# Beverage-Air Refrigerator Performance Testing

Application of ASHRAE 117-2002

FSTC Report # 5011.03.01

**Food Service Technology Center**
**Final Report, January 2003**

Prepared by:
**Fred Wong**
**David Zabrowski**
**David Cowen**
Fisher-Nickel, Inc.

Contributor:
**Angelo Karas**
**Scott Miner**
Fisher-Nickel, Inc.



The information in this report is based on data generated at the Food Service Technology Center.

## Acknowledgments

California consumers are not obligated to purchase any full service or other service not funded by this program. This program is funded by California utility ratepayers under the auspices of the California Public Utilities Commission.

Los consumidores en California no estan obligados a comprar servicios completos o adicionales que no esten cubiertos bajo este programa. Este programa esta financiado por los usuarios de servicios públicos en California bajo la jurisdiccion de la Comision de Servicios Públicos de California.

A National Advisory Group provides guidance to the Food Service Technology Center Project. Members include:

Advantica Restaurant Group

Applebee's International Group

California Energy Commission (CEC)

California Restaurant Association

Carl Karcher Enterprises, Inc.

DJ Horton & Associates

Electric Power Research Institute (EPRI)

Enbridge Gas Distribution

EPA Energy Star

Gas Technology Institute (GTI)

Lawrence Berkeley National Laboratories

McDonald's Corporation

National Restaurant Association

Pacific Gas and Electric Company

Safeway, Inc.

Southern California Edison

Underwriters Laboratories (UL)

University of California at Berkeley

University of California at Riverside

US Department of Energy, FEMP

Specific appreciation is extended to Beverage-Air, for supplying the Food Service Technology Center with a 2-door reach-in refrigerator for controlled testing in the appliance laboratory.

## Policy on the Use of Food Service Technology Center Test Results and Other Related Information

- Fisher-Nickel, inc. and the Food Service Technology Center (FSTC) do not endorse particular products or services from any specific manufacturer or service provider.
- The FSTC is *strongly* committed to testing food service equipment using the best available scientific techniques and instrumentation.
- The FSTC is neutral as to fuel and energy source. It does not, in any way, encourage or promote the use of any fuel or energy source nor does it endorse any of the equipment tested at the FSTC.
- FSTC test results are made available to the general public through technical research reports and publications and are protected under U.S. and international copyright laws.
- In the event that FSTC data are to be reported, quoted, or referred to in any way in publications, papers, brochures, advertising, or any other publicly available documents, the rules of copyright must be strictly followed, including written permission from Fisher-Nickel, inc. *in advance* and proper attribution to Fisher-Nickel, inc. and the Food Service Technology Center. In any such publication, sufficient text must be excerpted or quoted so as to give full and fair representation of findings as reported in the original documentation from FSTC.

## Legal Notice

# Contents

# List of Figures and Tables

## Figures



## Tables

# Beverage-Air Refrigerator Performance Report

## Background

Refrigeration is an integral, and potentially expensive, part of every food service establishment. Commercial refrigeration comprises 6% of a food service operation's energy use[1]; in refrigeration-intensive operations, such as super markets, that percentage could be even higher. The American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE ) developed the BSR/ASHRAE Standard 117 - 2002 *Method of Testing Closed Refrigerators,* which determines the daily energy consumption of closed refrigerators. For many years the California Energy Commission (CEC) has been requiring manufacturers to provide energy performance numbers based on the ASHRAE 117 - 1992 test method (the predecessor of ASHRAE 117 - 2002) for any commercial refrigeration unit sold in the state of California for many years. The differences between 117 – 1992 and 117 – 2002 are changes in simulator mixture, placement of ambient temperature measurement device, and refrigerator loading scenario [2,3]. The EPA has also established guidelines that determine performance criteria for the Energy Star® label for refrigerators.

Dedicated to the advancement of the food service industry, the Food Service Technology Center (FSTC) has focused on the development of standard test methods for commercial food service equipment since 1987. The primary component of the FSTC is a 10,000 square-foot appliance laboratory equipped with energy monitoring and data acquisition hardware, 60 linear feet of canopy exhaust hoods integrated with utility distribution systems, appliance setup and storage areas, and a state-of-the-art demonstration and training facility.

