TurboChef Technologies Inc.

i1 (NGO, Sŏta, Panini, Waterless Steamer) Ventless Submittal Information

TURBOCHEF

THE Sŏta™

Project _____

Item No. _____

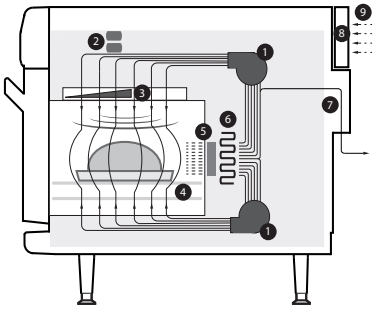
Quantity _____

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 (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

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 adjustable 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 (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 (i1-9716)

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.

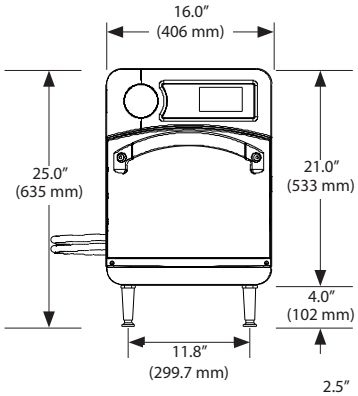
Ultimate ventless allowance is dependent upon AHJ approval, as some jurisdictions may not recognize the UL certification or application. If you have questions regarding ventless certifications or local codes, please email ventless.help@turbochef.com

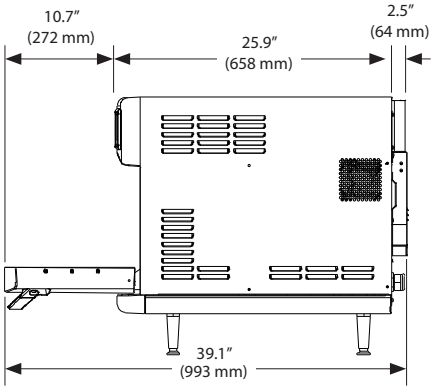
TurboChef reserves the right to make substitutions of components or change specifications without prior notice.

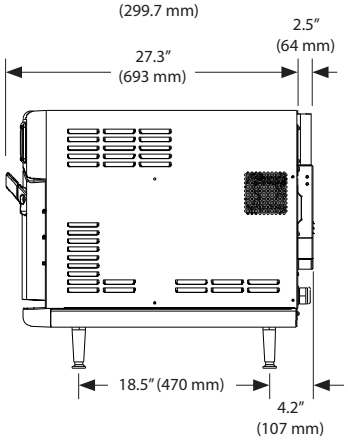
DOC-1204/Revision N/
August 2018

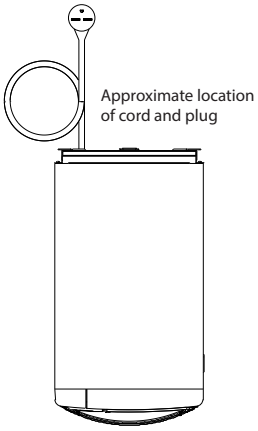
TURBOCHEF

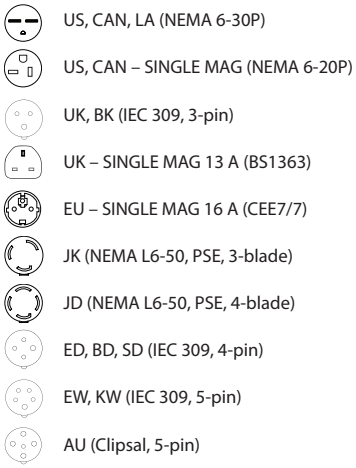
Sōta™











DIMENSIONS		
Single Units		
Height	25.0″	635 mm
Width	16.0″	406 mm
Depth	29.8″	757 mm
Weight: Standard / Single Mag	170 lb. / 135 lb.	77.1 kg / 61 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	1″	25 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: 110 NMFC #26710 HS code 8419.81
Approximate boxed weight (standard/single mag): 205 lb. (93 kg) / 170 lb. (77.1 kg) Approximate crated weight (standard/single mag): 275 lb. (125 kg) / 240 lb. (109 kg)
Minimum entry clearance required for box: 24.5″ (622 mm) Minimum entry clearance required for crate: 26.5″ (673 mm)

TurboChef Global Operations
2801 Trade Center Drive | Carrollton, Texas 75007 USA
US: 800.90TURBO (800.908.8726) | International: +1 214.379.6000
Fax: +1 214.379.6073 | www.turbochef.com

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: 6.0 kW
US/Canada – Single Mag 20 A	i1-9500-104	208/240 VAC, 60 Hz, 20 amps Max Input: 4.2/4.8 kW, MW: 1.9 kW, HTR: 4.0/4.2 kW
Europe (UK)	i1-9500-2-UK	230 VAC, 50 Hz, 27 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Europe (UK) – Single Mag 13 A	i1-9500-105-UK	230 VAC, 50 Hz, 13 amps Max Input: 3 kW, MW: 1.9 kW, HTR: 2.7 kW
Europe (EU) – Single Mag 16 A	i1-9500-106-UK	230 VAC, 50 Hz, 16 amps Max Input: 3.6 kW, MW: 1.9 kW, HTR: 2.7 kW
Brazil (BK)	i1-9500-6-BK	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Latin America (LA)	i1-9500-7-LA	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan (JK)	i1-9500-8-JK	200 VAC, 50 Hz, 30 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan (JK)	i1-9500-10-JK	200 VAC, 60 Hz, 30 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 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: 6.0 kW
Europe Wye (EW)	i1-9500-4-EW	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Australia Wye (AU)	i1-9500-5-AU	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan Delta (JD)	i1-9500-9-JD	200 VAC, 50 Hz, 20 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan Delta (JD)	i1-9500-11-JD	200 VAC, 60 Hz, 20 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 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: 6.0 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: 6.0 kW

⚠ **TurboChef recommends installing a type D circuit breaker for European installations.**

TURBOCHEF

THE Sŏta Touch™

Project _____

Item No. _____

Quantity _____

Sŏta Touch™

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 adjustable legs
- 7-inch capacitive touch screen with tempered glass cover

INTERIOR CONSTRUCTION

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

STANDARD FEATURES

- Simple and intuitive touch controls
- 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 (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
- Programmable via USB or smart card
- Ethernet and Wi-Fi compatible
- Flash firmware updates via USB
- 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

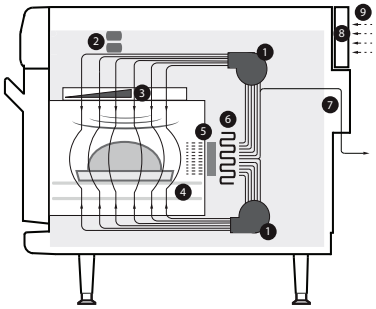
- 1 Bottle Oven Cleaner (103180)
- 1 Bottle Oven Guard (103181)
- 2 Trigger Sprayers (103182)
- 2 Solid Aluminum Pans (i1-9496)
- 1 Aluminum Paddle (i1-9716)

PERFORMANCE

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

VENTILATION

- UL (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.



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5. Catalytic Converter
6. Impingement Heater
7. Vent Tube Catalyst
8. Air Filter
9. Inlet Air for Cooling Electronic Components

ANSI/NSF #4
81Y5

Production monitored
Safety tested

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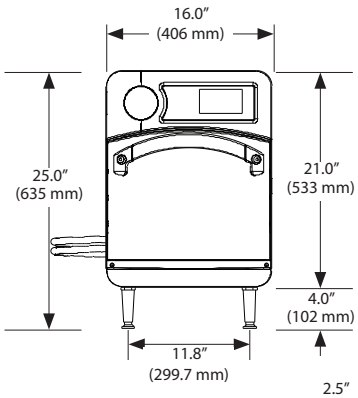
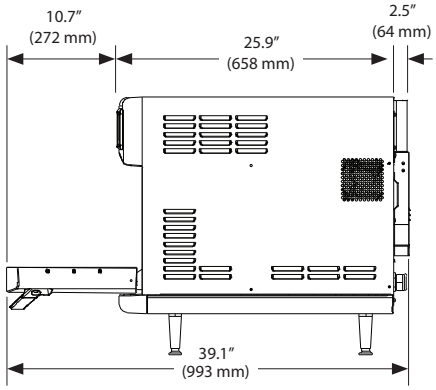
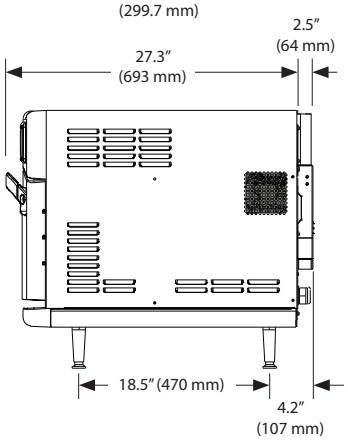
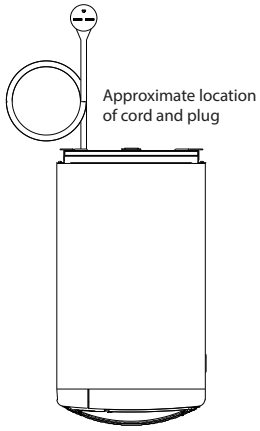
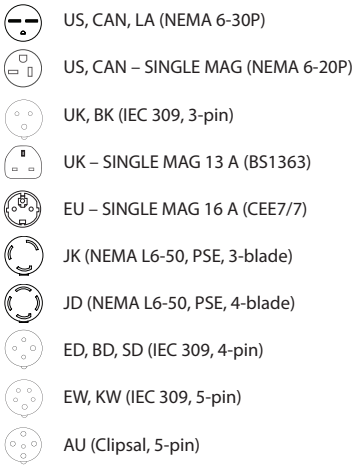
Sōta Touch™











