

### **anaerobic incubator with long life time oil-free vacuum pump**

Anaerobic incubator can quickly form low oxygen or even anaerobic conditions in a closed space, widely used in the cultivation of aerobic sensitive bacterial strains, the study of physiological reactions, and the isolation and cultivation of bacteria in medical diagnosis.

Modern anaerobic incubators are not only suitable for traditional anaerobic environments, but can also be adjusted to a micro-oxygen atmosphere to meet more experimental needs.

#### **Features of Anaerobic Incubator**

1. Multi-channel independent operation: equipped with 4 independent anaerobic tanks, each tank can be set up independent gas program to support the parallel operation of anaerobic and micro-oxygen environment.
2. wide temperature control range: the temperature control range in the tank is from room temperature +5°C to 70°C, adapting to a variety of experimental needs.



3. high temperature uniformity: the temperature difference is controlled at  $\pm 0.5$  °C, even if the door is opened and closed frequently, the set temperature can be quickly restored.
4. rapid atmosphere conversion: anaerobic environment establishment time is less than 3 minutes, micro-oxygen conditions formation time is less than 1 minute, improve the efficiency of the experiment.
5. visualization monitoring: each culture tank is equipped with an independent pressure indicator, which is convenient to grasp the internal air pressure status in real time.
6. oil-free vacuum pump system: the use of maintenance-free oil-free pump, to avoid oil and gas pollution, quiet operation and long life.
7. strong operational flexibility: support Petri dishes, conical flasks, test tubes and other container forms.
8. easy to move and deploy: the whole machine size is about 140×92×77cm, equipped with universal casters, suitable for flexible movement within the laboratory.

### **Technical Advantages**

1. Diversified atmosphere control: not only limited to the traditional 0% oxygen environment, but also can realize micro-oxygen, such as 5% to 10% oxygen environment settings, to adapt to more microbial species cultivation needs.
2. strong independence of resources: 4 tanks can be parallel but do not interfere with each other, suitable for research and teaching of multiple experiments concurrent processing.

3. fast start-up ability: greatly reduce the waiting time, shorten the experimental cycle, improve the efficiency of sample processing.
4. Environmental protection and easy maintenance: oil-free design reduces the risk of pollution, while reducing operation and maintenance costs.
5. high safety and stability: pressure monitoring + airtight structure design, to protect the atmosphere stability, to ensure that the experiment is reliable.

### **Working Principle**

The core principle is to rapidly remove oxygen and inject a mixture of high-purity nitrogen, hydrogen and carbon dioxide by vacuum pumping and gas displacement in a sealed space. Subsequently, internal catalysts such as palladium particles cause the oxygen to react with the hydrogen to form water, resulting in complete deoxygenation and the formation of a near-completely oxygen-free environment. A micro-oxygen environment is created by regulating the oxygen supply via a gas ratio control module to maintain a specific low oxygen concentration.

### **Application Areas**

1. Medical microbiology: for the culture and identification of anaerobic pathogenic bacteria such as Tetanus bacillus and Clostridium difficile.
2. Clinical laboratory: play a key role in isolation of clinical anaerobic bacteria, drug sensitivity test and infection source tracking.

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3. Basic research: widely used in biochemistry and molecular biology to study oxygen-sensitive enzymes and metabolic pathways.
4. Food and fermentation industry: low oxygen simulation culture for fermentation flora of yogurt, kimchi, soy sauce and so on.
5. Environmental protection and soil microbiology research: simulate the hypoxic environment under the ground to study the related microbial community changes.