



BIO 085 CLOSED-CYCLE KLEEMENKO

Introduction

The Bio 085 Closed-Cycle Kleemenko Cooler is a low cost, zero maintenance, benchtop cryogenic refrigerator system designed for the storage of frozen tissue, cell cultures, organs and body parts. It has been also used in environmental and gas studies, with slight end-user modifications, and has potential applications anywhere a small controlled temperature environment is necessary for experimental success.

The stand alone cooler can be operated continuously at temperatures varying from ambient to -188°C (85K). It provides a quiet, vibration free storage environment and places the convenience and benefits of cryogenic cooling and storage within easy reach of the bench top.

The system is small and light enough to be used to transport frozen samples within a research facility, operating continuously with its uninterruptable power supply (option U).

Applications

The Bio 085 can be used for a variety of applications including:

- ◇ Freezing and storage of biological samples
- ◇ Local transportation of frozen biological samples from the main storage facility to the research laboratory, treatment room, or operating suite
- ◇ Environmental and atmospheric gas composition studies
- ◇ Cooling and storage of solid state materials requiring cryogenic conditions
- ◇ User friendly storage and retrieval of samples without changing cooling settings
- ◇ Bench top operation
- ◇ Cryogen free operation

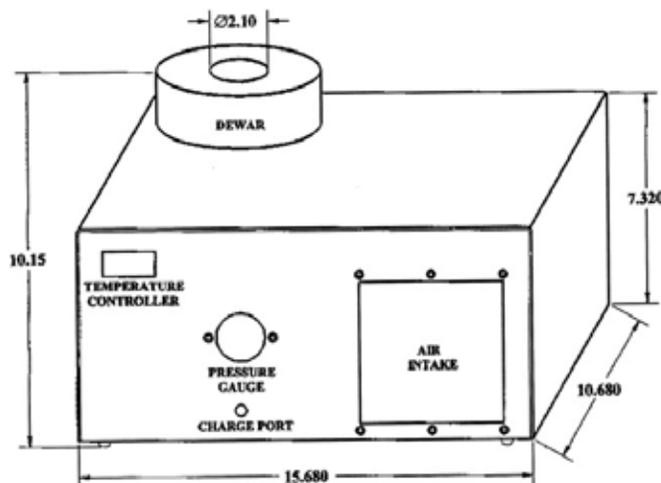


Features

Several unique features of the Bio 085 Closed-Cycle Kleemenko Coolers provide significant user benefits:

- ◇ Controlled cool down: cooling from ambient to -188°C (85K) in 3 to 4 hours
- ◇ Excellent temperature setability and stability: front panel digital temperature readout and controller. Temperature is maintained within 1 degree of the set point.
- ◇ Simple access to the sample: top loading dewar
- ◇ Substantial cooling capacity:
 - ◇ 5 Watts of cooling power at -150°C (123 K)
 - ◇ 1 Watt at -188°C (85K)
- ◇ Small, compact size
 - ◇ Typical footprint of 11 " x 14 "
- ◇ No liquid cryogenics to handle: all cryogenics are produced and consumed within the refrigerator.

- ◇ Safe System Operation
- ◇ Easy to Use operation
- ◇ Low noise and vibration operation: low microphonics. Ultra-stable, ultra-quiet operation. Provides the advantage of deep freezing to the bench top without the use of liquid nitrogen.
- ◇ Zero Maintenance: system requires no maintenance and only minimal care that the air intake is clean and unobstructed.
- ◇ Low Power Consumption: system consumes less power than a bench top computer.



ALL DIMENSIONS ARE IN INCHES

Specifications

Operating Temperature Range:	Ambient (293K) to -188 °C (85K)
Temperature Setability:	+/- 1 °C (1K) within the range of Ambient (293K) to -188 °C (85K) Temperature is user selected.
Temperature Stability:	+/- 0.5 °C (0.5K) Electronically Stabilized Temperature
Cool down Time to -188 °C:	No load cool down time from -188 °C (85K) is between 3 and 4 hours. Depending on sample load in the system, this can vary to longer cool down times.
Refrigerator Cooling Capacity:	5 Watts at -150 °C (123 K) 1 Watt at -188 °C (85K)
Temperature Readout:	Three digit display, reading in Kelvin
Dimensions:	Width: 16 inches (40 cm) Length: 11 inches (28 cm) Height: 14 inches (35 cm)
Weight:	35 pounds (15.7 kg)
Electrical Requirements:	110 - 120 V, 60 Hz, 13 amp. 220 - 230 V, 50 Hz, 13 amps.
Option "U"	Uninterruptible Power Supply
Storage Volume:	2" diameter by 3" height internal cooling dewar (5.0 cm x 7.6 cm)
Storage Features:	Top Loading Dewar Integral to the Cooler Pull out cooling tray for easy sample exchange Ambient Pressure
Noise Levels:	Less than 54 dba at 1 meter
Maintenance Requirements:	Monthly filter change

