X-VENTISO by earthcore

XV Series Draft Inducers

Installation, Operation and Maintenance

XV150 450 CFM, gas, solid fuel and grease applications
XV250 900 CFM, gas, solid fuel and grease applications
XV350 2,100 CFM, gas, solid fuel and grease applications

ETL Listed to UL 378, UL 705, UL 762, CAN3-B255 and ULC-S645. 316L stainless steel. Factory-wired to a service disconnect at the draft inducer, then 30 ft to a plug-in Molex connection at the X-VENTISO controller.

WARNING: DO NOT MODIFY THE FACTORY WIRING.

Do not hardwire the draft inducer, cut or replace the Molex plug, splice, lengthen or shorten the factory cables, or move the disconnect box away from the draft inducer. **Any modification of the Molex connection or the factory assembly voids the warranty.** Need a different length? Call 800.642.2920 before you start.

MOUNT THE DISCONNECT BOX VERTICAL. EVERY INSTALL, NO EXCEPTIONS.

1 Read First

Read this manual fully before installing, and leave it with the homeowner or building owner. Installation and service are for qualified personnel familiar with the codes that apply to the job.

DANGER: Before installing, servicing or cleaning, switch the disconnect at the draft inducer OFF and unplug the X-VENTISO controller. Lock and tag both. Wait for the axial vane to stop completely before opening the draft inducer.

WARNING: Do not modify the factory wiring. Never hardwire the draft inducer, alter the Molex plug, change cable lengths or relocate the disconnect box. Any modification of the Molex connection or factory assembly voids the warranty.

WARNING: Hot surfaces. The draft inducer, flue and adapter can be hot during and after operation; let them cool first.

WARNING: Match the controller to the application. Gas hearth and gas heating appliances: XV-GBC, XV-GBC-DUO, Meridian or Meridian DUO. Solid fuel and residential wood-fired cooking: XV-WBC or XV-WBC-DUO. Commercial and gas-fired cooking: a custom WBC (call 800.642.2920). The draft inducer plugs into either type, so the plug will not stop a mismatch. A gas controller on a wood fire or a cooking appliance gives no solid fuel alarm, and its stack probe clogs with creosote or grease. A WBC on a gas hearth appliance has no gas valve interlock, so the appliance can fire without proven draft.

WARNING: Horizontal (sidewall) termination is for gas applications only. Never terminate a solid fuel flue horizontally. After any chimney fire, have the draft inducer, flue and chimney inspected before the appliance is used again.

CAUTION: Sharp edges. Wear gloves. Lift the draft inducer with both hands under the rim of the motor housing, never by the cable, the whip or the disconnect box.

CAUTION: Follow all national, state and local codes and the appliance and flue manufacturers' instructions. Where they differ from this manual, the code governs. The authority having jurisdiction makes the final call on every installation.

THE THREE MOST COMMON INSTALL MISTAKES. CHECK BEFORE YOU LEAVE THE ROOF.

1. **The disconnect box is not vertical.** The box is NEMA 3: rain-resistant, not waterproof. Mount it vertical, with the cable from the draft inducer entering at the top and the cable to the controller leaving at the bottom. Flat, sideways or upside down, water gets in and shorts the switch. See Section 8.
2. **No room to tilt the draft inducer open.** The draft inducer opens on a hinge for cleaning and chimney access. A wall, cap, screen or structure inside the opening arc means it can never be serviced. See Section 3.
3. **Transport inserts left in.** Cardboard inserts ship inside the housing to protect the axial vane. Remove them before first start-up, or the draft inducer will not run. See Section 10.

Annual inspection is required. Have a qualified professional inspect and, when needed, clean the draft inducer every year, at the same visit as the chimney or flue service (Section 11). **2-year warranty**, valid with proper installation and use per this manual and a documented annual inspection. **Skipping the annual inspection voids the warranty.** Opening the sealed X-VENTISO controller voids the warranty. Damage from a miswired disconnect box is not covered.

What this manual covers

1. Read First
2. Applications and What You Need
3. Location and Service Clearance
4. Vertical Installation, Factory-Built Flue
5. Masonry Chimneys and Plate Adapters
6. Horizontal (Sidewall) Termination
7. Rain Collar
8. Disconnect Box and Wiring
9. Shrouds
10. Start-Up and Operation
11. Annual Maintenance, Inspection Checklist
12. Troubleshooting
13. Specifications
14. Dimensions and Performance
15. Installation Checklist and Record

Owner Quick Reference

2 Applications and What You Need

The XV Series draft inducer mounts at the end of the flue run, where the flue terminates, and pulls flue gas out of the system. It runs only under an X-VENTISO controller, which sets its speed and proves draft. X-VENTISO sizes the draft inducer and the flue for every job: send the plans or call 800.642.2920.

	XV150	XV250	XV350
Airflow, free air	450 CFM	900 CFM	2,100 CFM
Vertical termination	Gas, solid fuel, grease	Gas, solid fuel, grease	Gas, solid fuel, grease
Horizontal termination	Not used (draft margin)	Gas only	Gas only
Electrical	120 V, 1.0 A	120 V, 1.6 A	120 V, 3.7 A

Range of use

Gas, solid fuel and grease. Gas and solid fuel hearth applications, gas-fired appliances, and the grease-laden exhaust of cooking appliances that vent through their own duct: wood-fired ovens, grills and rotisseries. Grease: UL 762 and ULC-S645. Flue gas temperature rating: 1,000°F (538°C) continuous, 1,400°F (760°C) abnormal operation. Follow NFPA 54 for gas and NFPA 211 for solid fuel. For grease (cooking) applications, follow NFPA 96 where it applies.

Matching controller

Application	X-VENTISO controller
Gas hearth and gas heating appliances	XV-GBC, XV-GBC-DUO, Meridian (XV-MERD-CTRL), Meridian DUO
Solid fuel, and residential wood-fired cooking	XV-WBC, XV-WBC-DUO (no stack probe for grease to clog)
Commercial cooking, and any gas-fired cooking appliance	Custom WBC, configured for the job. Call 800.642.2920 before you install.
Three or four flues	XV-MULTICTRL: call 800.642.2920 before you install

Never mix them up: a gas controller never goes on a solid fuel or cooking appliance, and a WBC never goes on a gas hearth or heating appliance. Unsure (a dual-fuel appliance, gas logs in a wood-burning firebox)? Call 800.642.2920.

In the box

- Draft inducer, factory-wired: 5 ft whip to the disconnect box, then 30 ft cable ending in a white 3-pin Molex plug
- Disconnect box (service switch), factory-attached
- Mounting hardware
- Cardboard transport inserts inside the housing (remove before start-up)
- This manual

Sold separately

- Flue adapter, matched to the flue make, type and size (standard, horizontal mount, clay liner plate, or custom). Part numbers: XV-REF-ACC-PARTS
- Rain collar (recommended on every installation)
- Vibration dampener
- X-VENTISO controller, and a damper where the system uses one
- Extension cables, 20, 50 or 100 ft, or one custom-length cable
- Shroud (Section 9)

Before you start, confirm the site

- The adapter matches the flue. Factory-built flue: installed to the termination per its manufacturer. Masonry: chimney inspected, swept and sound.
- Service clearance around the hinge is available (Section 3), inside the shroud if one is used, or the shroud lifts off (Section 9).
- A cable route from the roof to the controller, and a dry, vertical mounting spot for the disconnect box (Section 8).
- Safe roof access for the annual inspection.