DIMENSIONS		
Single Units		
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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	1″	25 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.
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Approximate boxed weight (standard/single mag): 205 lb. (93 kg) / 170 lb. (77.1 kg) Approximate crated weight (standard/single mag): 275 lb. (125 kg) / 240 lb. (109 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	i1-9500-400	208/240 VAC, 60 Hz, 30 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
US/Canada – Single Mag 20 A	i1-9500-435	208/240 VAC, 60 Hz, 20 amps Max Input: 4.2/4.8 kW, MW: 1.9 kW, HTR: 4.0/4.2 kW
Europe (UK)	i1-9500-401-UK	230 VAC, 50 Hz, 27 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Europe (UK) – Single Mag 13 A	i1-9500-436-UK	230 VAC, 50 Hz, 13 amps Max Input: 3 kW, MW: 1.9 kW, HTR: 2.7 kW
Europe (EU) – Single Mag 16 A	i1-9500-437-UK	230 VAC, 50 Hz, 16 amps Max Input: 3.6 kW, MW: 1.9 kW, HTR: 2.7 kW
Brazil (BK)	i1-9500-405-BK	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Latin America (LA)	i1-9500-406-LA	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan (JK)	i1-9500-407-JK	200 VAC, 50 Hz, 30 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan (JK)	i1-9500-409-JK	200 VAC, 60 Hz, 30 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
MULTIPHASE		
Europe Delta (ED)	i1-9500-402-ED	230 VAC, 50 Hz, 20 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Europe Wye (EW)	i1-9500-403-EW	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Australia Wye (AU)	i1-9500-404-AU	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan Delta (JD)	i1-9500-408-JD	200 VAC, 50 Hz, 20 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Japan Delta (JD)	i1-9500-410-JD	200 VAC, 60 Hz, 20 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Korea/Middle East Wye (KW)	i1-9500-411-KW	400 VAC, 60 Hz, 16 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW
Korea/Middle East Delta (SD)	i1-9500-412-SD	230 VAC, 60 Hz, 20 amps Max Input: 6.2 kW, MW: 3.2 kW, HTR: 6.0 kW

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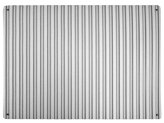
TURBOCHEF

THE Panini

i1-3221 Kit:



Panini Tray

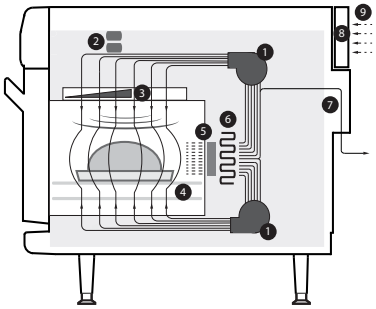
Panini Rack

PERFORMANCE

By combining TurboChef's i-Series technology with the Panini tray, restaurants can rapidly toast, heat, and grill Panini sandwiches.

VENTILATION

- UL® (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.



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5. Catalytic Converter
6. Impingement Heater
7. Vent Tube Catalyst
8. Air Filter
9. Inlet Air for Cooling Electronic Components

Project _____

Item No. _____

Quantity _____

Panini

EXTERIOR CONSTRUCTION

- Powder coated (RAL-3020 - Traffic Red), 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 adjustable 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® (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)
- Includes plug and cord (6 ft. nominal)
- Warranty – 1 year parts and labor

OPTIONAL FEATURE

- Custom RAL color exterior (standard color: RAL 3020 –Traffic Red)

COMES WITH STANDARD ACCESSORIES

- 1 Bottle Oven Cleaner (103180)
- 1 Bottle Oven Guard (103181)
- 2 Trigger Sprayers (103182)
- 1 Aluminum Paddle (i1-9716)
- 1 Panini Rack and Tray (i1-3221)

c UL us

ANSI/NSF #4
81Y5

TÜV PRODUCT SERVICE
Production monitored
Safety tested

CE

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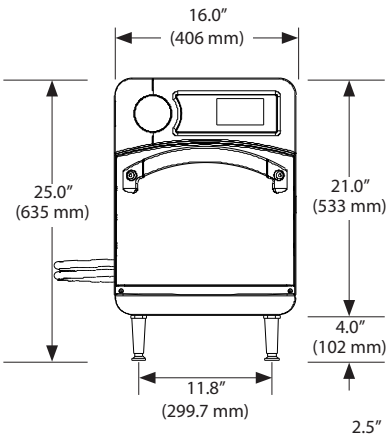
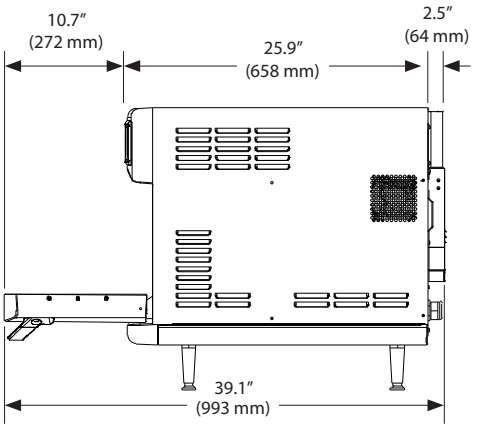
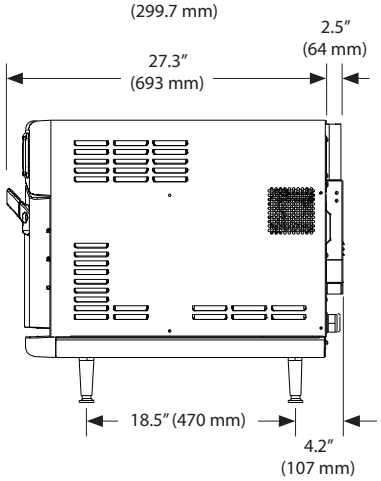
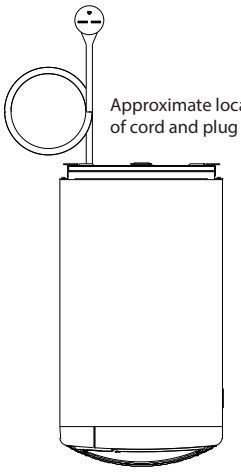
August 2018

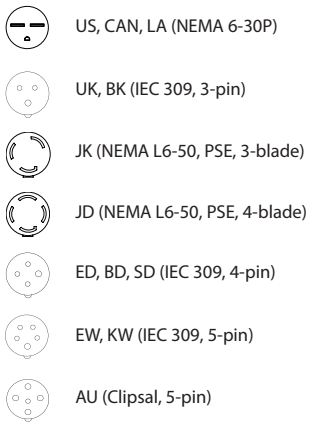
Panini











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	1″	25 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: 110 NMFC #26710 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	I1-9500-111-US	208/240 VAC, 60 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Europe (UK)	I1-9500-112-UK	230 VAC, 50 Hz, 27 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Brazil (BK)	I1-9500-116-BK	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Latin America (LA)	I1-9500-117-LA	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan (JK)	I1-9500-118-JK	200 VAC, 50 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan (JK)	I1-9500-120-JK	200 VAC, 60 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
MULTIPHASE		
Europe Delta (ED)	I1-9500-113-ED	230 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Europe Wye (EW)	I1-9500-114-EW	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Australia Wye (AU)	I1-9500-115-AU	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan Delta (JD)	I1-9500-119-JD	200 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan Delta (JD)	I1-9500-121-JD	200 VAC, 60 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Korea/Middle East Wye (KW)	I1-9500-122-KW	400 VAC, 60 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Korea/Middle East Delta (SD)	I1-9500-123-SD	230 VAC, 60 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW

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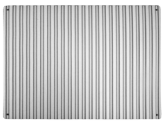
⚠ **TurboChef recommends installing a type D circuit breaker for European installations.**

TURBOCHEF

THE Panini

WITH TOUCH CONTROLS

i1-3221 Kit:



Panini Tray

Panini Rack

Project _____

Item No. _____

Quantity _____

Panini

EXTERIOR CONSTRUCTION

- Powder coated (RAL-3020 - Traffic Red), 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 adjustable legs
- 7-inch capacitive touch screen with tempered glass cover

INTERIOR CONSTRUCTION

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

STANDARD FEATURES

- Simple and intuitive touch controls
- 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® (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 USB
- 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)
- Includes plug and cord (6 ft. nominal)
- Warranty – 1 year parts and labor

PERFORMANCE

The Panini with touch controls utilizes the i-Series technology to rapidly toast, heat, and grill Panini sandwiches. Able to withstand back-to-back cooking, the oven heats all the way through in minimal time with perfect grill marks every time.

