ALTO-SHAAM®

Combitherm®

Combination Oven / Steamer

ES GAS
COMBITOUCH® SERIES

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

24•7 Your Service Hotline 1-800-558-8744

• 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

WWW.ALTO-SHAAM.COM

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DELIVERY

This Alto-Shaam appliance has been thoroughly tested and inspected to ensure 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.***

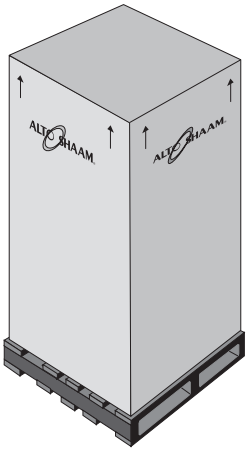
This appliance, complete with unattached items and accessories, may have been delivered in one or more packages. Check to ensure that all standard items and options have been received with each model as ordered.

Save all the information and instructions packed with the appliance. Complete and return the warranty card to the factory as soon as possible to ensure 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 Tech Team 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 Tech Team 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 UNE INSTALLATION CORRECTE DE CE FOUR. PRIÈRE DE LE LIRE ATTENTIVEMENT ET DE LE CONSERVER POUR POUVOIR S'Y RÉFÉRER À L'AVENIR.

UN BRANCHEMENT INCORRECT DE CET APPAREIL ANNULERA TOUTES LES 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.

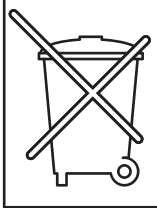
CAUTION

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.

NOTE



For equipment delivered for use in any location regulated by the following directive:

DO NOT DISPOSE OF ELECTRICAL OR ELECTRONIC EQUIPMENT WITH OTHER MUNICIPAL WASTE.

CAUTION

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

INSTALLATION

SITE INSTALLATION

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.

INSTALLATION CODES & STANDARDS

The following codes and standards are required for installation of this oven:
AIR SUPPLY, ELECTRICAL CONNECTIONS, WATER CONNECTIONS, 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

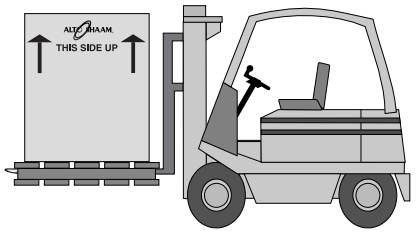
A steam ventilation hood is mandatory for the operation of the oven. The ventilation hood must be installed in accordance with local building codes for the steam exhaust and must protrude 12-inches to 20-inches (300 to 500mm) over the front side of the oven. A grease filter must be located in the protruding 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.*

INSTALLATION

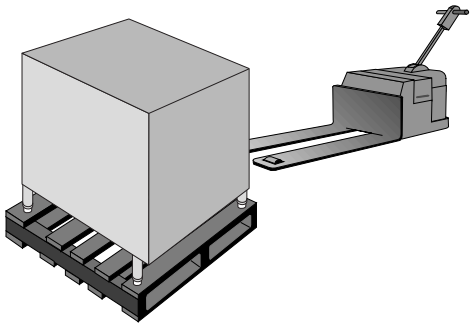
SITE INSTALLATION

CAUTION

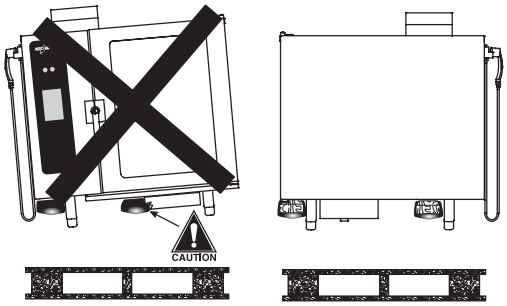
THE APPLIANCE MUST REMAIN ON THE PALLET WHILE BEING MOVED TO THE INSTALLATION SITE BY FORK LIFT OR PALLET LIFT TRUCK.



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.



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



POSITIONING ON SITE

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, and level. 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.

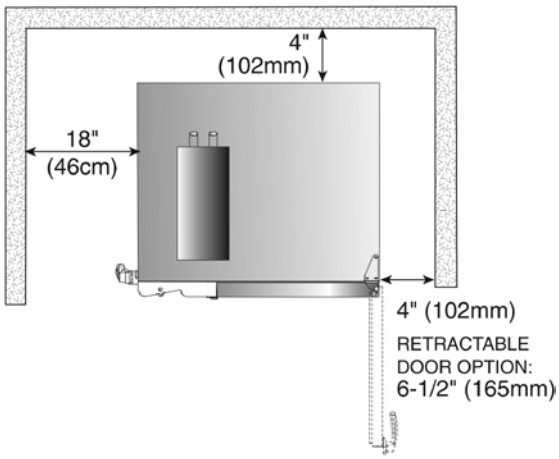
MINIMUM CLEARANCE REQUIREMENTS	
LEFT SIDE	6" (152mm) MINIMUM 18" (457mm) SERVICE ACCESS RECOMMENDED 20" (508mm) FROM HEAT PRODUCING EQUIPMENT
RIGHT SIDE	4" (102mm)
BACK	4" (102mm) FOR PLUMBING
TOP	20" (508mm) FOR AIR MOVEMENT

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.

INSTALLATION

SITE INSTALLATION

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.

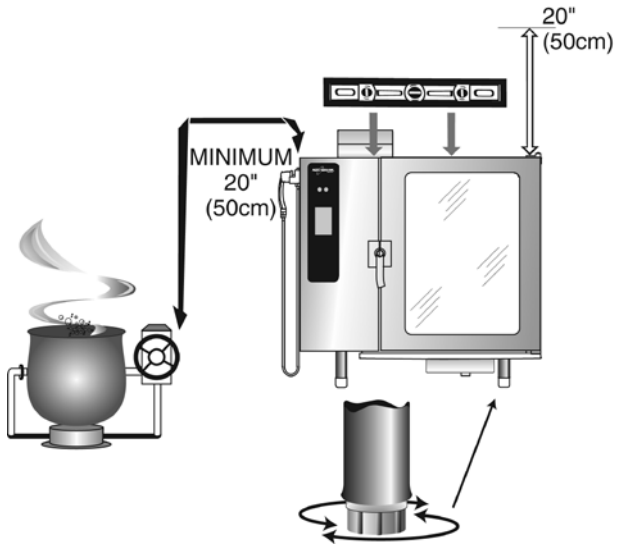
NOTE: Additional clearance is needed for service access. A minimum distance of 18-inches is strongly recommended. If adequate service clearance is not provided, it will be necessary to disconnect the gas, water, and drain to move the oven with a fork lift for service access. Charges in connection with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

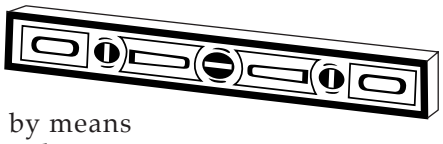
❑ Allow a minimum of 4-inches (102mm) from the right side of the oven to allow the door to open to at least a 90° angle. Fully opened, the door will extend up to a 225° angle If the oven is furnished with the retractable door option, allow a minimum clearance of 6-1/2 inches (165mm).

❑ 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.

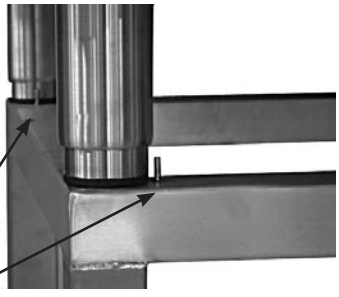
❑ Do not install the oven adjacent to heat producing equipment such as fryers, broilers, etc. Heat from such appliances may cause damage to the controls of the Combitherm. Minimum clearance recommended: 20-inches (500mm)

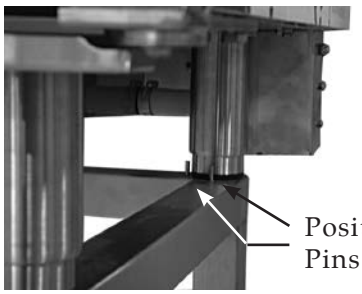




Place the Combitherm oven on a stable, non-combustible level horizontal surface. For countertop models, the oven stand must be level. Level from front-to-back and side-to-side by means of the adjustable legs. In addition, the overall height of the oven should be positioned so the operating controls and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

When placing a countertop model on an oven stand, position the oven legs on the outside of the positioning pins.

