

**ALTO SHAAM®**  
**Combitherm®**

**Combination**  
**Oven / Steamer**

**ES GAS**  
**SERIES**



**6•10ESG**  
**10•10ESG**  
**7•14ESG**  
**10•20ESG**  
**12•18ESG**  
**20•20ESG**



**INSTALLATION**

W164 N9221 Water Street • P.O. Box 450 • Menomonee Falls, Wisconsin 53052-0450 USA  
PHONE: 262.251.3800 • 800.558.8744 USA/CANADA FAX: 262.251.7067 • 800.329.8744 U.S.A. ONLY  
WEBSITE: [www.alto-shaam.com](http://www.alto-shaam.com)

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**Equipment Limited Warranty**

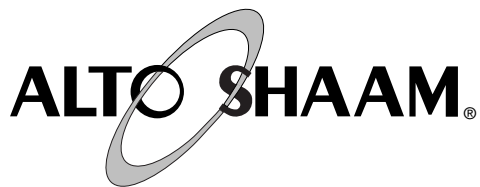
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**Transportation Damage and Claims**

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## DELIVERY

This Alto-Shaam appliance has been thoroughly tested and inspected to insure only the highest quality unit is provided. Upon receipt, check for any possible shipping damage and report it at once to the delivering carrier. *See Transportation Damage and Claims section located in this manual.*

This appliance, complete with unattached items and accessories, may have been delivered in one or more packages. Check to ensure that all standard items and options have been received with each model as ordered.

Save all the information and instructions packed with the appliance. Complete and return the warranty card to the factory as soon as possible to assure prompt service in the event of a warranty parts and labor claim.

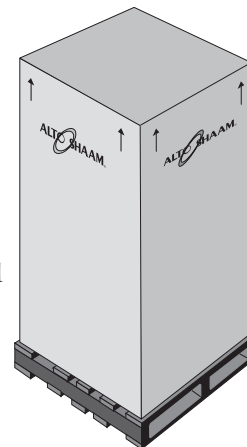
This manual must be read and understood by all people using or installing the equipment model. Contact the Alto-Shaam service department if you have any questions concerning installation, operation, or maintenance.

**NOTE:** All claims for warranty must include the full model number and serial number of the unit.

## UNPACKING

1. Carefully remove the appliance from the carton or crate.

**NOTE:** Do not discard the carton and other packaging material until you have inspected the unit for hidden damage and tested it for proper operation.



2. Read all instructions in this manual carefully before initiating the installation of this appliance.

**DO NOT DISCARD THIS MANUAL.**

This manual is considered to be part of the appliance and is to be provided to the owner or manager of the business or to the person responsible for training operators. *Additional manuals are available from the Alto-Shaam service department.*

3. Remove all protective plastic film, packaging materials, and accessories from the appliance before connecting electrical power. Store any accessories in a convenient place for future use.

## CAUTION



**TO PREVENT PERSONAL INJURY,  
USE CAUTION WHEN MOVING OR  
LEVELING THIS APPLIANCE.**

**THE INFORMATION CONTAINED IN THIS MANUAL IS IMPORTANT FOR THE PROPER INSTALLATION OF THIS OVEN. PLEASE READ CAREFULLY AND RETAIN FOR FUTURE REFERENCE.**

**IMPROPER CONNECTION OF THIS APPLIANCE WILL NULLIFY ALL WARRANTIES.**

**LES INFORMATIONS CONTENUES DANS CE MANUEL SONT IMPORTANTES POUR L'INSTALLATION L'UTILISATION ET L'ENTRETIEND DE CE FOUR. S'IL VOUS PLAÎT LISEZ-LE TRÈS ATTENTIVEMENT ET CONSERVEZ-LE.**

**LA NON-APPLICATION DE CES CONSIGNES ANNULE TOUTES GARANTIES.**

## SAFETY PROCEDURES AND PRECAUTIONS

Knowledge of proper procedures is essential to the safe operation of electrically and/or gas energized equipment. In accordance with generally accepted product safety labeling guidelines for potential hazards, the following signal words and symbols may be used throughout this manual.

### DANGER



Used to indicate the presence of a hazard that **WILL** cause severe personal injury, death, or substantial property damage if the warning included with this symbol is ignored.

### WARNING



Used to indicate the presence of a hazard that **CAN** cause personal injury, possible death, or major property damage if the warning included with this symbol is ignored.

### CAUTION



Used to indicate the presence of a hazard that can or will cause minor or moderate personal injury or property damage if the warning included with this symbol is ignored.

### CAUTION

Used to indicate the presence of a hazard that can or will cause minor personal injury, property damage, or a potential unsafe practice if the warning included with this symbol is ignored.

**NOTE:** Used to notify personnel of installation, operation, or maintenance information that is important but not hazard related.

1. This appliance is intended to cook, hold or process foods for the purpose of human consumption. No other use for this appliance is authorized or recommended.
2. This appliance is intended for use in commercial establishments where all operators are familiar with the purpose, limitations, and associated hazards of this appliance. Operating instructions and warnings must be read and understood by all operators and users.
3. Any troubleshooting guides, component views, and parts lists included in this manual are for general reference only and are intended for use by qualified technical personnel.
4. This manual should be considered a permanent part of this appliance. This manual and all supplied instructions, diagrams, schematics, parts lists, notices, and labels must remain with the appliance if the item is sold or moved to another location.

### CAUTION



**WHEN WELDING ANY STAINLESS STEEL COMPONENTS ON THIS APPLIANCE, THE ELECTRONIC CONTROL BOARDS MUST BE ISOLATED FROM THE APPLIANCE.**

☐ **COMBIGUARD™ TRIPLE-GUARD WATER FILTRATION SYSTEM**

(INCLUDES 1 CARTRIDGE) FI-23014

☐ **COMBIGUARD™ REPLACEMENT FILTER** FI-26356

☐ **FRY BASKET, 12" x 20" (325mm x 530mm)** BS-26730

☐ **GRILLING GRATE, 12" x 20" (325mm x 530mm)** SH-26731

☐ **COMBITHERM CLEANING LIQUID —** CE-24750  
SPECIALLY FORMULATED FOR COMBITHERM OVENS

➔ TWELVE (12) CONTAINERS/CASE, 1 QUART (C. 1 LITER) EACH

☐ **COMBITHERM CLEANING TABS —** CE-28892  
SPECIALLY FORMULATED FOR COMBITHERM OVENS

➔ TWO (2) CONTAINERS/BOX, 90 PACKETS EACH CONTAINER

☐ **QUICK DISCONNECT KIT** CR-33543

☐ **SCALE FREE™** CE-27889  
(CITRUS BASED, NON-CORROSIVE DELIMING PRODUCT)  
CASE = FOUR 4-LB BOTTLES; 4-LB BOTTLE MAKES 10 GALLONS

☐ **SERVICE START-UP CHECK** SPECIFY AS REQUIRED  
AVAILABLE THROUGH AN ALTO-SHAAM FASTEAM CENTER

☐ **Computer Software Options** 5005676

*Not available on S-Control Models.*

REFER TO HACCP SPECIFICATION SHEET #9015

FOR APPLICABLE PART NUMBERS

☐ **HACCP Documentation**

☐ **HACCP Documentation with Kitchen Management**



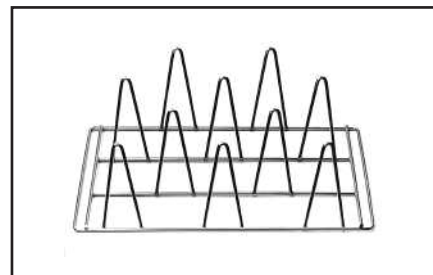
☐ **Wireless HACCP Documentation with Kitchen Management**



IEEE 802.11b STANDARDS



Six (6) Chicken Roasting Rack  
(PAN NOT INCLUDED) SH-23000



Ten (10) Chicken Roasting Rack  
SH-22634



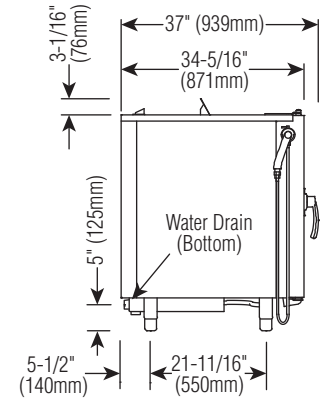
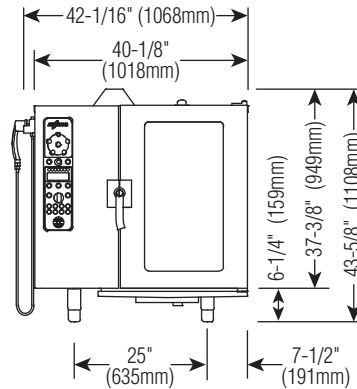
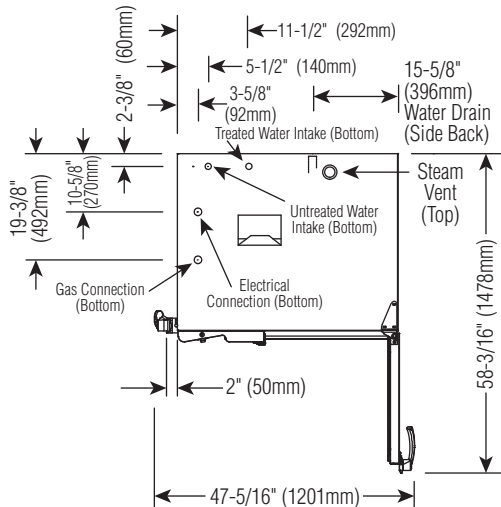
Fry Basket BS-26730



Grilling Grate SH-26731







## DIMENSIONS: H x W x D

### EXTERIOR:

43-5/8" x 42-1/16" x 37" (1108mm x 1068mm x 939mm)

### EXTERIOR WITH RETRACTABLE DOOR:

43-5/8" x 46-1/16" x 37" (1108mm x 1170mm x 939mm)

### INTERIOR:

27-3/8" x 17-3/8" x 26-13/16" (695mm x 440mm x 680mm)

## CLEARANCE REQUIREMENTS

**LEFT:** 6" (152mm) **PLUS SERVICE ACCESS:** 18" (457mm) **RECOMMENDED**  
**20" (508mm) FROM HEAT PRODUCING EQUIPMENT**  
**RIGHT:** 4" (102mm) **TOP:** 20" (508mm) **FOR AIR MOVEMENT**  
**BACK:** 4" (102mm) **BOTTOM:** 5-1/8" (130mm) **FOR LEGS**  
**COUNTER-TOP INSTALLATIONS MUST MAINTAIN 4" (102mm)**  
**MINIMUM CLEARANCE FROM THE COUNTER SURFACE.**

## WATER REQUIREMENTS

**TWO (2) COLD WATER INLETS - DRINKING QUALITY**  
**ONE (1) TREATED WATER INLET:** 3/4" NPT\*  
**ONE (1) UNTREATED WATER INLET:** 3/4" NPT\*  
**LINE PRESSURE:** 30 to 90 psi 2.8 to 6.2 bar

**WATER DRAIN:** 1-1/2" CONNECTION WITH AIR GAP

\* Can manifold off of one 3/4" line.

## INSTALLATION REQUIREMENTS

Oven must be installed level. Hood installation. Water supply shut-off valve and back-flow preventer. Alternate burner orifice is required for installation sites at elevations of 3,000 feet (914m) above sea level.

## GAS REQUIREMENTS

**CONNECTED ENERGY LOAD:** 68,000 Btu/hr  
**HOOK-UP:** 3/4" NPT  
**MINIMUM CONNECTED PRESSURE:** 5.5" W.C. (Natural Gas)  
 9" W.C. (Propane)  
**MAXIMUM CONNECTED PRESSURE:** 14" W.C.  
**GAS TYPE MUST BE SPECIFIED ON ORDER.**

## WATER QUALITY MINIMUM STANDARDS

USING A WATER SUPPLY NOT MEETING ALTO-SHAAM'S MINIMUM WATER QUALITY STANDARDS WILL VOID THIS WARRANTY. It is the responsibility of the purchaser to ensure that incoming water supply is compliant with the specifications listed through adequate treatment measures. Installation of the CombiGuard™ Water Filtration System is recommended, but this system may not address all water quality issues present.

