




Thermo Scientific Cryofuge Blood Banking Centrifuges



Greener by design™

-  **Less hazardous:**
First-to-market large-capacity centrifuges that use R744 refrigerant (Global Warming Potential of 1)
-  **More energy efficient:**
Up to 14% lower energy consumption
-  **Extended life:**
Have an end-of-life recycling program¹

 Learn more at thermofisher.com/greenerbydesign

Introduction

We are committed to designing our products with the environment in mind. This fact sheet helps provide the rationale behind the environmental claims that the Thermo Scientific™ Cryofuge™ 8 and 16 Blood Banking Centrifuges with GreenCool™ Technology are more energy efficient, contain less hazardous refrigerants and have an end-of-life recycling program as compared to prior models and other centrifuges currently on the market.

Product description

Cryofuge 8 and 16 large capacity centrifuges with GreenCool technology bring outstanding power and enhanced sustainability to blood processing centers. Featuring a natural refrigerant (CO₂) cooling system, these centrifuges significantly reduce the environmental impact with a Global Warming Potential (GWP) of 1 and comply with upcoming EU and US EPA F-gas regulations.

The Cryofuge series also possess class-leading features such as the Thermo Scientific™ Eco-Spin™ Windshielded Rotors with reduced energy consumption.

refrigerants in centrifuge products and are replacing them with more sustainable, natural refrigerant alternatives that have a significantly lower Global Warming Potential (GWP).

The Cryofuge centrifuge series utilizes R744, a natural, stable non-flammable refrigerant that has a lower GWP as compared to other refrigerant options commonly used in refrigerated floor-standing centrifuges (Table 1).

More energy efficient

The centrifuges are more environmentally efficient with the use of R744 when compared to other refrigerants such as R452A and even R600A. Cryofuge 8 and 16 centrifuges with GreenCool technology have a 14% lower energy consumption when compared to the legacy Thermo Scientific™ Sorvall™ BP/ Cryofuge™ 8 and 16 Centrifuges that utilized R-449A HFC/HFO refrigerant, measured for a 1-hour run at maximum spin speed (Table 2).

Windshielded rotors

Cryofuge models are operated with the Thermo Scientific™ Eco-Spin™ Windshielded Rotors, which use up to 64% less energy than non-windshielded designs of the same rotor body (Figure 2/ Table 3).

Green features

Less hazardous

Thermo Fisher Scientific is committed to a more sustainable future by supporting U.S. Environmental Protection Agency and European Commission's efforts to transition to greener refrigerants by replacing hydrofluorocarbon (HFC) refrigerants. HFC refrigerants have been identified by the U.S. EPA and EU Commission as powerful greenhouse gases with significant global warming potential. Thermo Fisher Scientific is in the process of phasing out the use of these



Figure 1. Thermo Scientific Cryofuge 8 and 16 Centrifuges with GreenCool Technology

Choosing Cryofuge centrifuges with windshielded rotors reduces energy use by an average of 57%. For the 16 x 500 mL rotor size, this would be equivalent to saving 3,919 kWh of energy over the course of one year when in use for 4 hours per working day. The savings represent 2.6 metric tons of CO₂ equivalents, the greenhouse gas emissions from driving 6,705 miles in an average passenger car². It also translates into energy cost savings of \$534 annually³, based on commercial sector electricity rates.

Extended life

Cryofuge centrifuges with GreenCool technology are designed for longevity and when the unit is ready for retirement, we are partnering with reputable and certified recyclers in the United States to offer customers a way to recycle their used instruments. The materials can then reenter the manufacturing stream, which helps reduce additional mining of natural resources. Instructions on how to responsibly dispose of your centrifuge are provided at thermofisher.com/centrifuge-recycling.

Our commitment to environmental responsibility doesn't end there. These centrifuges are manufactured in a certified zero-waste facility⁴ in Osterode am Harz, Germany using 100% renewable electricity.

Designing the Cryofuge 8 and 16 Blood Banking Centrifuges with GreenCool Technology to contain less hazardous refrigerants, be more energy efficient, and have an end-of-life recycling program while delivering high capacity and performance is a win for our customers, our company and the planet.

Table 1. Comparison of Global Warming Potential (GWP) of natural, synthetic, and hydrofluorocarbon (HFC) refrigerants commonly used in floor-standing centrifuges.

Name	GWP	Refrigerant class
R744	1	Natural (CO ₂)
R600A	3	Hydrocarbon (HC)
R449A	1,396	Hydrofluorocarbon (HFC)/ Hydrofluoroolefin (HFO)
R452A	2,140	Hydrofluoroolefin (HFO)

Table 2. Comparison of energy consumption of current and previous Thermo Scientific blood banking centrifuges*

Name	Power consumption
Thermo Scientific Cryofuge Centrifuges with GreenCool Technology	4600 W
Legacy Thermo Scientific Sorvall BP/ Cryofuge Centrifuges	5400 W

* Energy use measured for a 1-hour run at maximum spin speed and compared to previous model.

Figure 2. Power consumption of Thermo Scientific windshielded rotors as compared with non-windshielded designs of the same rotor body.*

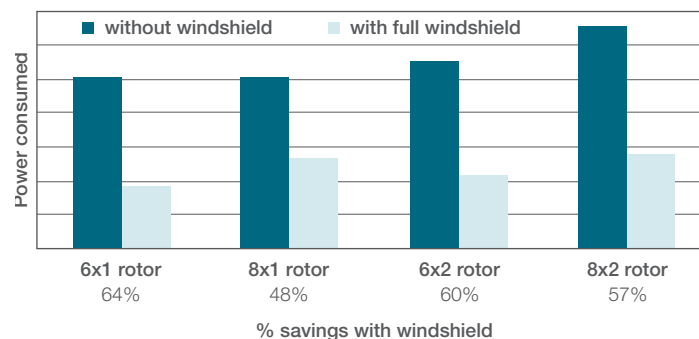


Table 3. Comparison of energy use of centrifuges with and without Eco-Spin windshielded rotors.*

Rotor size	Energy usage with windshield (Wh)	Energy usage without windshield (Wh)	Energy use reduction with windshield
6 x 550 mL	1,834	5,079	64%
8 x 550 mL	2,648	5,061	48%
12 x 500 mL	2,211	5,522	60%
16 x 500 mL	2,782	6,536	57%

* Based on an engineering evaluation of windshielded and non-windshielded designs of the same rotor body. Comparison of Cryofuge 8 and 16, and BIOS 16 centrifuge models with defined rotor size and equivalent centrifuge model on the market.

References

- Details on recycling program for United States can be found at <https://www.thermofisher.com/us/en/home/global/forms/life-science/centrifuge-recycling.html>
- US EPA Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> - Accessed 02 September, 2025.
- Based on an energy rate of \$0.1363 as reported as the national average commercial rate by the US Energy Information Administration: <https://www.eia.gov/electricity/monthly> - Accessed 02 September, 2025.
- Zero Waste is defined as diverting at least 90% of non-hazardous waste from landfill, waste to energy, and incineration.

Find out more at thermofisher.com/centrifuges

thermo scientific