L&L Special
FURNACE CO, INC

GS SERIES

2350° F (1287°C) LABORATORY, GLASS & HEAT TREATING BENCH FURNACES

The GS 1714 and GS 2026 Bench Furnaces are excellent general-purpose box furnaces. The spring-loaded vertical door makes loading and unloading effortless. Elements are located uniformly around the sides, top and bottom. A program control allows up to six programs to be stored. Standardized production makes the price and value of this furnace remarkable. They are used for heat treating, tempering, annealing, solution heat treating, glass fusing, glass and quartz annealing, ceramics, enameling and many other applications.

Model GS2026 shown above with industrial 480 volt option

Model GS1714 shown above

FEATURES

UNIQUE DYNAGLOW ELEMENT HOLDERS

Elements provide easier maintenance and more efficient firing of the kiln, and help prevent dusting. They won't fall out of the roof.

2,350°F (1,287°C) MAXIMUM TEMPERATURE

Use for heat treating, tempering, annealing, solution heat treating, glass, ceramics, enameling and many other applications.

DYNATROL PROGRAM CONTROL INCLUDED
Six programs with eight segments each (two programs can be linked for a total of 16 segments).

SHEATHED THERMOCOUPLE INCLUDED

ELEMENTS ON TOP, BOTTOM AND SIDES RESULT IN TIGHT GRADIENT UNIFORMITY
A nine-point temperature uniformity survey demonstrated better than +/- 7-1/2°F (a total variation of 15°F) from corner to corner in the chamber from 500°F to 2,000°F.

COUNTERBALANCED VERTICAL DOOR
Lift easily with one hand. Air-cooled handle stays cool to touch.

SLOT IN DOOR
There is a 1-1/2" wide by 2-1/2" high slot in the bottom of the door. You can work through the slot while opening and closing the door. Includes removable insulated plug with a handle. The slot is approximately 3/4" above the hearth plate.

BENCH MOUNTED ON HEAVY-DUTY BASE
The bench mounted case is constructed of CNC precision punched and welded heavy gauge steel. It is painted with a tough, baked-on epoxy powder coating.

CERAMIC HEARTH PLATE INCLUDED
Hearth sizes shown in table below.

COATED HARDENED FIREBRICK REDUCES DUSTING
We coat our firebrick with a proprietary reflective ceramic coating that penetrates, binds and hardens the surface of the entire interior of the kiln.

FIREBRICK & BACKUP MULTILAYERED INSULATION
3" firebrick on top (for extra strength), 2-1/2" on other surfaces. Brick is backed up with 2" of mineral wool. It only takes about 850 watts to maintain temperature at 2,000°F. Backup insulation keeps case relatively cool to touch.

MULTI-VOLTAGE MAKES IT EASY TO HOOK UP
Furnace will operate on any single-phase voltage, from 200 volts to 240 volts, 50 Hz or 60 Hz. Truly a universal machine.

DOOR CUT OFF LIMIT SWITCH
Turns power off when door opens.

ON/OFF TOGGLE SWITCH AND CONTROL FUSE

POWER PLUG INCLUDED FOR GS1714 ONLY
30-amp NEMA 14-30 four-prong plug with ground and neutral (typical dryer cord). Neutral is not used.

PACKAGING FOR COMMON CARRIER SHIPMENT
Packed in a protective skidded carton with EPS Styrofoam packaging for trouble-free common carrier shipment.

OPTIONS
- Kiss Software (remote control and data-logging)
- Microprocessor based 1/16 DIN program control and High Limit Control
- Bartlett Overtemperature Control and backup contactor system with separate thermocouple
- Angle Iron Stand for 40" hearth height
- Vent System
- Extra Ceramic Shelves
- Extra Posts (1/2", 1", 2", 4", 6", 8", 10")

