Data Sheet
Model: Gas Tight Retorts

INTRODUCTION

A retort is a rectangular metal chamber used inside a furnace to carry out heat treatment processes under controlled atmospheres such as inert or reactive gases.

Retort furnaces are widely used in applications where oxidation must be minimized, and precise atmospheric control is required.

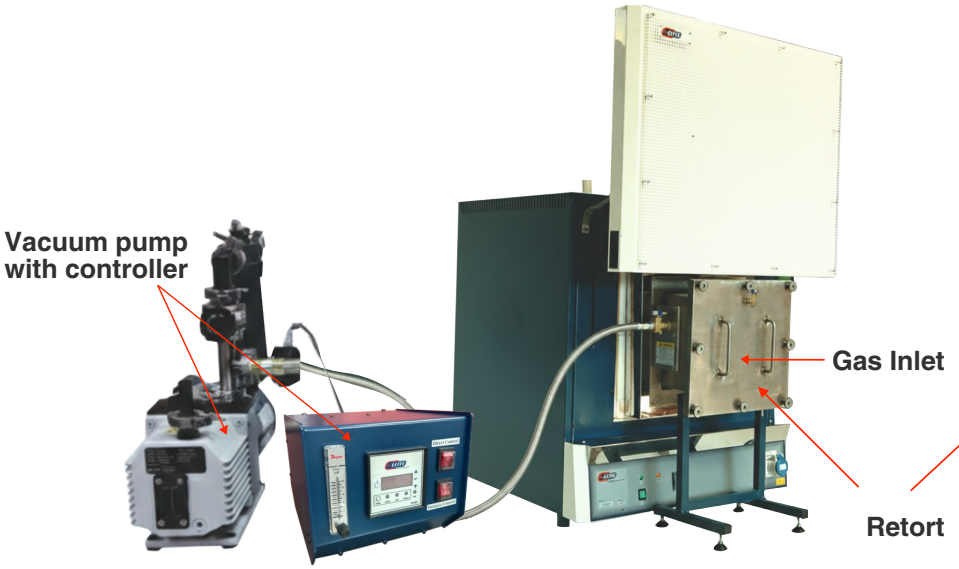
The primary objective is to create a non-oxidizing atmosphere inside the retort. This is achieved through controlled evacuation and gas purging cycles.

Furnace can be supplied in two styles:

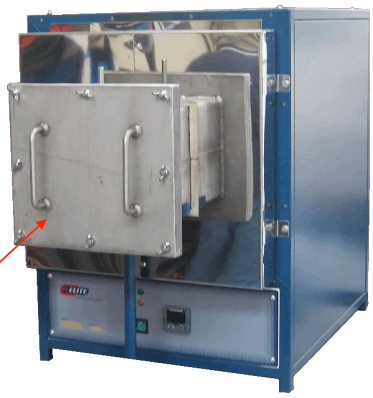
1. Without door (dedicated retort use)
2. With vertical lifting door (multi-purpose use)

SPECIFICATIONS

- **Retort Type:** Rectangular metal retort with bolted front plate
- **Seal Type:** Mechanical seal (bolted front plate with insulation)
- **Material:** High-temperature metal alloys SS or Inconel (based on application)
- **Gas Connections:** Provision for inlet and outlet (Ar / N_2 / reactive gases)
- **Vacuum Connection:** Port for vacuum pump (for air evacuation at low temperature)
- **Heating Configuration:** 2-side or 4-side.
- Available in bench top & floor mounted configuration



Furnace with a door and an inserted retort



Furnace with an inserted retort and no door

OPERATING PROCEDURE

- Place the sample inside the retort
- Seal the retort using the bolted front plate
- Evacuate air using a vacuum pump at ambient temperature
- Backfill with inert gas (Argon or Nitrogen) until the retort reaches atmospheric pressure
- Repeat vacuum–gas purging cycles multiple times
- Start heating when the retort is at atmospheric pressure

Note: No vacuum should be applied to retort during heating phase

IMPORTANT LIMITATIONS

- Retorts are NOT suitable for vacuum operation at high temperatures
- Vacuum should only be used at low temperatures for purging cycles
- High-temperature vacuum operation may lead to:
  - Retort deformation
  - Risk of implosion

Elite Thermal Systems Limited

Units F1-F2 and F3, Welland Business Park, Valley Way, Market Harborough, Leicestershire LE16 7PS, UK

Tel: +44 (0)1858 469834 | E-mail: contact@elitefurnaces.com | Website: www.elitefurnaces.com

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