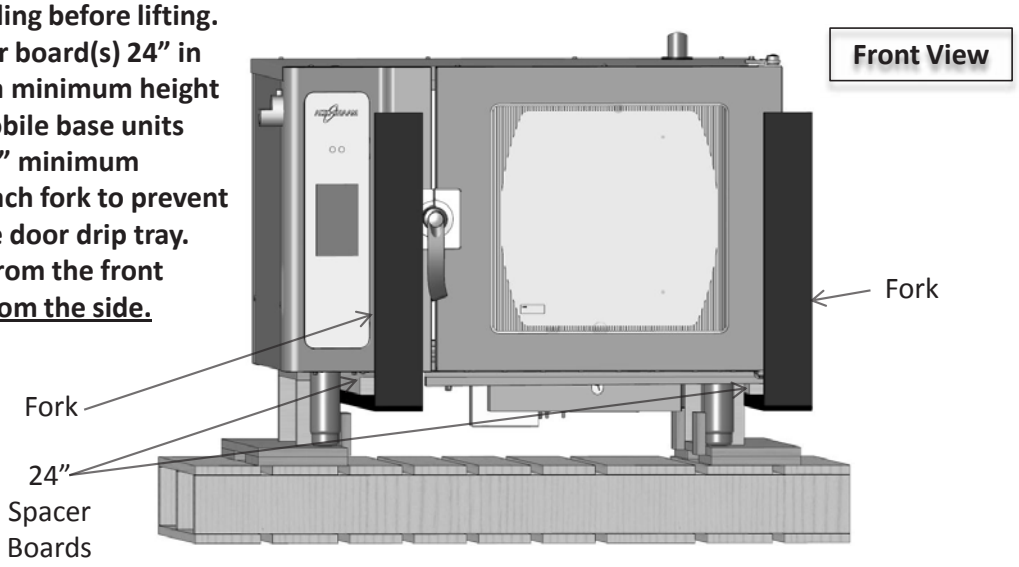




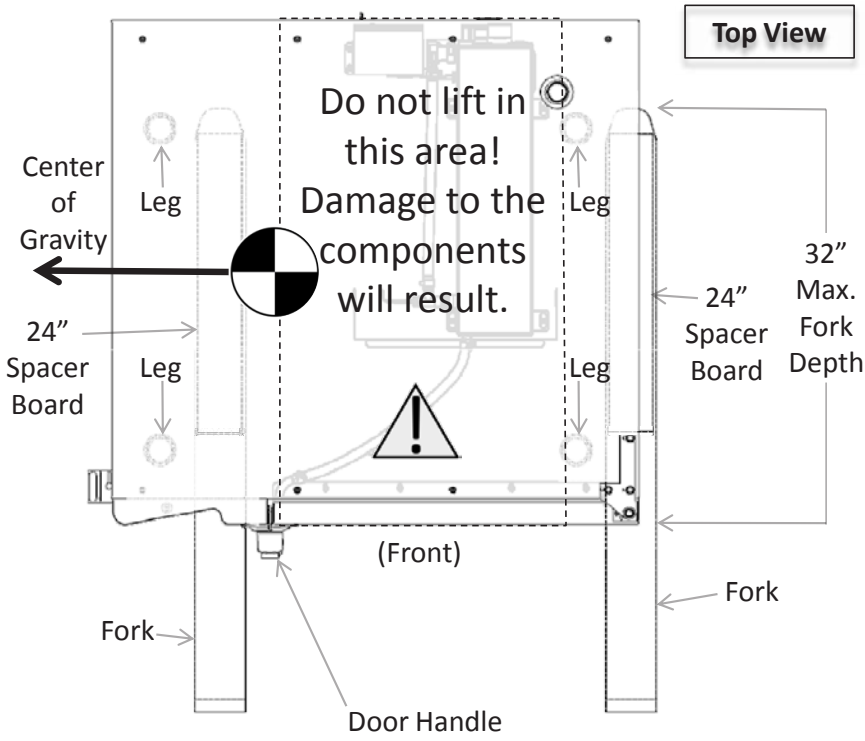
SITE INSTALLATION

Lifting Instructions

Remove banding before lifting. Place a spacer board(s) 24" in length, with a minimum height of 1-1/2" (mobile base units require 2-1/4" minimum height), on each fork to prevent damaging the door drip tray. Lift the unit from the front only, <u>never from the side.</u>



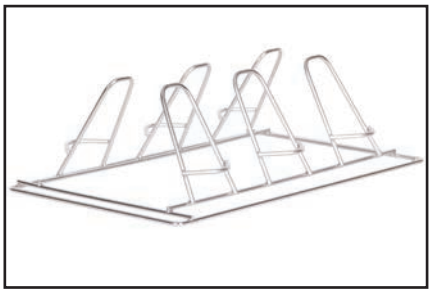
Adjust the forks so that they do not damage any of the components under the unit. The left fork should be located between the left legs and the door handle. The right fork should be located as close to the right legs as possible. Lift the unit high enough to remove the wooden pallet. Have a second person hold the unit from shifting. <u>When moving the unit, drive slowly, keep it low to the ground, and use extreme caution.</u>



DEPTH OF FORKS IS CRITICAL FOR UNITS EQUIPPED WITH GREASE COLLECTION TO AVOID DAMAGING THE PUMP

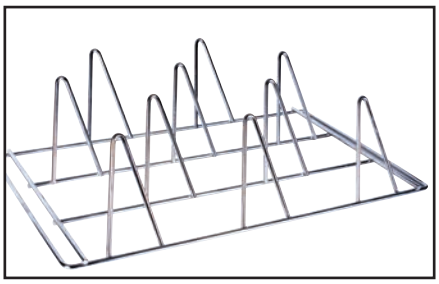
COMMON SPECIFICATIONS

- ❑ CombiGuard™ BWS Blended Water System — FI-28727
  (INCLUDES 50 GALLON TANK, 1 MEMBRANE & 3 FILTERS)
- ❑ CombiGuard™ BWS Replacement Filter Cartridge AMS-QT — FI-29316
- ❑ CombiGuard™ BWS Replacement Filter Cartridge SCLX2-Q — FI-29317
- ❑ CombiGuard™ BWS Replacement Prefilter Filter Cartridge CTO-Q — FI-29318
- CombiGuard™ Triple-Guard Water Filtration System
  (INCLUDES 1 CARTRIDGE)
  - ❑ 6•10, 10•10, 7•14 (CombiGuard™ 10) — FI-23014
  - ❑ 10•20, 12•18, 20•20, STACKED OVENS (CombiGuard™ 20) — FI-28728
- CombiGuard™ Triple-Guard Replacement Filter
  - ❑ 6•10, 10•10, 7•14 (CombiGuard™ 10) — FI-26356
  - ❑ 10•20, 12•18, 20•20, STACKED OVENS (CombiGuard™ 20) — FI-28744
- ❑ Fry Basket, 12" X 20" (325mm x 530mm) — BS-26730
- ❑ Gas Line Quick Disconnect Kit — CR-33543
- ❑ Grilling Grate, 12" X 20" (325mm x 530mm) — SH-26731
- ❑ Mobile Grease Collection cart
  37" x 11-3/16" x 28-1/2" (940mm x 284mm x 724mm) — 5014542
- ❑ Poultry Grease Collection Container
  15" x 9-3/4" x 9-3/4" (381mm x 248mm x 248mm) — 5014846
- Shelf, Stainless Steel Wire
  - ❑ 6•10, 10•10 — SH-2903
  - ❑ 7•14, 12•18 — SH-22584
  - ❑ 10•20, 20•20 — SH-22473
- ❑ Probe, Sous Vide — PR-34747
- ❑ Combitherm Cleaning Liquid — CE-24750
  SPECIALLY FORMULATED FOR COMBITHERM OVENS
  ➥ TWELVE (12) CONTAINERS/CASE, 1 QUART (C. 1 LITER) EACH
- ❑ Combiclean™ Tablets — CE-28892
  SPECIALLY FORMULATED FOR COMBITHERM OVENS
  ➥ 90 PACKETS EACH CONTAINER
- ❑ 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



Six (6) Poultry Roasting Rack
(FITS IN SIDE RAILS) 5014438

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



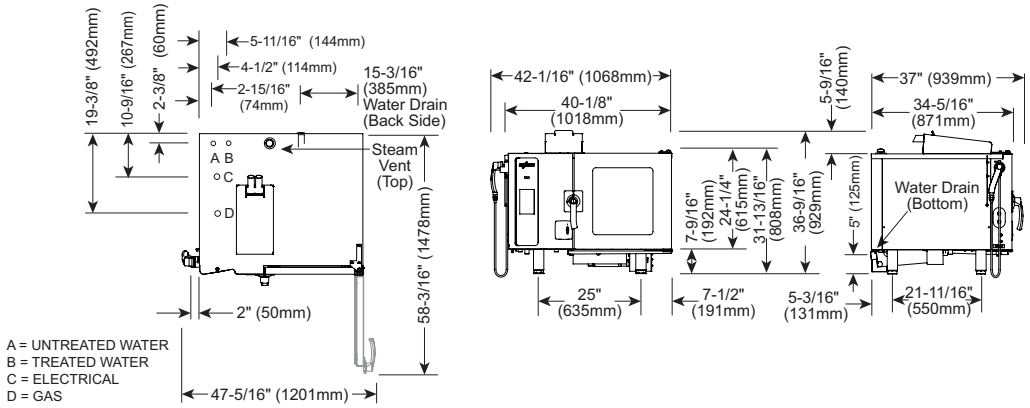
Ten (10) Poultry Roasting Rack
SH-22634

Fry Basket BS-26730

Grilling Grate SH-26731

ALTO-SHAAM

6•10ESG



STACKING COMBINATION DIMENSIONS: H x W x D

- ☐ 6.10esG over 6.10esG 65-11/16" x 42" x 40-7/16" (1669 x 1067 x 1026mm)
- ☐ 6.10esG over 10.10esG 75-5/16" x 42" x 40-7/16" (1913 x 1067 x 1026mm)
- ☐ 6.10esG over 7.14esG 71-9/16" x 49-7/8" x 45-9/16" (1817 x 1266 x 1157mm)
- ☐ 6.10esG over ASC-4G 75-13/16" x 42" x 44-5/8" (1924 x 1067 x 1134mm)
- ☐ Mobile option with 5" (127mm) casters will add 2" (51mm) to the overall height.

DIMENSIONS: H x W x D

EXTERIOR:
36-9/16" x 42-1/16" x 37" (929mm x 1068mm x 939mm)

EXTERIOR WITH RECESSED DOOR:
36-9/16" x 46-1/16" x 37" (929mm x 1170mm x 939mm)

INTERIOR:
17-3/4" x 17-3/8" x 26-13/16" (450mm x 440mm x 680mm)

WATER REQUIREMENTS

TWO (2) COLD WATER INLETS - DRINKING QUALITY

ONE (1) TREATED WATER INLET: 3/4" NPT* * Can manifold off of one 3/4" line.