Beverage-Air’s double door reach-in refrigerator employs epoxy-coated rails for a multitude of shelf configurations, as well as a fan shut-off switch that operates when the doors open. This report presents the results of applying the ASHRAE 117 - 2002 test method to the Beverage-Air ER48-1AS double-

door reach-in refrigerator. The glossary in Appendix A is provided so that the reader has a quick reference to the terms used in this report.

## Objectives

The objective of this report is to examine the operation and performance of a Beverage-Air 48-inch double-door reach-in refrigerator, under the controlled conditions of the ASHRAE's standard 117 - 2002 *Method of Testing Closed Refrigerators*. The scope of this testing at the FSTC is as follows:

1. Verify that the appliance is operating at the manufacturer's rated energy input (current draw).
2. Document test simulator temperatures and appliance energy consumption during the 24-hour test.
3. Characterize the simulator temperatures and energy use during the 8-hour door openings and 16-hour idle.
4. Estimate the operating cost based on a standardized cost model.

## Appliance Description

Beverage-Air's ER48-1AS, 48-inch double-door reach-in refrigerator includes epoxy coated wire rod slides (see Figure 1), which accommodates 18 x 26-inch (full size) sheet pans. The cavity is cooled by a top mounted system, which turns off when the doors are opened. The top and front are stainless steel, with aluminum comprising the case, interior and end panels (Figure 2).

***Figure 1. Epoxy coated rods for adjustable shelving.***

***Figure 2. Beverage-Air ER48-1AS Reach-In Refrigerator.***

Nominal 2-inch thick R22 polyurethane insulation (foamed in place) prevents heat gain into the refrigerator cavity, while the two doors feature self-closing hinges and snap-in magnetic gaskets.

Appliance specifications are listed in Table 1, and the manufacturer's literature is in Appendix B.

***Table 1. Appliance Specifications.***

| | |
|---|---|
| Manufacturer | Beverage-Air |
| Model | ER48-1AS |
| Generic Appliance Type | Double-Door Reach-in Refrigerator |
| External Dimensions | 52" wide x 33.5" deep x 84.5" high (including casters) |
| Shelf Configuration | Epoxy Coated Wire Rod Slides |
| Current Rating | 9.4 amps @ 115 volts |
| Refrigerant Type | R134A |
| Refrigerant Amount | 14 oz |
| Design Pressure | 250 psig high; 250 psig low |
| Construction | Stainless-steel doors and grill with steel gray acrylic finish for exterior sides. Exterior top bottom and back are galvanized steel, and an anodized aluminum finish interior |
| Usable Volume | 42.5 cubic feet |

## Setup and Instrumentation

### Laboratory Set-Up

The reach-in refrigerator was installed in an environmental room on a tiled floor, in accordance with the provision of the ASHRAE 117-2002 test method. During testing, the room was held at a dry bulb temperature of 75.2 ± 1.8°F and a wet bulb temperature of 64.4 ± 1.8°F. Air currents were 90° to the plane of the doors, with a velocity no greater than 49.2 fpm. Lighting within the test-room was no less than 74.4 foot-candles (800 Lux).

***Figure 3.***
***Test simulator with thermocouple location and configuration.***

## Test Simulator Packages

The tests were conducted using plastic containers with lids and were 1 U.S. liquid pint by volume. Each container held an artificial sponge material and was filled with a heat transfer solution. The test packages were divided into two groups: test simulators and filler packages. The filler packages contained foam and water. The test simulators packages contained foam and a 50% by volume, solution of propylene glycol and distilled water. Each test simulator package was instrumented with a thermocouple in the geometric center to measure the temperature of the solution during the test period (Figure 3).

## Instrumentation

A total of twenty-four test simulators were used to measure the temperature of simulated food product during the 24-hour test. Due to the adjustable shelving design in the Beverage-Air, sheet pans were placed at intervals specified by the ASHRAE 117-1992 standard of 20 inches center to center between test simulators. Each shelf was loaded with four test simulator packages - one at each corner. Figure 4 illustrates the position of the test simulator packages.

