Food Service
Technology Center

TurboChef Sota Appliance Test Report

FSTC Report # 501310071

Application of ASTM
Standard Test Method F2238-09

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Executive Summary

Rapid-cook ovens have been carving out a niche in today's fast-paced culinary world. These ovens employ a combination of technologies to produce hot food faster with a smaller footprint and are creating new opportunities for pubs, kiosks, quick-service restaurants, delicatessens and movie theaters.

The TurboChef Sota (Figure 1) is a countertop rapid-cook oven utilizing a combination of microwave energy and air impingement technologies. To determine the performance of the TurboChef Sota, FSTC engineers used Standard F2238-09, *Standard Test Method for Performance of Rapid-Cook Ovens*[1]. Oven performance is characterized by preheat time and energy consumption, idle energy consumption rate, cooking-energy efficiency, and production capacity. Cooking-energy efficiency and production capacity was determined using a barrel-load pizza test. Each barrel test consisted of eight loads (two pizzas per load), cooked one after the other in rapid succession. Due to its size, the cooking cavity in the Sota would not accommodate the ASTM specified, 12-inch pizza, so two 6-inch pizzas were used to represent the load for the cooking tests. The Sota oven achieved a cooking-energy efficiency of 35.8% while producing 28.4 lbs of cooked pizza per hour. The time necessary to take the oven from a room temperature of 75°F to a ready-to-cook state of 500°F was 4.39 minutes, while the energy necessary to idle the oven at an operational temperature of 500°F was 816 W. A summary of the test results is presented in Table 1.

Figure 1. TurboChef Sota Rapid-Cook Oven.

[1] American Society for Testing and Materials. 2009. *Standard Test Method for Performance of Rapid-Cook Ovens.* ASTM Designation F2238-09, in *Annual Book of ASTM Standards,* West Conshohocken, PA.

Table 1. Summary of TurboChef Sota Oven Performance.

Rated Energy Input Rate (kW)	6.2
Measured Energy Input Rate (kW)	6.0
Preheat to 500°F	
Duration (min)	4.39
Electric Energy Consumption (Wh)	420
Idle Energy Rate (W)	816
Cooking Tests	
Cook Time (min)	1.17
Total Test Time (min)	10.95
Cooking Energy Rate (kW)	3.62
Oven Energy Consumption (Btu/lb)	434
Production Capacity (lb/h)	28.4 ± 1.6
Cooking-Energy Efficiency (%)	35.8 ± 1.9
Average Final Pizza Temperature (°F)	197

Introduction

Background

Dedicated to the advancement of the foodservice industry, The Food Service Technology Center (FSTC) has focused on the development of standard test methods for commercial foodservice 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.

The test methods, approved and ratified by the American Society for Testing and Materials (ASTM), allow benchmarking of equipment such that users can make meaningful comparisons among available equipment choices. The ASTM designation F2238-09 test method characterizes rapid-cook oven performance by preheat duration and energy consumption, idle energy rate, cooking-energy rate, cooking-energy efficiency, and production capacity. ASTM appliance performance can be used to estimate an appliance's contribution to the energy consumption of an end-user's kitchen.

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 the TurboChef Sota under the controlled conditions of the ASTM designation F2238-09, Standard Test Method for Performance of Rapid-Cook Ovens. The scope of this testing is as follows:

1. Verify that the appliance is operating at the manufacturer's rated energy input.
2. Determine the time and energy required to preheat the appliance from room temperature to operational temperature.
3. Characterize the idle energy use with the thermostat set to the operational temperature.
4. Determine the cooking-energy efficiency under a barrel-loading pizza scenario.
5. Determine the production capacity of the oven for the barrel-loading pizza scenario.

Appliance Description

The TurboChef Sota (see Figure 2) is an electric, countertop rapid-cook oven with a rated input of 6.2 kW, that features a combination of microwave energy and air impingement technologies to cook food product. Food is placed in the oven cavity on a wire rack where hot air is impinged from both the top and bottom of the product (see Figure 3).

Appliance specifications are listed in Table 2.

