

## Get Down in 5: Experience rapid pre-cool with ECO *fastBlast* from Haier Biomedical

*Reduce the energy use of your refrigerated, pre-cool centrifuges by up to 88 percent*

Centrifugation is a core technique used in over 80 percent of laboratories, and there is increasing demand for refrigerated centrifuges to preserve the bioactivity of samples and reduce instrument noise levels. However, many of the refrigerated centrifuges that have been released in recent years take a long time to cool down, and pre-cooling modes must be activated well in advance of beginning centrifugation. This can slow down laboratory workflows and cause inconvenient bottlenecks by creating extra steps for scientists to incorporate into their already busy daily schedules. Users therefore often opt to leave the refrigerated centrifuges on during the entire course of the working day to ensure they are ready for use at any time.

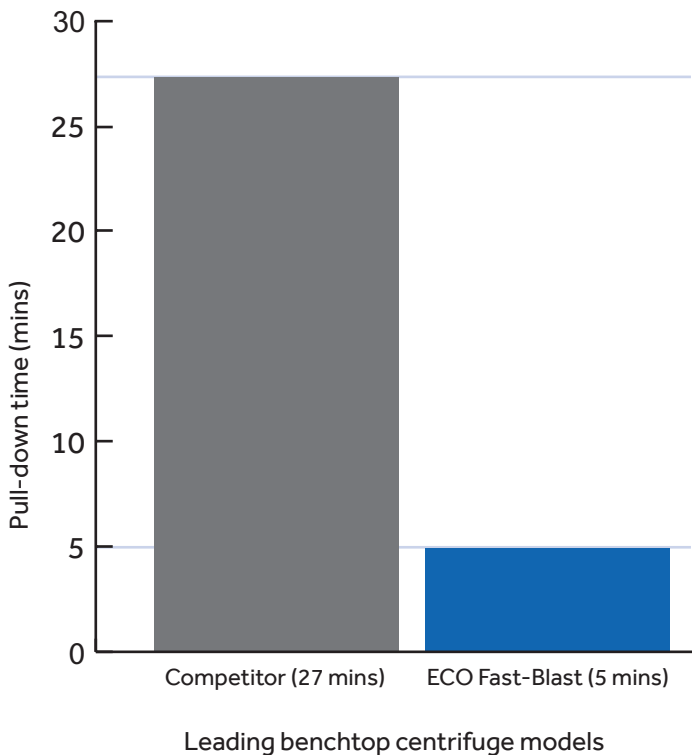


### Rapid cooling for streamlined and efficient workflows

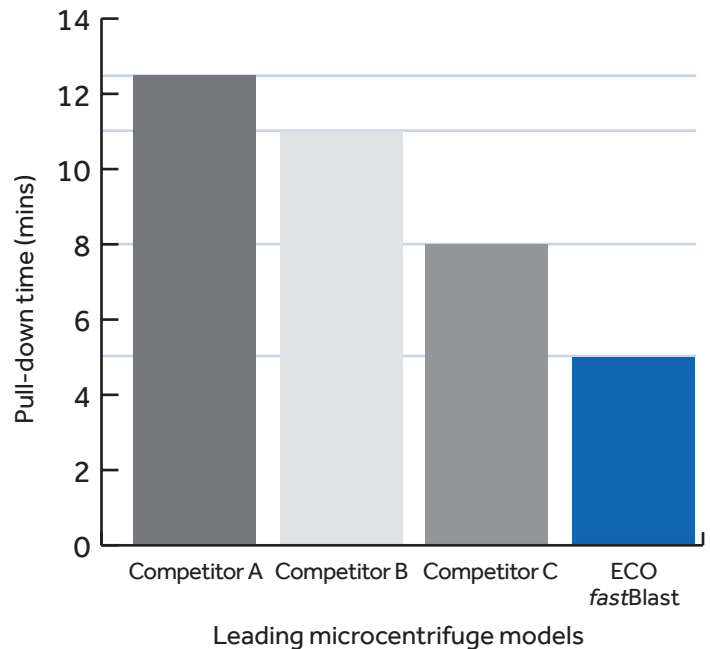
Haier Biomedical is known worldwide as a leader in cold chain storage solutions, and has used its expertise to develop ECO *fastBlast* refrigerated benchtop and microcentrifuges. These latest additions to the company's portfolio address the challenge of excessive energy consumption by incorporating a highly efficient pre-cool technology that enables rapid temperature pull-down within minutes. Drawing on Haier Biomedical's cold chain storage knowhow, the ECO *fastBlast* line has been designed to offer the fastest pre-cooling function on the market, outperforming similar instruments that are currently available from other leading manufacturers. This pre-cooling function can bring benchtop and microcentrifuge temperatures down from 21 °C to 4 °C in just five minutes – offering impressive time savings in comparison to alternative models from other leading manufacturers (Figures 1 and 2). This rapid pull-down capability enables on-demand operation, making it possible for scientists to turn the devices off between runs and switch them on just before they are needed, ensuring greater convenience for operators and reducing waiting times for enhanced lab productivity.