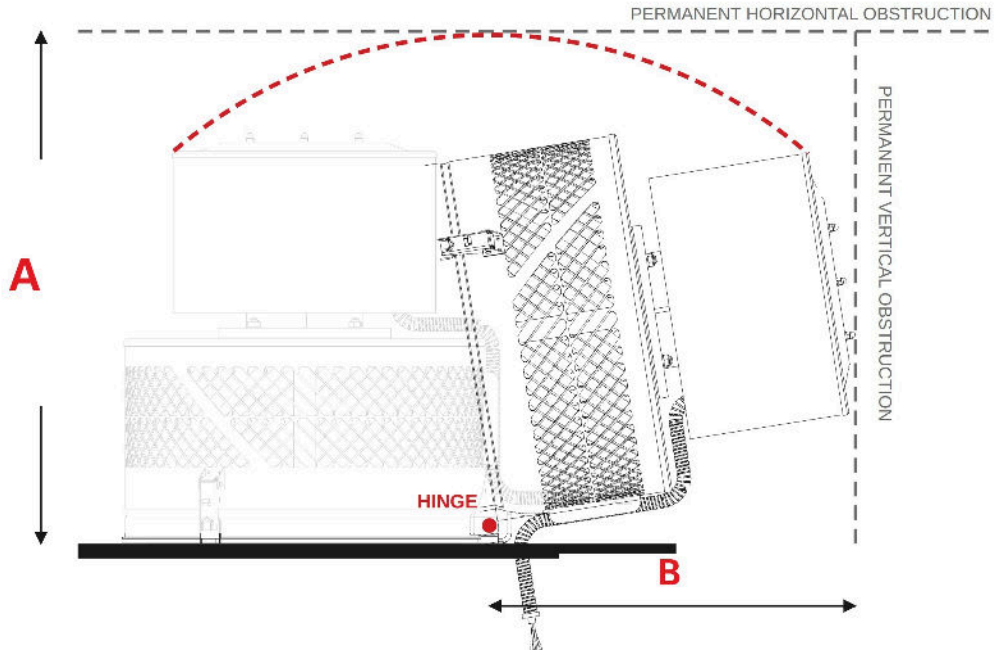
3 Location and Service Clearance

Mount the draft inducer at the termination, at the end of the run: vertical on top of the flue, or horizontal on an outside wall (gas only, Section 6). Do not enclose it, except in a shroud that meets Section 9. Termination height and clearances follow the flue manufacturer's instructions and the code. The draft inducer does not reduce any clearance to combustibles the flue or chimney requires.

More than one draft inducer on a chase: space them at least 12 in. apart, edge to edge at the lower housing, and lay out the hinges first (next page).

Leave room to open it

The draft inducer opens on a hinge at its base. That is how the axial vane is cleaned and how the sweep reaches the flue. Any permanent structure (a wall, parapet, cap, screen or framing) must stay outside the opening arc. Keep at least the clearances below, measured as shown.



Faded: closed. Solid: tilted open on its hinge (XV350 shown). The red arc is the path of its farthest point.

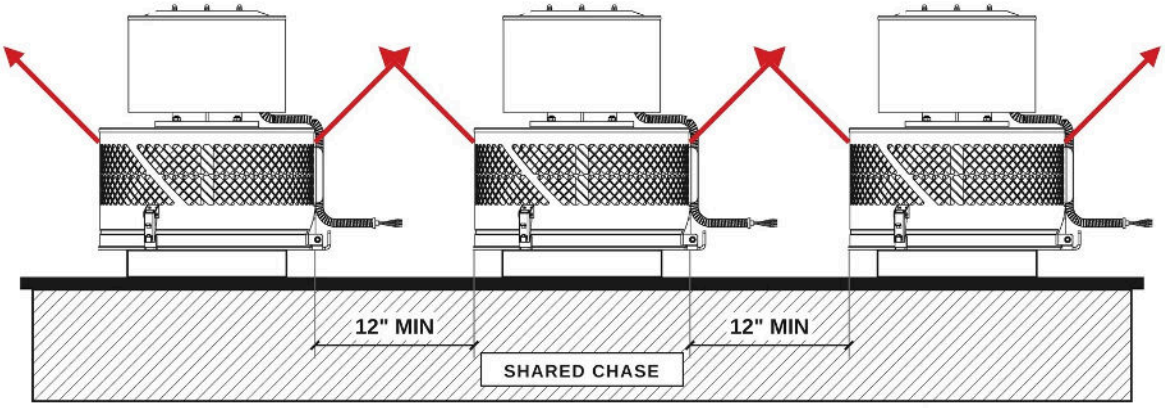
Model	A: clear height to a permanent horizontal obstruction above	B: clearance from the hinge to a permanent vertical obstruction
XV150	20 in. (508 mm)	13-1/2 in. (343 mm)
XV250	20 in. (508 mm)	13-1/2 in. (343 mm)
XV350	23 in. (584 mm)	16-1/2 in. (419 mm)

Point the hinge where the room is. Before you fasten anything, decide which way the draft inducer will open and turn it so the hinge faces the open side. A shroud that lifts off is not a permanent obstruction. A shroud that stays in place must leave A and B inside it. A rain collar does not change A or B: remove it before tilting the draft inducer open (Section 11).

More than one draft inducer on a chase

Space draft inducers at least **12 in. (305 mm) apart, edge to edge at the lower housing**. Each one discharges at 45°, so its exhaust rises an inch for every inch it travels and clears the next draft inducer instead of hitting it. The same spacing applies inside a shroud.

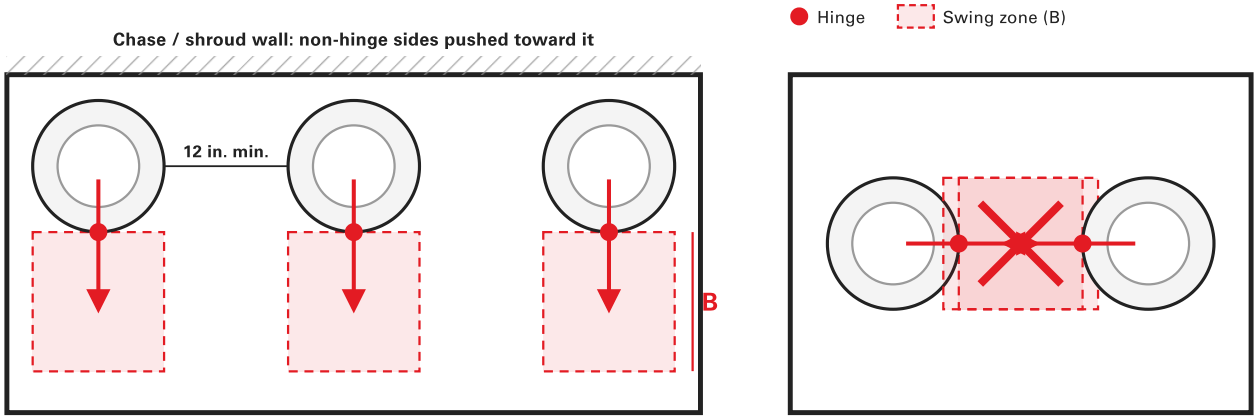
Plan the hinges first. Every draft inducer must be able to swing fully open, so decide where each hinge points before anything is fastened. At the 12 in. minimum spacing, two draft inducers can never open toward each other: clearance B is 13-1/2 in. (XV150, XV250) or 16-1/2 in. (XV350). Turn the hinges away from each other, or space the draft inducers farther apart.



12 in. minimum, measured edge to edge at the lower housing of each draft inducer.

Lay out the hinges: offset to one side

With two or more draft inducers, push the **non-hinge side** of every draft inducer toward the near wall of the chase or shroud, keeping the 12 in. spacing between them. Turn every hinge toward the wide, open side, and keep at least clearance B from each hinge to the wall in front of it. Each draft inducer then swings into open space instead of into its neighbor.

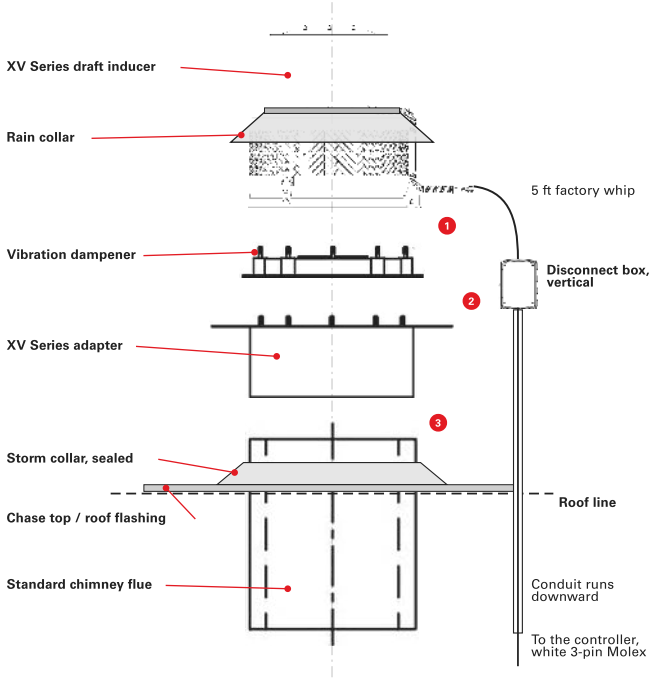


Plan view, XV250 to scale. XV350: B is 16-1/2 in.