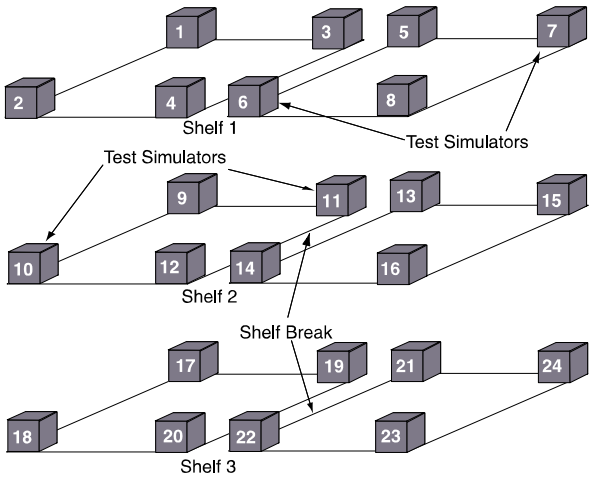



***Figure 4.***
***Test simulator placement.***

The ASHRAE 117-2002 standard specifies that at least 20% of the remaining available refrigerator volume be filled with filler packages, where test simulators are not required. Filler packages consisted of the same foam-filled plastic containers with water replacing the mixture of propylene glycol and distilled water. Figure 5 represents the filler packages, test simulators, and shelf positions within the test refrigerator.

Electrical energy consumption was measured with a Watt-hour transducer that generated a pulse for every 0.00001 watt-hours. The transducer and thermocouples were connected to an automated data acquisition unit that recorded data every 5 seconds. Energy consumption and input rates were calculated and temperature profiles were generated from this information.

## Test Procedure and Results

### 24-Hour Test

The refrigerator was stabilized to achieve test simulator temperatures of 38 ± 2°F, as mandated by the California Energy Commission (CEC) for a period where repetitive conditions exist.

Researchers conducted a 24-hour test, which incorporates two operating scenarios:  8 hours with door openings and 16 hours with the doors closed (idle state). During the door-opening portion of the test, each door was opened for six seconds to an angle greater than 75 degrees, six times an hour (once every ten minutes). This door-opening portion was designed to emulate normal operation during the day.

The unit consumed an average of 0.195 kW during the 24-hour test, while maintaining an average test simulator temperature of 40°F. Figures 6 and 7 show the test simulator temperatures during the 24-hour test.

