Controlled & Special Atmosphere Furnaces

At high temperatures, chemical reactions take place on the part surface. These chemical reactions are driven by the atmosphere at this temperature. Common atmospheres are air or a part thereof; the absence of it, is vacuum. Atmospheres can be inert, oxidizing or reducing. Although most of the atmospheric processing furnaces are used only up to about 1650°C, some are in successful operation to temperature as high as 1900°C.

Furnaces with hydrogen atmospheres are used when a reducing and non-carbonizing atmosphere is needed; for example, in the heat treating of metals or powder ceramic processing. Nitrogen atmosphere are needed for the carbonization process of carbon fiber.

We build Atmosphere heat treating furnaces with retorts, muffles and cold walls. For smaller parts, retort furnaces provide superior process control for heat treatment of metal products to 1300°C/2400°F in inert and reducing atmospheres. Inert or reducing atmospheres protect metal parts from oxidation during high temperature heat treatments. In continuous furnaces, muffles are used to protect the ware. For very large sized parts, a cold wall construction may be economical to avoid the costly retort.

Molybdenum-wound hydrogen Atmosphere heat treat furnaces have become useful and necessary tools for both industry and research. For the manufacture of carbide tools and radio tubes, for wire drawing, metal sintering, brazing, heat treating and research, this furnace has found wide use. The necessity of a reducing and non-carbonizing atmosphere, however, somewhat restricts the work these furnaces may do.

General Capabilities:

- Air, inert or reducing atmospheres available
- Muffle, retort, or cold wall constructions available
- Electric or fuel fired
- Temperatures up to 1100°C—with metal allow muffles primarily for combustible or neutral atmospheres and when atmosphere dew point must be controlled
- Temperatures up to 1750°C—with high purity oxide muffle and gas tight furnace shell; these furnaces are suitable for neutral or reducing atmospheres
- Custom built to match temperature, atmosphere, width and length of your application

General Applications:

- Metallizing ceramics
- Oxide and carbide sintering
- Brazing, sintering, heat treating of metals
- Carbonization / pyrolyzation
- Firing refractory ceramic oxides
- Precious metals, atomic fuel elements
Furnace types available with atmospheres:

- Front loading furnaces and kilns
- Bottom loading furnaces and kilns
- Lehrs and belt furnaces and kilns
- Envelope, shuttle furnaces and kilns
- Pusher kilns for co-firing

Contact Keith Company to order an atmosphere heat treating furnace for your application, or to learn more about any of our products.

Category File:

AMS 2750E Specifications