> Mark each hinge direction on the plans and on the chase top before anything is fastened. Unusual layout? Send the plans to 800.642.2920.

4 Vertical Installation, Factory-Built Flue

1. Disconnect, lock and tag power to the controller and the appliance.
2. Install the flue to the termination per the flue manufacturer's instructions, including the chase top or roof flashing. Seal the storm collar to the vent with non-hardening waterproof sealant.
3. Confirm the termination height and clearances meet the flue manufacturer's instructions and the code.
4. Confirm the XV Series adapter matches the flue make, type and size (XV-REF-ACC-PARTS). Earthcore Eco-Steel 13 in. and Eco-Steel+ 13 in. insulated flue each have their own adapter.
5. Decide which way the draft inducer will open (Section 3) before you fasten anything.
6. **Adapter.** Slip the collar fully into the top of the flue and fasten it with screws **(3)**.
7. **Vibration dampener, if used** (XV-VBD-1250 or XV-VBD-350). Set it over the adapter studs, with its bracket on the hinge side, and nut it down snug **(2)**.
8. **Draft inducer.** Set its base over the studs (the dampener's, or the adapter's if there is no dampener), hinge toward the open side. Washer and nut on every stud **(1)**. **Eco-Steel 13 in. adapters** have bolt holes instead of studs: bolt through them with the supplied 1/4-20 x 3/4 in. bolts, washers and nuts.
9. Fit the rain collar (Section 7).
10. Mount the disconnect box **vertical** and route the cable to the controller, outdoor conduit running downward (Section 8).
11. Do not start the draft inducer yet. Start-up is Section 10.



Exploded view, typical vertical termination on a factory-built flue. Numbers are the fastened joints in the table.

Fastening

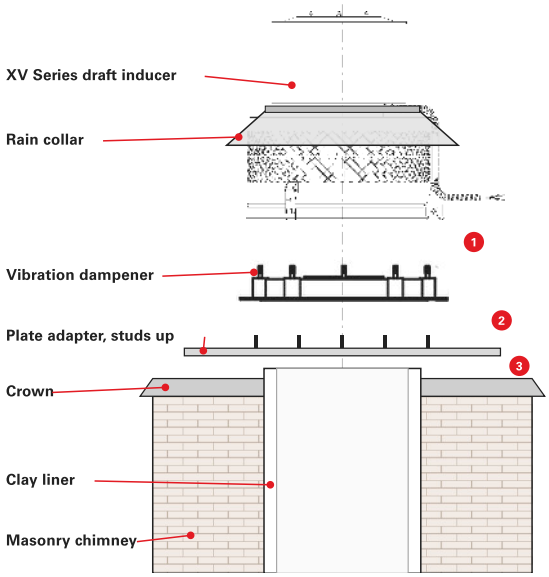
	Joint	How it is fastened
1	**Draft inducer to the adapter (or to the vibration dampener)**	The base ring drops over the welded 1/4-20 studs. A stainless washer and 1/4-20 nut on every stud (supplied). Tighten evenly until snug.
2	**Vibration dampener to the adapter**	The dampener drops over the adapter's welded 1/4-20 studs. A stainless washer and 1/4-20 nut on every stud (supplied). **Snug only.** Over-tightening crushes the urethane bushings, and the dampener stops isolating.
3	**Adapter to the flue**	The collar slips fully into the flue. Minimum four #8 stainless steel (304 or better) sheet metal screws, 1/2 in. minimum shank, through the flue wall into the collar, evenly spaced around the joint (installer-supplied).

Standard X-VENTISO adapters, plate adapters and vibration dampeners have welded studs, and all stud nuts and washers ship in the box. Earthcore Eco-Steel and Eco-Steel+ 13 in. adapters, and some custom masonry adapters, have bolt holes instead and ship with stainless 1/4-20 x 3/4 in. bolts, washers and nuts. Never drill new holes in an adapter or plate. Re-check every nut and screw at each annual inspection (Section 11). Never drill, cut or screw through the draft inducer housing or the motor housing. Weights: XV150 28 lb, XV250 30 lb, XV350 54 lb, plus wind and snow load on the flue and chase top.

5 Masonry Chimneys and Plate Adapters

On a masonry chimney or clay liner, the draft inducer mounts on a flat stainless plate adapter (clay liner plate XV-SFA, or a custom plate) set on the crown over the liner. Plates are sized to the liner; custom plates are routine (800.642.2920).

1. Disconnect, lock and tag power to the controller and the appliance.
2. Have the chimney inspected and swept. Confirm the liner and crown are sound: a draft inducer does not fix a cracked liner or a failed crown.
3. Decide which way the draft inducer will open (Section 3).
4. Set the plate over the liner, centered on the flue, studs up. Seal plate to liner with high-temperature silicone or a ceramic fiber gasket.
5. **Always fasten the plate to the chimney (3)**, either mechanically (stainless masonry anchors) or with an adhesive rated for masonry and the flue temperature, so it holds the draft inducer firmly against wind. Never rely on the plate's weight alone.
6. Vibration dampener, if used: over the plate studs, nuts snug **(2)**.
7. Draft inducer: base over the studs, washer and nut on every stud **(1)**.
8. Custom masonry adapter with bolt holes instead of studs: bolt the draft inducer (and dampener, if used) through the holes with stainless 1/4-20 x 3/4 in. bolts, washers and nuts. Use the hardware supplied with the adapter and the existing holes; never drill new ones.
9. Fit the rain collar (Section 7), mount the disconnect box vertical (Section 8), and route the cable down the chase or in exterior conduit.



Exploded view, masonry chimney with a plate adapter.

WARNING: The plate must seal tightly to the liner. A gap lets flue gas leak and reduces draft.

Vibration dampener

The vibration dampener (XV-VBD-1250 for the XV150 and XV250, XV-VBD-350 for the XV350) isolates the draft inducer from the flue or chimney. It is recommended where the flue runs through living space, on tall metal chimneys, and anywhere hum or vibration would be heard in the building. The bracket on its outer edge sits under the draft inducer's hinge plate. Tighten its nuts snug only: crushed bushings transmit vibration.

Dampener on the adapter. **1** Urethane bushing, stud up: the draft inducer nuts down here. **2** Adapter stud: the dampener nuts down here. **C** C-spring around the bushing. **G** Gasket on the dampener ring. **H** Bracket, goes under the hinge plate.

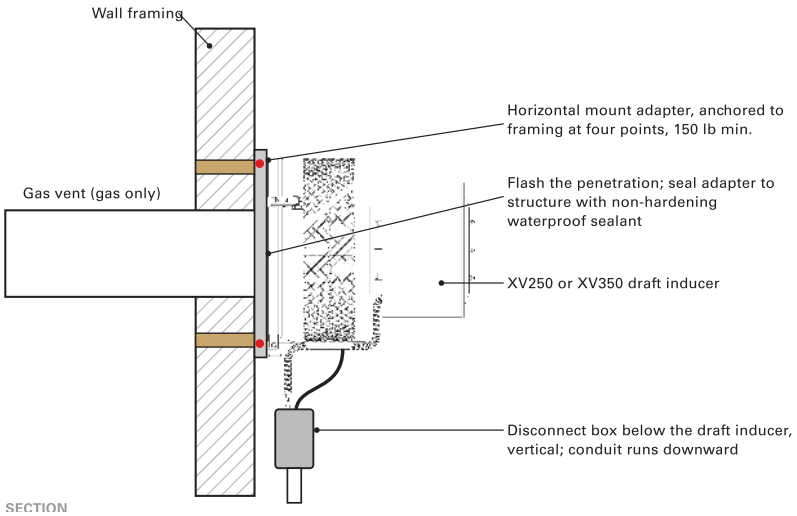
Assembled. Draft inducer on the dampener **(1)**, dampener on the adapter **(2)**, adapter collar into the flue **(3)**. Numbers match the fastening table in Section 4.