***Figure 5.***
***Shelf locations and configuration.***

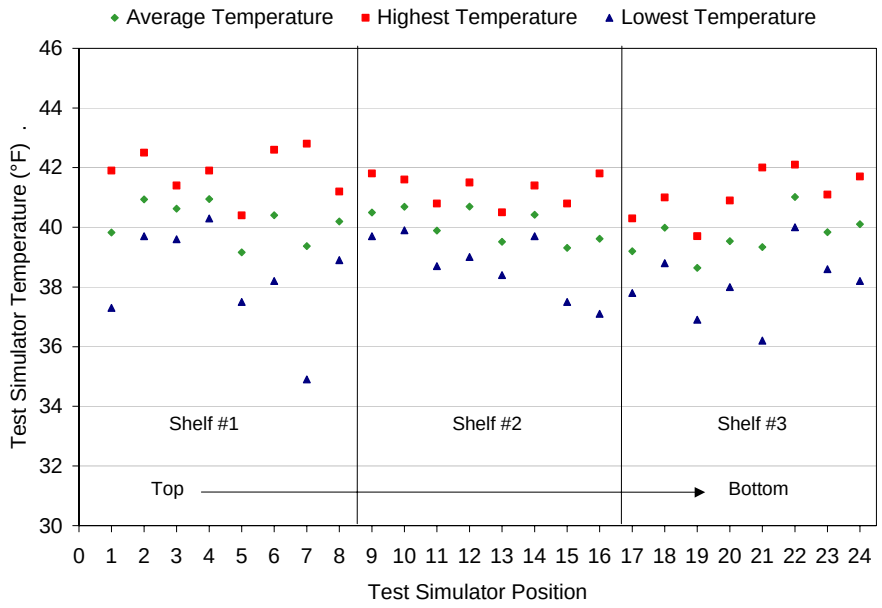



***Figure 6.***
***24-Hour individual test simulator temperatures.***

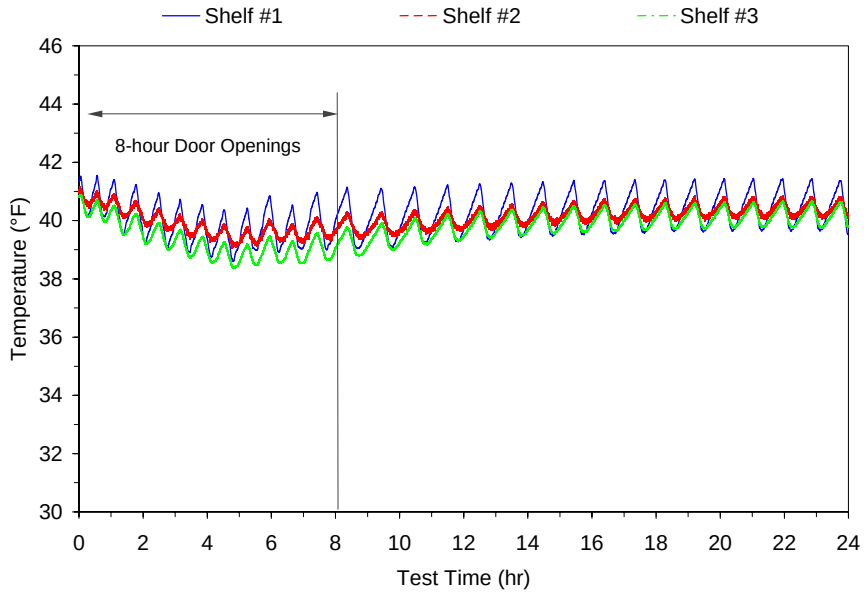



***Figure 7.***
***24-Hour average shelf temperatures.***

## Test Results

Compressor percentage run time, or duty cycle, was calculated during the 24-hour test. Duty cycle was further calculated for the 8-hour door opening portion and 16-hour idle portion. The compressor exhibited more frequent, short on-cycles during the 8-hour door-opening test. The average energy consumption rates during the 8-hour and 16-hour portions were 0.241 kW and 0.173 kW, respectively. Ambient air entering the refrigerator cavity during the door openings was the primary reason for the 28% increase in energy consumption rate. During the idle state, any loss of cavity temperature was due to heat transfer through the insulation and door seals. Table 2 summarizes the test results for the energy consumption of the refrigerator. The Beverage-Air was able to maintain an average test simulator temperature of 40°F over the 24-hour test period. Though ASHRAE 117-2002 does not currently require a specified temperature range, the CEC requires a range of 38 ± 2°F for average simulator temperature. Table 3 summarizes the temperature data for the Beverage-Air refrigerator test. With an average energy consumption rate of approximately 0.195 kW during the 24-hour test, the Beverage-Air refrigerator used 11% less energy than a previously tested refrigerator at the Food Service Technology Center. [4]

***Table 2. Energy Consumption Test Results.***

| | 8-Hr Door Openings | 16-Hr Idle | 24-Hr Test |
|---|---|---|---|
| Compressor Duty Cycle (%) | 32.2 | 19.5 | 23.8 |
| Fan Energy Consumption (kWh) | 0.580 | 1.160 | 1.740 |
| Compressor Energy Consumption (kWh) | 1.346 | 1.605 | 2.951 |
| Total Energy Consumption (kWh) | 1.926 | 2.765 | 4.691 |
| Energy Consumption Rate (kW) | 0.241 | 0.173 | 0.195 |

***Table 3. 24-Hour Temperature Performance.***

| | |
|---|---|
| Ambient Dry-Bulb Temperature (°F) | 74.2 |
| Ambient Wet-Bulb Temperature (°F) | 63.5 |
| Average Temperature (AT) for All Test Simulators (°F) | 40 |
| Coldest Test Simulator Average (CTSA) Temperature (°F) | 38.6 |
| Coldest Test Simulator (CTS) Temperature (°F) | 36.9 |
| Warmest Test Simulator Average (WTSA) Temperature (°F) | 41.0 |
| Warmest Test Simulator (WTS) Temperature (°F) | 42.1 |

## Energy Model

Researchers developed an energy usage/cost model to estimate annual user costs. The model is based on operational energy use from both the door openings and closed door conditions. The door opening condition was used to estimate daily energy use of the unit, while the closed door condition was used to estimate idle state during the night. The model assumed 24 operating hours per day, 365 days per year. The energy cost was based on $0.10/kWh, a typical average energy rate for the United States. Energy consumption and operating cost are summarized in Table 4.