Refrigerated centrifuges are generally extremely power intensive, with approximately 70 percent of their total electricity consumption being attributable purely to the built-in refrigeration system. Leaving the equipment running all day therefore results in extensive unnecessary electricity usage, especially considering that these devices will likely only be used a maximum of a few times per day in most labs. Reducing the energy consumption of refrigerated centrifuges not only leads to cost savings – which can be particularly important for labs with tighter financial constraints – but it is also beneficial from an environmental standpoint, lowering carbon emissions and contributing to more sustainable laboratory practices.

# Haier Biomedical: ECO *fastBlast*



**Figure 1:** Pull-down from 21 °C to 4 °C on the ECO *fastBlast* benchtop centrifuge only takes five minutes. This is 22 minutes – and over 81 per cent faster – than a competitor’s benchtop refrigerated centrifuge.

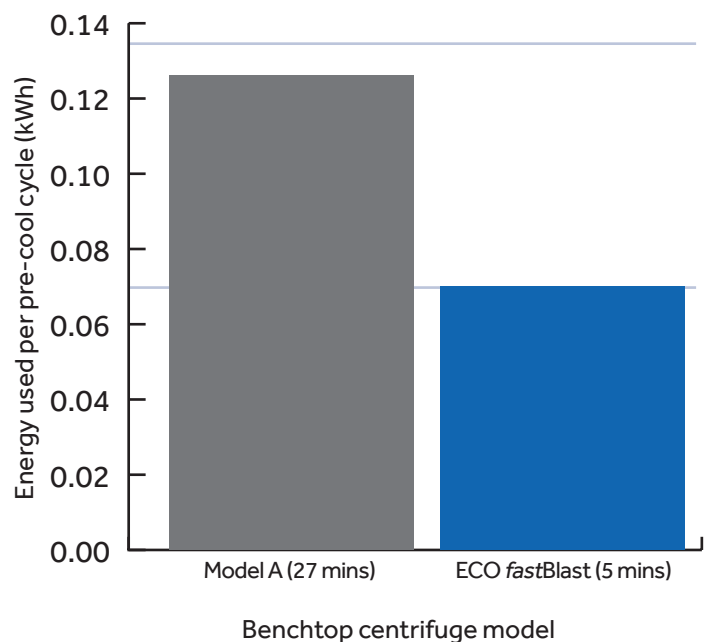


**Figure 2:** The ECO *fastBlast* refrigerated microcentrifuge cools down from 21 °C to 4 °C faster than other models (published competitive and internal test data) (Models A-C), offering added time savings and convenience.

## An energy-efficient pre-cool mode

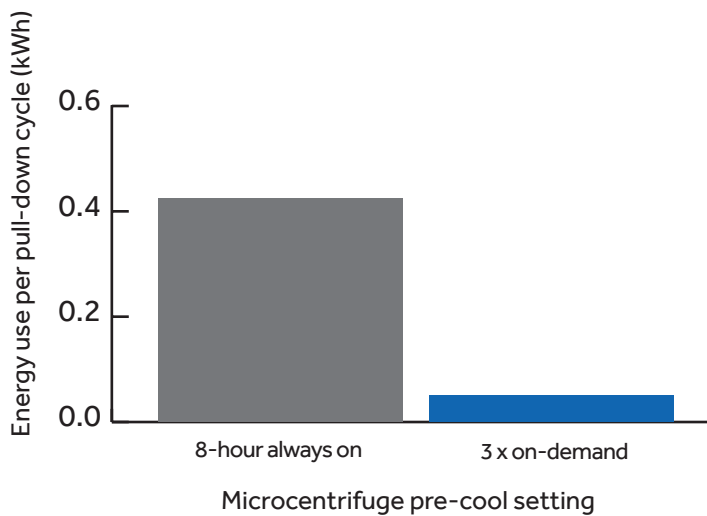
The rapid pull-down rate and energy efficiency of the ECO *fastBlast* allows benchtop refrigerated centrifuges to use only 0.071 kWh per pre-cool cycle – up to 43 per cent less electricity than a typical benchtop model that normally uses around 0.125 kWh (Figure 3).