Contaminant	Inlet Water Requirements (untreated water)
Free Chlorine	Less than 0.1 ppm (mg/L)
Hardness	Less than 3 gpg (52 ppm)
Chloride	Less than 30 ppm (mg/L)
pH	7.0 to 8.5
Alkalinity	Less than 50 ppm (mg/L)
Silica	Less than 12 ppm (mg/L)
Total Dissolved Solids (tds)	Less than 60 ppm

## ELECTRICAL

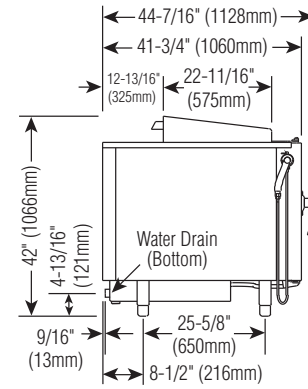
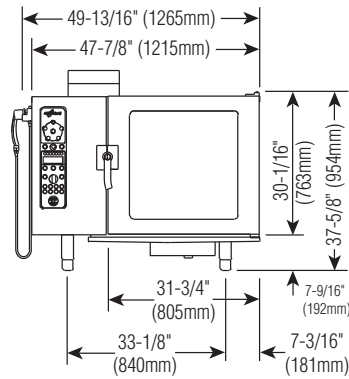
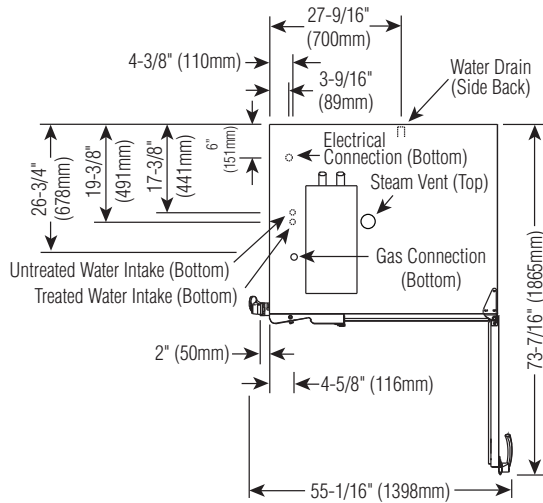
				10•10EsG		10•10EsG/sk	
VOLTAGE	PHASE	CYCLE/HZ	AWG	AMPS	kW	AMPS	kW
110 - 120	1	50/60	2 Wire plus ground, AWG 12	5.7	.68	9.5	1.14
OTHER VOLTAGES AVAILABLE: Range 200 — 415V — 1 or 3 ph, 50 or 60 Hz							

## WEIGHT

## CAPACITY

		FULL-SIZE PANS: 20" x 12" x 2-1/2" GN 1/1: 530 x 325 x 65mm HALF-SIZE SHEET PANS:* 18" x 13" x 1" ON WIRE SHELVES ONLY		
NET	490 lb EST. (222 kg) EST.		Ten (10)	Eight (8)
			Ten (10)	Eight (8)
SHIP	530 lb EST. (240 kg) EST.		Ten (10)	Nine (9)
CRATE	50" x 45" x 40" EST.	120 lb (54 kg) MAXIMUM		
DIMENSIONS: (1270 x 1143 x 1016mm)		VOLUME MAXIMUM: 75 QUARTS (95 LITERS)		

\*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY



**DIMENSIONS: H x W x D**

**EXTERIOR:**

42" x 49-13/16" x 44-7/16" (1066mm x 1265mm x 1128mm)

**EXTERIOR WITH RETRACTABLE DOOR:**

42" x 53-13/16" x 44-7/16" (1066mm x 1367mm x 1128mm)

**INTERIOR:**

23-5/8" x 25-1/4" x 33-7/8" (600mm x 640mm x 860mm)

**CLEARANCE REQUIREMENTS**

**LEFT:** 6" (152mm) **PLUS SERVICE ACCESS:** 18" (457mm) **RECOMMENDED**  
20" (508mm) **FROM HEAT PRODUCING EQUIPMENT**

**RIGHT:** 4" (102mm) **TOP:** 20" (508mm) **FOR AIR MOVEMENT**

**BACK:** 4" (102mm) **BOTTOM:** 5-1/8" (130mm) **FOR LEGS**

COUNTER-TOP INSTALLATIONS MUST MAINTAIN 4" (102mm) MINIMUM CLEARANCE FROM THE COUNTER SURFACE.

**WATER REQUIREMENTS**

**TWO (2) COLD WATER INLETS - DRINKING QUALITY**

**ONE (1) TREATED WATER INLET:** 3/4" NPT\*

**ONE (1) UNTREATED WATER INLET:** 3/4" NPT\*

**LINE PRESSURE:** 30 to 90 psi 2.8 to 6.2 bar

**WATER DRAIN:** 1-1/2" CONNECTION WITH AIR GAP

\* Can manifold off of one 3/4" line.

**INSTALLATION REQUIREMENTS**

Oven must be installed level. Hood installation. Water supply shut-off valve and back-flow preventer. Alternate burner orifice is required for installation sites at elevations of 3,000 feet (914m) above sea level.

**GAS REQUIREMENTS**

**CONNECTED ENERGY LOAD:** 91,000 Btu/hr

**HOOK-UP:** 3/4" NPT

**MINIMUM CONNECTED PRESSURE:** 5.5" W.C. (Natural Gas)  
9" W.C. (Propane)

**MAXIMUM CONNECTED PRESSURE:** 14" W.C.

**GAS TYPE MUST BE SPECIFIED ON ORDER.**

**WATER QUALITY MINIMUM STANDARDS**

USING A WATER SUPPLY NOT MEETING ALTO-SHAAM'S MINIMUM WATER QUALITY STANDARDS WILL VOID THIS WARRANTY. It is the responsibility of the purchaser to ensure that incoming water supply is compliant with the specifications listed through adequate treatment measures. Installation of the CombiGuard™ Water Filtration System is recommended, but this system may not address all water quality issues present.

Contaminant	Inlet Water Requirements (untreated water)
Free Chlorine	Less than 0.1 ppm (mg/L)
Hardness	Less than 3 gpg (52 ppm)
Chloride	Less than 30 ppm (mg/L)
pH	7.0 to 8.5
Alkalinity	Less than 50 ppm (mg/L)
Silica	Less than 12 ppm (mg/L)
Total Dissolved Solids (tds)	Less than 60 ppm

**ELECTRICAL**

VOLTAGE	PHASE	CYCLE/HZ	AWG	7•14EsG AMPS	7•14EsG/sk kW	7•14EsG/sk AMPS	7•14EsG/sk kW
110 - 120	1	50/60	2 Wire plus ground, AWG 12	5.7	0.68	9.5	1.14
OTHER VOLTAGES AVAILABLE: Range 200 — 415V — 1 or 3 ph, 50 or 60 Hz							

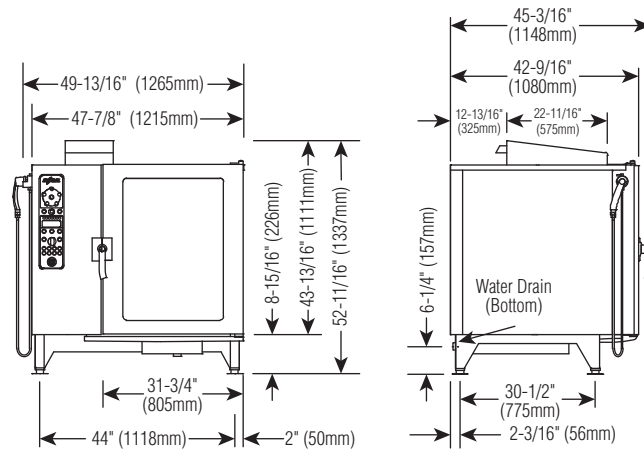
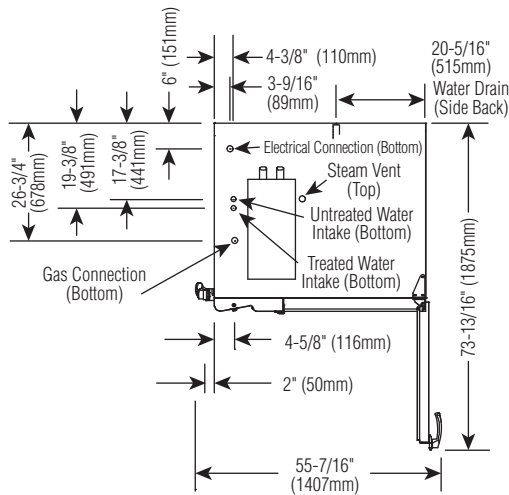
**WEIGHT**

**CAPACITY**

<b>NET</b>	NOT YET AVAILABLE	FULL-SIZE PANS: 20" x 12" x 2-1/2"	Fourteen (14)	Twelve (12)
		GN 1/1: 530 x 325 x 65mm	Fourteen (14)	Twelve (12)
		GN 2/1: 650 x 530 x 65mm	Seven (7)	Five (5)
<b>SHIP</b>	NOT YET AVAILABLE	FULL-SIZE SHEET PANS:* 18" x 26" x 1"	Seven (7)	Six (6)
<b>CRATE</b>	48" x 56" x 50" EST.	ON WIRE SHELVES ONLY		
<b>DIMENSIONS:</b> (1219 x 1422 x 1473mm)		168 lb (76 kg) MAXIMUM		
		VOLUME MAXIMUM: 105 QUARTS (133 LITERS)		

\*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY




**DIMENSIONS: H x W x D**
**EXTERIOR:**

52-11/16" x 49-13/16" x 45-3/16" (1337mm x 1265mm x 1148mm)

**EXTERIOR WITH RETRACTABLE DOOR:**

52-11/16" x 53-13/16" x 45-3/16" (1337mm x 1367mm x 1148mm)

**INTERIOR:**

33-7/8" x 25-1/4" x 33-7/8" (860mm x 640mm x 860mm)

**CLEARANCE REQUIREMENTS**

LEFT: 6" (152mm) PLUS SERVICE ACCESS: 18" (457mm) RECOMMENDED  
20" (508mm) FROM HEAT PRODUCING EQUIPMENT

RIGHT: 4" (102mm) TOP: 20" (508mm) FOR AIR MOVEMENT

BACK: 4" (102mm) BOTTOM: 5-1/8" (130mm) FOR LEGS

**WATER REQUIREMENTS**
**TWO (2) COLD WATER INLETS - DRINKING QUALITY**

ONE (1) TREATED WATER INLET: 3/4" NPT\*

ONE (1) UNTREATED WATER INLET: 3/4" NPT\*

LINE PRESSURE: 30 to 90 psi 2.8 to 6.2 bar

**WATER DRAIN:** 1-1/2" CONNECTION WITH AIR GAP

\* Can manifold off of one 3/4" line.

**INSTALLATION REQUIREMENTS**

Oven must be installed level. Hood installation. Water supply shut-off valve and back-flow preventer. Alternate burner orifice is required for installation sites at elevations of 3,000 feet (914m) above sea level.

**ELECTRICAL**

VOLTAGE	PHASE	CYCLE/HZ	AWG	AMPS	kW
110 - 120	1	50/60	2 Wire plus ground, AWG 12	7.8	.936
OTHER VOLTAGES AVAILABLE: Range 200 — 415V — 1 or 3 ph, 50 or 60 Hz					

**WEIGHT**

NET	573 lb EST. (260 kg) EST.
SHIP	875 lb EST. (397 kg) EST.
CRATE	59" x 55" x 48" EST.
DIMENSIONS:	(1499 x 1397 x 1219mm)

**CAPACITY**

FULL-SIZE PANS:	20" x 12" x 2-1/2"	Twenty (20)
GN 1/1:	530 x 325 x 65mm	Twenty (20)
GN 2/1:	650 x 530 x 65mm	Ten (10)
FULL-SIZE SHEET PANS:*	18" x 26" x 1"	Ten (10)
ON WIRE SHELVES ONLY		
240 lb (109 kg) MAXIMUM		
VOLUME MAXIMUM: 150 QUARTS (190 LITERS)		

**GAS REQUIREMENTS**

CONNECTED ENERGY LOAD: 105,000 Btu/hr

HOOK-UP: 3/4" NPT

MINIMUM CONNECTED PRESSURE: 5.5" W.C. (Natural Gas)

9" W.C. (Propane)

MAXIMUM CONNECTED PRESSURE: 14" W.C.