<table>
<tr><th>SPECIFICATIONS</th><th>GS 1714</th><th>GS 2026</th></tr>
<tr><td>Power Supply Required</td><td>30 Amp, Fuse 30 Amps, 14-30P cord supplied (neutral not used)</td><td>Direct Hookup, No Cord Supplied - **</td></tr>
<tr><td>Multi Voltage - operate on any single phase voltage from 200 volts to 240 volts, 50 Hz or 60Hz</td><td>At 240 Volts: 6000 Watts, 25.0 Amps
At 220 Volts: 5042 watts, 22.9 Amps
At 208 Volts: 4507 watts, 21.7 Amps
At 200 Volts: 4167 watts, 20.9 Amps</td><td>At 240 Volts: 11,500 watts, 50.1 Amps
At 220 Volts: 9667 watts, 43.9 Amps
At 208 Volts: 8640 watts, 41.5 Amps
At 200 Volts: 7990 watts, 39.9 Amps</td></tr>
<tr><td>Firing Capacity Max Load</td><td>1.71 cubic feet
2958 cubic inches
0.048 cubic meters
125 Pounds Max Load</td><td>4.82 cubic feet
8320 cubic inches
0.136 cubic meters
200 Pounds Max Load</td></tr>
<tr><td>Interior</td><td><table><tr><th>Width</th><th>Height</th><th>Length</th></tr><tr><td>17"</td><td>12"</td><td>14 1/2"</td></tr><tr><td colspan="3">Hearth Plate</td></tr><tr><th>Width</th><th>Height</th><th>Thick</th></tr><tr><td>16"</td><td>13"</td><td>5/8"</td></tr></table></td><td><table><tr><th>Width</th><th>Height</th><th>Depth</th></tr><tr><td>20"</td><td>16"</td><td>26"</td></tr><tr><td colspan="3">Hearth Plate</td></tr><tr><th>Width</th><th>Height</th><th>Thick</th></tr><tr><td>18"</td><td>24"</td><td>3/4"</td></tr></table></td></tr>
<tr><td>Exterior</td><td><table><tr><th>Width</th><th>Height</th><th>Length</th></tr><tr><td>26"</td><td>32"</td><td>34"</td></tr><tr><td colspan="3">Height with door open is 45" tall</td></tr></table></td><td><table><tr><th>Width</th><th>Height</th><th>Length</th></tr><tr><td>30"</td><td>35 1/4"</td><td>44 1'4"</td></tr><tr><td colspan="3">Height with door open is 57" tall</td></tr></table></td></tr>
<tr><td>Shipping Dimensions Weight and Class:</td><td>44" by 44" x 40" high. Shipped in a skidded carton. Ship Weight: 375 lbs. Shipping class is 85</td><td>44" by 44" x 40" high. Shipped in a skidded carton. Ship Weight: 600 lbs. Shipping class is 85</td></tr>
<tr><td colspan="2">* GS1714 Working interior height is reduced to 10" by the hearth and standoffs.
GS2026 Working interior height is reduced to 12" by the hearth and standoffs.</td><td>Dimensions are in inches. Weight is in pounds.
Specifications are subject to change without notice.</td></tr>
<tr><td colspan="3">** 200,208,220 & 240 volts/1 phase is stocked. 3 phase is optional for GS2026 only.</td></tr>
</table>

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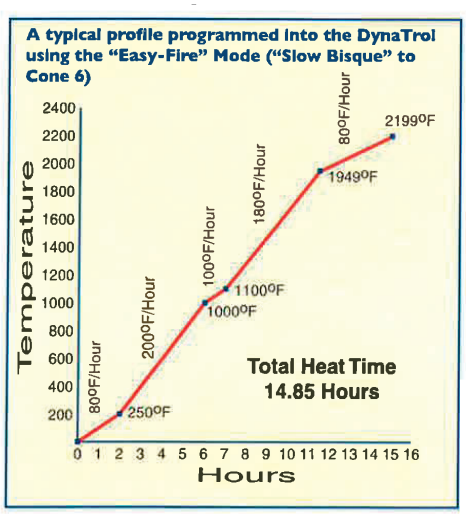
L&L Special FURNACE CO, INC

THE DYNATROL PROGRAM CONTROL

Four "Easyfire" Preset Firing Profiles Make it easy to fire ceramics. Even people who are shy of programming can work with this control. Slow Bisque, Fast Bisque, Slow Glaze and Fast Glaze all have time-proven profiles for the vast majority of ceramic firing. Just enter cone number and optional delay time, soak time, candling time and alarm.



Six User-Defined "Varyfire" Profiles Allow you to have six separate repeatable stored programs with up to eight segments (cooling or heating ramps, temperature set point and an optional hold time per segment). The DynaTrol allows you to soak at a low temperature for a long time (i.e., you can have an automatic drying period) and then automatically ramp up to your high fire at different rates. You can ramp slowly through critical periods or soak at endpoint temperatures for more consistent maturing of work. It also allows a controlled cooldown to avoid heat shock. You can link two of these profiles to make one 16-segment program.

Delay Start By up to 99 hours, 99 minutes. Allows you to plan end of firing conveniently. This can also be useful for saving energy costs by firing kiln with night electric rates. This is a feature that could become very important.

Candle Low-temp soak at 150°F for up to 99 hours, 99 minutes to dry ware thoroughly. This feature can keep your pots from blowing up (water expands 1,170 times when it turns to steam).

Soak Final set point for up to 99 hours, 99 minutes. Soaking can dramatically improve firing results. It is hard to do on a manual kiln. Points to your real firing experience.

PID Tuning Control Sophisticated mathematical functions in the control work behind the scenes to minimize temperature overshoot.

Thermocouple Offset Allows you to individually bias thermocouples to adjust for thermocouple drift or kiln uniformity adjustments.

