

# GRIEVE INDUSTRIAL OVENS & FURNACES

Walk-In   Conveyor   Inert Atmosphere   Cleanroom





# Engineering & Manufacturing... Where Grieve Quality Begins

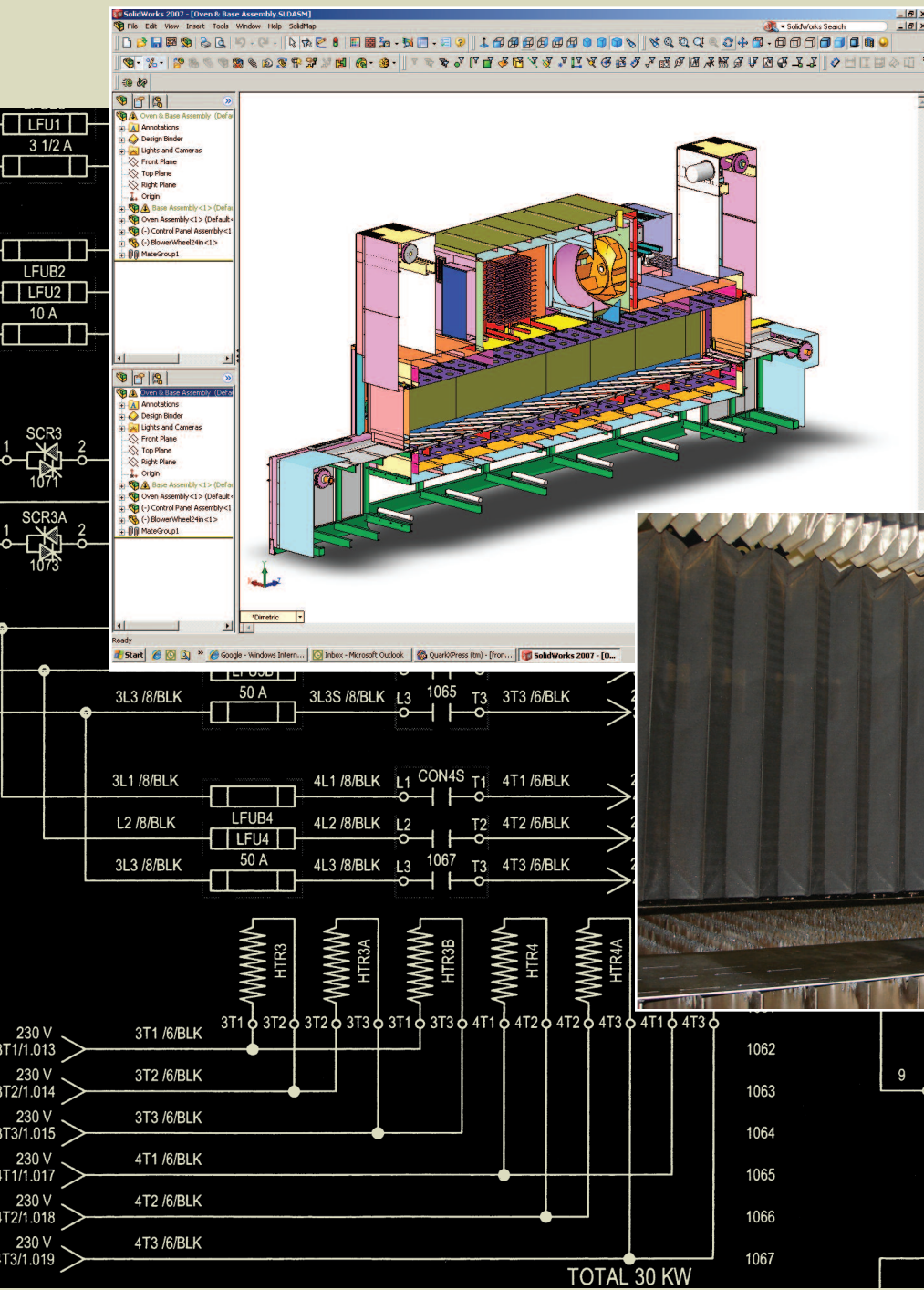
Grieve quality begins with the engineer's very first concept. The highly sophisticated CAD equipment shown here translates thoughts into form, form into function.

From this stage, it's on to manufacturing, where Grieve quality continues to take shape...



The Grieve Engineering Department utilizes the latest solid modeling, Manufacturing and Electrical Schematic Software for designing the industry's best ovens and furnaces.

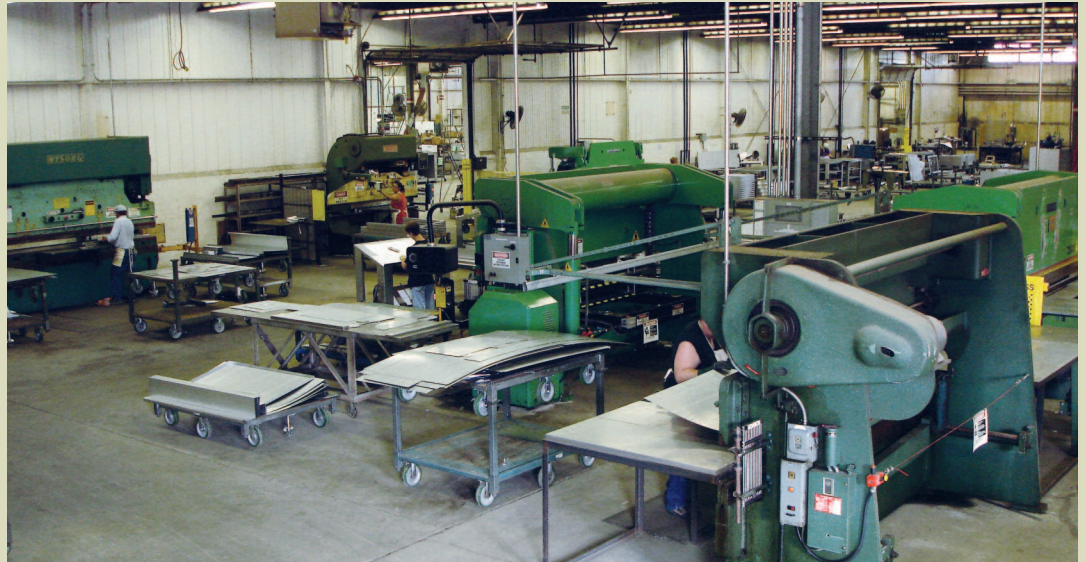
The solid model allows Grieve engineers to visualize an oven or furnace design and make adjustments or modifications before electronic files are transferred to the factory for manufacturing.



Electronic files are downloaded from engineering to the flying optical laser system for precision cutting of parts.



Grieve quality doesn't ride on the performance of outside suppliers. We fabricate and assemble every major oven and furnace component right here in our Round Lake facility.



Demanding standards from start to finish. The oven body is structurally reinforced and integrally welded during this important initial stage.

Standard batch units, as well as a custom heat tunnel, are fabricated with the same care and attention to detail.







## Special Ovens and Furnaces... Every Day Events At Grieve

Perhaps you have a specific heat processing problem that just can't be solved by one of our "off the shelf" designs. No problem; Grieve offers complete custom design and manufacturing services. We'll take everything into account. We have the experience necessary to meet your particular requirements. In fact, we've probably already designed and built a similar unit.

You see, at Grieve, we're more than a manufacturer...we're problem solving professionals who take the time to understand your requirements.



**This Rotary Hearth oven provides preheated gears... ready on demand, one at a time.**



**Physical layout and load requirements were key to the final design of the 2000°F Pit Furnace with removable crucible.**



**Two independent oven chambers in one Grieve Universal model. The physical layout of a customer's plant and production lines made this double oven the right solution.**



**This multiple drawer oven provides immediate access to any one of eight preheated 400 lbs. dies.**





**This Walk-In unit features multiple access doors at each end, plus three individual roller lanes designed to accommodate the customer's loading requirements.**



**A 9' wide x 24' deep x 8' high batch oven for curing large loads of rubber parts. It features a removable top-mounted heat chamber and free standing control panel.**



**Clean room ovens are used in many industries. This Class 100 oven, used for drying various aerospace components, includes rolling shelves and an observation window.**

**This continuous conveyorized oven system, 40' long with a 6' wide belt, is used for the unique process of drying gold ore samples. This system was designed, engineered, fabricated, assembled, tested and shipped as a complete package from our Round Lake plant to the customer's location.**





## Clean Room and Pharmaceutical Ovens

Grieve's only business since 1949 has been to design and manufacture industrial ovens and furnaces. Use this depth of knowledge and experience when your process requires a system to meet the rigid specifications of Clean Room, Semiconductor and Pharmaceutical Environments.

Available "Clean Room" construction includes:

- continuously welded seams with or without rounded inside corners for easy cleaning
- white epoxy or #4 brushed stainless steel exteriors
- sealing flanges and doors on both sides for pass through operation from room to room
- door interlock systems with electric locks, pilot lights and timing/temperature interlocks
- HEPA filtration of intake, exhaust and recirculated air flow with DOP validation ports and pressure gauges with alarms
- programming and recording temperature controls
- automatic depyrogenation cycles
- pressurizing blowers and powered forced exhausters with motorized dampers for drying and cooling cycles



**A 500°F Electrically-Heated Sterilizing Oven for sterilizing large loads of glassware. It features double doors at each end of the oven for "pass through" operation. Removable top mounted heat chamber, sealing flange and remote control panel aided in installation between customer's wash area and clean room.**



**This Class 100 Sterilization Oven is used for the depyrogenation of glass, teflon, and other heat resistant materials. It features a stainless steel shelf truck, as well as an exterior truck transfer dolly.**



**Used for drying moisture from stainless steel and quartz assemblies, this Class 100 oven features independent doors and vertical down air flow.**



# Inert Atmosphere Ovens

Heat treating in an inert atmosphere has long been used to minimize oxidation of metals. Now such atmospheres are used at lower temperatures to impart special characteristics to materials such as synthetic rubbers, plastics and ceramics.

Inert Atmosphere Ovens include:

- gas tight interior construction
- a gas tight door seal, adjustable offset hinges and positive latching door hardware
- inert atmosphere inlet with pressure regulator and flow meter; outlet with pressure relief
- air jacket on inner walls for accelerated cooling

Available Options include:

- automatic atmosphere purge controls
- blowers to draw cooling air through jacket on inner walls
- modulating dampers to control rate of cooling
- programming and recording temperature controls



**A 750°C Inert Atmosphere Oven, for processing specialty ceramic parts, includes air quench as well as cooling by jacketed interior.**



**Truck and dolly loading allows annealing bundles of plastic rods in an inert atmosphere.**





## Grieve Furnaces...Higher Temperatures, Same High Quality

The specific needs of furnace users present their own challenges to Grieve's furnace division. Our years of experience in the design and construction of industrial furnaces are brought to each new application our engineers encounter.

Whatever your requirements for industrial furnaces, look to a quality leader. Look to Grieve.



**Standard 1400°F Heavy Duty Tempering Furnace with air cooled recirculating fan.**



**A complete line of high quality furnaces:**

- 2000°F bench furnace
- 2700°F high temperature furnace with double pivoted door
- 2000°F floor furnace
- 2000°F pit furnace

**This Inert Atmosphere Electric Box Furnace is equipped with a forklift power loader. The heat input is separated into two independent zones of control and provides a maximum operating temperature of 2000°F.**





# Testing... Grieve's Assurance of Quality Performance

Grieve's Test Department is always filled with various units being evaluated for performance in a number of different ways. Chart recorders here monitor temperatures throughout the entire oven chamber. Problems are uncovered in our plant, not yours.



This unusual cabinet oven is itself a test unit, used by Grieve's customer to evaluate air flow inside and around ductwork. Here the temperature patterns inside and around the test load are measured and monitored.



At Grieve, even when a unit must be shipped disassembled, we assemble and fully test it. Any inconsistency in air distribution or temperature uniformity must be discovered and corrected before it leaves our factory.

The conveyorized continuous processing oven shown here has multiple heating and cool-down zones. Parts supplied by our customer are test run at actual operating conditions to simulate shop floor use. Because of such thorough testing, our confidence in Grieve quality soon becomes yours.





## Finishing & Inspection... Our Final Touch of Quality

The Grieve oven or furnace you're about to receive at your factory has been fully performance tested. Now, our finishers take over to complete the last few steps in the manufacture of a Grieve product.

From complete paint coverage to gasket fit, door hinge alignment, wire bundling neatness, shelf and accessory item counting, every aspect of a Grieve product is carefully checked by a member of our company's management before the unit is crated for shipment.



The massive door on this high temperature furnace is checked for proper balance and fit.



This Walk-in Oven, with its top-mounted air heater removed for shipment, gets one final look.



One of our final inspection steps requires all electrical connections in every control panel be checked for tightness.



Eight identical special Truck Ovens receive final inspection of their custom paint finish.



# Index

BULLETIN NUMBER	DESCRIPTION	MODEL	WORK SPACE VOLUME	MAXIMUM TEMPERATURE	HEAT SOURCE
			CUBIC FEET	°F / °C	
LO-100	LABORATORY	LO LW LR	0.7 to 2.0	518°F 270°C	Electric
VO-150	VACUUM	VR VF VK VC VL	0.7 to 2.3	536°F 280°C	Electric
BH-200	FORCED CONVECTION BENCH	NB DR	4.8 to 7.0	550°F 288°C	Electric
BH-210	HIGH TEMPERATURE BENCH	NT	4.3	1000°F 538°C	Electric
BH-252	DIGITAL CONTROLLED BENCH	GS GA FS FA	2.1 to 6.0	626°F 330°C	Electric
BH-302	CLASS A BENCH OVEN	NBS	7.0	400°F 204°C	Electric
BH-303	LARGE CAPACITY BENCH	323 333 343	16 to 36	400°F 204°C	Electric
CA-350	UNIVERSAL	AA AF AB AG	8.0 to 36	850°F 454°C	Electric
CA-360	HIGH TEMPERATURE UNIVERSAL	AA AF AB AG	8.0 to 36	1250°F 677°C	Electric
CA-400	HORIZONTAL AIR FLOW CABINET	HA HX HB HZ HY HC	4.6 to 72	850°F 454°C	Electric/Gas
CA-402	VERTICAL AIR FLOW CABINET	VA VB	15 to 29	850°F 454°C	Electric/Gas
CA-410	HIGH TEMPERATURE CABINET	HA HX HB HZ HY HC VA VB	4.6 to 72	1250°F 677°C	Electric/Gas
CA-420	SHELF	SA SB SC	47 to 78	550°F 288°C	Electric/Gas
CA-430	FLOOR LEVEL CABINET	CAH CBH CAV CBV	45 to 80	550°F 288°C	Electric/Gas
CA-450	TOP-LOADING	LA LB LC LD	27 to 128	1050°F 566°C	Electric/Gas
BH-458	CLASS 100 CLEAN ROOM BENCH	MC MH	2.6 to 4.7	482°F 250°C	Electric
CA-460	CLASS 100 CLEAN ROOM CABINET	CLA CLB CLC CLD CLE	5 to 38	500°F 260°C	Electric
WI-462	CLASS 100 CLEAN ROOM TRUCK	TLA TLB TLC TLD TLE	58 to 164	500°F 260°C	Electric
CA-470	INERT ATMOSPHERE	IA IB IC ID	8.0 to 36	750°F 399°C	Electric
CA-480	HIGH TEMPERATURE INERT ATMOSPHERE	IA IB IC ID	8.0 to 36	1250°F 677°C	Electric
WI-505	TRUCK	TA TB TC TAH TBH TCH	45 to 125	550°F 288°C	Electric/Gas
WI-510	WALK-IN GENERAL SPECIFICATIONS				
WI-511	COMBINATION AIR FLOW WALK-IN	WRC WTC	96 to 768	800°F 427°C	Electric/Gas
WI-512	HORIZONTAL AIR FLOW WALK-IN	WRH WTH	96 to 768	800°F 427°C	Electric/Gas
WI-513	WALK-IN ADDITIONAL EQUIPMENT				
WI-520	HIGH TEMPERATURE WALK-IN	B1 B2 B3 B4	96 to 360	1200°F 649°C	Electric/Gas
CO-600	CONVEYOR			1200°F 649°C	Electric/Gas
TO-610	TUNNEL			1200°F 649°C	Electric/Gas

## Furnaces

BF-710	BENCH	BF	0.4 to 2.0	2200°F 1204°C	Electric
BF-720	INERT ATMOSPHERE BENCH	BAF	0.4 to 2.0	2200°F 1204°C	Electric
BF-730	TEMPERING BENCH	BT	1.7	1250°F 677°C	Electric
TF-740	TEMPERING	TF	6.7 to 96	1400°F 760°C	Electric/Gas
FH-750	HEAVY DUTY BOX	HD	6.7 to 96	2000°F 1093°C	Electric/Gas
FH-760	HIGH TEMPERATURE HEAVY DUTY BOX	HD	6.7 to 96	2200°F 1204°C	Electric/Gas
PH-770	PIT	PT	3.0 to 45	2000°F 1093°C	Electric/Gas

## Information

- TC-920 CONTROL & INSTRUMENTATION
- TC-940 CLASS A OVEN EQUIPMENT FOR SOLVENT PROCESSING
- TC-960 MODIFIED EQUIPMENT & OPTIONS
- TC-980 OVEN CONSTRUCTION DETAILS



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# REQUEST FOR QUOTATION DATA SHEET

*We will be pleased to review your heat processing application. Please photocopy this form, fill in the appropriate information and send to us by mail or fax.*

**COMPANY NAME** \_\_\_\_\_ **PHONE** (     )     -  
**ADDRESS** \_\_\_\_\_ **FAX** (     )     -  
**CITY** \_\_\_\_\_ **STATE** \_\_\_\_\_ **ZIP CODE** \_\_\_\_\_  
**ATTENTION** \_\_\_\_\_ **TITLE** \_\_\_\_\_  
**COPY TO** \_\_\_\_\_ **TITLE** \_\_\_\_\_  
**REFERENCE** \_\_\_\_\_

**1. PROCESS** \_\_\_\_\_

**2. MATERIAL** \_\_\_\_\_

\*\*\*Size

**Weight** \_\_\_\_\_ **Thickest cross section** \_\_\_\_\_

**Condition of pieces** (wet) (oily) (dry) \_\_\_\_\_

**3. FLAMMABLE SOLVENTS OR VAPORS INVOLVED IN PROCESS** \_\_\_\_\_

**Amount** \_\_\_\_\_ **gallons per batch (or per hour for continuous processing)** \_\_\_\_\_

**4. INERT ATMOSPHERE** (Nitrogen) (Argon) \_\_\_\_\_

**5. TEMPERATURE**

**Operating temperature** \_\_\_\_\_ **Maximum temperature** \_\_\_\_\_

\*\*\*Required dwell time at operating temperature \_\_\_\_\_

(Include time for parts to heat up; assume preheated equipment)

**Required uniformity within workspace** \_\_\_\_\_

**6. MATERIAL HANDLING**

**BATCH** (Shelf) (Tray) (Basket) (Fixture) \_\_\_\_\_

(Provide sketch & description if we are to quote on this equipment.)

**Quantity of parts per batch or production rate** \_\_\_\_\_

**CONTINUOUS** (Belt Conveyor) (Rotary Hearth) (Roller Hearth) \_\_\_\_\_

**Length Load Zone** \_\_\_\_\_ **Length Unload Zone** \_\_\_\_\_ **Pass Line** \_\_\_\_\_

\*\*\*Production Rate \_\_\_\_\_ **Length Cooling Zone** \_\_\_\_\_ **Exit Temperature from Cooling Zone** \_\_\_\_\_

**7. CLEAN ROOM/PHARMACEUTICAL** \_\_\_\_\_ backwelded seams \_\_\_\_\_ front welded ground seams 1/2" radius interior corners

\_\_\_\_\_ #4 brushed stainless steel exterior \_\_\_\_\_ door at both ends for pass through \_\_\_\_\_ door locks/interlock \_\_\_\_\_ HEPA fresh air inlet

\_\_\_\_\_ HEPA exhaust filter \_\_\_\_\_ HEPA recirculation filter \_\_\_\_\_ alarms for filters/temperature \_\_\_\_\_ pressurizing blower

\_\_\_\_\_ motorized intake and exhaust dampers \_\_\_\_\_ automation depyrogenation cycle \_\_\_\_\_ one pass granulation drying

**8. DESIGN**

**Type of equipment** \_\_\_\_\_

**Similar to standard model** \_\_\_\_\_ **Work space size** \_\_\_\_\_ **wide x** \_\_\_\_\_ **deep x** \_\_\_\_\_ **high**

**Air flow** (horizontal) (combination) (vertical up) (vertical down) \_\_\_\_\_

**Special features** \_\_\_\_\_

**9. SPECIFICATIONS APPLICABLE** (JIC) (FM) (IRI) (Military Specification# \_\_\_\_\_ ) \_\_\_\_\_

**10. SERVICES**

**Electrical Service** \_\_\_\_\_ Volts \_\_\_\_\_ Phase \_\_\_\_\_ Hz

**To be heated by** (Electric) (Natural Gas) (Propane) (Steam) \_\_\_\_\_

**11. EQUIPMENT TO BE INCLUDED IN BASE PRICE** \_\_\_\_\_

**12. EQUIPMENT TO BE INCLUDED AS OPTIONS** \_\_\_\_\_

**13. BUILDING DATA**

**Smallest opening through which unit must pass** \_\_\_\_\_ **wide x** \_\_\_\_\_ **high**

(Don't forget doorways, elevators & existing machinery, pipes, or ducts.)

**Floor space limitations** \_\_\_\_\_ **wide x** \_\_\_\_\_ **deep**

**Headroom limitations** \_\_\_\_\_

**Floor or elevator load limitations** \_\_\_\_\_

\*\*\*Information which must be supplied for continuous processing such as belt conveyor or rotary hearth.





**BULLETIN  
LO-100**



# Laboratory Ovens

## **ALL MODELS IN STOCK**

Low cost, fully equipped, all purpose laboratory ovens for sample drying, baking, annealing, conditioning, sterilizing, evaporating and dehydrating, and other general laboratory work.

## **STANDARD FEATURES**

- Fully factory tested
- Sturdy steel construction
- Two (2) nickel plated wire shelves
- Shelf supports adjustable in 1/2" increments
- Thermostatically controlled
- Excess temperature interlock
- Damper controlled gravity air circulation
- Red pilot light to indicate heater action
- Incoloy sheathed tubular heating element
- Brushed stainless steel exterior
- Corrosion resistant galvanized steel interior
- 6 lbs/cf density industrial rockwool insulation
- Dial thermometer
- On-off switch
- 3-wire cord and plug standard on 120 volt models
- 1 year limited warranty

## **MODEL LO-201C**

Compact, economical unit with 12" wide x 10" deep x 10" high work space. Temperatures to 200°C (392°F).

## **MODEL LR-271C**

Used where larger work space and higher temperatures are required. Resilient silicone rubber door gasket. Work space measures 13" wide x 13" deep x 13" high. Temperatures to 270°C (518°F).

## **MODEL LW-201C**

Largest laboratory oven affording more than twice the capacity of the LO-201C. Work space 18" wide x 12" deep x 16" high. Temperatures to 200°C (392°F).



**MODEL LO-201C**



**MODEL LR-271C**



**MODEL LW-201C**



# SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS OR VAPORS. OTHER MODELS AVAILABLE FOR THESE APPLICATIONS—PLEASE CONSULT FACTORY.

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Number of Shelves*	Insulation	Watts	Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft						
LO-201C	12" x 10" x 10"	0.7	14" x 12" x 19"	200°C	2	1"	800	41 lbs
LR-271C	13" x 13" x 13"	1.3	17" x 17 <sup>3</sup> / <sub>8</sub> " x 24"	270°C	2	2"	800	72 lbs
LW-201C	18" x 12" x 16"	2	20" x 14" x 25"	200°C	2	1"	1600	72 lbs

\*15 lb distributed load per shelf, 30 lb maximum oven load.

## STANDARD EQUIPMENT

### • Standard Electrical Characteristics

- 120 volts, 50-60 Hz, 3-wire cord and plug
- 240 volts, 50-60 Hz, 3-wire cord (Can be operated on 208 volts. Heat input will be reduced by 20%.)

### • Standard Temperature Control Systems

#### MODELS LO-201C and LW-201C

Bimetal control thermostat sets desired oven temperature. Thermal cutoff limits maximum oven temperature. Red pilot light indicates heater operation. Top mounted dial thermometer.

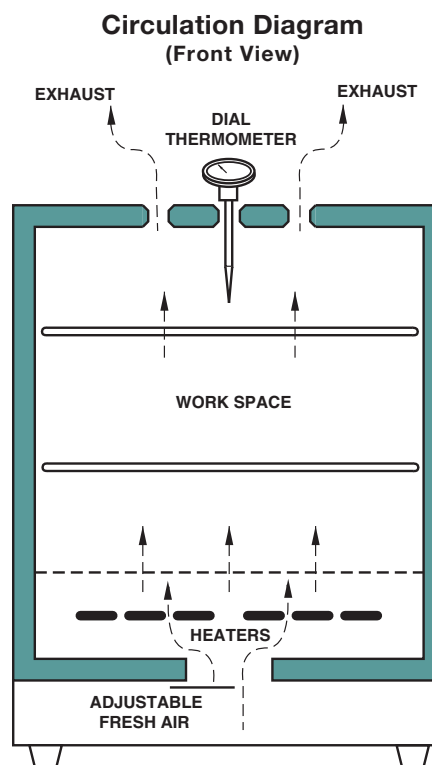
#### MODEL LR-271C

Primary hydraulic control thermostat sets desired oven temperature. Second manual reset hydraulic thermostat limits maximum oven temperature. Red pilot light indicates heater operation. Top mounted dial thermometer.

### • Gravity Convection

#### ALL MODELS

Heat is transferred from the bottom up through the oven chamber by natural convection and exits through vents in the oven top. Adjustable fresh air inlet damper at the oven bottom provides control of the amount of fresh air entering the oven.



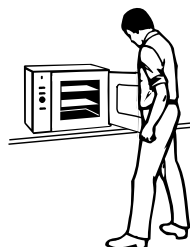
## ADDITIONAL EQUIPMENT AVAILABLE

- **Additional Shelves**, 15 lbs distributed load per shelf, 30 lbs maximum oven load, with four support clips adjustable in 1/2" increments. Specify oven model when ordering.



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# Vacuum Ovens

Versatile Grieve Vacuum Ovens can be used for process drying under vacuum or standard atmospheric conditions. High reliability operation from UL Listed hydraulic primary and back-up safety thermostats. Four models, three chamber sizes to choose from.

## STANDARD FEATURES

- Temperatures to 280°C (536°F)
- Hydraulic primary control thermostat
- Second, independent safety thermostat provides excess temperature interlock
- Radiant wall heating provides uniform temperature and total use of work space
- Vacuum gauge, control and release valves
- Full-view tempered safety glass window
- 304 stainless steel interior
- Powder coated heavy gauge steel exterior
- Two (2) removable shelves
- Secure latch and silicone rubber door gasket provide tight seal
- 3" of glass wool insulation insures minimum heat loss
- 3-wire line cord
- Work space thermometer
- 1 year limited warranty

## MODEL VF-220

Square chamber vacuum oven with stainless steel work space, 10" wide x 12" deep x 10" high, with two (2) solid aluminum shelves. Temperatures to 220°C (428°F).

## MODEL VK-220

Same as Model VF-220 above except work space is 14" wide x 20" deep x 14" high.

## MODEL VC-280

Square chamber vacuum oven with bottom mounted control panel utilizes available bench space to maximum advantage. Stainless steel work space, 10" wide x 11½" deep x 10" high, with two (2) fully adjustable chrome-plated shelves. Temperatures to 280°C (536°F).

## MODEL VL-280

Same as Model VC-280 above except work space is 12" wide x 12" high x 18" deep to accommodate larger loads.

## DUAL PURPOSE HIGH TEMPERATURE VACUUM OVENS



**MODEL VK-220**



**MODEL VC-280**



**MODEL VL-280**



SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Total Shelf Area	Outside Dimensions (WxDxH)	Max Temp	Number of Shelves	Insulation	Watts	Operating Characteristics†			Approx Shipping Weight
	Dimensions	Volume Cu Ft							Control Accuracy	Oven Uniformity	Rise Time	
VF-220	10"W x 12"D x 10"H	0.7	224 sq in	20" x 17" x 16"	220°C	2	3"	600	±1°C	±5°C	90 min	130 lbs
VK-220	14"W x 20"D x 14"H	2.3	536 sq in	26" x 25" x 22"	220°C	2	3"	1600	±1°C	±5°C	120 min	295 lbs
VC-280	10"W x 11½"D x 10"H	0.7	230 sq in	18" x 17½" x 23"	280°C	2	3"	1700	±1°C	±1°C	N/A	90 lbs
VL-280	12"W x 18"D x 12"H	1.5	432 sq in	23" x 26" x 22"	280°C	2	3"	1400	±2°C	±5°C	N/A	205 lbs

†Accuracy and uniformity at 100°C. Rise Time in minutes to 100°C. Tests run with empty oven. Performance will vary with load and application. See Bulletin TC-920 for additional details. N/A indicates information not available.

STANDARD EQUIPMENT

Standard Electrical Characteristics

- 120 volts, 50-60 Hz, 3-wire cord and plug
- 240 volts, 50-60 Hz, 3-wire cord (Can be operated on 208 volts. Heat input will be reduced by 20%.)

MODELS VF-220 AND VK-220

Vacuum levels precisely controlled between 2" and 30" Hg; three-way valve for easy evacuation and flushing; side mounted control panel with all controls and vacuum line connections in a single, convenient location; vacuum gauge, hydraulic control thermostat with pilot light and built-in excess temperature interlock; power switch is a combination circuit breaker and pilot light; dial thermometer inside oven.

Shelves in Model VF-220 rated 20 lbs distributed loading; maximum 40 lbs oven load. Shelves in Model VK-220 rated 30 lbs distributed each; maximum oven load of 60 lbs.

See below for optional digital controls available on Model VK-220.

Models VF-220 and VK-220, 240 volt ovens only, carry  label unless digital vacuum display is added.

MODELS VC-280 AND VL-280

Bottom mounted control panel with vacuum gauge reading to 30" Hg; vacuum control valve, ¼" connectors, vacuum release valve, hydraulic control thermostat with pilot light, adjustable excess temperature interlock with pilot light, line switch with pilot light and circuit breaker; dial thermometer inside oven. Shelves rated 25 lbs distributed loading; 50 lbs maximum oven load.

ADDITIONAL EQUIPMENT AVAILABLE

ALL MODELS

Vacuum Pump, complete with 6 feet of ¼" I.D. vacuum hose.

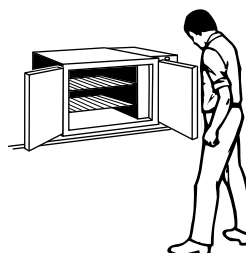
Single Cylinder, 1/6 HP, capable of 1.8 CFM of free air at 0" Hg vacuum and a maximum vacuum of 27.5" Hg with muffler, thermal protection, carrying handle, foot support and electric cord.

- 115 volts/60 Hz ..... SC160
- 230 volts/60 Hz ..... SC260
- 220 volts/50 Hz ..... SC250

Twin Cylinder, 1/3 HP, capable of 4.5 CFM of free air at .0" Hg vacuum and a maximum vacuum of 28" Hg., oil-less rocking piston pump, with rubber feet and electric cord.

- 115 volts/60 Hz ..... TC160
- 220 volts/50 Hz ..... TC250





# Bench Ovens

Economical ovens easily moved to various locations. For processing large parts, baking, drying components after cleaning, dehydration, preheating, curing and other applications requiring circulation of heated air.

## STANDARD FEATURES

- Recirculating blower
- 304 stainless steel interior
- Incoloy sheathed tubular heating elements
- Silicone rubber door gasket
- Sturdy steel construction
- Calibrated temperature controller
- Manual reset excess temperature interlock
- On-off switch
- Red pilot light indicates heater operation
- Brushed stainless steel exterior
- 6 lb/cf density industrial rockwool insulation
- 3-wire cord and plug on 115 volt models
- Fully factory tested
- 1 year limited warranty

## MODEL NB-350

Provides 7 cubic feet of work space at temperatures to 350°F. Includes two (2) removable nickel plated wire shelves easily adjustable on 2" centers. Holds a maximum of seven (7) shelves. Widely used for drying small items, preheating plastics, drying powdered metals, and curing potting compounds. Double doors for easy loading of large parts.

## MODEL NB-550

Similar to Model NB-350. Also includes two (2) shelves and will hold a maximum of seven (7) shelves. Provides over 5 cubic feet of work space at temperatures to 550°F. Ideal for high temperature processes such as annealing springs and plated parts.

## MODEL DR-350

Specially designed for processing and drying of plastic granules, powdered metal parts and other small parts that must be separated. Eight (8) individual 304 stainless steel drawers keep parts separated and allow individual inspection or removal without opening conventional doors. This reduces heat loss and prevents process interruption. Temperatures to 350°F. Standard drawers have 3/4" diameter perforations on 1 1/4" staggered centers on bottom and sides. Solid drawers also available.

## FORCED CONVECTION BENCH OVENS



**MODEL NB-350**  
WITH OPTIONAL PROGRAMMABLE CONTROLLER



**MODEL NB-550**  
WITH OPTIONAL RECORDING CONTROLLER



**MODEL DR-350**  
WITH OPTIONAL SHUT DOWN TIMER



SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS OR VAPORS. OTHER MODELS AVAILABLE FOR THESE APPLICATIONS—PLEASE CONSULT FACTORY.

Model	Work Space		Outside Dimensions (WxDxH)	Maximum Temperature	Insulation	Watts		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft				115V*	208V 230V	Control Accuracy	Oven Uniformity	Rise Time		
										115V	230V	
NB-350	28" x 24" x 18"	7	41" x 30" x 23"	350°F	2"	2000	2000	±10°F	±10°F	17 min	17 min	210 lbs
NB-550	26" x 22" x 16"	5.3	41" x 30" x 23"	550°F	3"	2400	3000	±10°F	±15°F	32 min	21 min	235 lbs
DR-350	8 Drawers‡	4.8	41" x 30" x 23"	350°F	2"	2000	2000	±10°F	±25°F	20 min	20 min	285 lbs

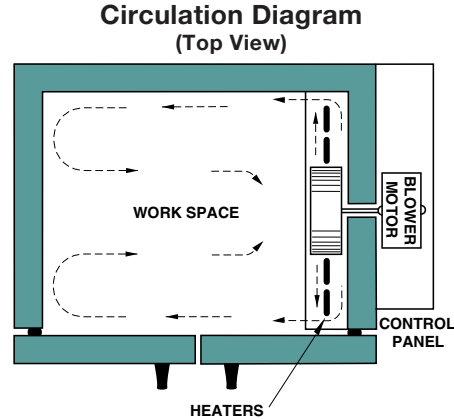
\* Model NB-550 requires 30 ampere service on 115 volts.  
‡Eight (8) individual 304 stainless steel drawers each 11¼" W x 25" D x 2" H (3½" total height clearance). Perforated metal bottoms and sides standard, solid bottoms and sides available at no additional cost.

†Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load, exhaust rate and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

- **Standard Electrical Characteristics**  
— 115 volts, 60 Hz, 3-wire cord with plug  
— 208 volts, 1-phase, 60 Hz  
— 230 volts, 1-phase, 60 Hz  
— Other electrical characteristics available

- **Standard Temperature Control System**  
Calibrated main temperature controller regulates desired oven temperature. Independent manual reset excess temperature interlock protects against failure of main temperature controller. On-off switch located on panel controls electrical power to oven. Red pilot light indicates heater operation.



ADDITIONAL EQUIPMENT AVAILABLE

- **Additional Shelves**, 20 lbs distributed load per shelf, 40 lbs maximum oven load, specify oven model when ordering.
- **Dial Thermometer** 10–290°C, 50–550°F dual scale range .....**T550F**
- **Digital Indicating Temperature Controller**, microprocessor based, thermocouple actuated, in lieu of standard controller .....**DIG1**
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time .....**DTS1**
- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller .....**PTC1**
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart requires optional Digital Controller DIG1, DTS1 or PTC1 (side mounted) .....**RT1**
- **Adjustable Excess Temperature Interlock**, thermocouple actuated, manual reset .....**AETC**
- **Solid State Relay**, in lieu of standard contactor .....**SSR**
- **Shut Down Timer**, with continuous "hold" feature  
60 minute range .....**BTMR60**  
12 hour range .....**BTMR12**
- **Set of Eight (8) 304 Stainless Steel Drying Pans**, 11 ½" W x 20" D x 2" H (NB Models only, requires two (2) add'l shelves) ....**NBPN3**
- **Oven Stand**, raises unit to convenient 31" work level  
Shipped separately, requires assembly .....**STNDNB**
- **Exhaust Chamber Adapter**, to fit standard 3" stove pipe.  
Shipped separately, requires assembly .....**BEXCH**



Model NB-350, including optional:  
— roof mounted, exhaust chamber adapter  
— drying pans and two (2) additional shelves  
— shut down timer  
— oven stand





# High Temperature Bench Ovens

Designed to fill the need for economically priced ovens for medium and high temperature processes, such as tempering and stress relief.

## STANDARD FEATURES

- 304 Stainless steel interior
- Incoloy sheathed tubular heating elements
- Sturdy steel construction
- High temperature, resilient door gasket with stainless steel spring insert
- Analog, thermocouple actuated, temperature controller
- Adjustable, thermocouple actuated, manual reset excess temperature interlock
- On-off heat switch
- Red pilot light indicates heater operation
- Brushed stainless steel exterior
- 6 lb/cf density industrial rockwool insulation
- 3-wire cord and plug on 115 volt models
- Fully factory tested
- 1 year limited warranty

## MODEL NT-800

Provides 4.3 cubic feet of work space at temperatures to 800°F. Double doors for easy loading of large parts or baskets. Includes two (2) removable nickel plated wire shelves easily adjustable on 2" centers. Holds a maximum of six (6) shelves. Widely used for medium temperature applications such as tempering and relieving hydrogen embrittlement from plated parts.

## MODEL NTR-800

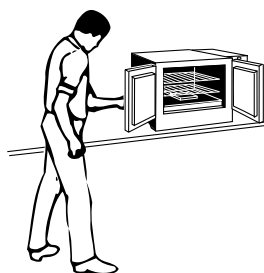
Identical to Model NT-800, but also includes a recirculating blower to improve temperature uniformity and reduce heat-up time of oven and parts.

## MODEL NT-1000

Similar to Model NT-800, but provides temperatures to 1000°F. Includes two (2) removable 304 stainless steel shelves. Ideal for high temperature processes such as preheating prior to welding or stress relief of steel springs and stampings.

## MODEL NTR-1000

Same as Model NT-1000, plus recirculating blower system to improve temperature uniformity and reduce heat-up time of oven and parts.



**BULLETIN  
BH-210**

**800°F AND 1000°F  
HIGH TEMPERATURE  
BENCH OVENS**



**MODEL NT-800**  
WITH OPTIONAL DIGITAL MICROPROCESSOR  
BASED INDICATING TEMPERATURE CONTROLLER



**MODEL NTR-1000**  
WITH OPTIONAL OVEN STAND

SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS OR VAPORS. OTHER MODELS AVAILABLE FOR THESE APPLICATIONS—PLEASE CONSULT FACTORY.

Model	Work Space		Outside Dimensions (WxDxH)	Maximum Temperature	Insulation	Watts		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft				115V*	208V 230V	Control Accuracy	Oven Uniformity	Rise Time		
										115V	230V	
NT-800	26" x 22" x 13"	4.3	39½" x 34" x 30"	800°F	4"	2400	3000	±0.5%	±20°F	60 min	45 min	310 lbs
NTR-800	26" x 22" x 13"	4.3	39½" x 34" x 30"	800°F	4"	2400	3000	±0.5%	±15°F	55 min	40 min	310 lbs
NT-1000	26" x 22" x 13"	4.3	41½" x 35" x 31"	1000°F	5"	2400	3000	±0.5%	±25°F	105 min	75 min	335 lbs
NTR-1000	26" x 22" x 13"	4.3	41½" x 35" x 31"	1000°F	5"	2400	3000	±0.5%	±20°F	95 min	65 min	335 lbs

\*Requires 30 ampere service on 115 volts.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load, exhaust rate and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

Standard Electrical Characteristics

- 115 volts, 60 Hz, 3-wire cord with plug
- 208 volts, 1-phase, 60 Hz
- 230 volts, 1-phase, 60 Hz
- Other electrical characteristics available

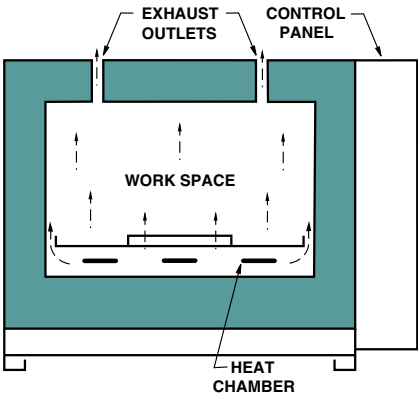
Standard Temperature Control System

Analogue, thermocouple actuated, main temperature controller regulates desired oven temperature. Independent manual reset excess temperature interlock, adjustable over temperature range of oven, protects against failure of main temperature controller. Separate heating element relay protects against failure of main control relay. On-off switch located on panel controls electrical power to oven. Red pilot light indicates heater operation.

