



COOK MFG

BENCH POWDER BOOTH MANUAL



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Safety Information:

This manual should be read and understood before installing, operating, or servicing the equipment. Never allow anyone to operate the equipment without proper training.

Safety Devices:

Do not attempt to bypass or eliminate any safety devices. A safety interlock that prevents the spray equipment from operating unless the exhaust fan is running may be required. This safety interlock is not supplied with the equipment. It is the end user's responsibility to verify if a safety interlock is required with their local regulatory agency.

Fire Protection:

A fire suppression or protection system must be installed to comply with the National Fire Protection Agency's requirements stated in NFPA 33 Section 9. Portable fire extinguishers must be in or near a paint mixing room to comply with NFPA 10. The fire suppression and protection requirements are the responsibility of the customer and are not included with the equipment. Do not store flammable liquids in or near the paint booth. The exhaust fan must be in operation while operating, cleaning, or maintaining the booth to remove any dangerous vapors.

Static Discharge:

Failure to properly ground the booth, spray equipment, and all components could create static discharge and result in a fire.

Safety Labels:

The table below shows all of the safety and product labels along with the location they should be placed.

Part No:	Definition:	Location:
LBL0001	Equipment ID Label	Manometer Bracket
LBL0002	Cook Manufacturing Label	Fire Guard
LBL0003	No Smoking / Open Flames Label	Manometer Bracket
LBL0004	Electrical Danger Label	Tube Axial Fan
LBL0005	Rotation Warning Label	Tube Axial Fan
LBL0006	Fan Identification Label	Tube Axial Fan
LBL0007	Rotation Label	Tube Axial Fan
LBL0008	Airflow Label	Tube Axial Fan
LBL0009	Grease Label	Tube Axial Fan
LBL0013	Filter QR Code	Manometer Bracket

Table 1 - Safety Label List

Receiving Inspection:

All shipments should be inspected for damage at the time of receipt. Any damage must be noted on the carriers’ bill of lading. All shipping damages must be reported to our customer service team within 3 business days in order to fill a claim against the carrier. All items included with your order must be compared against the packing list. Customer must notify our customer service team of any missing parts within 7 business days. Any parts determined to be missing will be provided to the customer free of charge.

Installation:

Hazards:

- The roof is not designed to support any additional load. Do not attempt to place additional weight or walk on the roof.
- Use appropriate lifting devices to prevent injury.

Personal Protective Equipment:

The following list of personal protective equipment is recommended during installation.

	Protective Eyewear
	Hard Hat
	Steel Toe Boots
	Gloves

Table 2 - Recommended Personal Protective Equipment

Recommended Tools:

The following list of tools is recommended for assembly.

	Ratchet Wrench
	Hex Socket (1/2")
	Wrench (1/2")
	Hex Drivers (1/4")
	Drill Bits (1/8" & 3/8")
	Chalk Line
	Tape Measure
	Hammer Drill
	Concrete Drill Bit (3/8")
	Drift Pin
	Cordless Drill
	Caulk Gun

Table 3 - Required Tools

Layout:

Proper layout and planning will reduce assembly time and ensure the equipment is installed properly. It is the end user's responsibility to confirm proper clearances and obtain any necessary permits required by their local regulatory agency.

- Determine the location where the booth will be installed.
 - The booth should be installed directly on top of a concrete floor or other nonflammable surface.
 - Typically, 3' of clearance is required around the entire booth. In some situations, your local regulatory agency may allow a booth to be installed against a wall or with less than 3' of clearance if the wall has the proper fire rating and the booth can still be accessed for maintenance.
 - A clearance of 10' is required between the exhaust duct and the intake duct or opening of any other equipment. The 10' clearance is also required between the intake duct or opening and the exhaust of any other equipment.
- Ensure the area is level within 1/4" where the booth will be installed. Otherwise, shims will be needed to level the booth during installation.
- Verify that there is proper overhead clearance in the determined location.
- Mark the four inside corners of the booth on the floor.
- Snap a chalk line connecting the four inside corners.
- Mark the location of the exhaust fan on the floor.
- Determine the path of the ductwork for the fan and verify that no obstructions are present.

Booth Assembly:

Booth panels should be orientated with flanges facing towards the outside of the booth leaving the inside of the booth smooth for cleaning. Ensure that all bolt heads are on the inside and nuts on the outside of the booth. Leave all bolts finger tight until each section of the booth has been assembled.

- Install trim on each end of the wall and shelf panels using 5/16-18 X 3/4 spin lock bolts and nuts.

