Blue M®

Gravity Ovens

GO Series Gravity Convection

Blue M Gravity Ovens are value-priced gravity convection ovens for many industrial uses such as drying and baking. Gravity Ovens are designed for applications where a fan or other air flow would disturb the thermal process, such as processing of lightweight materials or powders. Gravity Ovens are designed for applications that require less temperature uniformity than other types of mechanical convection ovens. Each gravity oven model generates a unique natural air convection supply through perforated stainless steel shelves to achieve temperature uniformity without blowers.

Oven Features

- Adjustable exhaust dampers
- Adjustable shelving provides flexible workspace configuration
- Fiberglass insulation to ensure safe cabinet skin temperature
- Stainless steel interior with powder-coated exterior for durability
- All-welded, heavy-duty exterior with heavy-gauge, reinforced, cold-rolled steel
- Baked on white powder-coated enamel finish on exterior for long-lasting corrosion protection
- Efficient and environmentally friendly operation
- Ergonomic handles and controls

Uniform, Accurate and Reliable Temperature Control

- Vertical natural air convection airflow and gravity convection heating method assures uniform thermal performance under most loading conditions
- Long lasting heating elements
- Superior heat ramp-up and recovery
- High-quality digital PID temperature controller
- Overtemperature Protection is standard on all Blue M Gravity Ovens

CE

- ☑ **Designed to satisfy the most challenging applications.**
- ☑ **Affordable and long lasting.**

TPS™ Thermal Product Solutions

Blue M is a brand of Thermal Product Solutions, LLC.

»Blue M »Gruenberg »Lindberg/MPH
»Lunaire »Tenney »Wisconsin Oven

www.bluem.com
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INDUSTRY SOLUTIONS

Blue M's experienced engineers are able to meet even the most stringent requirements when designing customer equipment.

Applications

- Aging
- Annealing
- Curing
- Drying
- Stress-Relief

Industries

- Aerospace
- Agriculture
- Automotive
- Defense
- Education
- Electronics
- Energy
- Government
- Medical
- Oil & Gas
- Pharmaceutical
- Research & Development
- Rubbers & Plastics
- Semiconductors
- Telecom
- Textiles

Scan for more information

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OVEN SPECIFICATIONS

Model Dimensions	
Model	GO-2085
Cubic Feet (Liters)	3.02 (85)
Work Space Inches (mm) (W x D x H)	16.5 x 19.5 x 16.2 (419 x 495 x 412)
Exterior Inches (mm) (W x D x H)	26.9 x 28.6 x 34.0 (683 x 727 x 864)
Machine Footprint (sq. ft.)	5.3
Approx Unit Weight (lbs)	126.5
Approx Crated Weight (lbs)	146
Crating Dimensions Inches (mm) (W x D x H)	33 x 33 x 47 (838 x 838 x 1194)
Load / Capacity	
Included Number of Shelves	2
Max Number of Shelves†	7
Shelf Weight Capacity (lbs) ††	50
Chamber Capacity (lbs) ††	200
Interior	Stainless Steel
Door	Single Door Right-Hinged
Electrical Service	
Model	GO-2085
Power Supply	110V – 120V 1Ph 50/60Hz
Amp Draw	14
Fuse Amps	15
Heater	1.5kW

†Additional Shelves not included
††Distributed Load

Theory of Operation

Heating

When powered, the Gravity Oven chamber heats to and then maintains the currently programmed temperature setpoint. The oven comes from the factory with a temperature setpoint of "OFF". The setpoint may be adjusted by the end-user using the Set Temperature controls.

The oven controller senses the chamber air temperature via a solid-state probe located in the airstream on the right wall of the oven chamber. When the processor detects that the chamber temperature has dropped below the temperature setpoint, it pulses power to a heating element in a recirculation air duct space located above the oven chamber.

The processor employs proportional-integral-derivative analytical feedback-loop functions when measuring and controlling the chamber air temperature levels. PID-controlled heating pulse intensities and lengths are proportional to the difference between the measured chamber temperature and the current setpoint. The frequency of pulses is derived from the rate of change in the difference. The integral function slows the rate of pulses when the temperature nears the setpoint to avoid overshooting.