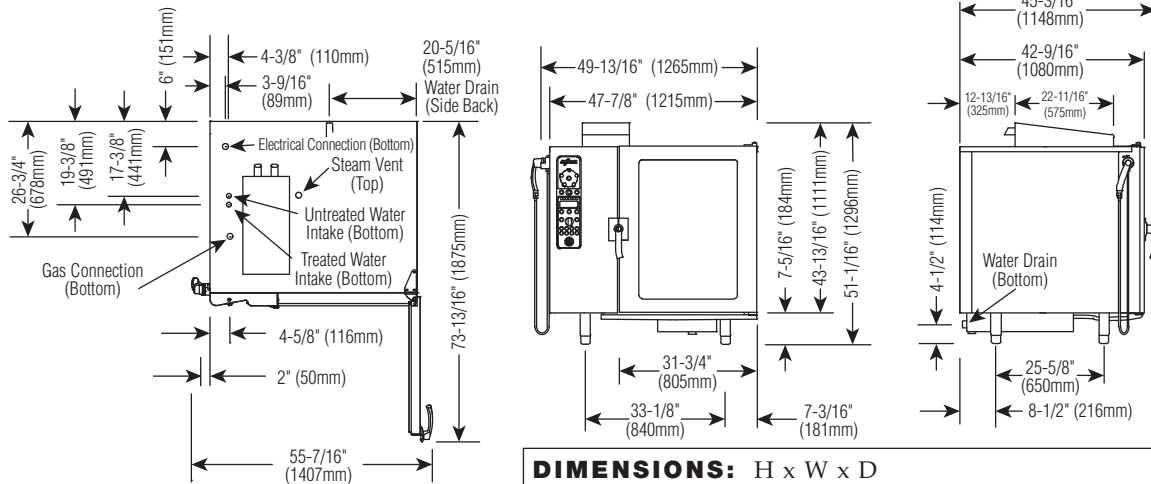
GAS TYPE MUST BE SPECIFIED ON ORDER.

**WATER QUALITY MINIMUM STANDARDS**

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Contaminant	Inlet Water Requirements (untreated water)
Free Chlorine	Less than 0.1 ppm (mg/L)
Hardness	Less than 3 gpg (52 ppm)
Chloride	Less than 30 ppm (mg/L)
pH	7.0 to 8.5
Alkalinity	Less than 50 ppm (mg/L)
Silica	Less than 12 ppm (mg/L)
Total Dissolved Solids (tds)	Less than 60 ppm

\* ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY



**DIMENSIONS: H x W x D**

**EXTERIOR:**

51-1/16" x 49-13/16" x 45-3/16" (1296mm x 1265mm x 1148mm)

**EXTERIOR WITH RETRACTABLE DOOR:**

51-1/16" x 53-13/16" x 45-3/16" (1296mm x 1367mm x 1148mm)

**INTERIOR:**

33-7/8" x 25-1/4" x 33-7/8" (860mm x 640mm x 860mm)

**CLEARANCE REQUIREMENTS**

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**WATER DRAIN:** 1-1/2" CONNECTION WITH AIR GAP

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**INSTALLATION REQUIREMENTS**

Oven must be installed level. Hood installation. Water supply shut-off valve and back-flow preventer. Alternate burner orifice is required for installation sites at elevations of 3,000 feet (914m) above sea level.

**GAS REQUIREMENTS**

CONNECTED ENERGY LOAD: 105,000 Btu/hr  
HOOK-UP: 3/4" NPT  
MINIMUM CONNECTED PRESSURE: 5.5" W.C. (Natural Gas)  
9" W.C. (Propane)  
MAXIMUM CONNECTED PRESSURE: 14" W.C.  
GAS TYPE MUST BE SPECIFIED ON ORDER.

**WATER QUALITY MINIMUM STANDARDS**

USING A WATER SUPPLY NOT MEETING ALTO-SHAAM'S MINIMUM WATER QUALITY STANDARDS WILL VOID THIS WARRANTY. It is the responsibility of the purchaser to ensure that incoming water supply is compliant with the specifications listed through adequate treatment measures. Installation of the CombiGuard™ Water Filtration System is recommended, but this system may not address all water quality issues present.

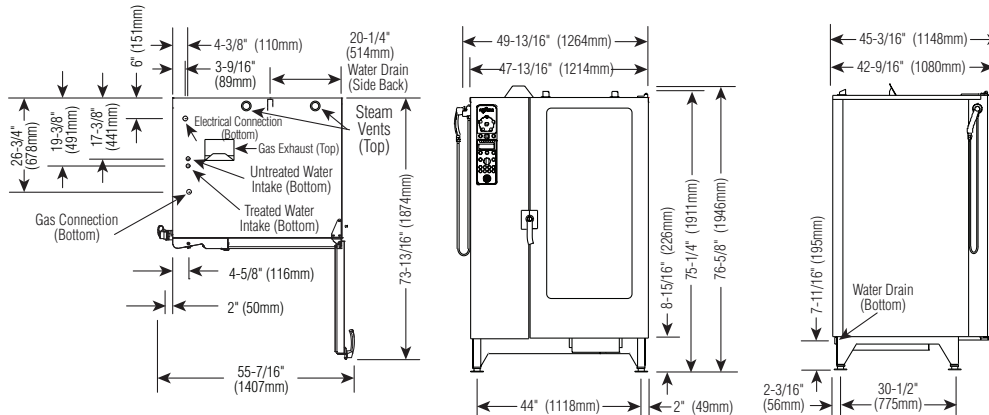
Contaminant	Inlet Water Requirements (untreated water)
Free Chlorine	Less than 0.1 ppm (mg/L)
Hardness	Less than 3 gpg (52 ppm)
Chloride	Less than 30 ppm (mg/L)
pH	7.0 to 8.5
Alkalinity	Less than 50 ppm (mg/L)
Silica	Less than 12 ppm (mg/L)
Total Dissolved Solids (tds)	Less than 60 ppm

**ELECTRICAL**

VOLTAGE	PHASE	CYCLE/HZ	AWG	AMPS	kW
110 - 120	1	50/60	2 Wire plus ground, AWG 12	7.8	.936
OTHER VOLTAGES AVAILABLE: Range 200 — 415V — 1 or 3 ph, 50 or 60 Hz					

WEIGHT		CAPACITY	
NET	666 lb EST. (302 kg) EST.	FULL-SIZE PANS:	20" x 12" x 2-1/2"
		GN 1/1:	530 x 325 x 65mm
		GN 2/1:	650 x 530 x 65mm
SHIP	865 lb EST. (392 kg) EST.	FULL-SIZE SHEET PANS:*	18" x 26" x 1"
		ON WIRE SHELVES ONLY	
CRATE	56" x 55" x 50" EST.		288 lb (131 kg) MAXIMUM
DIMENSIONS: (1422 x 1397 x 1270mm)			VOLUME MAXIMUM: 180 QUARTS (228 LITERS)

\*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY


**DIMENSIONS: H x W x D**
**EXTERIOR:**

76-5/8" x 49-13/16" x 45-3/16" (1946mm x 1264mm x 1148mm)

**EXTERIOR WITH RETRACTABLE DOOR:**

76-5/8" x 53-13/16" x 45-3/16" (1337mm x 1366mm x 1148mm)

**INTERIOR:**

54-15/16" x 25-1/4" x 33-7/8" (1395mm x 640mm x 860mm)

**CLEARANCE REQUIREMENTS**

LEFT: 6" (152mm) PLUS SERVICE ACCESS: 18" (457mm) RECOMMENDED  
20" (508mm) FROM HEAT PRODUCING EQUIPMENT

RIGHT: 4" (102mm) TOP: 20" (508mm) FOR AIR MOVEMENT

BACK: 4" (102mm) BOTTOM: 5-1/8" (130mm) FOR LEGS

**WATER REQUIREMENTS**
**TWO (2) COLD WATER INLETS - DRINKING QUALITY**

ONE (1) TREATED WATER INLET: 3/4" NPT\*

ONE (1) UNTREATED WATER INLET: 3/4" NPT\*

LINE PRESSURE: 30 to 90 psi 2.8 to 6.2 bar

**WATER DRAIN:** 1-1/2" CONNECTION WITH AIR GAP

\* Can manifold off of one 3/4" line.

**INSTALLATION REQUIREMENTS**

Oven must be installed level. Hood installation. Water supply shut-off valve and back-flow preventer. Alternate burner orifice is required for installation sites at elevations of 3,000 feet (914m) above sea level.

**GAS REQUIREMENTS**

CONNECTED ENERGY LOAD: 190,000 Btu/hr

HOOK-UP: 3/4" NPT

MINIMUM CONNECTED PRESSURE: 5.5" W.C. (Natural Gas)

9" W.C. (Propane)

MAXIMUM CONNECTED PRESSURE: 14" W.C.

GAS TYPE MUST BE SPECIFIED ON ORDER.

**WATER QUALITY MINIMUM STANDARDS**

USING A WATER SUPPLY NOT MEETING ALTO-SHAAM'S MINIMUM WATER QUALITY STANDARDS WILL VOID THIS WARRANTY. It is the responsibility of the purchaser to ensure that incoming water supply is compliant with the specifications listed through adequate treatment measures. Installation of the CombiGuard™ Water Filtration System is recommended, but this system may not address all water quality issues present.

Contaminant	Inlet Water Requirements (untreated water)
Free Chlorine	Less than 0.1 ppm (mg/L)
Hardness	Less than 3 gpg (52 ppm)
Chloride	Less than 30 ppm (mg/L)
pH	7.0 to 8.5
Alkalinity	Less than 50 ppm (mg/L)
Silica	Less than 12 ppm (mg/L)
Total Dissolved Solids (tds)	Less than 60 ppm

**ELECTRICAL**

VOLTAGE	PHASE	CYCLE/HZ	AWG	AMPS	kW
110 - 120	1	50/60	2 Wire plus ground, AWG 10	22.0	2.64

OTHER VOLTAGES AVAILABLE: Range 200 — 415V — 1 or 3 ph, 50 or 60 Hz

**WEIGHT**

NET 838 lb EST. (380 kg) EST.

SHIP 1325 lb EST. (601 kg) EST.

CRATE 82" x 56" x 50" EST.

DIMENSIONS: (2083 x 1422 x 1270mm)

**CAPACITY**

FULL-SIZE PANS:	20" x 12" x 2-1/2"	Forty (40)
GN 1/1:	530 x 325 x 65mm	Forty (40)
GN 2/1:	650 x 530 x 65mm	Twenty (20)
FULL-SIZE SHEET PANS:* ON WIRE SHELVES ONLY	18" x 26" x 1"	Twenty (20)

480 lb (218 kg) MAXIMUM

VOLUME MAXIMUM: 300 QUARTS (380 LITERS)

\* ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY

## DANGER



IMPROPER INSTALLATION, ALTERATION, ADJUSTMENT, SERVICE, OR MAINTENANCE COULD RESULT IN SEVERE INJURY, DEATH OR CAUSE PROPERTY DAMAGE.

READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

## DANGER



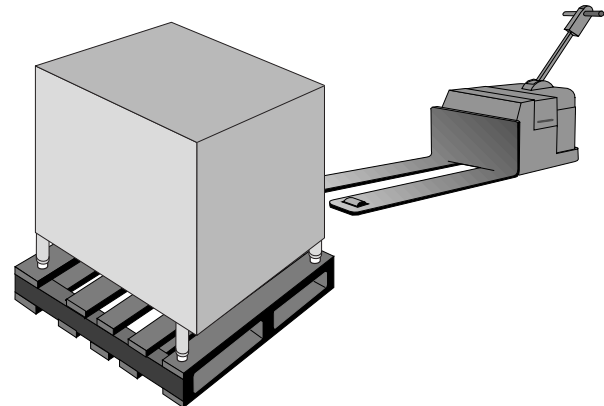
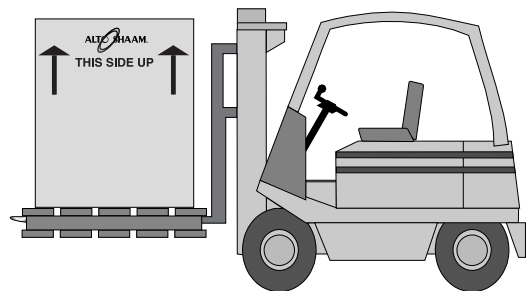
AVERTISSEMENT : UNE INSTALLATION, UN AJUSTEMENT, UNE ALTÉRATION, UN SERVICE OU UN ENTRETIEN NON CONFORME AUX NORMES PEUT CAUSER DES DOMMAGES À LA PROPRIÉTÉ, DES BLESSURES OU LA MORT.

LIRE ATTENTIVEMENT LES DIRECTIVES D'OPÉRATION ET D'ENTRETIEN AVANT DE FAIRE L'INSTALLATION, OU L'ENTRETIEN DE CET ÉQUIPEMENT.



## CAUTION

**THE OVEN MUST REMAIN ON THE PALLET WHILE BEING MOVED TO THE INSTALLATION SITE BY FORK LIFT OR PALLET LIFT TRUCK.**



**NOTE:** Note dimensions required for doorways and aisles for access of the oven and pallet to the installation site. Transport the oven in an upright and level position only. Do not tilt the oven.