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 A 2" MINIMUM AIR GAP INSTALLED AS CLOSE TO THE OVEN AS POSSIBLE. MATERIALS MUST WITHSTAND TEMPERATURES UP TO 200°F (93°C).

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.

CLEARANCE REQUIREMENTS

LEFT 6" (152mm) **RECOMMENDED SERVICE ACCESS: 18" (457mm)**
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 COUNTER SURFACE

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

GAS REQUIREMENTS (TYPE MUST BE SPECIFIED ON ORDER)

CONNECTED ENERGY LOAD: 45,000 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.

INSTALLATION REQUIREMENTS

- Oven must be installed level.
- Hood installation is required.
- Water supply shut-off valve and back-flow preventer when required by local code.
- Alternate burner orifice is required for installation sites at elevations of 2,000 feet (610m) above sea level.

ELECTRICAL (DEDICATED CIRCUIT REQUIRED)

MODEL	VOLTAGE	PH	HZ	AMPS	kW	AWG	CORD & PLUG	CombiSmoker® Additional kW
6•10ESG Touch	120	1	60	5.3	.61	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	1	60	5.0	1.04	AWG 12	no cord or plug	+ .7 kw
	208 – 240	3	60	5.0/ph	1.04	AWG 12	no cord or plug	+ .7 kw
6•10ESG	120	1	60	7.2	.83	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	3	60	3.2/ph	1.14	AWG 12	no cord or plug	+ .7 kw

WEIGHT

NET 400 lb est (181 kg)
SHIP 515 lb (233 kg)
CRATE DIMENSIONS: (L x W x H)
45" x 53" x 45"
(1143 x 1346 x 1143mm)

CAPACITY

FULL-SIZE PANS:	20" x 12" x 2-1/2"	Six (6)	Five (5)
GN 1/1:	530 x 325 x 65mm	Six (6)	Five (5)
HALF-SIZE SHEET PANS:* ON WIRE SHELVES ONLY	18" x 13" x 1"	Six (6)	Five (5)

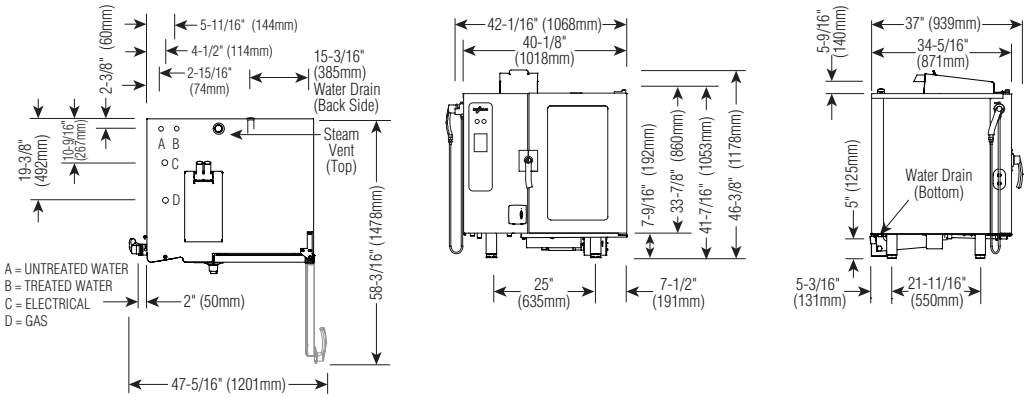
72 lb (33 kg) MAXIMUM

VOLUME MAXIMUM: 45 quarts (57 liters)

*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY

ALTO-SHAAM

10•10ESG



STACKING COMBINATION DIMENSIONS: H x W x D

☐ 6.10esG over 10.10esG
75-5/16" x 42" x 40-7/16" (1913 x 1067 x 1026mm)

☐ Mobile option with 5" (127mm) casters will add 2" (51mm) to the overall height.

DIMENSIONS: H x W x D

EXTERIOR:
46-3/8" x 42-1/16" x 37" (1178mm x 1068mm x 939mm)

EXTERIOR WITH RECESSED DOOR:
46-3/8" x 46-1/16" x 37" (1178mm x 1170mm x 939mm)

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

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

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

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

GAS REQUIREMENTS (TYPE MUST BE SPECIFIED ON ORDER)

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.

INSTALLATION REQUIREMENTS

- Oven must be installed level.
- Hood installation is required.
- Water supply shut-off valve and back-flow preventer when required by local code.
- Alternate burner orifice is required for installation sites at elevations of 2,000 feet (610m) above sea level.

ELECTRICAL (DEDICATED CIRCUIT REQUIRED)

MODEL	VOLTAGE	PH	HZ	AMPS	kW	AWG	CORD & PLUG	CombiSmoker® Additional kW
10•10ESG Touch	120	1	60	5.3	.61	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	1	60	5.0	1.04	AWG 12	no cord or plug	+ .7 kw
	208 – 240	3	60	5.0/ph	1.04	AWG 12	no cord or plug	+ .7 kw
10•10ESG	120	1	60	7.2	.83	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	3	60	3.2/ph	1.14	AWG 12	no cord or plug	+ .7 kw

WEIGHT

NET 300 lb est (136 kg)
SHIP 457 lb (207 kg)
CRATE DIMENSIONS: (L x W x H)
45" x 53" x 48"
(1143 x 1346 x 1219mm)

CAPACITY

FULL-SIZE PANS:	20" x 12" x 2-1/2"	Ten (10)	Nine (9)
GN 1/1:	530 x 325 x 65mm	Ten (10)	Nine (9)
HALF-SIZE SHEET PANS:* ON WIRE SHELVES ONLY	18" x 13" x 1"	Ten (10)	Nine (9)

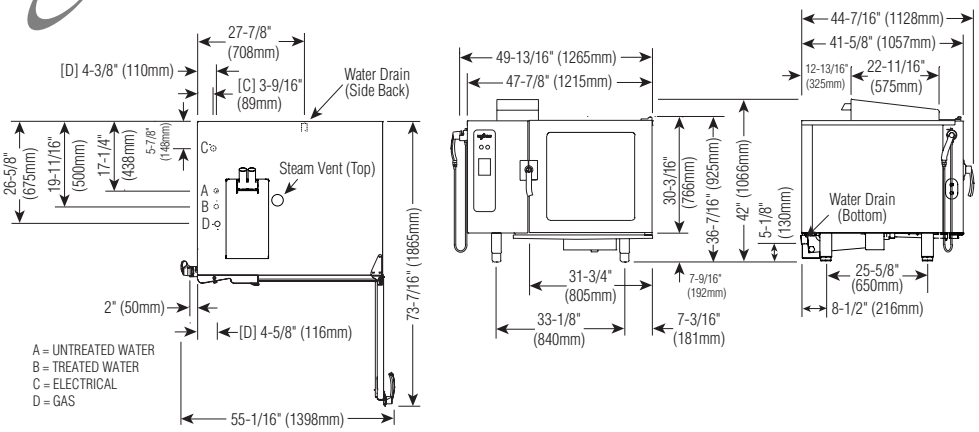
120 lb (54 kg) MAXIMUM

VOLUME MAXIMUM: 75 quarts (95 liters)

*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY

ALTO-SHAAM

7•14ESG



STACKING COMBINATION DIMENSIONS: H x W x D

- ☐ 6.10esG over 7.14esG 75-5/16" x 42" x 40-7/16" (1913 x 1067 x 1026mm)
- ☐ 7.14esG over 7.14esG 77-3/8" x 49-13/16" x 47-5/8" (1965 x 1266 x 1209mm)
- ☐ 7.14esG over ASC-4G 78-1/8" x 49-13/16" x 47-5/8" (1983 x 1266 x 1209mm)
- ☐ Mobile option with 5" (127mm) casters will add 2" (51mm) to the overall height.

DIMENSIONS: H x W x D

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

EXTERIOR WITH RECESSED 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)

WATER REQUIREMENTS

TWO (2) COLD WATER INLETS - DRINKING QUALITY

ONE (1) TREATED WATER INLET: 3/4" NPT* * Can manifold off of one 3/4" line.
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 A 2" MINIMUM AIR GAP INSTALLED AS CLOSE TO THE OVEN AS POSSIBLE. MATERIALS MUST WITHSTAND TEMPERATURES UP TO 200°F (93°C).

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.

CLEARANCE REQUIREMENTS

LEFT 6" (152mm) **RECOMMENDED SERVICE ACCESS: 18" (457mm)**
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 COUNTER SURFACE

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

GAS REQUIREMENTS (TYPE MUST BE SPECIFIED ON ORDER)

CONNECTED ENERGY LOAD:	91,000 Btu / hr (Natural Gas)
	88,000 Btu / hr (Propane)
HOOK-UP:	3/4" NPT
MINIMUM CONNECTED PRESSURE:	5.5" W.C. (Natural Gas)
	9" W.C. (Propane)
MAXIMUM CONNECTED PRESSURE:	14" W.C.

INSTALLATION REQUIREMENTS

- Oven must be installed level.
- Hood installation is required.
- Water supply shut-off valve and back-flow preventer when required by local code.
- Alternate burner orifice is required for installation sites at elevations of 2,000 feet (610m) above sea level.