6 Horizontal (Sidewall) Termination

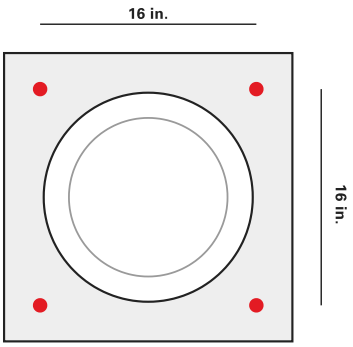
GAS APPLICATIONS ONLY. NEVER A SOLID FUEL FLUE.

Horizontal runs are specified with an XV250 or XV350 for draft margin, on a horizontal mount adapter (XV-HMA250 or XV-HMA350, by flue size).

On a sidewall termination the draft inducer mounts on the outside wall at the end of a horizontal flue run, with its outlet pointing out and away from the building.



SECTION



Anchor holes at 16 in. centers, into framing

Adapter, outside face

1. Disconnect, lock and tag power to the controller and the appliance.
2. Locate the termination so it keeps the clearances NFPA 54 requires for mechanical draft venting (doors, operable windows, air inlets, grade, walkways, property lines) and any greater distance the appliance manufacturer specifies. See the X-VENTISO termination clearances sheet.
3. Frame the opening. Anchor holes are on 16 in. centers, so the adapter fastens into framing at all four corners.
4. Install the flue to the wall per the flue manufacturer's instructions, including the slope it requires on horizontal runs.
5. Fasten the horizontal mount adapter to the wall framing at four points. **The anchorage must support at least 150 lb.**
6. Flash every wall penetration to keep water out, and seal the adapter to the structure with non-hardening waterproof sealant.
7. Mount the draft inducer on the adapter studs, hinge on the side that has room to open (Section 3). A stainless washer and nut on every stud (supplied), tightened evenly until snug.
8. Mount the disconnect box vertical, below the draft inducer, with conduit running downward (Section 8).

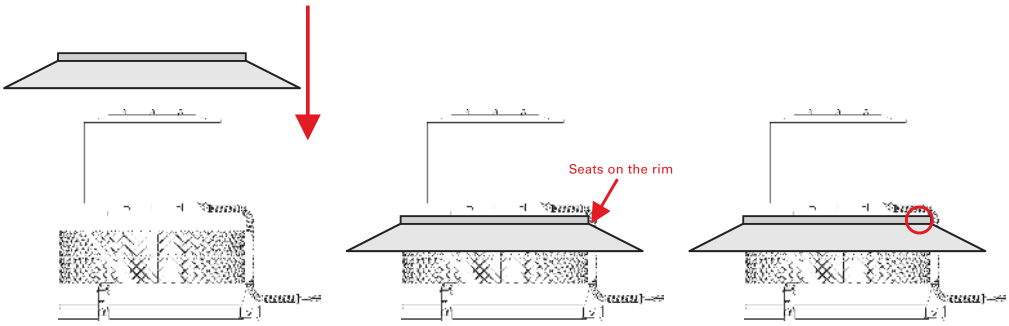
WARNING: Keep combustible siding, trim, soffits and vegetation clear of the outlet, as the flue manufacturer and the code require. The outlet discharges hot flue gas.

7 Rain Collar

Wind-driven rain does not fall straight down. It can blow sideways into the spark arrestor at the base of the draft inducer and run down the flue. The rain collar fits around the lower body of the draft inducer and shields the spark arrestor from directional rain. **Recommended on every installation, and especially where the draft inducer has no shroud or other shielding around it.**

Rain collar	Fits	Material
XV-RC250	XV150, XV250	316L stainless steel
XV-RC350	XV350	316L stainless steel

Rain collar seated at the top of the spark arrestor.



1. Slide down over the motor housing
2. Seat at the top of the spark arrestor
3. Tighten the band clamp

Installation

1. Confirm the size: XV-RC250 on the XV150 or XV250, XV-RC350 on the XV350.
2. Switch the disconnect OFF.
3. Open the band clamp fully.
4. Slide the collar down over the motor housing, skirt down, until it seats on the top rim of the spark arrestor, below the open gap under the motor housing. Leave that gap uncovered. The skirt flares out over the spark arrestor (see the photo).
5. Turn the collar so the clamp screw is where you can reach it, clear of the hinge, both latches and the cable whip.
6. Tighten the band clamp until the collar cannot turn or lift by hand. Do not overtighten: the housing must not dent or deform.
7. Check that the clamp screw does not catch on either latch or the whip. For cleaning, the collar comes off first: open the clamp and lift it off (Section 11).

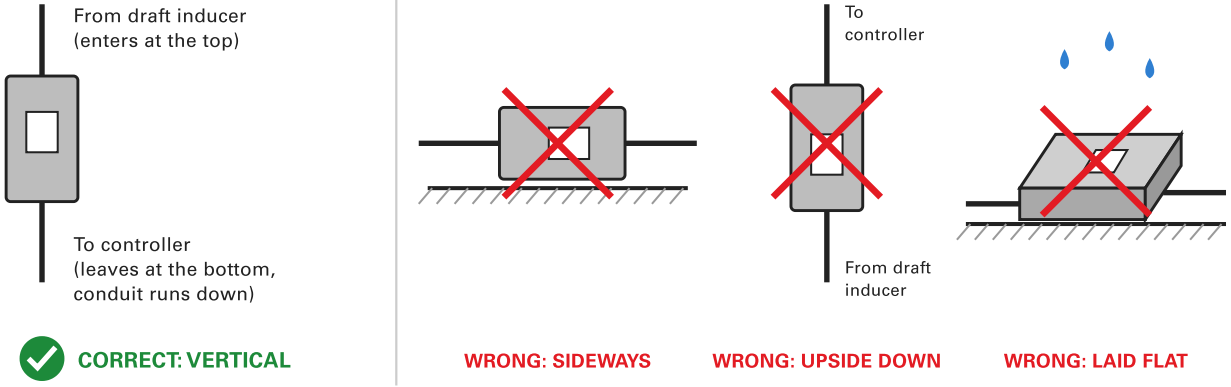
NOTICE: The rain collar does not replace the storm collar on the flue. The storm collar seals the flue at the chase top or roof; the rain collar protects the draft inducer.

NOTICE: The rain collar must not cover the outlet at the top of the draft inducer, and must not block the spark arrestor openings. It shields them from the side.

Annual inspection: check the clamp is tight and the collar is seated and undamaged. Remove leaves and debris from under the skirt.

8 Disconnect Box and Wiring

Every XV Series draft inducer is factory-wired: a 5 ft whip from the motor to a service disconnect box, then 30 ft of cable from the box to a white 3-pin Molex plug that connects to the X-VENTISO controller. Plug in. No field wiring at the roof.



MOUNT THE DISCONNECT VERTICAL. NO EXCEPTIONS.

The disconnect box is NEMA 3: rain-resistant, not waterproof. Cable from the draft inducer enters at the top; cable to the controller leaves at the bottom. Flat, sideways or upside down, water gets in and shorts the switch. This is one of the two most common service calls we get.

Placement

- Within reach of the 5 ft whip, with no strain on the whip and no sharp bends.
- On a solid, flat, vertical surface: the chase, a wall, the roof structure, or inside a shroud. Inside a shroud is fine as long as the box is vertical and can be reached from the roof.
- Where someone servicing the draft inducer can reach it and see the draft inducer from it.
- Below the draft inducer on a sidewall termination.
- Clear of the hinge arc (Section 3), the outlet and hot flue surfaces.
- Fasten through the box's mounting points with stainless steel screws. Never drill the box.
- Secure the whip so it cannot touch a hot surface or whip in the wind.