Gravity ovens rely on natural heat radiation for cooling. When the oven is powered, the chamber air temperature cannot go below the ambient room temperature **plus** the internal waste heat of the oven.

Timed Heating Profile

The oven is provided with a Timer subsystem. When set, it runs the oven in a steady-state heating profile at the current temperature setpoint for 1 minute up to 99 hours, 59 minutes. Allow the oven to heat to the profile temperature prior to launching a profile. Launching a profile with the temperature setpoint set to 150°C immediately after turning on the oven will result in the first several minutes of the profile spent with the chamber rising from room temperature to 150°C.

When the Timer system is on, **the oven will not heat** unless a profile of 1 minute or greater has been launched.

Air Circulation

Gravity ovens rely on natural gravity convection for air circulation. Warm air rises and cooler air sinks in the heated oven chamber.

The oven is provided with a dampener vent that may be opened or closed using a dampener slide located on the oven top. **Gravity Ovens must be run with the dampener 30% open to achieve the stated temperature performance specifications.**

Opening the vent all the way while the oven during a baking application may speed the rate of material drying, depending on the nature of your application. However, it also introduces excessive quantities of cool air into the chamber while allowing heated air to exit. This will likely impact the temperature performance of the oven. For most applications, fully opening the vent after the baking portion of the application will help to speed product or sample drying.

The dampener is intended to be opened after the heated portion of an application is complete. Opening the dampener vent while the oven is running may speed the rate of material drying, depending on the nature of your application. However, it also introduces cool air into the chamber while allowing heated air to exit. This will likely impact the temperature performance of the oven.

The Over Temperature Limit System (OTL)

When set, the mechanical OTL heating cutoff system prevents runaway heating in the oven chamber. The OTL operates independently of the microprocessor and is provided with a separate, hydrostatic temperature sensor probe located in the oven chamber. In the event the chamber air temperature exceeds the current OTL setting, the OTL routes power away from the heating elements. The OTL will continue to prevent heating until the temperature drops below its limit setting. The Over Temperature Limit is set **by the end-user**, typically at approximately 5°C above the application temperature setpoint. After the unit has been running with no temperature fluctuations at your application temperature for at least 30 minutes.

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OVEN SPECIFICATIONS

Performance	
Model	GO-2085
Airflow	Vertical Up
Heating Method	Gravity Convection
Standard Temperature Range	Ambient ±10°C to +260°C (500°F)
Temperature Uniformity	± 4% of Set Point
Control Interface	High Quality Digital PID Temp. Controller with Setpoint Operation
Controller Tolerance	± 1.0°C (± 1.8°F)
Heating Rate	≤ 100 min from (Ambient Temp. to Max Temp.)
Vent Port Diameter Inches (mm)	2.75 (70)

When powered, the oven heats to and maintains a user-selected target setpoint in the oven chamber. A solid-state probe mounted on the chamber wall senses the chamber air temperature. Proportional Integral Derivative (PID) control is used to avoid significantly overshooting the setpoint. The heating rate will slow as the chamber temperature approaches the target temperature. If the chamber temperature is above the setpoint, the unit uses minimum heating to control the rate of cooling and avoid dipping below the setpoint. The timer function allows the end-user to program the oven to run a timed countdown at the current temperature setpoint. When the timer reaches zero, the oven ceases heating.

Exhaust Vents with Sliding Dampener

Access Port with Stopper allows the user to introduce sensor probes into the oven chamber

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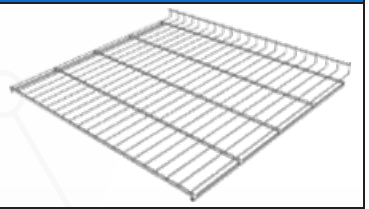
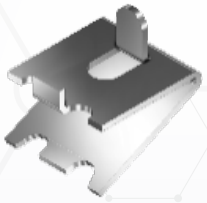
FEATURES & ACCESSORIES

Blue M industrial and laboratory ovens are available with a variety of features and accessories to enhance the capabilities and performance of the unit. Options categories include ergonomics, performance, process control/electrical and safety. Ask your sales representative for additional options and custom solutions.

GO-2085		Accessory Image
Shelves	2	
Shelf Clips	8	
Leveling Feet	4	
Power Cord	1	

Oven Door Gaskets assist in maintaining chamber temperature uniformity and stability. The GO-2085 features replaceable, snap-in, fiberglass gaskets.