## INSTALLATION CODES & STANDARDS

The following codes and standards are required for installation of this oven:  
**AIR SUPPLY, ELECTRICAL CONNECTIONS, WATER CONNECTIONS, GAS CONNECTIONS, GAS EXHAUST, AND WASTE WATER DISCHARGE.**

Installation must comply with local codes required for gas appliances. In the absence of local codes, installation must comply with the National Fuel Gas Code, ANSI Z223.1 (latest edition). In Canada, the appropriate code is the Natural Gas Installation Code, CAN/CGA-B149.1 or the Propane Installation Code, CAN/CGA-B. Adherence to code by a qualified installer is essential for the following: Gas Plumbing, Gas Appliance Installation, Commercial Cooking Ventilation, Water and Plumbing, and OSHA Regulations.

## VENTILATION REQUIREMENTS

A steam ventilation hood is mandatory for the operation of the oven. The ventilation hood must be installed in accordance with local building codes for the steam exhaust and must protrude 12-inches to 20-inches (300 to 500mm) over the front side of the oven. A grease filter must be located in the protruding area of the hood. Grease filters should be thoroughly cleaned on a regular basis following manufacturer's instruction. Ventilation hoods must ensure an adequate amount of incoming air during operation and must be operated whenever the combination oven/steamer is used in order to avoid the accumulation of condensation in the hood area. See the section titled Gas Exhaust.

## POSITIONING ON SITE

Lift the oven from the pallet with a fork lift or pallet lift truck positioned at the front of the oven. For damage protection, the use of two wooden boards, placed between the bottom of the oven and the lifting forks, is strongly recommended. To avoid damage, position the lift forks to the left of the condenser and right of the right leg as indicated in the diagram at right.

Stand the oven in a level position. Use the adjustable feet to overcome an uneven floor and ensure that the unit is level.

It is strongly recommended that table top models be mounted on a factory supplied stand or a stand that is stable, open, level, and non-combustible. Recommended height is 23-inches (584mm).

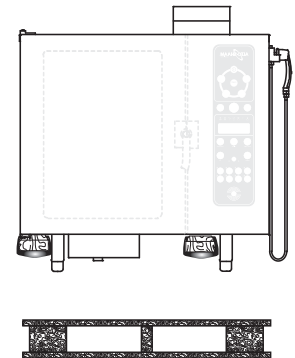
Adjust the height of floor models for smooth access of the trolley or cart. When positioning the oven, observe the minimum space allocation requirements shown.

To insure proper operation, the installation of this oven must be completed by qualified technicians in accordance with the instructions provided in this manual. Failure to follow the instructions provided may result in damage to the oven, building, or cause personal injury to personnel.

## CAUTION



**TO PREVENT PERSONAL INJURY,  
USE CAUTION WHEN MOVING OR  
LEVELING THIS APPLIANCE.**



**NOTE:** To avoid equipment damage, observe attention label on oven for area to avoid with lifting fork.

## MINIMUM CLEARANCE REQUIREMENTS

<b>LEFT SIDE</b>	6" (152mm) MINIMUM
	18" (457mm) SERVICE ACCESS RECOMMENDED
	20" (508mm) FROM HEAT PRODUCING EQUIPMENT
<b>RIGHT SIDE</b>	4" (102mm)
<b>BACK</b>	4" (102mm)
<b>TOP</b>	20" (508mm) FOR AIR MOVEMENT
<b>BOTTOM</b>	20" (508mm) FOR AIR MOVEMENT

**NOTE:** Additional clearance is needed for service access. A minimum distance of 18-inches is strongly recommended. If adequate service clearance is not provided, it will be necessary to disconnect the gas, water, and drain to move the oven with a fork lift for service access. Charges in connection with inadequate service access is not covered under warranty.



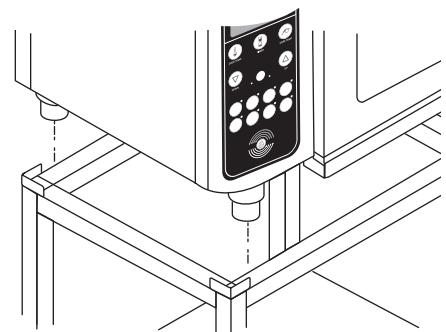
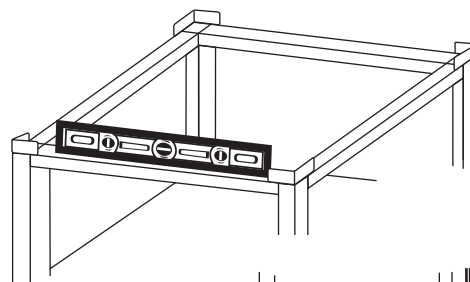
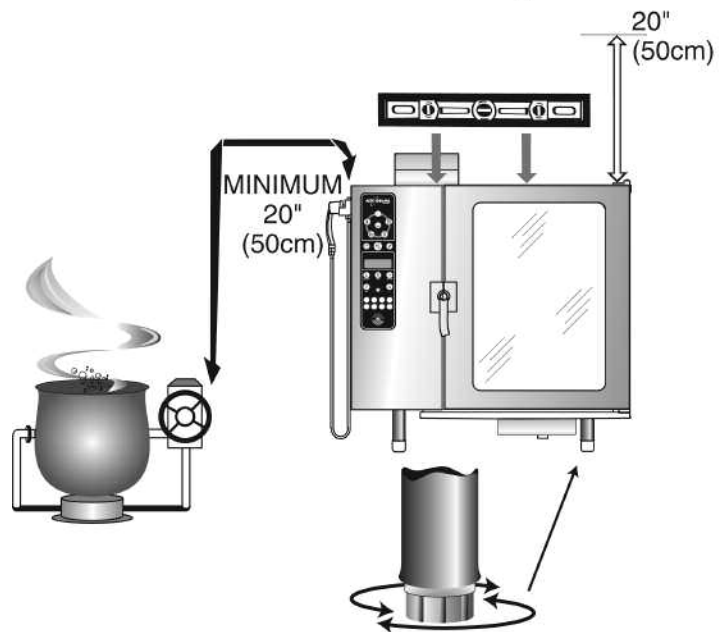
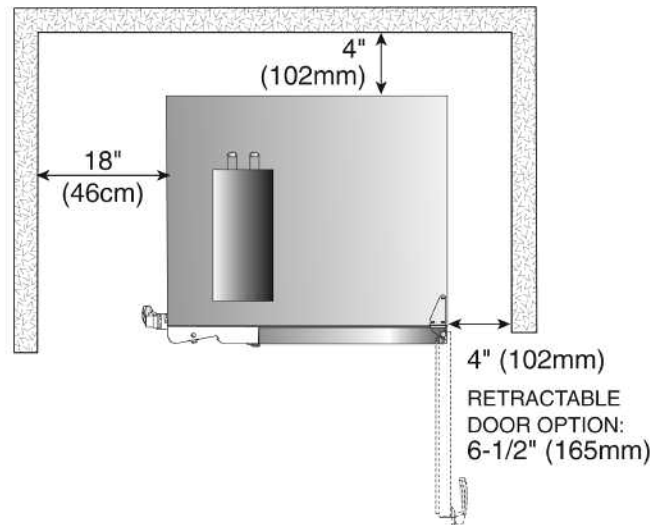
## POSITIONING REQUIREMENTS

- ❑ In order to ensure proper ventilation, a minimum distance of at least 6-inches (152mm) must be kept from the control panels side (left) of the oven and any adjoining surfaces.

**NOTE:** Additional clearance is needed for service access. A minimum distance of 18-inches is strongly recommended. If adequate service clearance is not provided, it will be necessary to disconnect the gas, water, and drain to move the oven with a fork lift for service access. Charges in connection with inadequate service access is not covered under warranty.

- ❑ Allow a minimum of 4-inches (102mm) from the right side of the oven to allow the door to open to at least a 90° angle. Fully opened, the door will extend up to a 225° angle. If the oven is furnished with the retractable door option, allow a minimum clearance of 6-1/2 inches (165mm).
- ❑ Allow a minimum clearance of 4-inches (102mm) from the back of the oven for plumbing connections.
- ❑ Allow a 20-inch (500mm) clearance at the top of the oven for free air movement and for the steam vent(s) located at the top.
- ❑ Do not install the oven adjacent to heat producing equipment such as fryers, broilers, etc. Heat from such appliances may cause damage to the controls of the Combitherm. Minimum clearance recommended: 20-inches (500mm)

Place the Combitherm oven on a stable, non-combustible level horizontal surface. For countertop models, the oven stand must be level. In addition, the overall height of the oven should be positioned so the operating controls and shelves may be conveniently reached from the front. Level the oven front-to-back and side-to-side by means of the adjustable legs.



## DANGER



Installation, air adjustment and/or service work must be in accordance with all local codes and must be performed by a certified service technician qualified to work on gas appliances.

An adequate ventilation system is required for commercial cooking equipment. Information may be obtained by writing to the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269. When writing refer to NFPA No. 96.

1. A single gas Combitherm oven requires a minimum of **28 CFM** make-up air for natural and propane gas. Kitchen ventilation must include a provision for an adequate flow of fresh air for gas combustion and to prevent a negative-pressure condition. The bottom of the oven provides air supply access for gas combustion and must be kept clear at all times. **DO NOT** obstruct or restrict ventilation nor the air flow required to support combustion.
2. **DO NOT** obstruct the flow of the exhaust flue at the top rear of the oven. It is especially critical that gas supply piping and electrical support cord and/or receptacle be routed away from the path of the hot combustion fumes.

## CAUTION



To prevent malfunction or cause negative back draft, **DO NOT** obstruct exhaust flues or attach any flue extension that will impede proper burner operation.

3. Make certain the oven installation maintains adequate air ventilation to provide cooling for electrical and gas components. The area around the oven should be clear of any obstructions which might retard the flow of cooling air. Failure to observe this caution may result in damage to the components and will void the warranty.

## WARNING



Inadequate ventilation, or failure to ensure an adequate supply of fresh air will result in a high ambient temperature at the rear of the appliance. An excessive ambient temperature can cause the thermal-overload protection device on the blower motor to trip resulting in severe damage to the blower motor.

4. This oven cannot be direct vented.
5. Install the oven under a ventilation hood meeting all applicable code requirements. Combustion fumes must be vented in accordance with local, state, or national codes.

## DANGER



**FAILURE TO VENT THIS APPLIANCE PROPERLY MAY BE HAZARDOUS TO THE HEALTH OF THE OPERATOR.** Equipment damage, operational problems and unsatisfactory baking performance may also be the consequence of improper venting. Any damage sustained by a failure to properly vent this oven are not covered under warranty.

## CAUTION



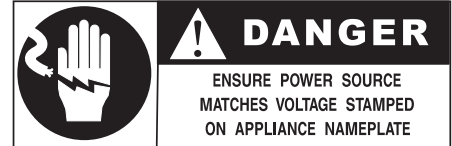
**DO NOT USE CIRCULATING FANS ON THE FLOOR. FLOOR FANS WILL AFFECT BURNER OPERATION.**

Ventilating hoods and exhaust systems shall be permitted to be used to vent appliances installed in commercial applications.

Where automatically operated appliances are vented through a ventilating hood or exhaust system equipped with a damper or with a power means of exhaust, provisions shall be made to allow the flow of gas to the main burners only when the damper is open to a position to properly vent the appliance and when the power means of exhaust is in operation. IN ACCORDANCE WITH NFPA 54 COMMONWEALTH OF MASSACHUSETTS ONLY.

# ELECTRICAL & INSTALLATION REQUIREMENTS

MODEL	VOLTAGE	PHASE	CYCLE/HZ	AMPS	KW	CIRCUIT	AWG
6•10esG	110-120	1	50/60	5.7	.68	20 A	2 WIRE PLUS GROUND AWG 12
6•10esG/sk	110-120	1	50/60	9.5	1.14	20 A	2 WIRE PLUS GROUND AWG 12
7•14esG	110-120	1	50/60	5.7	.68	20 A	2 WIRE PLUS GROUND AWG 12
7•14esG/sk	110-120	1	50/60	9.5	1.14	20 A	2 WIRE PLUS GROUND AWG 12
10•10esG	110-120	1	50/60	5.7	.68	20 A	2 WIRE PLUS GROUND AWG 12
10•10esG/sk	110-120	1	50/60	9.5	1.14	20 A	2 WIRE PLUS GROUND AWG 12
10•20esG	110-120	1	50/60	7.8	.936	20 A	2 WIRE PLUS GROUND AWG 12
12•18esG	110-120	1	50/60	7.8	.936	20 A	2 WIRE PLUS GROUND AWG 12
20•20esG	110-120	1	50/60	22.0	2.64	30 A	2 WIRE PLUS GROUND AWG 10
OTHER VOLTAGES AVAILABLE: Range 200 — 415V, 1 or 3 ph, 50 or 60 Hz							



**DANGER**

**ELECTRICAL GROUNDING INSTRUCTIONS:**

This appliance is equipped with a three-pronged (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

**DANGER**

**AVERTISSEMENT:** Directives pour la prise de courant électrique Cet appareil est muni d'une fiche à trios branches (prise de Courant) afin de vous protéger des chocs et doit être branché Directemet dans un receptacle adequate de prise do courant À trios branches. Il ne faut pas couper ou enlever une branche De cette fiche.