VENTILATION

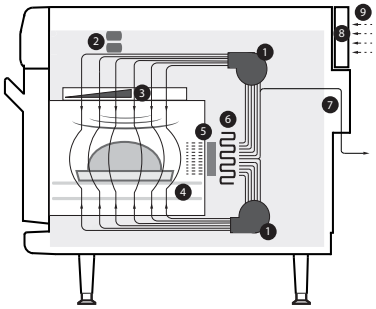
- UL® (KNLZ) listed for ventless operation.†
- EPA 202 test (8 hr):
  - Product: Pepperoni Pizzas
  - Results: 0.64 mg/m^3
  - Ventless Requirement: <5.00 mg/m^3
- Internal catalytic filtration to limit smoke, grease, and odor emissions.

OPTIONAL FEATURE

- Custom RAL color exterior (standard color: RAL 3020 –Traffic Red)

COMES WITH STANDARD ACCESSORIES

- 1 Bottle Oven Cleaner (103180)
- 1 Bottle Oven Guard (103181)
- 2 Trigger Sprayers (103182)
- 1 Aluminum Paddle (i1-9716)
- 1 Panini Rack and Tray (i1-3221)



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.

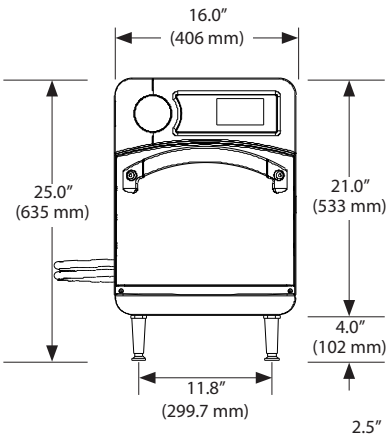
† Ventless certification is for all food items except for foods classified as "fatty raw proteins." Such foods include bone-in, skin-on chicken, raw hamburger meat, raw bacon, raw sausage, steaks, etc. If cooking these types of foods, consult local HVAC codes and authorities to ensure compliance with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

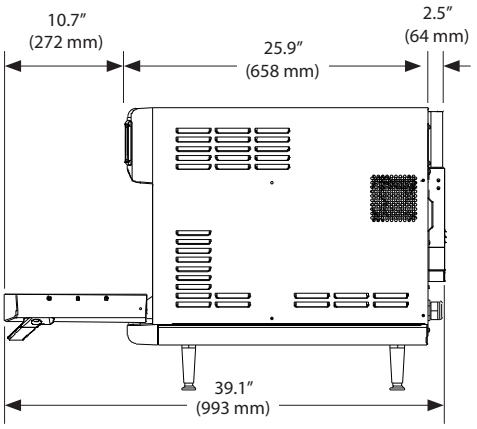
Ultimate ventless allowance is dependent upon AHJ approval, as some jurisdictions may not recognize the UL certification or application. If you have questions regarding ventless certifications or local codes, please email ventless.help@turbochef.com

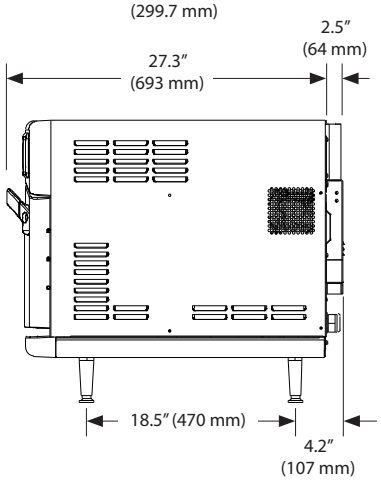
TurboChef reserves the right to make substitutions of components or change specifications without prior notice.

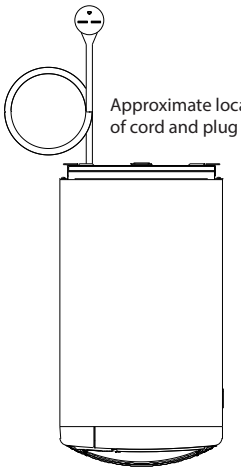
DOC-1481/Revision E/
Aug 2018

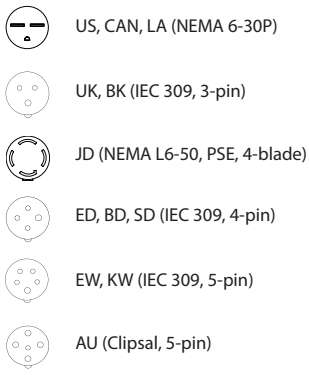
Panini











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	1″	25 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: 110 NMFC #26710 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	I1-9500-420-US	208/240 VAC, 60 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Europe (UK)	I1-9500-421-UK	230 VAC, 50 Hz, 27 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Brazil (BK)	I1-9500-425-BK	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Latin America (LA)	I1-9500-426-LA	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
MULTIPHASE		
Europe Delta (ED)	I1-9500-422-ED	230 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Europe Wye (EW)	I1-9500-423-EW	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Australia Wye (AU)	I1-9500-424-AU	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Japan Delta (JD)	I1-9500-428-JD	200 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW
Japan Delta (JD)	I1-9500-430-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)	I1-9500-431-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)	I1-9500-432-SD	230 VAC, 60 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 3.0 kW

⚠ **TurboChef recommends installing a type D circuit breaker for European installations.**

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TURBOCHEF

Project _____

Item No. _____

Quantity _____

WS™

THE

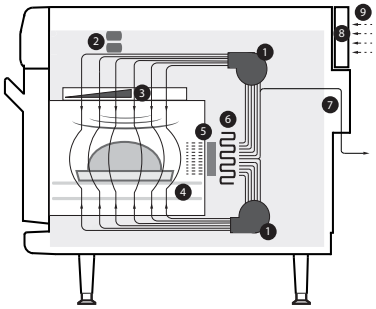
Waterless Steamer (WS)

PERFORMANCE

Utilizing TurboChef's patented technology to rapidly cook food without compromising quality, the WS oven utilizes the i-Series technology packaged in marine-grade stainless, able to withstand high-steam and saline environments. Perfectly steam vegetables, meats, seafood, and more while saving over 300,000 gallons of water per year.

VENTILATION

- UL® (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

EXTERIOR CONSTRUCTION

- Corrosion-resistant (316 stainless steel) outer wrap and door
- Chrome top panel
- Cool-to-touch exterior; all surfaces below 50°C
- 4-inch adjustable legs

INTERIOR CONSTRUCTION

- Corrosion-resistant (316 stainless steel) cavity and blower wheels
- 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® (KNLZ) listed ventless operation
- External air filtration
- Vent catalyst to further limit emissions and odors
- Cartridge style cavity filter to trap grease
- Lower panel collects light moisture and runoff
- 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)
- 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 (i1-9716)

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.

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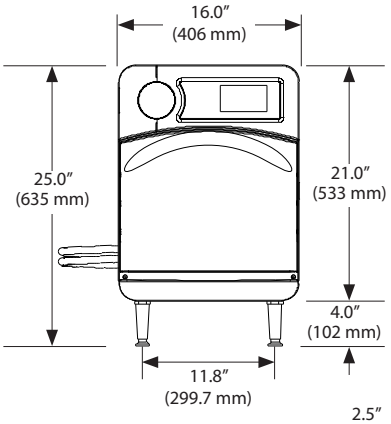
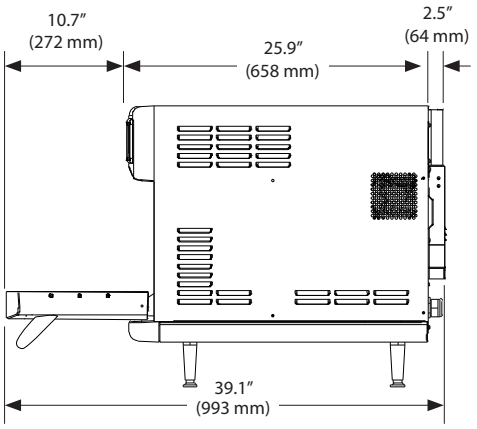
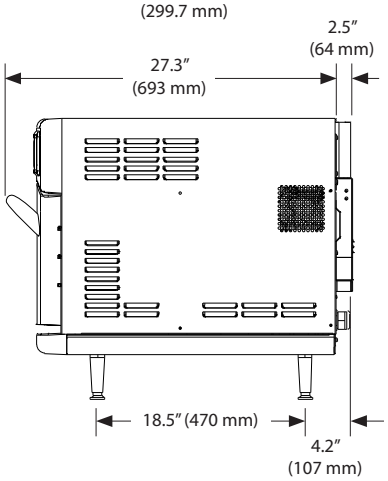
TurboChef reserves the right to make substitutions of components or change specifications without prior notice.

