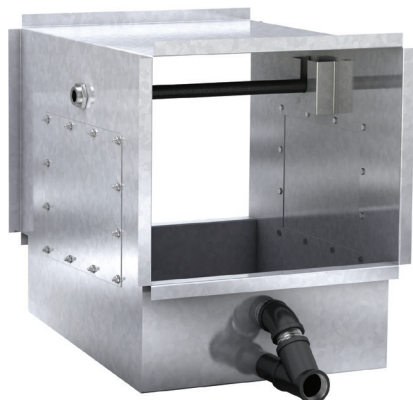


Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.



The duct sump is a piece of duct designed to be installed at the low point(s) of long horizontal duct runs to collect and drain off moisture, liquid grease, etc. The Uniform Mechanical Code (UMC) and International Mechanical Code (IMC) specifies horizontal grease duct run must slope not less than one-fourth unit vertical in 12 units horizontal (2% slope) towards hood or toward the sump if less than 75 feet. If greater than 75 feet, the horizontal duct run must slope not less than one unit vertical in 12 units horizontal (8.3% slope). This product allows the more complex duct runs where sloping horizontal runs back to the hood are not feasible and stays within a workable horizontal clearance. The duct sump is controlled by an Kitchen Controls (KC) cabinet.

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General Safety Information

Only qualified personnel should install this unit. Personnel should have a clear understanding of these instructions and should be aware of general safety precautions. Improper installation can result in grease fires as well as other potential hazards. If more information is needed, contact a licensed professional engineer before moving forward.

- Follow all local electrical and safety codes, as well as the National Electrical Code (NEC), and the National Fire Protection Agency (NFPA), where applicable. Follow the Canadian Electric Code (CEC) in Canada.
- Never open the access panel on the duct sump if the exhaust fan is on or if the sump is washing.

NOTE

Duct sumps are shipped with and controlled through the Kitchen Controls (KC) cabinet. The KC panel will be provided with a separate installation, operation, and maintenance manual. For more detailed information on the KC panel, please refer to manufacturer’s website.

Receiving

Upon receiving the product, check to make sure all items are accounted for by referencing the bill of lading to ensure all items were received. Notify the carrier if any damage is noticed. The carrier will make notification on the delivery receipt acknowledging any damage to the product. All damage should be noted on all of the copies of the bill of lading which is countersigned by the delivering carrier. If damaged upon arrival, file a claim with the carrier. Any physical damage to the unit after acceptance is not the responsibility of the manufacturer.

Unpacking

Verify that all required parts and the correct quantity of each item have been received. If any items are missing, report shortages to your local representative to arrange for obtaining missing parts.

Storage

If a duct sump must be stored prior to installation, it must be protected from dirt and moisture. Indoor storage is highly recommended.

Handling

Carefully move the sump to prevent denting or damaging.

System Components

Duct Sump

The duct sump consists of a piece of pitched ductwork fabricated from 16 gauge stainless steel designed to the specific duct size and equipped with a spray manifold, and drain with pre-flush and overflow. Access panel(s) are provided and designed per NFPA 96. A 24VAC solenoid valve will also ship loose with the duct sump to control water/detergent flow to the sump during a wash cycle.

Kitchen Controls (KC) Cabinet - “Sump Wash Only” Application

The control cabinet contains the water and electrical components, including the custom printed circuit board (PCB), that controls wash sequencing and operations. The control cabinet also includes the detergent reservoir, detergent pump, and other water piping.

User Interface

The user interface will be a full color touchscreen. It can be face mounted on the door of the control enclosure inside the cabinet or shipped loose for remote mounting. It will provide a “Wash” button for starting a duct sump wash manually (default), and also provide fault information if present, both visually and audibly (buzzer sounds in 1 second intervals).



Installation

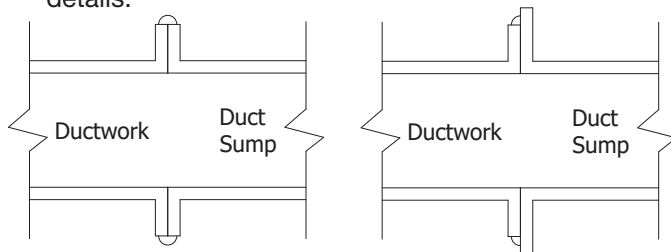
Duct Sump

1. Position duct sump inline with the horizontal ductwork. Per IMC and UMC, the horizontal duct run must slope not less than one-fourth unit vertical in 12 units horizontal (2% slope) towards hood or toward the sump if less than 75 feet (22.8 m). If greater than 75 feet (22.8 m), the horizontal duct run must slope not less than one unit vertical in 12 units horizontal (8.3% slope). Per NFPA 96, duct sump along with ductwork has to be at least 18 inches (45.7 cm) to combustible material, 3 inches (7.6 cm) to limited combustible material, and 0 inches (0 cm) to non-combustible material. Make sure these and all local code requirements will be met before welding.