An electrical wiring diagram is located behind the control panel on the left side of the oven. This appliance must be branch circuit protected with proper ampacities, in accordance with the wiring diagram located in the electrical compartment of the oven.

Wire size for the main incoming power to the unit must match the minimum size listed in the specifications applicable to the specific oven model. For supply connections, locate the wire size posted on the label located on the electrical control box cover, behind the service panel.

Before operating the oven, check all cable connections in the electrical connection area for tightness since connections can loosen during transport.

**NOTE:** After both water and electrical connections have been completed, operate the oven in any cooking mode for a period of 15 minutes and recheck the main power connections at the terminal block to make certain they remain tight.

## 380-415V:

To prevent an electrical shock hazard between the appliance and other appliances or metal parts in close vicinity, an equalization-bonding stud is provided. An equalization bonding lead must be connected to this stud and the other appliances / metal parts to provide sufficient protection against potential difference. The terminal is marked with the following symbol.

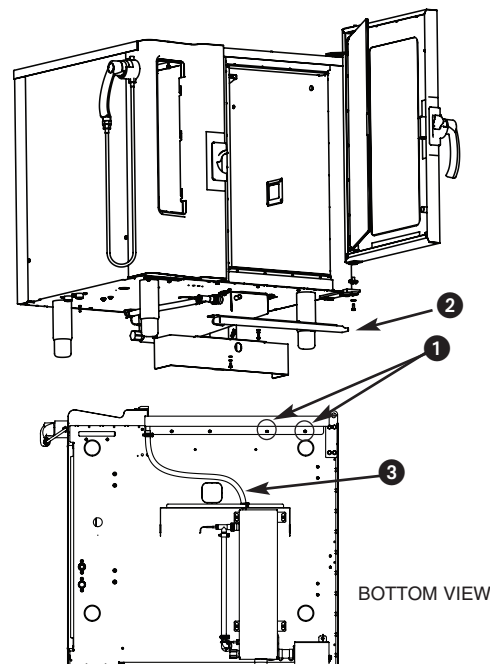
**DANGER**

To avoid electrical shock, this appliance **MUST** be adequately grounded in accordance with local electrical codes or, in the absence of local codes, with the current edition of the National Electrical Code ANSI/NFPA No. 70. In Canada, all electrical connections are to be made in according with CSA C22.1, Canadian Electrical Code Part 1 or local codes.

## DRIP TRAY INSTALLATION

The appliance is shipped without the drip tray installed. This must be installed before equipment operation begins.

- ❶ Remove screws from bottom of oven (see illustration shown at right).
- ❷ Position drip tray assembly beneath oven. Secure with lock washer and phillips screws supplied.
- ❸ Cut drip tray hose to length and attach to drip tray assembly. Secure with 20mm clamp. Secure other end of drip tray hose to drain fitting connection with clamp.



ITEM NO.	PART NO.	PART DESCRIPTION
1	—	SCREWS
2	—	DRIP TRAY
3	HO-2957	DRIP TRAY HOSE

### WARNING

**FAILURE TO PROPERLY INSTALL THE DRIP TRAY CAN OR WILL CAUSE MAJOR EQUIPMENT DAMAGE AND WILL RESULT IN A LEAKAGE HAZARD THAT CAN CAUSE PERSONAL INJURY.**

## MOBILE EQUIPMENT RESTRAINT

The gas Combitherm must use a connector that complies with *The Standard for Connectors for Movable Gas Appliances*, ANSI Z21.69 CSA 6.16 and addenda Z21.69a-1989. A quick disconnect device must be installed to comply with *The Standard for Quick Disconnect Devices for Use with Gas Fuel*, ANSI Z21 CSA 6.9.

Adequate means must be provided to limit the movement of this appliance. Limitation of movement must be made without depending on the connector, the quick disconnect device, nor the associated piping designed to limit appliance movement. If it becomes necessary to disconnect the restraint, it must be reconnected immediately following the return of the appliance to its original position.

- ❶ Install a manual gas shut-off valve along with an approved disconnect device.
- ❷ Install an A.G.A. certified, heavy-duty connector that complies with ANSI Z 21.69 or CAN 1-6.10m88 along with a quick-disconnect device in compliance with ANSI Z21.41 or CAN 1-6.9m70. Connectors must be installed with a cable restraint to prevent excessive tension from being placed on the connector.

### WARNING

**RISK OF ELECTRIC SHOCK.**


**Appliance must be secured to building structure.**


## SPECIFICATIONS

The Alto-Shaam gas Combitherm has been set to operate with either natural gas or propane as indicated on the identification name plate. Make certain the gas supply matches the nameplate information. Should conversion to the opposite fuel be desired, conversion parts must be ordered from the factory. Conversion must be completed by a qualified service person only. Always remember to reflect the conversion on the oven's nameplate. Residential gas connections and hard-piped gas connections **DO NOT** meet NSF certifications.

GAS SPECIFICATIONS		
	<input type="checkbox"/> NATURAL GAS	<input type="checkbox"/> PROPANE GAS
6•10esG	45,000 Btu/hr.	45,000 Btu/hr.
10•10esG	68,000 Btu/hr.	68,000 Btu/hr.
7•14esG	91,000 Btu/hr.	91,000 Btu/hr.
10•20esG	105,000 Btu/hr.	105,000 Btu/hr.
12•18esG	105,000 Btu/hr.	105,000 Btu/hr.
20•20esG	190,000 Btu/hr.	190,000 Btu/hr.


INSTALLATION REQUIREMENTS	
GAS CONNECTION: 3/4" NPT	
CHECK PLUMBING CODES FOR PROPER SUPPLY LINE SIZING TO ATTAIN MINIMUM BURNER MANIFOLD PRESSURE SHOWN:	
NATURAL GAS: 3.4" W.C.	
PROPANE GAS: 5.6" W.C.	
On 20•20esG models, the bottom valve should be set all the way open and the the upper valve should be set to the appropriate manifold pressure.	
MAXIMUM INLET PRESSURE: 14" W.C.	
<b>NOTE:</b> If a flexible gas line is used, it must be AGA approved, commercial type and at least 3/4" I.D.	
HOOD INSTALLATION IS REQUIRED	
GAS VALVE MAY REQUIRE FIELD ADJUSTMENT ABOVE 3,250' (991m) AND IS NOT ADJUSTED AT THE FACTORY.	


**DANGER**



**CONNECTING TO THE WRONG GAS SUPPLY COULD RESULT IN FIRE OR AN EXPLOSION CAUSING SEVERE INJURY AND PROPERTY DAMAGE.**

**WARNING**



**TO AVOID SERIOUS PERSONAL INJURY**, installation of this appliance must conform to local, state, and national codes; the current edition of the American National Standard Z223.1, National Fuel Gas Code, and all local municipal building codes. In Canada, installation must be in accordance with Standard CAN/CSA B 149.1 and Installation Codes - Gas Burning Appliances, and local codes.

## GAS PRESSURE CHART

The oven has been factory adjusted according to the gas type specified on the identification name plate.

### TECHNICAL SPECIFICATIONS

#### Natural Gas

Min. Connected Pressure	5.5" W.C.	1.12 kPa
Max. Connected Pressure	14.0" W.C.	3.5 kPa

#### Propane Gas

Min. Connected Pressure	9.0" W.C.	1.99 kPa
Max. Connected Pressure	14.0" W.C.	3.5 kPa



**CONNECTION**

**DANGER**

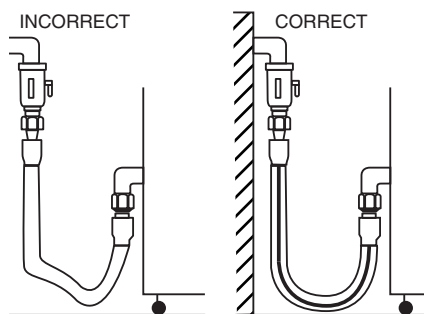


Installation, air adjustment and/or service work must be in accordance with all local codes and must be performed by a certified service technician qualified to work on gas appliances.

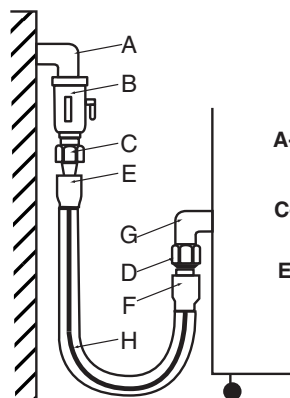
Remove any tape or compound residue on all external thread connections before proceeding.

Use an approved gas pipe sealant at all external threaded connections. Gas piping used on gas

connections must avoid sharp bends that may restrict the flow of gas to the appliance. If the connected pressure exceeds 14.0" W.C. (3.5 kPa), a step-down regulator is required to be supplied by the owner/operator.



Close the individual manual shut-off valve to **isolate the appliance** from the gas supply piping system during any pressure testing at test pressures equal to or less than  $\frac{1}{2}$  psig. (3,4 kPa). The appliance and individual shut-off valve **must be disconnected** from the gas supply piping system during any pressure testing at pressures in excess of  $\frac{1}{2}$ " psig. (3,4 kPa).



**GAS INTAKE**

- A-G Installation elbow
- B Wall Valve
- C-D Three-piece union fitting (minimum 1 per installation)
- E-F End connector for the flexible tube
- H Marking line



**DANGER**



DO NOT store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.



**DANGER**



DO NOT store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

In the U.S.A., installation must conform to local codes or, in the absence of local codes, with the current edition of the *National Fuel Gas Code*, NFPA-54 and ANSI Z83.11a CSA 1.8a 2004 (or latest edition). In Canada, installation must be in accordance with local codes, CAN/CGA-B149.1, *Installation for Natural Gas Burning Appliances and Equipment* (latest edition) or CAN/CGA-B149.2 *Installation for Propane Burning Appliances and Equipment* (latest edition).

The inlet supply line must be properly sized to accommodate all individual appliances simultaneously used on the same line but must never be smaller than  $\frac{3}{4}$ " NPT.

The minimum size requirement for gas piping or a flexible connector is  $\frac{3}{4}$ -inch (19mm). For long runs of gas piping, the pipe diameter must conform to the tables in the National Fuel Gas Code, ANSI/NFPA Z223.1.

A listed gas shut-off valve must be installed upstream of the appliance to shut off the gas supply during servicing. The shut-off valve should be accessible with the appliance in the normal installation position.

If the oven or the oven stand is supplied with casters, gas connection must be made with a flexible connector that complies with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.69; or in Canada, Connectors for Movable Gas Appliances, CAN/CGA-6.16-M87. When using a flexible connector, a quick disconnect device must be used to comply with the Standard for Quick-Disconnect Devices for Gas Fuels, ANSI Z21.41; or in Canada, Quick Disconnect Devices for Use with Gas Fuels, CAN1-6.9.

When a quick disconnect device and flexible connector are used, a restraining device must be installed to limit the movement of the appliance and prevent damage to the connector or quick disconnect. An example of a restraining device would consist of a 2000 pound test, stainless steel cable, attached to a structural member of the kitchen wall behind the oven. The means of attachment should consist of a quick connect snap so that the oven can be disconnected when the appliance

must be moved away from the wall.

The other end of the cable should be permanently attached to the rear frame of the oven. The cable should be of sufficient length so that no strain is ever placed on the flexible gas connector in the event of accidental movement of the oven without properly disconnecting the gas connector. The flexible connector should be routed to form a downward "U" loop between the building gas supply and the permanent attachment at the rear of the oven.

The routing of the flexible connector must not be made under the oven. Oven temperatures achieved during operation are too hot for safe operation. Gas piping should be installed from the point of gas connection at the bottom, front of the oven to the back of the oven where the flexible connector may be safely used. See the illustration for the recommended placement.

### WARNING



**GAS PIPING MUST NEVER  
BE INSTALLED TO RUN  
UNDER THE BURNER.**

## LEAK TESTING

If a pressure leak test above 1/2 psi is to be performed on the building supply gas piping, the shut-off gas valve and oven inlet gas supply line must be disconnected from the building supply piping before conducting the pressure test. Failure to do so may result in damage to the manual gas valve, gas components in the oven, or both.