Figure 2. TurboChef Sota Rapid-Cook Oven.

Table 2. Appliance Specifications.

Manufacturer	TurboChef, Inc.
Model	NGO-R
Serial Number	NG00D01076R
Generic Appliance Type	Rapid-Cook Oven
Rated Input	6.2 kW
Controls	Programmable micro-processor
Construction	Stainless Steel
Cooking Cavity Dimensions (W x D x H)	12.5" x 10" x 7"
Cooking Rack Dimensions (W x D)	12" x 9.25"
External Dimensions (W x D x H)	16" x 31.5" x 25.25"

Figure 3. TurboChef Sota Cooking Cavity.

Methods and Results

Setup and Instrumentation

FSTC researchers installed the oven on a stainless steel table over a tiled floor under a 4-foot-deep canopy hood that was 6 feet, 6 inches above the floor. The hood operated at a nominal exhaust rate of 300 cfm per linear foot of hood. There was at least 6-inches of clearance between the vertical plane of the oven and the edge of the hood. All test apparatus was installed in accordance with Section 9 of the ASTM test method.[1]

The rapid-cook oven was installed in accordance with the manufacturer's instructions in a conditioned test space. The room was maintained at an ambient condition of 75 ± 5°F during testing. The TurboChef Sota is rated at both 208/240 V and testing for this report was performed at a voltage of 208. Energy was measured with a watt/watt-hour transducer that generated a pulse for each 7.5 Wh used. A voltage regulator, connected to the oven, maintained a constant voltage for all tests. The transducer and thermocouple probes were connected to a computerized data acquisition unit that recorded data every 5 seconds.

Measure Energy Input Rate Test

Rated energy input rate is the maximum or peak rate at which the oven consumes energy—as specified on the oven's nameplate. Measured energy input rate is the maximum or peak rate of energy consumption, which is recorded during a period when the elements are fully energized (such as preheat). Prior to testing, the energy input rate was determined by measuring the energy consumed from the time the oven first began operating until the elements first cycled off. This procedure ensured that the oven was operating within its specified param-

eters. The measured energy input rate was 6.0 kW (a difference of 3.2% from the nameplate rating). Table 3 summarizes the results from the input test.

Preheat and Idle Tests

These tests show how the oven uses energy when it is not cooking food. During testing, the recommended oven temperature for cheese pizza was 500°F, which was the set point temperature for preheat and idle tests. The preheat test was conducted at the beginning of a test day after the oven was stabilized to room temperature over night. The preheat test recorded the time and energy required for the oven to reach the operational temperature of 500°F from a stabilized temperature of 75 ± 5°F. Recording began when the oven was first turned on, so any time delay before the powering of the elements was included in the test. During the preheat test the oven reached a ready-to-cook state in 4.39 minutes while consuming 420 Wh. Idle energy rate represents the energy required to maintain the set-point temperature of 500°F, or the appliance's stand-by losses. After the oven preheated, it was allowed to stabilize for one hour and time and energy consumption were monitored for an additional two-hour period while the oven maintained an operational temperature of 500°F. The idle energy rate while maintaining a ready-to-cook state was 816 W. Table 3 summarizes the results from the preheat and idle tests.

Table 3. Input, Preheat and Idle Test Results.

Rated Energy Input Rate (kW)	6.2
Measured Energy Input Rate (kW)	6.0
Percentage Difference (%)	3.2
Preheat to Operational Capacity of 500°F	
Duration (min)	4.39
Electric Energy Consumption (Wh)	420
Electric Idle Energy Rate (W)	816

