



## LAMBDA Peltier electronic cooling loop for MINIFOR fermenter-bioreactor

The cooling with this device is based on the electronic cooling effect produced by the flow of electric current through a Peltier cell. The Peltier cell **allows cooling of the medium without the necessity of other means like a refrigerating compressor or cooling water baths**. LAMBDA has selected a cooling loop working according to the "heat pipe" principle, which has an advantage of having up to 80 times higher heat conduction compared to copper (!) and can be used with various levels of medium. It works even when the loop is not entirely submerged in the medium.



The LAMBDA Peltier cooling system is extremely compact and advantageous when cultures should be run at temperatures close to the room temperature or few degrees under the room temperature. Lower temperatures can be achieved by isolation of the vessel with convenient isolating material. The LAMBDA Peltier cooling loop eliminates the need of refrigerated circulating baths, which are expensive and take a lot of valuable bench surface.

The LAMBDA Peltier cooling loop is, however, not intended as a replacement of a standard refrigerated cooling bath, in applications, where an intensive and fast cooling of the medium is required.



**The cooling intensity of the Peltier cooling module is always maximal. An excessive cooling is compensated by increased heating of the MINIFOR fermenter-bioreactor. In this way precise temperature control is always achieved.**