***Table 4. Energy Consumption and Cost.***

| | Energy Consumption (kWh/yr) | Annual Operating Cost ($/yr) |
|---|---|---|
| Door Openings | 703 | 70 |
| Door Closed | 1,009 | 101 |
| ***Total*** | ***1,712*** | ***171*** |

## Conclusions

Beverage-Air's double-door reach-in refrigerator performed well during the comprehensive laboratory testing. The unit was capable of maintaining the CEC required test simulator temperatures during both door-opening and closed door portions of 38 ± 2°F. Energy consumption rate was low, at 0.195 kW for the 24-hour test relative to units previously tested at the FSTC. The reported energy consumption under 117-2002 is higher than it would be under 117 – 1992 due to the loading scenario that was used for this test (unit was loaded to 20% capacity instead of 100% as required for 117 - 1992). Furthermore, the Beverage-Air's low energy use qualifies it as an Energy Star® refrigerator. [5]

## References


1. Claar, C.N., Mazzucchi, R.P., Heidell, J.A., 1985. The Project on Restaurant Energy Performance (PREP) - End-Use Monitoring and Analysis. Prepared for the Office of Building Energy Research and Development, DOE, May.

2. American Society of Heating, Refrigerating and Air-Conditioning Engineers. ASHRAE 117 - 1992. *Method of Testing Closed Refrigerators.* Atlanta. American Society of Heating, Refrigerating and Air-Conditioning Engineers. Atlanta, GA.

3. American Society of Heating, Refrigerating and Air-Conditioning Engineers. ASHRAE 117 - 2002. *Method of Testing Closed Refrigerators.* Atlanta. American Society of Heating, Refrigerating and Air-Conditioning Engineers. Atlanta, GA.

4. Food Service Technology Center. 1999. *Traulsen Two-Door Reach-In Refrigerator Performance Test*. Report 5011.99.73 prepared for Customer Energy Management. San Francisco. Pacific Gas and Electric Company.

5. Environmental Protection Agency. 2002. *Energy Star® Qualified Commercial Solid Door Refrigerators and Freezers.* http://yosemite1.epa.gov/estar/consumers.nsf/content/refrigerator.htm

# A Glossary

**Coldest Test Simulator Average** (°F)
CTPA

The test simulator with the coldest average temperature over the test period.

**Coldest Test Simulator** (°F)
CTP

The coldest temperature reached of the test simulator with the coldest average temperature.

**Coldest Test Simulator Average Temperature,** (°F)
CTSA

The test simulator with the coldest average temperature over the test period.

**Coldest Test Simulator** (°F)
CTS

The coldest temperature reached of the test simulator with the coldest temperature.

**Compressor Duty Cycle** (%)

The calculated percentage compressor "on" time or run time.

**Dry Bulb Temperature** (°F)
DB Temperature

The ambient air temperature.

**Duty Cycle** (%)
Load Factor

The average energy consumption rate (based on a specified operating period for the appliance) expressed as a percentage of the measured energy input rate.

$$\text{Duty Cycle} = \frac{\text{Average Energy Consumption Rate}}{\text{Measured Energy Input Rate}} \times 100$$

**Energy Input Rate** (kW or kBtu/h)
Energy Consumption Rate
Energy Rate

The peak rate at which an appliance will consume energy, typically reflected during preheat.

**Filler Material**

Material consisting of water, or of a mixture of 50% ° 2% distilled water and 50% ° 2% propylene glycol, or wood blocks with an overall density not less than 480 kg/m$^3$ (30 lb/ft$^3$); used for filling the refrigerator spaces not occupied by test simulators.