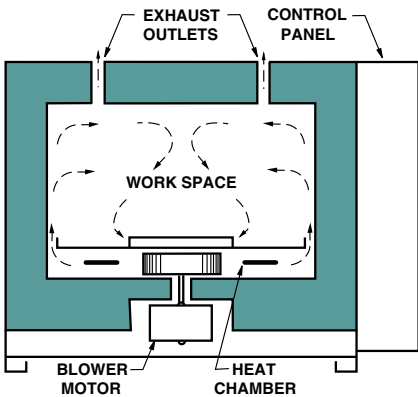
ADDITIONAL EQUIPMENT AVAILABLE

- **Additional Shelves**, 20 lbs distributed load per shelf, 40 lbs maximum oven load, specify oven model when ordering.
- **Digital Indicating Temperature Controller**, microprocessor based, thermocouple actuated, in lieu of standard controller ..... **DIG2**
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time ..... **DTS2**
- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller ..... **PTC2**
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller (side mounted) ..... **RT**
- **Solid State Relay** in lieu of standard contactor ..... **SSR**
- **Shut Down Timer**, with continuous "hold" feature
  - 60 minute range ..... **BTMR60**
  - 12 hour range ..... **BTMR12**
- **Oven Stand**, raises unit to convenient 31" work level
  - Shipped separately, requires assembly ..... **STNDNT**
- **Exhaust Chamber Adapter** to fit standard 3" stove pipe.
  - Shipped separately, requires assembly ..... **BEXCH**

Circulation Diagrams (Front View)



NT Series  
Heated air rises by natural convection from heating element beneath drip pan at bottom of work space.



NTR Series  
Air is pulled from work space by recirculating blower, blown by heating element, and returned to work space along sides of drip pan.



Ovens and Furnaces For Industry Since 1949  
**THE GRIEVE CORPORATION**  
500 Hart Road, Round Lake, Illinois 60073-2898 USA  
(847) 546-8225 Fax: (847) 546-9210  
www.grievcorp.com email: sales@grievcorp.com







## Digital Control Bench Ovens

Grieve bench ovens with microprocessor temperature control are designed for the laboratory requiring the unmatched accuracy and precision of microprocessor technology in a conveniently sized unit. They provide excellent uniformity and temperature control, rapid rise and recovery times.

### STANDARD FEATURES

- Microprocessor temperature control
- Built in timer
- Digital set point guarantees repeatable settings
- Large digital display of set point and oven temperature
- Easy access doors can be opened over 180°
- Flexible shelving system
- 2 year limited warranty
- Energy efficient
- Space saving footprint
- Audible and visual overtemperature alarm
- Rounded interior corners for easy cleaning
- RS-232 interface
- Stainless steel interior
- Coated steel exterior
-  or  Marked

### STANDARD CONTROL OVEN

- Temperatures 50°C (122°F) to 250°C (482°F)
- Manual fresh air damper
- Exhaust port can be used for test leads

### ADVANCED CONTROL OVEN

- Temperatures 50°C (122°F) to 330°C (626°F)
- Start/Stop timer weekly or 24 hr
- Electrically controlled fresh air damper
- Access port for test leads
- Adjustable fan speeds
- Programmable controller
- Contacts for remote alarm
- Connection for optional sample temperature sensor
- Boost function for accelerated heat-up

### G SERIES

Gravity convection ovens are ideal when temperature uniformity is less critical or when drying samples, such as fine powders, that require very low turbulence airflow. Natural convection can be enhanced by adjusting top and bottom vents. Choices of capacities vary from 2.1 to 6.0 cubic feet.

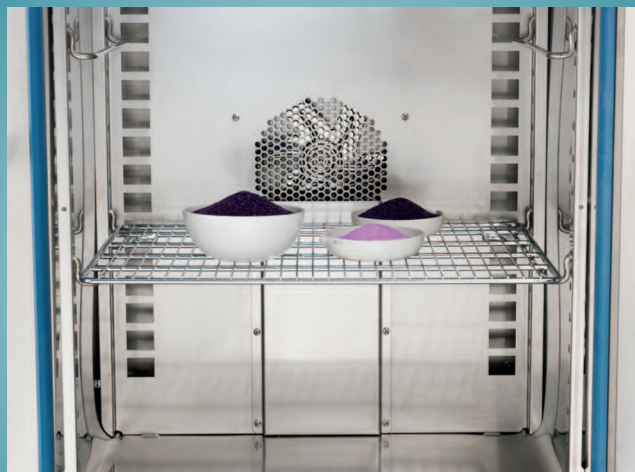
### F SERIES

Forced air convection ovens feature a multispeed fan system for improved performance. An ideal choice when temperature uniformity and control are important considerations. The blower gently circulates heated air throughout the chamber improving temperature uniformity and control. This forced convection also reduces heat-up and recovery time. Choices of capacities vary from 2.2 to 5.9 cubic feet.

## DIGITAL DISPLAY MICROPROCESSOR CONTROLLED GRAVITY AND FORCED CONVECTION BENCH OVENS



**MODEL GAA-330**



**MODEL FSA-250**

# SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS OR VAPORS. OTHER MODELS AVAILABLE FOR THESE APPLICATIONS—PLEASE CONSULT FACTORY.

## STANDARD CONTROL SYSTEM

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Convection	Insulation	Watts	Operating Characteristics†			Shelf Positions	Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft						Oven Uniformity	Temperature Stability	Rise Time		
GSA-250	13"x16"x19"	2.3	21"x22"x28"	250°C	Gravity	2	1800	±4.5°C	±0.40°C	25 min	13	121 lbs
GSB-250	17"x16"x23"	3.5	25"x22"x32"	250°C	Gravity	2	3100	±4.5°C	±0.40°C	25 min	16	143 lbs
GSC-250	17"x23"x27"	6.0	25"x29"x36"	250°C	Gravity	2	3100	±4.5°C	±0.50°C	25 min	19	190 lbs
FSA-250	14"x14"x20"	2.4	21"x22"x28"	250°C	Fan	2	1400	±3.7°C	±0.30°C	20 min	13	121 lbs
FSB-250	18"x14"x24"	3.6	25"x22"x32"	250°C	Fan	2	3060	±3.0°C	±0.30°C	20 min	16	148 lbs
FSC-250	18"x21"x28"	5.9	25"x29"x36"	250°C	Fan	2	3060	±3.5°C	±0.30°C	20 min	19	190 lbs

†Uniformity and temperature stability measured at 150°C. Rise time measured from 25°C to 150°C. Tests run with empty oven and minimum exhaust. Performance will vary with load, exhaust rate and application.

## ADVANCED CONTROL SYSTEM

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Convection	Insulation	Watts	Operating Characteristics†			Shelf Positions	Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft						Oven Uniformity	Temperature Stability	Rise Time		
GAA-330	13"x15"x19"	2.1	21"x22"x28"	330°C	Gravity	2	1800	±3.0°C	±0.30°C	25 min	13	123 lbs
GAB-330	17"x15"x23"	3.2	25"x22"x32"	330°C	Gravity	2	3100	±3.0°C	±0.30°C	25 min	16	152 lbs
GAC-330	17"x22"x27"	5.5	25"x29"x36"	330°C	Gravity	2	3100	±3.5°C	±0.40°C	25 min	19	190 lbs
FAA-330	14"x13"x20"	2.2	21"x28"x28"	330°C	Fan	2	1400	±2.0°C	±0.25°C	20 min	13	126 lbs
FAB-330	18"x13"x24"	3.3	25"x22"x32"	330°C	Fan	2	3060	±1.5°C	±0.25°C	20 min	16	143 lbs
FAC-330	18"x20"x28"	5.9	25"x29"x36"	330°C	Fan	2	3060	±2.0°C	±0.25°C	20 min	19	190 lbs

†Uniformity and temperature stability measured at 150°C. Rise time measured from 25°C to 150°C. Tests run with empty oven and minimum exhaust. Performance will vary with load, exhaust rate and application.

## STANDARD EQUIPMENT

### • Standard Electrical Characteristics

- 120 volts, 60hz,  Marked
- 208-240 volts, 60hz,  Marked
- 230 volts, 50-60hz,  Marked

### • Standard Equipment

- Rounded interior corners
- RS232 interface
- Built in timer
- Two (2) 55 lbs uniformly distributed load capacity, stainless steel wire shelves

### • Standard Control Oven

Optimally suited to everyday heating and drying applications up to 250°C. Temperatures as low as ambient + 10°C can be selected - requires open damper and no heat input from load.

### • Advanced Control Oven

Provides the necessary features for users requiring highest accuracy and increased heating capability up to 330°C. Also provides the ability to select one of two fan speeds to accommodate process. Programmable dwell times (ramp times are not programmable).

## G SERIES

### • Gravity Convection

Heat is transferred by gravity convection from heater at bottom rising up through the oven chamber to vents at top.

## F SERIES

### • Forced Air Convection

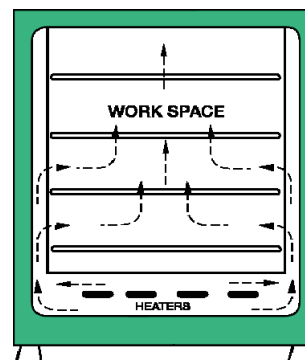
Includes forced air circulation for improved temperature uniformity, large moist loads, or to speed up drying times. Heated air is gently forced to both sides of the oven chamber where it exits through openings in the sidewall plenums. It circulates through the oven, is drawn to the center of the chamber, reheated and recirculated. Exhaust is through a vent in the top of the oven.

## ADDITIONAL EQUIPMENT AVAILABLE

- **Additional Shelves**, 55 lbs distributed load per shelf, 110 lbs maximum oven load, specify oven model when ordering.

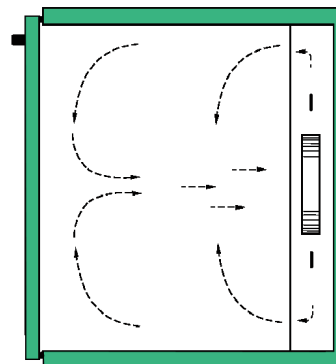
### Circulation Diagrams

(Front View)



G Series (gravity)

(Top View)



F Series (fan)



Ovens and Furnaces For Industry Since 1949

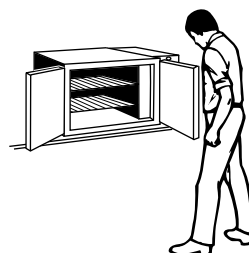
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**BULLETIN  
BH-302**

## **Industrial Bench Ovens**

Model NBS-400 meets the requirements of OSHA and National Fire Protection Association Standard 86 for Class A ovens. Not for use in hazardous locations as defined in the National Electric Code.

These rugged bench ovens are designed for a wide variety of industrial heat processing applications including those where flammable solvents or vapors will be present in the oven.

### **STANDARD FEATURES**

- Recirculating blower
- 304 stainless steel interior
- Incoloy sheathed tubular heating elements
- Silicone rubber door gasket
- Analog, thermocouple actuated, temperature controller
- Adjustable, thermocouple actuated, manual reset excess temperature interlock
- On-off switch
- Red pilot light indicates heater operation
- Sturdy steel construction
- Brushed stainless steel exterior
- 6 lb/cf density industrial rockwool insulation
- Built-in baffles prevent radiant heat
- Fully factory tested
- 1 year limited warranty

### **MODEL NBS-400**

Fan forced recirculation of heated air throughout 7 cubic foot work space at temperatures to 400°F. Includes two (2) removable nickel plated wire shelves easily adjustable on 2" centers. Holds a maximum of seven (7) shelves. Includes safety equipment required when flammable solvents or vapors are present in an oven.

**RUGGED, VERSATILE  
BENCH OVEN HANDLES  
FLAMMABLE SOLVENTS**



**MODEL NBS-400**  
WITH OPTIONAL DIGITAL MICROPROCESSOR BASED  
PROGRAMMABLE TEMPERATURE CONTROLLER

SPECIFICATIONS

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Insulation	Watts	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft					Control Accuracy	Oven Uniformity	Rise Time	
NBS-400	28" x 24" x 18"	7	41" x 30" x 39"	400°F	2"	4000	±0.5°F	±10°F	40 min	300 lbs

STANDARD EQUIPMENT

- **Standard Electrical Characteristics**
  - 208 volts, 1-phase, 60 Hz
  - 230 volts, 1-phase, 60 Hz
  - Other electrical characteristics available

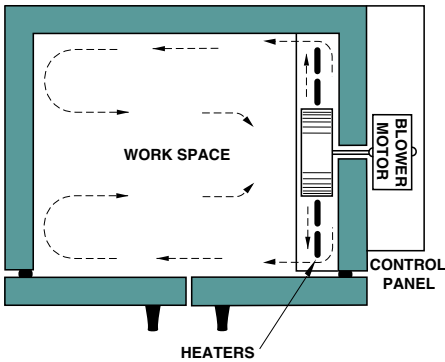
MODEL NBS-400

Completely wired control panel assembled on the oven enclosing the temperature controller, manual reset excess temperature interlock, pilot light to indicate when heaters are energized and on-off switch. Includes additional safety equipment required by OSHA and NFPA 86 for Class A ovens. Will handle a maximum of 3 ounces (0.024 gallons) of flammable solvents or vapors per batch at a maximum temperature of 400°F.

- **Manual Reset Excess Temperature Interlock**  
Turns off heat if oven exceeds 400°F
- **Back-Up Heating Element Relay**  
Turns off oven heat on excess temperature controller actuation in the event of failure of the primary heating element relay
- **35 CFM Separately Powered Forced Exhauster**  
Provides safety ventilation. Exhaust outlet 4" diameter.
- **Exhauster Air Flow Safety Switch**  
Turns off oven heat if exhauster fails
- **Recirculating Blower Air Flow Safety Switch**  
Turns off oven heat if recirculating blower fails
- **Purge Timer**  
Provides time delay to allow exhauster to pull four oven volumes of air through the oven prior to turning oven heat on

†Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

Circulation Diagram (Top View)



ADDITIONAL EQUIPMENT AVAILABLE

- **Additional Shelves**, 20 lbs distributed load per shelf, 40 lbs maximum oven load.
- **Set of Eight (8) 430 Stainless Steel Drying Pans**, 11 1/2" W x 20" D x 2" H requires two (2) add'l shelves) . . .NBP3
- **Oven Stand**, to hold oven at convenient 31" working level, shipped separately, requires assembly . . . . .STDNB
- **Dial Thermometer** 10–290°C, 50–550°F dual scale range . . . .T550F
- **Digital Indicating Temperature Controller**, microprocessor based, thermocouple actuated, in lieu of standard controller . . . . .DIG2
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer. Starts timing when temperature reaches set point and shuts down oven at end of set time. . . . .DTS2
- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC2
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller (side mounted) . . . . .RT
- **Shut Down Timer**, with continuous "hold" feature
  - 60 minute range . . . . .BTMR60
  - 12 hour range . . . . .BTMR12






**BULLETIN  
BH-303**



## Large Capacity Bench Ovens

Low cost, large capacity bench ovens for shelf processing at temperatures to 400°F. Designed to handle a wide variety of applications such as baking, curing, drying and pre-heating.

### STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard Large Capacity Bench Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Analog, thermocouple actuated, temperature controller
  - Motor control push buttons
  - On-off heat switch
  - LED pilot lights
- **Safety Equipment**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactor
  - Recirculating blower air flow safety switch
- **Construction**
  - 304 stainless steel interior
  - Explosion venting latches
  - 2" of 6 lb/cf density industrial rockwool insulation
  - Built-in baffle prevents radiant heat
  - Silicone rubber door gasket
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Incoloy sheathed tubular heating elements
  - Two (2) nickel plated wire shelves
  - Channel shelf supports prevent shelves tipping
  - Adjustable fresh air intake and exhaust dampers
  - High pressure recirculating blower
  - All welded construction
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

**ECONOMICAL  
LARGE WORK SPACE  
BENCH OVENS**



**MODEL 323**  
DESIGNED TO FIT THROUGH A 30"  
WIDE DOOR OPENING



**MODEL 343**  
WITH OPTIONAL DIGITAL MICROPROCESSOR  
BASED INDICATING TEMPERATURE CONTROLLER

SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	KW	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP				Control Accuracy	Oven Uniformity	Rise Time	
323	36" x 21" x 36"	15.8	40" x 28" x 47"	400°F	400	1/3	2"	Double	4.4‡	±0.5%	±8°F	18 min	600 lbs
333	36" x 36" x 36"	27	40" x 43" x 47"	400°F	400	1/3	2"	Double	6.6	±0.5%	±8°F	18 min	750 lbs
343	36" x 48" x 36"	36	40" x 55" x 47"	400°F	400	1/3	2"	Double	6.6	±0.5%	±8°F	22 min	850 lbs

\*Blower motor extends 10" above. Control panel overhang 9" right side.

‡Model 323 has two (2) heating elements which result in an open delta heater connection on 3-phase electrical service.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load, exhaust rate and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

- 208 volts, 1 or 3-phase, 60 Hz
- 230 volts, 1 or 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements.

Two (2) reinforced 50 lbs uniformly distributed load capacity nickel plated wire shelves; ten (10) pair shelf support channels on 3" centers; 200 lbs maximum oven load.

304 stainless steel interior with carbon steel blower and plated hardware. Trilite Green enamel painted aluminized steel exterior. Exhaust outlet 4" diameter.

MODEL 323

Designed specifically to fit through a standard 30" wide door opening, when fully assembled. This model provides a generous 16 cubic feet of work space.

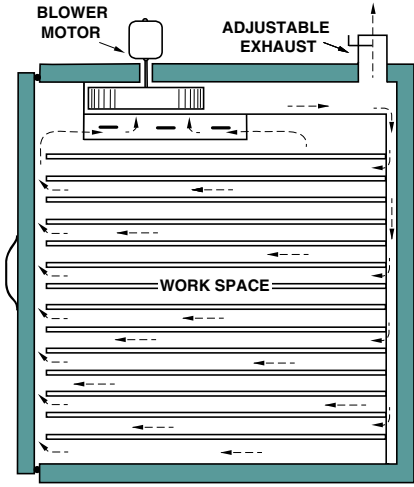
MODEL 333

Provides a roomy 27 cubic feet of work space—70% more capacity at only a little more cost than our Model 323.

MODEL 343

It's a full foot deeper than Model 333. Ideal for longer or larger items and bigger batches. A giant 36 cubic feet of work space.

Circulation Diagram (Side View)



Heated air is blown forward between shelves and across parts

ADDITIONAL EQUIPMENT AVAILABLE\*

- **Additional Shelves**, 50 lbs distributed load per shelf, 200 lbs maximum oven load, specify oven model when ordering.
- **Digital Indicating Temperature Controller**, microprocessor based, thermocouple actuated, in lieu of standard controller .....DIG2
- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller .....PTC2
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller .....RT
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time .....DTS2
- **Digital Shut Down Timer**, with continuous "hold" feature .....SDT
- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset .....BT
- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat when door is closed .....ADS
- **Oven Stand**, to hold oven at convenient 24" working height. Specify model number of oven when ordering stand. Shipped separately, requires assembly ...STND
- **80 CFM Powered Forced Exhauster**, driven by a 1/8 HP motor, with 4" diameter outlet includes exhauster air flow safety switch .....X80
- **304 Stainless Steel Components**, including blower wheel, hardware and two stainless steel expanded metal shelves, specify oven model when ordering.
- **304 Stainless Steel Shelves**, reinforced expanded metal, specify oven model when ordering.

\*See Bulletin TC-960 for modifications and other optional equipment.



Ovens and Furnaces For Industry Since 1949

**THE GRIEVE CORPORATION**

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**Model 333**  
with optional programmable  
temperature controller and oven stand






**FRONT-TO-BACK  
HORIZONTAL AIR FLOW  
UNIVERSAL OVENS**

# Universal Ovens

Front-to-back horizontal air flow accommodates virtually any oven loading without restricting air passage. Work can be shelf loaded or placed directly on the optional reinforced work space bottom. Four sizes from 8 to 36 cubic feet. Designed for baking, drying, preheating or any other application where a dependable source of heated air up to 850°F is required.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- Standard Universal Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Motor control push buttons
  - On-off heat switch
  - LED pilot lights
- **Safety Equipment**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Construction**
  - Front-to-back horizontal air flow
  - 304 stainless steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Explosion venting latches
  - All welded construction
  - 10 lbs/cf density industrial rockwool insulation
  - Built-in baffles prevent radiant heat
  - Silicone rubber door gasket on 550°F Models only
  - High temperature door gasket with stainless steel spring insert on 700°F and 850°F Models
  - Two (2) nickel plated wire shelves
  - Channel shelf supports prevent shelves tipping
  - Adjustable fresh air intake and exhaust dampers
  - High pressure recirculating blower
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**



**MODEL AA-850**  
WITH OPTIONAL 24" INTEGRAL OVEN LEGS AND TIMER



**MODEL AG-700**  
WITH OPTIONAL PROGRAMMABLE CONTROLLER

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	KW	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP				Control Accuracy	Oven Uniformity	Rise Time	
AA-550	24" x 24" x 24"	8	40" x 50" x 36 1/2"	550°F	400	1/3	6"	Single	5	±0.3%	±5°F	45 min	965 lbs
AA-700	24" x 24" x 24"	8	44" x 56" x 40 1/2"	700°F	400	1/3	8"	Single	7	±0.3%	±6°F	55 min	1140 lbs
AA-850	24" x 24" x 24"	8	44" x 56" x 40 1/2"	850°F	400	1/3	8"	Single	9	±0.3%	±8°F	70 min	1170 lbs
AF-550	24" x 36" x 24"	12	40" x 62" x 36 1/2"	550°F	400	1/3	6"	Single	5	±0.3%	±5°F	50 min	1155 lbs
AF-700	24" x 36" x 24"	12	44" x 68" x 40 1/2"	700°F	400	1/3	8"	Single	7	±0.3%	±6°F	60 min	1335 lbs
AF-850	24" x 36" x 24"	12	44" x 68" x 40 1/2"	850°F	400	1/3	8"	Single	9	±0.3%	±8°F	75 min	1365 lbs
AB-550	36" x 36" x 36"	27	52" x 62" x 48 1/2"	550°F	600	1/2	6"	Single	7	±0.3%	±5°F	61 min	1490 lbs
AB-700	36" x 36" x 36"	27	56" x 66" x 52 1/2"	700°F	600	1/2	8"	Single	9	±0.3%	±6°F	70 min	1850 lbs
AB-850	36" x 36" x 36"	27	56" x 66" x 52 1/2"	850°F	600	1/2	8"	Single	12	±0.3%	±8°F	83 min	1880 lbs
AG-550	36" x 48" x 36"	36	52" x 74" x 48 1/2"	550°F	600	1/2	6"	Single	9	±0.3%	±5°F	82 min	1865 lbs
AG-700	36" x 48" x 36"	36	56" x 78" x 52 1/2"	700°F	600	1/2	8"	Single	12	±0.3%	±6°F	93 min	2230 lbs
AG-850	36" x 48" x 36"	36	56" x 78" x 52 1/2"	850°F	600	1/2	8"	Single	18	±0.3%	±8°F	110 min	2260 lbs

\*All Models—Control panel overhang 9" right side. Blower motor overhang 10" rear.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

Two (2) reinforced 100 lbs uniformly distributed load capacity, nickel plated wire shelves. 304 stainless steel interior with carbon steel blower and plated hardware. Trilite Green enamel painted aluminized steel exterior.

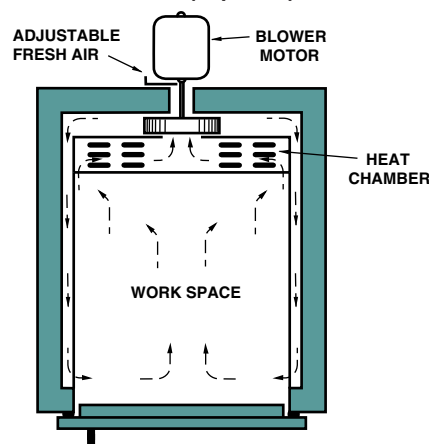
### ● AA and AF Series

Provides 8 cubic feet and 12 cubic feet of work space respectively. The AF Series is 12" deeper than the AA Series to handle more or longer parts. Temperature ranges to 550°F, 700°F, and 850°F. Accommodates seven (7) shelves on 3" centers.

### ● AB and AG Series

Our larger universal ovens with work space of 27 cubic feet and 36 cubic feet respectively. The AG Series is 12" deeper than the AB Series, to accommodate longer parts and bigger batches. Temperature ranges to 550°F, 700°F, and 850°F. Accommodates five (5) shelves on 6" centers.

Circulation Diagram  
(Top View)



With virtually any method of work load placement, the front-to-back horizontal air flow pattern completely surrounds work with heated air and permits free air passage throughout the work space for uniform processing.

## ADDITIONAL EQUIPMENT AVAILABLE\*

● **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3

● **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller (side mounted) . . . . .RT

● **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . . . .DTS3

● **Additional Shelves**, 100 lbs distributed load per shelf, 400 lbs maximum oven load, specify oven model when ordering.

● **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT

● **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . .BT

● **24" Integral Oven Legs**, with 1/8" steel plate shelf. Specify oven model when ordering . . . . .ISTND

● **24" Removable Oven Stand**, with 1/8" steel plate shelf. Specify oven model when ordering . . . . .RSTND

● **304 Stainless Steel Components**, including blower wheel, hardware and two stainless steel expanded metal shelves, specify oven model when ordering.

● **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat when door is closed . .ADS

● **500 lbs Capacity Carbon Steel Subway Grating**, oven work space bottom. Reduces work space height by 1". Specify oven model when ordering . . . . .SUB

● **Double Doors**, in lieu of single door. AB & AG Series only . . . . .DD

● **Roof Mounted Power Forced Exhausters** with exhaust air flow safety switch†

Capacity	HP	Outlet Diameter	Height
80 CFM‡	1/8	4"	16"
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"

†Ovens may require additional heat input.  
‡550°F Models only

\*See Bulletin TC-960 for modifications and other optional equipment.



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**BULLETIN  
CA-360**

## High Temperature Universal Ovens

Front-to-back horizontal air flow accommodates virtually any oven loading without restricting air passage. Work can be shelf loaded or placed directly on the optional reinforced work space bottom. Four sizes from 8 to 36 cubic feet. Designed for annealing, sintering, hardening or any other application where a dependable source of heated air up to 1250°F is required.

### STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- Standard Universal Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.

#### ● Controls

- Digital, microprocessor based, thermocouple actuated, indicating temperature controller
- Motor control push buttons
- On-off heat switch
- LED pilot lights

#### ● Safety Equipment

- Adjustable, thermocouple actuated, manual reset excess temperature interlock
- Separate heating element control contactors
- Recirculating blower air flow safety switch

#### ● Construction

- Front-to-back horizontal air flow
- 16 gauge 304 stainless steel interior
- Aluminized steel exterior with enamel finish
- Brushed stainless steel control panel face
- Explosion venting latches
- All welded construction
- Insulated with 2" thick 1900°F insulating block, backed up with 10 lbs/cf density rockwool
- Built-in baffles prevent radiant heat
- High temperature inner and outer door gaskets with stainless steel spring insert
- Two (2) stainless steel shelves
- Channel shelf supports prevent shelves tipping
- Adjustable fresh air intake and exhaust dampers
- High pressure stainless steel recirculating blower
- 1 year limited warranty

- Every oven fully assembled and individually factory tested



**1050°F AND 1250°F  
FRONT-TO-BACK  
HORIZONTAL AIR FLOW  
UNIVERSAL OVENS**



**MODEL AA-1250**  
WITH OPTIONAL PROGRAMMABLE  
TEMPERATURE CONTROLLER



**MODEL AG-1250**  
WITH OPTIONAL 16" INTEGRAL OVEN LEGS

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	KW	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP				Control Accuracy	Oven Uniformity	Rise Time	
AA-1050	24" x 24" x 24"	8	51" x 60" x 45 1/2"	1050°F	600	1/2	10"	Single	12	±0.3%	±10°F	86 min	2275 lbs
AA-1250	24" x 24" x 24"	8	55" x 64" x 49 1/2"	1250°F	1000	3/4	12"	Single	18	±0.3%	±13°F	88 min	2705 lbs
AF-1050	24" x 36" x 24"	12	51" x 72" x 45 1/2"	1050°F	1000	3/4	10"	Single	12	±0.3%	±10°F	94 min	2580 lbs
AF-1250	24" x 36" x 24"	12	55" x 76" x 49 1/2"	1250°F	1200	1	12"	Single	18	±0.3%	±13°F	96 min	3085 lbs
AB-1050	36" x 36" x 36"	27	63" x 70" x 57 1/2"	1050°F	1000	3/4	10"	Double	18	±0.3%	±10°F	100 min	3265 lbs
AB-1250	36" x 36" x 36"	27	67" x 74" x 61 1/2"	1250°F	1200	1	12"	Double	24	±0.3%	±13°F	112 min	4030 lbs
AG-1050	36" x 48" x 36"	36	63" x 82" x 57 1/2"	1050°F	1200	1	10"	Double	24	±0.3%	±10°F	113 min	4095 lbs
AG-1250	36" x 48" x 36"	36	67" x 86" x 61 1/2"	1250°F	1400	1 1/2	12"	Double	30	±0.3%	±13°F	125 min	4535 lbs

\*All Models—Control panel overhang 9" right side. Blower motor overhang 17" rear.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Exhaust outlet 4" diameter.

Incoloy sheathed tubular heating elements on all models. The 1250°F models have a heat chamber high limit controller.

Two (2) reinforced 100 lbs uniformly distributed load capacity 304 stainless steel expanded metal shelves. Trilite Green enamel painted aluminized steel exterior. Insulated with 2" of 1900°F insulating block backed up with 1250°F industrial rockwool.

Door seal utilizing inner and outer door gaskets. The inner gasket seals directly against the door plug; the outer gasket seals directly against the front face of the oven. This design greatly reduces the amount of heat transferred through the throat area and helps keep the front face of the oven cool.

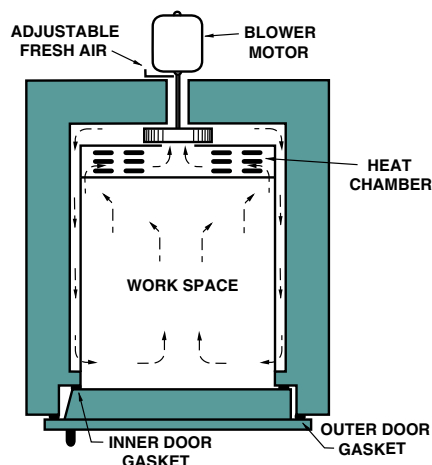
### ● AA and AF Series

Provides 8 cubic feet and 12 cubic feet of work space respectively. The AF Series is 12" deeper than the AA Series to handle more or longer parts. Temperature ranges to 1050°F and 1250°F. Accommodates seven (7) shelves on 3" centers.

### ● AB and AG Series

Our larger universal ovens with work space of 27 cubic feet and 36 cubic feet respectively. The AG Series is 12" deeper than the AB Series to accommodate longer parts and bigger batches. Temperature ranges to 1050°F and 1250°F. Accommodates five (5) shelves on 6" centers.

Circulation Diagram (Top View)



With virtually any method of work load placement, the front-to-back horizontal air flow pattern completely surrounds work with heated air and permits free air passage throughout the work space for uniform processing.

## ADDITIONAL EQUIPMENT AVAILABLE\*

- **Additional Shelves**, 100 lbs distributed load per shelf, 400 lbs maximum oven load, specify oven model when ordering.
- **Programmable Temperature Controller**, microprocessor based digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller (side mounted) . . . . .RT
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . . . .DTS3

- **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT
- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . .BT
- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat when door is closed . . . . .ADS
- **Integral Oven Legs**, with 1/8" steel plate shelf. 24" high on AA & AF series, 16" high on AB & AG series. Specify oven model when ordering . . . . .ISTND

- **Removable Oven Stand**, with 1/8" steel plate shelf, 24" high on AA & AF series, 16" high on AB & AG series. Specify oven model when ordering . . . . .RSTND
- **500 lbs Capacity Stainless Steel Subway Grating**, oven work space bottom. Reduces work space height by 1". Specify oven model when ordering . . . . .SUB
- **Roof Mounted Stainless Steel Exhausters** with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"

†Ovens may require additional heat input.

\*See Bulletin TC-960 for modifications and other optional equipment.



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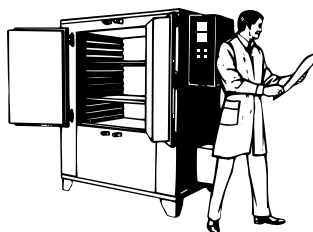
# Horizontal Air Flow Cabinet Ovens

These units, backed by years of experience, quality construction and precise engineering, provide exceptional temperature uniformity. Horizontal air flow passes heated air across each shelf level. Six sizes from 4.6 to 72.3 cubic feet. For closely controlled production work at temperatures up to 850°F.

## STANDARD FEATURES

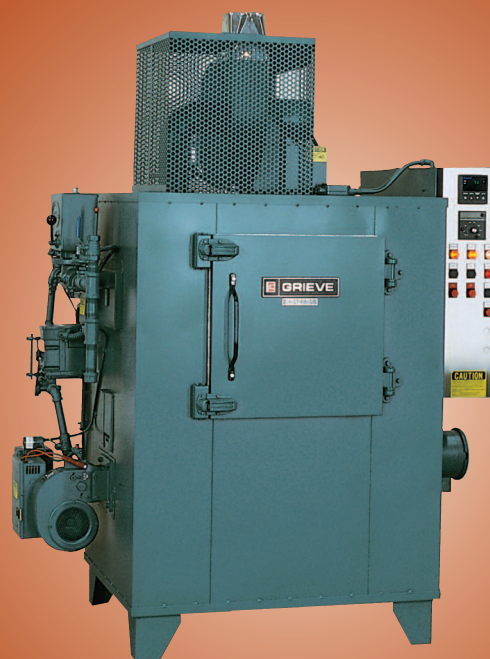
-  **UL LISTED CONTROL PANEL**
- Standard Cabinet Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller.
  - Modulating burner on gas ovens.
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment — Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment — Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - 325 CFM powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations
  - Valve position indicator on main safety shutoff valves
- **Construction**
  - Adjustable opposed louvers on full coverage supply and return duct work
  - 304 stainless steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Built-in baffles prevent radiant heat
  - Exceptionally heavy duty doors and door frame with explosion venting latches
  - High temperature door gasket with stainless steel spring insert
  - Two (2) nickel plated wire shelves
  - Channel shelf supports prevent shelves tipping
  - Adjustable fresh air intake and exhaust dampers
  - High pressure recirculating blower
  - All welded construction
  - 10 lbs/cf density industrial rockwool insulation
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

Specifications Subject to Change Without Notice  
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**BULLETIN  
CA-400**

## HEAVY DUTY ELECTRIC AND GAS HORIZONTAL AIR FLOW CABINET OVENS



**MODEL HA-700 GAS**  
WITH STANDARD MODULATING BURNER SYSTEM



**MODEL HC-850 ELECTRIC**  
WITH OPTIONAL PROGRAMMING TEMPERATURE  
CONTROLLER AND RECORDING THERMOMETER

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
													Electric	Gas	
HA-550	20" x 20" x 20"	4.6	40" x 36" x 58"	550°F	400	1/3	6"	Single	6	50,000	±0.3%	±4°F	20 min	12 min	805 lbs
HA-700	20" x 20" x 20"	4.6	44" x 40" x 62"	700°F	400	1/3	8"	Single	8	50,000	±0.3%	±5°F	22 min	15 min	970 lbs
HA-850	20" x 20" x 20"	4.6	44" x 40" x 62"	850°F	600	1/2	8"	Single	10	75,000	±0.3%	±7°F	40 min	25 min	1030 lbs
HX-550	38" x 20" x 26"	11.4	58" x 36" x 64"	550°F	600	1/2	6"	Double	8	50,000	±0.3%	±4°F	37 min	24 min	1375 lbs
HX-700	38" x 20" x 26"	11.4	62" x 40" x 68"	700°F	600	1/2	8"	Double	10	75,000	±0.3%	±5°F	33 min	21 min	1505 lbs
HX-850	38" x 20" x 26"	11.4	62" x 40" x 68"	850°F	600	1/2	8"	Double	15	125,000	±0.3%	±7°F	45 min	27 min	1555 lbs
HB-550	38" x 26" x 38"	21.7	58" x 42" x 76"	550°F	600	1/2	6"	Double	10	75,000	±0.3%	±4°F	38 min	22 min	1590 lbs
HB-700	38" x 26" x 38"	21.7	62" x 46" x 80"	700°F	600	1/2	8"	Double	15	125,000	±0.3%	±5°F	40 min	24 min	1900 lbs
HB-850	38" x 26" x 38"	21.7	62" x 46" x 80"	850°F	800	3/4	8"	Double	20	150,000	±0.3%	±7°F	45 min	30 min	1950 lbs
HZ-550	38" x 26" x 50"	28.6	58" x 42" x 88"	550°F	800	3/4	6"	Double	15	100,000	±0.3%	±4°F	40 min	24 min	1975 lbs
HZ-700	38" x 26" x 50"	28.6	62" x 46" x 92"	700°F	800	3/4	8"	Double	20	150,000	±0.3%	±5°F	42 min	27 min	2305 lbs
HZ-850	38" x 26" x 50"	28.6	62" x 46" x 92"	850°F	1000	1	8"	Double	30	175,000	±0.3%	±7°F	44 min	36 min	2455 lbs
HY-550	38" x 38" x 38"	31.8	58" x 54" x 76"	550°F	800	3/4	6"	Double	15	100,000	±0.3%	±4°F	42 min	25 min	2180 lbs
HY-700	38" x 38" x 38"	31.8	62" x 58" x 80"	700°F	800	3/4	8"	Double	20	150,000	±0.3%	±5°F	44 min	29 min	2540 lbs
HY-850	38" x 38" x 38"	31.8	62" x 58" x 80"	850°F	1000	1	8"	Double	30	175,000	±0.3%	±7°F	46 min	38 min	2710 lbs
HC-550	50" x 50" x 50"	72.3	74" x 66" x 90"	550°F	2450	1 1/2	6"	Double	30	150,000	±0.3%	±4°F	25 min	24 min	3485 lbs
HC-700	50" x 50" x 50"	72.3	76" x 68" x 92"	700°F	2450	1 1/2	8"	Double	40	200,000	±0.3%	±5°F	30 min	29 min	3905 lbs
HC-850	50" x 50" x 50"	72.3	78" x 70" x 94"	850°F	3300	2	8"	Double	60	350,000	±0.3%	±7°F	30 min	25 min	4230 lbs

\*All Models—Control panel overhang 9" right side. Blower motor overhang 10" right side, except HB-850, HZ & HY Series 14" and HC Series 19".  
Gas Models—Burner overhang 15" left side.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Two (2) reinforced 200 lbs uniformly distributed load capacity, nickel plated wire shelves; shelf support channels on 3" centers (6" on HC Series).

304 stainless steel interior with carbon steel blower and plated hardware. Trilite Green enamel painted aluminized steel exterior. These electric or gas models come in six sizes. They feature full horizontal air flow for shelf processing at temperatures to 850°F. Commonly used where work is shelf loaded and least restriction to free air passage is in the horizontal direction.

