

Vertical Retort Gas Carbursing Furnace

Gas carburising prior to hardening of gear components in a controlled nitrogen or methanol atmosphere.

Technical data	
Diameter	3000mm
Height	3000mm
Nominal Gross Load	18 tonnes including work support
Maximum Operating Temperature	980°C
Temperature Uniformity	+/-10°C (ASM2750E Class 4)
Furnace Rating	600 kW in 3 zones
Electricity Supply	400/415 V, 3 phase, 50Hz
Furnace Heating	600 kW
Furnace Fan	7.5 kW
Hydraulic Motor	11 kW
Oil Pump	1.5 kW
Control	1.5 kW
Cooling Water	150 L/min
Nitrogen (Safety/Purge)	180 nm ³ /hr max @ 6 bar
Nitrogen (Process)	40 nm ³ /hr max @ 6 bar
Methanol	40 litres/hr
Natural Gas	15 nm ³ /hr max @ 20 mbar
Dilution Air	5 nm ³ /hr max

Cement
Chemicals
Defence
Fibre, paper & tissue
Food & beverage
Marine & port operations
Metals
Mining & minerals
Oil & gas
Panelboard
Power generation
Rail
Rubber
Sugar
Water & wastewater



Thermocouples

Mineral insulated Chromel Alumel (Type N) thermocouples are fitted for each zone as follows:

- 1 control thermocouple (with Type R SAT thermocouple)
- 1 excess temperature thermocouple

Provision is made for nine mineral insulated monitoring thermocouples to pass through a guide tube into the retort charge space. The guide tube is fitted with glands and passes beneath the oil seal into the base unit.

Atmosphere gas entries / exhausts

- Atmosphere gas entries are provided through the 'plug' lid
- Atmosphere exhaust pipes are also provided through the 'plug' lid and are fitted with a control valve to ensure that the retort is kept under positive pressure
- A second exhaust is provided through the base, also fitted with a control valve. The outlet pipework, suitably lagged, is directed into the shop above head height
- The exhaust outlets are provided with permanent pilot burners fitted with flame probes. Failure of either pilot burner will give an audible and visual alarm
- Interlocks are provided to prevent atmosphere gases being introduced into the furnace if the temperature is below 7000°C and if the pilot flames are not proved
- Atmosphere sample points and oxygen probe entries are provided to operate with the 3-Gas (CO, CO₂, CH₄) atmosphere control system