

Minimum Free Space Oven - MFS

General Information

From its natural development to its processing, coal contains an amount of moisture which needs to be quantified.

One method of quantifying moisture in coal is by measuring the weight loss of a sample after drying. The MFS is used for this drying process and has a small heated chamber to provide the lowest practical volume, ie, minimum free space, as required by the test standards.

A known mass of the coal is heated in a stream of nitrogen or air at a temperature between 105°C and 110°C and maintained at this temperature until its mass is constant. The moisture content is calculated from the loss in mass of the coal.

The ovens have a corrosion and oxidation resistant aluminium chamber which provides good temperature uniformity. The nitrogen or air flow can be adjusted by a flow meter fitted on the control panel and passes through a pre-heating chamber before entering the front of the work chamber.

The MFS/1 ISO operates with a regulated flow of moisturefree bottled nitrogen which removes the moisture released by the coal at 105°C. The MFS/1 ASTM operates with a regulated flow of air.



Standard features

- Determination of moisture in coal acc. to BS 1016-104.2:1991, BS ISO 687:2010 & BS ISO 11722:2013 (MFS/1 ISO) or ASTM D3173-11 (MFS/1 ASTM)
- 210°C maximum operating temperature
- 2132 controller fitted as standard
- Loading tray
- Side hinged door with gas tight seal & easy one handed operation
- Flow meters to monitor gas flow & chamber seal integrity

Options (specify these at time of order)

- Welded steel desiccator with provision for a nitrogen flow which is used as a cooling vessel. The crucibles can be transferred into the desiccator without the need for cooling on a metal plate.
- Models available for alternative mains supply voltages
- Over-temperature control
- Crucibles with well-fitting covers

Technical Specifications

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MFS/1 ISO

Meter type	Nitrogen
Max temp (°C)	210
Chamber dimensions	25* x 195 x 290 (* reduced to 22mm below the thermocouple)
External Dimensions H x W x D (mm)	185 x 490 x 450
Temp uniformity (°C)	±5.0 @ 210°C
Temp stability (°C)	±0.5
Volume (litres)	1.4
Max power (W)	500

MFS/1 ASTM

Meter type	Air
Max temp (°C)	210
Chamber dimensions	25* x 195 x 290 (* reduced to 22mm below the thermocouple)
External Dimensions H x W x D (mm)	185 x 490 x 450
Temp uniformity (°C)	±5.0 @ 210°C
Temp stability (°C)	±0.5
Volume (litres)	1.4
Max power (W)	500

Please note:

- Uniformity is measured in an empty chamber after a stabilisation period