Snap-in Fiberglass Oven Door Gaskets

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Blue M Warranty

LIMITED WARRANTY TO ORIGINAL PURCHASERS. Blue M ("Blue M") warrants to the original purchaser that Blue M owns and will convey clear title to each product that it manufactures and delivers. Additionally, and provided the original purchaser has paid the full purchase price for a product or service, Blue M warrants that from the date it ships and, if applicable, installs a product, or finishes performing a service, the product Blue M manufactured shall conform to written specifications that Blue M approved, and the product shall be free from defects in material and workmanship for twenty-four (24) months, (with the exceptions of the Ultra Temp and LO/GO series, which have a 12 month warranty). Blue M further warrants that any service it performs shall conform to written specifications that Blue M approved and be free from defects in workmanship for twenty-four (24) months (with the exceptions of the Ultra Temp series, which are covered for 12 months. No service warranty for LO/GO series). If a purchaser purchases a TPS Preventive Maintenance & Calibration plan at the end of the warranty period, these limited warranties shall each be extended by twelve (12) months, (with the exceptions of the LO/GO series) subject to the exclusions below. If, within that time period, the original purchaser notifies Blue M in writing of an alleged non-conformity, and Blue M determines, to its reasonable satisfaction, that a product or service is, in fact, non-conforming, then Blue M shall, at its option and expense, repair or replace the non-conforming product or correct the non-conforming service, either at the original purchaser's or Blue M's factory. Warranty Exclusions. This limited warranty shall not apply to (i) labor to replace a part in a product located outside of the U.S., (ii) a service Blue M performed outside of the U.S., (iii) any loss or damage resulting from normal wear and tear or alteration, misuse, or abuse, including any loss or damage caused by customer products or processes, (iv) improper installation, operation, maintenance, or repair by the original purchaser or a third party with or without TPS' permission, (v) improper water quality out of range specifications as noted by TPS, (vi) improperly configured customer controllers or customer training issues, (vii) consumable items, including, but not limited to, filters, drive belts, light bulbs, lamps, wear strips/surfaces, gaskets, fuses, conveyor belts, contactors, valves, spark plugs, and other similar items. If on-site warranty work is required for a product located outside of the continental U.S, Blue M will charge the customer on a time and materials basis, plus reasonable expenses for travel, lodging and meals.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, STATUTORY OR IMPLIED, AND STATES BLUE M'S ENTIRE WARRANTY AND THE ORIGINAL PURCHASER'S SOLE AND EXCLUSIVE REMEDY RELATED TO PRODUCTS OR SERVICES BLUE M PROVIDED. BLUE M EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES IMPOSED BY COURSE OF DEALING OR USAGE OF TRADE.

Scan for Additional Warranty Information

For full details, exclusions, and other information on our warranty please go to: https://www.bluem.com/warranty-information

International Support

- All models available in 50 & 60 Hertz configurations
- CE Safety Cerfication
- Authorized reps / servicers in most countries

TPS MAX Program

The TPS MAX Program allows the customer to purchase future service and/or parts without the need to have a purchase order approved and released when parts or service are needed. These funds are available to be used on parts or service in the future, saving you and your company costly down-time. Enrollment also entitles you to the many advantages listed below. Enrollment in the TPS MAX Program requires a minimum purchase of $5,000.00. Amounts above $5,000.00 will be accepted. Funds do not expire.

10% Off:

- Service Labor (including: training, installation, preventive maintenance)
- Travel Time
- Calibration Services
- Parts
- Mileage
- Ground Shipping on Parts

Aftermarket Services

Optimize. Revitalize. Maximize.

From installation, parts and global support to servicing, testing and yearly maintenance, we are here to ensure your TPS product achieves maximum performance. GAMP Documentation may include FRS, HDS, SDS, FAT, SAT, and IQ/OQ.

Services Include:

- Installation Supervision
- Start-up & Training
- Preventative Maintenance
- Temperature Uniformity
- Instrument Calibration
- GAMP Documentation

***Some features and services may not be available in your location. Ask your sales representative for available TPS Max program features and Aftermarket Services in your area.**

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