ELECTRICAL (DEDICATED CIRCUIT REQUIRED)

MODEL	VOLTAGE	PH	HZ	AMPS	kW	AWG	CORD & PLUG	CombiSmoker® Additional kW
7•14ESG Touch	120	1	60	5.3	.61	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	1	60	5.0	1.04	AWG 12	no cord or plug	+ .7 kw
	208 – 240	3	60	5.0/ph	1.04	AWG 12	no cord or plug	+ .7 kw
7•14ESG	120	1	60	7.2	.83	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	3	60	3.2/ph	1.14	AWG 12	no cord or plug	+ .7 kw

WEIGHT

NET	573 lb est	(260 kg)
SHIP	692 lb	(314 kg)

CRATE DIMENSIONS: (L x W x H)
56" x 48" x 51"
(1422 x 1219 x 1295mm)

CAPACITY

FULL-SIZE PANS:	20" x 12" x 2-1/2"	Fourteen (14)
GN 1/1:	530 x 325 x 65mm	Fourteen (14)
GN 2/1:	650 x 530 x 65mm	Seven (7)
FULL-SIZE SHEET PANS:* ON WIRE SHELVES ONLY	18" x 26" x 1"	Seven (7)

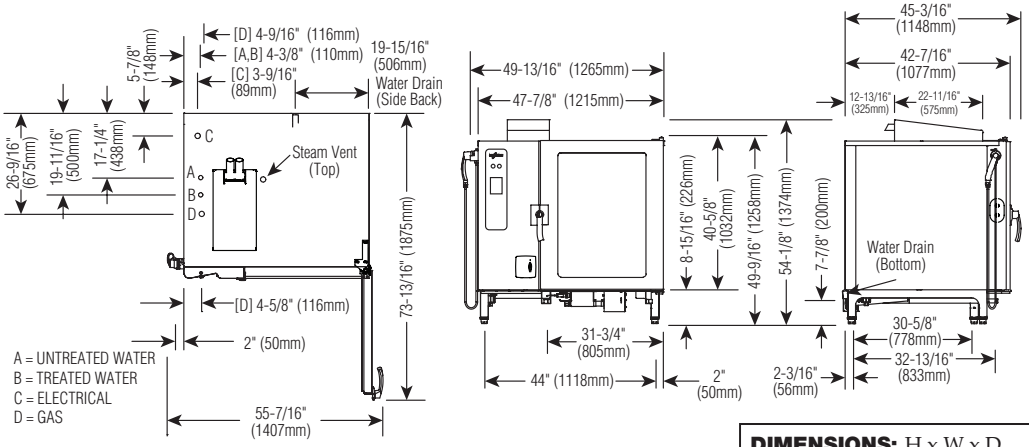
168 lb (76 kg) MAXIMUM

VOLUME MAXIMUM: 105 quarts (133 liters)

*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY

ALTO-SHAAM

10•20ESG



DIMENSIONS: H x W x D

EXTERIOR:
54-1/8" x 49-13/16" x 45-3/16" (1374mm x 1265mm x 1148mm)

EXTERIOR WITH RECESSED DOOR:
54-1/8" x 53-13/16" x 45-3/16" (1374mm x 1366mm x 1148mm)

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

WATER REQUIREMENTS

TWO (2) COLD WATER INLETS - DRINKING QUALITY

ONE (1) TREATED WATER INLET: 3/4" NPT* * Can manifold off of one 3/4" line.
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 A 2" MINIMUM AIR GAP INSTALLED AS CLOSE TO THE OVEN AS POSSIBLE. MATERIALS MUST WITHSTAND TEMPERATURES UP TO 200°F (93°C).

CLEARANCE REQUIREMENTS

LEFT 6" (152mm) **RECOMMENDED SERVICE ACCESS: 18" (457mm)**
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 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

GAS REQUIREMENTS (TYPE MUST BE SPECIFIED ON ORDER)

CONNECTED ENERGY LOAD: 91,000 Btu / hr (Natural Gas)
88,000 Btu / hr (Propane)
HOOK-UP: 3/4" NPT
MINIMUM CONNECTED PRESSURE: 5.5" W.C. (Natural Gas)
9" W.C. (Propane)
MAXIMUM CONNECTED PRESSURE: 14" W.C.

INSTALLATION REQUIREMENTS

- Oven must be installed level.
- Hood installation is required.
- Water supply shut-off valve and back-flow preventer when required by local code.
- Alternate burner orifice is required for installation sites at elevations of 2,000 feet (610m) above sea level.

ELECTRICAL (DEDICATED CIRCUIT REQUIRED)

MODEL	VOLTAGE	PH	HZ	AMPS	kW	AWG	CORD & PLUG	CombiSmoker® Additional kW
10•20ESG Touch	120	1	60	5.0	.58	AWG 12	NEMA L5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	1	60	5.0	1.04	AWG 12	no cord or plug	+ .7 kw
	208 – 240	3	60	5.0/ph	1.04	AWG 12	no cord or plug	+ .7 kw
10•20ESG	120	1	60	6.0	.69	AWG 12	NEMA L5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	3	60	3.2/ph	1.14	AWG 12	no cord or plug	+ .7 kw

WEIGHT

NET 573 lb est (260 kg)
SHIP 875 lb (397 kg)
CRATE DIMENSIONS: (L x W x H)
45" x 53" x 59"
(1143 x 1346 x 1499mm)

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:* ON WIRE SHELVES ONLY	18" x 26" x 1"	Ten (10)

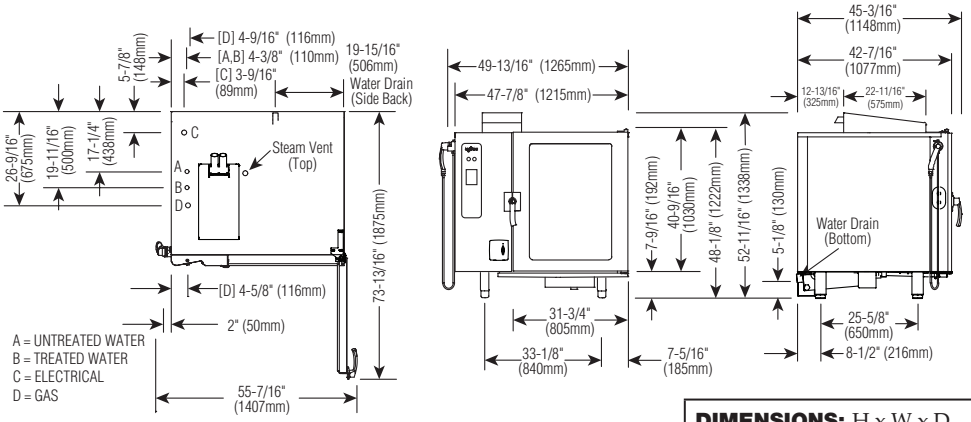
240 lb (109 kg) MAXIMUM

VOLUME MAXIMUM: 150 quarts (190 liters)

*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY

ALTO-SHAAM

12•18ESG



DIMENSIONS: H x W x D

EXTERIOR:
52-11/16" x 49-13/16" x 45-3/16" (1338mm x 1265mm x 1148mm)

EXTERIOR WITH RECESSED DOOR:
52-11/16" x 53-13/16" x 45-3/16" (1338mm x 1367mm x 1148mm)

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

WATER REQUIREMENTS

TWO (2) COLD WATER INLETS - DRINKING QUALITY

ONE (1) TREATED WATER INLET: 3/4" NPT* * Can manifold off of one 3/4" line.
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 A 2" MINIMUM AIR GAP INSTALLED AS CLOSE TO THE OVEN AS POSSIBLE. MATERIALS MUST WITHSTAND TEMPERATURES UP TO 200°F (93°C).

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.

CLEARANCE REQUIREMENTS

LEFT 6" (152mm) **RECOMMENDED SERVICE ACCESS: 18" (457mm)**
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 COUNTER SURFACE

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

GAS REQUIREMENTS (TYPE MUST BE SPECIFIED ON ORDER)

CONNECTED ENERGY LOAD: 91,000 Btu / hr (Natural Gas)
88,000 Btu / hr (Propane)
HOOK-UP: 3/4" NPT
MINIMUM CONNECTED PRESSURE: 5.5" W.C. (Natural Gas)
9" W.C. (Propane)
MAXIMUM CONNECTED PRESSURE: 14" W.C.

INSTALLATION REQUIREMENTS

- Oven must be installed level.
- Hood installation is required.
- Water supply shut-off valve and back-flow preventer when required by local code.
- Alternate burner orifice is required for installation sites at elevations of 2,000 feet (610m) above sea level.

ELECTRICAL (DEDICATED CIRCUIT REQUIRED)

MODEL	VOLTAGE	PH	HZ	AMPS	kW	AWG	CORD & PLUG	CombiSmoker® Additional kW
12•18ESG Touch	120	1	60	5.0	.58	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	1	60	5.0	1.04	AWG 12	no cord or plug	+ .7 kw
	208 – 240	3	60	5.0/ph	1.04	AWG 12	no cord or plug	+ .7 kw
12•18ESG	120	1	60	6.0	.69	AWG 12	NEMA 5-20P, 20A, 125V Plug	+ .7 kw
	208 – 240	3	60	3.2/ph	1.14	AWG 12	no cord or plug	+ .7 kw

WEIGHT

NET 573 lb est (260 kg)
SHIP 789 lb (358 kg)
CRATE DIMENSIONS: (L x W x H)
45" x 53" x 52"
(1143 x 1346 x 1321mm)

CAPACITY

FULL-SIZE PANS:	20" x 12" x 2-1/2"	Twenty-four (24)
GN 1/1:	530 x 325 x 65mm	Twenty-four (24)
GN 2/1:	650 x 530 x 65mm	Twelve (12)
FULL-SIZE SHEET PANS:* ON WIRE SHELVES ONLY	18" x 26" x 1"	Twelve (12)