Cone Offset Allows you to match the "EasyFire" cone set.

Adjustable Lag Adjusts the allowable differential between zones from 5°F to 99°F. This gives you control over the tradeoff between speed of firing and zone uniformity. A feature called "Autolag", which can be turned on or off, automatically turns off the Lag until the critical part of the firing. This speeds up the firing process.

Program Review See the entire program before or while running it.

Segment Review Lets you review the segment you are on. Also shows you what your current set point is during the program as it is changing.

Audible Temperature Alarm Can alert you at any point in program. For instance, the control can alert you that the kiln is close to maturity so you can watch it reach final set point or use it to tell you when to turn off the vent.

Change of Program During Firing Make adjustments as needed.

Last Temperature Reached Shown at end of EasyFire program.

Cone/Temperature Equivalent Look Up Table Convert cone numbers to degrees.

Dust-Sealed Panel Graphically numeric keypad makes programming easy.

Error Checking Can be turned off. Error checks include stopping program if kiln is rising too slowly or if one zone is 100°F off set point, as well as other error checks.

Automatic Restart After brief power interruption with alert. Control logic determines whether it is better to continue or shut down.

Thermocouple Burnout Protection Kiln will shut down automatically if all thermocouples burn out. It continues to fire if one or two thermocouples burn out.

Digital Indication See temperature in either degrees F or C. You can scroll through all three thermocouple readings to see what each zone is doing.

Cold Junction Compensation Automatically compensates for varying ambient temperatures to make control more accurate. Control can operate in ambient temperatures of 32°F to 125°F (0°C to 50°C). Segment review button lets you see ambient board temperature.

Number of Zones is Programmable You can easily change the control from a three zone to a two or even single zone control.

Monitor DynaTrol from a Computer KISS Software package, 25 foot cable and RS485/232 converter that plugs into a Windows-based computer are available. Download profiles, chart/graph actual firing, or monitor kiln temperatures - all in Windows.

Your Thermal Investment Deserves Special Treatment

OUR FEATURED L&L MODELS

GSR1714 & GS1714A

Economical, Bench Mounted Electric Box Furnace with Options for Specific Applications

Model GS1714A

With Industrial Controls, Fan and Pyrometry Package for AMS2750E Classification

Model GS1714 as described in Bulletin GS -12-20 with angle iron stand. An industrial Control Option is included consisting of a Eurotherm Nanodac Recorder/Controller and a Eurotherm 3216i overtemperature control. Power control is by solid state contactor. Also available for Model GS2026

" User Testimonial

L&L's GS1714 is far and away the most dependable and robust scientific glass annealer ever built. I spent years using it for annealing glass instruments I built out of Pyrex, aluminolicate, fused quartz… not to mention frit bonding optical components, slump testing exotic glass, firing precious metal lusters, and heat treating metal.

The GS1714 stands out from the competition for two very compelling reasons: extremely smart design, and the most robust build of any scientific glass annealer on the market. That's not hyperbole, it's industry-proven reality, and the superiority of the design truly cannot be overstated. Any single feature on this furnace is enough to get excited for, and all combined, the GS1714 is so far ahead of the curve...

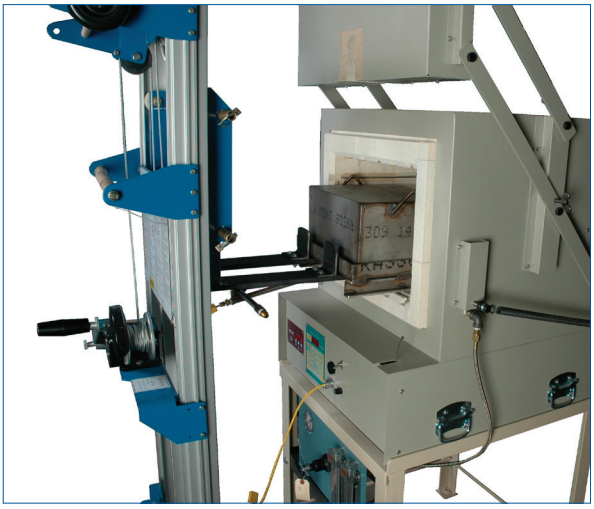
...That's all well and good, but let's not forget the counterbalanced guillotine door equipped with an element cutoff switch for safety, 125 pound capacity in the firebox, constructed from heavy gauge steel, 2.5" thick firebrick backed with 2" of mineral wool to keep all your valuable heat inside the firebox where it's supposed to be... "

Aaron Kirchoff, Strong Force Scientific Glass

Model GSR1714

With Alloy Retort for Processing in Inert Retort.

Model GS1714 as described in Bulletin GS-12-20 with angle iron stand. Included is a modified commercial control package which contains a DynaTrol program control and a Bartlett 3K overtemperature control. Also available for Model GS2026.



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