For refrigerated microcentrifuges, the ECO *fastBlast* also consumes only 0.018 kWh – up to 65 per cent less energy per pull-down cycle than other leading refrigerated microcentrifuge models using around 0.052 kWh. In addition, three on-demand pre-cool runs of the ECO *fastBlast* uses 88 per cent less energy than leaving a device on and cooling continually during the course of an eight-hour working day (Figure 4).



**Figure 3:** Pre-cooling with ECO *fastBlast* uses 43 per cent less electricity per cycle than a typical benchtop refrigerated centrifuge (published competitive and internal test data).

# Haier Biomedical: ECO *fastBlast*



**Figure 4:** Refrigerated microcentrifuges use approximately 0.425 kWh when left on during an eight-hour working day. In contrast, three on-demand pull-down cycles of the ECO *fastBlast* consume just 0.05 kWh in total.

On-demand pre-cooling may not be suitable for all laboratories, and some high throughput facilities still require refrigerated centrifuges to be left on continually during busier periods. Haier Biomedical's centrifuges incorporate technologies that help to reduce unnecessary electricity consumption, even when a centrifuge must be left on throughout the course of an eight-hour working day. These include built-in weekly schedulers that allow scientists to program when the centrifuge refrigeration system should be on each day, as well as Auto-Shut, which switches off the refrigeration system after a pre-defined period of inactivity.

Reducing energy consumption during pre-cooling also helps to lower the total CO<sub>2</sub> emissions generated by a laboratory in the long term. 8-hour always-on usage, five days a week, generates approximately 23.2 kg/y whereas three daily on-demand cycles generates just 2.8 kg/y over the same time period (calculated based on 217g CO<sub>2</sub>eq/kWh) – an 88 percent reduction. A lower carbon footprint provides significant additional environmental benefits and contributes to more sustainable scientific workflows.

## Switch Off your centrifuge - Switch Off your emissions

### A cost-effective solution

Reducing the energy use of refrigerated centrifuges can have significant financial benefits for individual labs and institutions as a whole. The energy consumed by a microcentrifuge left on continually during an eight-hour working day, five days a week, amounts to £26.70 annually per unit. In contrast, using the ECO *fastBlast* three times a day, five days per week, costs just £3.20 in total over the course of 12 months – an 88 per cent saving per device (Table 1).

	8 hours always on	3 on-demand cycles
kWh/y	106.8	12.9
Cost per year (£)	26.70	3.20

**Table 1:** Three daily on-demand cycles on an ECO *fastBlast* uses 88 percent less electricity per device than typical 8-hour always-on usage over five working days, resulting in a significant cost saving over the course of a year.

# Haier Biomedical: ECO *fastBlast*

There are additional indirect financial benefits of on-demand centrifuge use, as reducing the time a device is left running can help to prevent damage and wear on components, such as compressors and fans. This contributes to lowering the cost of maintenance and repairs, and helps to maximise the usable lifetime of valuable laboratory equipment.

## Benefits of ECO *fastBlast* Pre-Cool

- 5-minute pre-cool
- Up to 82 % faster pre-cool
- Up to 65 % less energy used during pull-down
- Up to 88 % less energy used with on-demand usage
- Up to 88 % reduction in CO<sub>2</sub> emissions with on-demand usage
- Up to 88 % saving in annual electricity cost

**Switch Off your Centrifuge**  
**Switch Off your Emissions**  
**Switch On your Savings**

Contact us to discuss how our ECO *fastBlast* refrigerated benchtop and microcentrifuges could reduce energy use in your laboratory.

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