

# Smart Notes

Save energy and costs in your lab with efficient bath circulators



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A

**How do I select an energy efficient refrigerated bath circulator?  
Is it simply based on the selection of energy efficient components?**

Selecting energy efficient components does help with overall energy efficiency. However, the most efficient refrigerated bath circulators control temperature differently compared to standard refrigerated bath circulators. Through a special energy savings mode, they are able to further reduce the power usage under low demand situations without reducing performance during high demand operations.



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# how

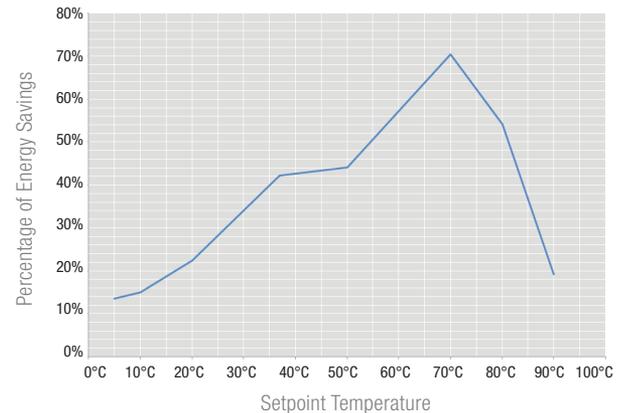
## How do the most efficient refrigerated bath circulators save energy and associated costs?

All refrigerated bath circulators maintain setpoint temperature by using the heater and the refrigeration simultaneously. This is designed to substantially increase the temperature stability compared to temperature control systems that only use refrigeration.

The heater is the largest power consumer in a refrigerated bath, so reducing the amount of power consumed by the heater can greatly decrease the total amount of electrical energy used. The algorithms for the energy savings mode in Thermo Scientific™ VersaCool™, ARCTIC™ and GLACIER™ refrigerated bath circulators reduce the amount of refrigeration to only slightly more than what is required. This allows the power to the heater to be reduced to the minimum level needed to maintain temperature stability. The result is up to 70% less power used.\*

Additionally, excess heat put into the bath gets removed by the refrigeration system and expelled into the air. So reducing the heat input also lowers the amount of heat put into the room, which may in turn reduce cost by reducing the use of your HVAC system.

Figure 1: Energy Savings of the VersaCool Refrigerated Bath Circulator



The VersaCool refrigerated bath circulator utilized for this test consumed 70% less power at a 70 °C bath setpoint than the same unit tested with the Energy Saving Mode disabled.

### Summary

When choosing energy efficient refrigerated bath circulators, remember to look into manufacturers' claims for energy efficiency and the technology used to achieve it. By reducing the cooling and heating to the minimum levels required to hold a stable temperature, the VersaCool, ARCTIC and GLACIER energy savings algorithms enable refrigerated bath circulators to use up to 70% less power.\*

\*Compared to running the same refrigerated bath circulator with the energy saving technology turned off (on the ARCTIC and GLACIER refrigerated bath circulators) or disabled (on the VersaCool refrigerated bath circulator). Tests were performed with no external circulation, a 22 °C ambient temperature and the bath stabilized at setpoint temperature.



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