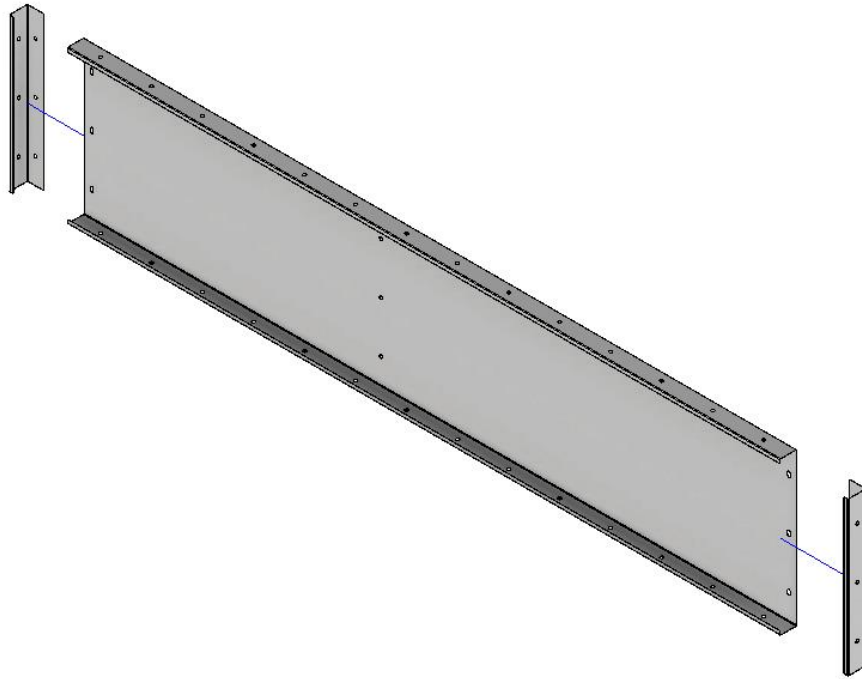


Figure 1 - Assembly of Panel Trim

- Assemble the rear side wall panels, shelf, and top panel as shown below using 5/16-18 X 3/4 spin lock bolts and nuts.

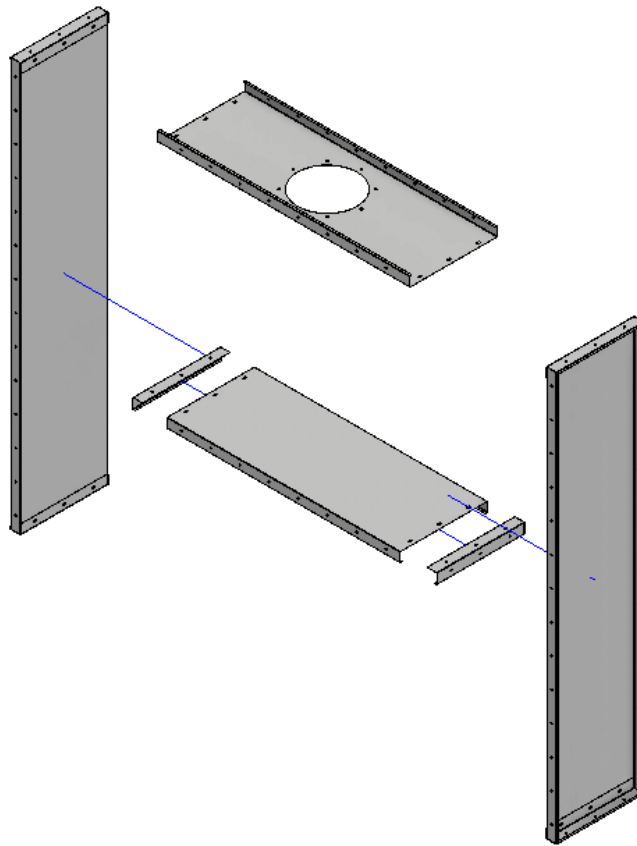


Figure 2 - Assembly of Rear Enclosure

- Install the back panels as shown below using 5/16-18 X 3/4 spin lock bolts and nuts.

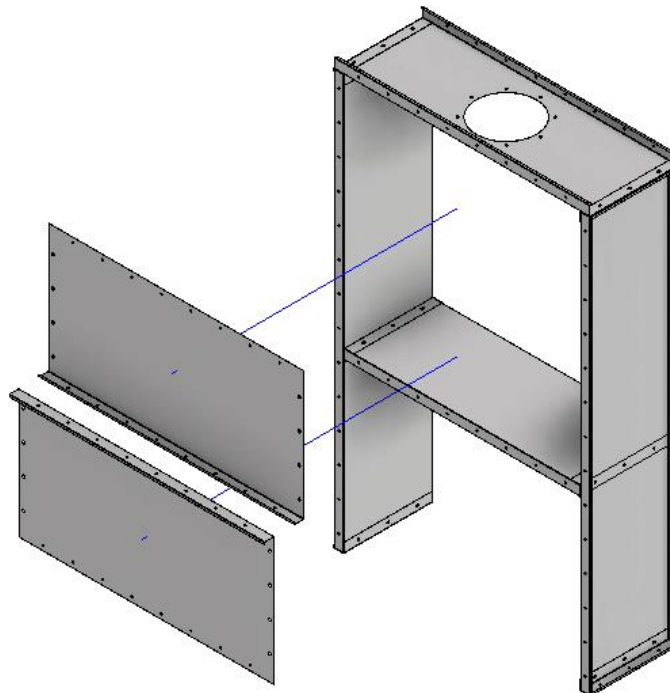


Figure 3 - Assembly of Back Wall Panels

- Install the vertical plenum panels to the side wall panels using #8-18 x ½ self-drilling screws. Ensure that vertical plenum panels are flush with the side wall panel.