**Filler Package**
Dummy Package

Packages used as product mass, consisting of containers with filler material that closely follow food product characteristics, used to fill the spaces between test simulators for product mass.

# Glossary

**Idle Energy Rate** (kW or Btu/h)
Idle Energy Input Rate
Idle Rate

The rate of appliance energy consumption while it is "idling" or "holding" at a stabilized operating condition or temperature.

**Intergrated Average Temperature, IAT** (°F)
Average Temperature, AT (°F)

The average temperature of all of the test simulators over the test period.

**Measured Input Rate** (kW or Btu/h)
Measured Energy Input Rate
Measured Peak Energy Input Rate

The maximum or peak rate at which an appliance consumes energy, typically reflected during the initial appliance draw-down or cool-down period (i.e., the period of operation when the compressor(s) are "on").

**Rated Energy Input Rate**
(kW, W or Btu/h, Btu/h)
Input Rating (ANSI definition)
Nameplate Energy Input Rate
Rated Input

The maximum or peak rate at which an appliance consumes energy as rated by the manufacturer and specified on the nameplate.

**Relative Humidity** (%)
RH

A measurement of the degree of saturation of air, with 100% indicating completely saturated air and 0% indicating completely dry air.

**Test Method**

A definitive procedure for the identification, measurement, and evaluation of one or more qualities, characteristics, or properties of a material, product, system, or service that produces a test result.

**Test Simulator Package**
Test Simulator

A 1 U.S. pint (473 ml) container holding a sponge and a 50%-50% solution of water and propylene glycol with a thermocouple to measure the center temperature of the container.

**Warmest Test Simulator**(°F)
WTS

The highest temperature recorded of the test simulator with the warmest average temperature over the test period.

**Warmest Test Simulator Average**(°F)
WTPA

The test package with the warmest average temperature over the test period.

**Warmest Test Simulator Average**(°F)
WTSA

The test simulator with the warmest average temperature over the test period.

**Wet Bulb Temperature** (°F)
WB Temperature

An air temperature where the temperature is a function of the saturation of the air.

# B Manufacturer Specifications

Appendix B includes the product literature for the Beverage-Air ER48-1AS refrigerator.

Item No _____

Quantity _____

# BEVERAGE-AIR®

## COMMERCIAL REFRIGERATION EQUIPMENT

### GENERAL SPECIFICATIONS

**REACH-IN**
**REFRIGERATORS**

**E-Series**

**MODELS:**
**ER24**
**ER48**
**ER74**

**CONSTRUCTION:**

Heavy duty construction includes stainless front (doors and grilles) with #3 finish. Exterior sides are steel with gray, acrylic finish. Exterior top, back, and bottom are galvanized steel. Exterior mounted thermometer is drum type. Interior cabinet liner is anodized aluminum finish. Interior pilasters are “regular” type. Interior shelves are steel wire-coated.

Cabinets are insulated with R22 foamed-in-place polyurethane insulation, 2" minimum thickness. All doors are “full size” unless specified “half size” and include keyed door locks as standard with solid doors. Doors attach to cabinet on cam lift hinges. Hinges permit doors to stay open at 120 degrees and gravity self-close. A plug-in type, vinyl magnetic gasket is attached to each door. Shelves are adjustable on 1/2" centers. Traffic tough work flow handle is standard. Door openings include low wattage, anti-condensate heaters. A switch located at the top of each full door opening activates light and shuts off evaporator fan motor(s) when door is opened. Six inch, adjustable, corrosion resistant legs are standard. A 9' cord is provided with 115-60-1 models.

**REFRIGERATION:**

Unit’s system is located at top of cabinet. A capillary tube is used to meter R134a refrigerant between condenser and high humidity, coated evaporator coil. Temperature control is located behind front grill. Hot gas (nonelectrical) condensate evaporator is located at top of cabinet.

**AIR DISTRIBUTION:**

Beverage-Air’s unique down-duct air distribution provides the ideal environment for food preservation. Refrigerated air is discharged from an insulated evaporator coil compartment located above the interior top of cabinet into a distribution plenum. From the plenum, air is discharged down both sidewalls one half way back. In two section models, 3-way air discharge is accomplished with an additional down duct located on the center of the back wall from the discharge plenum to the floor. In three section models, 4-way air discharge is accomplished with two additional down ducts located on the back wall. Air is returned upward across the full width of the interior into a louvered plenum assuring even temperatures throughout the cabinet.