The box

- **Front cover:** opens for access to the switch. Close it after every use.
- **Back compartment:** factory-wired Wago lever nuts and a 15 µF run capacitor. Leave it closed. Open it only to service the disconnect, and wire exactly per the diagram in Section 13: a miswired box destroys the run capacitor.
- Do not add knockouts, glands or splices to the box.

Cable route

- We recommend conduit from the roof to the chase as a pull path for install and future replacement.
- Outside, run conduit **downward** from the disconnect box so water drains away.
- Route per the local electrical code.

Connection and length

Item	Detail
Connector	White 3-pin Molex, into the draft inducer port on the X-VENTISO controller (see the controller manual)
Standard length	30 ft from the disconnect box
Longer runs	One continuous custom-length cable is best (call 800.642.2920). Or extensions: XV-FANEXT (20 ft), XV-FANEXT50, XV-FANEXT100
Rule	Every extension connection stays accessible. **Never inside conduit or a closed wall.** Do not cut, splice or re-terminate the cable.

CAUTION: Unplug the controller before connecting or disconnecting the Molex plug.

9 Shrouds

A MAJOR CAUSE OF CHIMNEY-RELATED FIRES IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO COMBUSTIBLE MATERIALS.

It is of the utmost importance that a shroud used with an XV Series draft inducer be built and installed only in accordance with these instructions and the clearances the chimney or flue requires.

The XV Series UL listing covers decorative shrouds that meet the requirements below. **To maintain the UL listing, the shroud must meet every one of them.** Check with the local building official for any additional shroud requirements.

UL listing requirements

1. **Open top.** The top of the shroud is fully open, or covered only by an open mesh (perforated) top, so flue gas discharges straight up.
2. **6 in. clear all around.** At least 6 in. (152 mm) of clear space between the shroud and the lower housing of the draft inducer, measured from its widest point (the latches), all the way around. Table 9.1 gives the minimum inside width and length with the draft inducer centered.
3. **3 in. air gap at the bottom.** The shroud stands on legs with at least 3 in. (76 mm) of open air gap between the bottom of the shroud and the chase top, all the way around.
4. **Access for cleaning.** Every draft inducer must be able to tilt fully open for cleaning and chimney sweeping. Either the shroud lifts off, or it leaves service clearances A and B (Section 3) inside it, so large shrouds over multiple flues can stay in place.
5. **Noncombustible all the way through.** Every part of the shroud, including any framing, bracing or supports inside it, is noncombustible (copper or stainless steel, for example). No wood or other combustible framing, even when it is clad in metal. This applies to the shroud only; the chase below it is built to the flue manufacturer's instructions and clearances.
6. The disconnect box may mount inside the shroud, vertical and reachable (Section 8).

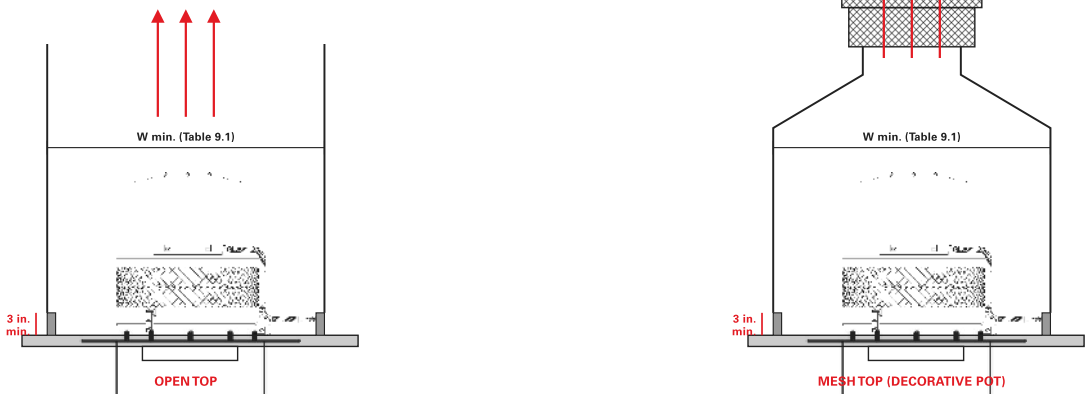
Table 9.1 Minimum inside dimensions at the draft inducer

Model	W min.	L min.
XV150	24-3/4 in. (629 mm)	24-3/4 in. (629 mm)
XV250	24-3/4 in. (629 mm)	24-3/4 in. (629 mm)
XV350	32-1/2 in. (826 mm)	32-1/2 in. (826 mm)

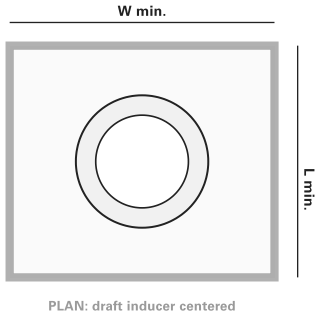
Closed-top shrouds are not UL listed. A shroud with a solid or closed top, or a top that turns the flue gas sideways, falls outside the UL listing. X-VENTISO reviews closed-top designs case by case as an **engineering judgment**: send the shroud drawing to 800.642.2920 before it is built, and keep the written approval with the job record. **A closed-top shroud keeps the XV Series warranty only when X-VENTISO has reviewed it and approved it in writing; installed without written approval, it voids the warranty.** An engineering judgment is not a listing, and the authority having jurisdiction makes the final call on the installation.

WARNING: Never mount the draft inducer to the top of a shroud, and never build the motor housing into the shroud. The draft inducer always mounts on the flue or chimney.

Typical shrouds that meet the UL listing requirements



Both meet the UL listing requirements: open (or mesh) top, minimum clearance around the draft inducer, 3 in. air gap at the base. Above the base, a shroud may take any decorative shape, including a pot that narrows, as long as the top stays open (or mesh).



PLAN: draft inducer centered

Measuring Table 9.1

W and L are the inside dimensions of the shroud base around the draft inducer, with the draft inducer centered: the lower housing at its widest point plus at least 6 in. on every side, never less than Table 9.1. The 3 in. air gap is measured from the chase top to the bottom edge of the shroud, on every side.

Shrouds over more than one flue

A large shroud over several draft inducers may stay in place for service as long as **every draft inducer has its own service clearances A and B** (Section 3) inside it, so each one can tilt fully open. Space and orient them as Section 3 shows.

Before you build

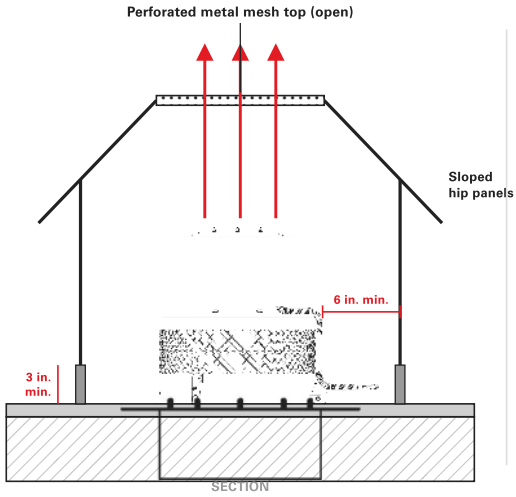
Send the shroud drawing to 800.642.2920. X-VENTISO will confirm the shroud meets the UL listing requirements, or review a closed-top design as an engineering judgment.

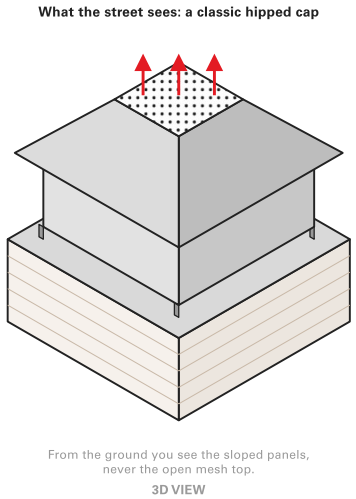
9 Shrouds (continued): Open Tops That Look Classic

An open top does not have to look open. These two common styles keep a traditional profile from the street while the top stays open and inside the UL listing. Both still need 6 in. clear all around, the 3 in. air gap and access for cleaning.