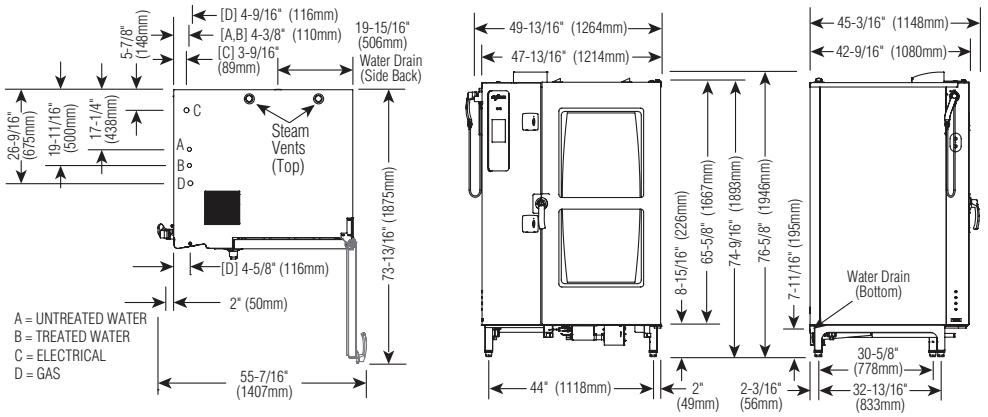
288 lb (131 kg) MAXIMUM

VOLUME MAXIMUM: 180 quarts (228 liters)

*ADDITIONAL WIRE SHELVES REQUIRED FOR MAXIMUM CAPACITY

ALTO-SHAAM

20•20ESG



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 RECESSED DOOR:
76-5/8" x 53-13/16" x 45-3/16" (1946mm x 1366mm x 1148mm)

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

WATER REQUIREMENTS

TWO (2) COLD WATER INLETS - DRINKING QUALITY

ONE (1) TREATED WATER INLET: 3/4" NPT* * Can manifold off of one 3/4" line.
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 A 2" MINIMUM AIR GAP INSTALLED AS CLOSE TO THE OVEN AS POSSIBLE. MATERIALS MUST WITHSTAND TEMPERATURES UP TO 200°F (93°C).

CLEARANCE REQUIREMENTS

LEFT 6" (152mm) **RECOMMENDED SERVICE ACCESS: 18" (457mm)**
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 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

GAS REQUIREMENTS (TYPE MUST BE SPECIFIED ON ORDER)

CONNECTED ENERGY LOAD:	190,000 Btu / hr (Natural Gas)
	170,000 Btu / hr (Propane)
HOOK-UP:	3/4" NPT
MINIMUM CONNECTED PRESSURE:	5.5" W.C. (Natural Gas)
	9" W.C. (Propane)
MAXIMUM CONNECTED PRESSURE:	14" W.C.

INSTALLATION REQUIREMENTS

- Oven must be installed level.
- Hood installation is required.
- Water supply shut-off valve and back-flow preventer when required by local code.
- Alternate burner orifice is required for installation sites at elevations of 2,000 feet (610m) above sea level.

ELECTRICAL (DEDICATED CIRCUIT REQUIRED)

MODEL	VOLTAGE	PH	HZ	AMPS	kW	AWG	CORD & PLUG	CombiSmoker® Additional kW
20•20ESG Touch	120	1	60	9.0	1.04	AWG 12	NEMA 5-20P, 20A, 125V Plug	SK NOT AVAILABLE
	208 – 240	1	60	5.0	1.04	AWG 12	no cord or plug	+ .7 kw
	208 – 240	3	60	5.0/ph	1.04	AWG 12	no cord or plug	+ .7 kw
	380 – 415	3	50	2.0/ph	1.44	AWG 12	Bare End, 3 Wire + ground	+.7 kw
20•20ESG	120	1	60	12.2	1.40	AWG 12	NEMA 5-20P, 20A, 125V Plug	SK NOT AVAILABLE
	208 – 240	3	60	4.27/ph	1.54	AWG 12	Bare End, 3 Wire + ground	+ .7 kw

WEIGHT

NET	900 lb est	(408 kg)
SHIP	1227 lb	(557 kg)

CRATE DIMENSIONS: (L x W x H)
54" x 49" x 85"
(1374 x 1245 x 2159mm)

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

INSTALLATION

ELECTRICAL

MODEL	VOLTAGE	PHASE	CIRCUIT	AWG
6•10esG	110-120	1	20 A	2 WIRE
7•14esG	110-120	1	20 A	2 WIRE
10•10esG	110-120	1	20 A	2 WIRE
10•20esG	110-120	1	20 A	2 WIRE
12•18esG	110-120	1	20 A	2 WIRE
20•20esG	110-120 208-240 208-240	1 1 3	20 A	2 WIRE 3 WIRE 4 WIRE
OTHER VOLTAGES AVAILABLE: Range 200 — 415V, 1 or 3 ph, 50 or 60 Hz				

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.

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:

For CE approved units: 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

ENSURE POWER SOURCE MATCHES VOLTAGE IDENTIFIED ON APPLIANCE RATING TAG.

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 proéger 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 banche De cette fiche.

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 accordance with CSA C22.1, Canadian Electrical Code Part 1 or local codes.

NOTE: Where local codes and CE regulatory requirements apply, appliances must be connected to an electrical circuit that is protected by an external GFCI outlet.

When required, recommended ground fault for Combitherm ovens is an appropriately sized breaker with built-in 30mA ground fault protection.

INSTALLATION

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 devise 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.

1. Install a manual gas shut-off valve along with an approved disconnect device.
2. 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.

CAUTION

THIS SECTION IS PROVIDED FOR THE ASSISTANCE OF QUALIFIED SERVICE TECHNICIANS ONLY AND IS NOT INTENDED FOR USE BY UNTRAINED OR UNAUTHORIZED SERVICE PERSONNEL.

INSTALLATION

VENTILATION REQUIREMENTS

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.

Ventilation 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 ventilation 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.

INSTALLATION

GAS SUPPLY & INSTALLATION

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.

⚠ 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 SPECIFICATIONS		
	NATURAL GAS	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.	88,000 Btu/hr.
10•20esG	91,000 Btu/hr.	88,000 Btu/hr.
12•18esG	91,000 Btu/hr.	88,000 Btu/hr.
20•20esG	190,000 Btu/hr.	170,000 Btu/hr.

INSTALLATION REQUIREMENTS
GAS CONNECTION: 3/ 4" NPT
CHECK PLUMBING CODES FOR PROPER SUPPLY LINE SIZING TO ATTAIN **MINIMUM OUTLET MANIFOLD PRESSURE** SHOWN:
NATURAL GAS: 3.5" W.C. PROPANE GAS: 5.6" W.C.
MAXIMUM INLET PRESSURE: 14" W.C.
NOTE: 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 2,000' (610m) AND IS NOT ADJUSTED AT THE FACTORY.

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

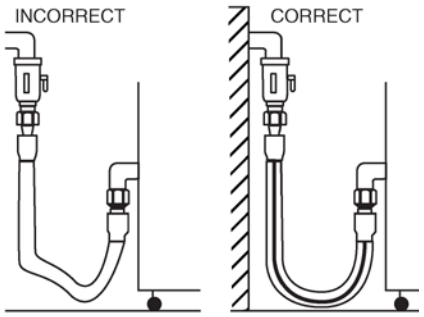
INSTALLATION

GAS SUPPLY & INSTALLATION

DANGER

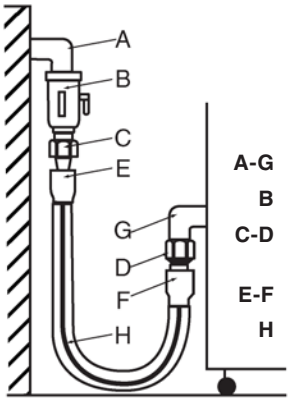
Installation, air adjustment and/or service work must be in accordance with all local codes and must be performed by a certified service technician qualified to work on gas appliances.

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 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 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

NE PAS entreposer ni utiliser d'essence ou d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.

DANGER

DO NOT spray aerosols in the vicinity of this appliance while it is in operation.

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/CGAB149.2 ***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 3/4" NPT.

INSTALLATION

GAS SUPPLY & INSTALLATION

The minimum size requirement for gas piping or a flexible connector is 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.

INSTALLATION

GAS SUPPLY & INSTALLATION

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.

⚠ DANGER

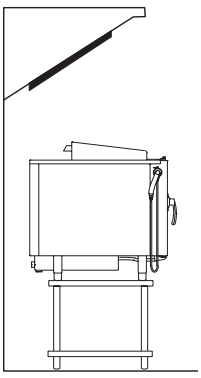
NEVER USE AN OPEN FLAME TO LEAK TEST.

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 defector could be damaged or cause a fire hazard.



DANGER

BEFORE STARTING THE APPLIANCE, MAKE CERTAIN YOU DO NOT DETECT THE ODOR OF GAS.

IF THE ODOR OF GAS IS DETECTED:

- **DO NOT attempt to light any appliance.**
- **DO NOT touch any electrical switches.**
- **Extinguish any open flame.**
- **Use a telephone OUTSIDE THE PROPERTY & IMMEDIATELY contact your gas supplier.**
- **If unable to contact your gas supplier, contact the fire department.**

INSTALLATION

WATER SUPPLY & INSTALLATION

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 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.

