# Smart Notes

Flexible to fit your application needs

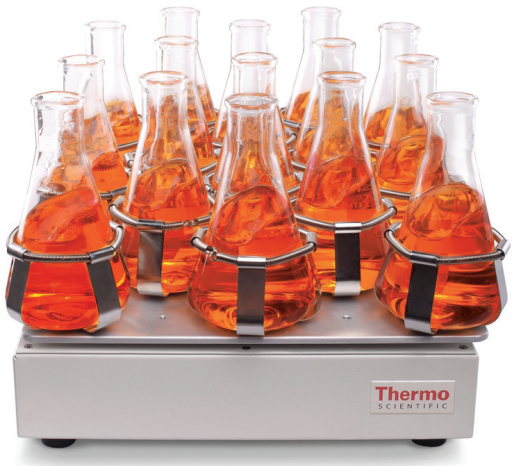


## Q&A

## How does a $CO_2$ resistant shaker provide greater reliability, flexibility and ease of use for varied cell culture applications, compared to a dedicated incubated $CO_2$ shaker?

Flexibility and reliability are the keys to good laboratory equipment and a $CO_2$ resistant shaker is designed for both. Flexibility allows it to go from the $CO_2$ incubator to the benchtop to the microbiological incubator, for culturing mammalian suspension cells or insect cells or bacteria and yeast. Reliability comes from sealed electronics, minimal heat production, magnetic orbital drive and stainless steel construction.

Use your existing $CO_2$ incubator to investigate suspension culture scale-up. A variety of accessories allows shaking culture in different vessels with no need to change heavy platforms. A magnetic controller can be mounted on the incubator door to show status without opening the door. Low vibration even at high speeds and minimal added heat allows stationary culturing in the same incubator to maximize space. And, unlike a combined shaking incubator, a $CO_2$ resistant shaker can be easily removed from the incubator to facilitate cleaning and disinfection, protecting your cultures from unwanted contamination.




Thermo SCIENTIFIC

# why

# Why choose a $CO_2$ resistant shaker?

## Flexibility is Important for Your Lab

In today's cell culture lab, many different cell types are cultured simultaneously and cost is always a concern. The compact Thermo Scientific™ $CO_2$ resistant shaker allows flexibility to scale up suspension cultures while continuing stationary cultures inside your existing $CO_2$ incubator. For example, the shaker holds fifteen 250 ml or nine 500 ml flasks and allows up to two shelves for parallel adherent cultures (see Figure 1).

If your lab is interested in protein production from baculovirus in insect cells, the $CO_2$ resistant shaker can be transferred to room temperature shaking or a refrigerated incubator. Or if you are producing small amounts of protein or DNA in bacteria or yeast, simply put the $CO_2$ resistant shaker in your microbiological incubator. This flexibility is not possible with a dedicated incubated $CO_2$ shaker.

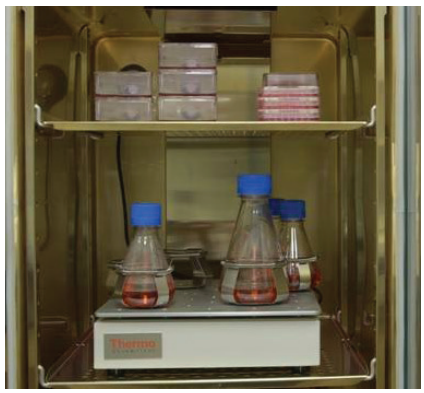


**Figure 1:** The Thermo Scientific $CO_2$ resistant shaker fits easily into the Thermo Scientific™ Heracell™ VIOS $CO_2$ Incubator with 100% pure copper interior. While the shaker efficiently and quietly shakes suspension cells in Thermo Scientific™ Nalgene™ single-use Erlenmeyer flasks, adherent cells are simultaneously grown in 75 $cm^2$ Thermo Scientific™ Nunc™ EasYFlasks™ and Thermo Scientific™ Nunc™ edge 96 well plates.

## Reliability is Critical in the $CO_2$ Incubator

Inside a $CO_2$ incubator, the warm, moist and slightly acidic environment challenges electronics. The Thermo Scientific $CO_2$ resistant shaker is engineered with specially treated, sealed mechanical parts for robust, long life. For routine cleaning and disinfection, the shaker can be removed and easily treated at the same time as the incubator; much easier than cleaning spills and contaminants from a dedicated incubated $CO_2$ shaker.

Putting extraneous electronics into your $CO_2$ incubator can generate additional heat, affecting the functions of the incubator. The chamber temperature could become too hot for cultured cells. However, the Thermo Scientific $CO_2$ resistant shaker is designed to operate inside Thermo Scientific $CO_2$ incubator environments and generates only negligible additional heat of 0.1 to 0.2 degrees throughout the chamber[1], preserving outstanding cell growth conditions.

[1]Results from internal testing. Test conducted in a Thermo Scientific Heracell VIOS $CO_2$ Incubator. Shaker was fully loaded, running at 250 rpm and 37 °C, ambient temperature of 24 °C or 33 °C, for 1 hr. Shaker ran continuously for 5 hr. before initiation of test.


## Summary

The Thermo Scientific $CO_2$ resistant shaker offers culturing flexibility, reliability, and ease of use for multi-tasking cell culture labs, compared to a dedicated $CO_2$ shaking incubator.


**Learn more about our $CO_2$ resistant shakers at www.thermoscientific.com**

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