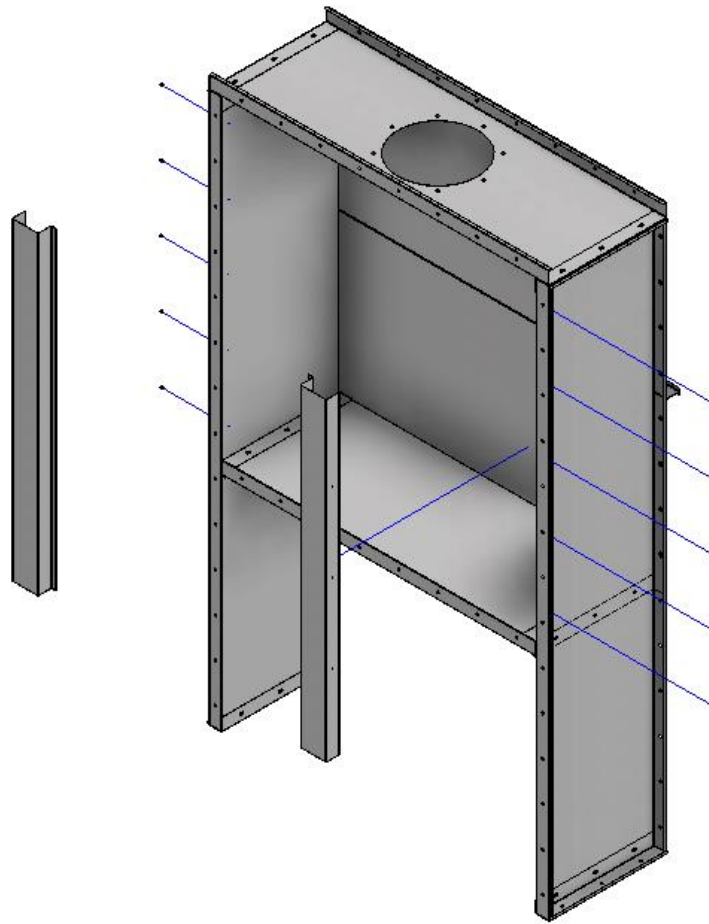


Figure 4 – Assembly of Vertical Plenum Panels

- Install horizontal plenum panels between the vertical plenum panels as shown below. Secure each side of the horizontal plenum panel using two #8-18 X 1/2 self-drilling screws. The upper plenum panel should also be fastened to the roof using self-drilling screws every 12”.

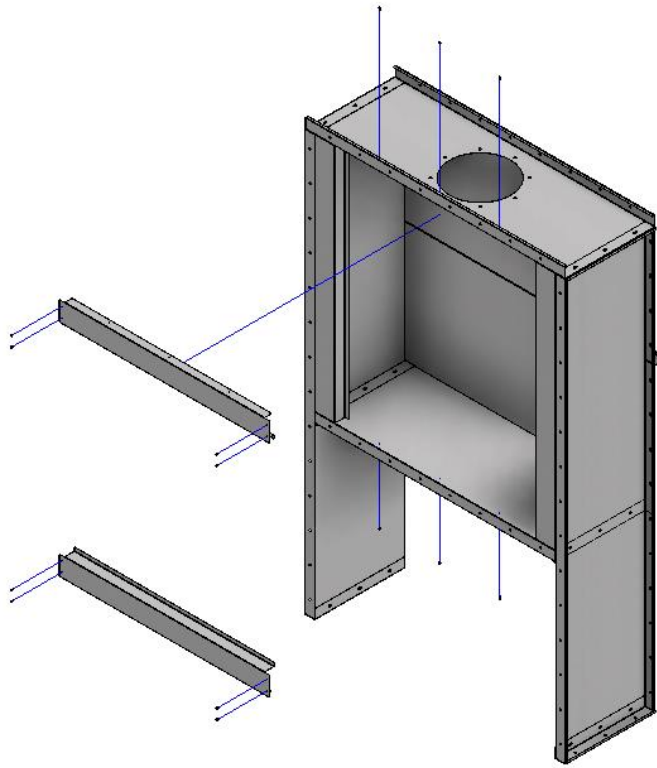


Figure 5 - Assembly of Horizontal Plenum Panels

- Install the vertical and horizontal dividers using four #8-18 X 1/2 self-drilling screws for each divider. Ensure that the dividers are installed in the correct location to create a 20" x 20" grid.