Hipped cap

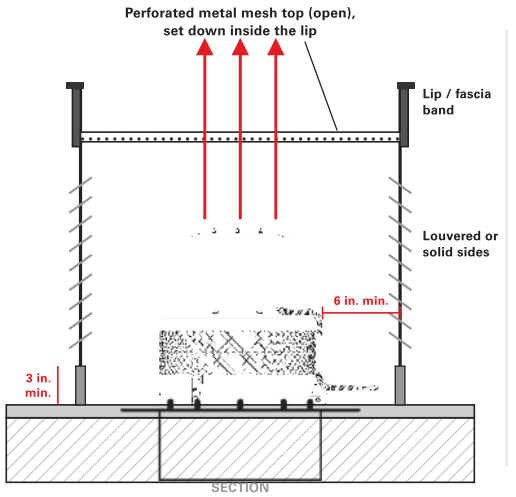
Sloped panels rise to a flat, perforated metal mesh top. From the ground you see the slopes, never the mesh.

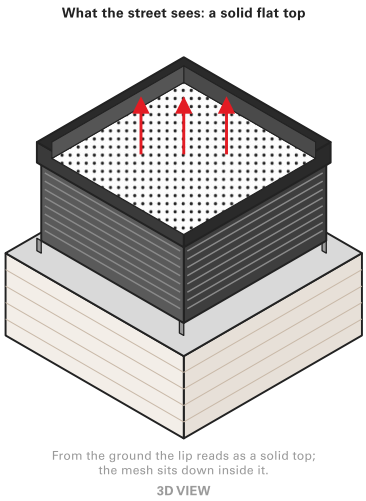




Flat top with a lip

A lip (fascia band) runs around the top edge, and the perforated mesh top sits a few inches down inside it. From the ground the lip reads as a solid flat top. Sides may be louvered or solid.





High snow load areas. Snow and ice can close an open top while the appliance is off. Where heavy snow is expected: pitch the mesh top (a hipped or peaked top) so snow slides off; use mesh with a high open area (large-hole perforated or expanded metal), since small holes bridge with snow sooner; and keep the top of the shroud above the expected snow depth on the roof. Check that the top is clear before lighting the appliance after a heavy snowfall, and at every annual inspection.

10 Start-Up and Operation

Do not start up until the flue, the draft inducer, the rain collar, the disconnect box, the controller and (if used) the damper are all installed. Record the results in Section 15.

Start-up

1. Confirm the disconnect is OFF and the controller is unplugged.
2. **Remove the cardboard transport inserts.** Lift off the rain collar if it is already fitted, open both latches, tilt the draft inducer open, take out every insert, and turn the axial vane by hand: it must spin freely without rubbing.
3. Close the draft inducer, latch both latches, and refit the rain collar.
4. Confirm the disconnect box is vertical, the front cover is closed, and the Molex plug and any extension connections are fully seated.
5. Switch the disconnect ON.
6. Plug in the controller and call for the system to run, per the controller manual.
7. Confirm the draft inducer starts, runs smoothly without rubbing, rattling or vibration, and discharges up and away (out and away on a sidewall).
8. Set the speed and commission the system per the controller manual. Commission at the lowest speed that holds proven draft: it is the quietest setting that does the job.
9. Check the appliance for smoke or spillage at the opening at the commissioned speed.
10. Run three complete on and off cycles without a fault.

DANGER: Never bypass, jumper or defeat the controller's draft proving to get an appliance to run. Find and fix the cause (Section 12).

Operation

Review this section with the owner at handover.

- The draft inducer runs only when the X-VENTISO controller calls for it. Speed is set at the controller. There is nothing to adjust at the roof.
- The disconnect at the draft inducer is a service switch. Leave it ON. If it is OFF, the system will not run, and on gas the appliance will not light.
- A change in sound (a new hum, rattle, whine or vibration) is a reason to call for service. It usually means the axial vane needs cleaning (Section 11).
- Have the draft inducer inspected every year with the chimney or flue (Section 11), and after any chimney fire.

WARNING: In case of malfunction, turn the appliance off, switch the disconnect OFF, unplug the controller, and call a qualified service contractor or 800.642.2920.

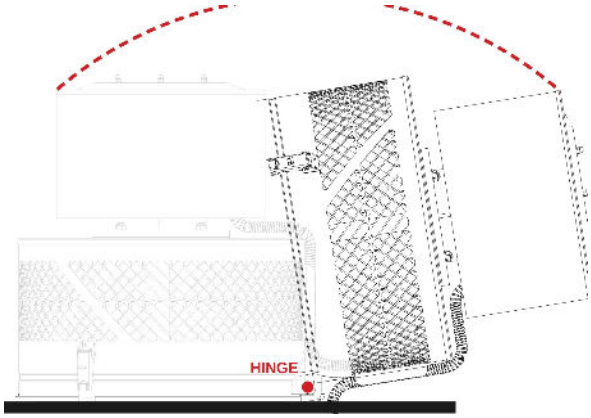
> Leave this manual with the owner. Fill in the handover lines in Section 15.

11 Annual Maintenance and Cleaning

Have a qualified professional inspect the draft inducer at least once a year, at the same visit as the chimney or flue inspection and cleaning, and clean it when the inspection shows it is needed. Solid fuel and grease (cooking) applications build up faster and need it more often: clean grease applications as often as the appliance manufacturer and the code require. Inspect after any chimney fire before the appliance is used again. Record every visit in the service record.

Cleaning procedure

1. Switch the appliance off. Switch the disconnect OFF and unplug the controller, so the draft inducer cannot be turned on by accident. Lock and tag.
2. Let the draft inducer cool to ambient temperature.
3. **Remove the rain collar, if fitted:** loosen the band clamp and lift it off. Its skirt can hit the chase top on the hinge side and get bent as the draft inducer tilts open.
4. Open both latches on the side.
5. Tilt the draft inducer open on its hinge. Support it as it opens; do not let it drop against the hinge.
6. Clean the axial vane thoroughly with a brush or spatula. **Use only plastic or stainless steel tools.** Carbon steel tools leave particles that rust.
7. Clean the inside of the housing, the spark arrestor and the base plate.
8. With the draft inducer open, the sweep has full access to the flue.
9. Close the draft inducer and latch both latches. Refit the rain collar and tighten its clamp.
10. Restore power and run the system. If the draft inducer vibrates, the vane is not fully clean and out of balance: repeat the cleaning.



Latches open, tilted back on the hinge.

> **Use the Annual Inspection Checklist on the next page at every visit.** Copy it, complete it, and leave the copy with the owner. Log each visit below. The annual inspection is required to keep the 2-year warranty.

Service record

#	Date	Findings / work done	Technician / company
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

11 Annual Inspection Checklist

Complete this checklist at every annual inspection and after any chimney fire. **Copy this page, fill it in, and leave the copy with the owner**, then log the visit in the service record (Section 11). A documented annual inspection is required to keep the 2-year warranty.