ER24

ER48

ER74

Optional Half (Solid or Glass) Doors Available In All Models

C-UL Standard on all models except ER74, must be specified

Made in USA
http://www.Beverage-Air.com

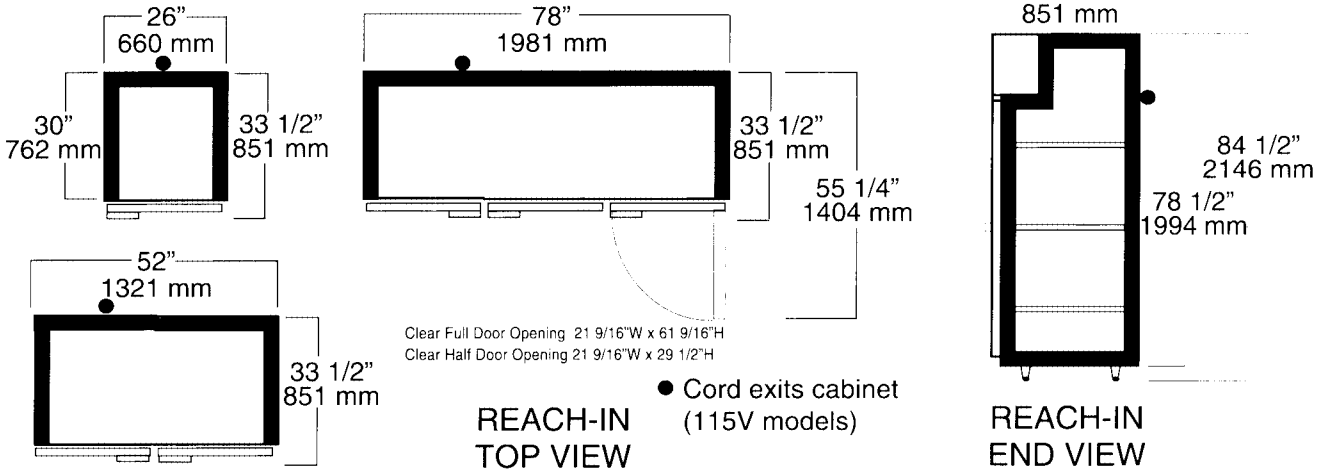
BEVERAGE-AIR
a Specialty Equipment company
PO BOX 5932, Spartanburg, SC 29304-5932
1-800-845-9800 Fax # 864-582-5083

File # _____

Spec. _____

# BEVERAGE-AIR®
# ER24, ER48, ER74
## Reach-In Refrigerators

## DIMENSIONS




REACH-IN TOP VIEW

REACH-IN END VIEW

### ❑ SPECIFICATIONS — ER24

| | SOLID DOOR | GLASS DOOR |
|---|---|---|
| Exterior Width | 26" | 26" |
| Exterior Depth, Overhandle | 33 1/2" | 33 1/2" |
| Exterior Height, With Legs | 84 1/2" | 84 1/2" |
| Cubic Feet | 23.1 | 23.1 |
| Cabinet Voltage (50 Cycle Available) | 115 | 115 |
| Horsepower | 1/4 | 1/4 |
| Amps | 5.7 | 5.7 |
| Recommended BTU/HR* | 1900 | 1900 |
| Crated Weight | 351 | 360 |
| Shelves | 3 | 3 |
| Shelf Dimension | 20 3/4" x 26" | 20 3/4" x 26" |

### ❑ SPECIFICATIONS — ER48

| | SOLID DOOR | GLASS DOOR |
|---|---|---|
| Exterior Width | 52" | 52" |
| Exterior Depth, Overhandle | 33 1/2" | 33 1/2" |
| Exterior Height, With Legs | 84 1/2" | 84 1/2" |
| Cubic Feet | 46.6 | 46.6 |
| Cabinet Voltage (50 Cycle Available) | 115 | 115 |
| Horsepower | 1/3 | 1/3 |
| Amps | 9.4 | 9.4 |
| Recommended BTU/HR* | 2500 | 2500 |
| Crated Weight | 562 | 580 |
| Shelves | 6 | 6 |
| Shelf Dimension | 20 3/4" x 26" | 20 3/4" x 26" |

