

## Tube furnace with eight zones - AZ

### General Information

The AZ is an eight zone tube furnace for controlled temperature profiles. These zones can be used to generate temperature profiles along the heated length of the furnace.

With eight zones, thick insulation, and highly symmetrical winding of the heating elements throughout the entire AZ furnace, a uniformity of better than  $\pm 5$  °C is achieved. A key advantage of the eight individually controlled zones is the extension of the uniform length inside the furnace. Additionally, the temperature profile can be precisely controlled for linear increases, peaks, or other user defined profiles.

One process well suited for the AZ tube furnace is chemical vapour deposition as a temperature gradient can be established in the furnace for evaporation of precursor material at the high temperature end zone and sublimation of the vapour onto the substrate at the cooler temperature end zone. All zones are individually controlled and monitored with thermocouples.



### Standard features

- Similar construction to FHA / FHC tube furnaces
- Eight-zone control for variable heating profiles
- Gradients, linear increase/decrease etc. of temperature along the heated length
- Extended uniform temperature distribution
- Short heating and cooling rates
- Automatic operation
- Data recording for quality management
- Retransmission of setpoint

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

- A range of sophisticated digital controllers, multi-segment programmers and data loggers is available. These can be fitted with RS232, RS485 or Ethernet communications
- Over-temperature protection (recommended to protect valuable contents & for unattended operation)
- Wide choice of tube diameters and materials is available: eg quartz, ceramic, metal
- 'L' stand for vertical usage
- Insulation plugs & radiation shields to prevent heat loss & improve uniformity
- Modified atmosphere and vacuum assemblies are available
- Vacuum packages with a choice of rotary vane pump or turbomolecular pump are available for furnaces with tube inner diameters of 60 mm and above
- Complete automation by Siemens SPS control with touch panel and mass flow controller for the gases on request
- Other diameters and heated lengths on request

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### Technical Specifications

#### AZ 13/32/360

Diameter accessory tube (mm)	32
Heated length (mm)	360
Max temp (°C)	1350
Dimensions: External H x W x D (mm)	990 x 1800 x 500
Transport weight (kg)	500
Power (kW)	1.5
Voltage (V)	400 (3P)
Current (A)	3 x 4
Series fuse (A)	3 x 16

#### AZ 13/50/430

Diameter accessory tube (mm)	50
Heated length (mm)	430
Max temp (°C)	1350
Dimensions: External H x W x D (mm)	990 x 1800 x 500
Transport weight (kg)	550
Power (kW)	2.9
Voltage (V)	400 (3P)
Current (A)	3 x 9
Series fuse (A)	3 x 16

#### AZ 13/80/810

Diameter accessory tube (mm)	80
Heated length (mm)	810
Max temp (°C)	1350
Dimensions: External H x W x D (mm)	990 x 1800 x 500
Transport weight (kg)	600
Power (kW)	7.3
Voltage (V)	400 (3P)
Current (A)	3 x 12
Series fuse (A)	3 x 16

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### AZ 13/110/1000

Diameter accessory tube (mm)	110
Heated length (mm)	1000
Max temp (°C)	1350
Dimensions: External H x W x D (mm)	1200 x 1800 x 520
Transport weight (kg)	650
Power (kW)	11.3
Voltage (V)	400 (3P)
Current (A)	3 x 19
Series fuse (A)	3 x 25