- **HA Series** - 4.6 cubic feet, holds 6 shelves
- **HX Series** - 11.4 cubic feet, holds 8 shelves
- **HB Series** - 21.7 cubic feet, holds 12 shelves
- **HZ Series** - 28.6 cubic feet, holds 16 shelves
- **HY Series** - 31.8 cubic feet, holds 12 shelves
- **HC Series** - 72.3 cubic feet, holds 8 shelves

### ● Electric Models

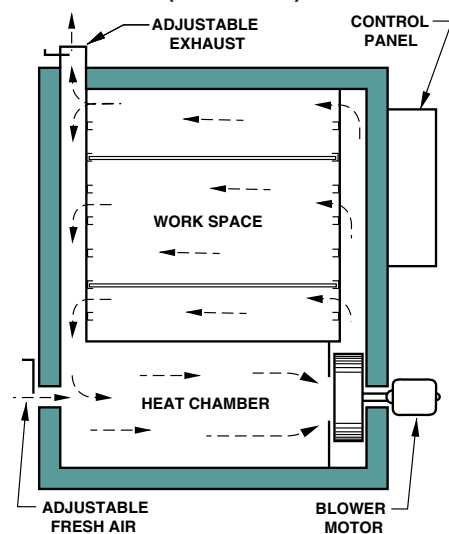
Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

## Circulation Diagrams (Front View)



Heated air is blown sideways between shelves and across parts

## ADDITIONAL EQUIPMENT AVAILABLE\*

- **Additional Shelves**, 200 lbs distributed load per shelf, 800 lbs maximum oven load, specify oven model when ordering.

- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3

- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .RT

- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . .DTS3

- **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT

- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . .BT

- **304 Stainless Steel Components**, including blower wheel, hardware and two stainless steel expanded metal shelves, specify oven model when ordering.

- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed . . .ADS

- **Roof Mounted Powered Forced Exhausters** with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
80 CFM‡	1/8	4"	16"
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"

†Gas ovens include 325 CFM exhauster. Electric ovens may require additional heat input.  
‡550°F Models only



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\*See Bulletin TC-960 for modifications and other optional equipment.






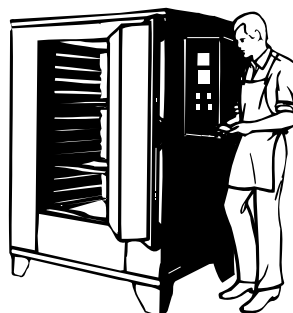
# Vertical Air Flow Cabinet Ovens

Vertical air flow cabinet ovens specifically designed for work loads where the heated air must pass upward through the load, such as open ended cylinders or hanging parts. Two sizes, 14.9 and 28.6 cubic feet, at temperatures up to 850°F.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard Cabinet Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller.
  - Modulating burner on gas ovens.
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment — Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment — Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame, safeguard protection
  - 325 CFM powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations
  - Valve position indicator on main safety shutoff valves
- **Construction**
  - Adjustable opposed louvers on full coverage supply and return duct work
  - 304 stainless steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Built-in baffles prevent radiant heat
  - Exceptionally heavy duty doors and door frame with explosion venting latches
  - High temperature door gasket with stainless steel spring insert
  - Two (2) nickel plated wire shelves
  - Channel shelf supports prevent shelves tipping
  - Adjustable fresh air intake and exhaust dampers
  - High pressure recirculating blower
  - All welded construction
  - 10 lbs/cf density industrial rockwool insulation
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

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**BULLETIN  
CA-402**

**HEAVY DUTY  
ELECTRIC AND GAS  
VERTICAL AIR FLOW  
CABINET OVENS**



**MODEL VA-700 GAS**  
WITH STANDARD MODULATING BURNER SYSTEM



**MODEL VB-550 ELECTRIC**

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside* Dimensions (WxDxH)	Max Temp	Blower		Insulation	Doors	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
													Electric	Gas	
VA-550	26" x 26" x 38"	14.9	38" x 55" x 68"	550°F	700	1/2	6"	Single	7	50,000	±0.3%	±5°F	70 min	25 min	1380 lbs
VA-700	26" x 26" x 38"	14.9	42" x 59" x 72"	700°F	1000	1	8"	Single	9	75,000	±0.3%	±6°F	58 min	28 min	1750 lbs
VA-850	26" x 26" x 38"	14.9	42" x 59" x 72"	850°F	1000	1	8"	Single	15	100,000	±0.3%	±8°F	65 min	34 min	1850 lbs
VB-550	26" x 38" x 50"	28.6	38" x 67" x 80"	550°F	700	1/2	6"	Single	9	75,000	±0.3%	±5°F	47 min	24 min	1940 lbs
VB-700	26" x 38" x 50"	28.6	42" x 71" x 84"	700°F	1000	1	8"	Single	15	125,000	±0.3%	±6°F	50 min	27 min	2275 lbs
VB-850	26" x 38" x 50"	28.6	42" x 71" x 84"	850°F	1000	1	8"	Single	24	150,000	±0.3%	±8°F	55 min	33 min	2475 lbs

\*All Models—Control panel overhang 9" right side. Blower motor overhang 10" at rear on 550°F Models, 17" on 700°F and 850°F Models.  
Gas Models—Burner overhang 15" right side.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Two (2) reinforced 200 lbs uniformly distributed load capacity, nickel plated wire shelves; shelf support channels on 3" centers. 304 stainless steel interior with carbon steel blower and plated hardware. Trilite Green enamel painted aluminized steel exterior.

These electric or gas models come in two sizes. They feature full vertical air flow for processing at temperatures to 850°F. Used where least restriction to free air passage is in the vertical direction. Heated air is supplied at the bottom of the work space and sweeps upward through the work load. Ideal for hanging long parts or for applications requiring heated air to pass both around the outside and through the middle of parts such as open ended cylinders.

- **VA Series**—14.9 cubic feet, holds 12 shelves
- **VB Series**—28.6 cubic feet, holds 16 shelves

Due to vertical air flow, a large number of shelves or dense shelf loading will restrict air flow and may adversely affect oven operation.

### ● Electric Models

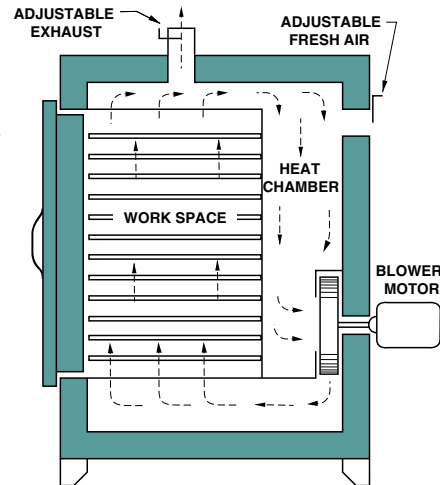
Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

Circulation Diagram (Side View)



Heated air is provided at the bottom and pulled upward through shelves and load.

## ADDITIONAL EQUIPMENT AVAILABLE\*

● **Additional Shelves**, 200 lbs distributed load per shelf, 800 lbs maximum oven load, specify oven model when ordering.

● **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller. . . . .PTC3

● **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller. . . . .RT

● **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time. . .DTS3

● **Digital Shut Down Timer**, with continuous "hold" feature. . . . .SDT

● **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset. . .BT

● **304 Stainless Steel Components**, including blower wheel, hardware and two stainless steel expanded metal shelves, specify oven model when ordering.

● **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed. . .ADS

● **Roof Mounted Powered Forced Exhausters** with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
80 CFM‡	1/8	4"	16"
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"

†Gas ovens include 325 CFM exhauster. Electric ovens may require additional heat input. ‡550°F Models only



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\*See Bulletin TC-960 for modifications and other optional equipment.






# High Temperature Cabinet Ovens

These units, backed by years of experience, quality construction and precise engineering, provide exceptional temperature uniformity. Ruggedly built for long hard usage at elevated temperatures. A choice of two air flow patterns and eight sizes from 4.6 to 72 cubic feet.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- Standard Cabinet Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas ovens
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment—Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment—Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Solid state electronic flame safeguard protection
  - Stainless steel powered forced exhauster
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
- **Construction**
  - Choice of recirculating air flow patterns
  - Adjustable opposed louvers on full coverage supply and return duct work
  - 16 gauge 304 stainless steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Exceptionally heavy duty doors and door frame with explosion venting latches
  - High temperature inner and outer door gaskets with stainless steel spring insert
  - Insulated with 2" thick 1900°F insulating block, backed up with 10 lbs/cf density 1250°F industrial rockwool
  - Two (2) stainless steel shelves
  - Channel shelf supports prevent shelves tipping
  - Adjustable fresh air intake and exhaust dampers
  - High pressure stainless steel recirculating blower
  - All welded construction
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request

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**BULLETIN  
CA-410**

**1050°F AND 1250°F  
HEAVY DUTY  
ELECTRIC AND GAS  
CABINET OVENS**



**MODEL HA-1250 ELECTRIC**



**MODEL HB-1250 GAS  
WITH STANDARD MODULATING BURNER SYSTEM**

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside* Dimensions (WxDxH)	Max Temp	Blower		Insulation	Doors	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
													Electric	Gas	
HA-1050	20" x 20" x 20"	4.6	48" x 45" x 60"	1050°F	700	1/2	10"	Single	15	90,000	±0.3%	±8°F	58 min	35 min	1885 lbs
HA-1250	20" x 20" x 20"	4.6	52" x 49" x 64"	1250°F	1000	3/4	12"	Single	20	125,000	±0.3%	±11°F	66 min	46 min	2195 lbs
HX-1050	38" x 20" x 26"	11.4	66" x 45" x 66"	1050°F	1000	3/4	10"	Double	20	150,000	±0.3%	±8°F	66 min	36 min	2965 lbs
HX-1250	38" x 20" x 26"	11.4	70" x 49" x 74"	1250°F	1200	1	12"	Double	30	175,000	±0.3%	±11°F	67 min	46 min	3570 lbs
HB-1050	38" x 26" x 38"	21.7	68" x 51" x 82"	1050°F	1600	1 1/2	10"	Double	30	175,000	±0.3%	±8°F	51 min	36 min	3590 lbs
HB-1250	38" x 26" x 38"	21.7	72" x 55" x 86"	1250°F	1600	1 1/2	12"	Double	40	200,000	±0.3%	±11°F	69 min	50 min	4325 lbs
HZ-1050	38" x 26" x 50"	28.6	68" x 51" x 94"	1050°F	2000	2	10"	Double	40	200,000	±0.3%	±8°F	52 min	39 min	3740 lbs
HZ-1250	38" x 26" x 50"	28.6	72" x 55" x 98"	1250°F	2000	2	12"	Double	60	300,000	±0.3%	±8°F	65 min	49 min	4410 lbs
HY-1050	38" x 38" x 38"	31.8	68" x 63" x 82"	1050°F	2000	2	10"	Double	40	200,000	±0.3%	±8°F	54 min	46 min	4130 lbs
HY-1250	38" x 38" x 38"	31.8	72" x 67" x 86"	1250°F	2000	2	12"	Double	60	300,000	±0.3%	±11°F	60 min	48 min	4870 lbs
HC-1050	50" x 50" x 50"	72.3	100" x 77" x 106"	1050°F	3750	3	10"	Double	80	500,000	±0.3%	±8°F	75 min	46 min	7590 lbs
HC-1250	50" x 50" x 50"	72.3	104" x 81" x 110"	1250°F	4200	5	12"	Double	120	700,000	±0.3%	±11°F	90 min	48 min	9140 lbs
VA-1050	26" x 26" x 38"	14.9	46" x 66" x 73"	1050°F	1600	1 1/2	10"	Single	24	125,000	±0.3%	±9°F	91 min	66 min	3245 lbs
VA-1250	26" x 26" x 38"	14.9	50" x 70" x 77"	1250°F	1600	1 1/2	12"	Single	30	200,000	±0.3%	±12°F	101 min	73 min	4010 lbs
VB-1050	26" x 38" x 50"	28.6	46" x 78" x 85"	1050°F	1600	1 1/2	10"	Single	30	200,000	±0.3%	±9°F	76 min	53 min	3810 lbs
VB-1250	26" x 38" x 50"	28.6	50" x 82" x 89"	1250°F	1600	1 1/2	12"	Single	40	300,000	±0.3%	±12°F	85 min	65 min	4650 lbs

\*All Models—Control panel overhang 9" right side.  
Blower motor overhang 17" (26" HC Series); H Series right side, V Series rear.  
Electric Model HX, HB, HZ, HY, HC—Heater terminal overhang 5" rear and left side.  
Gas Model—Burner overhang 15"; H Series left side, V Series right side.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

- All Models
  - 208 volts, 3-phase, 60 Hz
  - 230 volts, 3-phase, 60 Hz
  - 460 volts, 3-phase, 60 Hz
  - Other electrical characteristics available

Inner and outer door gasket; inner gasket seals directly against door plug, outer gasket against oven face. Two (2) reinforced 200 lbs uniformly distributed load capacity, 304 stainless steel expanded metal shelves; shelf support channels on 3" centers (6" on HC Models).

304 stainless steel interior and Trilite Green enamel painted aluminized steel exterior.

### ● Electric Models

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. The 1250°F models have a heat chamber high limit controller. Exhaust outlet 4" diameter.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet (1 1/4" on HC Series)
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

### H SERIES

#### Horizontal Air Flow

These electric or gas-fired models come in six sizes. They feature full horizontal air flow for shelf processing at temperatures to 1250°F. Commonly used where work is shelf loaded and least restriction to free air passage is in the horizontal direction.

- HA Series - 4.6 cubic feet, holds 6 shelves
  - HX Series - 11.4 cubic feet, holds 8 shelves
  - HB Series - 21.7 cubic feet, holds 12 shelves
  - HZ Series - 28.6 cubic feet, holds 16 shelves
  - HY Series - 31.8 cubic feet, holds 12 shelves
  - HC Series - 72.3 cubic feet, holds 8 shelves
- HC Series High Temperature Cabinet Ovens have the heat chamber above the work space.

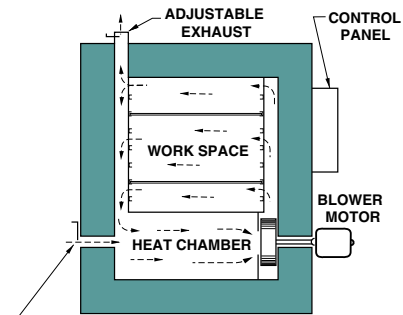
### V SERIES

#### Vertical Air Flow

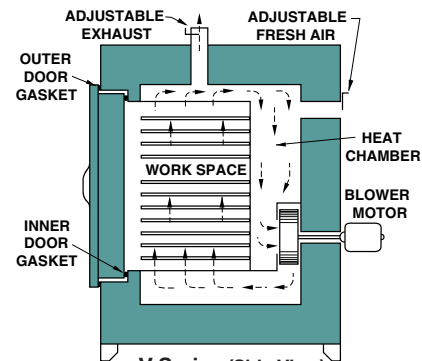
These electric or gas-fired models come in two sizes. They feature full vertical air flow for processing at temperatures to 1250°F. Used where least restriction to free air passage is in the vertical direction. Heated air is supplied at the bottom of the work space and sweeps upward through the work load. Ideal for hanging long parts or applications requiring heated air to pass both around the outside and through the middle of parts such as open ended cylinders.

- VA Series - 14.9 cubic feet, holds 12 shelves
  - VB Series - 28.6 cubic feet, holds 16 shelves
- Due to vertical air flow, a large number of shelves or dense shelf loading will restrict air flow and may adversely affect oven operation.

## Circulation Diagrams



**H Series (Front View)**  
Heated air is blown sideways between shelves and across parts



**V Series (Side View)**  
Heated air is provided at the bottom and pulled upward through shelves and load.

## ADDITIONAL EQUIPMENT AVAILABLE\*

- **Additional Shelves**, 200 lbs distributed load per shelf, 800 lbs maximum oven load, specify oven model when ordering.
- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .RT

- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . . . .DTS3
- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed . . . . .ADS
- **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT

- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . .BT
- **Roof Mounted Powered Forced Exhausters** with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"

†Gas-fired ovens include 325 CFM exhauster, except 650 CFM on HC-1250  
Electric ovens may require additional heat input.



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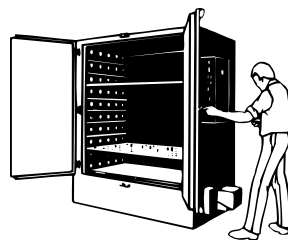
# Shelf Ovens

These compact ovens extend only 46" from a wall yet provide large work space at low cost. Ideal for shelf processing applications such as baking, drying, curing and preheating at temperatures to 550°F.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard Shelf Ovens** from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas ovens
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment—Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment—Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - 325 CFM powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations
  - Valve position indicator on main safety shutoff valves
- **Construction**
  - Side-to-side horizontal air flow specifically adapted for shelf processing
  - Adjustable opposed louvers on full coverage supply and return duct work
  - 304 stainless steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Integrally welded construction
  - Explosion venting latches
  - 6" of 10 lbs/cf density industrial rockwool insulation
  - Built-in baffles prevent radiant heat
  - Silicone rubber door gasket
  - Two (2) nickel plated wire shelves
  - Channel shelf supports prevent shelves tipping
  - Adjustable fresh air intake and exhaust dampers
  - High pressure recirculating blower
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

Specifications Subject to Change Without Notice  
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**BULLETIN  
CA-420**

**LOW COST  
ELECTRIC AND  
GAS OVENS FOR  
CONVENIENT  
SHELF LOADING**



**MODEL SB-550 ELECTRIC**  
WITH OPTIONAL PROGRAMMABLE TEMPERATURE  
CONTROLLER AND RECORDING THERMOMETER



**MODEL SC-550 GAS**  
WITH STANDARD MODULATING BURNER SYSTEM

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
SA-400	50" x 30" x 54"	46.9	70" x 46" x 80"	400°F	1000	1	6"	Double	10	50,000	±0.3%	±4°F	35 min	20 min	1675 lbs
SA-550	50" x 30" x 54"	46.9	70" x 46" x 80"	550°F	1000	1	6"	Double	15	75,000	±0.3%	±6°F	60 min	30 min	1875 lbs
SB-400	56" x 30" x 60"	58.3	76" x 46" x 86"	400°F	1000	1	6"	Double	15	75,000	±0.3%	±4°F	40 min	15 min	1875 lbs
SB-550	56" x 30" x 60"	58.3	76" x 46" x 86"	550°F	1000	1	6"	Double	20	100,000	±0.3%	±6°F	60 min	25 min	2085 lbs
SC-400	68" x 30" x 66"	77.9	88" x 46" x 92"	400°F	1000	1	6"	Double	20	100,000	±0.3%	±4°F	20 min	10 min	2650 lbs
SC-550	68" x 30" x 66"	77.9	88" x 46" x 92"	550°F	1000	1	6"	Double	25	125,000	±0.3%	±6°F	35 min	20 min	2760 lbs

\*All models —Control panel overhang 9" right side.  
Blower motor overhang 10" right side  
Gas models—Burner overhang 15" left side.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Two (2) reinforced 100 lbs uniformly distributed load capacity, nickel plated wire shelves; shelf support channels on 6" centers. 304 stainless steel interior with carbon steel blower and plated hardware. Trilite Green enamel painted aluminized steel exterior.

### ● Electric Models

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

These electric or gas ovens come in three sizes. They feature full horizontal air with adjustable louvers for balanced air flow. These compact ovens extend only 46" from a wall (42" discounting door hardware) so they take up little room in situations where floor space is at a premium.

First shelf support channel is conveniently located at 25" above factory floor.

### ● SA Series

Nearly 47 cubic feet of work space at temperatures to 400°F and 550°F respectively. Accommodates eight (8) shelves on 6" centers.

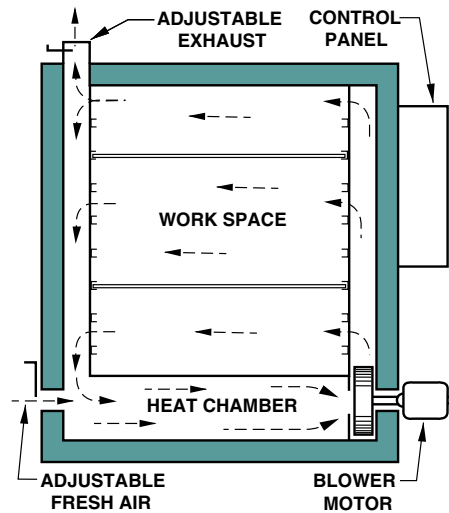
### ● SB Series

Over 58 cubic feet of work space at temperatures to 400°F and 550°F respectively. Accommodates nine (9) shelves on 6" centers.

### ● SC Series

Our largest shelf oven with a work space of nearly 78 cubic feet. Temperature ranges to 400°F and 550°F respectively. Accommodates ten (10) shelves on 6" centers.

Circulation Diagram  
(Front View)



Heated air is blown sideways between shelves and across parts

## ADDITIONAL EQUIPMENT AVAILABLE\*

● **Additional Shelves**, 100 lbs distributed load per shelf, 400 lbs maximum oven load, specify oven model when ordering.

● **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3

● **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .RT

● **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . . .DTS3

● **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT

● **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . .BT

● **304 Stainless Steel Components**, including blower wheel, hardware and two stainless steel expanded metal shelves, specify oven model when ordering.

● **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed . . . . .ADS

● **Roof Mounted Powered Forced Exhausters** with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
80 CFM	1/8	4"	16"
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"

†Gas ovens include 325 CFM exhauster. Electric ovens may require additional heat input.



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\*See Bulletin TC-960 for modifications and other optional equipment.






## Floor Level Cabinet Ovens

Large, low cost, shelf processing ovens for bulky or numerous parts at temperatures to 550°F. Work can be placed directly on reinforced floor or shelf loaded. Work space starts at floor level for convenient loading of large items and easy access to top shelves.

### STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard Floor Level Cabinet Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas ovens
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment—Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment—Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - 325 CFM powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations
  - Valve position indicator on main safety shutoff valves
- **Construction**
  - Choice of air flow patterns for processing large parts or parts on shelves
  - Aluminized steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Explosion venting latches
  - 6" of 10 lbs/cf density industrial rockwool insulation
  - Built-in baffles prevent radiant heat
  - Silicone rubber door gasket
  - Two (2) nickel plated wire shelves
  - Channel shelf supports prevent shelves tipping
  - Fully insulated reinforced floor
  - Adjustable fresh air intake and exhaust dampers
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**



**BULLETIN  
CA-430**

**LOW COST  
LARGE CAPACITY  
ELECTRIC AND GAS  
FLOOR LEVEL  
CABINET OVENS**



**MODEL CAV-400**



**MODEL CBH-550**

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
													Electric	Gas	
CAH-400	36" x 36" x 60"	45	56" x 67" x 74"	400°F	1600	1½	6"	Double	12	100,000	±0.3%	±4°F	20 min	10 min	2330 lbs
CAH-550	36" x 36" x 60"	45	56" x 67" x 74"	550°F	1600	1½	6"	Double	18	150,000	±0.3%	±6°F	34 min	15 min	2440 lbs
CBH-400	48" x 48" x 60"	80	68" x 79" x 74"	400°F	2000	2	6"	Double	18	125,000	±0.3%	±4°F	18 min	10 min	2800 lbs
CBH-550	48" x 48" x 60"	80	68" x 79" x 74"	550°F	2000	2	6"	Double	24	175,000	±0.3%	±6°F	29 min	15 min	2940 lbs
CAV-400	36" x 36" x 60"	45	56" x 67" x 74"	400°F	1000	¾	6"	Double	12	100,000	±0.3%	±4°F	20 min	10 min	2230 lbs
CAV-550	36" x 36" x 60"	45	56" x 67" x 74"	550°F	1000	¾	6"	Double	18	150,000	±0.3%	±6°F	34 min	15 min	2460 lbs
CBV-400	48" x 48" x 60"	80	68" x 79" x 74"	400°F	1200	1	6"	Double	18	125,000	±0.3%	±4°F	18 min	10 min	2650 lbs
CBV-550	48" x 48" x 60"	80	68" x 79" x 74"	550°F	1200	1	6"	Double	24	175,000	±0.3%	±6°F	29 min	15 min	2700 lbs

\*All Models—Control panel overhang 9" right side. Blower motor overhang 10" rear.  
Gas Models—Burner overhang 15" right side.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Two (2) reinforced 100 lbs uniformly distributed load capacity nickel plated wire shelves. Nine (9) pair shelf support channels on 6" centers; first shelf 8" above factory floor. Fully insulated 2" thick floor reinforced for 500 lbs distributed loading. Aluminized steel interior and Trilite Green enamel painted aluminized steel exterior.

### ● Electric Models

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

## CAH AND CBH SERIES

### Horizontal Air Flow

These electric or gas models come in two sizes. They feature full horizontal air flow with adjustable opposed louvers on full coverage supply and return duct work. Commonly used where work is shelf loaded and least restriction to free air passage is in the horizontal direction.

#### ● CAH Series

Size 36" x 36" x 60" high provides 45 cubic feet of work space at temperatures to 400°F and 550°F respectively.

#### ● CBH Series

Size 48" x 48" x 60" high provides 80 cubic feet of work space for larger parts and bigger loads.

## CAV AND CBV SERIES

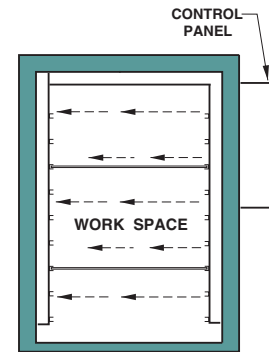
### Vertical Air Flow

These electric or gas models come in two sizes. They feature vertical air flow for processing at temperatures to 550°F.

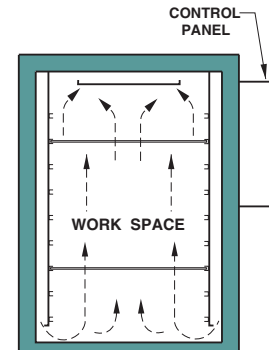
Used where least restriction to free air passage is in the vertical direction. Heated air is supplied at each side of the work space and sweeps upward through the work load. Ideal for hanging long parts or placing large objects directly on the oven floor.

Other specifications identical to CAH and CBH Series above.

## Circulation Diagrams (Front View)



**CAH and CBH Series**  
Heated air is blown sideways between shelves and across parts



**CAV and CBV Series**  
Heated air is provided from each side and pulled upward around the load.

## ADDITIONAL EQUIPMENT AVAILABLE\*

- **Additional Shelves**, 100 lbs distributed load per shelf, 400 lbs maximum oven load. specify oven model when ordering.

- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller. . . . . **PTC3**

- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart, used in conjunction with standard controller (side mounted). . . . . **RT**

- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time **DTS3**

- **Digital Shut Down Timer**, with continuous "hold" feature . . . . . **SDT**

- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . . **BT**

- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed . . . . . **ADS**

- **Reinforced Work Space Bottom**, 1500 lbs. capacity, removable subway grating, reduces clear work space height by 1" . . . . . **RWB**

- **Roof Mounted Powered Forced Exhausters** with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
80 CFM	1/8	4"	16"
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"

†Gas ovens include 325 CFM exhauster. Electric oven may require additional heat input.



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\*See Bulletin TC-960 for modifications and other optional equipment.






**BULLETIN  
CA-450**

# Top Loading Ovens

For annealing, preheating, baking, or any other heat processing where overhead handling equipment is used. Temperatures to 1050°F. Full opening door exposes entire work space for easy loading. Constructed for long, hard, continuous use. Ideal for severe service applications—load capacities up to 4000 lbs.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard Top Loading Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas ovens.
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment — Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment — Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - Powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
- **Construction**
  - Adjustable opposed louvers on full coverage supply and return duct work
  - Automatic air operated door
  - 1/4" steel plate top prevents loading damage
  - Wear bars at sides of work space
  - Reinforced floor with removable grate
  - 10 lbs/cf density industrial rockwool insulation
  - Aluminized steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Adjustable fresh air intake and exhaust dampers
  - High temperature door gasket with stainless steel spring insert
  - All welded construction
  - Low profile minimizes interference with loading equipment
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request  
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**HEAVY DUTY  
ELECTRIC AND GAS  
HORIZONTAL AIR FLOW  
TOP LOADING OVENS**



**MODEL LB-550**



**MODEL LD-1050**

SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside* Dimensions (WxLxD)	Max Temp	Blower		Insu- lation	Floor Loading	Heat Input		Operating Characteristicst				Approx Shipping Weight
	Dimensions (WxLxD)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
													Electric	Gas	
LA-550	36" x 36" x 36"	27	59" x 87" x 52"	550°F	1500	1½	6"	1000	15	100,000	±0.3%	±6°F	38 min	24 min	2280 lbs
LA-700	36" x 36" x 36"	27	61" x 89" x 54"	700°F	2000	2	7"	1000	20	150,000	±0.3%	±8°F	44 min	26 min	2795 lbs
LA-850	36" x 36" x 36"	27	63" x 93" x 56"	850°F	3000	2	8"	1000	30	250,000	±0.3%	±10°F	57 min	27 min	4120 lbs
LA-1050	36" x 36" x 36"	27	69" x 97" x 60"	1050°F	4000	3	10"	1000	40	300,000	±0.3%	±12°F	60 min	33 min	5865 lbs
LB-550	72" x 36" x 36"	54	121" x 59" x 52"	550°F	2450	1½	6"	2000	30	250,000	±0.3%	±6°F	30 min	22 min	4665 lbs
LB-700	72" x 36" x 36"	54	123" x 61" x 54"	700°F	3300	2	7"	2000	40	300,000	±0.3%	±8°F	35 min	19 min	5585 lbs
LB-850	72" x 36" x 36"	54	127" x 65" x 56"	850°F	4000	3	8"	2000	60	400,000	±0.3%	±10°F	47 min	26 min	7320 lbs
LB-1050	72" x 36" x 36"	54	131" x 71" x 60"	1050°F	5000	5	10"	2000	80	600,000	±0.3%	±12°F	52 min	24 min	8475 lbs
LC-550	48" x 48" x 48"	64	71" x 99" x 64"	550°F	2450	1½	6"	2000	30	250,000	±0.3%	±6°F	35 min	18 min	4995 lbs
LC-700	48" x 48" x 48"	64	73" x 101" x 66"	700°F	3300	2	7"	2000	40	300,000	±0.3%	±8°F	40 min	20 min	5915 lbs
LC-850	48" x 48" x 48"	64	77" x 105" x 68"	850°F	4000	3	8"	2000	60	400,000	±0.3%	±10°F	52 min	28 min	7855 lbs
LC-1050	48" x 48" x 48"	64	83" x 109" x 72"	1050°F	5000	5	10"	2000	80	600,000	±0.3%	±12°F	57 min	26 min	9005 lbs
LD-550	96" x 48" x 48"	128	145" x 73" x 64"	550°F	4200	3	6"	4000	60	400,000	±0.3%	±6°F	24 min	14 min	7445 lbs
LD-700	96" x 48" x 48"	128	147" x 77" x 66"	700°F	6000	5	7"	4000	80	600,000	±0.3%	±8°F	27 min	16 min	8880 lbs
LD-850	96" x 48" x 48"	128	159" x 83" x 68"	850°F	7800	5	8"	4000	100	700,000	±0.3%	±10°F	46 min	25 min	11660 lbs
LD-1050	96" x 48" x 48"	128	163" x 91" x 72"	1050°F	10,000	7½	10"	4000	120	800,000	±0.3%	±12°F	52 min	30 min	14740 lbs

\*All Models—Control panel overhang 9" right side.  
LA & LC Models—Blower motor overhang 19" at rear.  
LB & LD Models—Blower motor overhang 19" at right side (26" on 7 1/2 HP)  
LA & LB Models—Additional height with door open 58"  
LC & LD Models—Additional height with door open 70"  
Gas Models—Burner overhang 15"; LA & LC Models right side; LB & LD Models rear

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

- All Models
  - 208 volts, 3-phase, 60 Hz
  - 230 volts, 3-phase, 60 Hz
  - 460 volts, 3-phase, 60 Hz
  - Other electrical characteristics available
- Inner oven floor reinforced for loading and equipped with removable grating. Oven top surface constructed of 1/4" steel plate and work space interior equipped with wear bars to prevent damage during loading. Automatic door opening mechanism consisting of solid steel shaft, bearings, and air cylinder system. Requires 60 psig compressed air.
- Electric Models
  - Each features completely wired, side access
  - UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.
- Gas Models
  - 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet
  - Other gas characteristics available
- Control panel as detailed above and safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of

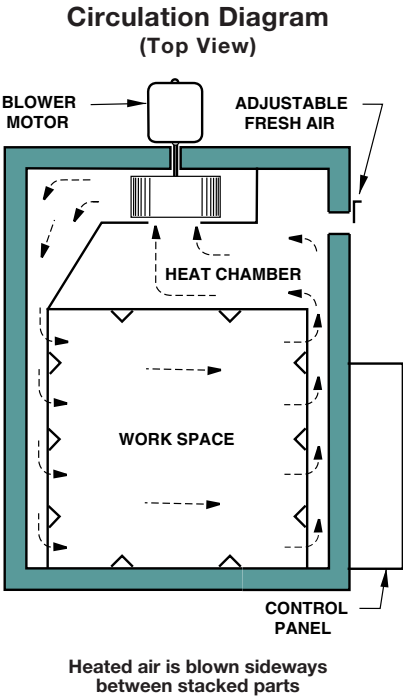
operation. Modulating gas burner is protected with electronic flame safety relay.

These electric or gas ovens come in four sizes. They feature full horizontal air flow with adjustable opposed louvers for balanced air flow. The horizontal air flow pattern allows heated air to pass between stacked parts for uniform heating. High volume recirculating blowers are specifically designed for heating heavy loads.

The removable grating on the oven floor protects the oven from impact during loading and distributes concentrated loads across the entire oven floor. The grating allows for air movement beneath the work for uniform processing.

The LA and LC Series have the heat chamber located to the rear of the work space. On the LB and LD Series, the heat chamber is located to the right side of the work space to position the supply and return duct work at the front and rear of the work space respectively. This provides the shortest distance between ducts which minimizes the temperature differential across the work space.

● 1050°F Models Only  
Insulated with 2" of 1900°F insulating block backed up with 1250°F industrial rockwool. 16 gauge aluminized steel work space interior; 304 stainless steel heat chamber interior with stainless steel recirculating blower. Gas models include stainless steel exhauster.



ADDITIONAL EQUIPMENT AVAILABLE\*

- Programmable Temperature Controller, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3
- Recording Thermometer, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .RT
- Digital Timing Temperature Controller, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . . . .DTS3
- Digital Shut Down Timer, with continuous "hold" feature . . . . .SDT
- Digital Batch Timer, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . .BT
- Automatic Door Switch, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed . . . . .ADS
- Powered Forced Exhausters with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"
975 CFM	1	8"	23"

†Gas ovens include 325 CFM exhauster, except 650 CFM on LD-1000.  
Electric ovens may require additional heat input.

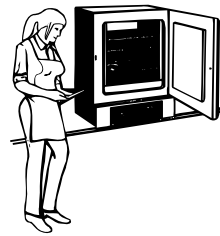
\*See Bulletin TC-960 for modifications and other optional equipment.

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**BULLETIN  
BH-458**

## **CLASS 100 Bench Ovens**

Grieve Class 100 Bench Ovens, with or without HEPA filters, are specifically designed to meet the strict requirements of semiconductor and electronic component manufacturers. They provide excellent uniformity and temperature control, rapid rise and recovery times and meet Class 100 air requirements.

### **STANDARD FEATURES**

#### **• ALL MODELS**

- Temperatures to 250°C (482°F)
- Microprocessor based programming temperature controller
- Digital set point guarantees repeatable settings
- Large digital temperature display of set point and oven temperature
- Platinum RTD temperature sensor
- Both visual and audible alarms indicate over temperature condition
- 304 stainless steel interior
- Stainless steel blower and heating elements
- Four (4) perforated stainless steel shelves, adjustable on 1 3/4" centers
- Shelf supports and plenums easily removed for cleaning
- Enameled steel exterior
- 3" insulation all sides
- Plug style door to retain chamber heat
- One-piece silicone door gasket
- Adjustable 2" diameter exhaust vent
- 1/8" fitting for introducing inert gas or filtered air
- 3-wire line cord
- 1 year limited warranty

### **MC SERIES**

Specifically designed to meet Class 100 air requirements without the use of filters, simplifying oven maintenance and cleaning. For use in clean areas and where particles are not generated by the load. Temperatures to 250°C (482°F). Choice of capacities—2.6, 3.7 and 4.7 cubic feet.

### **MH SERIES**

Recirculated air flow is continually passed through a high temperature HEPA filter to remove particles introduced by room conditions or work load. High temperature HEPA filter is 99.97% efficient on 0.3 micron particles. Capacity of 2.8 cubic feet and temperatures to 250°C (482°F).

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**CLASS 100  
MICROPROCESSOR  
CONTROLLED  
FORCED CONVECTION  
BENCH OVENS**



**MODEL MCF-250**



**MODEL MHP-250**

# SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS OR VAPORS. OTHER MODELS AVAILABLE FOR THESE APPLICATIONS—PLEASE CONSULT FACTORY.

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Blower		Number of Shelves	Insulation	Watts	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP				Control Accuracy	Oven Uniformity	Rise Time	
MCD-250	13" x 18" x 19½"	2.6	21⅝" x 24¼" x 35"	250°C	125	1/15	4	3"	1900*	±0.1°C	±1.0°C	22 min	205 lbs
MCE-250	18" x 18" x 19½"	3.7	26⅝" x 24¼" x 35"	250°C	125	1/15	4	3"	3100	±0.1°C	±1.0°C	18 min	240 lbs
MCF-250	23" x 18" x 19½"	4.7	31⅝" x 24¼" x 35"	250°C	125	1/15	4	3"	3100	±0.1°C	±1.0°C	20 min	264 lbs
MHP-250	14" x 18" x 19½"	2.8	26⅝" x 24¼" x 35"	250°C	125	1/15	4	3"	3100	±0.2°C	±1.5°C	11 min	235 lbs

\*2100 watts on 208 volts

†Accuracy and uniformity at 100°C (90°C MHP Series). Rise Time in minutes to 200°C (90°C MHP Series). Tests run with empty oven and minimum exhaust. Performance will vary with load, exhaust rate and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

### • Standard Electrical Characteristics

- 120 volts, 50-60 Hz, 3-wire cord and plug (Available only on Model MCD)
- 240 volts, 50-60 Hz, 3-wire cord
- Other electrical characteristics available

### • Standard Temperature Control System

Programmable, microprocessor based, temperature controller provides for one program of two ramps and two dwells. Ramp from as low as 0.01°C per minute and dwell from 0 to 9999 minutes. An independent hydraulic thermostat, set by the operator to a temperature slightly higher than the maximum set point, provides an excess temperature interlock should the main controller fail. An amber panel lamp signals over-temperature situation. Optional programmable control 4 program 16 segments, ramp from as low as 1°C per minute, dwell from 0.0 to 999.9 minutes listed below.

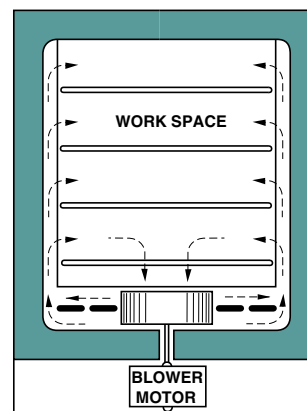
### MC SERIES

Designed to meet the strict requirements of semi-conductor and electronic component manufacturers. Meets Class 100 air requirements through the use of stainless steel components, (including heater elements, blower, shelves, and interior walls) without an internal filter, simplifying maintenance and cleaning.

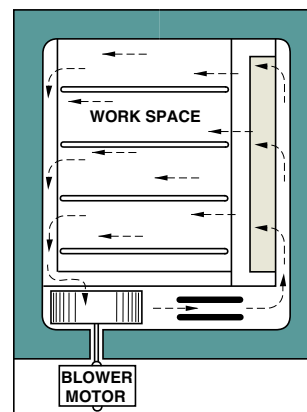
### MH SERIES WITH HEPA FILTER

Construction similar to MC Series above plus, easily replacable 17" wide x 17" high x 3" deep, high temperature HEPA filter to remove particles introduced from room conditions or product load. Filter is accessible by removing stainless steel cover held in place by four (4) stainless steel screws.