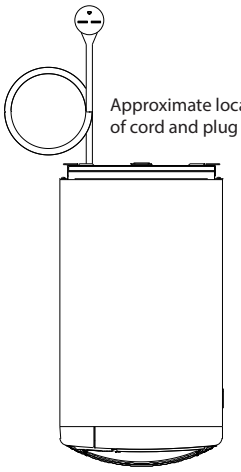
DOC-1424/Revision F/
August 2018

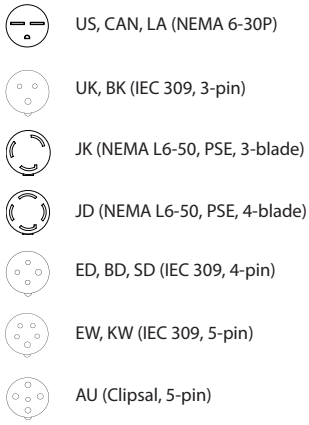
WS™











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	1″	25 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.
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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	I1-9500-91-US	208/240 VAC, 60 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Europe (UK)	I1-9500-92-UK	230 VAC, 50 Hz, 27 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Brazil (BK)	I1-9500-96-BK	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Latin America (LA)	I1-9500-97-LA	220 VAC, 60 Hz, 28 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan (JK)	I1-9500-98-JK	200 VAC, 50 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan (JK)	I1-9500-100-JK	200 VAC, 60 Hz, 30 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
MULTIPHASE		
Europe Delta (ED)	I1-9500-93-ED	230 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Europe Wye (EW)	I1-9500-94-EW	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Australia Wye (AU)	I1-9500-95-AU	400 VAC, 50 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan Delta (JD)	I1-9500-99-JD	200 VAC, 50 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Japan Delta (JD)	I1-9500-101-JD	200 VAC, 60 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Korea/Middle East Wye (KW)	I1-9500-102-KW	400 VAC, 60 Hz, 16 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW
Korea/Middle East Delta (SD)	I1-9500-103-SD	230 VAC, 60 Hz, 20 amps Max Input: 6.2 kW / MW: 3.2 kW / HTR: 6.0 kW

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⚠ **TurboChef recommends installing a type D circuit breaker for European installations.**

c UL us 81Y5

LISTED

Commercial Cooking Appliance with Integral Systems for Limiting the Emissions of Grease-Laden Air

This Product Conforms to the Ventilation Recommendations Set Forth by NFPA96 Using EPA202 Test Method

NGC-1168-1 / Rev. D / Aug 2018

KNLZ.E151487 - COMMERCIAL COOKING APPLIANCES WITH INTEGRAL SYSTEMS FOR LIMITING THE EMISSION OF GREASE-LADEN AIR

Commercial Cooking Appliances with Integral Systems for Limiting the Emission of Grease-laden Air

See General Information for Commercial Cooking Appliances with Integral Systems for Limiting the Emission of Grease-laden Air

TURBOCHEF TECHNOLOGIES INC E151487

2801 Trade Center Drive
Carrollton, TX 75007 USA

Commercial microwave/convection ovens, Model(s) *C3/C**, *Encore 2*, *Encore**, *i3**, *i5**, *NGC**, *NGO**, *Eco*

Commercial ovens, Model(s) *HHB*, *HHB2*, *HHD*

Conveyor Ovens, Model(s) *HCW2620*, *HHC1618*, *HHC2020*

* - Indicated complementary listed models.

Trademark and/or Tradename: "BULLET"

Last Updated on 2018-06-07

KNLZ.GuideInfo - COMMERCIAL COOKING APPLIANCES WITH INTEGRAL SYSTEMS FOR LIMITING THE EMISSION OF GREASE-LADEN AIR

[Heaters and Heating Equipment] (Heaters, Cooking Appliances) Commercial Cooking Appliances with Integral Systems for Limiting the Emission of Grease-laden Air

See General Information for Heaters, Cooking Appliances

USE AND INSTALLATION

This category covers cooking equipment intended for commercial use, such as pressurized deep fat fryers and other appliances for use in commercial kitchens, restaurants or other business establishments where food is prepared. Each appliance covered under this category is manufactured with an integral system feature to limit the emission of grease-laden air from the cooking process to the room ambient.

These appliances have been investigated for the limit of 5 mg/m^3 for the emission of grease-laden air to the room ambient in accordance with the recommendations of ANSI/NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," using the EPA-202 test method prescribed for cooking appliances provided with integral recirculating air systems.

These products are not intended for connection to a ducted exhaust system.

Appliances in this category are not provided with an integral fire extinguishing system. Authorities having jurisdiction should be consulted as to the requirements for this equipment with respect to fire extinguishing systems, such as the need for field installed systems in accordance with ANSI/NFPA 96.

In cases where the nature or construction of equipment is such that special precautions beyond the requirements of ANSI/NFPA 70, "National Electrical Code," must be observed in installations or use, suitable warning or special instructions are marked on the equipment.

Appliances covered under this category are suitable for wiring with either copper or aluminum power-supply conductors unless marked "Use Copper Wire Only For Power Supply Connections."

Commercial cooking appliances of certain types are designed for permanent connections to water supply and sewer lines at the point of installation. Authorities having jurisdiction should be consulted as to the requirements for this equipment with respect to sanitation and connection to water supply and waste disposal lines.

FACTORS NOT INVESTIGATED

Neither the toxicity of coatings nor the physiological effects on persons consuming food products prepared by use of these appliances has been investigated.

PRODUCT IDENTITY

One of the following product identities appears on the product:

Commercial Cooking Appliance with Integral System for Limiting the Emission of Grease-laden Air

Cooking Appliance with Integral System for Limiting the Emission of Grease-laden Air

Other product identities may be used as shown in the individual certifications, followed by the words "with Integral System for Limiting the Emission of Grease-laden Air."

RELATED PRODUCTS

For products with integral recirculating systems including fire extinguishing systems, see Commercial, with Integral Recirculating Systems (KNKG).

For cooking oil filters that are not an integral part of another appliance, see Commercial Filters for Cooking Oil (KNRF).

ADDITIONAL INFORMATION

For additional information, see Electrical Equipment for Use in Ordinary Locations (AALZ) and Heating, Cooling, Ventilating and Cooking Equipment (AAHC).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 197, "Commercial Electric Cooking Appliances."

Appliances covered under this category with an integral cooking oil filter have been additionally investigated to ANSI/UL 1889, "Commercial Filters for Cooking Oil."

UL MARK

The Certification Mark of UL on the product is the only method provided by UL to identify products manufactured under its Certification and Follow-Up Service. The Certification Mark for these products includes the UL symbol, the words "CERTIFIED" and "SAFETY," the geographic identifier(s), and a file number.

Alternate UL Mark

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Commercial Cooking Appliance" or "Cooking Appliance," or other appropriate product name as shown in the individual Listings, together with the words "with integral system for limiting the emission of grease-laden air."

*** ***

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

Last Updated on 2013-05-16

File: E151487

Project: 09NK11970

Date: 9/23/2009

Client:

TurboChef Technologies

Model:	Product Tested
NGO	9 in. Pepperoni Pizza

TurboChef Technologies
Model: **NGO**

Calculations needed for Nozzle Size

$\Delta H_@$	=	40.281		This number is calculated when device is calibrated
% Oxygen	=	21.04	$\%O_2$	Oxygen inside stack during operation
% Carbon	=	0.01	%CO2	Carbon Dioxide inside stack during operation
Stack Temperature	=	28.6	°C	Temperature inside stack during operation
Barametric Pressure	=	744	mmHg	Barametric pressure at location of meter
Stack Static Pressure	=	-2.032	mm H_2O	Static Pressure inside of duct
Average Square root ΔP	=	1.867	ΔP mm H_2O	Enter pressure differential at each transvers point in mm H_2O, the take square root of ΔP.

