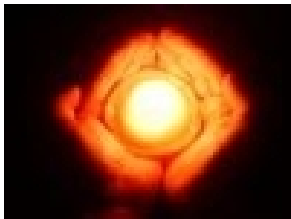




## ARTIFICIAL SUN FOR CELL CULTURE HEATING

The LAMBDA MINIFOR fermenter / bioreactor provides a new heating system for precise, fast and economic heating of the culture medium in fermentation and cell culture processes



From your own practical laboratory experience you may be familiar with the common problems when it comes to heating culture media in fermenters and bioreactors:

The direct contact of heating fingers (or heating rods) with the medium degrade cells and medium, the use of heating blankets prevents the visibility into the reactor and bears potential safety risks for the user, due to the high supply voltage required. Finally, thermostatically controlled water bath systems, aside of requiring expensive infrastructure (circulating water baths and double jacketed vessels), they provide only slow and inefficient temperature exchange with the medium inside the reactor vessel and contribute to significantly longer sterilization times as would be required for single walled reactor vessels.

A patented infrared (IR) radiator with a gilded parabolic reflector is used in the [LAMBDA MINIFOR laboratory fermenter-bioreactor](#) to heat the culture broth. The heat radiation is concentrated on the bottom of the single walled vessel, where it is absorbed by the medium in a similar way to the sun heating water. There is no overheating of the culture and no formation of hot spots. Thanks to the low heat capacity of the IR heat source, overshooting of the temperature is virtually eliminated and the temperature is thus controlled very precisely. Additionally, the infrared heating system allows an unrestricted visibility into the reactor vessel. The temperature sensor is placed directly into the pH-probe and is used at the same time for the automatic correction of the pH and pO<sub>2</sub> electrodes.

*About the company : [LAMBDA Laboratory Instruments](#) has more than 30 years of experience in the development and construction of innovative laboratory instruments of high quality having an excellent price-to-performance ratio. Among these instruments are: laboratory fermenters, bench-top bioreactors for cell culture, peristaltic pumps, infusion pumps, syringe pumps, fraction collectors, powder dosing instruments and fermentation software for biotechnology, microbiology, food and agricultural, chemical and pharmaceutical research and development, educational purposes as well as for general laboratory and research applications.*

**LAMBDA Laboratory Instruments – where innovation keeps quality high and prices low**