



**Product Code . EL-TWL-11784**

## Isothermal Semi Batch Reactor

### Description

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#### Isothermal Semi-Batch Reactor

##### Description:-

An isothermal semi-batch reactor is a semi-closed system with one input stream.

This set-up is used to study a non-catalytic homogeneous reaction under isothermal condition.

The set up consists of a Reactor fitted in a constant temperature water bath.

Before starting the reaction the reactor is charged with a measured quantity of one reactant.

From a feed tank, another reactant is fed to the reactor.

Using a sampling pipette samples can be taken out for analysis after a fixed interval.

Rotameter is provided to measure the flow of Chemicals.

The compressed air is used for circulation of feed.

The temperature of the bath can be maintained from ambient to 70 OC with the help of Digital Temperature indicator Cum Controller.

Pressure Regulator, Pressure Gauge, and Safety Valve are fitted in the compressed air line.

It is operated under conditions like Isothermal (Temperature of Reaction Mass remains constant) and

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perfectly mixed (composition of the reaction mixture is uniform throughout).

One stirrer is fitted for mixing the reactants in reactor and other is fitted in a water bath to keep the uniform temperature throughout in the bath.

### **Utility Required:-**

Electricity-1.5kw, Single Phase.

Compressed Air Supply at 2 Bar, 0.25 CFM.

Water supply and drain.

Instruments, Laboratory wares, and Chemicals required for analysis as per the system adopted.

### **Technical Detail:-**

Reactor: Material Stainless Steel, Capacity 3 Ltrs. (approx).

Water Bath: Material Stainless Steel, Double wall, insulated with Ceramic Wool.

Piping: Material Stainless Steel and PVC.

Pressure Regulator: 0-2 Kg/cm<sup>2</sup>

Pressure Gauge: Bourdon type 0-2 Kg/cm<sup>2</sup>

Stop Watch: Electronic

Heater: Nichrome wire Heater

Stirrer: Material Stainless Steel Impeller and shaft coupled with FHP motor

Feed Tank: Material Stainless Steel, Capacity - 20 Ltrs.

Feed Circulation: By compressed air.

Flow Measurement: Rotameter.

Control panel comprises of Digital Temp. Controller: 0-199.9°C




With Standard make on/off switch, Mains Indicator etc.

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