	Pressure	CFM		Pressure	CFM
1	3.556	496	**5**	2.794	510
2	3.81	530	**6**	3.556	515
3	3.81	520	**7**	3.302	510
4	3.556	520	**8**	3.556	499
				Average	512.5

# Travers Points		8

Meter Temperature	=	22	°C	
Pitot Tube Coefficient	=	0.84		
% Moisture	=	49.7		
Sample Rate	=	21.24	Lpm	
Ideal Nozzle Size		11.298	mm	When numbers are entered into calculator, ideal nozzle size will be displayed. Enter number here
		0.444803	in	
Actual Nozzle Size Used		1/2	in	If ideal nozzle size is not available, locate nearest number. Enter what nozzle size was used for testing

TurboChef Technologies
Model: **NGO**

Start Time: 9:15 Product Tested: **9 in. Pepperoni Pizza** Cook Time: 100sec

End Time: 5:30 Barometric Pressure: 744 mmHg Recovery Time: 0sec

Test Date: 09/23/09 Room Ambient: 23C

IMPINGER WEIGHT

Filter Paper Start of Test: 0.6488 g Frit

Filter Paper End of Test: 0.6494 g

Impinger	Start Volume/Weight	Start Weight (lbs)	End Volume/Weight	End Weight (lbs)
1 (ml)	100	1.336/1.556	30	1.404
2 (ml)	100	1.284/1.504	165	1.648
3 (ml)	0	1.344	35	1.422
4 (g)	200	1.328/1.770	222	1.924

Timed Meter Readings

Traverse Point Number	Sampling Time Hr/Sec	Gas Meter Reading (m^3)	Orafice Pressure Differential ΔH	Velocity Head ΔP	Pump Vaccum In.hg	Stack Temp °C	Probe Temp °C	Box Temp °C	Impinger Temp °C	Gas Meter Outlet °C
Initial	-	154.402	42	1.4	0.0	27	121	122	8	25
1	:10	154.633	42	1.4	0.0	28	121	122	10	27
1	:20	154.841	42	1.4	0.0	28	121	121	11	29
1	:30	155.047	42	1.4	0.0	28	121	122	14	31
1	:40	155.253	42	1.4	0.0	28	121	121	15	32
1	:50	155.459	41	1.4	0.0	28	121	121	16	33
1	1hr	155.665	41	1.4	0.0	29	121	121	13	34
2	:10	155.872	42	1.5	0.0	32	121	122	11	35
2	:20	156.079	42	1.5	0.0	31	121	121	12	36
2	:30	156.286	41	1.4	0.0	32	121	122	14	36
2	:40	156.491	40	1.2	0.0	31	121	121	16	36
2	:50	156.698	42	1.2	0.0	32	121	122	17	36
2	2hr	156.906	42	1.2	0.0	32	121	121	13	37

Traverse Point Number	Sampling Time Hr/Sec	Gas Meter Reading (m^3)	Orafice Pressure Differential ΔH	Velocity Head ΔP	Pump Vaccum In.hg	Stack Temp °C	Probe Temp °C	Box Temp °C	Impinger Temp °C	Gas Meter Outlet °C
3	:10	157.114	42	1.4	0.0	32	121	121	12	37
3	:20	157.323	42	1.3	0.0	32	121	121	13	37
3	:30	157.529	42	1.2	0.0	32	121	121	15	37
3	:40	157.737	42	1.3	0.0	32	121	122	12	37
3	:50	157.945	42	1.4	0.0	32	121	121	12	37
3	3hr	158.153	42	1.3	0.0	32	121	122	13	37
4	:10	158.361	42	1.4	0.0	29	121	122	11	37
4	:20	158.569	42	1.4	0.0	29	121	121	13	37
4	:30	158.777	42	1.4	0.0	30	121	122	14	37
4	:40	158.985	41	1.4	0.0	30	121	122	16	38
4	:50	159.191	42	1.2	0.0	29	121	121	12	37
4	4hr	159.399	42	1.2	0.0	30	121	122	12	37
5	:10	159.606	42	1.2	0.0	31	121	121	11	37
5	:20	159.815	42	1.3	0.0	30	121	122	12	37
5	:30	160.024	42	1.5	0.0	30	121	122	14	38
5	:40	160.232	42	1.5	0.0	30	121	121	15	38
5	:50	160.442	42	1.0	0.0	30	121	122	12	38
5	5hr	160.651	42	0.9	0.0	31	121	122	12	38
6	:10	160.861	42	0.0	0.0	35	121	122	12	38
6	:20	161.318	42	1.4	0.0	32	121	122	15	38
6	:30	161.528	42	1.6	0.0	32	121	122	16	38
6	:40	161.735	42	1.6	0.0	32	121	122	17	38
6	:50	161.945	42	1.6	0.0	32	122	122	17	38
6	6hr	162.153	42	1.6	0.0	32	121	122	13	38
7	:10	162.363	42	1.4	0.0	32	121	122	11	38
7	:20	162.575	42	1.4	0.0	32	121	122	11	38
7	:30	162.782	42	1.4	0.0	32	121	122	13	38
7	:40	162.990	42	1.4	0.0	31	121	122	14	38
7	:50	163.220	42	1.4	0.0	32	121	122	16	38
7	7hr	163.408	42	1.4	0.0	32	122	122	16	38
8	:10	163.617	42	1.6	0.0	28	122	122	13	38
8	:20	163.826	42	1.8	0.0	28	121	122	13	38
8	:30	164.035	42	1.8	0.0	28	121	122	14	38
8	:40	164.244	42	1.8	0.0	28	121	122	14	38
8	:50	164.452	42	1.8	1.0	28	121	122	15	38
8	8hr	164.661	42	1.4	1.0	30	122	122	16	38

Average Gas Meter Outlet Temperature: 36.36735 °C

Average Gas Meter Outlet Temperature: 97.46122 °F

Δ H = 41.875 mm H_2O Tm = 557.46 R

Δ H = 1.648622 in H_2O

TurboChef Technologies
Model: NGO

Start Time: 9:15 End Time: 5:30 Test Date: 09/23/09

Cook Time: 100sec Product Tested: **9 in. Pepperoni Pizza**

Recovery Time: 0sec Barometric Pressure: 744

Post-Test Data

Gas Meter Reading initial	154.40	m^3	Gas Meter Reading End	164.66	m^3
Vm	10.26	m^3			
	362.29	ft^3			
Y- Constant	0.949		This data is obtained during device calibration. Verify number with most recent calibration certification on LEM		
Tstd constant	528.0	R			
Tm	557.5	R	Number obtained from Datasheet		
Barometric Pressure	744	mmHg	Barometric Pressure on day of Test		
	29.29134	inHg			
Pstd	30.42	inHg			
Δ H	1.648622	in H_2O			
Vmstd	314.86	ft3			
	8.915878	m3			

Post-Filter Data

Filter paper	649.40	mg	**Weight at End of Test**
Filter AR	648.80	mg	**Weight at Begining of Test**
delta H	0.60	mg	**Change of Weight at End of Test**