NOTE

Duct sump is not intended to be mounted outdoors.

2. Weld ductwork on inlet and outlet of duct sump. Welds need to be liquid-tight, continuous and external. One inch flanges are provided at the inlet and outlet collars. Acceptable duct-to-duct connections (per NFPA 96) include flange with edge weld or flange with filled weld. Butt-welded connections are not permitted. Consult NFPA 96 for details.

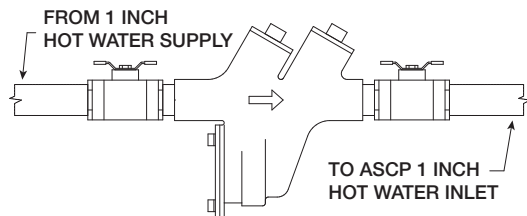


Flange with Edge Weld

Flange with Filled Weld

Plumbing Connections

1. Install factory provided backflow preventer (shipped loose with KC cabinet) and drain connection per local code.



Backflow Preventer

2. Bring 1-inch (25.4 mm) hot water supply line to the backflow preventer.
3. Plumb 1-inch (25.4 mm) line from the outlet of the backflow preventer to the hot water inlet connection in the KC cabinet.
4. Plumb 1-inch (25.4 mm) line out of KC cabinet hot water outlet connection to (each) duct sump solenoid valve (factory provided valve, shipped loose with each duct sump). Duct sump solenoid valves are 3/4-inch valves so a reducer (by others) will be needed.
5. Plumb 3/4-inch (19.05 mm) line from solenoid valve to inlet fitting on the side of the corresponding duct sump.
6. Plumb 1-1/2 inch (38.1 mm) drain from bottom of sump to a grease trap in the building. Consult local code for grease trap requirements.

NOTE

- Hot water temperature should be 140°F (60°C)
- While the duct sump is washing, water pressure in the control panel should be between 40 and 70 PSI (275.8 and 482.6 kPa).

Detergent Tank Installation

The detergent tank is located in the plumbing section of the KC cabinet. The tank provided can hold up to 2.5 gallons of detergent. It will need to be checked periodically depending on detergent use and filled with the recommended chemical detergent. The tank is also equipped with a float that will trigger an alarm to warn the user when detergent is low.

Steps for removal and installation of the detergent tank are as follows:

Removal:

- 1. Disconnect the two float switch wires from DS-A and DS-B terminal blocks inside KC panel.
- 2. Remove the 1/4-inch detergent line that enters the tank thru the screw on cap.
- 3. Lift out the detergent tank from the utility cabinet.
- 4. Unscrew the 63 mm cap from the tank; this will remove the float assembly.
- 5. Fill the tank with the approved detergent.

Install:

- 1. Install the 63 mm cap and float assembly into the detergent tank.
- 2. Lift the detergent tank back into the utility cabinet.
- 3. Install the 1/4-inch detergent line thru the hole in the 63 mm cap.
- 4. Connect the two float switch wires back to the DS-A and DS-B terminals inside the KC panel.

Detergent Requirements

Detergent model X-701 manufactured by ZEP, Inc., is recommended by Accurex for use in the wash system. This product is biodegradable, non-caustic, and safe for kitchen staff to use. If X-701 detergent is not used, the cleanliness of the exhaust plenum and filters cannot be guaranteed.

NOTE

- X-701 is manufactured by ZEP, Inc., Atlanta, GA, USA. For details and ordering information, call 1-800-371-6858.
- If washed once a day, the 2.5 gallon detergent tank will last approximately 24 to 30 days depending on filter type.