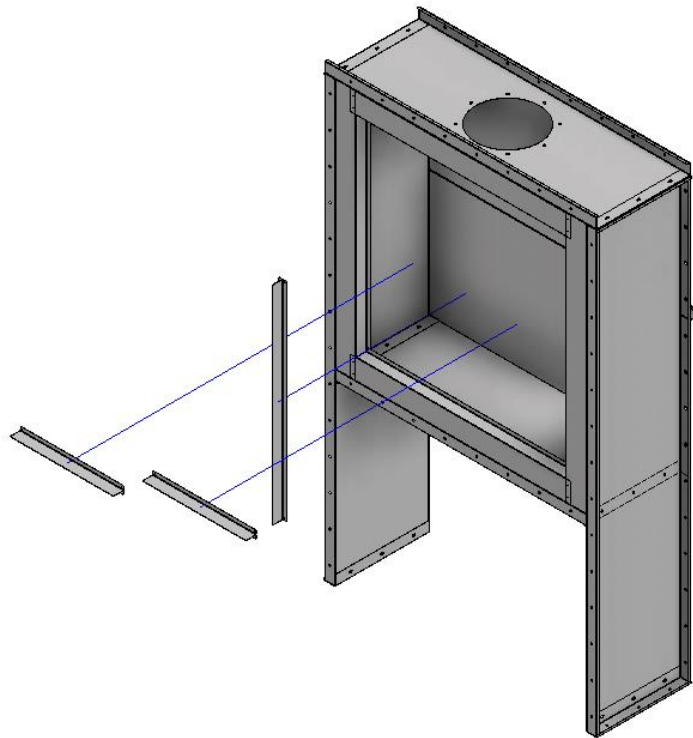


Figure 6 - Assembly of Filter Gridwork

- Assemble the front enclosure using 5/16-18 X 3/4 spin lock bolts and nuts by repeating the same process as before. The front and rear enclosure can then be assembled together as shown below.

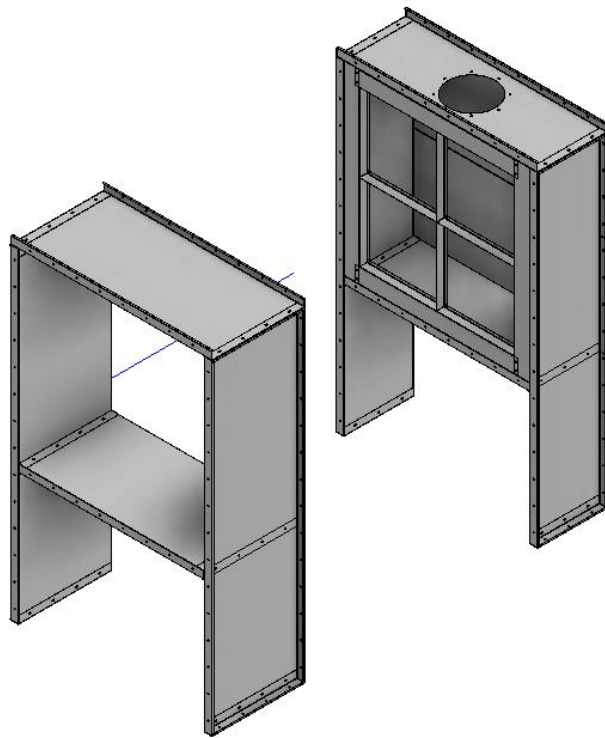


Figure 7 - Assembly of Front Enclosure

- Install the fire guard and shelf stiffener on the front of the booth as shown below. The fire guard and shelf stiffener are assembled using 5/16-18 X 3/4 spin lock bolts and nuts.