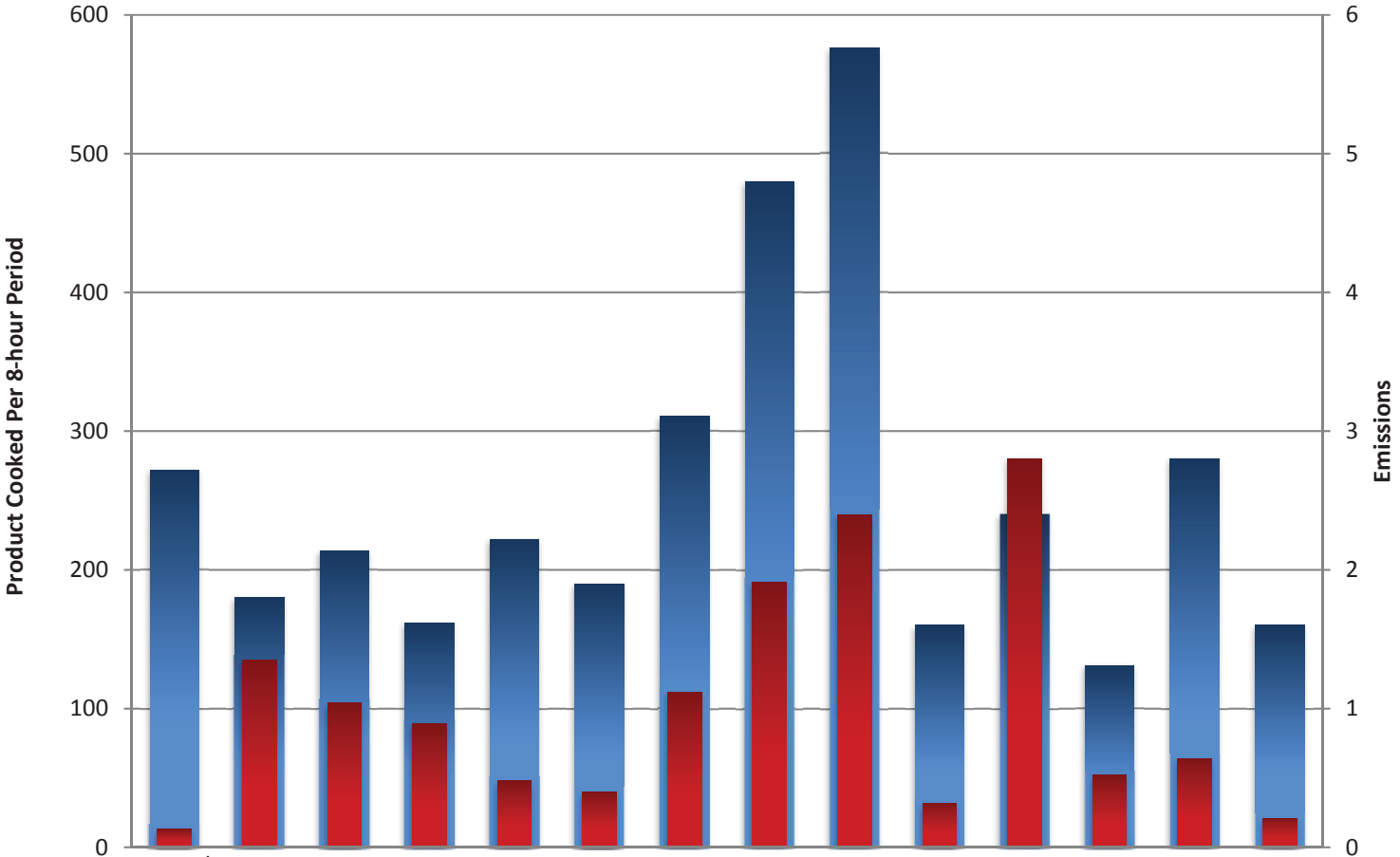
Post-Acid Used

Acetone Wash	3.1	mg	Bottle 2	Mc	5.1	mg
Acetone Blank	0	mg	Bottle 3			
Impinger Contents	0.5	mg	Bottle 4	**Mn**	5.7	mg
MeCl Wash	1.6	mg	Bottle 5			
MeCl Blank	0	mg	Bottle 6			
Water Blank	0.1	mg	Bottle 7			

Total Grease Emisions

Cs=Mn/Vmstd **0.64 mg/m3**

UL® (KNLZ)
Emissions by Product
Ventless Requirement: <5.00 mg/m³



	Bullet/ Encore	C3	Double Batch	Eco	Fire	HhB	HhC 1618	HhC 2020	HhC 2620	i3	i5	Single Batch	Sota	Tornado
Product Cooked Per 8-hour Period	272	180	214	162	222	190	311	480	576	160	240	131	280	160
Emissions	0.13	1.35	1.04	0.89	0.48	0.4	1.12	1.91	2.4	0.32	2.8	0.52	0.64	0.21

October 18, 2004

Mr. Mike Denny
Building Services,
224 West Knight St.
City of Sioux Falls,
South Dakota, 57102
Ph: 605-367-8252

Re: Fire and smoke containment

Dear Mr. Denny:

The TurboChef ovens have been extensively tested and conform to UL 923 and UL KNLZ standards. The UL 923 standard is the electrical/product safety standard and the KNLZ is the low particulate matter emissions standard to which we conform. While both standards address difference aspects of the oven, they both have inherent overlap as it relates to grease/smoke/fire handling.

As it relates specifically to fire safety, UL 923 specifies:

Section 57 Cavity Fire Containment Test:

The performance of an appliance subjected to this test shall be considered acceptable if all of the following conditions are met:

a) There is no emission of fire, flame, or molten metal outside the appliance nor glowing or ignition of the cheesecloth, tissue paper, or wood surface;

b) The fuse rated 3 A does not open;

c) Following the test, the appliance complies with the requirements of Leakage Current, Section 33, and Dielectric Voltage-Withstand Test, Section 39, as applicable to primary circuits; and

d) Following the test and following 10 c of operation (opening and closing the door), the

appliance complies with the requirements in 57.12. The radiation emission shall not xceed 5mW/cm2.

Test Method:

Section 57.2 requires that 4 potatoes each weighing between 150g and 200g be placed inside the oven under test and cooked using full microwave power and hot air (if applicable) until the potatoes catch fire. Note: The test must be repeated until it catches fire. During this test, pieces of tissue paper and cheesecloth are placed above, below and around the product to ensure that the fire and/or excessive heat generated is safely contained within the confines of the appliance.

As it relates to grease handling, UL KNLZ specifies:

UL KNLZ Guide Information Excerpt:

"These appliances have been evaluated for the limit of 5 mg/m^3 for the emission of grease-laden air to the room ambient in accordance with the recommendations of the National Fire Protection Association Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96, using the EPA-202 test method prescribed for cooking appliances provided with integral recirculating air systems."

Test Method:

> *The UL KNLZ category requires that products must have less than 5.0 mg/m3 of particulate matter emissions during 8 continuous hours of cooking a "worst case" food product as measured by EPA 202. Note: Our products were tested using full-fat pepperoni pizzas.*

As it pertains specifically to smoke: Smoke typically consists of visible grease particulate that escapes from a product during operation. Our ovens utilize a recirculating airpath that is catalytic scrubbed, thus the airborne grease is combusted as it crosses our catalyst. Given this, under typical/normal operating conditions, our product does not emit smoke.

If you have any issues or specific questions regarding the above, please contact me directly.

Best regards,

James K. Pool III

James K. Pool III
Vice President Engineering,
TurboChef Technologies, Inc.,
Ph: 214.379.6020
Email: james.pool@turbochef.com

TurboChef Energy Calculator

User Inputs

Total Operation Time per Day (hours)	12	**hours**
Cook Cycle Time (seconds)	45	**seconds**
Number of Cooks per Day	100	**total**
Energy Cost/kWhr ($)	0.11	**$/kWhr**

Constants	i1 (Sota, Panini, WS)
Power Warm-up (watts)	3,900
Power Cooking (watts)	2,800
Power Idle (watts)	750
Time Warm-up (seconds)	900

Energy = (Power x time), where power is in watts and time is in seconds
Etotal=Eidle+Ecooking+Ewarmup
Ave Power = Etotal/total time per day

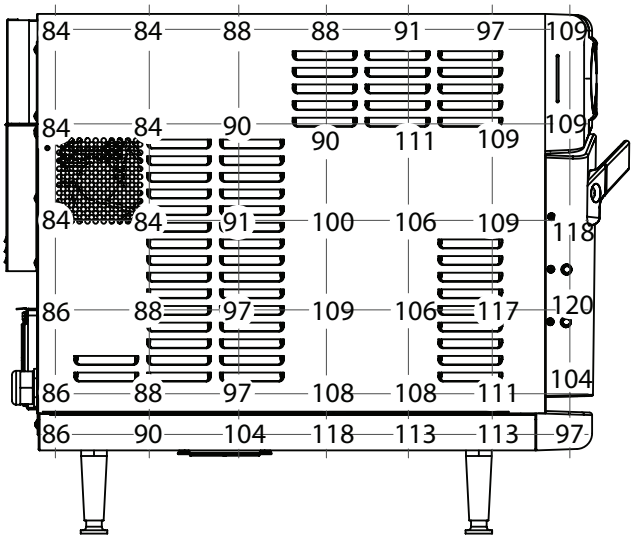
Calculated Times	i1 (Sota, Panini, WS)
Time (cooking, sec)	4,500
Time (idle, sec)	37,800
Time Check	12
Eidle (kJ)	28,350
Ewarm-up (kJ)	3,510
Ecooking (kJ)	12,600
Etotal (kJ)	44,460
Etotal (kWHr)	12.35
Avg Power/Day (kW)	1.03
Tons of Cooling	0.29
Cost/Day ($)	$1.36
Cost/Month ($)	$40.80
Cost/Year ($)	$496.40

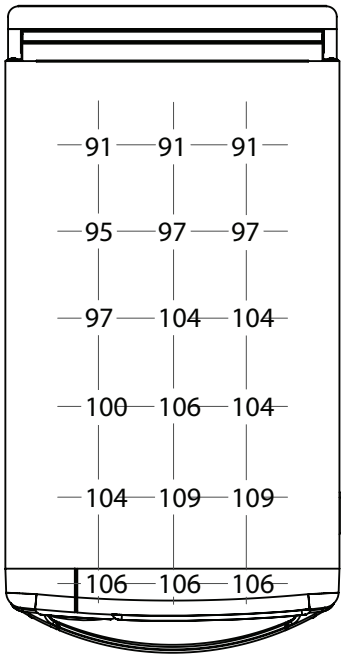
TURBOCHEF TECHNOLOGIES, INC.