### ❑ SPECIFICATIONS — ER74

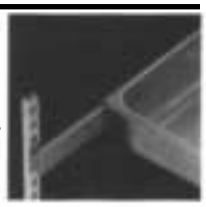
| | SOLID DOOR | GLASS DOOR |
|---|---|---|
| Exterior Width | 78" | 78" |
| Exterior Depth, Overhandle | 33 1/2" | 33 1/2" |
| Exterior Height, With Legs | 84 1/2" | 84 1/2" |
| Cubic Feet | 74 | 74 |
| Cabinet Voltage (50 Cycle Available) | 115 | 115 |
| Horsepower | 1/2 | 3/4 |
| Amps | 10.5 | 12.0 |
| Recommended BTU/HR* | 4550 | 6000 |
| Crated Weight | 791 | 818 |
| Shelves | 9 | 9 |
| Shelf Dimension | 20 3/4" x 26" | 20 3/4" x 26" |

**NOTES:**
*Net refrigeration capacity of cabinet at 20° F evaporator temperature & 120° F condenser temperature. Heat load generated by cabinet is 2565 BTU/HR for ER24, 3375 for ER48, and 6143 for ER74.

ER-244874-BW

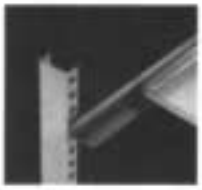
## PAN AND TRAY SLIDE COMBINATIONS

**NO. 1 STAINLESS STEEL ANGLE SLIDE**



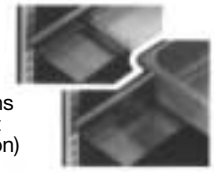
❑ ■ Part No. 61C08-007A
■ Each pair rim supports 2 ea. 12"x 20" hotel pans - 3" minimum spacing
■ Requires use of heavy duty pilaster kit No. 61C08-010A (2 required per section)
Max. Cap. 16Pr/Sec

**NO. 2 STAINLESS STEEL ANGLE SLIDE**



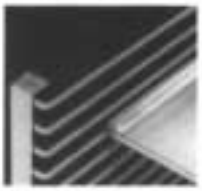
❑ ■ Part No. 61C08-008A
■ Each pair rim supports 1 ea. 18" x 26" bun pan or 2 ea. 14"x 18" bun pans - 2" minimum spacing
■ Requires use of wide pilaster, kit No. 61C08-011A (2 required per section)
Max. Cap. 26Pr/Sec

**NO. 3 STAINLESS STEEL ANGLE SLIDE**



❑ ■ Part No. 61C08-009A
■ Each pair bottom supports 2 ea. 12" x 20" hotel pans or 1 ea. 18" x 26" bun pan or 2 ea. 14" x 18" bun pans
■ Requires use of heavy duty pilaster, kit No. 61C08-010A (2 required per section)
Max. Cap. 16Pr/Sec

**NO. 4 EPOXY COATED WIRE ROD SLIDE**



❑ ■ Part No. 61C31-053A
■ Rim supports a maximum of 19 ea. 18" x 26" bun pans per half section with 1 1/2" fixed spacing
■ Pilasters not required - Adjustable to pan width
Max. Cap. 38Pr/Sec

## OPTIONAL EQUIPMENT

- ❑ Stainless Steel Breakers
- ❑ Prison Package
- ❑ Casters
- ❑ Remote Hook-Up
- ❑ Digital Thermometer
- ❑ Gastronorm Pan Slides (Check factory)
- ❑ Rehinging of Doors
- ❑ Stainless Steel Shelves
- ❑ Half Solid Doors
- ❑ Half Glass Doors
- ❑ Full Glass Doors
- ❑ Locks - Glass Door


BEVERAGE-AIR®
a Specialty Equipment company
PO BOX 5932, Spartanburg, SC 29304-5932
1-800-845-9800 Fax # 864-582-5083