If any gas leak tests are to be conducted at pressures equal to or below 1/2 psi, the manual gas shut-off valve upstream of the oven must be turned off before conducting the tests.

Leak testing of the internal oven piping system was conducted before shipping the oven from the factory. If additional testing is needed, it should only be conducted at normal gas supply pressures. If the testing is performed using combustible gas in the piping, the leak checking should be done with a soap solution (bubble checking).

The use of an electronic combustible gas leak detector is helpful, however, this type of detector can be oversensitive. Electronic detectors may indicate false leaks from other sources which would not be detected when checking with a liquid solution to verify a no-hazard gas connection.

When starting the oven after initial installation, the gas lines must be free of air. It may take up to 30 minutes to eliminate all air from the lines. If, after this time there is no pilot, call for factory assistance.

<b>⚠ DANGER</b>	
	<b>NEVER USE AN OPEN FLAME TO LEAK TEST.</b>

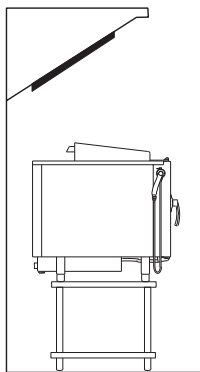
## GAS EXHAUST


The oven is not designed for direct connection to a chimney vent system or for direct connection to a horizontal exhaust system.

The oven must be installed under a ventilation hood listed to ANSI/UL 705 (latest edition), and the installation must be completed in accordance with the ANSI/NFPA 96-1987, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

Oven operators should be instructed with regard to the hazards of placing any material on top of the oven that would obstruct the flow of flue

products out the opening of the flue diverter. Operators should also be instructed with regard to the hazards of hot flue gases and that any material or items placed on top of, or in front of the flue deflector could be damaged or cause a fire hazard.



<b>DANGER</b>	
	<p><b>BEFORE STARTING THE APPLIANCE, MAKE CERTAIN YOU DO NOT DETECT THE ODOR OF GAS.</b></p> <p><b>IF THE ODOR OF GAS IS DETECTED:</b></p> <ul style="list-style-type: none"> <li>• <b>DO NOT</b> attempt to light any appliance.</li> <li>• <b>DO NOT</b> touch any electrical switches.</li> <li>• <b>Extinguish</b> any open flame.</li> <li>• <b>Use a telephone OUTSIDE THE PROPERTY &amp; IMMEDIATELY</b> contact your gas supplier.</li> <li>• <b>If unable to contact your gas supplier,</b> contact the fire department.</li> </ul>

## WATER QUALITY REQUIREMENTS

### USE A DRINKING QUALITY, COLD WATER SUPPLY ONLY

Water quality is of critical importance when installing steam producing equipment of any kind, particularly *high temperature* steam producing equipment. Water that is perfectly safe to drink is composed of chemical characteristics that directly affect the metal surfaces of steam producing equipment. These chemical characteristics differ greatly from region to region throughout the U.S. and the world. *Varying combinations of pH; alkalinity; hardness; chlorides; total dissolved solids; and other chemical characteristics, when subjected to high temperatures, will cause water to have a tendency to either scale or corrode.*

Alto-Shaam has consulted with people who understand the properties of water in order to provide water quality standards that meet the broadest possible range of acceptable water quality requirements to help protect your investment.

We strongly urge water testing to ascertain the water quality on site prior to the installation of any steam producing equipment. Since water quality is an important issue, Alto-Shaam is committed to provide as much information as possible to help protect the investment made in this equipment.

A CombiGuard™ Water Filtration System can be purchased as an option for installation on the Combitherm oven. This filter, when properly installed, maintained, and combined with the required levels of steam generating equipment maintenance, will help lessen the affect water has on metal surfaces. It will not, however, provide complete protection against all water damage from region to region.

Due to the complexity of water chemistry, it is important to understand that water quality plays a significant role in the longevity of steam producing equipment. Water quality and required maintenance of steam generating equipment is the direct responsibility of the owner/operator. Damage incurred as a direct result of poor water quality and/or surfaces affected by water quality is also the responsibility of the owner/operator. Damage due to water quality that does not meet the minimum standards shown below is not covered under the Alto-Shaam Combitherm warranty.

Alto-Shaam will continue our efforts to provide viable solutions to ease the impact of water quality as it relates to steam generating equipment.

### ALTO-SHAAM COMBITHERM WATER QUALITY MINIMUM STANDARDS

CONTAMINANT	INLET WATER REQUIREMENTS (UNTREATED WATER)
Free Chlorine	Less than 0.1 ppm (mg/L)
Hardness	Less than 3 gpg (52 ppm)
Chloride	Less than 30 ppm (mg/L)
pH	7.0 to 8.5
Alkalinity	Less than 50 ppm (mg/L)
Silica	Less than 12 ppm (mg/L)
Total Dissolved Solids (tds)	Less than 60 ppm



**! WARNING**  
TO PREVENT WATER PIPES OR HOSES FROM BURSTING, INCOMING WATER SUPPLY SHOULD BE TURNED OFF WHEN THE APPLIANCE IS NOT IN USE.

**! WARNING**  
WATER SUPPLY MUST BE OPEN WHEN CLEANING PROGRAM IS ACTIVATED.  
VERIFY WATER SUPPLY BEFORE STARTING CLEANING PROGRAM.

**WATER REQUIREMENTS**

**TWO (2) COLD WATER INLETS - DRINKING QUALITY**

ONE (1) TREATED WATER INLET: 3/4" NPT\*  
ONE (1) UNTREATED WATER INLET: 3/4" NPT\*  
LINE PRESSURE: 30 to 90 psi  
2.8 to 6.2 bar

\* Can manifold off of one 3/4" line

REFER TO PUBLISHED SPECIFIC WATER REQUIREMENTS

**WATER DRAIN: 1-1/2" CONNECTION WITH AIR GAP**

Flush the water line at the installation site.

Install water intake filters (provided) [see figure 1] before connecting the oven to the water supply.

A hose connector is supplied for flexible hose connection to the **COLD** water source.

**PIPE SEALING TAPE (TEFLON®) MUST BE USED AT ALL CONNECTION POINTS.** The use of a pipe sealing compound is not recommended.

Install water  
intake filters

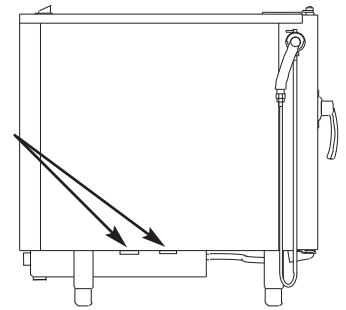
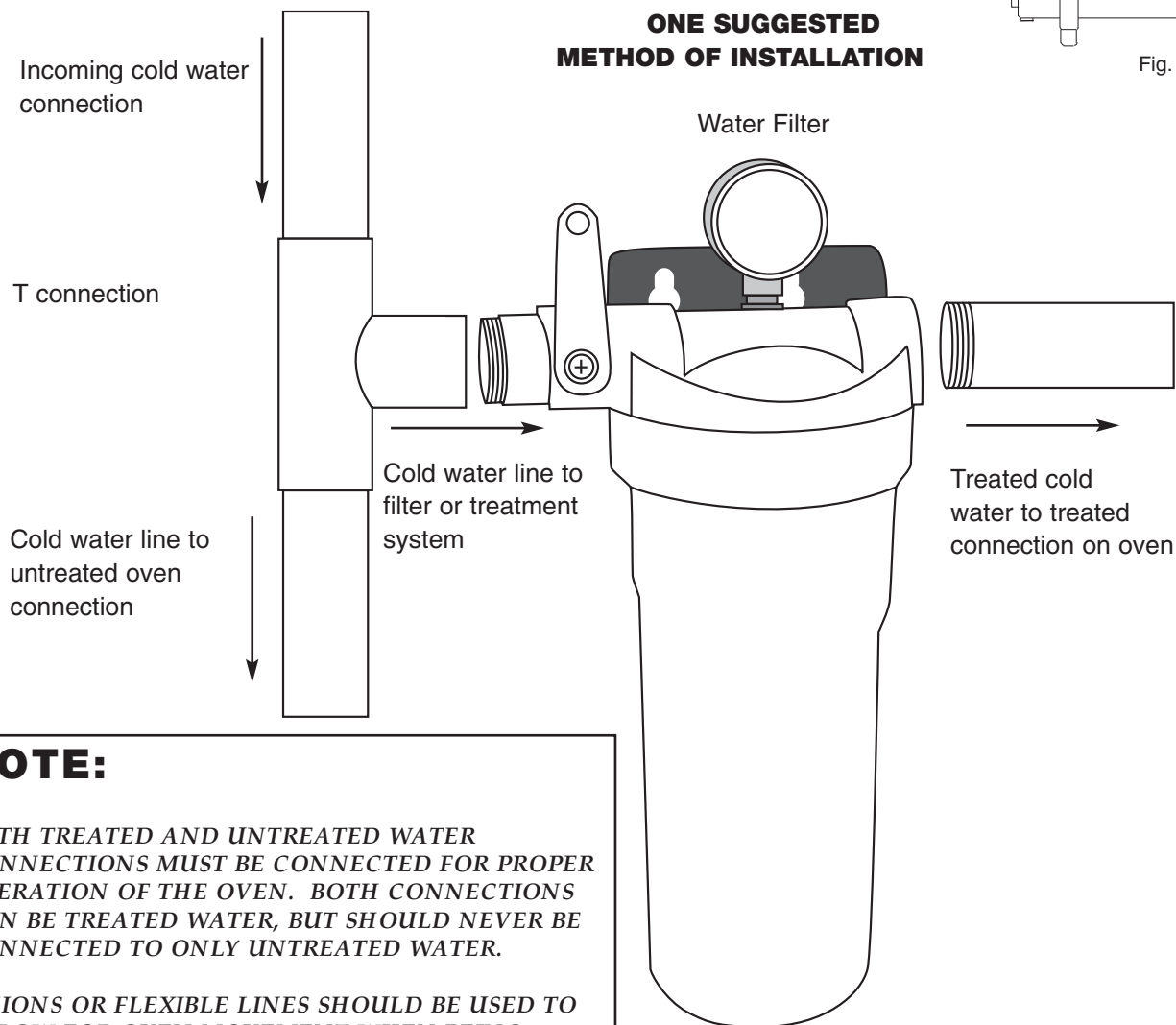


Fig. 1

**ONE SUGGESTED  
METHOD OF INSTALLATION**



**NOTE:**

**BOTH TREATED AND UNTREATED WATER CONNECTIONS MUST BE CONNECTED FOR PROPER OPERATION OF THE OVEN. BOTH CONNECTIONS CAN BE TREATED WATER, BUT SHOULD NEVER BE CONNECTED TO ONLY UNTREATED WATER.**

**UNIONS OR FLEXIBLE LINES SHOULD BE USED TO ALLOW FOR OVEN MOVEMENT WHEN BEING SERVICED OR CLEANING IS NEEDED.**

**REFER TO DIMENSION DRAWINGS BEGINNING ON PAGE 4 FOR PROPER INTAKE LOCATIONS.**



## NOTE:

THE SHUT-OFF VALVE  
MUST BE IN THE OPEN POSITION  
WHEN THE OVEN IS BEING USED.

SHUT-OFF VALVE SHOWN  
IN THE OFF POSITION



**ITEM FI-23014**

Alto-Shaam now offers an improved water filtration system for Combitherm®. The CombiGuard™ triple-guard water filtration system filters dirt, sediment, and other debris as small as 1/2 micron. This system also significantly reduces chlorine content to protect against corrosive chlorine compounds. CombiGuard improves equipment efficiency, reduces service requirements and extends the life of the Combitherm. Filtration system includes one filter cartridge. Additional cartridges (**FI-26356**) can be purchased separately.