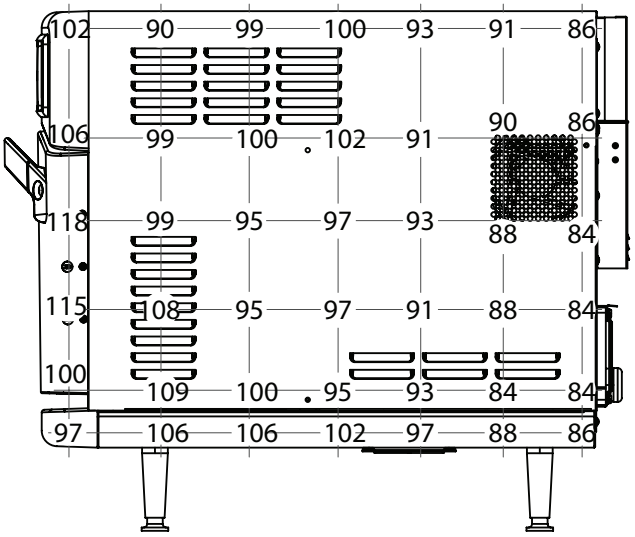
i1 (NGO, Sŏta, Panini, Waterless Steamer) Oven Surface Temperatures

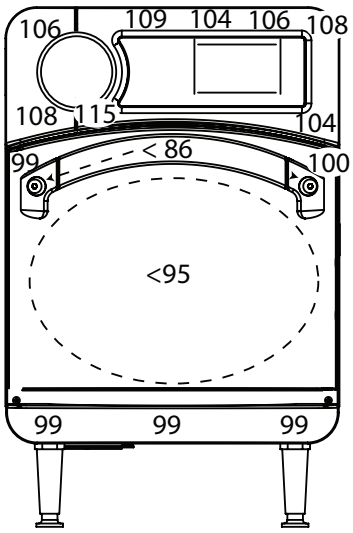
The illustrations in this document represent the surface testing data reported for TurboChef i1 ovens (model NGO) during cooking after two and a half hours of idle at 520°F (271°C), simulating the highest temperature condition.

Fahrenheit Measurements

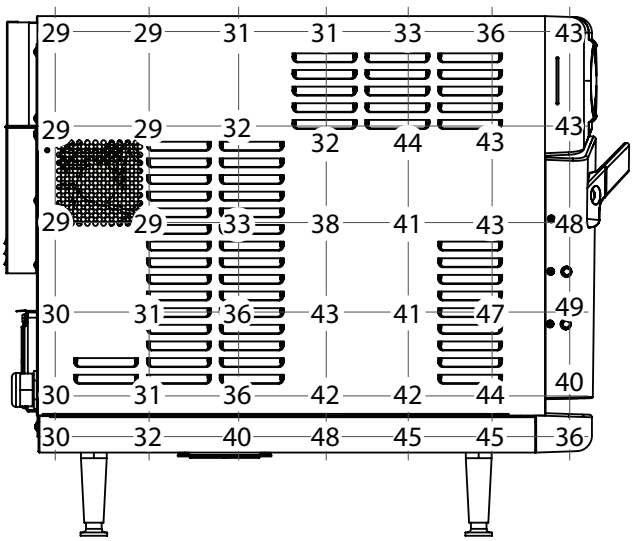


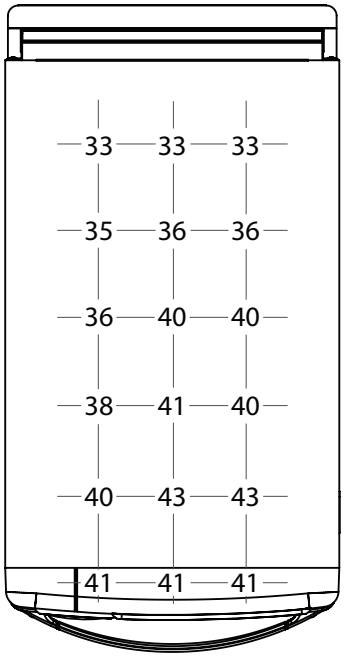


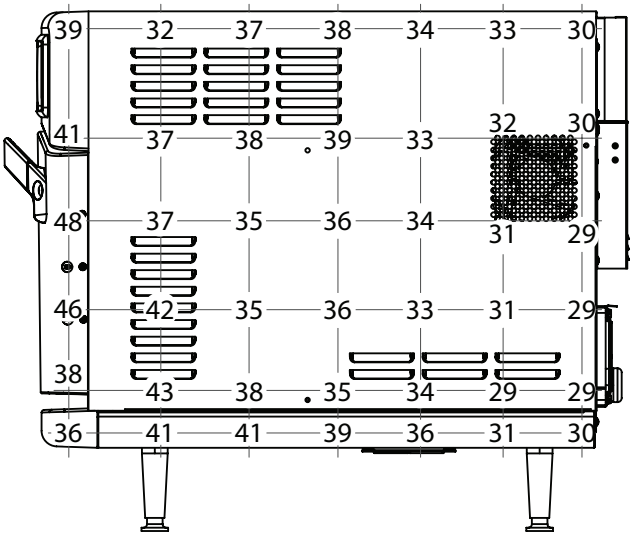


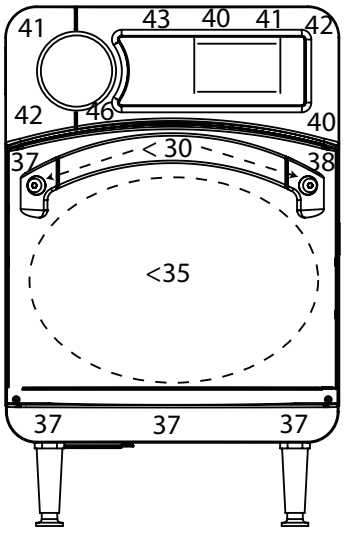


Celsius Measurements









COUNTY OF LOS ANGELES
Public Health

CYNTHIA A. HARDING, M.P.H.
Interim Director

JEFFREY D. GUNZENHAUSER, M.D., M.P.H.
Interim Health Officer

ANGELO J. BELLOMO, REHS, QEP
Deputy Director for Health Protection

TERRI S. WILLIAMS, REHS
Acting Director of Environmental Health

Brenda J. Lopez, REHS
Director, Bureau of Specialized Surveillance and Enforcement

5050 Commerce Drive
Baldwin Park, California 91706
TEL (626) 430-5100 • FAX (626) 813-3000

www.publichealth.lacounty.gov

November 10, 2015

James K. Pool III
Senior Vice President, Engineering
Turbo Chef Technologies, Inc.
4240 International Parkway, Suite 101
Carrollton, TX 75007

Ventilation Exemption Plan Check No.	ME-2010-004rev – Revision to ME-2010-004
Application Type:	Equipment specific – NGO (SOTA) 208/ 240 V, 6.2 KW
Effective Date:	11/10/2015
Expiration Date:	11/10/2020
Telephone:	(214) 379-6020
Email:	James.Pool@turbochef.com

RE: RENEWED EXEMPTION FROM MECHANICAL EXHAUST VENTILATION FOR TURBOCHEF TECHNOLOGIES, INC., Model: NGO (SOTA) Oven

Dear Mr. Pool:

The County of Los Angeles Department of Public Health, Environmental Health, Plan Check Program, has completed a review of the Turbo Chef Technologies, Inc. Model NGO oven for exemption from the mechanical exhaust ventilation requirements of Section 114149.1(a) of the California Retail Food Code.

You have provided documentation that these ovens have Underwriter's Laboratory KNLZ approval, and also provided the manufacturer specification sheet including the results of the eight-hour cooking emissions test conducted on the NGO oven.

The test results indicate that the particulate matter concentration produced was 0.64 mg/m^3 to be considered a low grease emission appliance.

Therefore, additional mechanical ventilation in the form of a Type I or Type II hood is no required by the County of Los Angeles Department of Public Health, provided the following contingencies are met.

1. There shall be no more than 2 unventilated model NGO ovens per food facility.
2. No other heat producing food related equipment requiring ventilation shall be permitted in a food facility without the addition of mechanical ventilation.
3. The equipment must be installed, serviced, and maintained according to the manufacture's specification.
4. The NGO oven shall be used for the cooking or warming of pizza, bread, bakery products, or similar items only. No raw animal protein products shall be cooked in the equipment unless mechanical ventilation is provided.
5. No items that generate grease-laden vapors shall be prepared or cooked in the unventilated NGO oven.
6. The NGO oven must be operated in a well-ventilated area approved for food preparation.
7. If ownership changes of a food facility that is operating the exempt equipment, then the new owner/ operator will be informed of the operating conditions.
8. This exemption from mechanical exhaust ventilation shall not be deemed to supersede any local building and fire code requirements pertaining to electrical and fire safety.