Job / address _____ **Model / serial no.** _____

Date _____ **Technician / company** _____

A. Before you start	OK	Fixed	N/A
Appliance off. Disconnect OFF, controller unplugged, locked and tagged.	☐	☐	☐
Draft inducer cool to the touch.	☐	☐	☐
Rain collar removed (loosen the clamp and lift it off).	☐	☐	☐
B. Draft inducer	**OK**	**Fixed**	**N/A**
Axial vane clean, undamaged, spins freely by hand without rubbing.	☐	☐	☐
Housing and spark arrestor clean; openings clear; no corrosion or damage.	☐	☐	☐
Hinge moves freely; both latches close and hold.	☐	☐	☐
C. Mounting and flue	**OK**	**Fixed**	**N/A**
Washer and nut (or bolt) tight on every stud; nothing missing.	☐	☐	☐
Vibration dampener nuts snug only; bushings and C-spring intact, not crushed or cracked.	☐	☐	☐
Adapter collar screws tight; adapter or plate seal intact.	☐	☐	☐
Storm collar and flashing sealed; no water marks below.	☐	☐	☐
Flue swept and inspected with the chimney service.	☐	☐	☐
D. Disconnect and wiring	**OK**	**Fixed**	**N/A**
Disconnect box still vertical, cable in at the top, out at the bottom; front cover closed.	☐	☐	☐
Dry inside the front cover; no rust or water marks.	☐	☐	☐
Whip and cable undamaged and secured clear of hot surfaces; outdoor conduit runs downward.	☐	☐	☐
Molex and any extension connections seated and accessible.	☐	☐	☐
E. Accessories	**OK**	**Fixed**	**N/A**
Rain collar refitted, clamp tight, nothing trapped under the skirt.	☐	☐	☐
Shroud (if used): top outlet and base gap clear of nests, leaves and snow; nothing combustible added.	☐	☐	☐
F. Run test	**OK**	**Fixed**	**N/A**
Power restored; draft inducer starts and runs smoothly, with no new noise or vibration.	☐	☐	☐
Controller proves draft with no alarm (per the controller manual).	☐	☐	☐
Appliance runs with no smoke or spillage at the opening.	☐	☐	☐

Notes / work done _____

Technician signature _____ **Owner copy left (initials)** _____

12 Troubleshooting

For alarms, lights and controller faults, see the controller manual. This table covers the draft inducer.

Problem	Possible cause	Check / fix
Draft inducer will not start	Cardboard transport inserts not removed	Remove them (Section 10)
	Disconnect switched OFF	Open the front cover and switch it ON. The switch is behind the front cover; the back compartment does not need to be opened.
	Disconnect wet or shorted	Box mounted flat, sideways or upside down. Replace if damaged and remount vertical (Section 8).
	Molex or extension connection loose	Reseat every connection; check the cable for damage
	No call or no power from the controller	Check the controller per its manual, and the receptacle
	Vane blocked by debris or ice	Power off; clean (Section 11)
	Motor overheated	Let it cool. If it repeats, call 800.642.2920.
Hums but will not start, or the run capacitor failed	Disconnect box miswired, usually after the box, whip or cable was replaced	Power off. Check every wire against the wiring diagram (Section 13). Correct the wiring, then replace the capacitor.
Runs too fast or will not slow down	Speed setting at the controller	Recommission per the controller manual
Runs, but the controller alarms for draft	Speed too low for conditions; flue blocked; disconnect OFF	See the controller manual; inspect the flue
Hum in the chimney system	Motor hum carried into the flue or chimney	Add a vibration dampener (XV-VBD), or a high-temperature silicone or neoprene gasket at the base
Vibration	Vane out of balance from buildup	Clean the vane (Section 11)
	Natural resonance of the flue or chimney	Change the speed slightly at the controller; add a vibration dampener
Rattle in wind	Latch open, loose mounting, rain collar clamp loose	Latch both; tighten mounting and clamp
Water down the flue	No rain collar; storm collar or flashing not sealed	Fit a rain collar (Section 7); reseal the storm collar and flashing
Smoke or odor at the appliance	Speed set too low; flue or spark arrestor blocked; draft inducer off	Turn the appliance off. Check the disconnect, clean, recommission. Call 800.642.2920.

DANGER: If smoke is coming into the room, a smoke or carbon monoxide alarm sounds, or there is fire outside the firebox: get everyone out of the building and call 911 (or your local emergency number) from outside.

NOTICE: Do not open or modify the sealed X-VENTISO controller: that voids the warranty, listings and approvals. Service the disconnect box only per the wiring diagram in Section 13.

> Technical support: **800.642.2920**. Have the model, the controller, the flue size and the commissioning record (Section 15) ready.

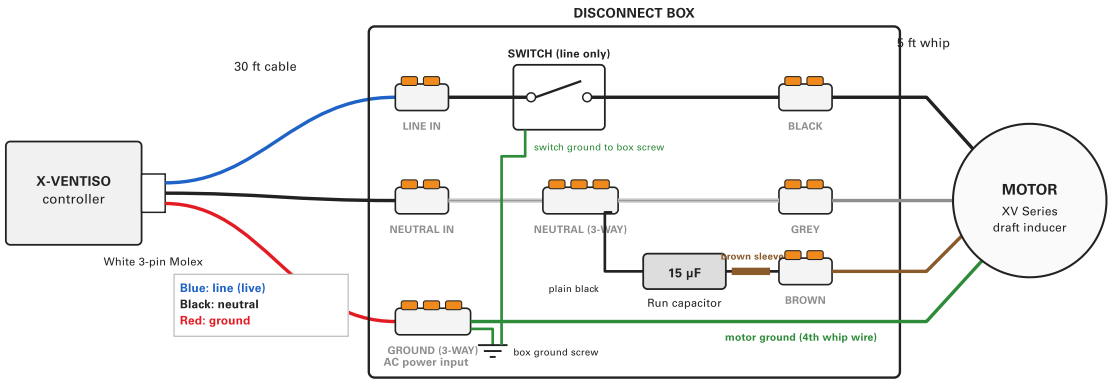
13 Specifications

	XV150	XV250	XV350
Airflow, free air	450 CFM	900 CFM	2,100 CFM
Electrical	120 V, 1 ph, 60 Hz, 1.0 A	120 V, 1 ph, 60 Hz, 1.6 A	120 V, 1 ph, 60 Hz, 3.7 A
Weight	28 lb (12.7 kg)	30 lb (13.6 kg)	54 lb (24.5 kg)
Material	316L stainless steel housing; integrated spark arrestor; hinged body with two tool-free latches		
Flue gas temperature	1,000°F (538°C) continuous; 1,400°F (760°C) abnormal operation		
Orientation	Vertical	Vertical, or horizontal (sidewall) on gas only	
Wiring	Factory-wired: 5 ft whip to a NEMA 3 service disconnect box (mount vertical), 30 ft cable to a white 3-pin Molex plug		
Controller	Gas: XV-GBC, XV-GBC-DUO, Meridian, Meridian DUO. Solid fuel: XV-WBC, XV-WBC-DUO. Three or four flues: XV-MULTICTRL		
Rain collar	XV-RC250	XV-RC250	XV-RC350
Vibration dampener	XV-VBD-1250	XV-VBD-1250	XV-VBD-350
Service clearance (A / B)	20 / 13-1/2 in.	20 / 13-1/2 in.	23 / 16-1/2 in.
Shroud, min. inside W x L	24-3/4 x 24-3/4 in.	24-3/4 x 24-3/4 in.	32-1/2 x 32-1/2 in.

Listings and standards

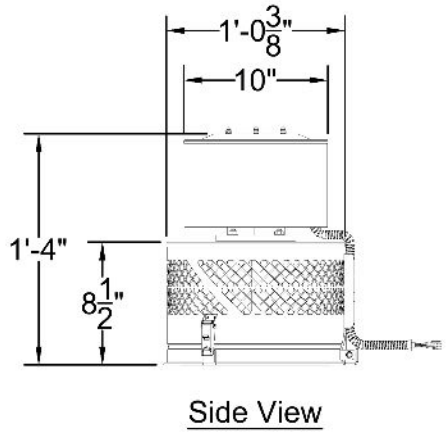
Standard	Scope
UL 378	Draft Equipment. Rated to 1,000°F continuous, 1,400°F abnormal operation
UL 705	Power Ventilators
UL 762	Power Roof Ventilators for Restaurant Exhaust Appliances. Rated to 1,400°F abnormal operation
CAN3-B255-M81	Mechanical Flue-Gas Exhausters. Rated to 1,000°F continuous, 1,400°F abnormal operation
ULC-S645	Power Roof Ventilators for Commercial and Institutional Kitchen Exhaust Systems
Mark	ETL Listed (Intertek)
Designed for	NFPA 54 and NFPA 211 installations

Disconnect box wiring (service reference)

