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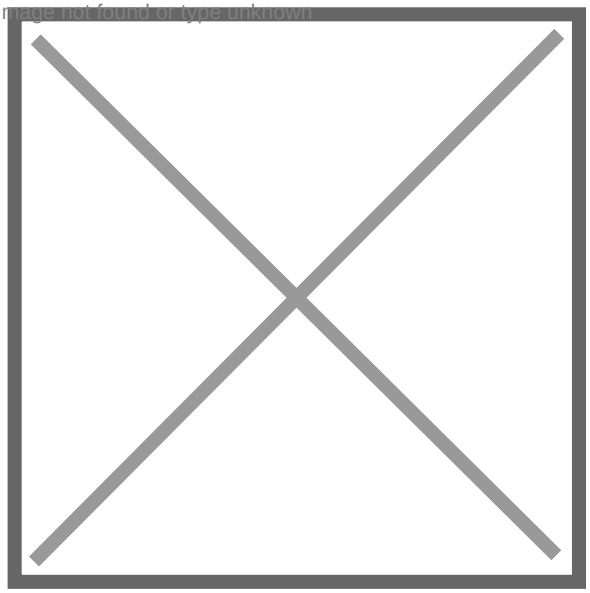
Product Name :

Gay-Lussac's Law

Product Code :

SLE/EA/27

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Description :

Gay-Lussac's Law (Product Code: SLE/EA/27) is a bench-mounted apparatus used to showhow the pressure of a fixed volume of air rises with temperature in engineering thermodynamicsand physics laboratories. Students heat the air in a low-pressure vessel surrounded by aninsulated heater under electronic control, then read absolute pressure, two air temperatures andtheir average on a digital display. It is made by **Jain Scientific Equipments Pvt Ltd (ScienceLab)**, an OEM and engineering lab equipment manufacturer, at its own factory inAmbala, India.

Specifications

Parameter	Detail
Mounting	Bench-mounting, with a back plate that holds the vessel
Vessel	Low-pressure vessel holding a fixed volume of air
Heating	Insulated heater around the vessel, controlled by an electronic temperature controller
Controller sensor	Thermocouple measuring the heater surface temperature
Air temperature	Two thermocouples measuring the air inside the vessel
Pressure measurement	Pressure transducer measuring the pressure of the heated air
Display	Digital display of absolute pressure, both air temperatures and their average
Venting	Hand-operated valve at the bottom of the vessel to normalise the air to ambient conditions
Working gas	Normal clean, dry air (behaves as an ideal gas over the pressure range used)
Product code	SLE/EA/27
Manufacturer	Jain Scientific Equipments Pvt Ltd (ScienceLab) — OEM
Country of origin	India (made in Ambala, Haryana)

What Is the Gay-Lussac's Law Apparatus Used For?

Gay-Lussac's law, often called the pressure law, states that for a fixed mass of gas held at constant volume, pressure is directly proportional to absolute temperature. With this apparatus, students first open the hand-operated valve at the bottom of the vessel to bring the trapped air to ambient conditions, close it, and set the electronic controller for the temperature range the experiment needs. As the insulated heater warms the air, they record pressure from the transducer against the average of the two air thermocouples, then plot the results to prove the law.

Converting the readings to kelvin gives a straight line through the origin, while extending a plot of pressure against Celsius temperature back to zero pressure gives an estimate of absolute zero — a
gas
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