Circulation Diagrams  
(Front View)



MC Series  
Without HEPA Filter



MH Series  
With HEPA Filter

## ADDITIONAL EQUIPMENT AVAILABLE

### ALL MODELS

- **Additional Shelves**, 25 lbs distributed load per shelf, 75 lbs maximum oven load, specify oven model when ordering.
- **Programmable Temperature Controller**, microprocessor based, digital indicating, 4 program 16 segments, ramp from as low as 1°C per minute, dwell from 0.0 to 999.9 minutes, in lieu of standard controller .....MPTC



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**BULLETIN  
CA-460**

## **Class 100 Cabinet Ovens**

For processes where eliminating particle contamination is required, such as sterilization, depyrogenation, curing and drying. These electrically heated ovens come in five sizes with features to provide a low particle count Class 100 atmosphere inside. Operating temperatures to 500°F with work space volumes ranging from 5 to 38.3 cubic feet. Exterior construction minimizes particle generation. Heavy duty units equally suited for pharmaceutical or industrial applications.

### **STANDARD FEATURES**

- **UL LISTED CONTROL PANEL**
- **Standard Class 100 Cabinet Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Solid state heating element relay
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Class 100 Construction**
  - Recirculation HEPA filter, stainless steel, high temperature, 99.97% efficient on 0.3 micron particles
  - Direct driven stainless steel recirculating blower
  - Silicone rubber blower shaft seal
  - Stainless steel interior—type 304, 2B finish
  - Continuously back-welded seams on oven interior
  - Easy to remove interior duct work for cleaning
  - Incoloy sheathed tubular heating elements
  - Test port upstream of HEPA filter
  - Positive latching door hardware
  - Silicone rubber door seal
  - Sealed penetrations for heaters, and thermocouples
  - Adjustable fresh air inlet—optional HEPA filter with prefilter available
  - Adjustable exhaust outlet—optional HEPA filter available
  - Two (2) stainless steel shelves
  - Channel shelf supports prevent shelves tipping
  - Brushed stainless steel control panel face and door cover
  - Aluminized steel exterior with white epoxy paint—optional brushed stainless steel exterior available
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

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## **CLASS 100 CLEAN ROOM HORIZONTAL AIR FLOW CABINET OVENS**



**MODEL CLB-500**  
WITH SAFETY EQUIPMENT FOR HANDLING FLAMMABLE  
SOLVENTS - SEE BULLETIN TC-940



**MODEL CLD-500**  
WITH OPTIONAL PROGRAMMABLE TEMPERATURE  
CONTROLLER

SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Blower		Recirculation HEPA Filter* (WxDxH)	Insulation	Doors	KW	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP					Control Accuracy	Oven Uniformity	Rise Time	
CLA-500	24" x 24" x 15"	5	66" x 40" x 52"	500°F	250	1/2	12" x 6" x 12"	6"	Single	8	±0.3%	±4°F	30 min	935 lbs
CLB-500	24" x 36" x 27"	13.5	66" x 52" x 64"	500°F	600	3/4	24" x 6" x 24"	6"	Single	10	±0.3%	±4°F	33 min	1340 lbs
CLC-500	36" x 36" x 27"	20.3	80" x 52" x 64"	500°F	750	1	30" x 6" x 24"	6"	Single	15	±0.3%	±4°F	29 min	1645 lbs
CLD-500	36" x 36" x 39"	29.3	80" x 52" x 76"	500°F	1000	1 1/2	30" x 6" x 24"	6"	Single	20	±0.3%	±4°F	26 min	1960 lbs
CLE-500	36" x 36" x 51"	38.3	80" x 52" x 88"	500°F	1500	2	30" x 6" x 24"	6"	Single	30	±0.3%	±4°F	21 min	2285 lbs

\*Model CLE-500 utilizes two (2) filters. †Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

These Class 100 ovens come in five sizes.

- CLA-500 - 5.0 cubic feet, holds 4 shelves
- CLB-500 - 13.5 cubic feet, holds 8 shelves
- CLC-500 - 20.7 cubic feet, holds 8 shelves
- CLD-500 - 29.3 cubic feet, holds 12 shelves
- CLE-500 - 38.3 cubic feet, holds 16 shelves

They feature full horizontal air flow and adjustable opposed louvers on full coverage supply and return duct work.

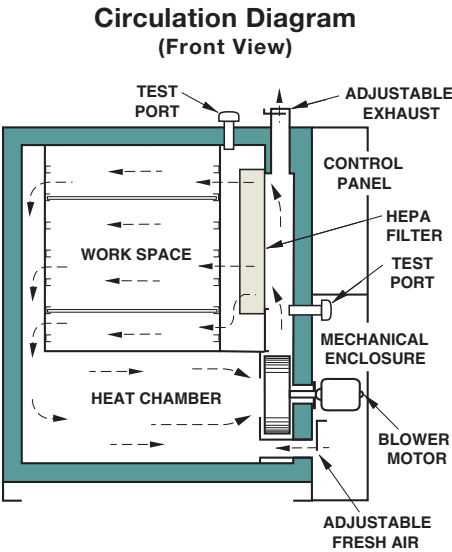
Stainless steel (type 304, 2B finish) interior with continuously back-welded seams and easily removable interior duct work for cleaning. Recirculated air flow is continuously passed through a high temperature HEPA filter to remove particles. High temperature HEPA filter has stainless steel housing and is 99.97% efficient on 0.3 micron particles.

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and solid state heating element relay electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

Mechanical enclosure covers recirculating blower motor, heating element terminal box, air flow safety switch and other components to provide continuous exterior surface for easy cleaning.

Outer door cover and control panel face constructed from #4 brushed finish, type 304 stainless steel. Aluminized steel exterior finished with white epoxy enamel paint.

Two (2) reinforced 100 lbs uniformly distributed load capacity stainless steel shelves; shelf support channels on 3" centers.



Heated air is forced through HEPA filter prior to entering work space and then passes between shelves and across parts.

ADDITIONAL EQUIPMENT AVAILABLE\*

- Additional Shelves, 100 lbs distributed load per shelf, 400 lbs maximum oven load, specify oven model when ordering.
- Programmable Temperature Controller, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3
- Recording Thermometer, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .RT
- Digital Timing Temperature Controller, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . .DTS3
- Digital Shut Down Timer, with continuous "hold" feature . . . . .SDT
- Digital Batch Timer, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . .BT
- Automatic Door Switch, turns off blower and heat when door is opened. Restores blower and heat when door is closed . .ADS
- Stainless Steel Exterior, type 304 with #4 brushed finish, in lieu of white epoxy painted aluminized steel. . . . .SSE
- Automatic Door Lock, solenoid operated, interlocked with oven temperature, optional programmable temperature controller or optional digital timing system . . . . .ADL
- Pass Through Construction, includes additional door on rear of oven and stainless steel flange to seal oven in factory wall . . . . .PTC
- Polished Front Welded Interior Seams, including 1/2" radius inside corners, in lieu of back welded seams . . . . .PS
- HEPA Fresh Air Filter, 12" x 12" x 6", 99.97% efficient at 0.3 micron particle size, with 2" thick prefilter. Installed in stainless steel housing over the fresh air inlet on the right side of the oven inside the mechanical enclosure . . . . .HFA
- HEPA Exhaust Filter, 12" x 12" x 6", stainless steel high temperature, 99.97% efficient at 0.3 micron particle size. Installed in stainless steel housing over the exhaust outlet on the top of the oven. Adds 15" to overall oven height . . . . .HEF
- Pressure Gauge, 0-2 inch water column static pressure gauge, installed across either recirculation filter, fresh air filter or exhaust filter, to measure pressure drop across filter. For use in determining when filters require replacement . . . . .PG
- Pressurizing Blower with air flow safety switch, installed in conjunction with HEPA fresh air filter to maintain positive pressure within the oven, 50 CFM capacity . . . . .PB



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\*See Bulletin TC-960 for modifications and other optional equipment.






## Class 100 Truck Ovens

For truck processing where eliminating particle contamination is required. Applications include sterilization, depyrogenation, curing and drying. These electrically heated ovens come in five sizes with features to provide a low particle count Class 100 atmosphere inside. Operating temperatures to 500°F with work space volumes ranging from 57.8 to 163.6 cubic feet. Exterior construction minimizes particle generation. Heavy-duty units equally suited for pharmaceutical or industrial applications.

### STANDARD FEATURES

-  UL LISTED CONTROL PANEL
- Standard Class 100 Truck Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Solid state heating element relay
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Class 100 Construction**
  - Recirculation HEPA filter, stainless steel, high temperature, 99.97% efficient on 0.3 micron particles
  - Stainless steel recirculating blower
  - Silicone rubber blower shaft seal
  - Stainless steel interior—type 304, 2B finish
  - Continuously back-welded seams on oven interior
  - Easy to remove interior duct work for cleaning
  - Incoloy sheathed tubular heating elements
  - Test port upstream of HEPA filters
  - Positive latching door hardware
  - Silicone rubber door seal
  - Sealed penetrations for heaters, and thermocouples
  - Adjustable fresh air inlet—optional HEPA filter with prefilter available
  - Adjustable exhaust outlet—optional HEPA filter available
  - Insulated floor with removable truck wheel guides
  - Brushed stainless steel control panel face and door cover
  - Aluminized steel exterior with white epoxy paint—optional brushed stainless steel exterior available
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**



**BULLETIN  
WI-462**

**CLASS 100  
CLEAN ROOM  
HORIZONTAL AIR FLOW  
TRUCK OVENS**



**MODEL TLA-500 WITH OPTIONAL PROGRAMMABLE RECORDING TEMPERATURE CONTROLLER, STAINLESS STEEL EXTERIOR, DOOR LOCK, FRESH AIR AND EXHAUST FILTERS, PRESSURIZING BLOWER, PRESSURE GAUGES, TRUCK AND TRANSFER DOLLY**



SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Blower		Recirculation HEPA Filter		Insulation	Doors	KW	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP	Qty	(WxDxH)				Control Accuracy	Oven Uniformity	Rise Time	
TLA-500	36" x 42" x 66"	57.8	91" x 59" x 107"	500°F	2400	3	2	30" X 12" x 24"	6"	Single	30	±0.3%	±5°F	45 min	3005 lbs
TLB-500	42" x 42" x 66"	67.4	97" x 59" x 107"	500°F	2400	3	2	30" x 12" x 24"	6"	Single	40	±0.3%	±5°F	40 min	3175 lbs
TLC-500	42" x 54" x 66"	86.6	98" x 71" x 107"	500°F	3800	5	4	24" x 12" x 24"	6"	Single	45	±0.3%	±5°F	40 min	3585 lbs
TLD-500	42" x 78" x 66"	125.1	98" x 94" x 107"	500°F	5500	5	4	30" x 12" x 24"	6"	Single	60	±0.3%	±5°F	35 min	4325 lbs
TLE-500	42" x 102" x 66"	163.6	98" x 119" x 107"	500°F	7200	7½	6	30" x 12" x 24"	6"	Single	80	±0.3%	±5°F	35 min	5120 lbs

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

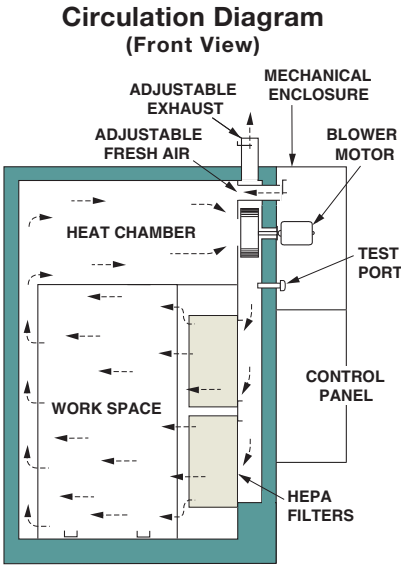
- All Models
  - 208 volts, 3-phase, 60 Hz
  - 230 volts, 3-phase, 60 Hz
  - 460 volts, 3-phase, 60 Hz
  - Other electrical characteristics available
- These Class 100 ovens come in five sizes and include insulated floors with removable truck wheel guide tracks. They feature full horizontal air flow and adjustable opposed louvers on full coverage supply and return duct work. Easily removable interior duct work for cleaning.
- Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and solid state heating element relay electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

Stainless steel (type 304, 2B finish) interior with continuously back-welded seams. Recirculated air flow is continuously passed through high temperature HEPA filters to remove particles. High temperature HEPA filters have stainless steel housings and are 99.97% efficient on 0.3 micron particles.

Mechanical enclosure covers recirculating blower motor, heating element terminal box, air flow safety switch and other components to provide continuous exterior surface for easy cleaning.

Outer door cover and control panel face constructed from #4 brushed finish, type 304 stainless steel. Aluminized steel exterior finished with white epoxy enamel paint.

Optional loading trucks hold nine (9) shelves on 6" vertical centers and are all welded stainless steel construction including stainless steel casters. Loading trucks are moved to and from oven on optional transfer dollies.



Heated air is forced through HEPA filters prior to entering work space and then passes between truck shelves and across parts.

ADDITIONAL EQUIPMENT AVAILABLE\*

● Companion Trucks and Shelves

Oven Model	Truck Shelf Dimensions	Maximum Shelves	Truck	Truck Shelves†	Transfer Dolly
			1000 lbs Capacity		
TLA-500	30"W x 36"D	9	TRKTLA	SHLFTLA	TDTLA
TLB-500 TLD-500‡	36"W x 36"D	9	TRKTLBD	SHLFTLBD	TDTLBD
TLC-500 TLE-500‡	36"W x 48"D	9	TRKTLCE	SHLFTLCE	TDTLCE

†Stainless steel shelves rated 100 lbs. uniformly distributed.  
‡Models TLD-500 and TLE-500 hold two trucks front to rear.

- Programmable Temperature Controller, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3
- Recording Thermometer, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller RT
- Digital Timing Temperature Controller, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time DTS3
- Digital Shut Down Timer, with continuous "hold" feature . . . . .SDT
- Digital Batch Timer, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . .BT
- Automatic Door Switch, turns off blower and heat when door is opened. Restores blower and heat when door is closed . . .ADS
- Stainless Steel Exterior, type 304 with #4 brushed finish, in lieu of white epoxy painted aluminized steel. . . . .SSE
- Automatic Door Lock, solenoid operated, interlocked with oven temperature, optional programmable temperature controller or optional digital timing system . . . . .ADL
- Pass Through Construction, includes additional door on rear of oven and stainless steel flange to seal oven in factory wall . .PTC

- Polished Front Welded Interior Seams, including 1/2" radius inside corners, in lieu of back welded seams . . . . .PS
- HEPA Fresh Air Filter, 24" x 24" x 6", 99.97% efficient at 0.3 micron particle size, with 2" thick prefilter. Installed in stainless steel housing over the fresh air inlet on the right side of the oven inside the mechanical enclosure . . . . .HFA
- HEPA Exhaust Filter, 24" x 24" x 6", stainless steel high temperature, 99.97% efficient at 0.3 micron particle size. Installed in stainless steel housing over the exhaust outlet on the top of the oven. Adds 15" to overall oven height . . . . .HEF
- Pressure Gauge, 0-2 inch water column static pressure gauge, installed across either recirculation filter, fresh air filter or exhaust filter, to measure pressure drop across filter. For use in determining when filters require replacement . . . . .PG
- Pressurizing Blower with air flow safety switch, installed in conjunction with HEPA fresh air filter to maintain positive pressure within the oven, 50 CFM capacity . . . . .PB



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\*See Bulletin TC-960 for modifications and other optional equipment.






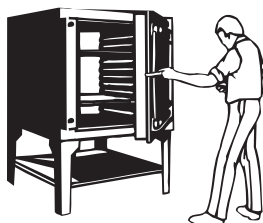
# Inert Atmosphere Ovens

Inert atmosphere ovens for operation at up to 750°F. Protect parts from oxidation using any non-flammable gas such as Nitrogen, Argon or Carbon Dioxide. Front-to-back horizontal air flow completely surrounds work on shelves or large parts placed directly on the optional reinforced work space bottom. Includes cooling jacket which can be equipped with optional cooling blower and automatic dampers. Installation of optional atmosphere purge solenoid, cooling blower and programming temperature controller provides completely automatic sequencing.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- Standard Inert Atmosphere Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Motor control push buttons
  - On-off heat switch
  - LED pilot lights
- **Safety Equipment**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Construction**
  - All interior seams welded gas-tight
  - All wall penetrations welded at inside and fitted with compression fitting at outside of oven
  - Inner oven walls extended through oven throat area to seal directly against silicone rubber door seal
  - 2-point cam action positive latching door hardware
  - Adjustable offset door hinges to guarantee tight closure of door seal
  - Exterior blower shaft seal
  - Inert atmosphere inlet with pressure regulator to maintain positive pressure within oven
  - 0-200 CFH atmosphere flow meter
  - Pressure gauge to indicate interior oven pressure
  - Inert atmosphere outlet with pressure relief
  - Air jacket on inner oven for cooling
  - Front-to-back horizontal air flow
  - 304 stainless steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - 10 lbs/cf density industrial rockwool insulation
  - Built-in baffles prevent radiant heat
  - Two (2) nickel plated wire shelves
  - Channel shelf supports prevent shelves tipping
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

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## FRONT-TO-BACK HORIZONTAL AIR FLOW INERT ATMOSPHERE OVENS



**MODEL ID-750**  
WITH OPTIONAL 24" INTEGRAL OVEN LEGS



SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	KW	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP				Control Accuracy	Oven Uniformity	Rise Time	
IA-550	24" x 24" x 24"	8	44" x 55" x 50 <sup>5</sup> / <sub>8</sub> "	550°F	400	1/3	6"	Single	9	±0.3%	±5°F	23 min	1075 lbs
IA-750	24" x 24" x 24"	8	48" x 59" x 52 <sup>5</sup> / <sub>8</sub> "	750°F	400	1/3	8"	Single	12	±0.3%	±8°F	35 min	1250 lbs
IB-550	24" x 36" x 24"	12	44" x 67" x 50 <sup>5</sup> / <sub>8</sub> "	550°F	400	1/3	6"	Single	9	±0.3%	±5°F	30 min	1315 lbs
IB-750	24" x 36" x 24"	12	48" x 71" x 52 <sup>5</sup> / <sub>8</sub> "	750°F	400	1/3	8"	Single	12	±0.3%	±8°F	57 min	1510 lbs
IC-550	36" x 36" x 36"	27	56" x 67" x 62 <sup>5</sup> / <sub>8</sub> "	550°F	600	1/2	6"	Single	12	±0.3%	±5°F	39 min	1700 lbs
IC-750	36" x 36" x 36"	27	60" x 71" x 64 <sup>5</sup> / <sub>8</sub> "	750°F	600	1/2	8"	Single	18	±0.3%	±8°F	55 min	2060 lbs
ID-550	36" x 48" x 36"	36	56" x 79" x 62 <sup>5</sup> / <sub>8</sub> "	550°F	600	1/2	6"	Single	12	±0.3%	±5°F	52 min	2180 lbs
ID-750	36" x 48" x 36"	36	60" x 83" x 64 <sup>5</sup> / <sub>8</sub> "	750°F	600	1/2	8"	Single	18	±0.3%	±8°F	73 min	2540 lbs

\*All Models—Control panel overhang 9" right side. Blower motor overhang 18" rear. †Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

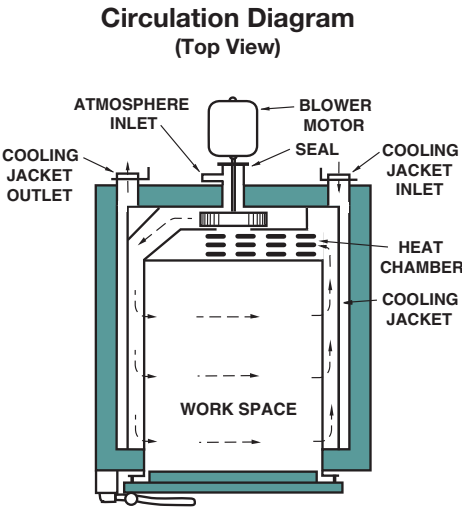
STANDARD EQUIPMENT

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Each features completely wired, top access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements.

Two (2) reinforced 100 lbs uniformly distributed load capacity, nickel plated wire shelves. Models IA and IB will hold seven (7) shelves on 3" centers; models IC and ID five (5) shelves on 6" centers.

304 stainless steel interior with carbon steel blower and plated hardware. Trilite Green enamel painted aluminized steel exterior. Inert atmosphere is introduced at blower shaft (1/2" NPT) and positive oven pressure maintained by inlet pressure regulator. Atmosphere flow indicated on 0-200 CFH flow meter. Oven pressure indicated on 0-5 inch water column pressure gauge. Continuously welded inner oven construction with compression fittings at wall penetrations maintains atmosphere integrity. Atmosphere outlet equipped with pressure relief which can be manually opened to increase inert gas flow for initial purge of air from oven. Adjustable positive latching door hardware and offset hinges assure positive door seal.



ADDITIONAL EQUIPMENT AVAILABLE\*

- **Additional Shelves**, 100 lbs distributed load per shelf, 400 lbs maximum oven load, specify oven model when ordering.
- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller .....PTC3
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller (side mounted) .....RT
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . .DTS3
- **Digital Shut Down Timer**, with continuous "hold" feature .....SDT
- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . .BT
- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat when door is closed .....ADS
- **24" Integral Oven Legs**, with 1/8" steel plate shelf. Specify oven model when ordering .....ISTND
- **24" Removable Oven Stand**, with 1/8" steel plate shelf. Specify oven model when ordering .....RSTND
- **500 lbs Capacity Carbon Steel Subway Grating**, oven work space bottom. Reduces work space height by 1". Specify oven model when ordering . .SUB
- **304 Stainless Steel Components**, including blower wheel, hardware and two stainless steel expanded metal shelves, specify oven model when ordering.
- **Automatic Purge**, opens oven outlet automatically to purge air from oven, requires installation of optional programmable temperature controller .....APS
- **Cooling Blower** with air flow safety switch, connected to air jacket to provide accelerated cooling, includes two position motorized dampers, requires installation of optional programmable temperature controller .....CB

Oven Model	Capacity	HP	Outlet Dia	Approx Cooling to 250°F from	
				500°F	750°F
IA	130 CFM	1/3	4"	40 min	70 min
IB	325 CFM	1/3	6"	30 min	50 min
IC	650 CFM	1/2	6"	40 min	60 min
ID	650 CFM	1/2	6"	55 min	75 min

- **Modulating Dampers** to regulate cool down rate, replaces 2-position dampers included with cooling blower. Includes heating/cooling programmable temperature controller in lieu of optional programmable temperature controller required with cooling blower .....MD

\*See Bulletin TC-960 for modifications and other optional equipment.






**BULLETIN  
CA-480**

## High Temperature Inert Atmosphere Ovens

Inert atmosphere ovens for operation at up to 1250°F. Protect parts from oxidation using any non-flammable gas such as Nitrogen, Argon or Carbon Dioxide. Front-to-back horizontal air flow completely surrounds work on shelves or large parts placed directly on the optional reinforced work space bottom. Includes cooling jacket which can be equipped with optional cooling blower and automatic dampers. Installation of optional atmosphere purge solenoid, cooling blower and programming temperature controller provides completely automatic sequencing.

### STANDARD FEATURES

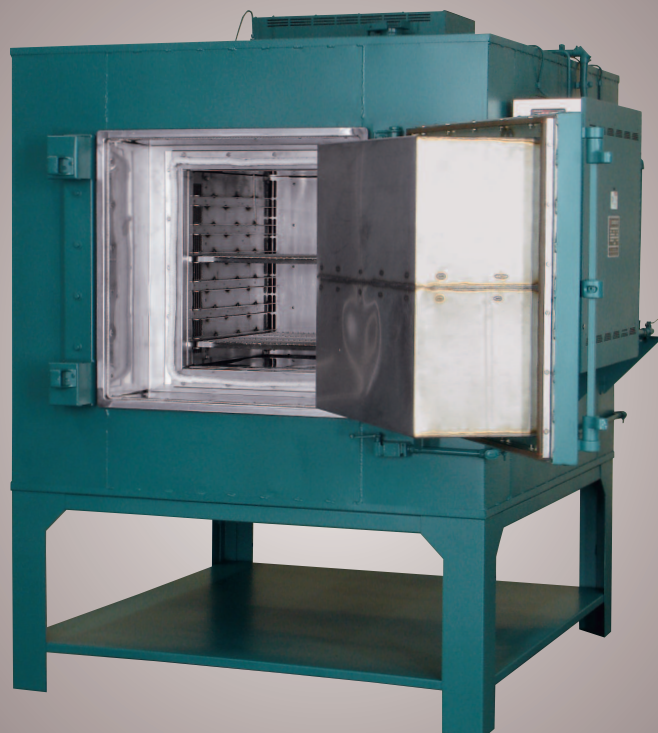
-  **UL LISTED CONTROL PANEL**
- **Standard Inert Atmosphere Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Motor control push buttons
  - On-off heat switch
  - LED pilot lights
- **Safety Equipment**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Construction**
  - All interior seams welded gas-tight
  - All wall penetrations welded at inside and fitted with compression fitting at outside of oven
  - Silicone rubber atmosphere seal at outside perimeter of oven door
  - High temperature inner door gasket with stainless steel spring insert to seal heat in oven and protect atmosphere seal
  - 2-point cam action positive latching door hardware
  - Adjustable offset door hinges to guarantee tight closure of door seal
  - Exterior blower shaft seal
  - Inert atmosphere inlet with pressure regulator to maintain positive pressure within oven
  - 0-200 CFH atmosphere flow meter
  - Pressure gauge to indicate interior oven pressure
  - Inert atmosphere outlet with pressure relief
  - Air jacket on inner oven for cooling
  - Front-to-back horizontal air flow
  - 16 gauge 304 stainless steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Insulated with 2" thick 1900°F insulating block, backed up with 10 lbs/cf density industrial rockwool
  - Built-in baffles prevent radiant heat
  - Two (2) stainless steel wire shelves
  - Channel shelf supports prevent shelves tipping
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**



**1050°F AND 1250°F  
FRONT-TO-BACK  
HORIZONTAL AIR FLOW  
INERT ATMOSPHERE OVENS**



**MODEL IA-1250**  
WITH OPTIONAL PROGRAMMABLE TEMPERATURE  
CONTROLLER, AUTOMATIC DOOR SWITCH AND 24"  
INTEGRAL OVEN LEGS



SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	KW	Operating Characteristics†			Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP				Control Accuracy	Oven Uniformity	Rise Time	
IA-1050	24" x 24" x 24"	8	55" x 69" x 54 <sup>5</sup> / <sub>8</sub> "	1050°F	600	1/2	10"	Single	12	±0.3%	±10°F	80 min	2445 lbs
IA-1250	24" x 24" x 24"	8	59" x 73" x 58 <sup>5</sup> / <sub>8</sub> "	1250°F	1000	3/4	12"	Single	18	±0.3%	±13°F	90 min	2815 lbs
IB-1050	24" x 36" x 24"	12	55" x 81" x 54 <sup>5</sup> / <sub>8</sub> "	1050°F	1000	3/4	10"	Single	12	±0.3%	±10°F	100 min	2740 lbs
IB-1250	24" x 36" x 24"	12	59" x 85" x 58 <sup>5</sup> / <sub>8</sub> "	1250°F	1200	1	12"	Single	18	±0.3%	±13°F	111 min	3265 lbs
IC-1050	36" x 36" x 36"	27	67" x 81" x 68 <sup>5</sup> / <sub>8</sub> "	1050°F	1000	3/4	10"	Single	18	±0.3%	±10°F	115 min	3475 lbs
IC-1250	36" x 36" x 36"	27	71" x 85" x 72 <sup>5</sup> / <sub>8</sub> "	1250°F	1200	1	12"	Single	24	±0.3%	±13°F	129 min	4240 lbs
ID-1050	36" x 48" x 36"	36	67" x 93" x 68 <sup>5</sup> / <sub>8</sub> "	1050°F	1200	1	10"	Single	18	±0.3%	±10°F	140 min	4410 lbs
ID-1250	36" x 48" x 36"	36	71" x 97" x 72 <sup>5</sup> / <sub>8</sub> "	1250°F	1400	1 1/2	12"	Single	24	±0.3%	±13°F	170 min	4845 lbs

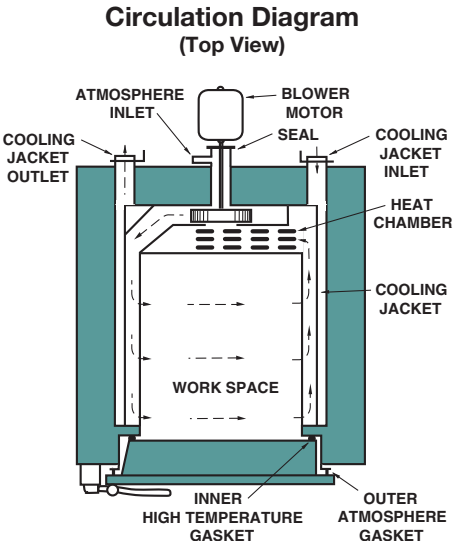
\*All Models—Control panel overhang 9" right side. Blower motor overhang 18" rear. †Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. The 1250°F models have a heat chamber high limit controller. Two (2) reinforced 100 lbs uniformly distributed load capacity, stainless steel wire shelves. Models IA and IB will hold seven (7) shelves on 3" centers; models IC and ID five (5) shelves on 6" centers.

Trilite Green enamel painted aluminized steel exterior. Insulated with 2" of 1900°F insulating block backed up with 1250°F industrial rockwool. Inert atmosphere is introduced at blower shaft (1/2" NPT) and positive oven pressure maintained by inlet pressure regulator. Atmosphere flow indicated on 0-200 CFH flow meter. Oven pressure indicated on 0-5 inch water column pressure gauge. Continuously welded inner oven construction with compression fittings at wall penetrations maintains atmosphere integrity. Atmosphere outlet equipped with pressure relief which can be manually opened to increase inert gas flow for initial purge of air from oven. Adjustable positive latching door hardware and offset hinges assure positive door seal. The inner high temperature gasket seals directly against the door plug; outer atmosphere gasket seals against the front face of the oven.



ADDITIONAL EQUIPMENT AVAILABLE\*

- **Additional Shelves**, 100 lbs distributed load per shelf, 400 lbs maximum oven load, specify oven model when ordering.
- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller (side mounted) . . . . .RT
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . .DTS3
- **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT
- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . .BT
- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat when door is closed . . . . .ADS
- **Integral Oven Legs**, with 1/8" steel plate shelf. 24" high on IA & IB series, 16" high on IC & ID series . . . . .ISTND
- **Removable Oven Stand**, with 1/8" steel plate shelf. 24" high on IA & IB series, 16" high on IC & ID series . . . . .RSTND
- **500 lbs Capacity Stainless Steel Subway Grating**, oven work space bottom. Reduces work space height by 1". Specify oven model when ordering . . .SUS

- **Automatic Purge**, opens oven outlet automatically to purge air from oven, requires installation of optional programmable temperature controller . . . . .APS
- **Cooling Blower** with air flow safety switch, connected to air jacket to provide accelerated cooling, includes two position motorized dampers, requires installation of optional programmable temperature controller . . . . .CB

Oven Model	Capacity	HP	Outlet Dia	Approx Cooling to 250°F from	
				1000°F	1250°F
IA	325 CFM	1/3	6"	95 min	110 min
IB	650 CFM	1/2	6"	60 min	70 min
IC	975 CFM	1	8"	80 min	100 min
ID	975 CFM	1	8"	110 min	130 min

- **Modulating Dampers** to regulate cool down rate, replaces 2-position dampers included with cooling blower. Includes heating/cooling programmable temperature controller in lieu of optional programmable temperature controller required with cooling blower . . . . .MD



Ovens and Furnaces For Industry Since 1949

**THE GRIEVE CORPORATION**

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\*See Bulletin TC-960 for modifications and other optional equipment.






# Truck Ovens

Hardworking ovens designed for baking, drying, preheating or any other application where a dependable source of heated air to 550°F is required. Complete with temperature controllers that offer the latest in heat-sensing technology and built-in floor level guide tracks that make truck loading easy.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard Truck Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas ovens
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment—Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment—Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - 325 CFM powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations
  - Valve position indicator on main safety shutoff valves
- **Construction**
  - Choice of air flow patterns specially adapted for truck processing
  - Aluminized steel interior
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - Explosion venting latches
  - 6" of 10 lbs/cf density industrial rockwool insulation
  - Built-in baffles prevent radiant heat
  - Silicone rubber door gasket
  - Insulated floor with truck tracks
  - Adjustable fresh air intake and exhaust dampers
  - High pressure recirculating blower
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**



**BULLETIN  
WI-505**

**LOW COST  
ELECTRIC AND  
GAS OVENS FOR  
CONVENIENT  
TRUCK LOADING**



**MODEL TA-550 GAS**  
WITH STANDARD MODULATING BURNER SYSTEM,  
OPTIONAL TRUCK AND SHELVES



**MODEL TCH-550 ELECTRIC**

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
													Electric	Gas	
TA-550	36" x 36" x 60"	45	56" x 67" x 74"	550°F	1000	¾	6"	Double	18	150,000	± 0.3%	± 5°F	30 min	15 min	2030 lbs
TB-550	48" x 48" x 60"	80	68" x 79" x 74"	550°F	1200	1	6"	Double	24	175,000	± 0.3%	± 5°F	30 min	15 min	2400 lbs
TC-550	60" x 60" x 60"	125	80" x 91" x 74"	550°F	2000	2	6"	Double	24	175,000	± 0.3%	± 5°F	38 min	15 min	2975 lbs
TAH-550	36" x 36" x 60"	45	56" x 67" x 74"	550°F	1600	1½	6"	Double	18	150,000	± 0.3%	± 5°F	30 min	15 min	2130 lbs
TBH-550	48" x 48" x 60"	80	68" x 79" x 74"	550°F	2000	2	6"	Double	24	175,000	± 0.3%	± 5°F	30 min	15 min	2550 lbs
TCH-550	60" x 60" x 60"	125	80" x 91" x 74"	550°F	2000	2	6"	Double	24	175,000	± 0.3%	± 5°F	38 min	15 min	3160 lbs

\*All Models—Blower motor overhang 10" rear. Control panel overhang 9" right side.  
Gas Models—Burner overhang 15" right side.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Insulated floor with truck wheel guide tracks. Aluminized steel interior and Trilite Green enamel painted aluminized steel exterior.

### ● Electric Models

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements. Exhaust outlet 4" diameter.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

### TA, TB AND TC SERIES

#### Combination Air Flow

These electric or gas models come in two sizes. They feature combination vertical and horizontal air flow for truck processing of various size parts at temperatures to 550°F.

#### ● TA Series

Size 36" x 36" x 60" high provides 45 cubic feet of work space. Truck tracks 2" wide, 24" center to center. Optional companion truck holds twelve 30" x 30" shelves on 4" centers.

#### ● TB Series

Size 48" x 48" x 60" high provides 80 cubic feet of work space. Truck tracks 2" wide, 36" center to center. Optional companion truck holds twelve 42" x 42" shelves on 4" centers.

#### ● TC Series

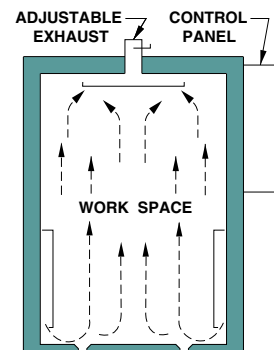
Size 60" x 60" x 60" high provides 125 cubic feet of work space. Truck tracks 2" wide, 48" center to center. Optional companion truck holds twelve 54" x 54" shelves on 4" centers.

### TAH, TBH AND TCH SERIES

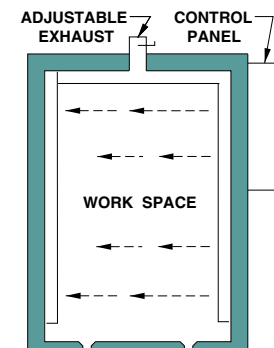
#### Horizontal Air Flow

Similar to TA, TB and TC Series, these electric or gas models feature full horizontal air flow with adjustable opposed louvers on full coverage supply and return duct work. Used when vertical air flow through the load is restricted. Ideal for processing flat sheets, pans of parts or when shelves are densely packed.

### Circulation Diagrams (Front View)



**TA, TB and TC Series**  
Heated air is provided from both sides and pulled upward through the load.



**TAH, TBH and TCH Series**  
Heated air is blown sideways between truck shelves and across parts.

## ADDITIONAL EQUIPMENT AVAILABLE\*

### ● Companion Trucks and Shelves

Oven Model	Truck Shelf Dimensions	Maximum Shelves	Truck		Truck Shelves†
			700 lbs Capacity	1200 lbs Capacity	
TA-550 TAH-550	30" x 30"	12	TRK700TA	TRK1200TA	SHLFTA
TB-550 TBH-550	42" x 42"	12	TRK700TB	TRK1200TB	SHLFTB
TC-550 TCH-550	54" x 54"	12	TRK700TC	TRK1200TC	SHLFTC

†Nickel plated wire shelves rated 100 lbs. uniformly distributed.

● **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3

● **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .RT

● **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . . .DTS3

● **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT

● **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . .BT

● **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed . . . . .ADS

● **Roof Mounted Powered Forced Exhausters** with exhauster air flow safety switch†

Capacity	HP	Outlet Diameter	Height
80 CFM	1/8	4"	16"
130 CFM	1/3	4"	20"
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"

†Gas ovens include 325 CFM exhauster. Electric ovens may require additional heat input.

\*See Bulletin TC-960 for modifications and other optional equipment.



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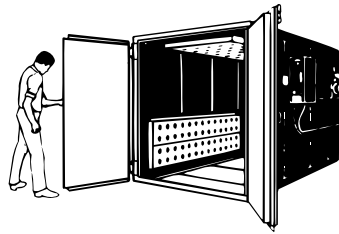
# Walk-In Ovens

For paint baking, drying, preheating, annealing or any other heat processing of large or numerous parts at temperatures to 800°F. Oven size conveniently accommodates materials handling equipment. Choice of either combination or full horizontal air flow in either rear or top mounted heat chamber configurations. Designed and constructed for long, hard, continuous use.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- Standard Walk-In Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas ovens
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment—Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment—Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - Powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
- **Construction**
  - Choice of air flow patterns
  - Adjustable opposed louvers on full coverage supply and return duct work
  - Choice of rear or top heat chamber
  - Available with doors at each end
  - Choice of floor configurations, flat plate, insulated floor, truck wheel guide tracks
  - Exceptionally heavy duty doors
  - Aluminized steel interior
  - Aluminized steel exterior with enamel finish
  - High temperature door gasket with stainless steel spring insert
  - 6 lbs/cf density industrial rockwool insulation
  - Brushed stainless steel control panel face
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request  
 Specifications Subject to Change Without Notice  
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**BULLETIN  
WI-510**

**HEAVY DUTY  
ELECTRIC AND  
GAS OVENS IN  
TWO AIR FLOW PATTERNS**



**MODEL WTH666-500 ELECTRIC**  
 WITH OPTIONAL DOUBLE DOORS BOTH ENDS  
 AND STEEL PLATE FLOOR WITH DOOR DRAG SEALS



**MODEL WRC8108-500 GAS**  
 WITH STANDARD MODULATING BURNER SYSTEM,  
 AND OPTIONAL INSULATED FLOOR WITH  
 RECESSED TRUCK TRACKS

## STANDARD EQUIPMENT

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Aluminized steel interior. Carbon steel structural members and steel plate painted with high temperature aluminum paint. Trilite Green enamel painted aluminized steel exterior.

### Two air flow patterns available

Combination air flow for random shapes and sizes or for large bulky objects where heated air can move upward, around and through the load. Horizontal air flow for applications where heated air must move sideways to pass through a load such as trays or flat sheets. See circulation diagrams below.

### Two oven configurations available

Rear heat chamber for easy handling, low profile equipment. Top mounted heat chamber to minimize factory floor space occupied or to allow installation of doors at each end. Doors on front and rear allow for pass through operation or for loading from both ends.


To facilitate shipping and handling, top mounted heat chamber ovens are available with removable heat chambers. These ovens are fully assembled and tested. They are then sectioned and match marked for easy reassembly at destination by customer.

Ovens come standard with steel plate floor and doorsill which oven doors seal against. If specified, doorsill can be eliminated and doors provided with drag seals. Up to 6 foot wide work space, plate floor is  $\frac{1}{8}$ " thick. Wider ovens have  $\frac{1}{4}$ " plate floor. Provisions for customer installed insulated floor are included. Optional factory installed insulated floor is available. See Bulletin WI-513.

Optional truck wheel guide tracks for loading equipment are available. Guide tracks can be installed on steel plate floor, recessed into insulated floor, or installed on top of insulated floor. See Bulletin WI-513.