Cooking Tests

The TurboChef Sota oven cavity measured 12.5-inches wide and 10-inches deep and would not accommodate the ASTM specified 12-inch diameter pizza. As an alternative, two 6-inch pizzas were used. Barreling tests measured the oven's maximum energy performance while cooking eight pizza loads in succession, with fifteen seconds allowed between each load for unloading and reloading of the oven. Cooking-energy efficiency and production capacity tests were conducted as specified in the test method, with the exception of substituting two 6-inch pizzas for the specified 12-inch pizza. The first of the eight pizza loads was a stabilization load and was

not used in the efficiency calculations. The seven remaining pizza loads were used to determine cooking-energy efficiency, cooking energy rate, and production capacity. The test pizzas consisted of a par-baked pizza crust, simple tomato-based sauce, and shredded mozzarella cheese. The pizzas were refrigerated overnight to ensure a stabilized initial temperature of 38 ± 2°F. Just prior to loading, the pizzas were removed from the refrigerator and the initial weight was recorded. Cook time was determined by confirming a final pizza temperature of 195 ± 3°F using a rig consisting of six thermocouple probes held equidistant from one another and 1-inch from the center of the pizza (Figure 4). Final cooked weight and temperature were recorded after a consistent cook time was determined. The barreling procedure demonstrated a cooking-energy efficiency of 35.8%, with a production capacity of 28.4 lbs of cooked pizza per hour. Table 4 summarizes the results from the barrel-loading cooking tests on the Sota rapid-cook oven.

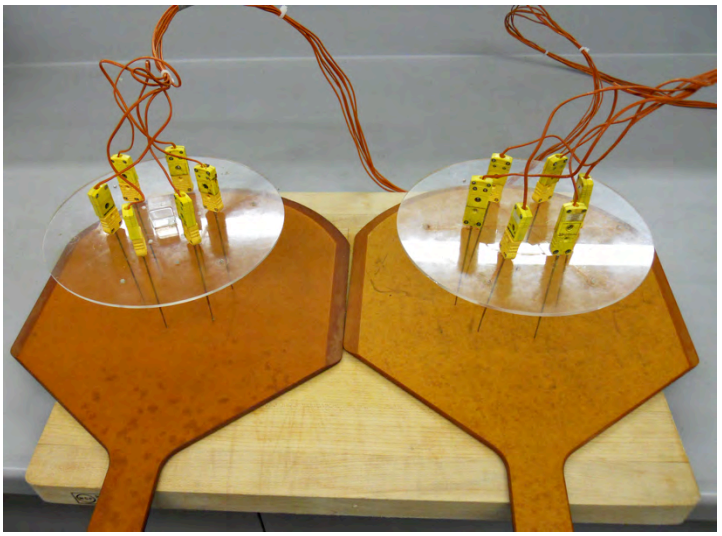

Figure 4. Thermocouple Probe Rig.

Cooking-energy efficiency is a measure of how much of the energy that an appliance consumes is actually delivered to the food product during the cooking process. Cooking-energy efficiency is therefore defined by the following relationship:

$$\text{Cooking Energy Efficiency} = \frac{\text{Energy to Food}}{\text{Energy to Oven}}$$

Table 4. Cooking-Energy Efficiency and Production Capacity Tests.

Cook Time (min)	1.17
Total Test Time (min)	10.95
Electric Cooking Energy Rate (kW)	3.62
Energy to Food (Btu/lb)	434
Production Capacity (lb/h)	28.4 ± 1.6
Cooking-Energy Efficiency (%)	35.8 ± 1.9
Average Final Pizza Temperature (°F)	197

Energy Cost Model

The test results can be used to estimate the annual energy consumption for the oven in a real-world operation. A simple cost model was developed to calculate the relationship between the various cost components (e.g., preheat, idle and cooking costs) and the annual operating cost, using the ASTM test data (see equation below).

$$E_{elec,daily} = E_{elec,h} + E_{elec,i} + n_p \times E_{elec,p}$$

$$E_{elec,daily} = \frac{W}{PC} \times q_{elec,h} + q_{elec,i} \times \left(t_{on} - \frac{W}{PC} - \frac{n_p \times t_p}{60} \right) + n_p \times E_{elec,p}$$

Where:

$E_{elec,daily}$	=	Daily energy consumption
W	=	Pounds of food cooked per day
PC	=	Production Capacity
$q_{elec,h}$	=	Heavy-load cooking energy rate
$q_{elec,i}$	=	Idle energy rate
t_{on}	=	Total time the appliance is on per day
n_p	=	Number of preheats per day
t_p	=	Duration of preheat
$E_{elec,p}$	=	Preheat Energy

This model assumes the oven was used to cook 30 pounds of food over an 8-hour day, with one preheat per day, 365 days per year. The idle (standby) time for the rapid-cook oven was determined by taking the difference between the total daily on time (8 hours) and the time spent cooking and preheating. The estimated operational cost of the electric Sota rapid-cook oven is $342 per year. This approach produces a more accurate estimate of the operating costs for the oven. Table 5 summarizes the annual energy consumption and associated energy cost for the rapid-cook oven under this scenario.