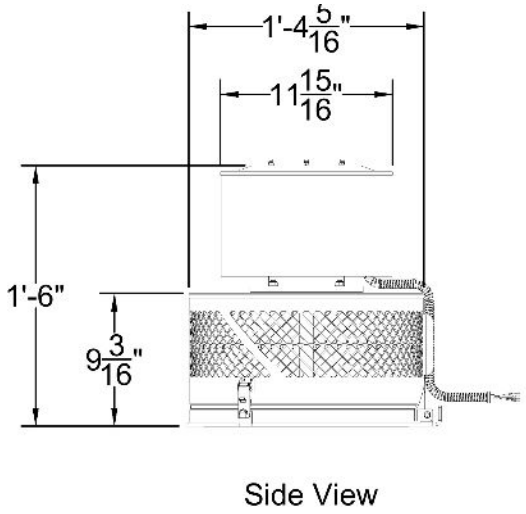


The disconnect box ships factory-wired; a normal install never opens the back compartment. If the disconnect box, the whip or the cable is replaced, **unplug the controller**, then wire it exactly as shown. **The switch breaks the line only; neutral stays connected**, so switching the disconnect OFF alone does not make the back compartment safe to work in. Five 2-way and two 3-way Wago lever nuts: blue line in to the switch, switch to the motor's black; black neutral in to the neutral 3-way, which also takes the motor's grey and the capacitor's plain black lead; the capacitor's brown-sleeved lead to the motor's brown; red cable ground and the motor's green ground (the fourth wire in the whip) on the ground 3-way, whose third port goes to the box ground screw; the switch's green ground also lands on the box ground screw. Miswiring here is how run capacitors get destroyed in the field. Damage from miswiring is not covered by the warranty. The cable from the controller is **blue (line), black (neutral), red (ground)**. **Black in this cable is neutral, not line.** Specifications subject to change.

14 Dimensions and Performance



XV150 / XV250 (one housing). Drawing XV250-SPEC.

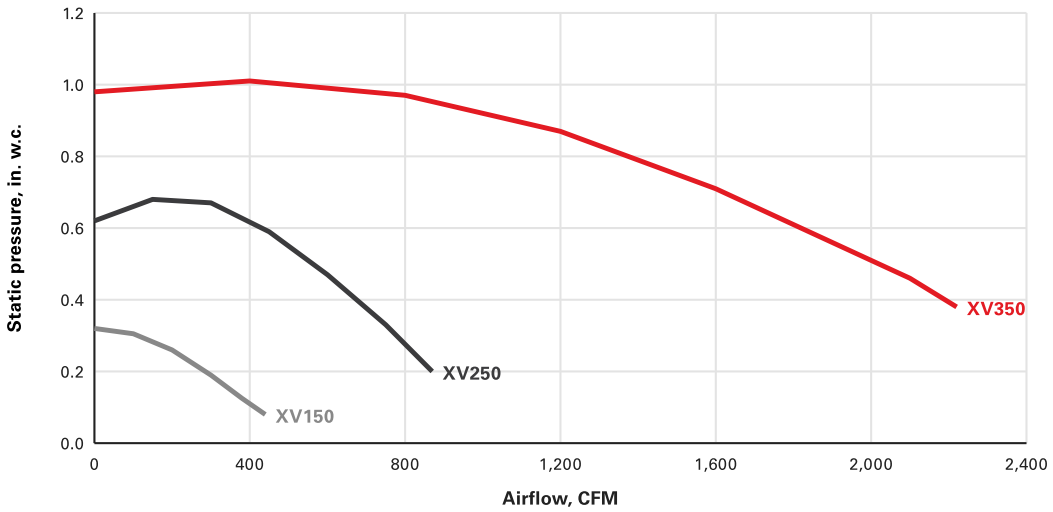


XV350. Drawing XV350-SPEC.

	XV150 / XV250	XV350
Overall height	16 in. (406 mm)	18 in. (457 mm)
Overall diameter, top view	12-3/4 in. (324 mm)	16-11/16 in. (424 mm)
Lower housing width	12-3/8 in. (314 mm)	16-5/16 in. (414 mm)
Motor housing width	10 in. (254 mm)	11-15/16 in. (303 mm)
Lower housing height	8-1/2 in. (216 mm)	9-3/16 in. (233 mm)

The XV150 and XV250 share one housing; the axial vane differs. Full drawings (PDF or DWG) on request.

Performance curves



Full speed, 120 V. Redrawn from the manufacturer's published performance curves. The controller sets the operating speed; commissioned speeds are lower.

Sizing: X-VENTISO selects the draft inducer and the flue size for every job, so the system runs at a quiet commissioned speed with draft to spare. Send the plans or call 800.642.2920 before you buy or change a model.

15 Installation Checklist and Record

Do not skip steps. Complete before the chase is closed and the appliance is fired.

A. Application

1	Model matches the X-VENTISO sizing for this job; controller matches the application: WBC on solid fuel and cooking, custom WBC for commercial or gas-fired cooking (Section 2).	YES / NO
2	Horizontal termination only on gas, with an XV250 or XV350.	YES / NO
3	Adapter matches the flue make, type and size.	YES / NO

B. Mounting

1	Service clearance A and B kept, hinge facing the open side (Section 3).	YES / NO
2	Adapter collar fully in the flue and screwed (or plate sealed and fastened); sidewall adapter anchored at four points, 150 lb min., flashed and sealed.	YES / NO
3	Washer and nut on every stud; dampener nuts snug only (Section 4).	YES / NO
4	Storm collar and flashing sealed.	YES / NO
5	Vibration dampener installed, if specified.	YES / NO
6	Rain collar seated, band clamp tight, draft inducer still tilts open (Section 7).	YES / NO
7	Shroud, if used: meets the UL listing requirements (Section 9), or is a closed-top design with X-VENTISO's written approval (engineering judgment) on file.	YES / NO

C. Disconnect and wiring

1	**Disconnect box vertical**, cable in at the top, out at the bottom; front cover closed.	YES / NO
2	Whip secured clear of hot surfaces; outdoor conduit runs downward.	YES / NO
3	White 3-pin Molex seated at the controller; extension connections accessible, not in conduit or a closed wall.	YES / NO

D. Start-up (Section 10)

1	Cardboard transport inserts removed; vane spins freely; both latches closed.	YES / NO
2	Runs smoothly at the commissioned speed; no spillage at the appliance.	YES / NO
3	Three on and off cycles without a fault.	YES / NO

E. Handover

1	Owner shown Section 10 and told the annual inspection is required.	YES / NO
2	This manual left with the owner.	YES / NO

Model / serial no. _____

Controller model _____

Commissioned speed _____

Job / address _____

Installer / company _____

Date _____

TECHNICAL SUPPORT **800.642.2920** x-ventiso.com

Owner Quick Reference

Your fireplace or appliance has an **X-VENTISO XV Series draft inducer** at the top of its flue. It pulls flue gas out of the building whenever the X-VENTISO controller calls for it, and runs at the speed it was commissioned at.

DANGER: If smoke is coming into the room, a smoke or carbon monoxide alarm sounds, or there is fire outside the firebox: get everyone out of the building and call 911 (or your local emergency number) from outside.

Every day

- Use the appliance as its own manual describes. The draft inducer starts and stops on its own.
- There is nothing to adjust at the roof.
- Leave the disconnect switch at the draft inducer **ON**. If it is off, the system will not run, and a gas appliance will not light.

Every year

- **Annual inspection is required**, at the same visit as the chimney or flue service. Without it, the 2-year warranty is void.
- Keep the completed Annual Inspection Checklist with this manual.

Call for service when

- You hear a new hum, rattle, whine or vibration.
- There is smoke or odor at the appliance, or the controller shows an alarm.
- Water is coming down the flue.
- After any chimney fire, before the appliance is used again.

Never

- Never open the X-VENTISO controller or the back compartment of the disconnect box.
- Never bypass the controller to make the appliance run.

Your system

Draft inducer model _____

Controller model _____

Installed by _____

Installer phone _____

Install date _____

Last annual inspection _____

TECHNICAL SUPPORT **800.642.2920** x-ventiso.com

Notes

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X-VENTISO® by earthcore®

Technical support 800.642.2920

x-ventiso.com

6899 Philips Industrial Blvd, Jacksonville, FL 32256