INSTALLATION

WATER SUPPLY & INSTALLATION

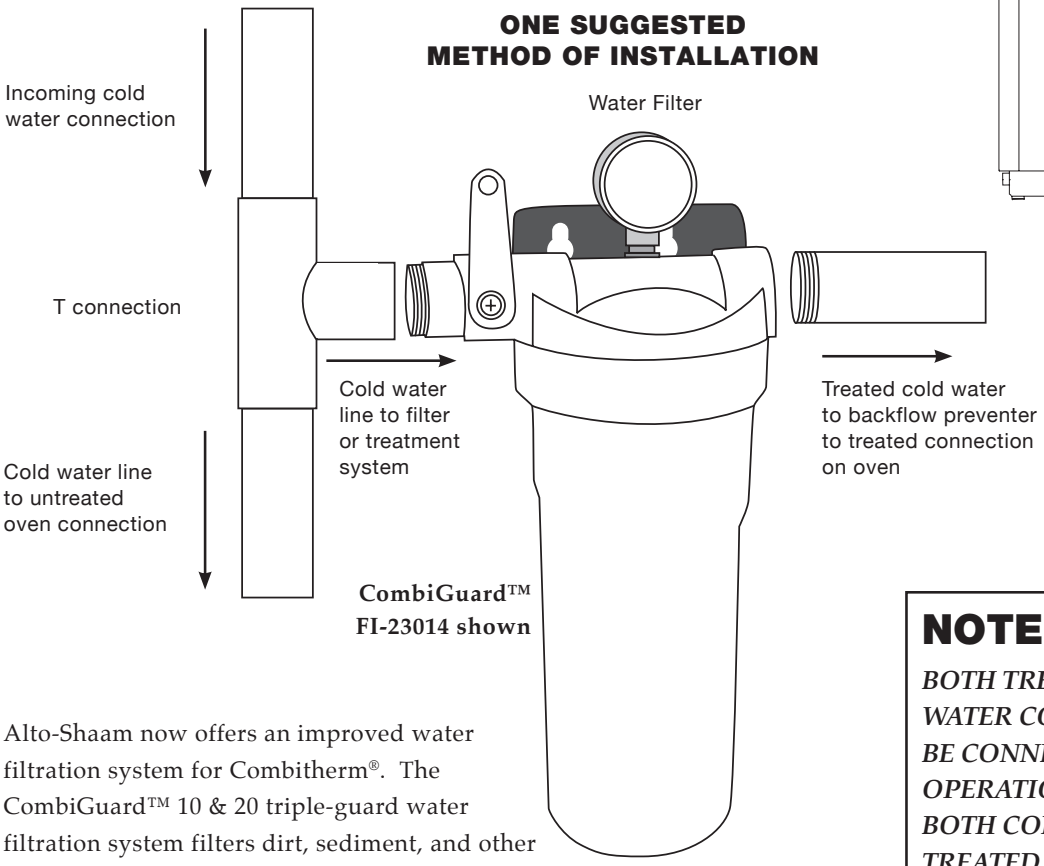
Flush the water line at the installation site.

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

Backflow Prevention — The equipment must be installed with adequate backflow protection to comply with applicable federal, state, and local codes.

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

TWO (2) COLD WATER INLETS - DRINKING QUALITY		
ONE (1) TREATED WATER INLET:	3/4" NPT*	* Can manifold off of one 3/4" line.
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 A 2" MINIMUM AIR GAP INSTALLED AS CLOSE TO THE OVEN AS POSSIBLE. MATERIALS MUST WITHSTAND TEMPERATURES UP TO 200°F (93°C).		



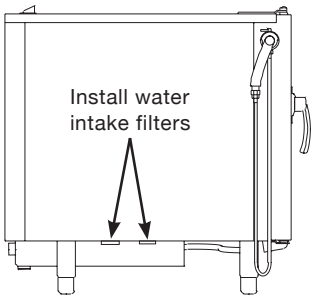


Figure 1

Alto-Shaam now offers an improved water filtration system for Combitherm®. The CombiGuard™ 10 & 20 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 chorine compounds. CombiGuard improves equipment efficiency, reduces service requirements and extends the life of the Combi oven. After installation, confirm that water quality standards specified in this manual are being met. Filtration systems include one filter cartridge. Additional cartridges can be purchased separately. Refer to an earlier page for additional ordering information.

The CombiGuard™ BWS Blended Water System utilizes reverse osmosis to remove more than 97% of the total dissolved solids from water which can be precisely blended with filtered and treated water.

NOTE:

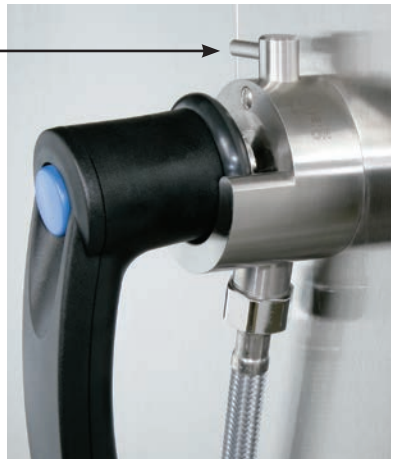
BOTH TREATED AND UNTREATED WATER CONNECTIONS MUST BE CONNECTED FOR PROPER OPERATION OF THE OVEN. BOTH CONNECTIONS CAN BE TREATED WATER, BUT SHOULD NEVER BE CONNECTED TO ONLY UNTREATED WATER.

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

INSTALLATION

WATER VALVE

SHUT-OFF VALVE SHOWN
IN THE OFF POSITION



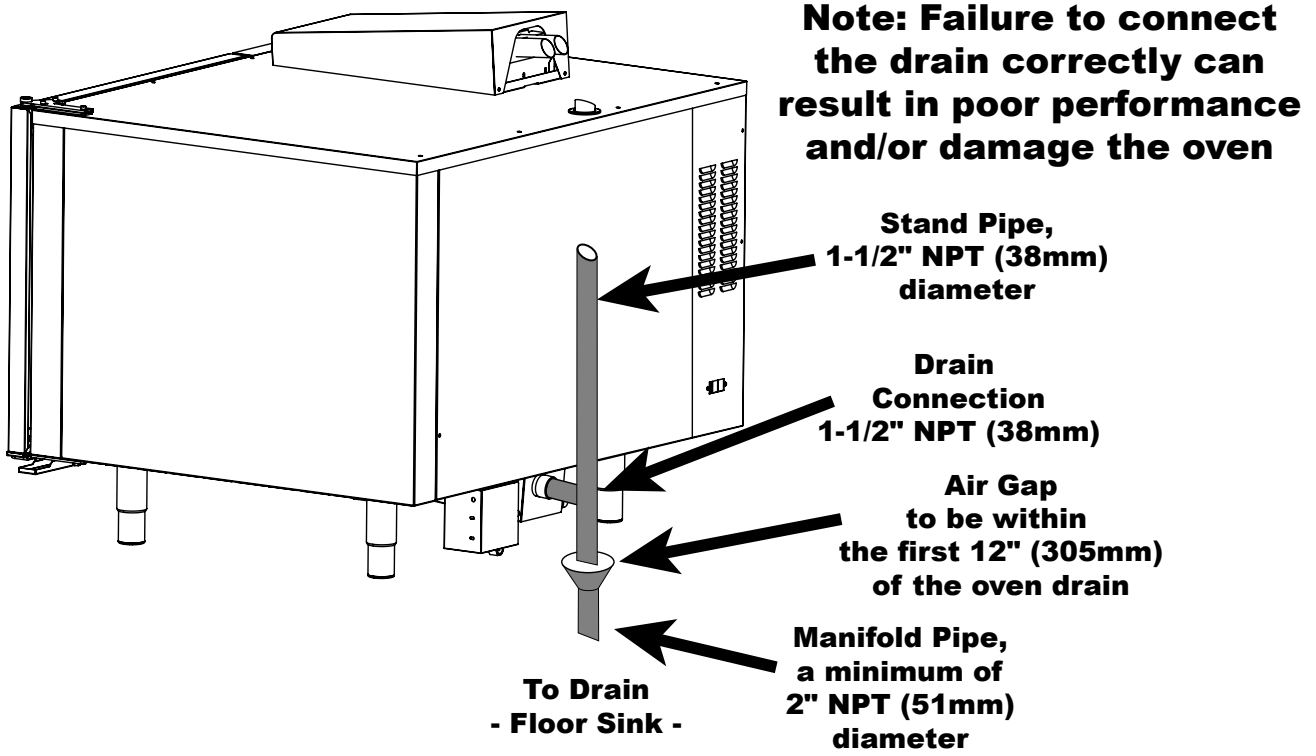
NOTE:

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

WATER DRAINAGE

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].