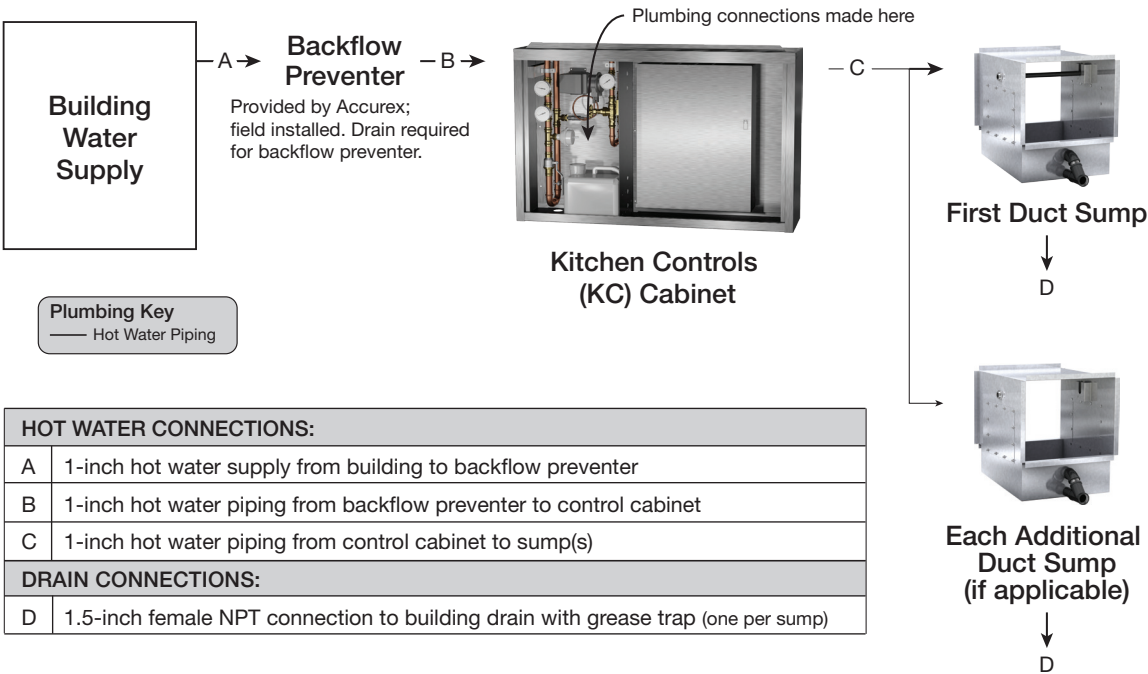
Preventative Maintenance

The following practices will prolong the life of the detergent pump:

- Keep detergent tank filled.
- Avoid spilling detergent on the exterior of the pump.
- Clean the detergent tank at least every six months.
- Clean the detergent line strainer at least every six months.
- Check tightness of all fittings periodically.

The detergent pump motor has sealed bearings which do not require lubrication.

Typical Plumbing Connection Layout



Electrical Connections

NOTE

All wiring of electrical equipment must be done to meet NEC and local codes.

NOTE

It is recommended that shielded wire be used for all low voltage connections (24V or less) to prevent signal interference with other high voltage circuits.

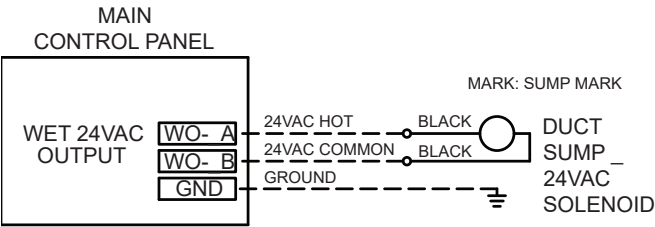
NOTE

All 115 VAC field wiring (or higher) must be high temperature rated and must be routed through hard or flex conduit. All low voltage field wiring should be plenum rated if not routed through conduit. To reduce the likelihood of electromagnetic disturbance, avoid routing high and low voltage cables in the same conduit. Typical size of low voltage wire used in the field should be 18-22ga, but voltage drop due wire length should be taken into consideration.