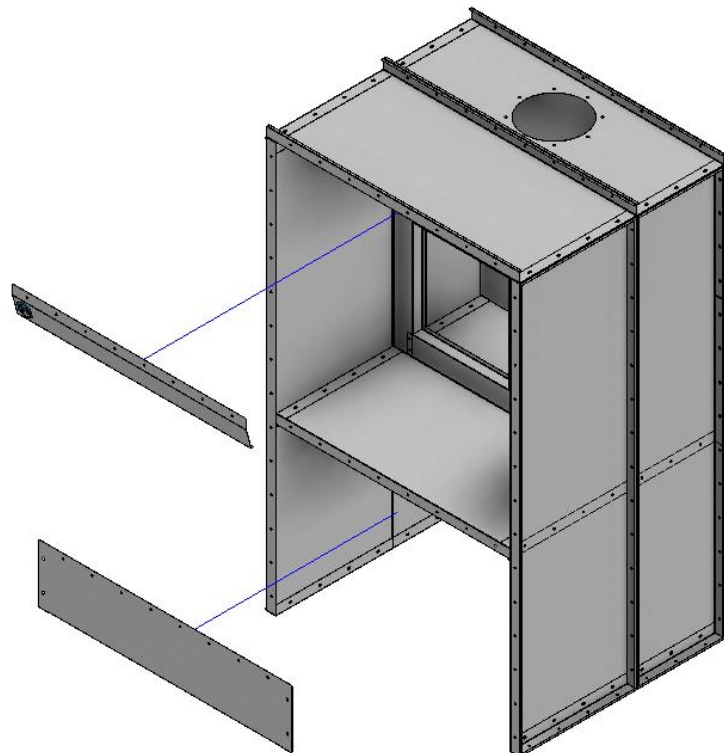


Figure 8 - Assembly of Fire Guard & Shelf Stiffener

- Verify that the booth is still aligned with layout marks, square, and plum before proceeding to tighten all fasteners.
- Secure the entire perimeter of the booth to the floor using 3/8" concrete anchors every 12" to 18". Concrete anchors are provided by the customer.
- Seal all seams between the panels and the floor using a water-based sealant.

Grounding Rod:

The booth and spray equipment must be grounded to reduce the risk of static discharge and a possible fire. The items required for grounding are listed below but are not included with the booth.

- 5/8" X 8' Copper Grounding Rod
 - Grounding Block
 - Grounding Cable
- Determine the location for the grounding rod to be installed. Typically, the grounding rod is located outside of the booth near the filter wall.
 - Using a 5/8" diameter masonry drill bit, drill a hole through the concrete floor.
 - Install the copper grounding rod into the hole and hammer the rod into the ground leaving approximately 6" protruding from the floor.
 - Attach the grounding block to the side panel of the booth.
 - Connect the grounding block to the rod using the grounding cable.

Light Fixture:

The instructions below aid in the assembly for the light fixture. All wiring should be performed by a licensed electrician familiar with local and national codes.

- Take care when installing light fixtures to ensure all light fixtures are in the same orientation.
- Horizontally mounted fixtures should be mounted so the hinge side is up.
- Place light fixture into the opening of the panel and attach using twelve 1/4-14 X 3/4 self-drilling screws as shown below.

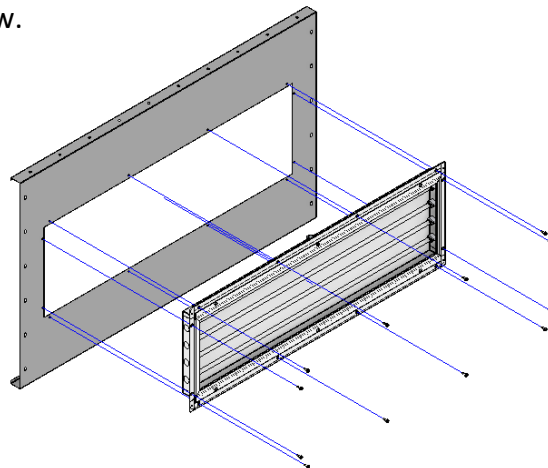


Figure 9 - Light Fixture Install

Filters:

Filters trap particulates from entering the plenum, fan, and ductwork. Excessive buildup of particulates will reduce the life span of the fan and require more frequent cleaning of the plenum and ductwork. Never operate the booth without all filters installed.

- Install a bag filter into each opening of the filter grid.
- Install the filter holding grid into each opening. Verify the angled prongs are facing towards you.
- Adjust the rubber tips on the filter holding grid as needed to ensure a snug fit.
- Install polyester prefilter into each opening by pressing the filter over the prongs on the wire filter holding grid. The dense side of the filter should be towards the plenum.

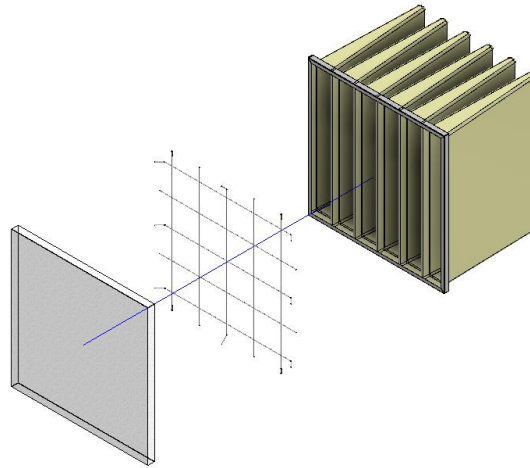


Figure 10 – Plenum Filter Install

- The image below shows an optional diffuser assembly that can be purchased to recirculate the exhaust indoors.



Figure 11 - Diffuser Filter Install

- Install the diffuser panel filters into each side of the diffuser assembly as shown below. The dense side of the filter should be facing outwards.
- Slide the filter holding rod behind each filter and secure using a hairpin clip.
 - Note: The holding rod is only used for fans 18" and larger.

Manometer:

A manometer measures pressure levels and is used to indicate when the filters need to be changed. The manometer should be mounted on the side of the booth no more than 24" from the filter wall.