This exemption shall be in effect for a period of five years from the date of this letter, or until revoked. However, this exemption shall not preclude this Department from requiring the installation of mechanical exhaust ventilation when operation of the NGO oven at a specific location creates a sanitation or safety problem.

If you have any questions or need additional information, please contact the Plan Check Program at (626) 430-5560.

Sincerely,

Swati Bhatt, M. S., R.E.H.S.
Chief Environmental Health Specialist
Plan Check Program
5050 Commerce Drive
Baldwin Park, CA 91706

TURBOCHEF TECHNOLOGIES, INC.

Installation Recommendations

TurboChef ventless ovens have internal systems for destroying grease laden vapor prior to the grease escaping the oven; therefore, the ovens are certified as non-grease emitting appliances. When following our recommendations, TurboChef ovens can be installed without the aid of a Type I or Type II hood per International Mechanical Code (2006, 2009, and 2012), NFPA 96, NFPA 101 (Life Safety Code), EPA 202, and Underwriter's Laboratory (UL KNLZ).

The following guide is intended to give relevant information for the ventless installation, operation, and maintenance of TurboChef ovens. It is important that these guidelines are followed and that the oven and surrounding areas be maintained regularly for optimal performance.

Certifications

Safety – cULus, TUV (CE)
Sanitation – NSF*, UL EPH*
Ventless – UL (KNLZ)

Electrical Requirements

TurboChef ovens must be installed on a circuit equal to the ratings listed below, per NEC sec 210.23, permissable loads.

Oven	Voltage	Current	Phase
Bullet	208/240 VAC	30 amp	1 Ph
C3	208/240 VAC	50 amp	1 Ph
Double Batch	208/240 VAC 208/240 VAC	50 amp 30 amp	1 Ph 3 Ph
Eco			
Encore/Encore 2	208/240 VAC	30 amp	1 Ph
Fire	208/240 VAC	30 amp	1 Ph
HhB 2	208/240 VAC	30 amp	1 Ph
HhC 1618	208/240 VAC 208/240 VAC	30 amp 50 amp	3 Ph 1 Ph
HhC 2020	208/240 VAC	50 amp	3 Ph
HhC 2620	208/240 VAC	50 amp	3 Ph
i1 (Panini, Sŏta, Waterless Steamer)	208/240 VAC	30 amp	1 Ph
i1 Sŏta Single Mag	208/240 VAC	20 amp	1 Ph
i3	208/240 VAC 208/240 VAC	40 amp 30 amp	1 Ph 3 Ph
i5	208/240 VAC 208/240 VAC	50 amp 30 amp	1 Ph 3 Ph
Single Batch	208/240 VAC	30 amp	1 Ph
Tornado	208/240 VAC	30 amp	1 Ph

* NSF certification applies to the Tornado, C3, and HhB 2 ovens only. UL EPH certification applies to all ovens except the C3.

Menu Requirements

TurboChef ovens have been approved by Underwriter's Laboratory for ventless operation (UL KNLZ listing) 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.

The TurboChef certification includes precooked food items such as pizza toppings, sandwich meats, frozen appetizers, and cheeses. Additionally, raw, lean meats such as boneless, skinless chicken breasts and fish fall within the certification.

Cleaning Requirements

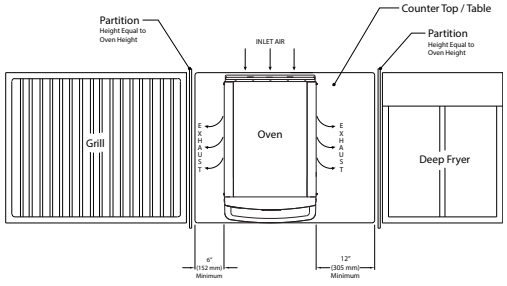
To ensure continued compliance with all health, building, and fire codes, users are required to:

- ☐ Use only TurboChef-approved cleaning chemicals.
- ☐ Follow monthly and quarterly cleaning instructions provided in the manual. Post cleaning instructions near the oven.
- ☐ Ventless installation requires that the areas around the oven (walls, ceilings, kitchen equipment, etc.) be cleaned as needed but no less than once every other month.

Installation Near Open Heat Source

When placing a TurboChef oven near an open heat source (see illustration below), strictly adhere to the following:

- If the oven is being placed near a grill or stove, a divider must exist between the oven and the open heat source, with a minimum of 6" (152 mm) between the oven and the divider.
- If the oven is being placed near a fryer, a divider must exist between the oven and fryer, with a minimum of 12" (305 mm) between the oven and the divider.
- The height of the divider must be greater than or equal to the height of the oven.



Oven Clearances

Verify the oven location has the following clearances on the top and each side. TurboChef ovens have built-in back bumpers that allow for the necessary spacing from the oven to the back wall.

Oven	Top	Sides
Bullet	5" (127 mm)	2" (51 mm)
C3	4" (102 mm)	2" (51 mm)
Double Batch	2" (51 mm)	2" (51 mm)
Eco	5" (127 mm)	1" (25 mm)
Encore/Encore 2	5" (127 mm)	2" (51 mm)
Fire	2" (51 mm)	2" (51 mm)
HhB 2	2" (51 mm)	2" (51 mm)
HhC 1618	10" (254 mm)	0" (0 mm)
HhC 2020	10" (254 mm)	0" (0 mm)
HhC 2620	10" (254 mm)	0" (0 mm)
i1 (Panini, Sŏta / Sŏta Single Mag, Waterless Steamer)	5" (127 mm)	1" (25 mm)
i3	19" (483 mm)	2" (51 mm)
i5	19" (483 mm)	2" (51 mm)
Single Batch	2" (51 mm)	2" (51 mm)
Tornado	4" (102 mm)	2" (51 mm)

Ventilation

TurboChef ovens must be installed in a well-ventilated space. The space should have an exhaust rate of .70 cfm per square foot of kitchen space and an additional 100 sq. ft. (9.3 m^2) of virtual space per ventless cooking appliance (TurboChef or any other).

If the air inlet is for general exhaust, pursuant to requirements for 507.2.2, paragraph 2, locate the air inlet above the center point of each oven.

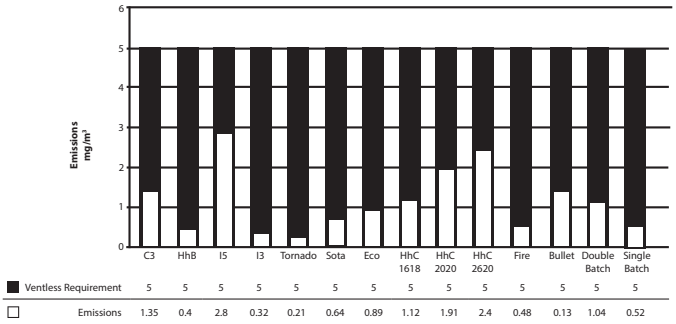
The heat load from TurboChef ovens is mostly sensible. The only latent heat present is due to evaporation during the cooking process. When installing a TurboChef oven, the space must have the following tons of AC per oven installed.

Oven	Tons of AC
Bullet	0.5
C3	0.63
Double Batch	1.15
Eco	0.89
Encore/Encore 2	0.45
Fire	0.55
HhB 2	0.84
HhC 1618	1.00
HhC 2020	1.47
HhC 2620	1.82
i1 (Panini, Sŏta/ Sŏta Single Mag, Waterless Steamer)	0.3
i3	0.9
i5	1.3
Single Batch	0.75
Tornado	0.58

How the Ovens are Tested

TurboChef ovens are evaluated according to UL. The evaluation entails placing the test oven in an environmental chamber built to capture all emissions escaping during idle, cooking, and door-open conditions. During the eight-hour test period, a typical worst-case food item is cooked continuously, and 100% of condensable and non-condensable emissions from the product are collected and analyzed according to the EPA 202 Test Method. At the conclusion of the test, the total concentration of particulate matter (emissions) must be less than 5.0 mg/m^3 for the oven to be certified for ventless operation. Cooking devices that measure above the 5.0 mg/m^3 threshold are considered to produce grease and must be installed under Type I ventilation, according to International Mechanical Code.

TurboChef ovens are well below the 5.0 mg/m^3 threshold as shown below.



Contact Information

For questions regarding a ventless installation, email ventless.help@turbochef.com. For questions or concerns regarding an existing installation, contact Customer Service at 1.800.908.8726, Option 1.