Table 5. Estimated Rapid-Cook Oven Energy Consumption and Cost.

Preheat Energy (kWh/day)	0.42
Idle Energy (kWh/day)	5.08
Cooking Energy (kWh/day)	3.04
Annual Energy (kWh/year)	3,117
Annual Cost ($/year)[a]	312

[a] Oven energy costs are based on $0.10/kWh.

References

1. American Society for Testing and Materials, 2009. *Standard Test Method for the Performance of Rapid-Cook Ovens.* ASTM Designation F2238–09. In annual book of ASTM Standards, West Conshohocken, PA.

2. Sorensen, G., Young, R., 1999. *TurboChef® Technologies, Inc. Model D Oven.* Food Service Technology Center Report 5011.99.70, May.

3. Sorensen, G., Cesio, C., Young, R., 1999. *FlashBake® Model HFB12 Light Wave Oven.* Food Service Technology Center Report 5011.99.74, May.

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7. Sorensen, G., 2008. *Merry Chef Rapid-Cook Oven Summary Report.* Food Service Technology Center Report 5012.08.43, November.

8. Sorensen, G., 2008. *TurboChef® Rapid-Cook Oven Summary Report.* Food Service Technology Center Report 5012.08.44, November.

Glossary

Cooking Energy (kWh or kBtu)
The total energy consumed by an appliance as it is used to bake a specific food product.

Cooking Energy Consumption Rate (kW or kBtu/h)
The average rate of energy consumption during the cooking period.

Cooking-Energy Efficiency (%)
The quantity of energy input to the food product; expressed as a percentage of the quantity of the energy input to the appliance during the cooking test.

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 Rate (kW or kBtu/h)
Energy Consumption Rate
Energy Rate
The peak rate at which an appliance will consume energy, typically reflected during preheat.

Heating Value (Btu/ft^3)
The quantity of heat (energy) generated by the combustion of fuel. For natural gas, this quantity varies depending on the constituents of the gas.

Idle Energy Rate (kW or Btu/h)
Idle Energy Input Rate
Idle Rate
The rate of appliance energy consumption while it is "holding" or maintaining a stabilized operating condition or temperature.

Idle Temperature (°F, Setting)
The temperature of the cooking cavity/surface (selected by the appliance operator or specified for a controlled test) that is maintained by the appliance under an idle condition.

Idle Duty Cycle (%)
Idle Energy Factor
The idle energy consumption rate expressed as a percentage of the measured input rate.

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

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 appliance preheat (i.e. the period of operation when all burners or elements are "on").

Preheat Energy (kWh, Wh or Btu)
Preheat Energy Consumption
The total amount of energy consumed by an appliance during the preheat period.

Preheat Rate (°F/min)
The rate at which the oven cavity heats during a preheat.

Preheat Time (minute)
The time required for an appliance to heat from the ambient room temperature (75 ± 5°F) to a specified (and calibrated) operating temperature or thermostat set point.

Production Capacity (lb/h)
The maximum production rate of an appliance while cooking a specified food product in accordance with the heavy-load cooking test.

Rated Energy Input Rate (kW, W or 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.

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.

Typical Day
A sample day of average appliance usage based on observations and/or operator interviews, used to develop and energy cost model for the appliance.

