

Product Name :
Astra Scientific Junkers Gas Calorimeter

Product Code :
FuelTesting0016



Description :

Astra Scientific Junkers Gas Calorimeter

Technical Specification :

This Gas Calorimeter works on the Junker's principle of burning of a known volume of gas and imparting the heat with maximum efficiency to steadily flowing water and finding out of the rise in temperature of a measured volume of water. The formula, $\text{Calorific Value of Gas} \times \text{Volume of Gas} = \text{Volume of water} \times \text{Rise in Temperature}$, is then used to determine the Calorific Value of the Gas (assuming that heat capacity of water is unity).

EQUIPMENT

This equipment consists of the Calorimeter with Powder Coated Stainless Steel exterior with burner (with choice of two nozzles) on a tripod stand, a Gas Flow Meter and a pressure governor. Requisite tubing & measuring jars as well as thermometers (0.1oC graduation) for reading inlet & outlet water temperatures are also provided along with a detailed instruction manual.

Calorimeter

This Calorimeter covers a wide range between 120 BTU (1000 to 26000 K

Cal/m³). The Calorimeter is fixed on a tripod stand having leveling screws to keep the Calorimeter in perfectly vertical position. The Calorimeter mainly consists of a gas combustion chamber, heat exchanger and water flow system. Heat exchanger is designed for maximum efficiency of heat transfer and is fabricated out of heavily tinned copper sheet. A constant water head maintenance device provided in the feed water pipe along with the inlet water flow regulator is fixed to the outer housing of the Calorimeter. The outer housing is of powder coated stainless steel. This constant water level attachment has an over flow device through which excess water drains out. Water from this constant head device enters the bottom of the heat exchanger through inlet water flow regulator and raised along the annular space, comes up to the filtering position at the top and gets collected at the swinging funnel attachment. While going up it absorbs the heat generated by burning the gas in the burner located at the bottom of the central chamber of the Calorimeter. Two thermometers are provided in the water inlet and outlets ports. Temperature of the effluent gas can be measured from the thermometer fixed at the exhaust gas outlet. Provision for fixing the burner is provided at the Calorimeter base. An outlet for collection of condensate is provided at the bottom.

Gas Flow Meter

The Gas Flow Meter Provided is Cat. No. IRI 08. It is a wet type Gas Flow Meter, with recording facility on a mechanical counter of the number of revolutions made, which gives total volume of gas burnt, For more details of the Flow Meter, please refer to its individual leaflet.

Pressure Governor

This is to regulate the pressure of gas before it enters the flowmeter. These governors are factory adjusted for a required pressure.



Astra Scientific

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