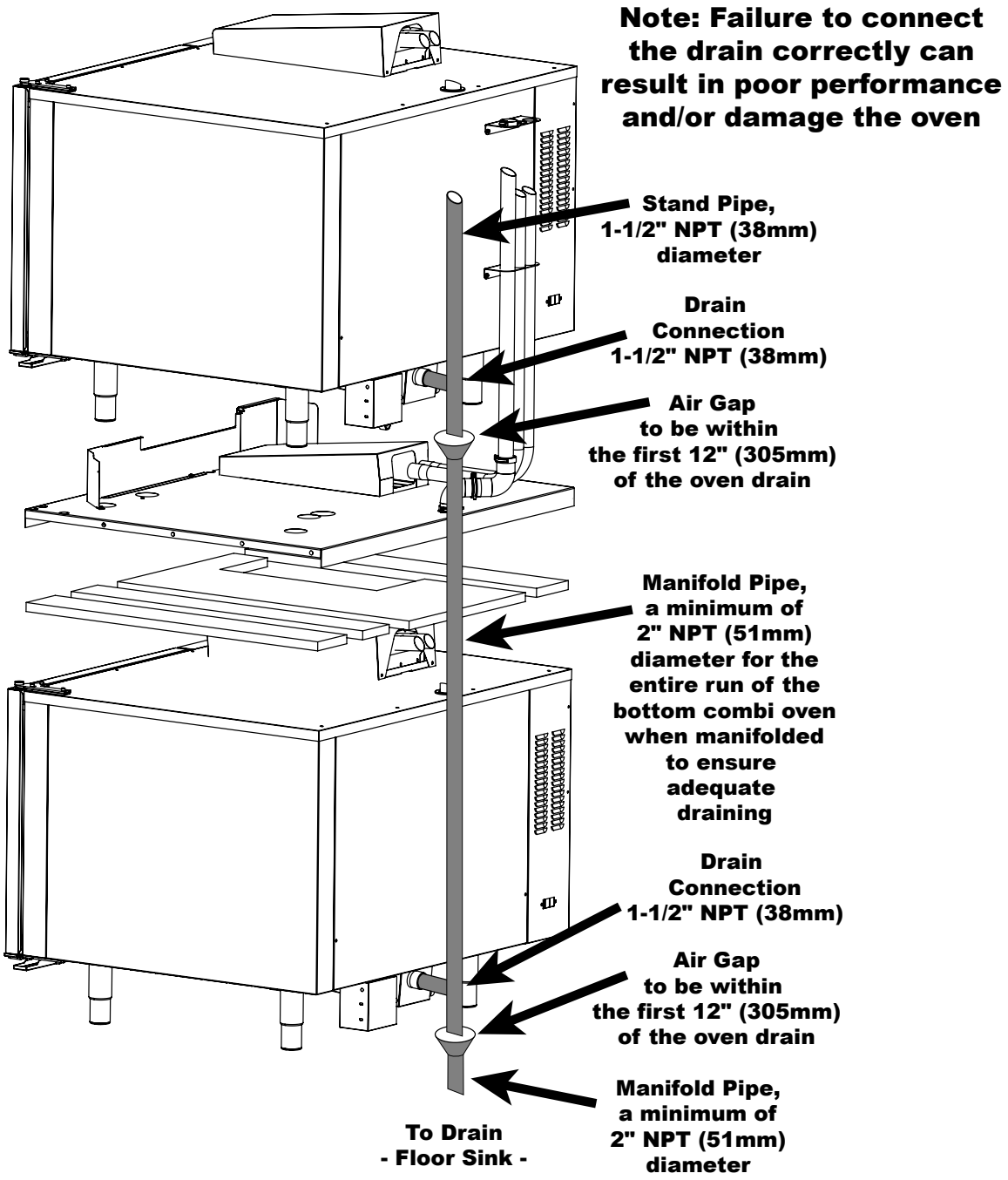


INSTALLATION

WATER DRAINAGE - STACKED

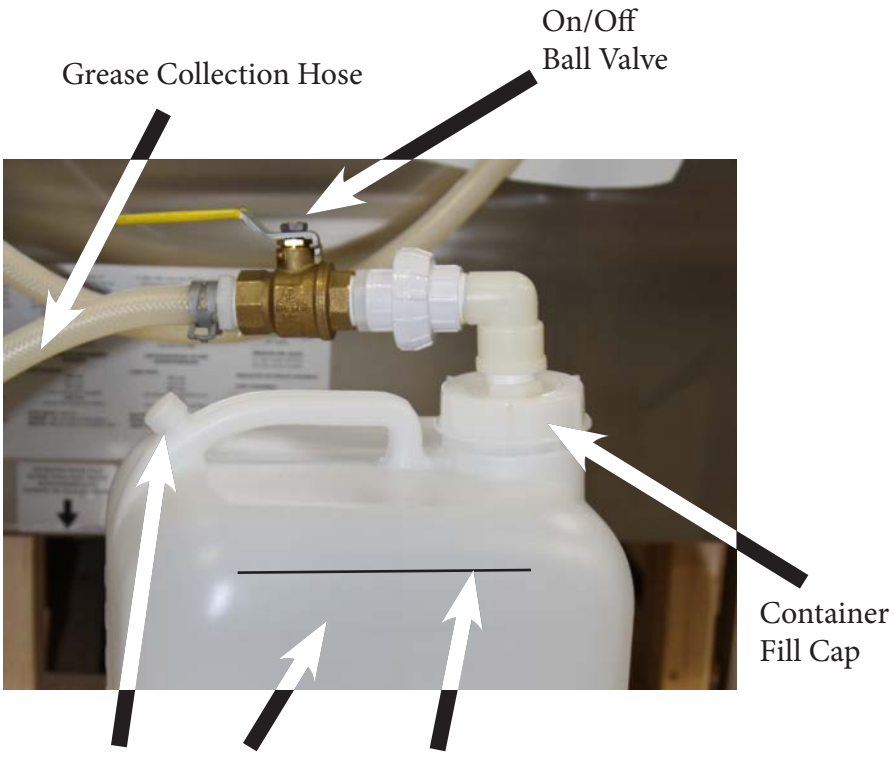
A union is required. Install a 1-1/2-inch (38mm) diameter connection, drain line and clamp into place. The drain line must always be a positive gradient away from the Combitherm oven and not more than 12-inches (305mm) before an air gap.

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].



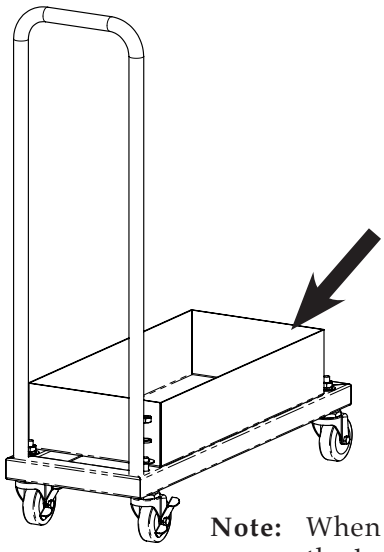
INSTALLATION

GREASE COLLECTION HOOK-UP (IF EQUIPPED WITH THIS FEATURE)



- Grease Collection Hose Assembly is attached to the oven in the back.
- Place Grease Collection Containers inside the tray of the Mobile Grease Collection Cart. Roll into place next to the oven.
- Loosen vent cap on container. Pull out the Grease Collection Hose Assembly from the back of the unit. Remove collection container fill cap.
- Screw Grease Collection Hose Assembly on to collection container until snug.
- Turn ball valve handle to the **ON** position.
- Automatic Grease Collection System is electronically activated during the chicken cooking process [PATENT PENDING]. It is designed to save labor and provide greater employee safety by eliminating the need to handle hot grease in shallow pans.

- Grease Collection container has a 5 gallon capacity and holds approximately 3 full loads of poultry grease.
- It is suggested to change the container when material reaches the fill line on the bottle or at 4 gallons to avoid hot grease overflow.
- Turn the ball valve handle to the OFF position.
- The ball valve handle must be in the OFF position when changing the collection container.
- Unscrew the container fill cap.
- Using a new container, screw Grease Collection Hose Assembly on to collection container until snug.
- Turn ball valve handle to the **ON** position.



Note: When grease collection is not in use, turn the ball valve handle to the OFF position to avoid the possiblity of water siphoning into the container.

COMBITOUCH® 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) RECOMMENDED SERVICE ACCESS OF 18" (457mm).
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: _____

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 3.5" 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 ON, **press the Set-Up Key** to access software version, and record.

SOFTWARE VERSION:

RB_____ DB_____

ALL BOARD CONNECTIONS TIGHT: ❑ YES ❑ NO

ALL FUNCTIONS ARE DISPLAYED: ❑ 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 on companion warmer or chiller* . . . . . ❑

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:

ERROR CODES

This section is provided for the assistance of qualified technicians only and is not intended for use by untrained or unauthorized service personnel. If your Alto-Shaam® unit is not operating properly, check the following before calling your Authorized Alto-Shaam Service Agent:

☛ Check that unit is receiving power. Circuit breaker turned on?
Do not attempt to repair or service the oven beyond this point. Contact Alto-Shaam for the nearest authorized service agent. Repairs made by any other service agents without prior authorization by Alto-Shaam will void the warranty on the unit.

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


PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.
When the oven fault is corrected, the Combitherm will return to normal operation.

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E01	Low Water Boiler	Low water level in boiler	— Water supply is shut off. — Low water pressure. — Generator drain cap missing or loose. — Generator drain pump is not sealing. — Generator drain pump elbow leaking. — Faulty or scaled water level probe. — Faulty or plugged dual solenoid valve assembly. — Wiring or connection issue. — No output to dual solenoid from relay board. — Relay board, high voltage is not operating.
E02	Control Temperature High	Relay board surface temperature too high	— Wiring or connection issue. — Cooling fan on Relay board assembly is not operating. — Cooling Fan on display board is not operating. — Main Cooling fan is not operating. — Cooling Fan on motor drive is not operating. — Unit is less than 20” from a heat producing source on its left hand side.
E03	Fan Motor Error	Fan motor does not work	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. (PAGE 31). — Connection Issue on Hall Effect sensor. — Fan wheel is not operating. — Hall sensor does not detect motor rotation.
E04	Fan Motor 2 Error	Lower fan motor on 20•20 does not work	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. (PAGE 31). — Connection Issue on Hall Effect sensor. — Fan wheel is not operating. — Hall sensor does not detect motor rotation.
E11	Convection Temperature High	Excess oven temperature	Convection Mode & Combi Mode: — Convection Oven contactor(s) stuck closed. — N6 Oven Cavity Temperature probe defective. — N6 Cavity Probe connection problem. — Relay board, high voltage is not operating. — Wiring or connection issue. Combi Mode Only: — Insufficient water supply into oven for steam production.