Figure 12 - Manometer

- Place the manometer bracket on the side of the booth at the desired height and within 24" from the filter wall. Mark the mounting hole locations and set the bracket aside.
- Drill the marked hole locations using an 1/8" diameter drill bit.
- Take the manometer out of its box and loosely attach to the bracket using the self-tapping screws that are provided.
- Loosely mount the manometer bracket to the equipment.
- Adjust the manometer until level and tighten screws.
- Turn the "Zero Set" knob counterclockwise until you reach the stop position.
- Turn the "Zero Set" knob clockwise three full revolutions. This ensures the manometer is at the middle of its range.
- Remove the fill plug and slowly add the fluid until the manometer reads near zero.
- Replace the fill plug and adjust the "Zero Set" knob until the manometer reads exactly zero. A pipe cleaner can be used to remove fluid if needed.
- Drill a 3/8" diameter hole on the side of the plenum.
- Insert one barbed fitting into the plenum. Secure using a washer and nut from the inside of the booth. Insert the other barbed fitting into the round hole on either side of the manometer plate.
- Connect the high-pressure port on the manometer to the barbed fitting on the manometer plate.
- Connect the low-pressure port on the manometer to the barbed fitting in the plenum area using the provided tubing.

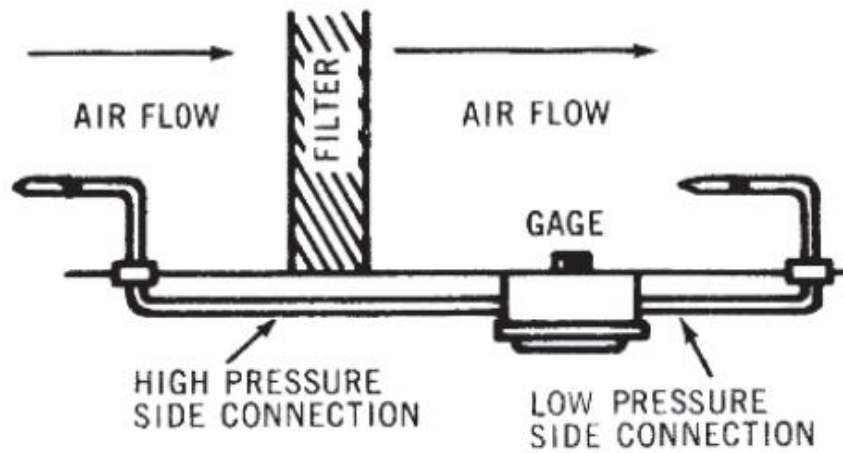


Figure 13 - Manometer Install

- Complete the installation of the booth before continuing.
- Set the low operating limit by turning on the exhaust fan with all filters installed. Note that the reading on the manometer should increase and settle. Mark the location on the manometer with the green arrow sticker.
- Determine the high limit of the manometer by taking the low limit and .30". Mark the high limit location on the manometer using the red arrow sticker. Filters should be changed promptly once the manometer reaches the high limit value. Operating the equipment above the high limit value will result in poor filtration and additional strain on the exhaust fan motor.
- Periodically, check the manometer to ensure it reads zero while the exhaust fan is off. If needed, the "Zero Set" knob can be used to adjust

Tube Axial Fan:

The tube axial fan pulls air and fumes from the working area of the booth and discharges the air through the ductwork.

- Lift the tube axial fan from the mounting rings. Do not lift from the motor, shaft, or blade.
- Place the fan on top of the booth or plenum.
- Make sure the fan is orientated properly.
 - A sticker on the side of the fan will indicate the direction of airflow.
 - Make sure the motor can be easily accessed for maintenance.
- Secure the exhaust fan to the booth using 5/16-18 X 3/4 spin lock bolts and nuts.

Ductwork:

The exhaust system of the booth must terminate outside unless a final filter assembly is used to recirculate the exhaust indoors. Typical exhaust configurations include exhausting through the roof or exterior wall. Typically, the exhaust duct must protrude 6' above the roof before the rain cap or auto damper is installed to meet code requirements. Ductwork must also terminate at least 10' away from any openings. Check your local zoning and ordinances to ensure compliance.

Layout:

The following requirements must be met when determining the ductwork layout. Failure to meet any of these requirements will void the warranty of the fan. Contact Cook Manufacturing if you need assistance or have any questions regarding proper ductwork layout.

- All ductwork must be the same diameter as the fan. Reducing the diameter of the duct creates additional static pressure, lowers airflow, and reduces the operational life of the fan.
- A straight section of duct at least one and a half times the diameter of the fan is required before and after each elbow.
- A maximum of two elbows can be used.
- Total length of ductwork must not exceed 25'.