Optional loading trucks specifically designed for use in each oven are available. Loading trucks come in shelf loading models with removable shelves or as heavy duty flat bed models with grating surface. See Bulletin WI-513.

### ● Electric Models

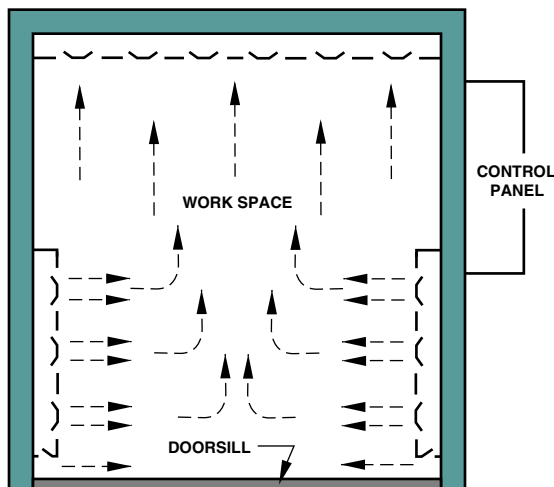
Each features completely wired, side access  UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure;
- 1" NPT inlet to 350,000 BTU/HR;
- 1 $\frac{1}{4}$ " NPT to 1,200,000 BTU/HR
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. A 325 CFM powered forced exhauster is included up to 800,000 BTU/HR; at 1,200,000 BTU/HR a 650 CFM exhauster is included. Both exhausters have 6" outlets. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

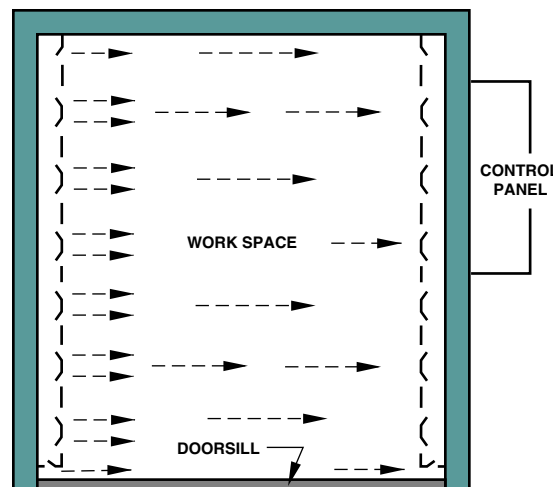
**Circulation Diagrams**  
(Front View)



### Combination Air Flow

Heated air is provided from full coverage supply duct work at each side of the work space and sweeps upward through the load to a return duct at the top of the work space. Used in most shelf truck loading applications where sufficient shelf area is left open to allow vertical air movement upward through the loaded truck. Ideal for large parts placed directly on oven floor or loaded on a flat bed truck.

See Bulletin WI-511.



### Horizontal Air Flow

Heated air is blown horizontally across the work space between full coverage duct work. For shelf truck loading applications with densely loaded shelves, solid bottom trays, or flat sheets where heated air can only pass sideways above and below each level. Also used for heating stacks of plates, separated by spacers, placed on oven floor or loaded on a flat bed truck.

See Bulletin WI-512.

**See Walk-In Oven Additional Equipment Bulletin WI-513 for Loading Trucks and Shelves, Insulated Floor and Truck Tracks, Optional Temperature Controllers and Timers.**



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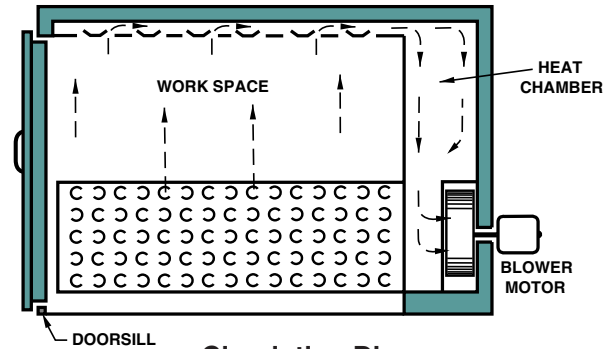
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# WALK-IN OVEN COMBINATION AIR FLOW REAR HEAT CHAMBER



**MODEL WRC566-800 ELECTRIC**  
WITH OPTIONAL INSULATED FLOOR AND  
TRUCK WHEEL GUIDE TRACKS



**Circulation Diagram**  
(Side View)

## SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP		KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
												Electric	Gas	
WRC446-500	48" x 48" x 72"	96	67" x 86" x 87"	500°F	2450	1½	6"	30	250,000	±0.3%	±6°F	40 min	20 min	3055
WRC446-650	48" x 48" x 72"	96	69" x 88" x 88"	650°F	2450	1½	7"	40	300,000	±0.3%	±8°F	45 min	25 min	3465
WRC446-800	48" x 48" x 72"	96	73" x 90" x 90"	800°F	3000	2	8"	45	350,000	±0.3%	±10°F	55 min	35 min	3885
WRC566-500	60" x 72" x 72"	180	79" x 110" x 87"	500°F	3300	2	6"	40	300,000	±0.3%	±6°F	40 min	20 min	3935
WRC566-650	60" x 72" x 72"	180	81" x 112" x 88"	650°F	3300	2	7"	45	350,000	±0.3%	±8°F	50 min	25 min	4650
WRC566-800	60" x 72" x 72"	180	85" x 114" x 90"	800°F	4000	3	8"	60	400,000	±0.3%	±10°F	50 min	35 min	4870
WRC586-500	60" x 96" x 72"	240	81" x 134" x 87"	500°F	4200	3	6"	45	350,000	±0.3%	±6°F	40 min	20 min	4195
WRC586-650	60" x 96" x 72"	240	83" x 136" x 88"	650°F	4200	3	7"	60	400,000	±0.3%	±8°F	45 min	30 min	5010
WRC586-800	60" x 96" x 72"	240	87" x 138" x 90"	800°F	5000	5	8"	80	600,000	±0.3%	±10°F	45 min	35 min	6035
WRC666-500	72" x 72" x 78"	234	93" x 110" x 93"	500°F	4200	3	6"	45	350,000	±0.3%	±6°F	40 min	25 min	4190
WRC666-650	72" x 72" x 78"	234	95" x 112" x 94"	650°F	4200	3	7"	60	400,000	±0.3%	±8°F	45 min	30 min	5005
WRC666-800	72" x 72" x 78"	234	99" x 114" x 96"	800°F	5000	5	8"	80	600,000	±0.3%	±10°F	45 min	35 min	6025
WRC686-500	72" x 96" x 78"	312	97" x 134" x 94"	500°F	6000	5	6"	60	400,000	±0.3%	±6°F	35 min	25 min	6465
WRC686-650	72" x 96" x 78"	312	99" x 136" x 95"	650°F	6000	5	7"	80	600,000	±0.3%	±8°F	40 min	25 min	6680
WRC686-800	72" x 96" x 78"	312	101" x 146" x 98"	800°F	7800	5	8"	100	700,000	±0.3%	±10°F	45 min	30 min	8125
WRC6106-500	72" x 120" x 78"	390	97" x 166" x 95"	500°F	7800	5	6"	80	600,000	±0.3%	±6°F	30 min	20 min	7455
WRC6106-650	72" x 120" x 78"	390	99" x 168" x 96"	650°F	7800	5	7"	100	700,000	±0.3%	±8°F	35 min	25 min	7870
WRC6106-800	72" x 120" x 78"	390	104" x 170" x 98"	800°F	10,000	7½	8"	120	800,000	±0.3%	±10°	40 min	35 min	9300
WRC6126-500	72" x 144" x 78"	468	100" x 191" x 95"	500°F	10,000	7½	6"	80	600,000	±0.3%	±6°F	40 min	25 min	8630
WRC6126-650	72" x 144" x 78"	468	102" x 192" x 96"	650°F	10,000	7½	7"	100	700,000	±0.3%	±8°F	45 min	30 min	9045
WRC6126-800	72" x 144" x 78"	468	104" x 194" x 100"	800°F	12,500	10	8"	120	800,000	±0.3%	±10°F	50 min	40 min	10,475
WRC688-500	72" x 96" x 96"	384	96" x 143" x 112"	500°F	7800	5	6"	80	600,000	±0.3%	±6°F	30 min	20 min	7445
WRC688-650	72" x 96" x 96"	384	98" x 144" x 113"	650°F	7800	5	7"	100	700,000	±0.3%	±8°F	35 min	25 min	7760
WRC787-500	84" x 96" x 84"	392	108" x 143" x 99"	500°F	7800	5	6"	80	600,000	±0.3%	±6°F	30 min	20 min	8140
WRC787-650	84" x 96" x 84"	392	110" x 144" x 100"	650°F	7800	5	7"	100	700,000	±0.3%	±8°F	35 min	25 min	8455
WRC7107-500	84" x 120" x 84"	490	112" x 167" x 101"	500°F	10,000	7½	6"	80	600,000	±0.3%	±6°F	40 min	25 min	9330
WRC7107-650	84" x 120" x 84"	490	114" x 168" x 102"	650°F	10,000	7½	7"	100	700,000	±0.3%	±8°F	45 min	30 min	9745
WRC7127-500	84" x 144" x 84"	588	112" x 191" x 102"	500°F	12,500	10	6"	100	700,000	±0.3%	±6°F	40 min	25 min	10,505
WRC7127-650	84" x 144" x 84"	588	114" x 192" x 103"	650°F	12,500	10	7"	140	1,200,000	±0.3%	±8°F	40 min	25 min	10,920
WRC8108-500	96" x 120" x 96"	640	124" x 167" x 113"	500°F	12,500	10	6"	120	800,000	±0.3%	±6°F	35 min	25 min	10,725
WRC8108-650	96" x 120" x 96"	640	126" x 168" x 114"	650°F	12,500	10	7"	160	1,200,000	±0.3%	±8°F	35 min	25 min	11,240
WRC8128-500	96" x 144" x 96"	768	120" x 197" x 116"	500°F	17,500	15	6"	140	1,200,000	±0.3%	±6°F	35 min	25 min	12,415
WRC8128-650	96" x 144" x 96"	768	122" x 198" x 117"	650°F	17,500	15	7"	180	1,200,000	±0.3%	±8°F	35 min	25 min	12,835

\*All Models—Control panel overhang 9" right side.  
Blower motor overhang 19" rear through 5 HP, 26" up to 10 HP, and 30" at 15 HP  
Gas Models—Burner overhang 15" right side  
325 CFM exhauster except 650 CFM at 1,200,000 BTU/HR

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.



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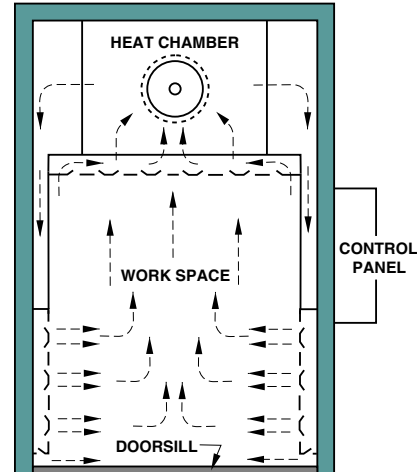
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# WALK-IN OVEN COMBINATION AIR FLOW TOP HEAT CHAMBER



**MODEL WTC566-650 ELECTRIC**  
WITH OPTIONAL TRUCK WHEEL GUIDE TRACKS AND  
REMOVABLE HEAT CHAMBER

**Circulation  
Diagram  
(Front View)**



CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

## SPECIFICATIONS

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP		KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
												Electric	Gas	
WTC446-500	48" x 48" x 72"	96	68" x 65" x 117"	500°F	2450	1½	6"	30	250,000	±0.3%	±6°F	40 min	20 min	3065
WTC446-650	48" x 48" x 72"	96	70" x 66" x 118"	650°F	2450	1½	7"	40	300,000	±0.3%	±8°F	45 min	25 min	3475
WTC446-800	48" x 48" x 72"	96	72" x 68" x 120"	800°F	3000	2	8"	45	350,000	±0.3%	±10°F	55 min	35 min	3890
WTC566-500	60" x 72" x 72"	180	80" x 89" x 117"	500°F	3300	2	6"	40	300,000	±0.3%	±6°F	40 min	20 min	3960
WTC566-650	60" x 72" x 72"	180	82" x 90" x 118"	650°F	3300	2	7"	45	350,000	±0.3%	±8°F	50 min	25 min	4670
WTC566-800	60" x 72" x 72"	180	84" x 92" x 120"	800°F	4000	3	8"	60	400,000	±0.3%	±10°F	50 min	35 min	4885
WTC586-500	60" x 96" x 72"	240	80" x 113" x 117"	500°F	4200	3	6"	45	350,000	±0.3%	±6°F	40 min	20 min	4225
WTC586-650	60" x 96" x 72"	240	82" x 114" x 118"	650°F	4200	3	7"	60	400,000	±0.3%	±8°F	45 min	30 min	5035
WTC586-800	60" x 96" x 72"	240	84" x 116" x 120"	800°F	5000	5	8"	80	600,000	±0.3%	±10°F	45 min	35 min	6055
WTC666-500	72" x 72" x 78"	234	92" x 89" x 123"	500°F	4200	3	6"	45	350,000	±0.3%	±6°F	40 min	25 min	4210
WTC666-650	72" x 72" x 78"	234	94" x 90" x 124"	650°F	4200	3	7"	60	400,000	±0.3%	±8°F	45 min	30 min	5020
WTC666-800	72" x 72" x 78"	234	96" x 92" x 127"	800°F	5000	5	8"	80	600,000	±0.3%	±10°F	45 min	35 min	6040
WTC686-500	72" x 96" x 78"	312	92" x 113" x 123"	500°F	6000	5	6"	60	400,000	±0.3%	±6°F	35 min	25 min	6180
WTC686-650	72" x 96" x 78"	312	94" x 114" x 124"	650°F	6000	5	7"	80	600,000	±0.3%	±8°F	40 min	25 min	6490
WTC686-800	72" x 96" x 78"	312	96" x 116" x 135"	800°F	7800	5	8"	100	700,000	±0.3%	±10°F	45 min	30 min	7935
WTC6106-500	72" x 120" x 78"	390	92" x 137" x 132"	500°F	7800	5	6"	80	600,000	±0.3%	±6°F	30 min	20 min	7175
WTC6106-650	72" x 120" x 78"	390	94" x 138" x 133"	650°F	7800	5	7"	100	700,000	±0.3%	±8°F	35 min	25 min	7485
WTC6106-800	72" x 120" x 78"	390	98" x 140" x 136"	800°F	10,000	7½	8"	120	800,000	±0.3%	±10°F	40 min	35 min	8920
WTC6126-500	72" x 144" x 78"	468	94" x 161" x 133"	500°F	10,000	7½	6"	80	600,000	±0.3%	±6°F	40 min	25 min	8160
WTC6126-650	72" x 144" x 78"	468	96" x 162" x 134"	650°F	10,000	7½	7"	100	700,000	±0.3%	±8°F	45 min	30 min	8575
WTC6126-800	72" x 144" x 78"	468	100" x 164" x 137"	800°F	12,500	10	8"	120	800,000	±0.3%	±10°F	50 min	40 min	10,010
WTC688-500	72" x 96" x 96"	384	92" x 113" x 150" <sup>u</sup>	500°F	7800	5	6"	80	600,000	±0.3%	±6°F	30 min	20 min	7055
WTC688-650	72" x 96" x 96"	384	94" x 114" x 151" <sup>u</sup>	650°F	7800	5	7"	100	700,000	±0.3%	±8°F	35 min	25 min	7465
WTC787-500	84" x 96" x 84"	392	104" x 113" x 138"	500°F	7800	5	6"	80	600,000	±0.3%	±6°F	30 min	20 min	7660
WTC787-650	84" x 96" x 84"	392	106" x 114" x 139"	650°F	7800	5	7"	100	700,000	±0.3%	±8°F	35 min	25 min	8075
WTC7107-500	84" x 120" x 84"	490	106" x 137" x 138"	500°F	10,000	7½	6"	80	600,000	±0.3%	±6°F	40 min	25 min	8650
WTC7107-650	84" x 120" x 84"	490	108" x 138" x 139"	650°F	10,000	7½	7"	100	700,000	±0.3%	±8°F	45 min	30 min	9065
WTC7127-500	84" x 144" x 84"	588	108" x 161" x 139"	500°F	12,500	10	6"	100	700,000	±0.3%	±6°F	40 min	25 min	9840
WTC7127-650	84" x 144" x 84"	588	110" x 162" x 140"	650°F	12,500	10	7"	140	1,200,000	±0.3%	±8°F	40 min	25 min	10,255
WTC8108-500	96" x 120" x 96"	640	122" x 137" x 151" <sup>u</sup>	500°F	12,500	10	6"	120	800,000	±0.3%	±6°F	35 min	25 min	10,055
WTC8108-650	96" x 120" x 96"	640	124" x 138" x 152" <sup>u</sup>	650°F	12,500	10	7"	160	1,200,000	±0.3%	±8°F	35 min	25 min	10,670
WTC8128-500	96" x 144" x 96"	768	122" x 161" x 162" <sup>u</sup>	500°F	17,500	15	6"	140	1,200,000	±0.3%	±6°F	35 min	25 min	11,885
WTC8128-650	96" x 144" x 96"	768	124" x 162" x 163" <sup>u</sup>	650°F	17,500	15	7"	180	1,200,000	±0.3%	±8°F	35 min	25 min	12,605

\*All Models—Control panel overhang 9" right side.  
Model WTC-446—motor mount overhang 19" rear; gas burner overhang 15" front  
Models WTC-566 & WTC-666—gas burner overhang 15" front  
Gas Models—325 CFM exhauster, except 650 CFM at 1,200,000 BTU/HR  
†Removable heat chamber recommended. See below.

● **Removable Top Mounted Heat Chamber**, fully assembled to oven and tested. Heat chamber match marked and removed for shipping or installation clearance. Overall height increases by one insulated wall thickness and overall width increases by 2" . . . **RHC**

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

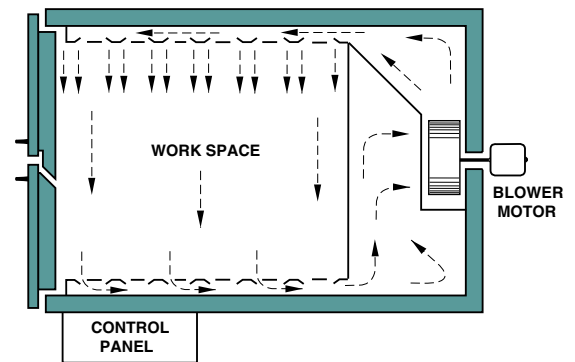
● **Double Doors Both Ends**, additional set of doors on rear of oven to allow access to work space from both ends. Overall depth increases by 4" . . . . . **DD**



# WALK-IN OVEN HORIZONTAL AIR FLOW REAR HEAT CHAMBER



**MODEL WRH686-800 GAS**  
WITH STANDARD MODULATING BURNER SYSTEM,  
AND OPTIONAL RECORDING THERMOMETER,  
PROGRAMMABLE TEMPERATURE CONTROLLER  
AND INSULATED FLOOR



**Circulation Diagram  
(Top View)**

## SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP		KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
												Electric	Gas	
WRH446-500	48" x 48" x 72"	96	67" x 86" x 83"	500°F	3300	2	6"	30	250,000	±0.3%	±6°F	40 min	20 min	2945
WRH446-650	48" x 48" x 72"	96	69" x 88" x 84"	650°F	3300	2	7"	40	300,000	±0.3%	±8°F	45 min	25 min	3355
WRH446-800	48" x 48" x 72"	96	73" x 90" x 86"	800°F	4000	3	8"	45	350,000	±0.3%	±10°F	55 min	35 min	3775
WRH566-500	60" x 72" x 72"	180	81" x 110" x 83"	500°F	4200	3	6"	40	300,000	±0.3%	±6°F	40 min	20 min	3930
WRH566-650	60" x 72" x 72"	180	83" x 112" x 84"	650°F	4200	3	7"	45	350,000	±0.3%	±8°F	50 min	25 min	4645
WRH566-800	60" x 72" x 72"	180	87" x 114" x 86"	800°F	5000	5	8"	60	400,000	±0.3%	±10°F	50 min	35 min	4765
WRH586-500	60" x 96" x 72"	240	83" x 134" x 83"	500°F	6000	5	6"	45	350,000	±0.3%	±6°F	40 min	25 min	4090
WRH586-650	60" x 96" x 72"	240	85" x 136" x 84"	650°F	6000	5	7"	60	400,000	±0.3%	±8°F	45 min	30 min	5005
WRH586-800	60" x 96" x 72"	240	88" x 152" x 86"	800°F	7800	5	8"	80	600,000	±0.3%	±10°F	50 min	35 min	5855
WRH666-500	72" x 72" x 78"	234	95" x 110" x 89"	500°F	6000	5	6"	45	350,000	±0.3%	±6°F	40 min	25 min	4085
WRH666-650	72" x 72" x 78"	234	97" x 112" x 90"	650°F	6000	5	7"	60	400,000	±0.3%	±8°F	45 min	30 min	5000
WRH666-800	72" x 72" x 78"	234	102" x 128" x 92"	800°F	7800	5	8"	80	600,000	±0.3%	±10°F	50 min	35 min	5860
WRH686-500	72" x 96" x 78"	312	97" x 148" x 89"	500°F	7800	5	6"	60	400,000	±0.3%	±6°F	40 min	25 min	6685
WRH686-650	72" x 96" x 78"	312	99" x 150" x 90"	650°F	7800	5	7"	80	600,000	±0.3%	±8°F	45 min	25 min	7000
WRH686-800	72" x 96" x 78"	312	104" x 152" x 92"	800°F	10,000	7½	8"	100	700,000	±0.3%	±10°F	45 min	30 min	8230
WRH6106-500	72" x 120" x 78"	390	100" x 173" x 88"	500°F	10,000	7½	6"	80	600,000	±0.3%	±6°F	30 min	20 min	7555
WRH6106-650	72" x 120" x 78"	390	102" x 174" x 89"	650°F	10,000	7½	7"	100	700,000	±0.3%	±8°F	35 min	25 min	7870
WRH6106-800	72" x 120" x 78"	390	108" x 176" x 91"	800°F	12,500	10	8"	120	800,000	±0.3%	±10°F	45 min	35 min	8605
WRH6126-500	72" x 144" x 78"	468	104" x 197" x 88"	500°F	12,500	10	6"	80	600,000	±0.3%	±6°F	40 min	20 min	8735
WRH6126-650	72" x 144" x 78"	468	106" x 198" x 89"	650°F	12,500	10	7"	100	700,000	±0.3%	±8°F	45 min	25 min	9050
WRH6126-800	72" x 144" x 78"	468	116" x 206" x 91"	800°F	17,500	15	8"	120	800,000	±0.3%	±10°F	55 min	35 min	11,220
WRH688-500	72" x 96" x 96"	384	98" x 149" x 106"	500°F	10,000	7½	6"	80	600,000	±0.3%	±6°F	30 min	20 min	7550
WRH688-650	72" x 96" x 96"	384	100" x 150" x 107"	650°F	10,000	7½	7"	100	700,000	±0.3%	±8°F	35 min	25 min	7860
WRH787-500	84" x 96" x 84"	392	112" x 149" x 94"	500°F	10,000	7½	6"	80	600,000	±0.3%	±6°F	35 min	20 min	8255
WRH787-650	84" x 96" x 84"	392	114" x 150" x 95"	650°F	10,000	7½	7"	100	700,000	±0.3%	±8°F	40 min	25 min	8670
WRH7107-500	84" x 120" x 84"	490	116" x 173" x 94"	500°F	12,500	10	6"	80	600,000	±0.3%	±6°F	40 min	25 min	9435
WRH7107-650	84" x 120" x 84"	490	118" x 174" x 95"	650°F	12,500	10	7"	100	700,000	±0.3%	±8°F	45 min	30 min	9850
WRH7127-500	84" x 144" x 84"	588	122" x 203" x 94"	500°F	17,500	15	6"	100	700,000	±0.3%	±6°F	40 min	25 min	11,145
WRH7127-650	84" x 144" x 84"	588	124" x 204" x 95"	650°F	17,500	15	7"	140	1,200,000	±0.3%	±8°F	40 min	25 min	11,565
WRH8108-500	96" x 120" x 96"	640	132" x 179" x 106"	500°F	17,500	15	6"	120	800,000	±0.3%	±6°F	35 min	25 min	11,365
WRH8108-650	96" x 120" x 96"	640	134" x 180" x 107"	650°F	17,500	15	7"	160	1,200,000	±0.3%	±8°F	35 min	25 min	11,880
WRH8128-500	96" x 144" x 96"	768	140" x 210" x 106"	500°F	24,500	20	6"	140	1,200,000	±0.3%	±6°F	35 min	25 min	13,705
WRH8128-650	96" x 144" x 96"	768	142" x 211" x 107"	650°F	24,500	20	7"	180	1,200,000	±0.3%	±8°F	35 min	25 min	14,215

\*All Models—Control panel overhang 9" right side.  
Blower motor overhang 19" rear through 5 HP, 26" up to 10 HP,  
30" at 15 HP and 36" at 20 HP.  
Gas Models—Burner overhang 15" right side.  
325 CFM exhauster except 650 CFM at 1,200,000 BTU/HR.

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.



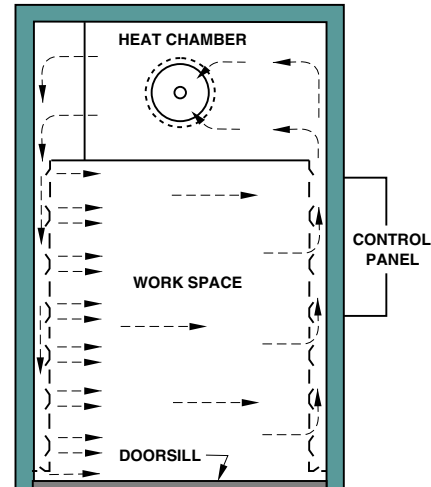
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# WALK-IN OVEN HORIZONTAL AIR FLOW TOP HEAT CHAMBER



Circulation  
Diagram  
(Front View)



**MODEL WTH666-500 ELECTRIC**  
WITHOUT DOORSILL, WITH DRAG SEALS ON DOORS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

## SPECIFICATIONS

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP		KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
												Electric	Gas	
WTH446-500	48" x 48" x 72"	96	70" x 65" x 116"	500°F	3300	2	6"	30	250,000	0.3%	±6°F	40 min	20 min	2970
WTH446-650	48" x 48" x 72"	96	72" x 66" x 117"	650°F	3300	2	7"	40	300,000	0.3%	±8°F	45 min	25 min	3480
WTH446-800	48" x 48" x 72"	96	74" x 68" x 119"	800°F	4000	3	8"	45	350,000	0.3%	±10°F	55 min	35 min	3890
WTH566-500	60" x 72" x 72"	180	84" x 89" x 116"	500°F	4200	3	6"	40	300,000	0.3%	±6°F	40 min	20 min	4070
WTH566-650	60" x 72" x 72"	180	86" x 90" x 117"	650°F	4200	3	7"	45	350,000	0.3%	±8°F	50 min	25 min	4780
WTH566-800	60" x 72" x 72"	180	90" x 92" x 119"	800°F	5000	5	8"	60	400,000	0.3%	±10°F	50 min	35 min	4900
WTH586-500	60" x 96" x 72"	240	84" x 113" x 116"	500°F	6000	5	6"	45	350,000	0.3%	±6°F	40 min	25 min	4335
WTH586-650	60" x 96" x 72"	240	86" x 114" x 117"	650°F	6000	5	7"	60	400,000	0.3%	±8°F	45 min	30 min	5145
WTH586-800	60" x 96" x 72"	240	92" x 116" x 129"	800°F	7800	5	8"	80	600,000	0.3%	±10°F	50 min	35 min	6505
WTH666-500	72" x 72" x 78"	234	100" x 89" x 122"	500°F	6000	5	6"	45	350,000	0.3%	±6°F	40 min	25 min	4330
WTH666-650	72" x 72" x 78"	234	102" x 90" x 123"	650°F	6000	5	7"	60	400,000	0.3%	±8°F	45 min	30 min	5140
WTH666-800	72" x 72" x 78"	234	108" x 92" x 135"	800°F	7800	5	8"	80	600,000	0.3%	±10°F	50 min	35 min	6495
WTH686-500	72" x 96" x 78"	312	100" x 113" x 132"	500°F	7800	5	6"	60	400,000	0.3%	±6°F	40 min	25 min	6830
WTH686-650	72" x 96" x 78"	312	102" x 114" x 133"	650°F	7800	5	7"	80	600,000	0.3%	±8°F	45 min	25 min	7145
WTH686-800	72" x 96" x 78"	312	108" x 116" x 135"	800°F	10,000	7½	8"	100	700,000	0.3%	±10°F	50 min	30 min	8475
WTH6106-500	72" x 120" x 78"	390	100" x 137" x 132"	500°F	10,000	7½	6"	80	600,000	0.3%	±6°F	35 min	20 min	7605
WTH6106-650	72" x 120" x 78"	390	102" x 138" x 133"	650°F	10,000	7½	7"	100	700,000	0.3%	±8°F	35 min	25 min	7820
WTH6106-800	72" x 120" x 78"	390	108" x 140" x 135"	800°F	12,500	10	8"	120	800,000	0.3%	±10°F	45 min	35 min	9355
WTH6126-500	72" x 144" x 78"	468	104" x 161" x 132"	500°F	12,500	10	6"	80	600,000	0.3%	±6°F	40 min	25 min	8700
WTH6126-650	72" x 144" x 78"	468	106" x 162" x 133"	650°F	12,500	10	7"	100	700,000	0.3%	±8°F	45 min	30 min	9015
WTH6126-800	72" x 144" x 78"	468	112" x 164" x 145"	800°F	17,500	15	8"	120	800,000	0.3%	±10°F	55 min	40 min	11,090
WTH688-500	72" x 96" x 96"	384	104" x 113" x 150"	500°F	10,000	7½	6"	80	600,000	0.3%	±6°F	30 min	20 min	6995
WTH688-650	72" x 96" x 96"	384	106" x 114" x 151"	650°F	10,000	7½	7"	100	700,000	0.3%	±8°F	35 min	25 min	7310
WTH787-500	84" x 96" x 84"	392	116" x 113" x 138"	500°F	10,000	7½	6"	80	600,000	0.3%	±6°F	35 min	20 min	8205
WTH787-650	84" x 96" x 84"	392	118" x 114" x 139"	650°F	10,000	7½	7"	100	700,000	0.3%	±8°F	40 min	25 min	8615
WTH7107-500	84" x 120" x 84"	490	116" x 137" x 138"	500°F	12,500	10	6"	80	600,000	0.3%	±6°F	40 min	25 min	9285
WTH7107-650	84" x 120" x 84"	490	118" x 138" x 139"	650°F	12,500	10	7"	100	700,000	0.3%	±8°F	45 min	30 min	9600
WTH7127-500	84" x 144" x 84"	588	120" x 157" x 148"	500°F	17,500	15	6"	100	700,000	0.3%	±6°F	40 min	25 min	11,110
WTH7127-650	84" x 144" x 84"	588	122" x 162" x 149"	650°F	17,500	15	7"	140	1,200,000	0.3%	±8°F	40 min	25 min	11,540
WTH8108-500	96" x 120" x 96"	640	136" x 137" x 160"	500°F	17,500	15	6"	120	800,000	0.3%	±6°F	35 min	25 min	11,245
WTH8108-650	96" x 120" x 96"	640	138" x 138" x 161"	650°F	17,500	15	7"	160	1,200,000	0.3%	±8°F	35 min	25 min	11,860
WTH8128-500	96" x 144" x 96"	768	140" x 161" x 170"	500°F	24,500	20	6"	140	1,200,000	0.3%	±6°F	35 min	25 min	13,500
WTH8128-650	96" x 144" x 96"	768	142" x 162" x 171"	650°F	24,500	20	7"	180	1,200,000	0.3%	±8°F	35 min	25 min	14,215

\*All Models—Control panel overhang 9" right side.  
Model WTH-446—Motor mount 19" right side; Gas burner 15" left side.  
Models WTH-566 & WTH666—Gas burner overhang 15" front.  
Gas Models—325 CFM exhauster except 650 CFM at 1,200,000 BTU/HR  
†Removable heat chamber recommended. See below.

● **Removable Top Mounted Heat Chamber**, fully assembled to oven and tested. Heat chamber match marked and removed for shipping or installation clearance. Overall height increases by one insulated wall thickness and overall width increases by 2" . . . **RHC**

†Accuracy as percent of controller span. Uniformity at 50°F below maximum temperature. Rise Time in minutes to 50°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

● **Double Doors Both Ends**, additional set of doors on rear of oven to allow access to work space from both ends. Overall depth increases by 4" . . . . . **DD**



## LOADING TRUCKS AND SHELVES



Oven Work Space (WxDxH)	Truck Shelf Dimensions (WxD)	Max Shelves*	Shelf Truck				Flat Bed Truck		
			Truck		Shelves		Flat Bed Dimensions (WxDxH)	Truck Capacity	Model
			Capacity	Model	Capacity†	Model			
48" x 48" x 72"	42" x 42"	10	1000 lbs	ST446L	150 lbs	S44L	42" x 42"	2500 lbs	FB44
			2000 lbs	ST446H	250 lbs	S44H			
60" x 72" x 72"	54" x 66"	10	1000 lbs	ST566L	150 lbs	S56L	54" x 66"	3000 lbs	FB56
			2000 lbs	ST566H	250 lbs	S56H			
60" x 96" x 72"	54" x 90"	10	1500 lbs	ST586L	200 lbs	S58L	54" x 90"	3500 lbs	FB58
			2500 lbs	ST586H	300 lbs	S58H			
72" x 72" x 78"	66" x 66"	11	1500 lbs	ST666L	200 lbs	S66L	66" x 66"	3500 lbs	FB66
			2500 lbs	ST666H	300 lbs	S66H			
72" x 96" x 78"	66" x 45"‡	22‡	2000 lbs	ST686L	125 lbs	S68L	66" x 90"	4000 lbs	FB68
			3000 lbs	ST686H	200 lbs	S68H			
72" x 120" x 78"	66" x 57"‡	22‡	2500 lbs	ST6106L	150 lbs	S610L	66" x 114"	5000 lbs	FB610
			4000 lbs	ST6106H	250 lbs	S610H			
72" x 144" x 78"	66" x 69"‡	22‡	3000 lbs	ST6126L	200 lbs	S612L	66" x 138"	6000 lbs	FB612
			4500 lbs	ST6126H	300 lbs	S612H			
72" x 96" x 96"	66" x 45"‡	28‡	2500 lbs	ST688L	125 lbs	S68L	66" x 90"	4000 lbs	FB68
			3500 lbs	ST688H	200 lbs	S68H			

\*Special shelf support centers available at no charge, 6" centers standard.

†Shelf capacity based on uniformly distributed loading.

‡Two shelves per level for ease of handling.

**Larger and special sized trucks can be provided.**  
**Stainless steel construction and special caster material also available.**

**See reverse side for Truck Wheel Guide Tracks, Insulated Floors,  
and Other Additional Equipment Available.**

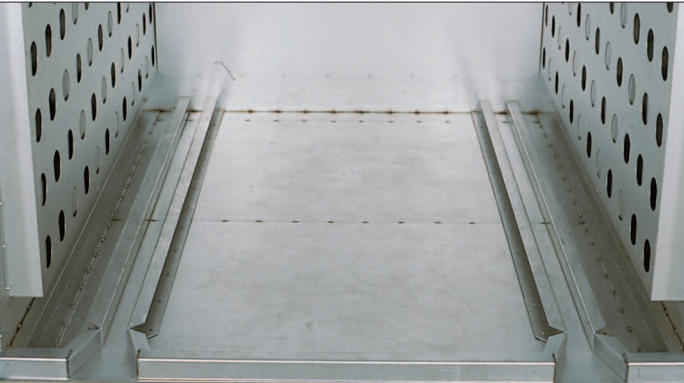
INSULATED FLOOR AND TRUCK TRACKS

Standard Walk-In Ovens include a steel plate floor and provisions for a customer installed insulated floor. Floor plate is 1/8" thick in ovens up to 72" wide x 120" long ; 1/4" thick on wider models. A doorsill at the front edge of the floor plate maintains doorway rigidity and provides a sealing surface for the oven doors. The doorsill is 2" high on 500°F and 650°F ovens; 3" high on 800°F ovens.

At no charge, the doorsill can be eliminated, doors lengthened and equipped with drag seals. This arrangement provides a floor level entrance to allow loading by hand truck, fork lift truck or by loading equipment of varying wheel spacing.

When loading with an oven truck, installation of truck wheel guide tracks is recommended. This allows the doorsill to remain across the work space opening. Floor level truck wheel guide tracks include additional door seals to cover the guide track openings beneath the doors.

Truck wheel guide track width and centerlines may be specified to suit existing equipment or to be used with a loading truck from the front of this bulletin. Guide tracks are generally 1/2" wider than truck wheel width. If not specified, tracks are provided 2 1/2" wide on centerlines 12" less than work space width.



● **Truck Tracks** to allow loading at factory floor level, flared at the front for easy entrance of wheels, includes truck track seals on doors to close off track opening . . . . .TT



● **Insulated Floor with Recessed Truck Tracks** provides the reduced heat loss and improved temperature uniformity of insulated floor plus allows loading at factory floor level . . . .IFRTT



● **Insulated Floor with steel plate cover**, 2" for 500°F and 650°F, 3" at 800°F, minimizes heat loss and improves temperature uniformity near floor level, rated at 100 lbs per square foot distributed loading . . . . .IF



● **Insulated Floor with Surface Truck Tracks** used where oven will be recessed into the factory floor or loaded with an external ramp, includes drag seals on the oven doors. Total track loading limited to distributed floor loading of 100 lbs per square foot . . . . .IFSTT

ADDITIONAL EQUIPMENT AVAILABLE\*

- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC3
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .RT
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . . .DTS3

- **Digital Shut Down Timer**, with continuous "hold" feature . . . . .SDT
- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . . . .BT
- **Automatic Door Switch**, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed . . . . .ADS

- **Powered Forced Exhausters** with exhauster air flow safety switch‡

Capacity	HP	Outlet Diameter	Height
325 CFM	1/3	6"	23"
650 CFM	1/2	6"	23"
975 CFM	1	8"	23"

‡Gas ovens include 325 CFM exhauster, except 650 CFM at 1,200,000 BTU/HR heat input. Electric ovens may require additional heat input.

\*See Bulletin TC-960 for modifications and other optional equipment.