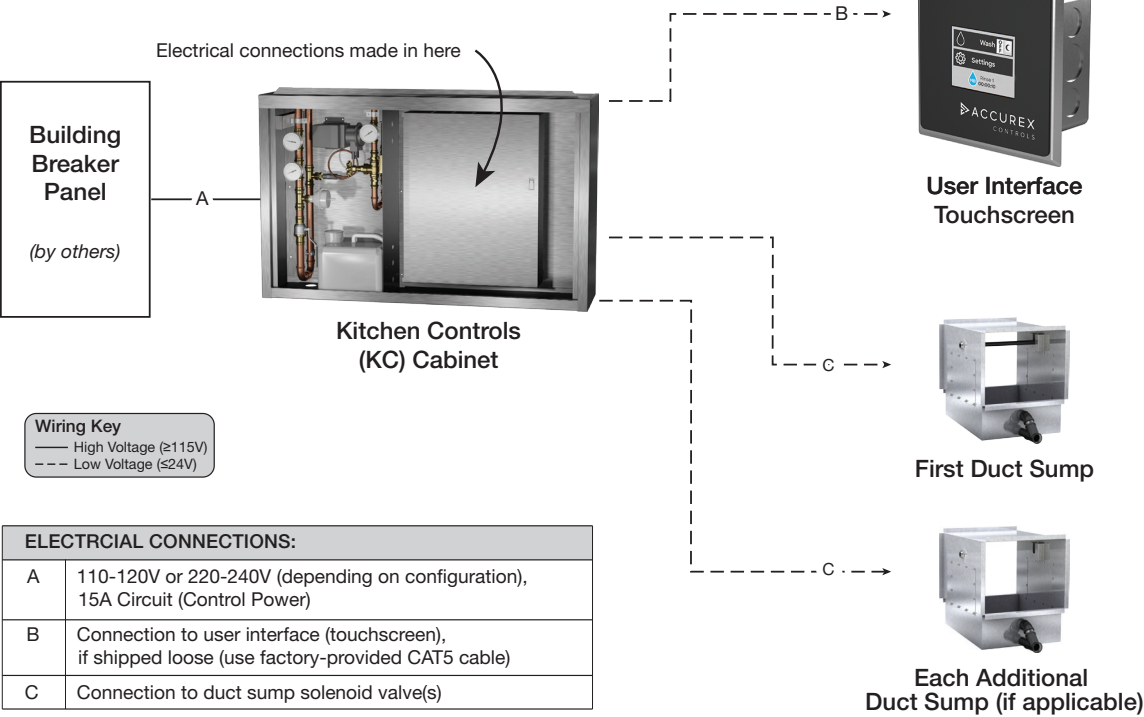
Consult KC installation, operation and maintenance manual for complete wiring instructions.

Duct Sump Solenoids – if equipped

Each duct sump will be provided with a 3/4-inch solenoid valve (shipped loose). Each valve will need to be wired back to the controls panel inside the KC cabinet. Solenoid coils are 24 VAC.



Typical Electrical Connection Layout



Wash Operation

For KC touchscreen user interface navigation and initial start-up procedures, see KC installation, operations and maintenance manual.

When wash sequence is started, sumps will wash one-by-one in order, with the next sump wash not starting until the one previous has finished. A duct sump wash can be initiated through a number of different options.

Wash by Button Assuming “Wash Button” function in the User Interface Settings is set to “Start/Stop”, pressing “Wash” button on the touchscreen user interface will start a wash sequence.

Wash by Digital Input If either digital input (DI-1A/1B or DI-2A/2B) on the main board in the KC panel is configured for “Wash Enable”, then closing that input will start a wash sequence.

NOTE

Configuring an input for “Wash Disable” and closing it will override any input configured for “Wash Enable” and stop a wash/prevent a wash from starting.

Wash by BMS If BMS is configured for the panel, then writing 1 to HR_BMS_SUMP_WASH_ON register 264 (Modbus), or writing 1 to Duct Sump Wash BV 54 (BACnet) will start a wash sequence.

Wash by Scheduler Through the “Wash Scheduling” sub-menu, wash sequences can be set up to wash at specific times of day for specific days of the week.

