietly around noise-sensitive animals.

- Dry Heat Sterilization
- Curing Ovens
- Completely Customizable





Standard and custom industrial ovens, lab ovens, furnaces and test chambers



Reliable industrial oven solutions for any application

Baking, curing, drying, annealing, sterilizing, and even simple heat-processing. Whatever you have going on in your lab, Blue M has an oven to meet your needs. And with a range of configurations that includes clean-room, horizontal-airflow, inert-atmosphere, convection ovens, and much more, no application is left without a quality solution.

Blue M's convection ovens are ideal for constant-temperature work and for applications requiring fast run-up and cool-down rates. The heavy-gauge, stainless-steel interiors and

exteriors combine a fully welded and sealed construction with four inches of fiberglass insulation to minimize heat loss.

Our inline curing ovens exhibit cure-process control, improved equipment reliability, and reduced maintenance requirements. The batch ovens also feature four inches of fiberglass insulation to minimize heat loss, have an adjustable exhaust system, and exclusive Blue M heating elements, with low-watt density for longer service life.

- Curing Ovens
- Drying Ovens
- Annealing Ovens
- Solvent-Venting
- Truck-In Construction
- Conveyor Construction
- Modular Configurations





Where Your Project's
Challenges Meet Our
Engineering Design Services

Custom Solutions

If we don't already have it, we'll build it

If we don't already have the industrial oven, vacuum chamber, or temperature, humidity, altitude, or gravity-testing room or chamber you need, we'll build it. Our engineering team is here to help you design the custom solution you need to meet your project's specific needs, no matter how demanding or exacting they are.

We've designed fully customized solutions for some of the nation's largest and most well-known aerospace and defense contractors; medical, surgical, and pharmaceutical companies; technology and equipment manufacturers; energy generators; the U.S. Departments of Energy and Defense; and more.

Possibilities

- Proof of concept and proof of process
- Development of test platforms and prototype units
- Finite analysis and simulation design
- Optimizing production processes
- Photovoltaic materials research and testing
- Alternative fuel process research and testing
- Environmental control and clean processes
- Processes requiring inert gas and vacuum applications
- Pharmaceutical process research and testing
- Custom process controls to solve manufacturing challenges

Benefits

- Direct access to our engineering staff
- Innovative designs that accomplish your testing and manufacturing needs
- Evaluate current process with a goal of saving time and costs
- Collaborate with your staff to develop solutions that match your exact processes
- Create a competitive edge for you by improving time to market





TPS[™]
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