# High Temperature Walk-In Ovens

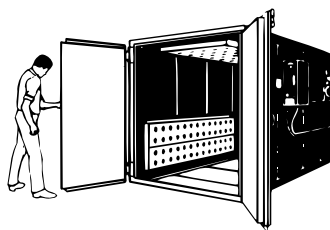
For annealing, sintering, precipitation hardening, burn-off or any other high temperature processing of large or numerous parts. Constructed with an isolated inner oven to eliminate heat transfer and leakage at seams commonly found in standard panel construction. Designed and constructed for long, hard, continuous use with the temperature uniformity required for consistent results at elevated temperatures.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard High Temperature Walk-In Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas-fired ovens
  - Motor control push buttons, on-off heat switch
  - LED pilot lights
- **Safety Equipment—Electric Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment—Gas Oven**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - Powered forced exhauster for combustion venting
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
- **Construction**
  - Choice of air flow patterns
  - Adjustable opposed louvers on full coverage supply and return duct work
  - Exceptionally heavy duty doors
  - Explosion venting latches
  - Doors equipped with expansion joints on inner face to guarantee uniform sealing at all temperatures
  - Inner and outer door gaskets; inner gasket seals directly against door plug; outer gasket seals against front face of oven
  - $\frac{3}{8}$ " steel plate oven front to guarantee rigid sealing surface at all temperatures
  - Slip flashing at door openings to allow inner oven to expand without effecting outer oven or door sealing surface
  - Aluminized steel exterior with enamel finish
  - Brushed stainless steel control panel face
  - 1 year limited warranty
- **Every oven fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request

Specifications Subject to Change Without Notice  
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**BULLETIN  
WI-520**

**HEAVY DUTY  
ELECTRIC AND GAS  
900°F, 1050°F & 1200°F  
WALK-IN OVENS**



**MODEL B1-1050 ELECTRIC**  
WITH OPTIONAL TRUCK TRACKS  
AND RECORDING THERMOMETER



**MODEL B4-900 GAS**  
WITH STANDARD MODULATING BURNER SYSTEM  
AND OPTIONAL TRUCK TRACKS AND  
RECORDING THERMOMETER

# SPECIFICATIONS

CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Blower		Insulation	Doors	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Oven Uniformity	Rise Time		
													Electric	Gas	
B1-900	48" x 48" x 72"	96	75" x 94" x 92"	900°F	4200	3	9"	Double	60	400,000	±0.3%	±10°F	60 min	45 min	8,300
B1-1050	48" x 48" x 72"	96	79" x 104" x 97"	1050°F	6400	5	10"	Double	80	550,000	±0.3%	±12°F	70 min	45 min	9,280
B1-1200	48" x 48" x 72"	96	87" x 114" x 103"	1200°F	10,000	7½	12"	Double	120	880,000	±0.3%	±15°F	80 min	40 min	15,485
B2-900	54" x 72" x 72"	162	81" x 118" x 92"	900°F	5000	5	9"	Double	80	600,000	±0.3%	±10°F	80 min	50 min	9,220
B2-1050	54" x 72" x 72"	162	87" x 130" x 98"	1050°F	7800	5	10"	Double	100	880,000	±0.3%	±12°F	80 min	50 min	10,625
B3-900	60" x 96" x 72"	240	91" x 152" x 95"	900°F	7800	5	9"	Double	100	700,000	±0.3%	±10°F	80 min	45 min	10,625
B3-1050	60" x 96" x 72"	240	97" x 158" x 98"	1050°F	10,000	7½	10"	Double	120	880,000	±0.3%	±12°F	90 min	50 min	12,405
B4-900	72" x 120" x 72"	360	109" x 178" x 96"	900°F	12,500	10	9"	Double	120	800,000	±0.3%	±10°F	90 min	50 min	12,955
B1H-900	48" x 48" x 72"	96	75" x 108" x 88"	900°F	5000	5	9"	Double	60	400,000	±0.3%	±10°F	60 min	45 min	8,340
B1H-1050	48" x 48" x 72"	96	81" x 110" x 91"	1050°F	7800	5	10"	Double	80	550,000	±0.3%	±12°F	60 min	45 min	9,285
B1H-1200	48" x 48" x 72"	96	95" x 114" x 94"	1200°F	12,500	10	12"	Double	120	880,000	±0.3%	±15°F	70 min	40 min	15,480
B2H-900	54" x 72" x 72"	162	85" x 132" x 88"	900°F	7800	5	9"	Double	80	600,000	±0.3%	±10°F	80 min	50 min	9,275
B2H-1050	54" x 72" x 72"	162	91" x 134" x 91"	1050°F	10,000	7½	10"	Double	100	880,000	±0.3%	±12°F	80 min	50 min	10,630
B3H-900	60" x 96" x 72"	240	93" x 156" x 88"	900°F	10,000	7½	9"	Double	100	700,000	±0.3%	±10°F	80 min	45 min	10,615
B3H-1050	60" x 96" x 72"	240	101" x 158" x 91"	1050°F	12,500	10	10"	Double	120	880,000	±0.3%	±12°F	90 min	50 min	12,385
B4H-900	72" x 120" x 72"	360	119" x 180" x 88"	900°F	17,500	15	9"	Double	120	800,000	±0.3%	±10°F	90 min	50 min	12,970

\*All Models—Control panel overhang 9" right side.  
Blower motor overhang on rear: 19" on 3 and 5 HP motors,  
26" on 7½ and 10 HP motors, 28" on 15 HP  
Gas Models—Burner overhang 15" right side.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty oven and minimum exhaust. Performance will vary with load and application. See Bulletin TC-920 for additional details.

## STANDARD EQUIPMENT

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

### ● All Models

Exclusive construction is far superior to commonly used panel construction. Consists of an isolated inner oven completely surrounded by insulation to eliminate heat transfer from through metal and hot air leakage at panel seams. Insulated floor standard. Trilite Green enamel painted aluminized steel exterior.

### ● Electric Models

Each features completely wired, side access UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements on all models. The 1200°F models have a heat chamber high limit control.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure, 1" NPT inlet
- Other gas characteristics available

Control panel as detailed above and safety devices as listed on the front of this bulletin. A 325 CFM powered forced exhauster is included up to 700,000 BTU/HR; at 800,000 BTU/HR a 650 CFM exhauster is included. Both exhausters have 6" outlets. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

### B1, B2, B3, B4 SERIES Combination Air Flow

Combination air flow for random shapes and sizes or for large bulky objects where heated air can move upward around and through the load.

### B1H, B2H, B3H, B4H SERIES Horizontal Air Flow

Horizontal air flow for applications where heated air must move sideways to pass through a load such as trays or flat sheets.

#### ● 900°F Models

16 gauge aluminized steel interior throughout. 9" of 1250°F 10 lbs/cf density industrial rockwool insulation throughout walls, doors and ceiling. 4" thick insulated floor with ½" steel plate cover.

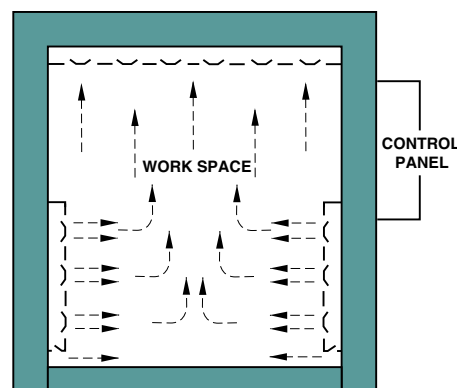
#### ● 1050°F Models

16 gauge aluminized steel work space interior with 16 gauge 304 stainless steel heat chamber interior. Stainless steel recirculating blower. 10" of 1250°F 10 lbs/cf density industrial rockwool insulation throughout walls, doors and ceiling of work space. Oven heat chamber insulated with 2" of 1900°F block surrounded by 8" of 1250°F 10 lbs/cf density industrial rockwool insulation. 6" thick insulated floor with ¼" steel plate cover.

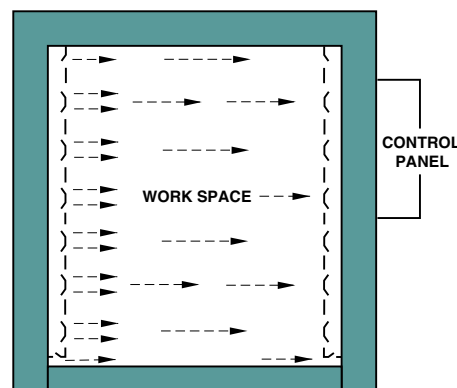
#### ● 1200°F Models

16 gauge 304 stainless steel interior throughout. Stainless steel recirculating blower. 12" of insulation consisting of 2" of 1900°F block, surrounded by 10" of 1250°F 10 lbs/cf density industrial rockwool insulation throughout walls, doors and ceiling. 7" thick insulated floor with ¼" stainless steel plate cover.

### Circulation Diagrams (Front View)



B1, B2, B3, B4 Series  
Combination vertical and  
horizontal air flow.



B1H, B2H, B3H, B4H Series  
Full horizontal air flow.

See Walk-In Oven Additional Equipment Bulletin WI-513 for  
Loading Trucks and Shelves, Truck Tracks and  
Optional Temperature Controllers and Timers.

Ovens and Furnaces For Industry Since 1949

**THE GRIEVE CORPORATION**

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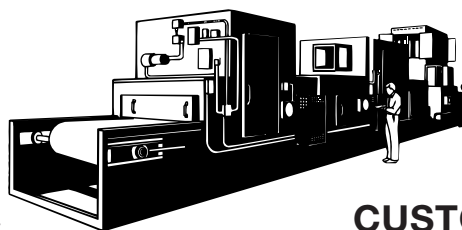




# Conveyor Ovens

Since 1949 Grieve has been designing and manufacturing conveyor ovens. These years of experience have resulted in a wide range of units. Electric, gas and steam heated units with operating temperatures from 150°F to 1200°F, have been created for all fields of industry.

Conveyor Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For applications involving flammable solvents, the additional safety devices required by the above organizations are included.



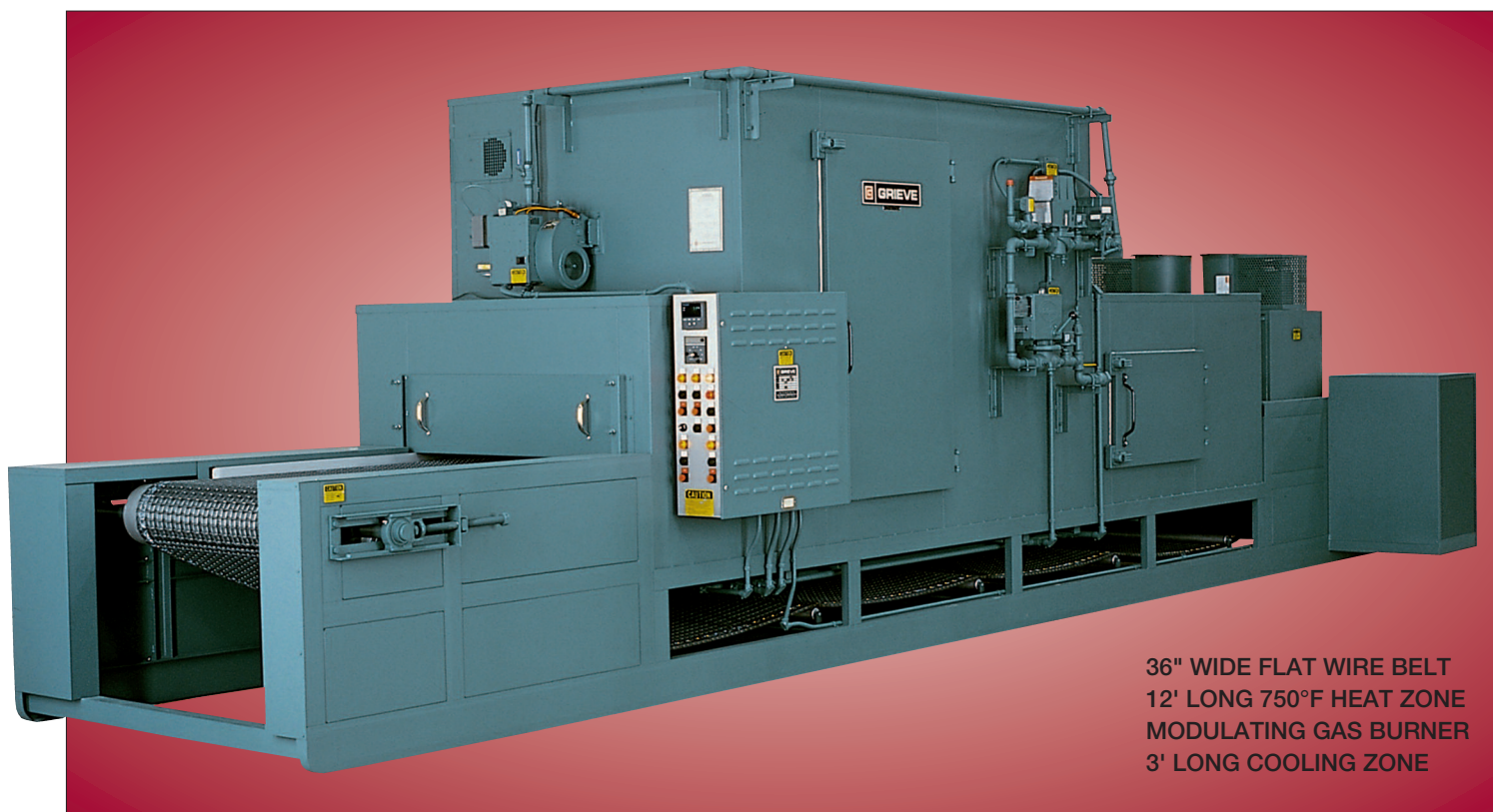
**BULLETIN  
CO-600**

## HEAVY DUTY CUSTOM DESIGNED CONVEYOR OVENS

Each unit is specifically designed for the customer's process and can include:

- multiple heat zones
- extended loading and unloading zones
- special belt construction or attachments
- cooling zone to reduce part temperature

Our experienced engineers will work closely with you to develop a conveyor oven to meet your particular requirements. Every unit is completely assembled and tested. You are invited to witness test and run sample parts at our factory prior to shipment.



36" WIDE FLAT WIRE BELT  
12' LONG 750°F HEAT ZONE  
MODULATING GAS BURNER  
3' LONG COOLING ZONE

### STANDARD FEATURES

- Aluminized or stainless steel interior depending on maximum temperature rating
- 16 gauge aluminized steel exterior with enamel finish
- Welded structural steel, channel base provides a rigid assembly easily moved at any time
- Heavy duty, all welded, structural steel slide bed is supported by cross angles welded to vertical structural members to transfer load to base
- Belt slide bed herringbone construction provides for even belt wear
- Side hinged doors provided along oven length for access to work space and heat chamber
- Heavy duty variable speed belt drive with torque limiting device
- Belt tracked and guided as necessary with rollers to prevent wandering and potential belt damage
- Adjustable dampers at each end of heat zone can be positioned near load to minimize heat loss from end of oven
- Adjustable opposed louvers on full coverage supply and return duct work
- Duct work removable for cleaning
- UL Listed Control Panel
- Brushed stainless steel control panel face
- 1 year limited warranty

## SIZING OF CONVEYOR OVEN LENGTH

To determine if a belt conveyor oven is practical for your application, estimate the heated tunnel length. Belt conveyor equipment is sized to the application based on part dimensions, production rate and dwell time.

Belt width is selected to accommodate the desired loading pattern, such as in line, side by side or four abreast. The loading density, parts per lineal foot, and production rate determine the design belt speed. The design heat zone length is the product of belt speed and dwell time.

It is important to understand the relationship between belt width, production rate and heat zone length. Doubling the belt width will double the production rate, or allow the heat zone to be half as long.

To estimate the length of belt conveyor equipment required for your application, insert your process information in the relationships below. To the heat zone length calculated, the length of load zone and unload zone must be added. Approximately 2 additional feet of length will be required for belt guarding and drive.

Equipment width will be approximately 3 feet wider than belt width to accommodate insulation, duct work and control enclosure.

To receive a detailed quotation for your application. Complete the "Request for Quotation Data Sheet" found on the reverse side of our catalog index.

$$\frac{(\text{Production rate of } \underline{\hspace{2cm}} \text{ parts per hour})}{(\text{Loading density of } \underline{\hspace{2cm}} \text{ parts per lineal foot})} = (\text{Belt speed of } \underline{\hspace{2cm}} \text{ feet per hour})$$

$$(\text{Belt speed of } \underline{\hspace{1cm}} \text{ feet per hour}) \times (\text{Dwell time of } \underline{\hspace{1cm}} \text{ hour}) = (\text{Heat zone length of } \underline{\hspace{1cm}} \text{ feet})$$

## STANDARD EQUIPMENT


**CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.**

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Vertical downward air flow between full coverage ductwork above and below conveyor belt. Other air flow patterns available. Trilite Green enamel painted aluminized steel exterior.

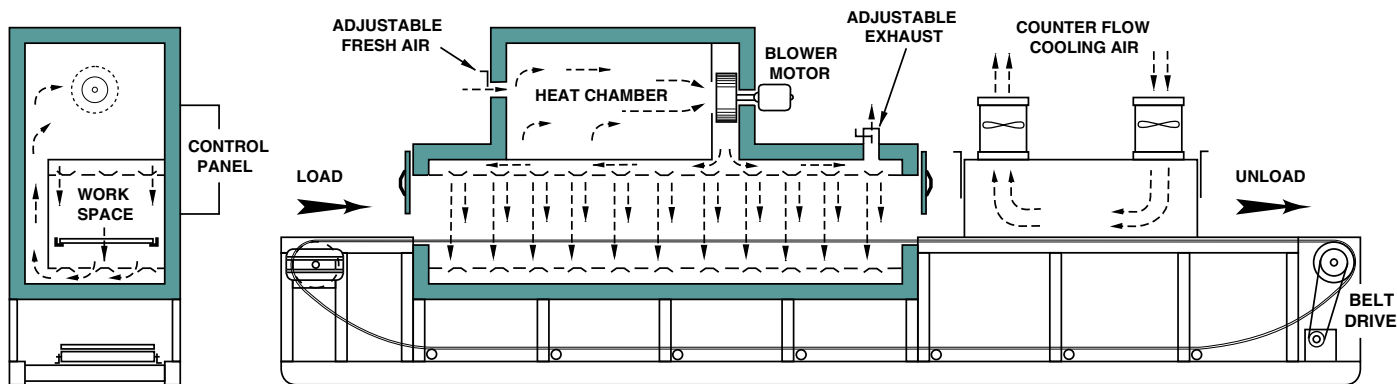
### ● Electric Models

Each features completely wired, side access  UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure;
  - Other gas characteristics available
- Control panel as on electric models. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

Circulation Diagram



Full vertical air flow forces heated air down through parts loaded on belt.

## ADDITIONAL EQUIPMENT AVAILABLE\*

● **Exhaust Hood**, with or without tubeaxial fan, to exhaust heat and fumes escaping open ends of heat zone ... **EXH**

● **Cooling Zone**, installed over extended unload conveyor, with forced convection cooling ..... **CZ**

● **Multiple Heat Zones**, to provide temperature profile during processing, specify quantity and length of each zone ..... **MHZ**



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\*See Bulletin TC-960 for modifications and other optional equipment.

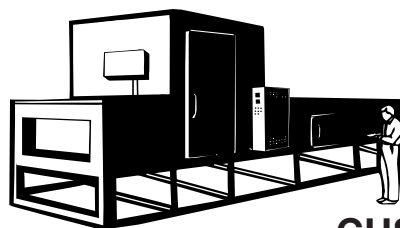




# Tunnel Ovens

Grieve has designed and manufactured tunnel ovens for all types of processing. These ovens have been designed for use with a wide range of existing conveyor systems. Since 1949 we have been providing electric, gas and steam heated units with operating temperatures from 150°F to 1200°F.

Tunnel Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For applications involving flammable solvents, the additional safety devices required by the above organizations are included.



**BULLETIN  
TO-610**

## HEAVY DUTY CUSTOM DESIGNED TUNNEL OVENS

Tunnel Ovens are designed to include support points for your conveyor system. Adjustable silhouette dampers are provided on the oven end openings to minimize heat loss.

Each oven is designed for the specific application and can include multiple heat zones and a cooling zone. Units can be provided in sections for easy installation and mating with existing conveyor system.

Our experienced engineers will work closely with you to develop a tunnel oven to readily accept your conveyor system. Every unit is completely assembled and tested prior to shipment.



30" WIDE X 17" HIGH X 10' LONG 500°F HEAT ZONE  
ELECTRICALLY HEATED TUNNEL OVEN

### STANDARD FEATURES

- Aluminized or stainless steel interior depending on maximum temperature rating
- 16 gauge aluminized steel exterior with enamel finish
- Welded structural steel, channel base provides a rigid assembly easily moved at any time
- Heavy duty, all welded, structural conveyor supports welded to vertical structural members to transfer load to base
- Side hinged doors provided along oven length for access to work space and heat chamber
- Adjustable silhouette dampers at each end of heat zone can be positioned near load to minimize heat loss from end of oven
- Adjustable opposed louvers on full coverage supply and return duct work
- Duct work removable for cleaning
- UL Listed Control Panel
- Brushed stainless steel control panel face
- 1 year limited warranty

## TUNNEL OVEN LENGTH

Tunnel oven width is selected to accommodate the parts and conveyor system. The speed of the conveyor system and the dwell time determine tunnel oven length.

Heat zone length is the product of the conveyor speed and dwell time. To estimate the length of tunnel oven required, insert your process information in the relationship below.

To the heat zone length calculated, approximately one foot must be added for insulation and silhouette dampers at each end of the oven. Equipment width will be approximately 2' wider than tunnel work space width to accommodate insulation, duct work and control enclosure.

To receive a detailed quotation for your application, complete the Request for Quotation Data Sheet on the reverse side of our catalog index page.

(Conveyor speed of \_\_\_\_ feet per hour) X (Dwell time of \_\_\_\_ hour) = (Heat zone length of \_\_\_\_ feet)

## STANDARD EQUIPMENT


**CAUTION: OVENS PROCESSING COMBUSTIBLE MATERIAL ARE REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 86 TO HAVE A FIRE SUPPRESSION SYSTEM. IF FLAMMABLE SOLVENTS OR VAPORS ARE PRESENT IN AN OVEN, OSHA REQUIRES CONFORMANCE WITH NFPA 86 WHICH DEFINES OVENS FOR THESE APPLICATIONS AS CLASS A OVENS. A POWERED FORCED EXHAUSTER AND OTHER NON-STANDARD SAFETY EQUIPMENT MUST BE ADDED. SEE BULLETIN TC-940 AND CONSULT FACTORY.**

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Vertical downward air flow between full coverage duct work above and below conveyor belt. Other air flow patterns available. Trilite Green enamel painted aluminized steel exterior.

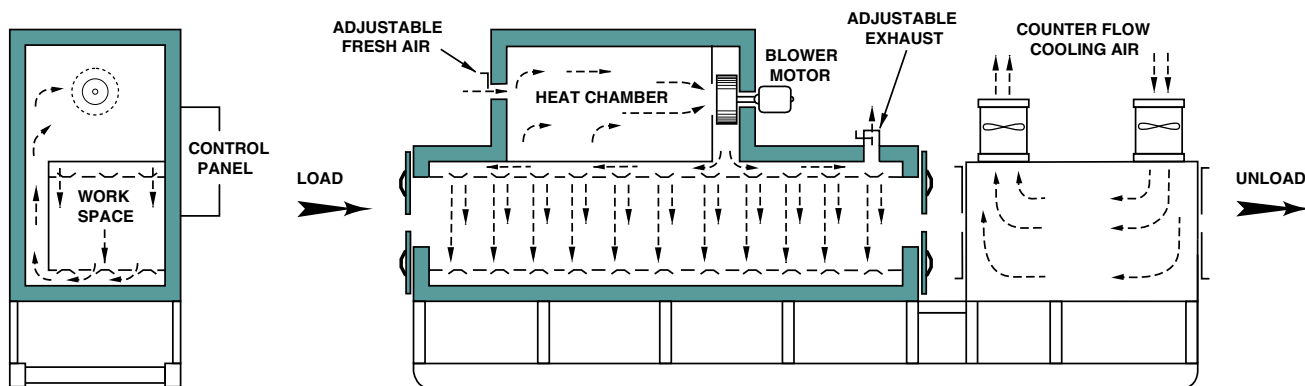
### ● Electric Models

Each features completely wired, side access  UL listed control panel enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights. Motor starter and heating element contactors electrically interlocked to shut off heaters if power to blower is interrupted and to permit operation of blower without heat for cooling. Incoloy sheathed tubular heating elements.

### ● Gas Models

- 1,000 BTU natural gas at 6" water column pressure;
  - Other gas characteristics available
- Control panel as on electric models. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner is protected with electronic flame safety relay.

Circulation Diagram



Full vertical air flow forces heated air down through parts.

## ADDITIONAL EQUIPMENT AVAILABLE\*

● **Exhaust Hood**, with or without tubeaxial fan, to exhaust heat and fumes escaping open ends of heat zone ...**EXH**

● **Multiple Heat Zones**, to provide temperature profile during processing, specify quantity and length of each zone .....**MHZ**

● **Cooling Zone** with forced convection cooling .....**CZ**



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\*See Bulletin TC-960 for modifications and other optional equipment.





**BULLETIN  
BF-710**



**ELECTRIC  
HEAT TREATING  
FURNACES**

# Bench Furnaces

Grieve standard 2000°F and 2200°F Bench Furnaces provide for a variety of heat treating applications. Precision microprocessor based temperature controls and energy-saving insulation maximize the cost efficiency and performance of these rugged units. Seven sizes from 0.44 to 2.0 cubic feet. Ideal for general purpose heat treating of tools, dies and other parts.

## STANDARD FEATURES

### ● Controls

- Digital, microprocessor based, thermocouple actuated, indicating temperature controller
- On-off heat switch
- LED pilot light

### ● Safety Equipment

- Adjustable, thermocouple actuated, manual reset excess temperature interlock
- Separate heating element control contactor
- Door interlock switch turns off power to heating elements when door is opened; restores power when door is closed

### ● Construction

- Heavy gauge aluminized steel cabinet with enamel finish
- Brushed stainless steel control panel face
- Gas spring assisted manually operated vertical lift door
- Door hot side faces away from operator at all times
- High temperature alloy wire heating elements supported by rugged ceramic plates
- Energy-saving lightweight ceramic fiber insulation reduces operating costs
- Fast heat-up
- Heating elements located on sidewall and roof for excellent temperature uniformity throughout work space
- Ceramic hearth tray
- 1 year limited warranty

- Every furnace fully assembled and individually factory tested



**MODEL BF-121212**



**MODEL BF-122412  
WITH OPTIONAL FLOOR STAND**

SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS OR VAPORS.

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp	Insulation	Height w/Door Open	Heat Input KW		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft					Control Accuracy	Furnace Uniformity	Rise Time				
									230V	460V	230V	460V	
BF-8128	8" x 12" x 8"	0.44	24" x 31" x 31"	2000°F	5"	52"	4.5	6	±0.3%	±15°F	65 min	50 min	400 lbs
BF-8128-HT	8" x 12" x 8"	0.44	26" x 33" x 33"	2200°F	6"	54"	4.5	6	±0.3%	±20°F	75 min	55 min	485 lbs
BF-12128	12" x 12" x 8"	0.67	28" x 31" x 31"	2000°F	5"	52"	6	8	±0.3%	±15°F	55 min	45 min	450 lbs
BF-12128-HT	12" x 12" x 8"	0.67	30" x 33" x 33"	2200°F	6"	54"	6	8	±0.3%	±20°F	80 min	60 min	530 lbs
BF-121212	12" x 12" x 12"	1.0	28" x 31" x 37"	2000°F	5"	66"	7.5	10	±0.3%	±12°F	50 min	40 min	500 lbs
BF-121212-HT	12" x 12" x 12"	1.0	30" x 33" x 39"	2200°F	6"	68"	7.5	10	±0.3%	±17°F	65 min	50 min	600 lbs
BF-12188	12" x 18" x 8"	1.00	28" x 37" x 31"	2000°F	5"	52"	7.5	10	±0.3%	±10°F	65 min	50 min	525 lbs
BF-12188-HT	12" x 18" x 8"	1.00	30" x 39" x 33"	2200°F	6"	54"	7.5	10	±0.3%	±15°F	75 min	55 min	625 lbs
BF-121812	12" x 18" x 12"	1.5	28" x 37" x 37"	2000°F	5"	66"	12	16	±0.3%	±10°F	45 min	35 min	550 lbs
BF-121812-HT	12" x 18" x 12"	1.5	30" x 39" x 39"	2200°F	6"	68"	12	16	±0.3%	±15°F	60 min	45 min	650 lbs
BF-12248	12" x 24" x 8"	1.33	28" x 43" x 31"	2000°F	5"	52"	12	16	±0.3%	±10°F	50 min	40 min	625 lbs
BF-12248-HT	12" x 24" x 8"	1.33	30" x 45" x 33"	2200°F	6"	54"	12	16	±0.3%	±15°F	60 min	45 min	725 lbs
BF-122412	12" x 24" x 12"	2.0	28" x 43" x 37"	2000°F	5"	66"	15	20	±0.3%	±10°F	45 min	35 min	700 lbs
BF-122412-HT	12" x 24" x 12"	2.0	30" x 45" x 39"	2200°F	6"	68"	15	20	±0.3%	±15°F	60 min	45 min	800 lbs

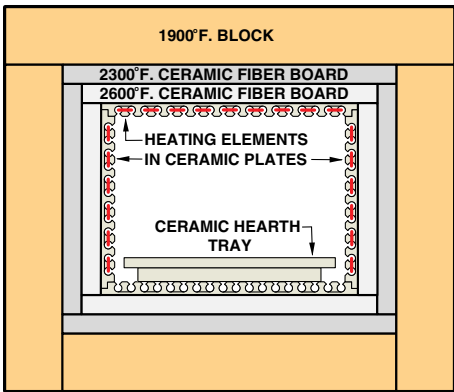
†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty furnace. Performance will vary with load and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

Standard Electrical Characteristics

- 208 volts, 1 or 3-phase, 50/60 Hz
- 230 volts, 1 or 3-phase, 50/60 Hz
- 460 volts, 3-phase, 50/60 Hz
- Other electrical characteristics available

Each furnace features completely wired control panel, located under the furnace, enclosing terminals for incoming power, temperature controller, heating element control contactor, excess temperature controller, separate contactor interlocked with excess temperature controller, 115 volt control circuit transformer, on-off heat switch and red pilot light. Door interlock switch turns off power to heating elements when door is opened. High temperature enamel painted aluminized steel exterior. Ceramic hearth tray rated for 60 lbs distributed loading.



Cross section through work space (Front View)

ADDITIONAL EQUIPMENT AVAILABLE\*

- Floor Stand, 26" High, heavy duty steel cabinet with shelf . . . . .FS
- Programmable Temperature Controller, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC
- Recording Thermometer, thermocouple actuated, 24-hour, 10" diameter circular chart, used in conjunction with standard controller, includes floor stand to house recorder. Floor stand cannot be used for storage . . . . .RT
- Digital Timing Temperature Controller, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . .DTS3
- Digital Shut Down Timer, with continuous "hold" feature . . . . .SDT
- Digital Batch Timer, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . .BT
- Alloy Hearth Tray  
7" x 11" . . . . .AH812  
11" x 11" . . . . .AH1212  
11" x 17" . . . . .AH1218  
11" x 23" . . . . .AH1224
- Quench Tank, carbon steel, 40 gallon capacity, 12" x 20" x 12" deep work basket, subway grating basket support, 1/2 HP direct driven mixer, 23" x 23" x 44" high overall, for 115 or 230/1/60 . . . . .QT
- Quench Tank Electric Heater, with temperature control . . . . .QTH



\*See Bulletin TC-960 for modifications and other optional equipment.





## Inert Atmosphere Bench Furnaces

Grieve standard Inert Atmosphere Bench Furnaces are specifically designed for heat treating applications requiring inert atmosphere protection. Inert atmospheres protect the work from oxidation even while being subjected to high temperatures. Seven sizes to 2.0 cubic feet with temperatures to 2200°F. Precision microprocessor based temperature controls and energy-saving insulation maximize the cost efficiency and performance of these rugged units. Ideal for heat treating of tools, dies and other parts.

### STANDARD FEATURES

#### ● Controls

- Digital, microprocessor based, thermocouple actuated, indicating temperature controller
- On-off heat switch
- LED pilot light

#### ● Safety Equipment

- Adjustable, thermocouple actuated, manual reset excess temperature interlock
- Separate heating element control contactor
- Door interlock switch turns off power to heating elements when door is opened; restores power when door is closed

#### ● Construction

- Heavy gauge continuously welded aluminized steel cabinet for atmosphere tightness
- Brushed stainless steel control panel face
- High temperature ceramic fiber resilient door gasket to contain atmosphere
- Heat resistant alloy atmosphere inlet and outlet
- Gas spring assisted manually operated vertical lift door
- Door hot side faces away from operator at all times
- High temperature alloy wire heating elements supported by rugged ceramic plates
- Energy-saving lightweight ceramic fiber insulation reduces operating costs
- Fast heat-up
- Heating elements located on sidewalls and roof for excellent temperature uniformity throughout work space
- Ceramic hearth tray
- 1 year limited warranty

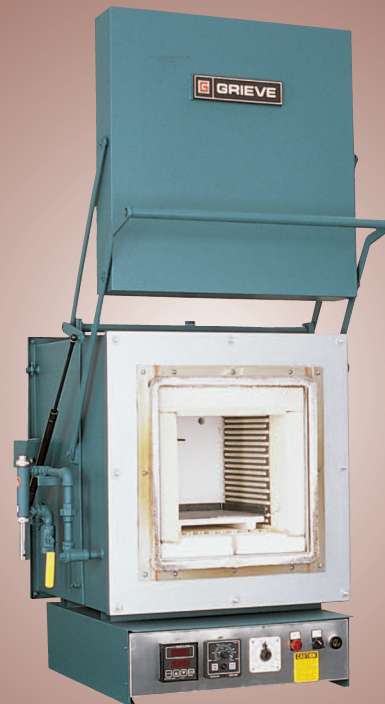
- Every furnace fully assembled and individually factory tested

Specifications Subject to Change Without Notice  
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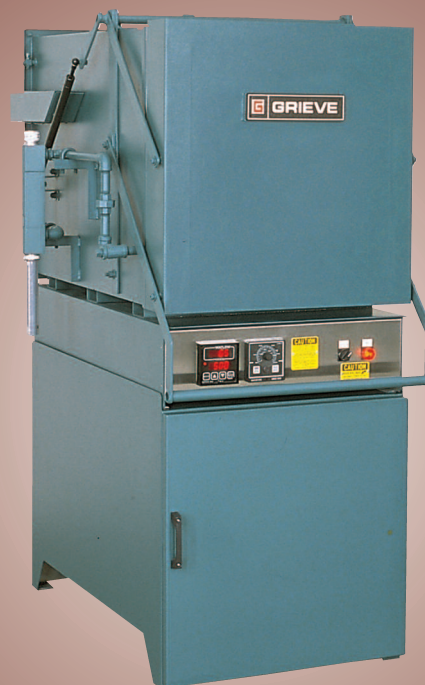


**BULLETIN  
BF-720**

**INERT  
ATMOSPHERE  
ELECTRIC  
HEAT TREATING  
FURNACES**



**MODEL BAF-121212-HT**  
WITH OPTIONAL INERT ATMOSPHERE INLET PIPING



**MODEL BAF-122412**  
WITH OPTIONAL FLOOR STAND AND  
INERT ATMOSPHERE INLET PIPING

SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Outside Dimensions (WxDxH)	Max Temp*	Insulation	Height w/Door Open	Heat Input KW		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft					Control Accuracy		Furnace Uniformity		Rise Time		
											230V	460V	
BAF-8128	8" x 12" x 8"	0.44	24" x 31" x 31"	2000°F	5"	52"	4.5	6	±0.3%	±15°F	65 min	50 min	420 lbs
BAF-8128-HT	8" x 12" x 8"	0.44	26" x 33" x 33"	2200°F	6"	54"	4.5	6	±0.3%	±20°F	75 min	55 min	505 lbs
BAF-12128	12" x 12" x 8"	0.67	28" x 31" x 31"	2000°F	5"	52"	6	8	±0.3%	±15°F	55 min	45 min	470 lbs
BAF-12128-HT	12" x 12" x 8"	0.67	30" x 33" x 33"	2200°F	6"	54"	6	8	±0.3%	±20°F	80 min	60 min	550 lbs
BAF-121212	12" x 12" x 12"	1.0	28" x 31" x 37"	2000°F	5"	66"	7.5	10	±0.3%	±12°F	50 min	40 min	520 lbs
BAF-121212-HT	12" x 12" x 12"	1.0	30" x 33" x 39"	2200°F	6"	68"	7.5	10	±0.3%	±17°F	65 min	50 min	620 lbs
BAF-12188	12" x 18" x 8"	1.0	28" x 37" x 31"	2000°F	5"	52"	7.5	10	±0.3%	±10°F	65 min	50 min	545 lbs
BAF-12188-HT	12" x 18" x 8"	1.0	30" x 39" x 33"	2200°F	6"	54"	7.5	10	±0.3%	±15°F	75 min	55 min	645 lbs
BAF-121812	12" x 18" x 12"	1.5	28" x 37" x 37"	2000°F	5"	66"	12	16	±0.3%	±10°F	45 min	35 min	570 lbs
BAF-121812-HT	12" x 18" x 12"	1.5	30" x 39" x 39"	2200°F	6"	68"	12	16	±0.3%	±15°F	60 min	45 min	675 lbs
BAF-12248	12" x 24" x 8"	1.33	28" x 43" x 31"	2000°F	5"	52"	12	16	±0.3%	±10°F	50 min	40 min	680 lbs
BAF-12248-HT	12" x 24" x 8"	1.33	30" x 45" x 33"	2200°F	6"	54"	12	16	±0.3%	±15°F	60 min	45 min	755 lbs
BAF-122412	12" x 24" x 12"	2.0	28" x 43" x 37"	2000°F	5"	66"	15	20	±0.3%	±10°F	45 min	35 min	775 lbs
BAF-122412-HT	12" x 24" x 12"	2.0	30" x 45" x 39"	2200°F	6"	68"	15	20	±0.3%	±15°F	60 min	45 min	850 lbs

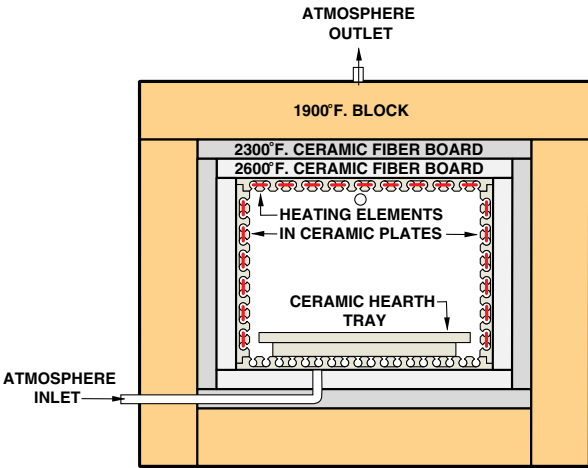
\*1950°F for continuous operation under Nitrogen atmosphere. For operation at higher temperatures, furnace must be periodically run with air atmosphere to build up protective oxide coating on heating elements.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty furnace. Performance will vary with load and application. See Bulletin TC-920 for additional details.

STANDARD EQUIPMENT

- Standard Electrical Characteristics
  - 208 volts, 1 or 3-phase, 50/60 Hz
  - 230 volts, 1 or 3-phase, 50/60 Hz
  - 460 volts, 3-phase, 50/60 Hz
  - Other electrical characteristics available

Each furnace features completely wired control panel, located under the furnace, enclosing terminals for incoming power, temperature controller, heating element control contactor, excess temperature controller, separate contactor interlocked with excess temperature controller, 115 volt control circuit transformer, on-off heat switch and red pilot light. Door interlock switch turns off power to heating elements when door is opened. High temperature enamel painted aluminized steel exterior. Ceramic hearth tray rated for 60 lbs distributed loading. Atmosphere inlet (1½" NPT) at side of workspace and atmosphere outlet (¾" NPT) through the top at back. Sealed rear terminal box with vent petcock.



Cross section through work space (Front View)

ADDITIONAL EQUIPMENT AVAILABLE\*

- Floor Stand, 26" High, heavy duty steel cabinet with shelf . . . . .FS
- Programmable Temperature Controller, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .PTC
- Recording Thermometer, thermocouple actuated, 24-hour, 10" diameter circular chart, used in conjunction with standard controller, includes floor stand to house recorder. Floor stand cannot be used for storage . . . . .RT
- Digital Timing Temperature Controller, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . .DTS3
- Digital Shut Down Timer, with continuous "hold" feature . . . . .SDT
- Digital Batch Timer, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . .BT
- Alloy Hearth Tray
  - 7" x 11" . . . . .AH812
  - 11" x 11" . . . . .AH1212
  - 11" x 17" . . . . .AH1218
  - 11" x 23" . . . . .AH1224
- Inert Atmosphere Inlet Piping, complete with indicating flow control and gas valve. Specify atmosphere . . . . .IAIP
- Quench Tank, carbon steel, 40 gallon capacity, 12" x 20" x 12" deep work basket, subway grating basket support, ½ HP direct driven mixer, 23" x 23" x 44" high overall, for 115 or 230/1/60 . . . . .QT
- Quench Tank Electric Heater, with temperature control . . . . .QTH



\*See Bulletin TC-960 for modifications and other optional equipment.