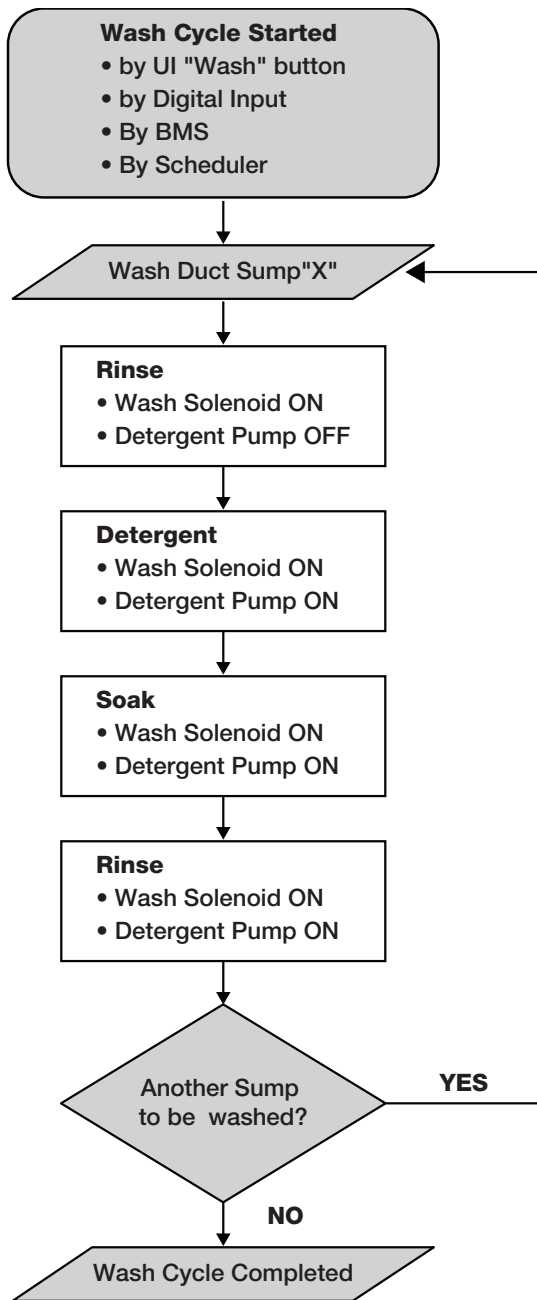
A wash cycle can be stopped at any time by pressing the “Wash” button on the touchscreen user interface.

Other ways wash sequence can be aborted:

- Digital input on main board (MB) in KC panel configured for “Wash Disable” is closed.
- BMS Duct Sump Wash point is changed from 1 to 0
- A kitchen fire is detected (FS-C and FS-NC) on main board (MB) is opened.



Wash Sequence of Operation



Sump Wash Cycle Factory Default Times

(seconds)

Rinse Time	60
Detergent Time	120
Soak Time	60

NOTE

Water usage will be 1.1 GPM per linear feet (width) of duct sump (at 40 PSI).

NOTE

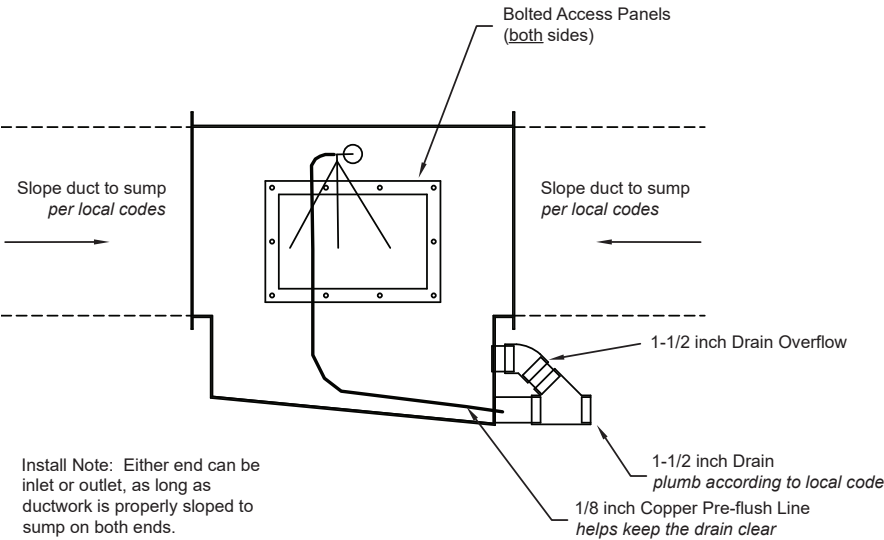
Wash times are based on factory tests. Actual required cleaning time will vary based on cooking equipment, fuel type, cooking frequency, and the food prepared. The table shown above should be used as a starting point. After a few weeks, the field can make adjustments as necessary based on cleanliness of sump upon inspection

Sump only sprays during "Rinse" and "Detergent" portions of wash cycle. Assuming default times, total water and detergent used per sump per width of sump is shown below.