Assembly:

- Attach ductwork to the tube axial fan using 5/16-18 X 3/4 spin lock bolts and nuts.
- Connect ductwork sections together using 5/16-18 X 3/4 spin lock bolts and nuts.
- Support ductwork to the building as needed. The ductwork should be fully supported so the fan can be removed if needed for maintenance. The booth is not designed to support the weight of the ductwork.
- Seal all joints of the ductwork using a water-based sealant.

Electrical:

Hazards:

All electrical activities must be performed by a licensed local electrician who is familiar with both local and national codes. All power sources should be locked out before wiring is connected to the main power source.

Disconnect Switch:

A disconnection switch should be located in close proximity so power can be shut off in case of an emergency. Disconnect switches should have the ability to be locked out anytime an inspection or maintenance is performed according to OSHA's lock out tag out procedure. All disconnects should be sized and rated according to the latest NEC or National Electrical Code along with any local codes. Time delayed fuses are recommended to be used with all disconnects.

Control Methods:

A motor starter or variable frequency drive is required to operate and protect the electric motor. Failure to use the proper motor control device may result in damage to the electric motor and will void the warranty.

Motor Starter:

Adjust the thermal overload setting on the motor starter to match the full load amperage rating of the electric motor before wiring.

VFD:

VFDs purchased from Cook Mfg are preprogrammed. If you are not using a VFD from Cook Mfg, then the parameters of the VFD must be programmed to match the motors full load amperage rating and other parameters.

Wiring:

- Confirm the voltage and phase of power available at your facility matches the equipment specifications.
- Confirm the wire gauge and breaker sizes are correct per local and national codes.
- Using the provided wiring diagrams, make the wiring connections between the disconnect switch, motor control device, and electric motor.
- A wiring diagram can be found on the junction box cover or name plate of the electric motor.
- Select motors may have two additional red wires for a thermal overload. These wires are not used and should be capped individually using wire nuts.

Final Inspection:

- Check that all fasteners on the fan and mating ductwork have been properly tightened.
- Check that the fan, ductwork, and surrounding area are free from any debris or tools that could be sucked into the fan. Debris sucked into the fan could cause injury or death.

Start Up:

- Momentarily apply power to the fan to check for proper rotation.
- Verify that the fan blade is spinning in the correct direction according to the rotation arrow on label. Refer to the wiring diagram if the rotation needs to be changed.
- If no issues are found, the fan should be in operation for no more than 16 hours before the first maintenance inspection is performed. The standard maintenance schedule can be used for all future maintenance planning.

Operation:

Hazards:

- Do not allow anyone to operate or perform maintenance without proper training.
- Do not operate any portable equipment inside or near the paint booth.
- Read and understand the safety data sheets for all products being used in the paint booth.

Maintenance:

Hazards:

- Disconnect and lockout all power sources before performing any maintenance activities.
- All maintenance should be performed by trained and qualified personnel.
- Read and understand all safety data sheets for the products used in the paint booth.

Schedule:

Item	Interval			
	Daily	Monthly	Semi-Annually	Annually
Filters	X			
Enclosure	X			
Manometer		X		
Fan Bearings		X		
Belt Tension			X	
Fan Housing			X	
Motor				X
Ductwork			X	

Table 4 - Maintenance Schedule

Filters:

Inspect filters for damage, separation, and buildup of particulates and debris. Filters should be replaced when damage or separation is present. Change filters promptly when indicated by the manometer. Operating the booth above the high limit of the manometer can cause premature failure of the bearings in the exhaust fan. Properly handle and dispose of all used filters.

Enclosure:

Remove any debris and overspray from the floor, walls, and ceiling using a non-sparking scrapper and appropriate cleaner. We recommend applying a peelable booth coating which reduces the amount of time to properly clean the booth.

Manometer:

Check that the manometer indicates zero while the exhaust fan is off. If needed, adjust the “Zero Set” knob until the manometer reads zero.

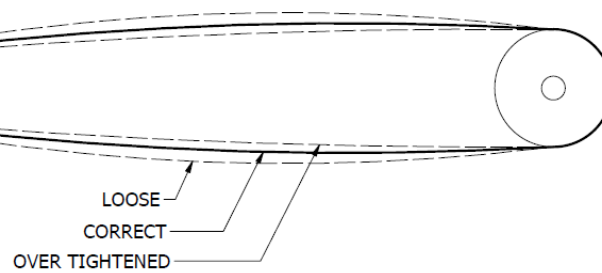
Bearings:

Grease bearings using a high quality NLGI Grade 2 grease. Ensure the grease is added slowly while spinning the fan by hand until clean grease can be seen exiting the bearing. Typically, only 1 pump of grease is needed per month.

Belt:

Belt Tension must be inspected and adjusted semiannually and after the first 16 hours of operation. Belts should be tightened just enough to prevent slipping. A tensiometer can also be used to measure belt tension. Replace belts immediately if signs of excessive or abnormal wear are visible.