Appendix A: Appliance Specifications

TURBOCHEF

THE Sŏta™

Project _____

Item No. _____

Quantity _____

Sŏta™

EXTERIOR CONSTRUCTION
- Powder coated, corrosion-resistant steel outer wrap and door
- Die-cast aluminum front panels with matte-chrome accents
- Cool-to-touch exterior; all surfaces below 50°C
- Ergonomic matte-chrome door handle
- 4-inch nickel-plated legs

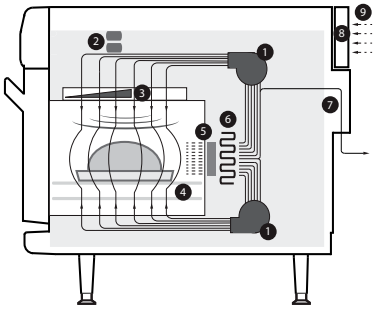
INTERIOR CONSTRUCTION
- 201/304 stainless steel
- Fully welded and insulated cook chamber
- Removable rack and lower jetplate

STANDARD FEATURES
- Independently-controlled dual motors for vertically-recirculated air impingement
- Top-launched microwave system
- Stirrer to help ensure even distribution of air and microwave
- Integral recirculating catalytic converter for UL 710B (KNLZ) listed ventless operation
- External air filtration
- Vent catalyst to further limit emissions and odors
- LED timer counts down last 30 seconds of cook time
- Smart menu system capable of storing up to 256 recipes
- Flash firmware updates via smart card
- Single or dual-temperature interface
- Field-configurable for single or multiphase operation (requires service call)
- Self-diagnostics for monitoring oven components and performance
- Smart Voltage Sensor Technology* (U.S. only)
- Stackable (requires stacking stand)
- Includes plug and cord (6 ft. nominal)
- Warranty – 1 year parts and labor

COMES WITH STANDARD ACCESSORIES
- 1 Bottle Oven Cleaner (103180)
- 1 Bottle Oven Guard (103181)
- 2 Trigger Sprayers (103182)
- 2 Solid Aluminum Pans (i1-9496)
- 1 Aluminum Paddle (NGC-1478)

PERFORMANCE
Utilizing TurboChef's patented technology to rapidly cook food without compromising quality, the Sŏta provides superior cooking performance while requiring less space and consuming less energy.

VENTILATION
- UL 710B (KNLZ) listed for ventless operation.†
- EPA 202 test (8 hr):
  - Product: Pepperoni Pizzas
  - Results: 0.64 mg/m^3
  - Ventless Requirement: <5.00 mg/m^3
- Internal catalytic filtration to limit smoke, grease, and odor emissions.



1. Blower Motors
2. Microwave System
3. Stirred Impinged Air (Top) and Microwave
4. Impinged Air (Bottom)
5. Catalytic Converter
6. Impingement Heater
7. Vent Tube Catalyst
8. Air Filter
9. Inlet Air for Cooling Electronic Components

c UL US

ANSI/NSF #4
81Y5

TÜV PRODUCT SERVICE
Production monitored
Safety tested

CE

This product conforms to the ventilation recommendations set forth by NFPA96 using EPA202 test method.

* Smart Voltage Sensor Technology does not compensate for lack of or over voltage situations. It is the responsibility of the owner to supply voltage to the unit according to the specifications on the back of this sheet.

† Ventless certification is for all food items except for foods classified as "fatty raw proteins." Such foods include bone-in, skin-on chicken, raw hamburger meat, raw bacon, raw sausage, steaks, etc. If cooking these types of foods, consult local HVAC codes and authorities to ensure compliance with ventilation requirements.

Ultimate ventless allowance is dependent upon AHJ approval, as some jurisdictions may not recognize the UL certification or application. If you have questions regarding ventless certifications or local codes, please email ventless.help@turbochef.com

TurboChef reserves the right to make substitutions of components or change specifications without prior notice.