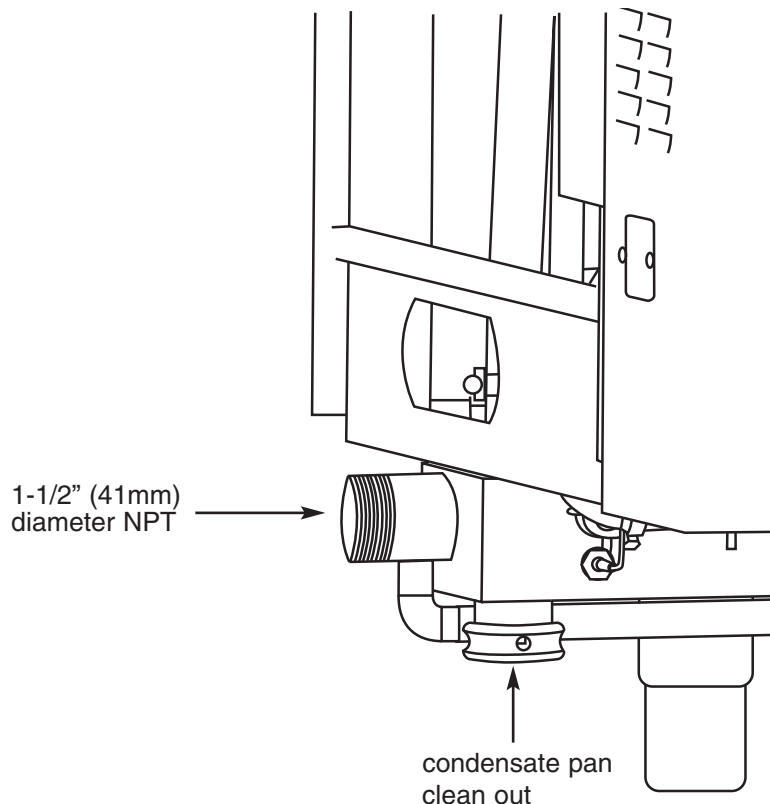
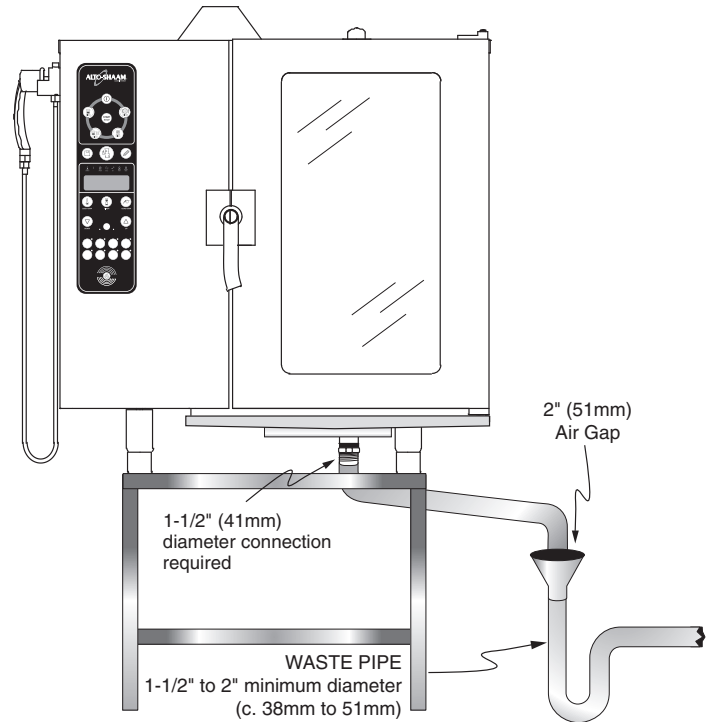
## WATER DRAINAGE

The oven must discharge through an indirect waste pipe by means of an air gap. The drain fitting is supplied with a 1-1/2-inch (41mm) NPT thread.

A union is required. Install a 1-1/2-inch (41mm) diameter connection, drain line and clamp into place. The drain line must always be a positive gradient away from the Combitherm oven and not more than 12-inches (305mm) before an air gap.

**NOTE:** In the U.S.A., this equipment is to be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. [BOCA], and the Food Service Sanitation Manual of the Food & Drug Administration [FDA].

If several units are to be connected to one drain pipe, the dimensions of the pipe must be sufficient to allow an unobstructed water drain system.



# INSTALLATION CHECKLIST



Use this list as a final check of oven installation conformance. Damage directly attributed to improper set up, installation, or cleaning can invalidate warranty claims.

## CLEARANCES:

Left: 6" (152mm) — Service access of 18" (457mm) recommended.  
20" (508mm) from heat producing equipment.  
Right: 4" (102mm)  
Back: 4" (102mm) for plumbing  
Top: 20" (508mm) for air movement

ARE ALL CLEARANCE

REQUIREMENTS MET? ☐ YES ☐ NO

IF NO, EXPLAIN: \_\_\_\_\_

## WATER SUPPLY AND DRAINS:

Verify hook-up to **TWO** (2) separate cold water supply lines with a 3/4" (19mm) water connection supply line. Verify inlet water pressure is at a minimum of 30 PSI (2.8 bar). Maximum water pressure is not to exceed 90 PSI (6 bar). Verify drain diameter of 1-1/2" (41mm) with a positive descending slope, and with a 2" (51mm) air gap which is free of obstructions before connection to the site drain. Verify 1/8" (3,2mm) pitch to 10' (305cm) of drain line.

**IMPORTANT:** Alto-Shaam has listed Water Quality Requirements in the installation manual for this equipment. It is the responsibility of the end user to have the water connected to this appliance tested to ensure these standards are met before putting the oven into use. Failure to meet these standards will void the warranty if damage to the oven is found to be related to water quality.

ARE BOTH WATER SUPPLY LINES

PROPERLY CONNECTED? ☐ YES ☐ NO

IF NO, EXPLAIN: \_\_\_\_\_

IS A FILTER SYSTEM INSTALLED  
ON THIS UNIT? ☐ YES ☐ NO

STORE HAS SEEN THIS  
RECOMMENDATION: ☐ YES ☐ NO

SIGNATURE OF STORE REPRESENTATIVE: \_\_\_\_\_

## ELECTRICAL CONNECTIONS:

Verify electrical power requirements for oven.  
Verify voltage at terminal block. Check all terminals for tightness.

VOLTAGE: \_\_\_\_\_

PHASE: \_\_\_\_\_

BREAKER SIZE: \_\_\_\_\_

LINE VOLTAGE AT TERMINAL BLOCK (TO GROUND):

➡ LINE 1: \_\_\_\_\_ LINE 2: \_\_\_\_\_ LINE 3: \_\_\_\_\_

LINE VOLTAGE (PHASE TO PHASE): LINE 1 to 2: \_\_\_\_\_

LINE 2 to 3: \_\_\_\_\_

LINE 3 to 1: \_\_\_\_\_

ELECTRICAL SUPPLY LINE SIZE: \_\_\_\_\_

CORRECT MOTOR ROTATION: ☐ YES ☐ NO

ALL ELECTRICAL TERMINALS TIGHT: ☐ YES ☐ NO

## GAS CONNECTIONS (GAS UNITS ONLY):

Verify that gas connections are 3/4" NPT pipe or 3/4" commercial flexible gas connector. Verify incoming gas pressure is at least 5.5" WC for natural gas and 9" WC for propane. Verify that gas valve outlet pressure is 3.4" WC for natural gas and 5.6" WC for propane. Verify that if a commercial flexible gas connector is used that it is not run under the oven, but connected at the rear of the oven.

☐ NATURAL GAS ☐ PROPANE

GAS CONNECTION: \_\_\_\_\_

INCOMING GAS PRESSURE: \_\_\_\_\_

GAS OUTLET PRESSURE: \_\_\_\_\_

CONNECTION AT REAR OF OVEN: \_\_\_\_\_

## CONTROL BOARD CONNECTIONS & OPERATION:

With the Power Key OFF, press and hold the Chef Function Key to access software version, and record.

SOFTWARE VERSION:

BM \_\_\_\_\_ SM \_\_\_\_\_ KM \_\_\_\_\_

ALL BOARD CONNECTIONS TIGHT: ☐ YES ☐ NO

ALL FUNCTIONS LIGHT UP: ☐ YES ☐ NO

ALL FUNCTIONS ON CONTROL OPERATE: ☐ YES ☐ NO

UNIT OPERATES IN ALL MODES: ☐ YES ☐ NO

IF NO, EXPLAIN: \_\_\_\_\_

## PHYSICAL CONDITION: \*REFERENCE INSTALLATION INSTRUCTIONS FOR COMPLETE INFORMATION



Bottom of oven has been checked for damage due to improper positioning on site .....☐  
Verify all gaskets, hoses, and carts\* are in place and function properly .....☐  
If oven includes a cart, verify proper installation of the rack guide\* .....☐  
Verify the installation of drip pans\*, racks, shelves, drain screen, spray hose\* .....☐  
Verify the oven is level and installed on a solid, water resistant floor .....☐

SERVICE AGENCY:	START-UP DATE:
	INSTALLATION NAME:
MODEL NO.:	SERIAL NO.:
TECH SIGNATURE:	CUSTOMER SIGNATURE:

## CONTROL RESET

There is a remote possibility in the day-to-day operation of the Combitherm that the control could lock or freeze. If this occurs, the control is easy to reset.

 **PRESS AND HOLD THE POWER KEY FOR A PERIOD OF 5 SECONDS.**

Release the POWER KEY.

The control will reset itself within approximately 15 seconds.

*WHEN RESET, THE DISPLAY WILL INDICATE THE TIME AND DATE AND THE CONTROLS WILL BE FULLY FUNCTIONAL.*

## SERVICE MODE AND ERROR CODES

*When the oven malfunctions, an error code will appear in the display.*

PRESS THE START KEY TO ACKNOWLEDGE THE ERROR.

The keys that begin to flash represent operational modes that are still usable. Refer to Emergency Operation.

*When the oven fault is corrected, the Combitherm will return to normal Operation.*

### ERROR CODES AND REASONS

Error Code	Display Shows	When does the error occur?	Possible reason
E01	Low Water	<b>ES units only:</b> <ul style="list-style-type: none"> <li>Activated if running in any mode and the water level drops below the low level sensor.</li> <li>Activated if in Standby mode and the water level drops below the low level sensor for 3 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>Water supply is shut off.</li> <li>Low water pressure.</li> <li>Steam generator drain cap is off or loose.</li> <li>Drain pump is not sealing.</li> <li>Faulty or scaled water level probe.</li> <li>Faulty or plugged solenoid valve assembly.</li> <li>Wiring or connection issue.</li> </ul>
E02	Control Temp High	Activated if the temperature of the electrical control is higher than 176°F (80°C) for 20 seconds.	<ul style="list-style-type: none"> <li>Cooling fan not operating.</li> <li>Unit is next to a heat producing source (there is less than 20" clearance for the control side).</li> <li>Exhaust hood is not operating (if applicable).</li> </ul>
E03	Fan Malfunction	Activated if the motor protection switch is tripped.	<ul style="list-style-type: none"> <li>Motor rotation is backwards.</li> <li>Incorrect power to the unit.</li> <li>Connection problem at X-7 plug on the relay board pins 3-4.</li> </ul>
E04	Aux Fan Fault	Auxiliary fan malfunction.	<ul style="list-style-type: none"> <li>Control setup programming error.</li> <li>Contact factory.</li> </ul>
E11	Excess Oven Temp	Activated if the oven cavity temperature is higher than 572°F (300°C) for 25 seconds.	<ul style="list-style-type: none"> <li>Connection issue with oven temperature sensor.</li> <li>Convection element contactor is stuck.</li> <li>Faulty oven temperature sensor.</li> </ul>

