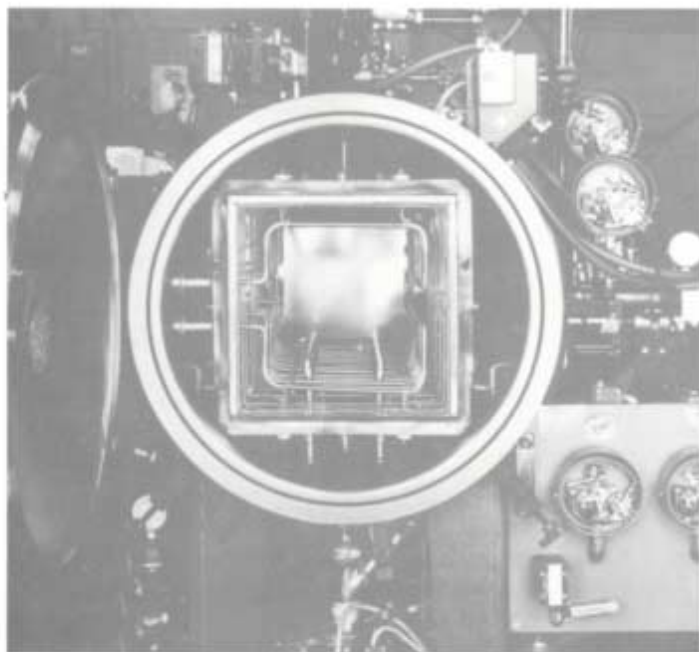


Product Information

Vacuum Industries, Inc.
Member of the Thermal Scientific Group

Co-Firing Furnaces

Series 3560 - Batch Type
Horizontal, Front Loading



Typical refractory metal hot zone with refractory metal hearth rails to support load.

Photo 1537

APPLICATION

Vacuum Industries Co-Firing Furnaces are batch type horizontal units designed to provide fully automatic processing of green parts in an accurately controlled, repeatable environment. The furnaces sequentially debinder, sinter, and metallize in one continuous cycle and provide precise, programmable temperature and dew point (atmosphere) control. Typical co-fired materials include alumina, aluminum nitride, and beryllia. Consistent high quality production is the result.

BENEFITS AND FEATURES

- Rugged Construction - designed for production environments.
- Automatic and repeatable cycles - fully programmable temperature and dew point control systems for unattended operation.
- Even Temperature Profile - achieved with independently adjustable upper and lower element banks.
- Alarm System - safety interlocks protect against interruption of water, power or gas supply.
- High Purity Production - assured by carbon-free refractory metal construction.
- Rectangular hot zone cross-section - for optimum loading efficiency.
- Efficient Work Handling - front and rear doors for floor-level loading.

SUMMARY OF SERIES 3560 CO-FIRING FURNACE SIZES

Useable Workspace WxHxL, in. (mm)	Volume cubic ft.	Model No.
8 x 8 x 20 (200x200x500)	0.74	8820
12 x 12 x 12 (300x300x300)	1	121212
12 x 12 x 24 (300x300x600)	2	121224
12 x 12 x 36 (300x300x900)	3	121236
18 x 12 x 36 (450x300x900)	4.5	181236
18 x 12 x 48 (450x300x1200)	6	181248

HOW TO SPECIFY

Refer to Series 3560 Model - Furnace, selecting model number from summary. Consult factory for special designs or larger sizes. See overleaf for typical specification.

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Work Space Dimensions inches		Maximum Temperature °C

Example: Series 3560 Model 8820-2200

Typical Furnace Specifications

Series 3560 Model - Co-Firing Furnace

Performance Characteristics	Operating temperature - to 2200 °C in a full atmosphere of nitrogen or 1900 °C in a full atmosphere of hydrogen gas.
Vacuum Chamber	Stainless steel interior, fully water jacketed (carbon steel) with baffles for uniform coolant distribution. Full opening, fully jacketed and baffled doors at each end.
Hot Zone	Elements - Rugged molybdenum or tungsten rod elements arranged in upper and lower banks with power independently adjustable to provide optimum uniformity; surround work on four (4) sides.
Thermal Insulation	Heat shields retained in removable stainless steel frame. Work Support- ¼" x 2" hearth rails mounted in posts firmly supported at chamber.
Dew Point Control System	Stainless steel bubbler with thermostat control and electronic water level control. Dew point level is controlled by blending wet and dry gas. Gas lines are heat traced to prevent condensation. Varying dew points are automatically programmed with a DCP700 programmer/controller, hygrometer, and automatic valves.
Hydrogen System	Model G10503A flow through process gas system, contains extra door clamps, pressure relief ports, automatic purge system, and necessary interlocks for safe operation.
Pumping System	Mechanical pump with manifold, automatic valve.
Power Supply	Variable reactance type with 3-phase input, trimming for upper and lower element banks. Rigid, water-cooled buss connection to furnace electrodes.
Controls and Instruments	NEMA-1 cabinet containing microprocessor-based programmer/controller (Honeywell DCP700). Data logger for temperature and pressure, (Honeywell DPR1500). Over-temperature protector with separate type W5 thermocouple. Ammeters and voltmeters for each power supply output phase, push-buttons and pilot lights, alarm panel for safety interlocks on all critical circuits.
Utility Requirements	Electrical: 460/3/60 Water: 30-50 psig; 60-70 F Compressed Air: 80-100 psig, filtered and lubricated.
Accessories	Fork lift load truck, manual operation with electro-hydraulic lift, guides and stops on truck and furnace.

