

## Rotary Reactor Tube Furnace - HTR

### General Information

The HTR rotating furnaces combine in a laboratory scale unit many of the advantages of a fluidised bed reactor with those of a rotary kiln.

The sample is simultaneously heated and mixed under a controlled atmosphere. This overcomes the longer reaction times required in standard chamber or tube furnaces.



### Standard features

- 1100°C maximum operating temperature
- Developed in partnership with the Imperial College of Science & Technology, London
- Carbolite Gero 301 controller, with single ramp to set-point & process timer
- Heating is provided by long life, rapid heating, resistance wire elements mounted in rigid, half cylindrical vacuum formed insulation modules
- Quartz reaction vessel included as standard
- The fluted internal surface of the reactor ensures good mixing as the variable speed electric drive system oscillates the reactor tube through 315°.
- A positive break safety interlock switch cuts power to the elements when the heating chamber is open
- Gas enters the reactor through a flexible silicon rubber tube
- A 30 mm flow meter calibrated for nitrogen is provided
- A single seal gasket directs the reactor exhaust into a removable stainless steel exhaust box from where a gas outlet allows piping to an extraction system

### Options (specify these at time of order)

- Over-temperature protection (recommended to protect valuable contents & for unattended operation)
- Single or multiple flow meters calibrated for different gases
- Hydrogen detectors & gas safety system
- A range of sophisticated digital controllers, multi-segment programmers and data loggers is available. These can be fitted with RS232, RS485 or Ethernet communications
- Optional inconel reactor

### Technical Specifications

## Rotary Reactor Tube Furnace - HTR

### HTR 11/75

Max temp (°C)	1100
Max continuous operating temp (°C)	1000
Heat-up time (mins)	11
Cooling time with lid open (mins)	15
Dimensions: Reaction chamber dimensions (mm)	75 x 100
Dimensions: Reaction chamber capacity (ml)	50
Dimensions: Oscillation frequency per min	1 to 8
Dimensions: Rotation in each direction	315°
Dimensions: External H x W x D (mm) lid open	480 x 1140 x 550
Dimensions: External H x W x D (mm) lid down	800 x 1140 x 680
Max power (W)	1500
Holding power (W)	400
Thermocouple type	K
Weight (kg)	40

### HTR 11/150

Max temp (°C)	1100
Max continuous operating temp (°C)	1000
Heat-up time (mins)	21
Cooling time with lid open (mins)	15
Dimensions: Reaction chamber dimensions (mm)	150 x 200
Dimensions: Reaction chamber capacity (ml)	700
Dimensions: Oscillation frequency per min	1 to 8
Dimensions: Rotation in each direction	315°
Dimensions: External H x W x D (mm) lid open	540 x 1300 x 900
Dimensions: External H x W x D (mm) lid down	950 x 1300 x 900
Max power (W)	3000
Holding power (W)	1000
Thermocouple type	K
Weight (kg)	95

## Rotary Reactor Tube Furnace - HTR

**Please note:**

- Holding power is measured at continuous operating temperature