## ERROR CODES AND REASONS (continued)

Error Code	Display Shows	When does the error occur?	Possible reason
E13	Excess Steam Gen Temp	<b>ES units only:</b> Activated if the temperature of the steam generator probe (B-4) is higher than 248°F (120°C) for 26 seconds.  <b>ESi units only:</b> <ul style="list-style-type: none"> <li>Activated if the position of personality jumper on X-3 is incorrect.</li> <li>Activated if the position of B-4 jumper is incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>Problem with water level probe.</li> <li>Scale build-up inside steam generator.</li> <li>Steam element contactor is stuck.</li> <li>Connection issue with B-4 probe.</li> <li>Faulty B-4 probe.</li> <li>Jumper on X-3 is improperly positioned. Should be between 2-8 or, if it is a smoker, between 2-9.</li> <li>Jumper on X-6a is improperly positioned. Should be between 13-14.</li> </ul>
E15	Excess Condensate Temp	Activated if the temperature of the condensate probe (B-3) is higher than 212°F (100°C) for 26 seconds.	<ul style="list-style-type: none"> <li>Water supply is shut off.</li> <li>Faulty or plugged solenoid valve (Y-2).</li> <li>Connection issue at B-3 probe.</li> <li>Faulty B-3 probe.</li> </ul>
E21	Oven Probe Fault	Activated if oven temperature probe (N-6) is interrupted.	<ul style="list-style-type: none"> <li>Connection issue at N-6 probe.</li> <li>Faulty N-6 probe.</li> </ul>
E22	Core Temp Probe Fault	Activated if cooking in Core Temp mode and the CTC sensor measures an excessive temperature.	<ul style="list-style-type: none"> <li>CTC sensor is damaged.</li> <li>4-point CTC sensor is activated, but 1-point CTC sensor is installed.</li> <li>Cable connection of CTC sensor is damaged.</li> <li>Hardware problem on control unit (SM).</li> </ul>
E23	Steam Gen Probe Fault	<b>ES units only:</b> Activated if the steam generator probe (B-4) is interrupted.  <b>ESi units only:</b> <ul style="list-style-type: none"> <li>Activated if the position of personality jumper on X-3 is incorrect.</li> <li>Activated if the position of B-4 jumper is incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>Connection issue at B-4 probe.</li> <li>Faulty B-4 probe.</li> <li>Jumper on X-3 is improperly positioned. Should be between 2-8 or, if it is a smoker, between 2-9.</li> <li>Jumper on X-6a is improperly positioned. Should be between 13-14.</li> </ul>
E24	Bypass Probe Fault	Activated if the bypass probe (B-5) is interrupted.	<ul style="list-style-type: none"> <li>Connection issue at B-5 probe.</li> <li>Faulty B-5 probe.</li> </ul>
E25	Condensate Probe Fault	Activated if the condensate probe (B-3) is interrupted.	<ul style="list-style-type: none"> <li>Connection issue at B-3 probe.</li> <li>Faulty B-3 probe.</li> </ul>
E26	Steam Gen Safety Probe Fault	Activated if the steam generator safety probe (N-8) is interrupted.	<ul style="list-style-type: none"> <li>Connection issue at N-8 probe.</li> <li>Faulty N-8 probe.</li> </ul>
E27	Excess Steam Gen Safety Temp	<b>ES units only:</b> Activated if the steam generator safety probe (N-8) measures a temperature in excess of 266°F (130°C).  <b>ESi units only:</b> <ul style="list-style-type: none"> <li>Activated if the position of N-8 jumper is incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>Problem with water level probe.</li> <li>Scale build-up inside steam generator.</li> <li>Steam element contactor is stuck.</li> <li>Connection issue with N-8 probe.</li> <li>Faulty N-8 probe.</li> <li>Jumper on X-6b is improperly positioned. Should be between 1-2.</li> </ul>



## ERROR CODES AND REASONS (continued)

Error Code	Display Shows	When does the error occur?	Possible reason
E29	Probe Short to Frame	Activated if one or more of the temperature sensors were connected to GND for 5 seconds.	<ul style="list-style-type: none"> <li>• Connection issue at any of the temperature sensors.</li> <li>• Temperature sensor shorted to ground/faulty.</li> </ul>
E34	DE (Drain) Pump Failure	Activated if water level did not drop below the low level sensor in the generator during a steam generator flush.	<ul style="list-style-type: none"> <li>• Problem with water level probe.</li> <li>• Scale build-up inside steam generator.</li> <li>• Scale plugging drain pump.</li> <li>• Faulty drain pump.</li> </ul>
E35	Venting Error	Activated when vent switch reads open (vent closed) when it should be closed (vent open), or when it reads closed (vent open) when it should be open (vent closed).	<ul style="list-style-type: none"> <li>• Alignment issue between motor cam and micro switch.</li> <li>• Connection issue at micro switch.</li> <li>• Connection issue at control.</li> <li>• Faulty vent switch.</li> <li>• Faulty vent motor.</li> </ul>
E36	Steam Temp High	Activated when oven temperature probe (N-6) measures a temperature in excess of 395°F (202°C) when running in Steam or Combi mode.	<ul style="list-style-type: none"> <li>• Water supply is shut off while unit is running in Steam or Combi mode.</li> <li>• Plugged or faulty Y-1 solenoid.</li> <li>• Obstruction between Y-01 solenoid and water inlet.</li> </ul>
E80	ID Error	Control is unable to detect whether unit is gas or electric.	<ul style="list-style-type: none"> <li>• Connection issue at X-3 personality jumper.</li> <li>• Faulty control.</li> </ul>
E81	Program Memory Error	Temperature value or time value of a program step is not allowed.	<ul style="list-style-type: none"> <li>• Program was generated in °C and control has been switched to °F.</li> <li>• Program was generated in °F and control has been switched to °C.</li> </ul>
E82	WP Error	Temperature value or time value of current cooking algorithm is out of allowed array.	<ul style="list-style-type: none"> <li>• Delete program and reinstall.</li> </ul>
E83	Algo Error	Cooking algorithm sent by operating module (BM) is unknown to control unit (SM).	<ul style="list-style-type: none"> <li>• Software versions of control unit and operating module are incompatible.</li> <li>• Software error in operating module.</li> </ul>
E96	Connection Error	No or bad communication between control unit (SM) and operating module (BM).	<ul style="list-style-type: none"> <li>• Connection issue at ribbon cable on display or relay board.</li> <li>• Faulty ribbon cable.</li> <li>• Software versions of control unit and operating module are incompatible.</li> </ul>

**EMERGENCY OPERATION**

In the event of an error code, the Combitherm may be operated on a limited basis. Error conditions under which continued operation can be conducted are indicated by “Yes” in the chart shown below.

*When the oven malfunctions, an error code will appear in the display.*

PRESS THE START KEY TO ACKNOWLEDGE THE ERROR.

The keys that begin to flash represent operational modes that are still usable.

SELECT AND PRESS ONE OF THE COOKING MODES INDICATED.

The oven control will only respond to the mode keys that are flashing.

SET THE OVEN CONTROLS AS IF OPERATING UNDER NORMAL CIRCUMSTANCES.

Depending on the error code involved, oven function, such as temperature range, may be limited.

PRESS THE START KEY TO BEGIN THE COOKING PROCESS.

PRESS THE START KEY WHEN THE TIMER EXPIRES.

*When the oven fault is corrected, the Combitherm will return to normal Operation.*

**CONTINUED OPERATION UNDER ERROR CONDITIONS**

Error Code	Display Shows	ES	ESi	Steam Mode	Combination Mode	Convection Mode	Retherm Mode
E01	Low Water	Yes	No	No	No	To 365°F	No
E02	Control Temp High	Yes	Yes	Yes	To 284°F	To 284°F	To 284°F
E03	Fan Malfunction	No	No	—	—	—	—
E04	Aux Fan Fault	Yes	Yes	Yes	To 284°F	To 284°F	To 284°F
E11	Excess Oven Temp	Yes	Yes	No	No	No	No
E13	Excess Steam Gen Temp	Yes	No	No	No	No	No
E15	Excess Condensate Temp	Yes	Yes	No	No	To 356°F	No
E21	Oven Probe Fault	Yes	Yes	212°F only	No	No	No
E22	Core Temp Probe Fault	Yes	Yes	Yes	Yes	Yes	Yes
E23	Steam Gen Probe Fault	Yes	No	Yes	Yes	Yes	Yes
E24	Bypass Probe Fault	Yes	Yes	To 210°F	No	Yes	No
E25	Condensate Probe Fault	Yes	Yes	Yes	To 356°F	To 356°F	To 320°F
E26	Steam Gen Safety Probe Fault	Yes	No	Yes	Yes	Yes	Yes
E27	Excess Steam Gen Safety Temp	Yes	No	No	No	No	No
E29	Probe Short to Frame	Yes	Yes	No	No	No	No
E34	DE (Drain) Pump Failure	Yes	No	Yes	Yes	Yes	Yes
E35	Venting Error	Yes	Yes	Yes	Yes	Yes	Yes
E36	Steam Temp High	No	Yes	No	No	Yes	No
E80	ID Error	Yes	Yes	Yes	Yes	Yes	Yes
E81	Program Memory Error	Yes	Yes	Yes	Yes	Yes	Yes
E82	WP Error	Yes	Yes	Yes	Yes	Yes	Yes
E83	Algo Error	Yes	Yes	Yes	Yes	Yes	Yes
E96	Connection Error	Yes	Yes	No	No	No	No

Alto-Shaam, Inc. warrants to the original purchaser that any original part that is found to be defective in material or workmanship will, at Alto-Shaam's option, subject to provisions hereinafter stated, be replaced with a new or rebuilt part.

The labor warranty remains in effect one (1) year from installation or fifteen (15) months from the shipping date, whichever occurs first. Alto-Shaam will bear normal labor charges performed by an authorized Alto-Shaam service agent during standard business hours, and excluding overtime, holiday rates or any additional fees.

The parts warranty remains in effect for one (1) year from installation or fifteen (15) months from the shipping date, whichever occurs first.

**THIS WARRANTY DOES NOT APPLY TO:**

1. Replacement of light bulbs.
2. Equipment damage caused by accident, shipping, improper installation or alteration.
3. Steam generator or steam generating system damage as a result of inadequate routine maintenance and cleaning. Required maintenance and cleaning of steam generating equipment is the responsibility of the owner/operator.
4. Equipment used under conditions of abuse, misuse, carelessness or abnormal conditions including, but not limited to, equipment subjected to harsh or inappropriate chemicals including, but not limited to, compounds containing chlorine, chlorides or quaternary salts, or equipment with missing or altered serial numbers.
5. Equipment that uses water must meet Alto-Shaam's minimum water quality standards as shown below. **USE OF WATER NOT MEETING ALTO-SHAAM'S MINIMUM WATER QUALITY STANDARDS WILL VOID THIS WARRANTY.**

Water quality and required maintenance of steam generating equipment is the responsibility of the owner/operator. The installation and use of Alto-Shaam's CombiGuard™ Water Filtration System is highly recommended.

**ALTO-SHAAM COMBITHERM WATER QUALITY MINIMUM STANDARDS**

CONTAMINANT	INLET WATER REQUIREMENTS (UNTREATED WATER)
Free Chlorine	Less than 0.1 ppm (mg/L)
Hardness	Less than 3 gpg (52 ppm)
Chloride	Less than 30 ppm (mg/L)
pH	7.0 to 8.5
Alkalinity	Less than 50 ppm (mg/L)
Silica	Less than 12 ppm (mg/L)
Total Dissolved Solids (tds)	Less than 60 ppm

6. Damage caused by use of any cleaning agent other than Alto-Shaam's Combitherm® Oven Cleaner including, but not limited to, damage due to chlorine, bleach, quaternary salts, scouring powders or other harmful chemicals. Use of Alto-Shaam's Combitherm Cleaner on Combitherm ovens is highly recommended.
7. Any losses or damage resulting from malfunction, including loss of product or other consequential or incidental damages of any kind.
8. Equipment modified in any manner from original model, substitution of parts other than factory authorized parts, removal of any parts including legs, or addition of any parts.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ALTO-SHAAM BE LIABLE FOR LOSS OF USE, LOSS OF REVENUE OR PROFIT, OR LOSS OF PRODUCT, OR FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

No person except an officer of Alto-Shaam, Inc. is authorized to modify this warranty or to incur on behalf of Alto-Shaam any other obligation or liability in connection with Alto-Shaam equipment.



All Alto-Shaam equipment is sold F.O.B. shipping point, and when accepted by the carrier, such shipments become the property of the consignee.

Should damage occur in shipment, it is a matter between the carrier and the consignee. In such cases, the carrier is assumed to be responsible for the safe delivery of the merchandise, unless negligence can be established on the part of the shipper.

1. Make an immediate inspection while the equipment is still in the truck or immediately after it is moved to the receiving area. Do not wait until after the material is moved to a storage area.
2. Do not sign a delivery receipt or a freight bill until you have made a proper count and inspection of all merchandise received.
3. Note all damage to packages directly on the carrier's delivery receipt.
4. Make certain the driver signs this receipt. If he refuses to sign, make a notation of this refusal on the receipt.
5. If the driver refuses to allow inspection, write the following on the delivery receipt:

*Driver refuses to allow inspection of containers for visible damage.*

6. Telephone the carrier's office immediately upon finding damage, and request an inspection. Mail a written confirmation of the time, date, and the person called.
7. Save any packages and packing material for further inspection by the carrier.
8. Promptly file a written claim with the carrier and attach copies of all supporting paperwork.

We will continue our policy of assisting our customers in collecting claims which have been properly filed and actively pursued. We cannot, however, file any damage claims for you, assume the responsibility of any claims, or accept deductions in payment for such claims.

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RECORD THE MODEL AND SERIAL NUMBER OF THE APPLIANCE  
FOR EASY REFERENCE. ALWAYS REFER TO BOTH MODEL AND SERIAL NUMBER  
IN ANY CONTACT WITH ALTO-SHAAM REGARDING THIS APPLIANCE.

Model: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Date Installed: \_\_\_\_\_

Voltage: \_\_\_\_\_

Purchased From: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



Alto-Shaam has established a twenty-four hour emergency service call center to offer immediate customer access to a local authorized service agency outside of standard business hours. The emergency service access is provided exclusively for Alto-Shaam equipment and is available throughout the United States through the use of Alto-Shaam's toll-free number. Emergency service access is available seven days a week including holidays.

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