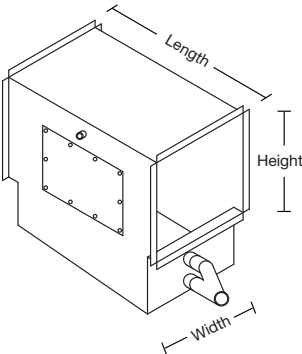
Total Water/Detergent Used Per Sump (Using Default Times)

Duct Sump Width (ft)	Total Water Used (gallons per wash)	Total Detergent Used (ml per wash)
1	1.1	200
2	2.2	200
3	3.3	200
4	4.4	200
5	5.5	200

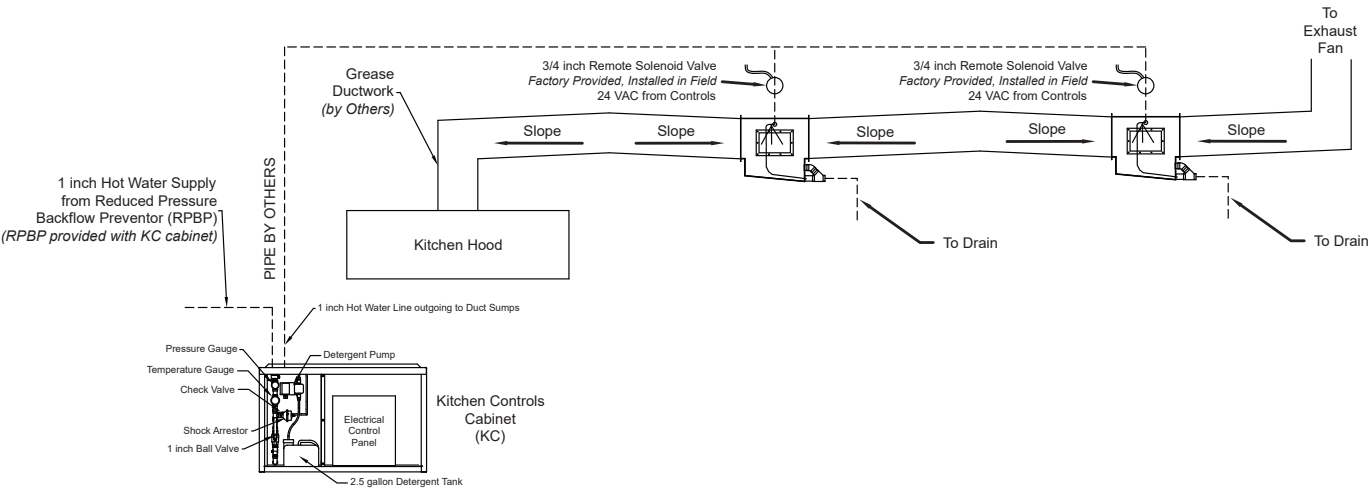
Duct Sump Detail



AVAILABLE SIZES:
Width: 14 – 50 inches
Height: 12 – 48 inches
Length: 24 inches



Typical Layout



Maintenance

It is recommended that the duct sump(s) be washed daily on a schedule (during non-cooking operation). Detergent must be refilled when low detergent fault occurs.

Duct sumps opened up (via access doors) and washed manually with the rest of the ductwork as required when cleaning the entire exhaust system. Manually cleaning frequency shall be determined based on routine inspections and a determination by the AHJ.

NFPA 96 (2024) Table 12.4 provides the following grease build-up inspection frequency table.

Schedule of Inspection for Grease Buildup	
Type of Volume of Cooking	Inspection Frequency
Systems serving solid fuel cooking operations	Monthly
*Systems serving high-volume cooking operations	Quarterly
Systems serving moderate-volume cooking operations	Semiannually
†Systems serving low-volume cooking operations	Annually

*High-volume cooking operations include 24-hour cooking, charbroiling, and wok cooking.

†Low-volume cooking operations include churches, day camps, seasonal businesses, and senior centers.

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Replacement Parts

Replacement Parts	
Part Number	Description
381050	Duct Sump Solenoid Valve
481463	Duct Sump Solenoid Coil
453675	Duct Sump Brass Spray Nozzle
220144	Silicone Foam Tape for Access Door Seal
451860	Aluminum 1/4-inch tubing

Maintenance Log

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Our Commitment

As a result of our commitment to continuous improvement, Accurex reserves the right to change specifications without notice.

Specific Accurex product warranties are located on accurex.com within the product area tabs and in the Library under Warranties.



P.O. Box 410 Schofield, WI 54476
Phone: 800.333.1400 • Fax: 715.241.6191
Parts: 800.355.5354 • accurex.com