



SPECIAL FURNACE CO INC

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TB SERIES



APPLICATIONS

The TB SERIES Bench Mounted Electric Tube Furnaces feature even heating around the perimeter of the tube, ceramic fiber insulation, and split tube construction for easy changing of the tubes. A variety of tubes may be used or supplied by L&L depending on the application. The sizes listed in the specification sheet are easily modified to suit various applications. The TB Series is normally limited to 2100°F (1150°C.) Elements are rated for 2200°F (1200°C.)

**2100°F (1150°C) CERAMIC FIBER LINED
SPLIT TUBE FURNACES**

FEATURES

LOW MASS INSULATION

The furnace is insulated with 6 inches of low “K” factor ceramic fiber and mineral wool insulation. Two inches of this insulation consists of a removable molded element/insulation module that lines the interior of the furnace. It is not brittle and so maintenance is minimal. The insulation has a very low thermal mass and hence heats up very quickly. Heat up to 1800°F (980°C) will take approximately 45 minutes. No asbestos is used.

CERAMIC FIBER MOLDED ELEMENTS

Elements are embedded in ceramic fiber and are made of iron-aluminum-chrome alloy. The elements are preoxidized (which is what protects this alloy from the high temperatures.) Element sections are replaced easily. The elements are evenly spaced along the entire surface of the interior and hence will provide the maximum in temperature uniformity by uniformly radiating along the entire surface of the tube. The insulation is fitted with vestibules at both ends. These protect the elements and help hold the tube in place. They hold heat in around tube. The vestibules split open with the furnace case.

BENCH MOUNTED CASE CONSTRUCTION

The furnace case is constructed of welded 10 and 14 gauge steel. There is a detached control panel that contains all controls, control components and power supply. The case is primed with 800^oF silicone paint and finished in machine enamel. The hinged case splits open in the center from one side and latches closed on the other side.

DIGITAL PID CONTROL SYSTEM

The standard control is a Honeywell UDC 2300 digital PID 3 mode control. Mercury contactors are standard. SCR power controls are optional. Thermocouples are Type K. The control voltage is transformed to 120 volts. Control and power circuits are branch fused. A NEMA 13 lighted On/Off switch is included. All fuses, transformers, contactors, and controls are located in a bench mounted NEMA 1 panel. Customer must connect fused power supply to single point on panel.

TESTING AND INSTRUCTIONS

The furnace is power tested to insure proper watt ratings. The controls are fully calibrated and the control system completely tested. A complete instruction manual includes start up instructions, theory of operation, maintenance instructions, parts list, and a detailed trouble shooting guide. A ladder logic diagram and panel layout are prepared on CAD for easy readability.

WARRANTY

The furnace is warranted for one year except for elements and thermocouples (warranted for 6 months.)

OPTIONS

- **HIGH UNIFORMITY OPTION:** See the TBU Bulletin.
- **SCR POWER CONTROLS:** These provide more even heating, longer element life and greater uniformity.
- **OVERTEMPERATURE SYSTEM:** Honeywell UDC 2300 digital high limit back up control with manual reset, back up contactors and separate thermocouple.
- **JIC CONTROL OPTION:** This includes a NEMA 12 control cabinet, all oil tight switches and a panel mounted fused disconnect switch.
- **ATMOSPHERE CONTROL:** Inert atmosphere and combustible atmosphere systems are both available. See H2 and MPH Bulletins which explain the various safety systems for hydrogen and forming gas atmospheres.
- **TUBES AND RETORTS:** Alloy retorts made of 304, 330 or 601 alloys, typically with water cooled "O" ring seals as well as ceramic and quartz tubes are available.
- **RAMP/SOAK PROGRAM CONTROLS**
- **TEMPERATURE RECORDERS:** Round and Strip.
- **ANGLE IRON STAND:** Includes braced angle iron legs with leveling bolts.

SPECIFICATIONS

MODEL NUMBER	TUBE DIAMETER	ELEMENT DIAMETER	HEATED LENGTH	OUTSIDE DIMENSIONS			K.W.	SHIP WGHT
				OW	OH	OD		
TB 112	1	2	12	12	18	15	1.1	200
TB 124	1	2	24	12	18	27	2.2	250
TB 212	2	3 1/2	12	14	20	16	1.8	250
TB 224	2	3 1/2	24	14	20	28	3.6	300
TB 312	3 1/2	5	12	17	23	18	2.5	300
TB 324	3 1/2	5	24	17	23	30	5.0	350
TB 336	3 1/2	5	36	17	23	43	7.1	400
TB 512	5	6 1/2	12	19	25	19	3.0	350
TB 524	5	6 1/2	24	19	25	31	6.0	400
TB 536	5	6 1/2	36	19	25	43	8.4	450
TB 612	6 1/2	8	12	21	27	19	3.6	400
TB 624	6 1/2	8	24	21	27	31	7.0	450
TB 636	6 1/2	8	36	21	27	43	10.0	500
TB 824	8	10	24	23	29	31	8.4	500
TB 836	8	10	36	23	29	43	12.0	575
TB 1224	12	14	24	27	33	31	12.0	600
TB 1236	12	14	36	27	33	43	16.8	700
TB 124	12	14	48	27	33	56	24.0	800
TB 127 2	12	14	72	27	33	79	33.6	1000
TB 1424	14	16	24	29	35	31	14.0	700
TB 1436	14	16	36	29	35	43	18.0	825
TB 1448	14	16	48	29	35	56	28.0	950
TB 1472	14	16	72	29	35	79	36.0	1200

Dimensions are in inches. Weight is in pounds. Above are standard sizes; however, any diameter up to 60" is possible and any length is possible. Typical control panel is 17" wide by 38" high by 20" deep. Voltage can be 208, 240 or 460 single phase except the TB 112 which can only be 240 or 208 volts. Other voltages are optional. Three phase is possible but some models will have unbalanced loads. Specifications subject to change without notice.