CONTINUED ON NEXT PAGE

ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E13	Boiler Temperature High	Boiler temperature overheats	— Scale build up inside steam generator. — Scale build up on water level probe. — B4 Probe connection problem. — B4 probe faulty.
E15	Condensor Temperature High	Excess condensor temperature	— Untreated water supply line is shut off. — Untreated water supply line is connected to warm water. — B3 probe connection problem. — B3 probe is faulty. — Single solenoid valve Y2 obstructed or faulty. — Wiring or connection problem. — Relay board, high voltage is not operating.
E20	HACCP Only - B11 Core Temperature Probe Single Point Fault Error E20 is not shown in display. Instead a probe sign with "?" is shown as popup window. In case the customer cooks in time mode during first step and during second step switches to probe mode but has no probe in place, the error E20 will be shown in the error code list and HACCP list.	Single point core temperature probe defect or disconnected.	— Clean Probe Receptacle Pins with sand paper. — B11 Single Point Core Temperature probe with quick connect, defective. — B11 Single Point Core Temperature probe wires with quick connect, disconnected. — B11 Single Point Core Temperature probe receptacle, defective. — B11 Single Point Core Temperature probe receptacle wires disconnected.
E21	N6 Cavity Probe Fault	Cavity temperature probe defect or disconnected	— N6 Oven Cavity Temperature probe defective. — N6 Oven Cavity Temperature connection problem.
E22	B10 Core Temperature Probe Multipoint Fault	Multipoint core temperature probe defect or disconnected	— B10 Multipoint Core Temperature probe defective. — B10 Multipoint Core Temperature probe connection problem.
E23	B4 Boiler Probe Fault	Boiler temperature probe defect or disconnected	— B4 Boiler temperature probe defective. — B4 probe wires connection problem.
E24	B5 Bypass Probe Fault	Bypass steam temperature probe defect or disconnected	— B5 Bypass steam temperature probe defective. — B5 Bypass steam temperature connection problem.
E25	B3 Condensor Probe Fault	Condensor water temperature probe defect or disconnected	— B3 Condensor temperature probe defective. — B3 Condensor probe connection problem.
E26	N8 Boiler Safety Temperature Probe Fault	Steam generator heating element protection probe defect or disconnected	— N8 Boiler temperature probe defective. — N8 probe connection problem.
E27	Boiler Element Temperature High	Excess steam generator safety probe	— Scale build up inside steam generator. — Scale build up on water level probe. — Water level probe connection failure. — N8 boiler temperature probe defective. — N8 probe connection problem. — Steam element contactor(s) stuck closed. — Wiring or connection problem.

CONTINUED ON NEXT PAGE

ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E34	Steam Generator Drain Pump Fault	Water level in steam generator does not drop during cleaning program	— Scale build up inside the steam generator drain pump. — Scale build up inside the steam generator affecting water level probes. — Generator drain pump is faulty. — Connection issue at drain pump. — No output to pump from relay board.
E36	Steam Temperature High	Oven cavity temperature is too high when operating in a steam mode or cleaning program	— Water supply is shut off. — Low water pressure. — Wiring or connection issue. — Water injection pipe obstructed. — Water flow control valve plugged or defective. — Dual solenoid valve Y-1 obstructed or defective. — No output to solenoid valve form relay board.
E51	No Water In Boiler	Water inside steam generator does not reach low water level	— Water supply is shut off. — Low water pressure. — Generator drain cap missing or loose. — Generator drain pump is not sealing. — Generator drain pump elbow leaking. — Faulty or scaled water level probe. — Faulty or plugged dual solenoid valve assembly. — Wiring or connection issue. — No output to dual solenoid from relay board.
E53	Fan Motor High Temperature	Fan motor too hot	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. (PAGE 31). — Connection Issue on Hall Effect sensor. — Fan wheel is not operating. — Hall sensor does not detect motor rotation.
E54	Fan Motor 2 High Temperature	20•20 lower fan motor too hot	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. (PAGE 31). — Connection Issue on Hall Effect sensor. — Fan wheel is not operating. — Hall sensor does not detect motor rotation.
E55	Vent Not Open	Browning valve does not open	— Alignment issue between motor cam and vent motor safety switch (micro switch). — Fault vent valve (motor). — Fault vent valve safety switch (micro switch). — Wiring or connection problem.

CONTINUED ON NEXT PAGE

ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E57	No Rinse Water	During rinse no water flow is detected through solenoid valve	— Water supply is shut off. — Low water pressure. — Check wiring to all components mentioned below. — Flow switch is dirty or defective. — Dual water solenoid valve obstructed or faulty (Y3.) — Relay board, high voltage, defective.
E93	Communication Error, FROM Display Board	Communication error between display board and low voltage relay board	— Check ribbon cable connections mentioned below. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective.
E94	Communication Error, TO Display Board	Communication error between display board and low voltage relay board	— Check ribbon cable connections mentioned below. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective.
E98	RB is in Cesius and DB is in Fahrenheit	Conflict of unit configuration in the setup menu	— Relay board and Data board do not match, use setup menu to change format.
E99	RB is in Fahrenheit and DB is in Cesius	Conflict of unit configuration in the setup menu	— Relay board and Data board do not match, use setup menu to change format.
E100	DB is not equal to RB version. Error generated by DB.	Software update may have failed.	— Check ribbon cable connections. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective. — Software may need to be updated again.
E101	DB is not equal to RB version. Error generated by RB.	Software update may have failed.	— Check ribbon cable connections. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective. — Software may need to be updated again.
E102	Ventless Hood Fault – Filters Not Present	Filter safety switches are not properly activated.	— Check filters are installed and properly seated. — Check filter switches are not damaged, defective or dislodged.
E103	Ventless Hood Fault – No Pressure	Pressure safety switch is not properly activated.	— Check power switch is on. — Check vent motor is turning in the proper direction. — Pressure switch is mis-wired or defective.

SEE MOTOR CONTROL ERROR CHART ON NEXT PAGE

CombiTouch MOTOR CONTROL ERROR CODES

Type of Error	Indication	Release of Error
Undervoltage	LED flashing sequence, with 1 flash per period.	Voltage of intermediate circuit is less than 250V
Overvoltage	LED flashing sequence, with 2 flashes per period.	Voltage of intermediate circuit exceeds 445V
Excess Temperature	LED flashing sequence, with 3 flashes per period.	Temperature sensor in the power unit is more than 93°C
Overcurrent	LED flashing sequence, with 4 flashes per period.	Blocked motor, detected by current peak monitoring from 900 rpm rotating field
Overcurrent	LED flashing sequence, with 5 flashes per period.	Intermediate circuit current exceeds 4.0A
Short-circuit	LED flashing sequence, with 6 flashes per period.	Release of interrupt at intermediate circuit current larger than 53A
Power on	LED flashing sequence, with 7 flashes per period.	Effective mains voltage does not correspond to jumper setting 115V/230V
Watchdog	LED flashing sequence, with 8 flashes per period.	Watchdog of the microcontroller released, program crash

ERROR CODES

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

PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.
When the oven fault is corrected, the Combitherm will return to normal operation.

Error Code	Display Shows	Model		Mode			
		ES	ESG ESI	Steam	Combination	Convection	Retherm
E01	Low Water Boiler	Yes	No	No	No	To 365°F/185°C	No
E02	Control Temp High	Yes	Yes	No	No	No	No
E03	Fan Motor Error	Yes	Yes	No	No	No	No
E04	Fan Motor 2 Error	Yes	Yes	No	No	No	No
E11	Convection Temperature High	Yes	Yes	BOILER UNITS ONLY	No	No	No
E13	Boiler Temperature High	Yes	No	No	No	Yes	No
E15	Condenser Temperature High	Yes	Yes	No	No	To 356°F/180°C	No
E20	B11 Core Temperature Probe Single Point Fault - HACCP only	Yes	Yes	No	No	No	No
E21	N6 Cavity Probe Fault	Yes	Yes	BOILER UNITS ONLY	No	No	No
E22	B10 Core Temp Probe Fault	Yes	Yes	BY TIME ONLY	BY TIME ONLY	BY TIME ONLY	BY TIME ONLY
E23	B4 Boiler Probe Fault	Yes	No	No	No	No	No
E24	B5 Bypass Probe Fault	Yes	Yes	No	No	Yes	No
E25	B3 Condenser Probe Fault	Yes	Yes	Yes	No	To 356°F/180°C	No
E26	N8 Boiler Safety Temperature Probe Fault	Yes	No	No	No	No	No
E27	Boiler Element Temperature High	Yes	No	No	No	Yes	No
E34	Steam Generator Drain Pump Fault	Yes	No	No	No	No	No
E36	Steam Temperature High	Yes	No	No	No	Yes	No
E51	No Water in Boiler	Yes	No	No	No	Yes	No
E53	Fan Motor High Temperature	Yes	Yes	No	No	No	No
E54	Fan Motor 2 High Temperature	Yes	Yes	No	No	No	No
E55	Vent Not Open	Yes	Yes	Yes (NO BROWNING)	Yes (NO BROWNING)	Yes (NO BROWNING)	Yes (NO BROWNING)
E57	No Rinse Water	Yes	Yes	Yes	Yes	Yes	Yes
E93	Communication Error FROM Display Board	Yes	Yes	No	No	No	No
E94	Communication Error TO Display Board	Yes	Yes	No	No	No	No

ORIGINAL EQUIPMENT LIMITED WARRANTY

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

THIS WARRANTY DOES NOT APPLY TO:

1. Replacement of light bulbs, door gaskets, and/or the replacement of glass due to damage of any kind.
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, food product, revenue, 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.

Warranty effective November 1, 2012

TRANSPORTATION DAMAGE AND CLAIMS

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.

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.

W164 N9221 Water Street • P.O. Box 450 • Menomonee Falls , Wisconsin 53052-0450 • U.S.A.
PHONE: 262.251.3800 • 800.558-8744 USA/CANADA FAX: 262.251.7067 • 800.329.8744 U.S.A. ONLY
www.alto-shaam.com