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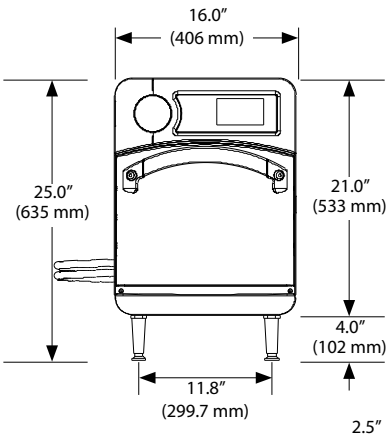
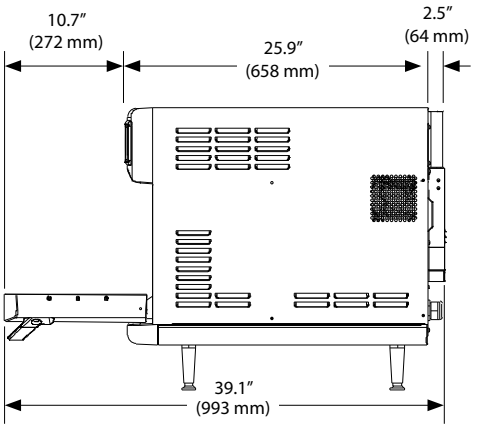
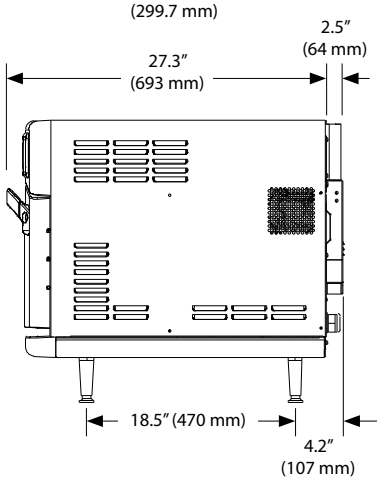
February 2011

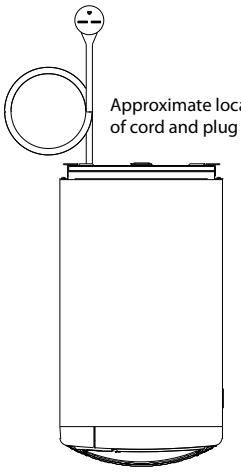
TURBOCHEF

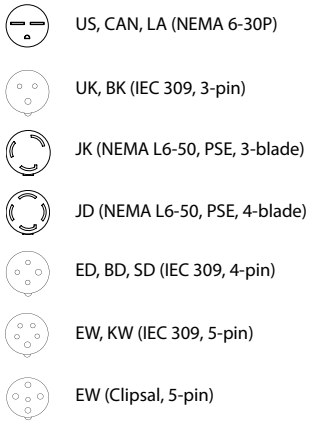
Sōta™











DIMENSIONS		
Single Units		
Height	25.0″	635 mm
Width	16.0″	406 mm
Depth	29.8″	757 mm
Weight	170 lb.	77.1 kg
Cook Chamber		
Height	7.2″	183 mm
Width	12.5″	317 mm
Depth	10.5″	266 mm
Volume	0.54 cu.ft.	15.4 liters
Wall Clearance (Oven not intended for built-in installation)		
Top	5″	102 mm
Sides	2″	51 mm

SHIPPING INFORMATION
U.S.: All ovens shipped within the U.S. are packaged in a double-wall corrugated box banded to a wooden skid. International: All International ovens shipped via Air or Less than Container Loads are packaged in wooden crates.
Box size: 37″ x 24″ x 37″ (940 mm x 610 mm x 940 mm) Crate size: 38″ x 26″ x 38″ (965 mm x 660 mm x 965 mm) Item class: 85 NMFC #26770 HS code 8419.81
Approximate boxed weight: 205 lb. (93 kg) Approximate crated weight: 275 lb. (125 kg)
Minimum entry clearance required for box: 24.5″ (622 mm) Minimum entry clearance required for crate: 26.5″ (673 mm)