# Tempering Bench Furnace



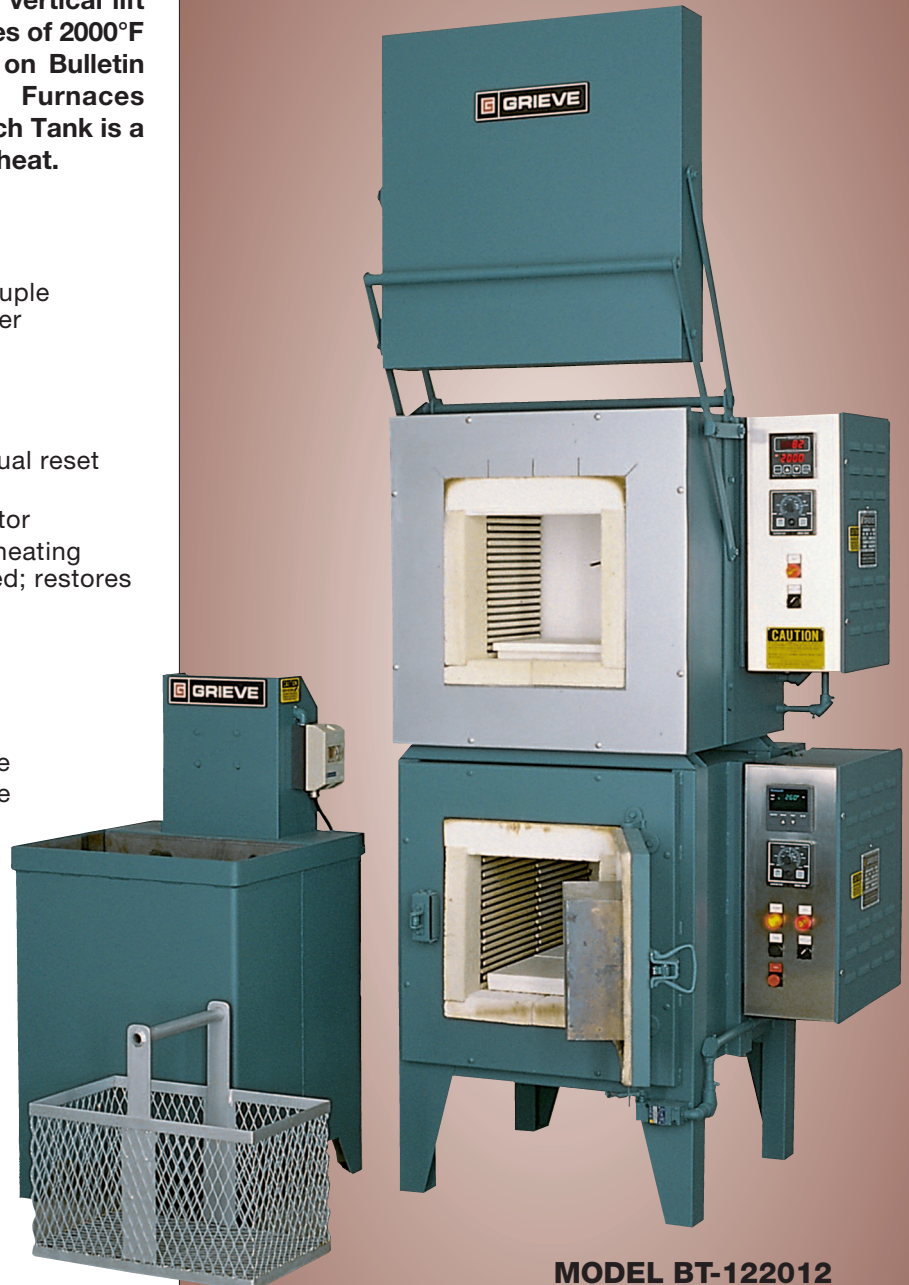
## COMPANION ELECTRIC TEMPERING FURNACE AND QUENCH TANK

Electric Tempering Furnace can be combined with Electric Bench Furnaces or Inert Atmosphere Bench Furnaces to produce a space saving, over and under, heat treating and tempering furnace combination. The top chamber with its manually operated vertical lift door can be selected from among six sizes of 2000°F and 2200°F Bench Furnaces described on Bulletin BF-710 or Inert Atmosphere Bench Furnaces described on Bulletin BF-720. The Quench Tank is a free standing unit available with electric heat.

### STANDARD FEATURES

- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - On-off heat switch
  - LED pilot light
- **Safety Equipment**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactor
  - Door interlock switch turns off power to heating elements and blower when door is opened; restores power when door is closed
- **Construction**
  - Recirculating blower located in back wall
  - Heavy gauge aluminized steel cabinet with enamel finish
  - Brushed stainless steel control panel face
  - Designed to support heat treating furnace
  - Well insulated, side-hinged door
  - High temperature alloy heating elements supported by rugged ceramic plates
  - Energy-saving lightweight ceramic fiber insulation reduces operating costs
  - Fast heat-up
  - Heating elements located on sidewall and roof for excellent temperature uniformity throughout work space
  - Ceramic hearth tray
  - 1 year limited warranty
- **Optional Quench Tank**
  - Expanded metal loading basket
  - Use with water, oil or synthetic solutions
  - 1/2 HP direct driven mixer
  - Rugged subway grate basket support
  - Optional electric heater with temperature controller
- **All equipment fully assembled and individually factory tested**

**MODEL BF-121212  
BENCH FURNACE**



**MODEL BT-122012  
TEMPERING FURNACE**

**QUENCH TANK**

SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS OR VAPORS.

Model	Work Space		Outside Dimensions* (WxDxH)	Max Temp	Insulation	Height w/Door Open	Heat Input KW		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft					Control Accuracy	Furnace Uniformity	Rise Time				
									230V	460V	230V	460V	
BT-122012	12" x 20" x 12"	1.67	38" x 40" x 38"	1250°F	5"	38"	15	20	±0.3%	±25°F	23 min	16 min	900 lbs
MODEL BT-122012 TEMPERING FURNACE ASSEMBLED WITH BENCH FURNACE FROM BULLETIN BF-710 LISTED BELOW													
BF-12128	12" x 12" x 8"	0.67	38" x 40" x 62"	2000°F	5"	83"	6	8	±0.3%	±15°F	55 min	45 min	1300 lbs
BF-12128-HT	12" x 12" x 8"	0.67	40" x 40" x 64"	2200°F	6"	85"	6	8	±0.3%	±20°F	80 min	60 min	1340 lbs
BF-121212	12" x 12" x 12"	1.0	38" x 40" x 68"	2000°F	5"	97"	7.5	10	±0.3%	±12°F	50 min	40 min	1350 lbs
BF-121212-HT	12" x 12" x 12"	1.0	40" x 40" x 70"	2200°F	6"	99"	7.5	10	±0.3%	±17°F	65 min	50 min	1400 lbs
BF-12188	12" x 18" x 8"	1.0	38" x 40" x 62"	2000°F	5"	83"	7.5	10	±0.3%	±10°F	65 min	50 min	1425 lbs
BF-12188-HT	12" x 18" x 8"	1.0	40" x 40" x 64"	2200°F	6"	85"	7.5	10	±0.3%	±15°F	75 min	55 min	1525 lbs
BF-121812	12" x 18" x 12"	1.5	38" x 40" x 68"	2000°F	5"	97"	12	16	±0.3%	±10°F	45 min	35 min	1450 lbs
BF-121812-HT	12" x 18" x 12"	1.5	40" x 40" x 70"	2200°F	6"	99"	12	16	±0.3%	±15°F	60 min	45 min	1550 lbs
BF-12248	12" x 24" x 8"	1.33	38" x 40" x 62"	2000°F	5"	83"	12	16	±0.3%	±10°F	50 min	40 min	1475 lbs
BF-12248-HT	12" x 24" x 8"	1.33	40" x 40" x 64"	2200°F	6"	85"	12	16	±0.3%	±15°F	60 min	45 min	1530 lbs
BF-122412	12" x 24" x 12"	2.0	38" x 40" x 68"	2000°F	5"	97"	15	20	±0.3%	±10°F	45 min	35 min	1550 lbs
BF-122412-HT	12" x 24" x 12"	2.0	40" x 40" x 70"	2200°F	6"	99"	15	20	±0.3%	±15°F	60 min	45 min	1610 lbs
MODEL BT-122012 TEMPERING FURNACE ASSEMBLED WITH INERT ATMOSPHERE BENCH FURNACE FROM BULLETIN BF-720 LISTED BELOW													
BAF-12128	12" x 12" x 8"	0.67	38" x 40" x 62"	2000°F	5"	83"	6	8	±0.3%	±15°F	55 min	45 min	1370 lbs
BAF-12128-HT	12" x 12" x 8"	0.67	40" x 40" x 64"	2200°F	6"	85"	6	8	±0.3%	±20°F	80 min	60 min	1410 lbs
BAF-121212	12" x 12" x 12"	1.0	38" x 40" x 68"	2000°F	5"	97"	7.5	10	±0.3%	±12°F	50 min	40 min	1420 lbs
BAF-121212-HT	12" x 12" x 12"	1.0	40" x 40" x 70"	2200°F	6"	99"	7.5	10	±0.3%	±17°F	65 min	50 min	1470 lbs
BAF-12188	12" x 18" x 8"	1.0	38" x 40" x 62"	2000°F	5"	83"	7.5	10	±0.3%	±10°F	65 min	50 min	1445 lbs
BAF-12188-HT	12" x 18" x 8"	1.0	40" x 40" x 64"	2200°F	6"	85"	7.5	10	±0.3%	±15°F	75 min	55 min	1545 lbs
BAF-121812	12" x 18" x 12"	1.5	38" x 40" x 68"	2000°F	5"	97"	12	16	±0.3%	±10°F	45 min	35 min	1470 lbs
BAF-121812-HT	12" x 18" x 12"	1.5	40" x 40" x 70"	2200°F	6"	99"	12	16	±0.3%	±15°F	60 min	45 min	1575 lbs
BAF-12248	12" x 24" x 8"	1.33	38" x 40" x 62"	2000°F	5"	83"	12	16	±0.3%	±10°F	50 min	40 min	1580 lbs
BAF-12248-HT	12" x 24" x 8"	1.33	40" x 40" x 64"	2200°F	6"	85"	12	16	±0.3%	±15°F	60 min	45 min	1625 lbs
BAF-122412	12" x 24" x 12"	2.0	38" x 40" x 68"	2000°F	5"	97"	15	20	±0.3%	±10°F	45 min	35 min	1675 lbs
BAF-122412-HT	12" x 24" x 12"	2.0	40" x 40" x 70"	2200°F	6"	99"	15	20	±0.3%	±15°F	60 min	45 min	1725 lbs

\*BT-122012 depth includes 14" motor mount overhang at rear. Assembled dimensions include 10" control panel overhang at right and BT-122012 motor mount overhang at rear.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty furnace. Performance will vary with load and application. See Bulletin TC-920 for additional details.

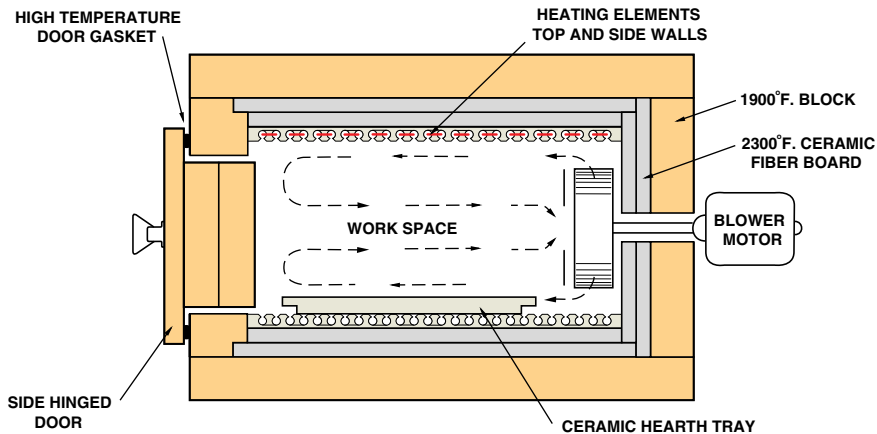
STANDARD EQUIPMENT

Standard Electrical Characteristics

- 208 volts, 1 or 3-phase, 50/60 Hz
- 230 volts, 1 or 3-phase, 50/60 Hz
- 460 volts, 3-phase, 50/60 Hz
- Other electrical characteristics available

Each tempering furnace features completely wired control panel, enclosing terminals for incoming power, temperature controller, heating element control contactor, excess temperature controller, separate contactor interlocked with excess temperature controller, 115 volt control circuit transformer, on-off heat switch and red pilot light. Door interlock switch turns off power to heating elements and blower when door is opened. High temperature enamel painted aluminized steel exterior. Ceramic hearth tray rated for 60 lbs distributed loading. Stainless steel recirculating blower driven through V-belt drive by 1/2 HP motor.

Circulation Diagram (Side View)



ADDITIONAL EQUIPMENT AVAILABLE\*

- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller. . . . . **PTC**
- **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart, used in conjunction with standard controller. . . . . **RT**
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . **DTS3**
- **Digital Shut Down Timer**, with continuous "hold" feature . . . . . **SDT**
- **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . **BT**
- **Alloy Hearth Tray**
  - 11" x 11" . . . . . **AH1212**
  - 11" x 17" . . . . . **AH1218**
  - 11" x 20" . . . . . **AH1220**
  - 11" x 23" . . . . . **AH1224**
- **Quench Tank**, carbon steel, 40 gallon capacity, 12" x 20" x 12" deep work basket, subway grating basket support, 1/2 HP direct driven mixer, 23" x 23" x 44" high overall, for 115 or 230/1/60 . . . . . **QT**
- **Quench Tank Electric Heater**, with temperature control . . . . . **QTH**



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\*See Bulletin TC-960 for modifications and other optional equipment.






# Tempering Furnaces

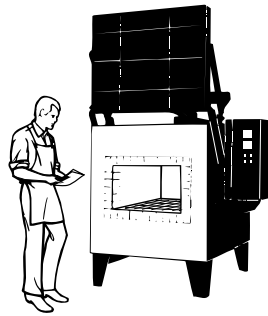
Grieve standard 1400°F Tempering Furnaces are used for a variety of heat treating applications including those requiring inert atmospheres. Recirculating blower provides high velocity vertical down air flow for excellent heat transfer from 800°F to 1400°F. Precision microprocessor based temperature controls and energy-saving insulation maximize the performance of these rugged units.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard tempering furnaces from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving special atmospheres or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas furnaces
  - Motor control push buttons and on-off heat switch
  - LED pilot lights
- **Safety Equipment—Electric Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Recirculating blower air flow safety switch
- **Safety Equipment—Gas Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - Stainless steel powered forced exhauster
  - Exhauster air flow safety switch
  - Recirculating blower air flow safety switch
  - Purge timer
  - High and low gas pressure switches
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
- **Construction**
  - Vertical down air flow specifically designed for tempering
  - High pressure, air cooled, stainless steel recirculating blower
  - Adjustable patented opposed louvers on full coverage supply and return ductwork
  - $\frac{3}{16}$ " steel plate reinforced furnace shell
  - $\frac{1}{2}$ " thick steel front plate
  - 16 gauge stainless steel interior
  - Work space bottom reinforced with stainless steel grid
  - Brushed stainless steel control panel face
  - Powered vertical lift door; hot side faces away from operator
  - Energy-saving lightweight ceramic fiber insulation
  - Fast heat-up and cool-down
  - Built-in baffles prevent radiant heat
  - Adjustable fresh air intake and exhaust dampers
  - 1 year limited warranty
- **Every furnace fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request  
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 Printed in U.S.A. 3/15

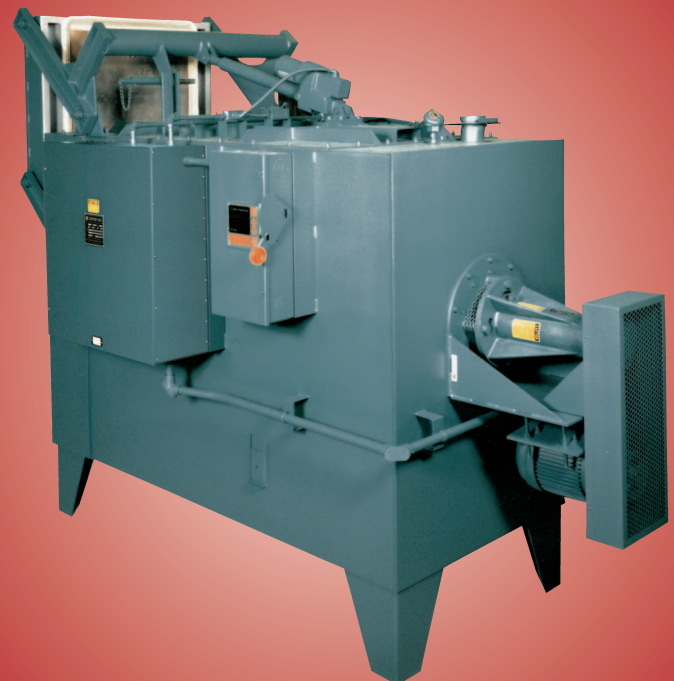
**BULLETIN  
TF-740**



**1400°F  
FORCED CONVECTION  
HEAVY DUTY  
ELECTRIC AND GAS  
TEMPERING FURNACES**



**MODEL TF-243624 ELECTRIC**  
WITH OPTIONAL FUSED DISCONNECT SWITCH



SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Outside Dimensions* (WxDxH)	Height Door Open	Blower		Door Type	Hearth Rating Lbs‡	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft			CFM	HP			KW	BTU/HR	Control Accuracy	Furnace Uniformity	Rise Time		
													Electric	Gas	
TF-183618	18" x 36" x 18"	6.7	35" x 87" x 74"	78"	2400	3	Electric	400	30	190,000	±0.3%	±12°F	95 min	85 min	3100 lbs
TF-243624	24" x 36" x 24"	12	47" x 92" x 80"	90"	3500	5	Electric	600	42	285,000	±0.3%	±14°F	95 min	85 min	4000 lbs
TF-304830	30" x 48" x 30"	25	53" x 106" x 86"	102"	4250	5	Electric	900	52	355,000	±0.3%	±14°F	90 min	80 min	5200 lbs
TF-364836	36" x 48" x 36"	36	59" x 111" x 126"	126"	5300	5	Air	1100	65	450,000	±0.3%	±20°F	90 min	80 min	6400 lbs
TF-366036	36" x 60" x 36"	45	59" x 121" x 126"	126"	6000	7½	Air	1300	74	510,000	±0.3%	±20°F	90 min	80 min	6800 lbs
TF-484848	48" x 48" x 48"	64	71" x 114" x 150"	150"	8000	10	Air	1500	100	660,000	±0.3%	±22°F	80 min	70 min	8700 lbs
TF-487248	48" x 72" x 48"	96	71" x 152" x 150"	150"	9600	15	Air	2200	120	800,000	±0.3%	±22°F	80 min	70 min	9950 lbs

\*All Models—Control panel overhang 9" right side.  
Blower motor overhang 18" rear except 20" on 15 HP.  
Gas Models—Burner overhang 18" right side.  
325 CFM exhauster to 510,000 BTU/HR, 650 CFM above.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty furnace. Performance will vary with load and application. See Bulletin TC-920 for additional details.

‡Uniformly distributed.

STANDARD EQUIPMENT

- All Models
  - 208 volts, 3-phase, 60 Hz
  - 230 volts, 3-phase, 60 Hz
  - 460 volts, 3-phase, 60 Hz
  - Other electrical characteristics available
- Wall insulation, 7" thick, consisting of:
  - 3" of 2300°F, 8 lbs/cf ceramic fiber blanket
  - 2" of 1900°F, 15 lbs/cf block insulation
  - 2" of 1200°F rockwool insulation
- Floor insulation, 6½" thick, consisting of:
  - 4½" of 2300°F insulating firebrick
  - 2" of 1900°F, 18½ lbs/cf block insulation

- Electric Models  
Safety devices as listed on the front of this bulletin. Heating element contactors electrically interlocked with door to shut off power to heaters as door opens and restore power when closed. High temperature alloy coiled wire heating elements supported in alloy rack. Heating elements located in heat chamber upstream of the recirculating blower. Exhaust outlet 4" diameter.

- Gas Models
  - 1,000 BTU natural gas at 2 psig pressure; 1" NPT inlet up to 800,000 BTU/HR
  - Other gas characteristics available

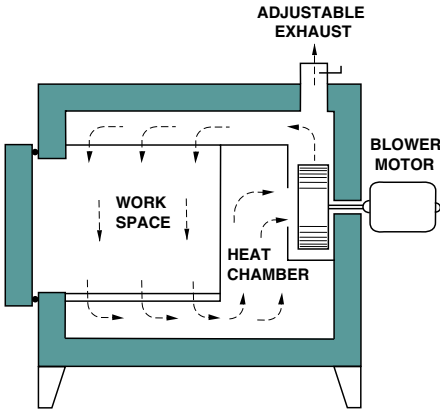
Safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burner fires into chamber upstream of the recirculating blower. Gas burner protected with electronic flame safety relay. Door interlock switch drives main burner to low fire when door is opened and restores control when door is closed. Exhaust outlet 6" diameter.

Furnace shell is made of 3/16" thick steel plate reinforced with structural steel. Doorsill constructed from firebrick to protect furnace during loading. Stainless steel grid at bottom of work space to distribute loading. Soft insulation on door provides an excellent heat seal by pressing against the vestibule refractory and the ½" thick steel front plate. Exterior painted with Trilite Green enamel. Each features completely wired, side access (UL), UL listed control panel assembled on the furnace enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights.

**ELECTRIC DOOR**  
Door pivots upward above furnace, clearing front for easy loading. In the closed position, full door weight seats door firmly against furnace face. Structural steel pivot arms are supported at furnace sidewalls by bearings and connected to a heavy duty electromechanical actuator. The door is controlled by a switch at the furnace control panel.

**AIR DOOR**  
Door rises vertically in front of the furnace hanging from heavy duty roller chain, sprockets, shaft and pillow block bearings. In the closed position, rollers at the sides of the door engage support brackets to force the full door weight against the furnace face. Large diameter air cylinder rotates support shaft to lift the door. The door is controlled by a manual air valve with supply filter, lubricator and regulator. Requires 60 psig compressed air.

Circulation Diagram (Side View)



Full vertical downward air flow provides excellent heat transfer and uniform temperature distribution.

ADDITIONAL EQUIPMENT AVAILABLE\*

- Programmable Temperature Controller, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller .....PTC3
- Recording Thermometer, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller RT
- Digital Timing Temperature Controller, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time .....DTS3
- Digital Shut Down Timer, with continuous "hold" feature .....SDT
- Digital Batch Timer, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset .....BT
- Automatic Door Switch, turns off blower and heat when door is opened. Restores blower and heat on electric models, blower only on gas models, when door is closed .....ADS
- Inert Atmosphere Construction, electric only, includes continuously welded shell, inert atmosphere gas inlet and outlet, sealed terminal boxes, recirculating blower shaft seal, high temperature door gasket, optional forced cooling systems are available at additional cost .....IAC
- Inert Atmosphere Inlet Piping, with indicating flow control and manual gas valve. Specify atmosphere .....IAIP



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\*See Bulletin TC-960 for modifications and other optional equipment.






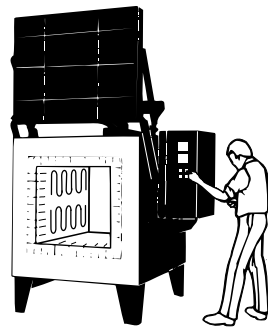
# Box Furnaces

Grieve standard 2000°F heat treating furnaces are used for a variety of heat treating applications such as tempering, hardening, sintering or firing, including those requiring inert atmospheres. Precision microprocessor based temperature controls and energy-saving insulation maximize the performance of these rugged units. Thirteen standard models from 3.9 to 96 cubic feet, built for long, hard, continuous use.

## STANDARD FEATURES

-  **UL LISTED CONTROL PANEL**
- **Standard Box Furnaces from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving special atmospheres or hazardous locations, the above organizations require additional safety devices.**
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas furnaces
  - Motor control push buttons and on-off heat switch
  - LED pilot light
- **Safety Equipment—Electric Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Door interlock switch turns off power to heating elements when door is opened; restores power when door is closed
- **Safety Equipment—Gas Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - Combustion air blower with air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
- **Construction**
  - $\frac{3}{16}$ " steel plate reinforced furnace shell
  - $\frac{1}{2}$ " thick steel front plate
  - Brushed stainless steel control panel face
  - Powered vertical lift door
  - Door hot side faces away from operator at all times
  - Energy-saving lightweight ceramic fiber insulation reduces operating costs
  - Heavy duty ceramic hearth plates supported by firebrick piers
  - Excellent temperature uniformity throughout workspace
  - Fast heat-up and cool-down
  - 1 year limited warranty
- **Every furnace fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request  
Specifications Subject to Change Without Notice  
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**BULLETIN  
FH-750**

**2000°F  
HEAVY DUTY  
ELECTRIC AND GAS  
HEAT TREATING  
FURNACES**



**MODEL HD-304830 ELECTRIC**  
WITH OPTIONAL SHUT DOWN TIMER, BATCH TIMER  
WITH AUDIBLE ALARM, AND ALLOY HEARTH TRAY

SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Outside Dimensions* (WxDxH)	Height Door Open	Door Type	Hearth Rating Lbs‡	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft					KW	BTU/HR	Control Accuracy	Furnace Uniformity	Rise Time		
											Electric	Gas	
HD-153015	15" x 30" x 15"	3.9	37" x 53" x 63"	78"	Manual	230	18**	225,000	±0.3%	±15°F	45 min	35 min	1500 lbs
HD-183618	18" x 36" x 18"	6.7	55" x 79" x 74"	100"	Electric	320	24	300,000	±0.3%	±15°F	175 min	130 min	2650 lbs
HD-243618	24" x 36" x 18"	9	61" x 78" x 77"	100"	Electric	450	33	360,000	±0.3%	±15°F	135 min	120 min	3000 lbs
HD-243624	24" x 36" x 24"	12	61" x 78" x 80"	112"	Electric	450	40	440,000	±0.3%	±15°F	125 min	110 min	3600 lbs
HD-244824	24" x 48" x 24"	16	61" x 92" x 80"	112"	Electric	600	48	525,000	±0.3%	±15°F	120 min	105 min	4100 lbs
HD-304830	30" x 48" x 30"	25	67" x 92" x 86"	118"	Electric	750	56	650,000	±0.3%	±16°F	120 min	90 min	4500 lbs
HD-306030	30" x 60" x 30"	31	67" x 104" x 86"	118"	Electric	850	60	700,000	±0.3%	±16°F	135 min	105 min	5100 lbs
HD-364836	36" x 48" x 36"	36	73" x 92" x 93"	133"	Air	950	66	750,000	±0.3%	±18°F	140 min	100 min	5250 lbs
HD-366036	36" x 60" x 36"	45	73" x 104" x 93"	133"	Air	1150	73	800,000	±0.3%	±18°F	140 min	100 min	5700 lbs
HD-367236	36" x 72" x 36"	54	73" x 116" x 93"	133"	Air	1350	86	950,000	±0.3%	±18°F	140 min	95 min	6300 lbs
HD-484836	48" x 48" x 36"	48	85" x 92" x 93"	133"	Air	1200	78	850,000	±0.3%	±20°F	135 min	90 min	6200 lbs
HD-484848	48" x 48" x 48"	64	85" x 92" x 105"	157"	Air	1400	92	1,000,000	±0.3%	±20°F	130 min	90 min	6900 lbs
HD-487248	48" x 72" x 48"	96	85" x 116" x 105"	157"	Air	2000	135	1,400,000	±0.3%	±22°F	120 min	90 min	8500 lbs

\* All Models—Control panel overhang 9" right side.  
Gas Models—Combustion blower overhang 36" rear.  
†Gas spring assists operation. Construction similar to electric door.  
\*\* Heating elements located on sidewalls and roof only; 13.5 KW and 80 minute rise time on 230 volts.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty furnace. Performance will vary with load and application. See Bulletin TC-920 for additional details.  
‡Uniformly distributed.

STANDARD EQUIPMENT

● **All Models**  
— 208 volts, 3-phase, 60 Hz  
— 230 volts, 3-phase, 60 Hz  
— 460 volts, 3-phase, 60 Hz  
— Other electrical characteristics available

Wall insulation, 9" thick, consisting of:  
— 5" of 2300°F, 8 lbs/cf ceramic fiber blanket  
— 4" of 1900°F, 18½ lbs/cf block insulation

Floor insulation, 8½" thick, consisting of:  
— 4½" of 2300°F insulating firebrick  
— 4" of 1900°F, 18½ lbs/cf block insulation

Furnace shell is made of 3/16" thick steel plate reinforced with structural steel. Doorsill constructed from firebrick to protect furnace during loading. Ceramic hearth plates are 2" thick and supported by firebrick piers. Soft insulation on door provides an excellent heat seal by pressing against the vestibule refractory and the ½" thick steel front plate. Exterior painted with Trilite Green enamel.

Each features completely wired, side access  
UL listed control panel assembled on the furnace enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights.

● **Electric Models**  
Safety devices as listed on the front of this bulletin. Heating element contactors electrically interlocked with door to shut off power to heaters as door opens and restore power when closed. High temperature alloy wire heating elements supported in vacuum cast ceramic fiber. Heating elements located at sides, rear, door and under hearth, except as noted.

● **Gas Models**  
— 1,000 BTU natural gas at 2 psig pressure;  
1" NPT inlet up to 800,000 BTU/HR  
1¼" NPT 850,000 to 1,000,000 BTU/HR  
1½" NPT at 1,400,000 BTU/HR  
— Other gas characteristics available

Safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burners fire beneath hearth from opposing sides to circulate heated air through the work space. (HD-153015 has single burner firing above load from rear) Gas burners protected with electronic flame safety relay. Door interlock switch drives main

burners to low fire when door is opened and restores control when door is closed.

**ELECTRIC DOOR**  
Door pivots upward above furnace, clearing front for easy loading. In the closed position, full door weight seats door firmly against furnace face. Structural steel pivot arms are supported at furnace sidewalls by bearings and connected to a heavy duty electromechanical actuator. The door is controlled by a switch at the furnace control panel.

**AIR DOOR**  
Door rises vertically in front of the furnace hanging from heavy duty roller chain, sprockets, shaft and pillow block bearings. In the closed position, rollers at the sides of the door engage support brackets to force the full door weight against the furnace face. Large diameter air cylinder rotates support shaft to lift the door. The door is controlled by a manual air valve with supply filter, lubricator and regulator. Requires 60 psig compressed air.

ADDITIONAL EQUIPMENT AVAILABLE\*

- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .**PTC3**

● **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .**RT**

● **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . **DTS3**
- **Digital Shut Down Timer**, with continuous "hold" feature . . . . .**SDT**

● **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . **BT**

● **Alloy Hearth Tray**, made of heat resisting high temperature alloy, for protecting ceramic hearth plates from impact and heavy loading . . . . .**AH**

- **Recirculating Fan**, water cooled fans standard, air cooled available, improves temperature uniformity from 600°F to 1600°F, available on Model HD-30430 and larger, may reduce heat input on electric models, not available on gas models . . **RF**
- **Inert Atmosphere Construction**, electric only, includes continuously welded shell, inert atmosphere gas inlet and outlet, high temperature door gasket, sealed terminal boxes, optional forced cooling systems are available at additional cost. . . . .**IAC**
- **Inert Atmosphere Inlet Piping**, with indicating flow control and manual gas valve. Specify atmosphere . . . . .**IAIP**

\*See Bulletin TC-960 for modifications and other optional equipment.






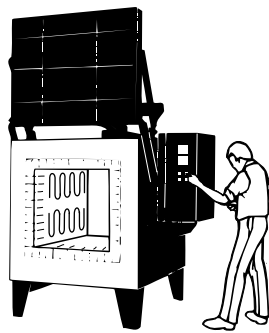
# High Temperature Box Furnaces

Grieve standard 2200°F heat treating furnaces are used for a variety of heat treating applications such as hardening, sintering or firing including those requiring inert atmospheres. Precision microprocessor based temperature controls and energy-saving insulation maximize the performance of these rugged units. Twelve standard models from 6.7 to 96 cubic feet, built for long, hard, continuous use.

## STANDARD FEATURES

-  UL LISTED CONTROL PANEL
- Standard Box Furnaces from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving special atmospheres or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas furnaces
  - Motor control push buttons and on-off heat switch
  - LED pilot light
- **Safety Equipment—Electric Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Door interlock switch turns off power to heating elements when door is opened; restores power when door is closed
- **Safety Equipment—Gas Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - Combustion air blower with air flow safety switch
  - Purge timer
  - High gas pressure switch
  - Low gas pressure switch
  - Two pilot safety shutoff valves with leak test stations\*
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
- **Construction**
  - $\frac{3}{16}$ " steel plate reinforced furnace shell
  - $\frac{1}{2}$ " thick steel front plate
  - Brushed stainless steel control panel face
  - Powered vertical lift door
  - Door hot side faces away from operator at all times
  - Heavy duty ceramic hearth plates supported by firebrick piers
  - 1 year limited warranty
- **Every furnace fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request  
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**BULLETIN  
FH-760**

**2200°F  
HEAVY DUTY  
ELECTRIC AND GAS  
HEAT TREATING  
FURNACES**



**MODEL HD-183618-HT ELECTRIC**

# SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Outside Dimensions* (WxDxH)	Height Door Open	Door Type	Hearth Rating Lbs‡	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft					KW	BTU/HR	Control Accuracy	Furnace Uniformity	Rise Time		
											Electric	Gas	
HD-183618-HT	18" x 36" x 18"	6.7	59" x 81" x 77"	100"	Electric	300	40	425,000	±0.3%	±25°F	180 min	140 min	4500 lbs
HD-243618-HT	24" x 36" x 18"	9	65" x 81" x 77"	100"	Electric	360	48	450,000	±0.3%	±25°F	165 min	125 min	4800 lbs
HD-243624-HT	24" x 36" x 24"	12	65" x 81" x 83"	110"	Electric	360	56	520,000	±0.3%	±25°F	155 min	120 min	5700 lbs
HD-244824-HT	24" x 48" x 24"	16	65" x 94" x 83"	110"	Electric	480	65	600,000	±0.3%	±25°F	150 min	130 min	6500 lbs
HD-304830-HT	30" x 48" x 30"	25	71" x 94" x 89"	118"	Electric	600	72	700,000	±0.3%	±27°F	165 min	130 min	7300 lbs
HD-306030-HT	30" x 60" x 30"	31	71" x 105" x 89"	118"	Electric	700	78	725,000	±0.3%	±27°F	180 min	140 min	8400 lbs
HD-364836-HT	36" x 48" x 36"	36	77" x 94" x 95"	135"	Air	750	78	800,000	±0.3%	±30°F	180 min	140 min	8600 lbs
HD-366036-HT	36" x 60" x 36"	45	77" x 105" x 95"	135"	Air	850	88	850,000	±0.3%	±30°F	180 min	150 min	9800 lbs
HD-367236-HT	36" x 72" x 36"	54	77" x 117" x 95"	135"	Air	1000	100	1,000,000	±0.3%	±30°F	180 min	150 min	10500 lbs
HD-484836-HT	48" x 48" x 36"	48	89" x 94" x 95"	135"	Air	925	90	915,000	±0.3%	±30°F	180 min	150 min	9500 lbs
HD-484848-HT	48" x 48" x 48"	64	89" x 94" x 107"	159"	Air	1100	110	1,100,000	±0.3%	±33°F	165 min	130 min	10500 lbs
HD-487248-HT	48" x 72" x 48"	96	89" x 116" x 107"	159"	Air	1600	158	1,500,000	±0.3%	±35°F	140 min	120 min	13500 lbs

\*All Models—Control panel overhang 9" right side.  
Gas Models—Combustion blower overhang 36" rear.  
Electric Models—Transformer overhang 24" rear.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty furnace. Performance will vary with load and application. See Bulletin TC-920 for additional details.

‡Uniformly distributed.

## STANDARD EQUIPMENT

### ● All Models

- 208 volts, 3-phase, 60 Hz
- 230 volts, 3-phase, 60 Hz
- 460 volts, 3-phase, 60 Hz
- Other electrical characteristics available

Wall and floor insulation, 11" thick, consisting of:

- 4½" of 2600°F insulating firebrick
- 2½" of 2300°F insulating firebrick
- 4" of 1900°F, 18½ lbs/cf block insulation

Roof insulation, 10" thick, consisting of:

- 2" of 2600°F, 8 lbs/cf ceramic fiber blanket
- 8" of 2300°F, 8 lbs/cf ceramic fiber blanket

Furnace shell is made of 3/16" thick steel plate reinforced with structural steel. Doorsill constructed from firebrick to protect furnace during loading. Ceramic hearth plates are 2" thick and supported by firebrick piers. Soft insulation on door provides an excellent heat seal by pressing against the vestibule refractory and the ½" thick steel front plate. Exterior painted with Trilite Green enamel.

Each features completely wired, side access UL listed control panel assembled on the furnace enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights.

### ● Electric Models

Safety devices as listed on the front of this bulletin. Heating element contactors electrically interlocked with door to shut off power to heaters as door opens and restore power when closed. Heating elements located at sides, rear and under hearth. High temperature alloy rod overbend heating elements hanging from the vertical walls by "J" hooks. Rear mounted power transformer feeding low voltage heating elements.

### ● Gas Models

- 1,000 BTU natural gas at 2 psig pressure;
- 1" NPT inlet up to 800,000 BTU/HR
- 1¼" NPT 850,000 to 1,100,000 BTU/HR
- 1½" NPT at 1,500,000 BTU/HR
- Other gas characteristics available

Safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burners fire beneath hearth from opposing sides to circulate heated air through the work space. Gas burners protected with electronic flame safety relay. Door interlock switch drives main burners to low fire when door is opened and restores control when door is closed.

### ELECTRIC DOOR

Door pivots upward above furnace, clearing front for easy loading. In the closed position, full door weight seats door firmly against furnace face. Structural steel pivot arms are supported at furnace sidewalls by bearings and connected to a heavy duty electromechanical actuator. The door is controlled by a switch at the furnace control panel.

### AIR DOOR

Door rises vertically in front of the furnace hanging from heavy duty roller chain, sprockets, shaft and pillow block bearings. In the closed position, rollers at the sides of the door engage support brackets to force the full door weight against the furnace face. Large diameter air cylinder rotates support shaft to lift the door. The door is controlled by a manual air valve with supply filter, lubricator and regulator. Requires 60 psig compressed air.

## ADDITIONAL EQUIPMENT AVAILABLE\*

● **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . . **PTC3**

● **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . . **RT**

● **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . . **DTSS**

● **Digital Shut Down Timer**, with continuous "hold" feature . . . . . **SDT**

● **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . . **BT**

● **Alloy Hearth Tray**, made of heat resisting high temperature alloy, for protecting ceramic hearth plates from impact and heavy loading . . . . . **AH**

● **Inert Atmosphere Construction**, electric only, includes continuously welded shell, inert atmosphere gas inlet and outlet, high temperature door gasket, sealed terminal boxes, optional forced cooling systems are available at additional cost . . . . . **IAC**

● **Inert Atmosphere Inlet Piping**, with indicating flow control and manual gas valve. Specify atmosphere . . . . . **IAIP**



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\*See Bulletin TC-960 for modifications and other optional equipment.






# Pit Furnaces

Grieve standard 2000°F Pit Furnaces are used for a variety of heat treating applications including those requiring inert atmospheres where overhead handling equipment is used. Full opening door exposes entire work space for easy loading. Precision microprocessor based temperature controls and energy-saving insulation maximize the cost efficiency and performance of these rugged units. Nine standard models from 3 to 45 cubic feet built for long, hard, continuous use. Ideal for severe service applications - load capacities to 1200 lbs.