VISUAL INSPECTION METHOD



TENSIOMETER METHOD

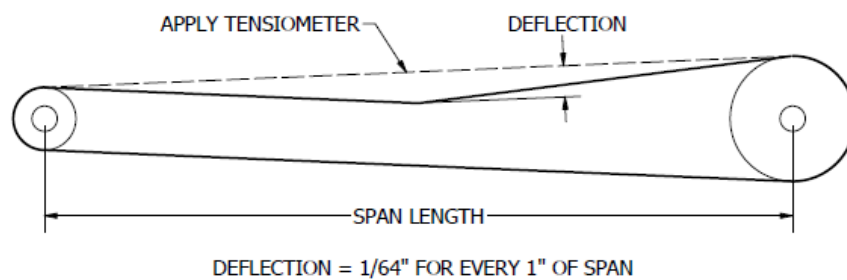


Figure 14 - Belt Tensioning

Fan Housing:

Inspect the fan housing and blade for excessive buildup of particulates. Excessive buildup can cause premature failure of the blade and bearings. Remove any buildup using a non-sparking scrapper and appropriate cleaner. Verify the entire blade must be thoroughly cleaned to ensure the blade is balanced.

Motor:

Remove any dust or grease from the exterior surface of the motor. Excessive buildup of dust can lead to an increased operating temperature and reduce the overall life of the motor.

Duct Work:

Inspect ductwork for excessive buildup of particulates. Excessive buildup can restrict airflow and presents a fire hazard. Remove any buildup using a non-sparking scrapper and appropriate cleaner.

Warranty:

Cook Manufacturing Company LLC (the Seller) warrants to the original end-user buyer (the Buyer) that the equipment manufactured by, and purchased from, the Seller (the Equipment), if properly installed, operated, and maintained in accordance with the Seller's manuals, and used under normal conditions, shall be free from defects in materials and workmanship for a period of one (1) year from the date the Equipment is shipped from the Sellers facility. The obligation of the Seller, and the Buyer's sole and exclusive remedy hereunder, shall be limited to one of the following, at the Seller's option:

- The repair or replacement of defective parts or components (collectively, the Parts) of the Equipment; provided, however, the Buyer shall be responsible for the payment of all transportation and labor costs associated with any such repair or replacement.
- In the event the Seller is unable to repair or replace the defective Parts, the Buyer shall be entitled to a refund of the cost of the Parts.

The Seller shall have no obligation under this Limited Warranty for ordinary wear and tear of the Equipment; if installation of the Equipment does not comply with the local, state and federal requirements or laws; or if the Equipment is modified by any other person or organization. The Seller makes no warranty of any kind whatsoever with respect to Parts which are manufactured or supplied by other persons or organizations (an OEM); provided, however, the Seller shall reasonably assist the Buyer in connection with warranties, if any, provided by an OEM.

Warranty Performance Procedure:

In the event the Buyer believes the Seller may be responsible for the performance of any warranty obligation, the Buyer must immediately send written notice of a claimed defect and must immediately refrain from any further use of the affected Equipment. No attempted repair of the claimed defect may be made without the prior written consent of the Seller. Before any Parts can be returned to the Seller, the Buyer must contact the Seller and request a Return Authorization. Upon the Buyer's receipt of the Return Authorization form, the Parts may be shipped, freight prepaid, to the facility designated on the Return Authorization. All Parts returned for repair, replacement, or refund (which refund may be made in the form of a credit to the Buyer's account), must be accompanied by the Return Authorization. All returned Parts

are subject to a fifteen percent (15%) handling charge. Parts manufactured or supplied by an OEM are subject to warranties, if any, provided by such OEMs; and repair or replacement of such Parts are subject to the approval of the OEM. The Buyer shall be responsible for the payment of any handling or restocking charges associated with OEM Parts.

Disclaimers of Warranties:

The warranties contained herein are expressly in lieu of any other expressed or implied warranties, or any other obligation on the part of the Seller, including without limitation, any implied warranty of merchantability or fitness for a particular purpose. Any models, drawings, specifications, affirmations of fact, promises, or other communications by the Seller with reference to the equipment or

performance of the equipment are solely for the convenience of the Buyer and shall not in any way modify the express warranties and disclaimers set forth herein. The Buyer acknowledges it is purchasing the equipment solely based on the commitments for the Seller as expressly set forth herein. No agents or other parties are authorized to make any warranties on behalf of the company or to assume for the company any other liability or obligation in connection with the equipment.

Consequential Damages:

The Seller shall not be liable for any incidental or consequential damages arising from the use of the equipment by the Buyer, the breach of any warranties, the failure to deliver, delay in delivery, delay on nonconforming condition, or for any breach of contract or duty between the Seller and the Buyer.

Limitation of Actions:

Any action resulting from the breach of any warranty contained herein by the Seller must be commenced within one (1) year after the cause of action accrues. In no event shall the Seller's total liability for any or all breaches of any warranty exceed the actual purchase price paid by the Buyer for the Equipment.