ELECTRICAL SPECIFICATIONS		
SINGLE PHASE		
US/Canada	I1-9500-1	208/240 VAC, 60 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Europe (UK)	I1-9500-2-UK	230 VAC, 50 Hz, 27 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Brazil (BK)	I1-9500-6-BK	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Latin America (LA)	I1-9500-7-LA	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Japan (JK)	I1-9500-8-JK	200 VAC, 50 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Japan (JK)	I1-9500-10-JK	200 VAC, 60 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
MULTIPHASE		
Europe Delta (ED)	I1-9500-3-ED	230 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Europe Wye (EW)	I1-9500-4-EW	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Japan Delta (JD)	I1-9500-9-JD	200 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Japan Delta (JD)	I1-9500-11-JD	200 VAC, 60 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Korea/Middle East Wye (KW)	I1-9500-12-KW	400 VAC, 60 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Korea/Middle East Delta (SD)	I1-9500-13-SD	230 VAC, 60 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW

⚠ **TurboChef requires installing a type D circuit breaker for all installations.**

TurboChef Global Operations
4240 International Pkwy, Suite 105 | Carrollton, Texas 75007 USA
US: 800.90TURBO (800.908.8726) | International: +1 214.379.6000
Fax: +1 214.379.6073 | www.turbochef.com

Appendix B: Summary Report

Food Service Technology Center
Appliance Test Summary Report

The information in this report is based on data generated at the PG&E Food Service Technology Center.
California consumers are not obligated to purchase any full service or other service not funded by the program.
This program is funded by the California utility rate payers under the auspices of the California Public Utilities Commission.

Manufacturer	TurboChef
Model / Serial Number	Sota / NG00D01076R
Appliance	Rapid-Cook Oven
Cavity Size (W x D x H)	12.5" x 10" x 7"

Report Number	501310071
Report Date	June, 2010
Tested By	K. Sham

Purpose of Testing

This testing determined the energy input rate, preheat time and energy, idle energy rate, and cooking-energy efficiency of the rapid-cook oven by applying ASTM F2238-09.

Energy Input Rate

Test Voltage (V)	208
Rated Energy Input Rate (kW)	6.2
Measured Energy Input Rate (kW)	6.0
Difference (%)	3.23

Preheat to 500°F

Duration (min)	4.39
Electric Energy Consumption (Wh)	420
Preheat Rate (°F/min)	97.5

Idle at 500°F

Electric Idle Energy Rate (W)	816

TurboChef Sota Rapid-Cook Oven.

Cooking-Energy Efficiency and Production Capacity Test Results [a]

Number of 6-inch Cheese Pizzas (2/load)	14
Cook Time (min)	1.17
Electric Energy Consumption (Wh)	660
Energy to Food (Btu/lb)	155
Energy to Oven (Btu/lb)	434
Electric Cooking Energy Rate (kW)	1.06
Cooking-Energy Efficiency (%)	35.8 ± 1.87
Production Capacity (pizzas/h)	77 ± 3.9
Production Capacity (lbs/h)	28.4 ± 1.6

[a] Each load is based on a minimum average of three test replicates.

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Manufacturer	TurboChef	Report Number	501310071
Model / Serial Number	Sota / NG00D01076R	Report Date	June, 2011
Appliance	Rapid-Cook Oven	Tested By	K.Sham

Cooking-Energy Efficiency and Production Capacity Data.

	Run #1	Run #2	Run #3
Measured Values			
Test Voltage (V)	208	208	208
Electric Energy Consumption (Wh)	660	675	645
Number of 6-inch Cheese Pizzas (2/load)	14	14	14
Cook Time (min)	1.17	1.17	1.17
Total Test Time (min)	10.81	11.21	10.82
Initial Weight (lb)	5.175	5.175	5.210
Final Weight (lb)	4.842	4.842	4.881
Initial Temperature (°F)	40	40	40
Final Temperature (°F)	197	198	197
Calculated Values			
Sensible Energy (Btu)	481	485	486
Latent – Heat of Vaporization (Btu)	324	324	319
Total Energy to Food (Btu)	804	808	806
Energy To Food (Btu/lb)	155	156	155
Total Energy to Oven (Btu)	2,252	2,303	2,201
Energy to Oven (Btu/lb)	435	445	422
Cooking-Energy Efficiency (%)	35.7	35.1	36.6
Electric Cooking Energy Rate (kW)	1.07	1.06	1.05
Production Capacity (pizzas/h)	78	75	78
Production Capacity (lbs/h)	28.7	27.7	28.9

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