## STANDARD FEATURES

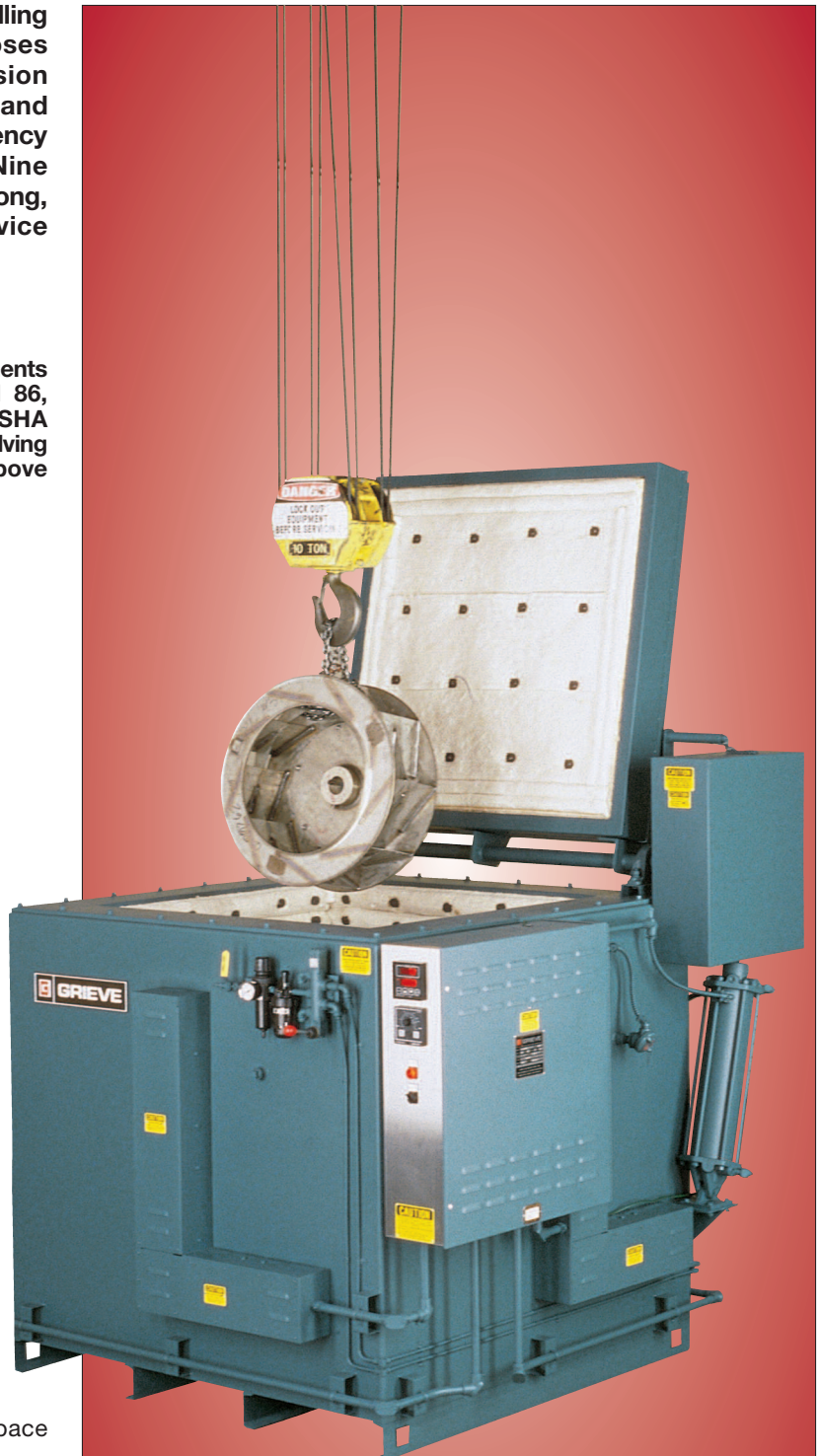
-  **UL LISTED CONTROL PANEL**
- Standard Pit Furnaces from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving special atmospheres or hazardous locations, the above organizations require additional safety devices.
- **Controls**
  - Digital, microprocessor based, thermocouple actuated, indicating temperature controller
  - Modulating burner on gas furnaces
  - Motor control push buttons and on-off heat switch
  - LED pilot light
- **Safety Equipment—Electric Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Separate heating element control contactors
  - Door interlock switch turns off power to heating elements when door is opened; restores power when door is closed
- **Safety Equipment—Gas Furnace**
  - Adjustable, thermocouple actuated, manual reset excess temperature interlock
  - Electronic flame safeguard protection
  - Combustion air blower with air flow safety switch
  - Purge timer
  - High and low gas pressure switches
  - Two pilot safety shutoff valves with leak test stations
  - Two main safety shutoff valves with leak test stations\*
  - Valve position indicator on main safety shutoff valves
  - Over 400,000 BTU/HR safety shutoff valve interlocked with purge timer
- **Construction**
  - $\frac{3}{16}$ " steel plate reinforced furnace shell
  - $\frac{1}{2}$ " thick steel top plate
  - Brushed stainless steel control panel face
  - Powered rear hinged door
  - Energy-saving lightweight ceramic fiber insulation reduces operating costs
  - Insulating refractory floor to support heavy loads
  - Excellent temperature uniformity throughout work space
  - Fast heat-up and cool-down
  - 1 year limited warranty
- **Every furnace fully assembled and individually factory tested**

\*Industrial Risks Insurers vent valve only provided at specific request  
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**BULLETIN  
PH-770**



**2000°F  
HEAVY DUTY  
ELECTRIC AND GAS  
HEAT TREATING  
PIT FURNACES**



**MODEL PT-363636 ELECTRIC**

SPECIFICATIONS

NOT FOR USE WITH FLAMMABLE SOLVENTS, VAPORS OR GASES.

Model	Work Space		Outside Dimensions* (WxDxH)	Height Door Open	Door Type	Hearth Rating Lbs‡	Heat Input		Operating Characteristics†				Approx Shipping Weight
	Dimensions (WxDxH)	Volume Cu Ft					KW	BTU/HR	Control Accuracy	Furnace Uniformity	Rise Time		
											Electric	Gas	
PT-181818	18" x 18" x 18"	3.4	59" x 54" x 54"	69"	Electric	250	15	165,000	±0.3%	±25°F	75 min	65 min	1550 lbs
PT-181824	18" x 18" x 24"	4.5	59" x 54" x 60"	75"	Electric	300	18	200,000	±0.3%	±25°F	75 min	55 min	1650 lbs
PT-242424	24" x 24" x 24"	8.0	65" x 60" x 60"	81"	Electric	430	26	285,000	±0.3%	±25°F	60 min	45 min	2050 lbs
PT-242430	24" x 24" x 30"	10	65" x 60" x 66"	87"	Electric	500	30	330,000	±0.3%	±25°F	60 min	45 min	2200 lbs
PT-303030	30" x 30" x 30"	16	71" x 66" x 67"	93"	Electric	600	36	400,000	±0.3%	±25°F	60 min	45 min	2700 lbs
PT-303036	30" x 30" x 36"	19	71" x 66" x 73"	99"	Electric	700	39	425,000	±0.3%	±25°F	65 min	45 min	2900 lbs
PT-363636	36" x 36" x 36"	27	77" x 72" x 74"	106"	Air	900	52	575,000	±0.3%	±30°F	50 min	40 min	3500 lbs
PT-363648	36" x 36" x 48"	36	77" x 72" x 86"	118"	Air	1050	62	675,000	±0.3%	±30°F	50 min	40 min	3950 lbs
PT-363660	36" x 36" x 60"	45	77" x 72" x 98"	130"	Air	1200	72	800,000	±0.3%	±30°F	50 min	40 min	4400 lbs

\*All Models—Control panel overhang 9" right side.  
Gas Models—Outside depth increases by 10".  
Combustion blower overhang 36" rear.

†Accuracy as percent of controller span. Uniformity at 100°F below maximum temperature. Rise Time in minutes to 100°F below maximum temperature. Tests run with empty furnace. Performance will vary with load and application. See Bulletin TC-920 for additional details.

‡Uniformly distributed.

STANDARD EQUIPMENT

● **All Models**

—208 volts, 3-phase, 60 Hz  
—230 volts, 3-phase, 60 Hz  
—460 volts, 3-phase, 60 Hz  
—Other electrical characteristics available

Wall insulation, 9" thick, consisting of:  
—5" of 2300°F, 8 lbs/cf ceramic fiber blanket  
—4" of 1900°F, 4 lbs/cf ceramic fiber blanket

Floor insulation, 6" thick, consisting of:  
—4" of 2300°F insulating castable  
—2" of 1900°F, 18½ lbs/cf block insulation

Furnace shell is made of 3/16" thick steel plate reinforced with structural steel. Powered door supported at rear by heavy duty shaft and pillow block bearings. Open door exposes entire work space for easy loading. Floating door construction provides excellent heat seal by pressing soft insulation against 1/2" thick steel top plate. Exterior painted with Trilite Green enamel.

Each features completely wired, side access UL listed control panel assembled on the furnace enclosing terminals for incoming power, temperature controllers, push buttons and pilot lights.

● **Electric Models**

Safety devices as listed on the front of this bulletin. Heating element contactors electrically interlocked with door to shut off power to heaters as door opens and restore power when closed. High temperature alloy wire heating elements supported in vacuum cast ceramic fiber. Heating elements located at four side walls.

● **Gas Models**

—1,000 BTU natural gas at 2 psig pressure;  
1" NPT inlet up to 800,000 BTU/HR  
1¼" NPT 850,000 to 1,000,000 BTU/HR  
—Other gas characteristics available

Safety devices as listed on the front of this bulletin. Automatic pre-ignition purge period and push button electric ignition contributes to ease of operation. Modulating gas burners fire from opposing sides to circulate heated air through the work space. Gas burners protected with electronic flame safety relay. Door interlock switch drives main burners to low fire when door is opened and restores control when door is closed.

**ELECTRIC DOOR**

Door pivots upward above furnace, clearing top opening for easy loading. In the closed position, full door weight seats door firmly against furnace top plate. Structural steel pivot arms supported on furnace top plate by rugged pillow blocks are connected to a heavy duty electromechanical actuator. The door is controlled by a switch at the furnace control panel.

**AIR DOOR**

Door pivots upward above furnace, clearing top opening for easy loading. In the closed position, full door weight seats door firmly against furnace top plate. Structural steel pivot arms supported on furnace top plate by rugged pillow blocks are connected to a large diameter air cylinder. The door is controlled by a manual air valve with supply filter, lubricator and regulator. Requires 60 psig compressed air.

ADDITIONAL EQUIPMENT AVAILABLE\*

- **Programmable Temperature Controller**, microprocessor based, digital indicating, thermocouple actuated, in lieu of standard controller . . . . .**PTC3**

● **Recording Thermometer**, thermocouple actuated, 24-hour, 10" diameter circular chart used in conjunction with standard controller . . . . .**RT**
- **Digital Timing Temperature Controller**, microprocessor based, digital indicating, incorporates 99 hour 59 minute timer, starts timing when temperature reaches set point and shuts down oven at end of set time . .**DTS3**

● **Digital Shut Down Timer**, with continuous "hold" feature . . . . .**SDT**

● **Digital Batch Timer**, for uniformly timing batch operations. Continuous alarm with door interlock; alarms at end of preset time period until door is opened or timer reset . .**BT**
- **Inert Atmosphere Construction**, available on electric furnaces only, includes continuously welded furnace shell, inert atmosphere gas inlet and outlet, sealed terminal boxes, high temperature door gasket . . . . .**IAC**

● **Inert Atmosphere Inlet Piping**, with indicating flow control/meter and gas valve. Specify atmosphere . . . . .**IAIP**

● **High Temperature Construction**, 2200°F maximum operation temperature, 9" thick insulation . . . . .**HTC**

\*See Bulletin TC-960 for modifications and other optional equipment.





# Control & Instrumentation

To help in selecting the most suitable equipment for your application, the operating characteristics of our ovens and furnaces are shown on their product bulletins. This bulletin more completely defines and explains these operating characteristics and their use as a guideline for equipment selection.

## ● Control Accuracy

Temperature controllers have many different accuracy ratings for features such as set point, display, repeatability and calibration. For the purpose of our product bulletins, we have defined control accuracy as the ability of the temperature controller to maintain a constant temperature, by altering heat input, at the point in the equipment where the temperature is being sensed. For this reason, we have chosen the manufacturer's published accuracy rating of the temperature controller that would most affect the stability of temperature at this sensing point.

Product bulletins for equipment using non-electronic temperature controllers such as bi-metallic or fluid filled thermostats, list the control accuracy in degrees. In these cases, the control accuracy gives an indication of the maximum amount of cyclic variation which could be seen at the sensing point.

For electronic temperature controllers, the control accuracy on the product bulletins is shown as a percent of the span and is a comparison of the temperature at the sensing point to a calibration source. The span of the temperature controllers is typically 900°F, 1600°F or 2400°F, depending on the maximum



operating temperature of the equipment. In most instances, the temperature fluctuation due to the electronic temperature controller is dwarfed by other system characteristics affecting temperature uniformity such as loading, exhaust rate and available heat input.

Equipment with heat input most closely sized to requirements will show the least fluctuation at the sensing point. Very large heat input (most often encountered in gas or steam heated equipment), can result in a large addition of heat input to the system before the temperature controller can react. This effect is minimized in gas and steam heated equipment by modulating the heat input rather than turning it on and off. Electric ovens with large heat input can minimize this effect by the installation of an SCR power controller. See the reverse side of this bulletin for additional information.

Temperature controller accuracy is based on tests performed by the temperature controller manufacturer with published results. This is only one of the many specifications published by the temperature controller manufacturer. Complete temperature controller specifications are available upon request.

## ● Temperature Uniformity

Temperature uniformity is listed in degrees. This is a measurement of the distribution of heat within the oven work space. This data is the result of actual tests run in a stabilized empty oven with a minimum of nine thermocouples—eight thermocouples located at the corners of the work space and one in the center of the work space. The corner thermocouples are placed 2" to 12" from the work space edges (based on the size of the equipment) to be representative of the useable work space. Temperature uniformity will normally improve as the operating temperature is lowered. Other factors may affect temperature uniformity adversely.

Blocking the air flow within the work space will adversely affect the distribution of heated air and, therefore, the temperature uniformity. Care must be taken to pick equipment with a recirculated air flow pattern suited to the product loading.

Temperature uniformity tests have been run with minimal exhaust from the equipment. Heat input that is required to offset a large

exhaust rate can be compensated for by increasing heat input. However, a large exhaust rate can have a detrimental effect on temperature uniformity. Hot air exhausted must be replaced with cooler fresh air. The fresh air is heated by being recirculated through the heat source. The larger the exhaust rate, the less the fresh air is mixed before being exhausted. This will result in non-uniform temperatures in the recirculated air flow.

If tight temperature uniformity is required with a large exhaust rate, it may be necessary to increase the size of the recirculating blower in the equipment. Those applications which will require large exhaust rates should be discussed with our sales engineers.

In furnaces, where the heat transfer is by radiant heat, high temperature fans can be added to the equipment or the heating elements zoned within the work space to improve temperature uniformity. These applications should be discussed with a factory sales engineer.

## ● Rise Time

The time required to heat oven air to set point (rise time) is a measure of available heat input and an indication of how fast an oven may heat up. The rise time information is based on actual tests measuring the time required for temperature at the sensing point to rise from room temperature to set point.

The rise time tests were run with an empty oven and a minimum exhaust rate. Lower than design voltage on electric equipment or insufficient gas pressure on gas equipment will reduce heat input and increase rise time. Increased exhaust or heavy loads will also increase the time required to rise to set temperature.

Initially, it is necessary to heat up internal steel and insulation that surrounds the work space. Once the equipment reaches the set

temperature, additional time is required to stabilize temperatures within the oven. During this stabilization period, the insulation is heated and the temperature profile through the insulated wall will reach a steady state. As this happens, the output of the heat source will reduce from maximum to the much smaller amount required to offset the loss through the insulated walls and exhaust.

While both a high exhaust rate and a large load will increase the time to reach set point and stabilize, only the exhaust rate will increase power consumption after stabilization. Once the load is stabilized, the power consumption will be the same as for an unloaded oven.

**On the reverse side of the Bulletin, we have provided additional details on our standard digital temperature controller as well as details on the optional controls listed on our Product Bulletins. Other brands or models of instrument are also available—contact one of our sales engineers.**

# SPECIFICATIONS

Instruments have been selected to provide a full range of features at an economical price. Consideration has also been given to selecting instruments that are easy to understand and use.

We can provide full installation and configuration of any other instrument. Also, alternate control arrangements such as remote or free standing control panels are available. Please contact our sales engineers in your area.

## STANDARD DIGITAL TEMPERATURE CONTROLLER

### WATLOW PM4

- **Digital Display**, two LED, alphanumeric, 4 digit displays; 0.875" high for temperature display and 0.500" high for set point display
- **Accuracy**,  $\pm 0.1\%$  of span plus 1 degree display error



## STANDARD EXCESS TEMPERATURE INTERLOCK

### WATLOW PM6

- **Digital Display**, two LED, alphanumeric, 4 digit displays; 0.425" high for temperature display and 0.275" high for set point display
- **Accuracy**,  $\pm 0.1\%$  of span plus 1 degree display error



## PROGRAMMABLE TEMPERATURE CONTROLLER

### WATLOW F4

- **Program Parameters**, 256 steps which can be programmed into as many as 40 nameable profiles, a real time clock can be used to start profiles at any time of day
- **Digital Display**, dual 0.63" high, LED, alphanumeric 5 digit display of process variables positioned above a user configurable, four line, high definition, LCD, interface display for aid in set-up, operation of controller, and programming
- **Accuracy**,  $\pm 0.1\%$  of span plus 1 degree display error



## RECORDING THERMOMETER

### HONEYWELL DR4300

- **Record**, 10" diameter circular chart  
24 hour chart rotation (others available)
- **Digital Display**, 0.56" high, LED, alphanumeric, 4 digit display; LED status display
- **Accuracy**,  $\pm 0.25\%$  of span plus 1 degree display error



## SCR POWER CONTROLLER

Silicon controlled rectifier power controllers are completely solid state industrial controllers that insure precise proportioning of electric power to the heating elements. Oven temperature is maintained smoothly and evenly over the entire temperature range of the unit. SCR power controllers minimize maintenance, as there are no moving parts or electrical contacts to wear out. Heating element fatigue is reduced since the elements do not cool between releases of electric power. Zero voltage firing, including the first one half cycle of voltage, minimizes radio frequency and electromagnetic interference. Transient voltage suppressor networks are included and the units are provided with protective fusing.



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Specifications and descriptions above cover our standard and optional temperature controls in use at the time of printing. Selection of controls and specifications are subject to change without notice.

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# Class A Oven Equipment for Solvent Processing

OSHA requires ovens processing flammable solvents or vapors to conform to the National Fire Protection Association Standard 86. NFPA 86 defines ovens for these applications as Class A ovens. In order to keep flammable vapor concentration at safe levels, Class A ovens include specific items of additional equipment to provide safety ventilation. This additional equipment is sized based on the volume of solvent being evaporated and the maximum operating temperature.

Safety ventilation also depends on the processing method. In batch processes, where all parts heat up at the same time, the flammable vapor concentration is not constant. As the work temperature rises, the vapor concentration also rises to a peak value and then tapers off. This requires greater safety ventilation than in continuous processing where parts are heated sequentially and the vapor concentration remains constant.

Direct-fired gas ovens include Class A equipment to remove products of combustion. Combustion venting is sized at 183 standard cubic feet per minute of exhaust per 1,000,000 BTU/HR of burner rating. Depending on the amount of flammable solvent processed, a larger powered forced exhauster may be required to handle both combustion venting and safety ventilation.

Electrically-heated ovens require that the following be added:

- **Powered Forced Exhauster** to provide safety ventilation, including powered forced exhauster air flow safety switch to prove exhauster operation and shut heat down on exhauster failure.

Capacity	Carbon Steel to 850°F*			Stainless Steel Over 850°F			HP	Outlet Diameter	Height
	208V	230V	460V	208V	230V	460V			
80 CFM†	X808	X802	X804	N/A	N/A	N/A	1/8	4"	16"
130 CFM†	X1308	X1302	X1304	SX1308	SX1302	SX1304	1/3	4"	20"
325 CFM	X3258	X3252	X3254	SX3258	SX3252	SX3254	1/3	6"	23"
650 CFM	X6508	X6502	X6504	SX6508	SX6502	SX6504	1/2	6"	23"
975 CFM	X9758	X9752	X9754	SX9758	SX9752	SX9754	1	8"	23"

\* 80 CFM available up to 550°F only.

† 80 CFM and 130 CFM exhausters not available on Walk-In Ovens.  
Factory Mutual will not approve an exhauster smaller than 325 CFM capacity as they require a minimum exhauster wheel tip speed.

Larger capacity exhausters are available.

All exhausters have a damper which can be adjusted to reduce exhaust rate to the required volume.

Electric ovens equipped with an exhauster may require additional heat input to offset exhaust heat loss—please consult factory.

- **Purge Timer** to provide time period of sufficient duration to exhaust four oven volumes of fresh air prior to turning the heat on.....PT

Sizing of safety ventilation and the resulting heat loss is explained on the reverse side of this bulletin. This information is based on NFPA Standard 86 and subject to changes in this standard. All flammable solvent processing applications should be reviewed by the factory.

# SIZING SAFETY VENTILATION AND HEAT LOSS

Safety ventilation exhaust provides a supply of fresh air to ensure that the flammable vapor concentration in the oven remains below the Lower Flammable Limit (LFL) at all times. When more than one flammable solvent is present, safety ventilation is based on the solvent requiring the greatest amount of ventilation.

Direct-fired gas heated ovens require combustion venting which must be added to the safety ventilation exhaust rate.

Combustible solids or substrates do not require safety ventilation unless flammable constituents are released when these materials are heated. Powder coating curing ovens require safety ventilation to be calculated as though 9% of the powder weight is being evaporated as the flammable solvent Xylene.

Exhaust rates must be corrected for maximum operating temperature. As oven operating temperature increases, greater exhaust is required to compensate for the decrease in air density. Similarly, at altitudes over 1000 feet, the exhaust rate must be increased to compensate for lower air density.

Examples of actual calculations can be found in NFPA 86. Estimated safety ventilation exhaust rate and heat loss can be scaled from charts shown below.

## ● Batch Processing

For batch oven applications below 250°F, the safety ventilation exhaust rate must be sized at a rate of 440 standard cubic feet per minute for each gallon of solvent introduced into the oven in a batch. Between 250°F and 500°F, this exhaust rate must be increased by a multiplier of 1.4. Above 500°F, the 1.4 multiplier is not appropriate and a correction factor must be determined by tests run by the solvent manufacturer.

In addition, for solvents where the volume of air necessary to render 1 gallon of solvent barely explosive exceeds 2640 standard cubic feet, the exhaust rate must be increased. The increase is made by multiplying by a factor created by taking the volume of air necessary to render 1 gallon of solvent barely explosive and dividing it by 2640 standard cubic feet.

Safety ventilation and heat loss for a batch process can be estimated using the chart below. This chart shows the exhaust rate and heat loss for 0.1 gallon of solvent. The data is based on a solvent with LFL of 2640 standard cubic feet and on an installation located below 1000 feet in altitude.

Batch Processing 0.1 Gallon Per Batch

Oven Temperature	Batch Exhaust CFM	Heat Loss	
		KW	BTU/HR
100	46	0.4	1435
150	51	1.1	3827
200	55	1.8	6219
250	83	3.5	12,056
300	88	4.5	15,405
350	94	5.5	18,754
400	100	6.5	22,103
450	106	7.5	25,452
500	112	8.4	28,800

## ● Continuous Processing

For continuous processing ovens, the safety ventilation exhaust rate must be sized to keep the concentration of solvent in the oven atmosphere below 25% of the Lower Flammable Limit (LFL) after the LFL has been corrected for operating temperature.

The specific gravity and vapor density of the solvent are used to determine the gallons of vapor created by 1 gallon of evaporated solvent. Combining this information with the Lower Flammable Limit determines the air volume rendered barely explosive when 1 gallon of solvent is evaporated. This is multiplied by a factor of 4 to limit the vapor concentration to 25% of the Lower Flammable Limit.

The safety ventilation exhaust rate is obtained by multiplying this volume by the number of gallons of solvent evaporated per minute.

Safety ventilation and heat loss for a continuous process can be estimated using the chart below. This chart shows the exhaust rate and heat loss for 0.1 gallon of Xylene. Xylene has specific gravity of 0.88 (Water = 1) and vapor density of 3.7 (Air = 1). The Lower Flammable Limit by volume is 0.9%. The amount of air rendered barely explosive per gallon evaporated is 2899 standard cubic feet. The calculated exhaust required per gallon of Xylene evaporated in continuous processing is 193 standard cubic feet per minute.

Continuous Processing 0.1 Gallon Per Hour

Oven Temperature	Continuous Exhaust CFM	Heat Loss	
		KW	BTU/HR
100	21	0.2	638
150	23	0.5	1742
200	26	0.8	2897
250	28	1.2	4107
300	31	1.6	5375
350	34	2.0	6707
400	37	2.4	8107
450	40	2.8	9580
500	43	3.3	11,132



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# Modified Equipment

## MODIFICATIONS AND OPTIONAL EQUIPMENT

- **Size and Configuration** of equipment can be altered for special applications including:

- Modified work space dimensions
- Left hand construction
- Multiple door openings or chambers
- Doors front and rear
- Powered vertical lift doors
- Revised air heater location
- Alternative recirculated air flow patterns

- **Material Handling Equipment** can be provided including:

- Special loading trucks and shelves
- Roller conveyor or roller rail hearth
- Roller conveyor shelves
- Powered roller conveyors
- Motorized car bottoms
- Rotary hearth
- Rotisserie
- Multiple drawer assemblies

- **Heat Input**, other than electric resistance or direct gas, can be provided including:

- Indirect gas
- Direct Oil
- Combination gas/oil
- Steam heated
- Steam injection with humidity control



- **Construction Changes** are available including:

- Body reinforcement for heavy loads
- Loading shelf reinforcement
- Special materials such as stainless steel, Incoloy or Inconel
- Filtration
- Special exterior paint
- JIC or other electrical requirements
- Remote or free standing control panels

- **Designs** other than those shown in our catalog are available including:

- Bell ovens and furnaces to be lowered over the work load
- Air heaters to be used as sources of heated air
- Tunnels for use with existing conveyor systems
- Cooling stations or zones

OPTIONAL EQUIPMENT

- **Digital Program Timer**, weekly/yearly timer to start and stop equipment. . . . . **7DAY**
- **Audible Alarm**, with silence button interlocked with timer or other control. . . . . **ALRM**
- **Auto Restart Circuit**, to restart oven after brief power outage, includes Audible Alarm . . . . . **ARC**
- **Circuit Breaker Disconnect Switch**, installed through control panel door . . . . . **FD**



- **Viewing Window**, 8" x 10" double pane installed in door:  
Double pane Pyrex up to 700°F . . . . . **PPW**  
Double pane Pyrex/Vycor up to 1050°F . . . . . **PVW**
- **Interior Oven Light**, including on-off switch at control panel:  
Up to 700°F. . . . . **L650**  
Up to 1050°F provides exterior light to shine through window into oven. . . . . **L1000**

- **Pipe Port**, with cap, 3/4" NPT, installed through wall or door:  
Carbon steel . . . . . **PPC**  
304 stainless steel. . . . . **PPS**
- **Cable Port**, 3" diameter with internal and external slide damper:  
Aluminized steel . . . . . **CPA**  
304 stainless steel . . . . . **CPS**
- **Work Space Thermocouples**, installed through wall to monitor local work space temperature . . . . . **WST**



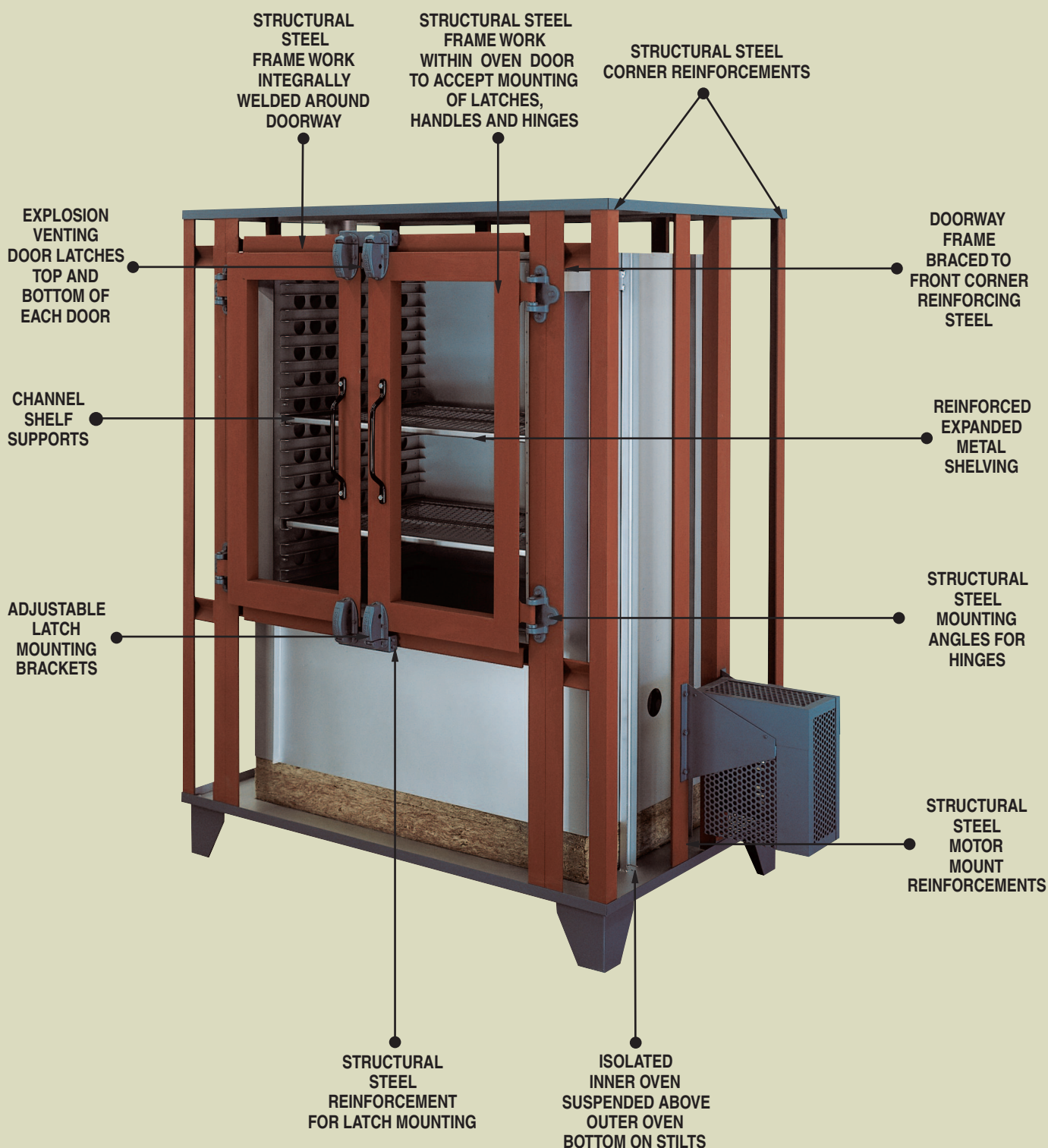
- **Dampers**  
2-position damper on fresh air inlet or exhaust outlet; requires temperature controller alarm output or timer output to select damper position . . . . . **OTPD**  
Modulating damper on fresh air inlet or exhaust outlet; requires current output temperature controller to control damper position . . . . . **OMD**
- **Disposable Fresh Air Filter**, 20" x 20" x 1" in housing covering fresh air inlet . . . . . **FHA**
- **HEPA Fresh Air Filter**, 24" x 24" x 6" , with prefilter, in housing covering fresh air inlet . . . . . **HFA**

- **Combustion Air Filter**, installed on gas burner combustion air inlet . . . . . **CAF**
- **Brake Motor**, on recirculating blower used with automatic door switch to rapidly stop recirculating blower when door is opened . . . . . **MAG**
- **Export Crating**, full wooden crate constructed with EU certified lumber, wooden decked skid, vacuum packing with MIL-131-B Class 1 vapor barrier and desiccant, internal blocking and bracing of equipment, external steel strapping, stenciled export markings with shipment destination . . . **EXPT**





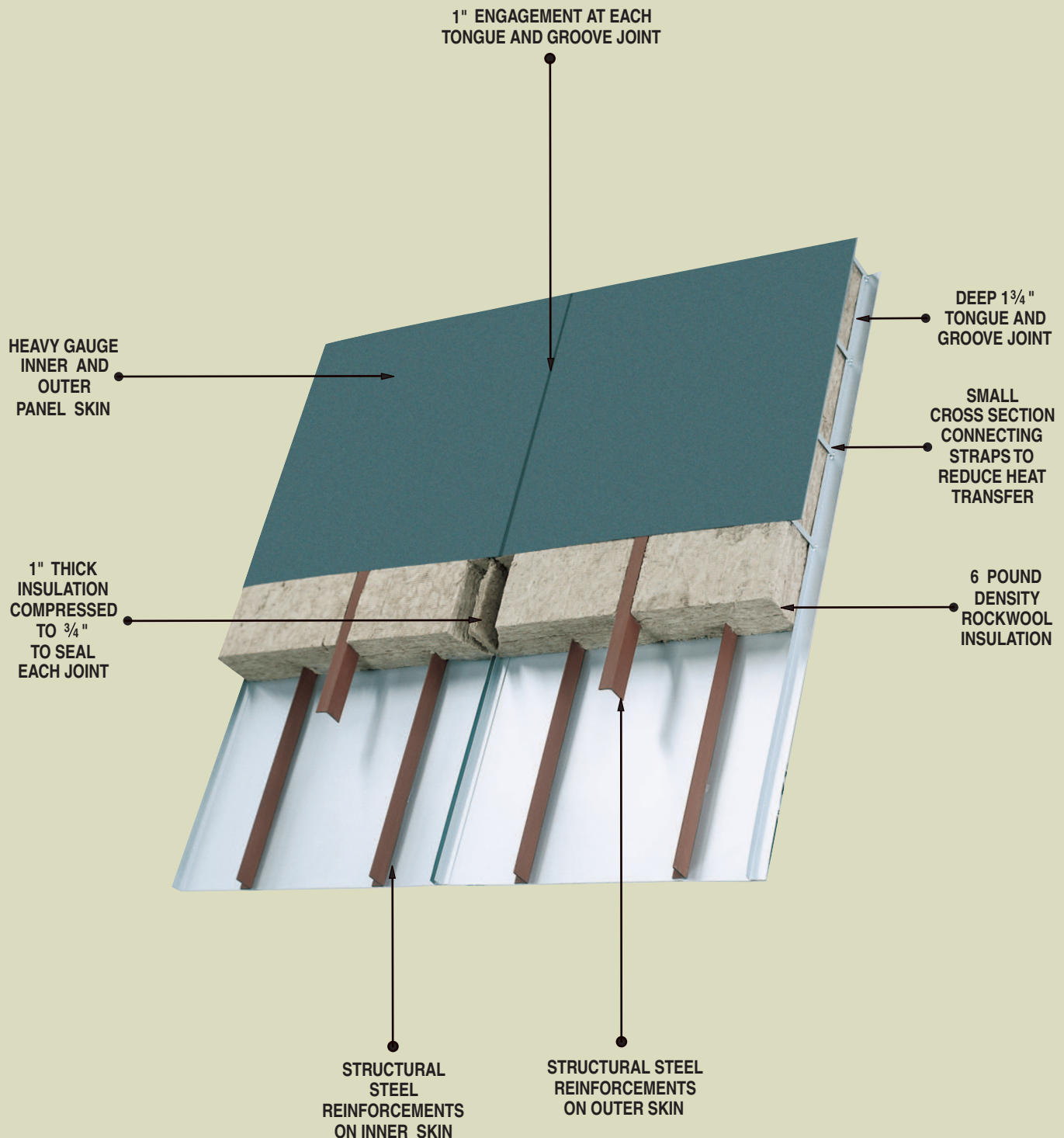
# Cabinet Construction



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# Panel Construction

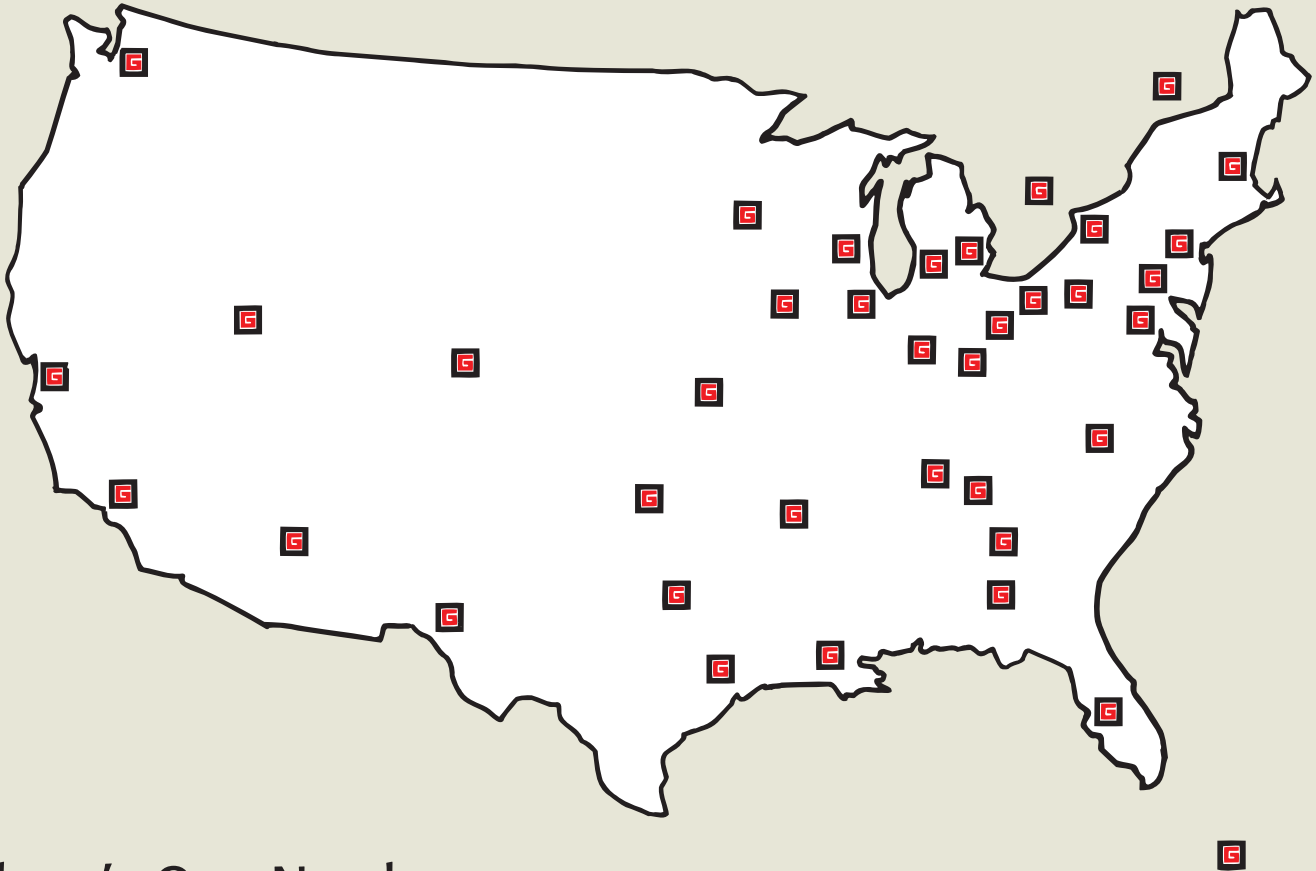


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## The Grieve Representative... A Local Business Working For You



### There's One Nearby

One more good reason to do business with Grieve is our national network of experienced sales representatives. They are factory trained and many of them have been with us for more than 25 years.

In addition to Grieve ovens and furnaces, our representatives handle other equipment you need. They call on you often and have a vested interest in serving your company. Moreover, each is a local business with a long-standing investment in your area. They won't get transferred next week or next year. So, you have the added assurance your Grieve representative will be there when needed.

Local representation, factory training and allied product lines all add up to make the Grieve sales representative network a winning team.



## The Grieve Corporation... Continuity of Quality

We started out in 1949 with one goal in mind...to create a line of industrial heat processing equipment our customers could believe in.

Today, while much at Grieve has changed, our commitment to that goal is steadfast.



The Grieve Corporation's Round Lake, Illinois 100,000 square foot facility, housing corporate headquarters, sales, engineering, research and manufacturing.

At Grieve, you'll find quality at each and every step of the design and manufacturing process. With CAD/CAM/CAE design equipment and ever-improving manufacturing procedures, we make the very best ovens and furnaces possible.

How do Grieve ovens perform in the most difficult test...the rough and tumble of the real world? Extremely well. Each unit is built to withstand years of constant operation.

Nonetheless, if some problem happens to arise, you'll be pleased to know that Grieve has always maintained complete customer and job information on every unit we've ever built. We never retire a job file, so you know we'll always have the facts on hand should you need a replacement part.

Most important, are the people of Grieve. Our office staff, engineers, manufacturing and shipping personnel are all dedicated to your continued satisfaction.

Ovens and furnaces for which there simply are no equals...Grieve.



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